Wixroyd

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INGENUITY

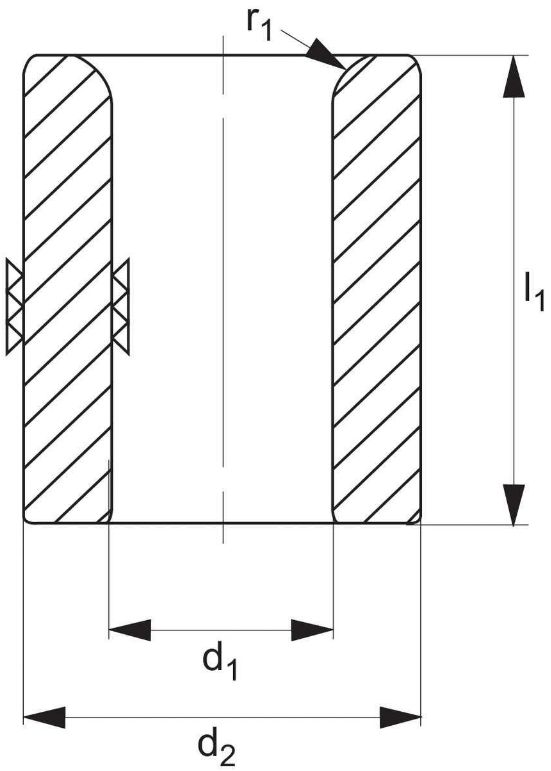
Positioning Elements

ov-positioning-elements - Updated - 12-01-2017

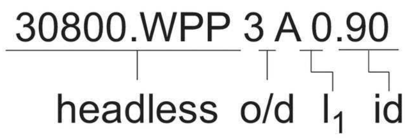
Headless Drill Bushes - DIN 179

short

30800



ordering example



when ordering please always state internal bore (i/d) required - see d_1^{F7}

Order No.	i/d - d_1 tol. F7	Length gen	Length letter	l_1 ± 0,2	d_2 tol. N6	r_1
30800.WPP3A0.9	0,9	short	A	6	3	1
30800.WPP3A1.0	1,0	short	A	6	3	1
30800.WPP4A1.1	1,1	short	A	6	4	1
30800.WPP4A1.2	1,2	short	A	6	4	1
30800.WPP4A1.3	1,3	short	A	6	4	1
30800.WPP4A1.4	1,4	short	A	6	4	1
30800.WPP4A1.5	1,5	short	A	6	4	1
30800.WPP4A1.6	1,6	short	A	6	4	1
30800.WPP4A1.7	1,7	short	A	6	4	1
30800.WPP4A1.8	1,8	short	A	6	4	1
30800.WPP5A1.9	1,9	short	A	6	5	1
30800.WPP5A2.0	2,0	short	A	6	5	1
30800.WPP5A2.1	2,1	short	A	6	5	1
30800.WPP5A2.2	2,2	short	A	6	5	1

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order.
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

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30800.WPP5A2.3	2,3	short	A	6	5	1
30800.WPP5A2.4	2,4	short	A	6	5	1
30800.WPP5A2.5	2,5	short	A	6	5	1
30800.WPP5A2.6	2,6	short	A	6	5	1
30800.WPP6B2.7	2,7	short	B	8	6	1
30800.WPP6B2.8	2,8	short	B	8	6	1
30800.WPP6B2.9	2,9	short	B	8	6	1
30800.WPP6B3.0	3,0	short	B	8	6	1
30800.WPP6B3.1	3,1	short	B	8	6	1
30800.WPP6B3.2	3,2	short	B	8	6	1
30800.WPP6B3.3	3,3	short	B	8	6	1
30800.WPP7B3.4	3,4	short	B	8	7	1
30800.WPP7B3.5	3,5	short	B	8	7	1
30800.WPP7B3.6	3,6	short	B	8	7	1
30800.WPP7B3.7	3,7	short	B	8	7	1
30800.WPP7B3.8	3,8	short	B	8	7	1
30800.WPP7B3.9	3,9	short	B	8	7	1
30800.WPP7B4.0	4,0	short	B	8	7	1
30800.WPP8B4.1	4,1	short	B	8	8	1
30800.WPP8B4.2	4,2	short	B	8	8	1
30800.WPP8B4.3	4,3	short	B	8	8	1
30800.WPP8B4.4	4,4	short	B	8	8	1
30800.WPP8B4.5	4,5	short	B	8	8	1
30800.WPP8B4.6	4,6	short	B	8	8	1
30800.WPP8B4.7	4,7	short	B	8	8	1
30800.WPP8B4.8	4,8	short	B	8	8	1
30800.WPP8B4.9	4,9	short	B	8	8	1
30800.WPP8B5.0	5,0	short	B	8	8	1
30800.WPP10D5.1	5,1	short	D	10	10	1,5
30800.WPP10D5.2	5,2	short	D	10	10	1,5
30800.WPP10D5.3	5,3	short	D	10	10	1,5
30800.WPP10D5.4	5,4	short	D	10	10	1,5
30800.WPP10D5.5	5,5	short	D	10	10	1,5
30800.WPP10D5.6	5,6	short	D	10	10	1,5
30800.WPP10D5.7	5,7	short	D	10	10	1,5

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30800.WPP10D5.8	5,8	short	D	10	10	1,5
30800.WPP10D5.9	5,9	short	D	10	10	1,5
30800.WPP10D6.0	6,0	short	D	10	10	1,5
30800.WPP12D6.1	6,1	short	D	10	12	1,5
30800.WPP12D6.2	6,2	short	D	10	12	1,5
30800.WPP12D6.3	6,3	short	D	10	12	1,5
30800.WPP12D6.4	6,4	short	D	10	12	1,5
30800.WPP12D6.5	6,5	short	D	10	12	1,5
30800.WPP12D6.6	6,6	short	D	10	12	1,5
30800.WPP12D6.7	6,7	short	D	10	12	1,5
30800.WPP12D6.8	6,8	short	D	10	12	1,5
30800.WPP12D6.9	6,9	short	D	10	12	1,5
30800.WPP12D7.0	7,0	short	D	10	12	1,5
30800.WPP12D7.1	7,1	short	D	10	12	1,5
30800.WPP12D7.2	7,2	short	D	10	12	1,5
30800.WPP12D7.3	7,3	short	D	10	12	1,5
30800.WPP12D7.4	7,4	short	D	10	12	1,5
30800.WPP12D7.5	7,5	short	D	10	12	1,5
30800.WPP12D7.6	7,6	short	D	10	12	1,5
30800.WPP12D7.7	7,7	short	D	10	12	1,5
30800.WPP12D7.8	7,8	short	D	10	12	1,5
30800.WPP12D7.9	7,9	short	D	10	12	1,5
30800.WPP12D8.0	8,0	short	D	10	12	1,5
30800.WPP15E8.1	8,1	short	E	12	15	2
30800.WPP15E8.2	8,2	short	E	12	15	2
30800.WPP15E8.3	8,3	short	E	12	15	2
30800.WPP15E8.4	8,4	short	E	12	15	2
30800.WPP15E8.5	8,5	short	E	12	15	2
30800.WPP15E8.6	8,6	short	E	12	15	2
30800.WPP15E8.7	8,7	short	E	12	15	2
30800.WPP15E8.8	8,8	short	E	12	15	2
30800.WPP15E8.9	8,9	short	E	12	15	2
30800.WPP15E9.0	9,0	short	E	12	15	2
30800.WPP15E9.1	9,1	short	E	12	15	2
30800.WPP15E9.2	9,2	short	E	12	15	2

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30800.WPP15E 9.3	9,3	short	E	12	15	2
30800.WPP15E 9.4	9,4	short	E	12	15	2
30800.WPP15E 9.5	9,5	short	E	12	15	2
30800.WPP15E 9.6	9,6	short	E	12	15	2
30800.WPP15E 9.7	9,7	short	E	12	15	2
30800.WPP15E 9.8	9,8	short	E	12	15	2
30800.WPP15E 9.9	9,9	short	E	12	15	2
30800.WPP15E 10.0	10,0	short	E	12	15	2
30800.WPP18E 10.1	10,1	short	E	12	18	2
30800.WPP18E 10.2	10,2	short	E	12	18	2
30800.WPP18E 10.3	10,3	short	E	12	18	2
30800.WPP18E 10.4	10,4	short	E	12	18	2
30800.WPP18E 10.5	10,5	short	E	12	18	2
30800.WPP18E 10.6	10,6	short	E	12	18	2
30800.WPP18E 10.7	10,7	short	E	12	18	2
30800.WPP18E 10.8	10,8	short	E	12	18	2
30800.WPP18E 10.9	10,9	short	E	12	18	2
30800.WPP18E 11.0	11,0	short	E	12	18	2
30800.WPP18E 11.1	11,1	short	E	12	18	2
30800.WPP18E 11.2	11,2	short	E	12	18	2
30800.WPP18E 11.3	11,3	short	E	12	18	2
30800.WPP18E 11.4	11,4	short	E	12	18	2
30800.WPP18E 11.5	11,5	short	E	12	18	2
30800.WPP18E 11.6	11,6	short	E	12	18	2
30800.WPP18E 11.7	11,7	short	E	12	18	2
30800.WPP18E 11.8	11,8	short	E	12	18	2
30800.WPP18E 11.9	11,9	short	E	12	18	2
30800.WPP18E 12.0	12,0	short	E	12	18	2
30800.WPP22F 12.1	12,1	short	F	16	22	2
30800.WPP22F 12.2	12,2	short	F	16	22	2
30800.WPP22F 12.3	12,3	short	F	16	22	2
30800.WPP22F 12.4	12,4	short	F	16	22	2
30800.WPP22F 12.5	12,5	short	F	16	22	2
30800.WPP22F 12.6	12,6	short	F	16	22	2
30800.WPP22F 12.7	12,7	short	F	16	22	2

Material

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Order No.	i/d - d_1 tol. F7	Length gen	Length letter	l_1 ± 0,2	d_2 tol. N6	r_1
30800.WPP22F 12.8	12,8	short	F	16	22	2
30800.WPP22F 12.9	12,9	short	F	16	22	2
30800.WPP22F 13.0	13,0	short	F	16	22	2
30800.WPP22F 13.1	13,1	short	F	16	22	2
30800.WPP22F 13.2	13,2	short	F	16	22	2
30800.WPP22F 13.3	13,3	short	F	16	22	2
30800.WPP22F 13.4	13,4	short	F	16	22	2
30800.WPP22F 13.5	13,5	short	F	16	22	2
30800.WPP22F 13.6	13,6	short	F	16	22	2
30800.WPP22F 13.7	13,7	short	F	16	22	2
30800.WPP22F 13.8	13,8	short	F	16	22	2
30800.WPP22F 13.9	13,9	short	F	16	22	2
30800.WPP22F 14.0	14,0	short	F	16	22	2
30800.WPP22F 14.1	14,1	short	F	16	22	2
30800.WPP22F 14.2	14,2	short	F	16	22	2
30800.WPP22F 14.3	14,3	short	F	16	22	2
30800.WPP22F 14.4	14,4	short	F	16	22	2
30800.WPP22F 14.5	14,5	short	F	16	22	2
30800.WPP22F 14.6	14,6	short	F	16	22	2
30800.WPP22F 14.7	14,7	short	F	16	22	2
30800.WPP22F 14.8	14,8	short	F	16	22	2
30800.WPP22F 14.9	14,9	short	F	16	22	2
30800.WPP22F 15.0	15,0	short	F	16	22	2
30800.WPP26F 15.5	15,5	short	F	16	26	2
30800.WPP26F 16.0	16,0	short	F	16	26	2
30800.WPP26F 16.5	16,5	short	F	16	26	2
30800.WPP26F 17.0	17,0	short	F	16	26	2
30800.WPP26F 17.5	17,5	short	F	16	26	2
30800.WPP26F 18.0	18,0	short	F	16	26	2
30800.WPP30 H18.5	18,5	short	H	20	30	3
30800.WPP30 H19.0	19,0	short	H	20	30	3
30800.WPP30 H19.5	19,5	short	H	20	30	3
30800.WPP30 H20.0	20,0	short	H	20	30	3
30800.WPP30 H20.5	20,5	short	H	20	30	3
30800.WPP30 H21.0	21,0	short	H	20	30	3

Material

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Length l_1 to ±0,2 for lengths 6 to 30mm.

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Order No.	i/d - d_1 tol. F7	Length gen	Length letter	l_1 ± 0,2	d_2 tol. N6	r_1
30800.WPP30H21.5	21,5	short	H	20	30	3
30800.WPP30H22.0	22,0	short	H	20	30	3
30800.WPP35H22.5	22,5	short	H	20	35	3
30800.WPP35H23.0	23,0	short	H	20	35	3
30800.WPP35H23.5	23,5	short	H	20	35	3
30800.WPP35H24.0	24,0	short	H	20	35	3
30800.WPP35H24.5	24,5	short	H	20	35	3
30800.WPP35H25.0	25,0	short	H	20	35	3
30800.WPP35H25.5	25,5	short	H	20	35	3
30800.WPP35H26.0	26,0	short	H	20	35	3
30800.WPP42J26.5	26,5	short	J	25	42	3
30800.WPP42J27.0	27,0	short	J	25	42	3
30800.WPP42J27.5	27,5	short	J	25	42	3
30800.WPP42J28.0	28,0	short	J	25	42	3
30800.WPP42J28.5	28,5	short	J	25	42	3
30800.WPP42J29.0	29,0	short	J	25	42	3
30800.WPP42J29.5	29,5	short	J	25	42	3
30800.WPP42J30.0	30,0	short	J	25	42	3
30800.WPP48J30.5	30,5	short	J	25	48	3
30800.WPP48J31.0	31,0	short	J	25	48	3
30800.WPP48J31.5	31,5	short	J	25	48	3
30800.WPP48J32.0	32,0	short	J	25	48	3
30800.WPP48J32.5	32,5	short	J	25	48	3
30800.WPP48J33.0	33,0	short	J	25	48	3
30800.WPP48J33.5	33,5	short	J	25	48	3
30800.WPP48J34.0	34,0	short	J	25	48	3
30800.WPP48J34.5	34,5	short	J	25	48	3
30800.WPP48J35.0	35,0	short	J	25	48	3
30800.WPP55L35.5	35,5	short	L	30	55	3,5
30800.WPP55L36.0	36,0	short	L	30	55	3,5
30800.WPP55L36.5	36,5	short	L	30	55	3,5
30800.WPP55L37.0	37,0	short	L	30	55	3,5
30800.WPP55L37.5	37,5	short	L	30	55	3,5
30800.WPP55L38.0	38,0	short	L	30	55	3,5
30800.WPP55L38.5	38,5	short	L	30	55	3,5

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30800.WPP55L 39.0	39,0	short	L	30	55	3,5
30800.WPP55L 39.5	39,5	short	L	30	55	3,5
30800.WPP55L 40.0	40,0	short	L	30	55	3,5
30800.WPP55L 40.5	40,5	short	L	30	55	3,5
30800.WPP55L 42.0	42,0	short	L	30	55	3,5
30800.WPP55L 41.5	41,5	short	L	30	55	3,5
30800.WPP55L 42.0	42,0	short	L	30	55	3,5
30800.WPP62L 42.5	42,5	short	L	30	62	3,5
30800.WPP62L 43.0	43,0	short	L	30	62	3,5
30800.WPP62L 43.5	43,5	short	L	30	62	3,5
30800.WPP62L 44.0	44,0	short	L	30	62	3,5
30800.WPP62L 44.5	44,5	short	L	30	62	3,5
30800.WPP62L 45.0	45,0	short	L	30	62	3,5
30800.WPP62L 45.5	45,5	short	L	30	62	3,5
30800.WPP62L 46.0	46,0	short	L	30	62	3,5
30800.WPP62L 46.5	46,5	short	L	30	62	3,5
30800.WPP62L 47.0	47,0	short	L	30	62	3,5
30800.WPP62L 47.5	47,5	short	L	30	62	3,5
30800.WPP62L 48.0	48,0	short	L	30	62	3,5
30800.WPP70L 48.5	48,5	short	L	30	70	3,5
30800.WPP70L 49.0	49,0	short	L	30	70	3,5
30800.WPP70L 49.5	49,5	short	L	30	70	3,5
30800.WPP70L 50.0	50,0	short	L	30	70	3,5
30800.WPP70L 50.5	50,5	short	L	30	70	3,5
30800.WPP70L 51.0	51,0	short	L	30	70	3,5
30800.WPP70L 51.5	51,5	short	L	30	70	3,5
30800.WPP70L 52.0	52,0	short	L	30	70	3,5
30800.WPP70L 52.5	52,5	short	L	30	70	3,5
30800.WPP70L 53.0	53,0	short	L	30	70	3,5
30800.WPP70L 53.5	53,5	short	L	30	70	3,5
30800.WPP70L 54.0	54,0	short	L	30	70	3,5
30800.WPP70L 54.5	54,5	short	L	30	70	3,5
30800.WPP70L 55.0	55,0	short	L	30	70	3,5
30800.WPP78 M55.5	55,5	short	M	35	78	4
30800.WPP78 M56.0	56,0	short	M	35	78	4

Material
High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes
d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips
Sizes 48,0 i/d and above are made to order.
Please note sizes d_1 <0,9 prices available on request.

Important Notes
Drill bushes produced to standard DIN increments for internal bores:
i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc.
i/d's 15,1mm and over -0,5mm increments.

Headless Drill Bushes - DIN 179

short

Order No.	i/d - d_1 tol. F7	Length gen	Length letter	l_1 ± 0,2	d_2 tol. N6	r_1
30800.WPP78 M56.5	56,5	short	M	35	78	4
30800.WPP78 M57.0	57,0	short	M	35	78	4
30800.WPP78 M57.5	57,5	short	M	35	78	4
30800.WPP78 M58.0	58,0	short	M	35	78	4
30800.WPP78 M58.5	58,5	short	M	35	78	4
30800.WPP78 M59.0	59,0	short	M	35	78	4
30800.WPP78 M59.5	59,5	short	M	35	78	4
30800.WPP78 M60.0	60,0	short	M	35	78	4
30800.WPP78 M60.5	60,5	short	M	35	78	4
30800.WPP78 M61.0	61,0	short	M	35	78	4
30800.WPP78 M61.5	61,5	short	M	35	78	4
30800.WPP78 M62.0	62,0	short	M	35	78	4
30800.WPP78 M62.5	62,5	short	M	35	78	4
30800.WPP78 M63.0	63,0	short	M	35	78	4

30800

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

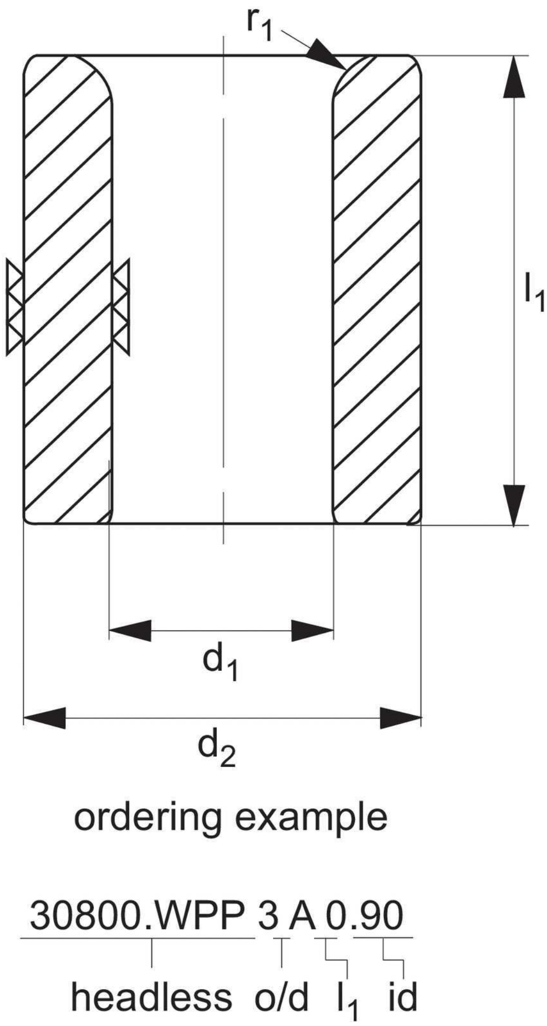
A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order.
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.



when ordering please always state internal bore (i/d) required - see d_1^{F7}

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
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E- 12mm
F- 16mm
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J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order.
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores:
i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc.
i/d's 15,1mm and over -0,5mm increments.

Order No.	i/d - d_1 tol. F7	Length gen	Length letter	l_1 ± 0,2	d_2 tol. N6	r_1
30800.WPP3C0.9	0,9	medium	C	9	3	1
30800.WPP3C1.0	1,0	medium	C	9	3	1
30800.WPP4C1.1	1,1	medium	C	9	4	1
30800.WPP4C1.2	1,2	medium	C	9	4	1
30800.WPP4C1.3	1,3	medium	C	9	4	1
30800.WPP4C1.4	1,4	medium	C	9	4	1
30800.WPP4C1.5	1,5	medium	C	9	4	1
30800.WPP4C1.6	1,6	medium	C	9	4	1
30800.WPP4C1.7	1,7	medium	C	9	4	1
30800.WPP4C1.8	1,8	medium	C	9	4	1
30800.WPP5C1.9	1,9	medium	C	9	5	1
30800.WPP5C2.0	2,0	medium	C	9	5	1
30800.WPP5C2.1	2,1	medium	C	9	5	1
30800.WPP5C2.2	2,2	medium	C	9	5	1

Headless Drill Bushes - DIN 179

medium

30800

Order No.	i/d - d_1 tol. F7	Length gen	Length letter	l_1 ± 0,2	d_2 tol. N6	r_1
30800.WPP5C2.3	2,3	medium	C	9	5	1
30800.WPP5C2.4	2,4	medium	C	9	5	1
30800.WPP5C2.5	2,5	medium	C	9	5	1
30800.WPP5C2.6	2,6	medium	C	9	5	1
30800.WPP6E2.7	2,7	medium	E	12	6	1
30800.WPP6E2.8	2,8	medium	E	12	6	1
30800.WPP6E2.9	2,9	medium	E	12	6	1
30800.WPP6E3.0	3,0	medium	E	12	6	1
30800.WPP6E3.1	3,1	medium	E	12	6	1
30800.WPP6E3.2	3,2	medium	E	12	6	1
30800.WPP6E3.3	3,3	medium	E	12	6	1
30800.WPP7E3.4	3,4	medium	E	12	7	1
30800.WPP7E3.5	3,5	medium	E	12	7	1
30800.WPP7E3.6	3,6	medium	E	12	7	1
30800.WPP7E3.7	3,7	medium	E	12	7	1
30800.WPP7E3.8	3,8	medium	E	12	7	1
30800.WPP7E3.9	3,9	medium	E	12	7	1
30800.WPP7E4.0	4,0	medium	E	12	7	1
30800.WPP8E4.1	4,1	medium	E	12	8	1
30800.WPP8E4.2	4,2	medium	E	12	8	1
30800.WPP8E4.3	4,3	medium	E	12	8	1
30800.WPP8E4.4	4,4	medium	E	12	8	1
30800.WPP8E4.5	4,5	medium	E	12	8	1
30800.WPP8E4.6	4,6	medium	E	12	8	1
30800.WPP8E4.7	4,7	medium	E	12	8	1
30800.WPP8E4.8	4,8	medium	E	12	8	1
30800.WPP8E4.9	4,9	medium	E	12	8	1
30800.WPP8E5.0	5,0	medium	E	12	8	1
30800.WPP10F5.1	5,1	medium	F	16	10	1,5
30800.WPP10F5.2	5,2	medium	F	16	10	1,5
30800.WPP10F5.3	5,3	medium	F	16	10	1,5
30800.WPP10F5.4	5,4	medium	F	16	10	1,5
30800.WPP10F5.5	5,5	medium	F	16	10	1,5
30800.WPP10F5.6	5,6	medium	F	16	10	1,5
30800.WPP10F5.7	5,7	medium	F	16	10	1,5

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order.
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores:
i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc.
i/d's 15,1mm and over -0,5mm increments.

Headless Drill Bushes - DIN 179

medium

30800

Order No.	i/d - d_1 tol. F7	Length gen	Length letter	l_1 ± 0,2	d_2 tol. N6	r_1
30800.WPP10F 5.8	5,8	medium	F	16	10	1,5
30800.WPP10F 5.9	5,9	medium	F	16	10	1,5
30800.WPP10F 6.0	6,0	medium	F	16	10	1,5
30800.WPP12F 6.1	6,1	medium	F	16	12	1,5
30800.WPP12F 6.2	6,2	medium	F	16	12	1,5
30800.WPP12F 6.3	6,3	medium	F	16	12	1,5
30800.WPP12F 6.4	6,4	medium	F	16	12	1,5
30800.WPP12F 6.5	6,5	medium	F	16	12	1,5
30800.WPP12F 6.6	6,6	medium	F	16	12	1,5
30800.WPP12F 6.7	6,7	medium	F	16	12	1,5
30800.WPP12F 6.8	6,8	medium	F	16	12	1,5
30800.WPP12F 6.9	6,9	medium	F	16	12	1,5
30800.WPP12F 7.0	7,0	medium	F	16	12	1,5
30800.WPP12F 7.1	7,1	medium	F	16	12	1,5
30800.WPP12F 7.2	7,2	medium	F	16	12	1,5
30800.WPP12F 7.3	7,3	medium	F	16	12	1,5
30800.WPP12F 7.4	7,4	medium	F	16	12	1,5
30800.WPP12F 7.5	7,5	medium	F	16	12	1,5
30800.WPP12F 7.6	7,6	medium	F	16	12	1,5
30800.WPP12F 7.7	7,7	medium	F	16	12	1,5
30800.WPP12F 7.8	7,8	medium	F	16	12	1,5
30800.WPP12F 7.9	7,9	medium	F	16	12	1,5
30800.WPP12F 8.0	8,0	medium	F	16	12	1,5
30800.WPP15 H8.1	8,1	medium	H	20	15	2
30800.WPP15 H8.2	8,2	medium	H	20	15	2
30800.WPP15 H8.3	8,3	medium	H	20	15	2
30800.WPP15 H8.4	8,4	medium	H	20	15	2
30800.WPP15 H8.5	8,5	medium	H	20	15	2
30800.WPP15 H8.6	8,6	medium	H	20	15	2
30800.WPP15 H8.7	8,7	medium	H	20	15	2
30800.WPP15 H8.8	8,8	medium	H	20	15	2
30800.WPP15 H8.9	8,9	medium	H	20	15	2
30800.WPP15 H9.0	9,0	medium	H	20	15	2
30800.WPP15 H9.1	9,1	medium	H	20	15	2
30800.WPP15 H9.2	9,2	medium	H	20	15	2

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order.
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Headless Drill Bushes - DIN 179

medium

30800

Order No.	i/d - d_1 tol. F7	Length gen	Length letter	l_1 ± 0,2	d_2 tol. N6	r_1
30800.WPP15 H9.3	9,3	medium	H	20	15	2
30800.WPP15 H9.4	9,4	medium	H	20	15	2
30800.WPP15 H9.5	9,5	medium	H	20	15	2
30800.WPP15 H9.6	9,6	medium	H	20	15	2
30800.WPP15 H9.7	9,7	medium	H	20	15	2
30800.WPP15 H9.8	9,8	medium	H	20	15	2
30800.WPP15 H9.9	9,9	medium	H	20	15	2
30800.WPP15 H10.0	10,0	medium	H	20	15	2
30800.WPP18 H10.1	10,1	medium	H	20	18	2
30800.WPP18 H10.2	10,2	medium	H	20	18	2
30800.WPP18 H10.3	10,3	medium	H	20	18	2
30800.WPP18 H10.4	10,4	medium	H	20	18	2
30800.WPP18 H10.5	10,5	medium	H	20	18	2
30800.WPP18 H10.6	10,6	medium	H	20	18	2
30800.WPP18 H10.7	10,7	medium	H	20	18	2
30800.WPP18 H10.8	10,8	medium	H	20	18	2
30800.WPP18 H10.9	10,9	medium	H	20	18	2
30800.WPP18 H11.0	11,0	medium	H	20	18	2
30800.WPP18 H11.1	11,1	medium	H	20	18	2
30800.WPP18 H11.2	11,2	medium	H	20	18	2
30800.WPP18 H11.3	11,3	medium	H	20	18	2
30800.WPP18 H11.4	11,4	medium	H	20	18	2
30800.WPP18 H11.5	11,5	medium	H	20	18	2
30800.WPP18 H11.6	11,6	medium	H	20	18	2
30800.WPP18 H11.7	11,7	medium	H	20	18	2
30800.WPP18 H11.8	11,8	medium	H	20	18	2
30800.WPP18 H11.9	11,9	medium	H	20	18	2
30800.WPP18 H12.0	12,0	medium	H	20	18	2
30800.WPP22K 12.1	12,1	medium	K	28	22	2
30800.WPP22K 12.2	12,2	medium	K	28	22	2
30800.WPP22K 12.3	12,3	medium	K	28	22	2
30800.WPP22K 12.4	12,4	medium	K	28	22	2
30800.WPP22K 12.5	12,5	medium	K	28	22	2
30800.WPP22K 12.6	12,6	medium	K	28	22	2
30800.WPP22K 12.7	12,7	medium	K	28	22	2

Material
High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes
d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips
Sizes 48,0 i/d and above are made to order.
Please note sizes d_1 <0,9 prices available on request.

Important Notes
Drill bushes produced to standard DIN increments for internal bores:
i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc.
i/d's 15,1mm and over -0,5mm increments.

Headless Drill Bushes - DIN 179

medium

30800

Order No.	i/d - d_1 tol. F7	Length gen	Length letter	l_1 ± 0,2	d_2 tol. N6	r_1
30800.WPP22K 12.8	12,8	medium	K	28	22	2
30800.WPP22K 12.9	12,9	medium	K	28	22	2
30800.WPP22K 13.0	13,0	medium	K	28	22	2
30800.WPP22K 13.1	13,1	medium	K	28	22	2
30800.WPP22K 13.2	13,2	medium	K	28	22	2
30800.WPP22K 13.3	13,3	medium	K	28	22	2
30800.WPP22K 13.4	13,4	medium	K	28	22	2
30800.WPP22K 13.5	13,5	medium	K	28	22	2
30800.WPP22K 13.6	13,6	medium	K	28	22	2
30800.WPP22K 13.7	13,7	medium	K	28	22	2
30800.WPP22K 13.8	13,8	medium	K	28	22	2
30800.WPP22K 13.9	13,9	medium	K	28	22	2
30800.WPP22K 14.0	14,0	medium	K	28	22	2
30800.WPP22K 14.1	14,1	medium	K	28	22	2
30800.WPP22K 14.2	14,2	medium	K	28	22	2
30800.WPP22K 14.3	14,3	medium	K	28	22	2
30800.WPP22K 14.4	14,4	medium	K	28	22	2
30800.WPP22K 14.5	14,5	medium	K	28	22	2
30800.WPP22K 14.6	14,6	medium	K	28	22	2
30800.WPP22K 14.7	14,7	medium	K	28	22	2
30800.WPP22K 14.8	14,8	medium	K	28	22	2
30800.WPP22K 14.9	14,9	medium	K	28	22	2
30800.WPP22K 15.0	15,0	medium	K	28	22	2
30800.WPP26K 15.5	15,5	medium	K	28	26	2
30800.WPP26K 16.0	16,0	medium	K	28	26	2
30800.WPP26K 16.5	16,5	medium	K	28	26	2
30800.WPP26K 17.0	17,0	medium	K	28	26	2
30800.WPP26K 17.5	17,5	medium	K	28	26	2
30800.WPP26K 18.0	18,0	medium	K	28	26	2
30800.WPP30 N18.5	18,5	medium	N	36	30	3
30800.WPP30 N19.0	19,0	medium	N	36	30	3
30800.WPP30 N19.5	19,5	medium	N	36	30	3
30800.WPP30 N20.0	20,0	medium	N	36	30	3
30800.WPP30 N20.5	20,5	medium	N	36	30	3
30800.WPP30 N21.0	21,0	medium	N	36	30	3

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order.
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Headless Drill Bushes - DIN 179

medium

30800

Order No.	i/d - d_1 tol. F7	Length gen	Length letter	l_1 ± 0,2	d_2 tol. N6	r_1
30800.WPP30N21.5	21,5	medium	N	36	30	3
30800.WPP30N22.0	22,0	medium	N	36	30	3
30800.WPP35N22.5	22,5	medium	N	36	35	3
30800.WPP35N23.0	23,0	medium	N	36	35	3
30800.WPP35N23.5	23,5	medium	N	36	35	3
30800.WPP35N24.0	24,0	medium	N	36	35	3
30800.WPP35N24.5	24,5	medium	N	36	35	3
30800.WPP35N25.0	25,0	medium	N	36	35	3
30800.WPP35N25.5	25,5	medium	N	36	35	3
30800.WPP35N26.0	26,0	medium	N	36	35	3
30800.WPP42R26.5	26,5	medium	R	45	42	3
30800.WPP42R27.0	27,0	medium	R	45	42	3
30800.WPP42R27.5	27,5	medium	R	45	42	3
30800.WPP42R28.0	28,0	medium	R	45	42	3
30800.WPP42R28.5	28,5	medium	R	45	42	3
30800.WPP42R29.0	29,0	medium	R	45	42	3
30800.WPP42R29.5	29,5	medium	R	45	42	3
30800.WPP42R30.0	30,0	medium	R	45	42	3
30800.WPP48R30.5	30,5	medium	R	45	48	3
30800.WPP48R31.0	31,0	medium	R	45	48	3
30800.WPP48R31.5	31,5	medium	R	45	48	3
30800.WPP48R32.0	32,0	medium	R	45	48	3
30800.WPP48R32.5	32,5	medium	R	45	48	3
30800.WPP48R33.0	33,0	medium	R	45	48	3
30800.WPP48R33.5	33,5	medium	R	45	48	3
30800.WPP48R34.0	34,0	medium	R	45	48	3
30800.WPP48R34.5	34,5	medium	R	45	48	3
30800.WPP48R35.0	35,0	medium	R	45	48	3
30800.WPP55S35.5	35,5	medium	S	56	55	3,5
30800.WPP55S36.0	36,0	medium	S	56	55	3,5
30800.WPP55S36.5	36,5	medium	S	56	55	3,5
30800.WPP55S37.0	37,0	medium	S	56	55	3,5
30800.WPP55S37.5	37,5	medium	S	56	55	3,5
30800.WPP55S38.0	38,0	medium	S	56	55	3,5
30800.WPP55S38.5	38,5	medium	S	56	55	3,5

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order.
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Headless Drill Bushes - DIN 179

medium

30800

Order No.	i/d - d_1 tol. F7	Length gen	Length letter	l_1 ± 0,2	d_2 tol. N6	r_1
30800.WPP55S 39.0	39,0	medium	S	56	55	3,5
30800.WPP55S 39.5	39,5	medium	S	56	55	3,5
30800.WPP55S 40.0	40,0	medium	S	56	55	3,5
30800.WPP55S 40.5	40,5	medium	S	56	55	3,5
30800.WPP55S 42.0	42,0	medium	S	56	55	3,5
30800.WPP55S 41.5	41,5	medium	S	56	55	3,5
30800.WPP55S 42.0	42,0	medium	S	56	55	3,5
30800.WPP62S 42.5	42,5	medium	S	56	62	3,5
30800.WPP62S 43.0	43,0	medium	S	56	62	3,5
30800.WPP62S 43.5	43,5	medium	S	56	62	3,5
30800.WPP62S 44.0	44,0	medium	S	56	62	3,5
30800.WPP62S 44.5	44,5	medium	S	56	62	3,5
30800.WPP62S 45.0	45,0	medium	S	56	62	3,5
30800.WPP62S 45.5	45,5	medium	S	56	62	3,5
30800.WPP62S 46.0	46,0	medium	S	56	62	3,5
30800.WPP62S 46.5	46,5	medium	S	56	62	3,5
30800.WPP62S 47.0	47,0	medium	S	56	62	3,5
30800.WPP62S 47.5	47,5	medium	S	56	62	3,5
30800.WPP62S 48.0	48,0	medium	S	56	62	3,5
30800.WPP70S 48.5	48,5	medium	S	56	70	3,5
30800.WPP70S 49.0	49,0	medium	S	56	70	3,5
30800.WPP70S 49.5	49,5	medium	S	56	70	3,5
30800.WPP70S 50.0	50,0	medium	S	56	70	3,5
30800.WPP70S 50.5	50,5	medium	S	56	70	3,5
30800.WPP70S 51.0	51,0	medium	S	56	70	3,5
30800.WPP70S 51.5	51,5	medium	S	56	70	3,5
30800.WPP70S 52.0	52,0	medium	S	56	70	3,5
30800.WPP70S 52.5	52,5	medium	S	56	70	3,5
30800.WPP70S 53.0	53,0	medium	S	56	70	3,5
30800.WPP70S 53.5	53,5	medium	S	56	70	3,5
30800.WPP70S 54.0	54,0	medium	S	56	70	3,5
30800.WPP70S 54.5	54,5	medium	S	56	70	3,5
30800.WPP70S 55.0	55,0	medium	S	56	70	3,5
30800.WPP78T 55.5	55,5	medium	T	67	78	4
30800.WPP78T 56.0	56,0	medium	T	67	78	4

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order.
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Headless Drill Bushes - DIN 179

medium

30800

Order No.	i/d - d_1 tol. F7	Length gen	Length letter	l_1 ± 0,2	d_2 tol. N6	r_1
30800.WPP78T 56.5	56,5	medium	T	67	78	4
30800.WPP78T 57.0	57,0	medium	T	67	78	4
30800.WPP78T 57.5	57,5	medium	T	67	78	4
30800.WPP78T 58.0	58,0	medium	T	67	78	4
30800.WPP78T 58.5	58,5	medium	T	67	78	4
30800.WPP78T 59.0	59,0	medium	T	67	78	4
30800.WPP78T 59.5	59,5	medium	T	67	78	4
30800.WPP78T 60.0	60,0	medium	T	67	78	4
30800.WPP78T 60.5	60,5	medium	T	67	78	4
30800.WPP78T 61.0	61,0	medium	T	67	78	4
30800.WPP78T 61.5	61,5	medium	T	67	78	4
30800.WPP78T 62.0	62,0	medium	T	67	78	4
30800.WPP78T 62.5	62,5	medium	T	67	78	4
30800.WPP78T 63.0	63,0	medium	T	67	78	4

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

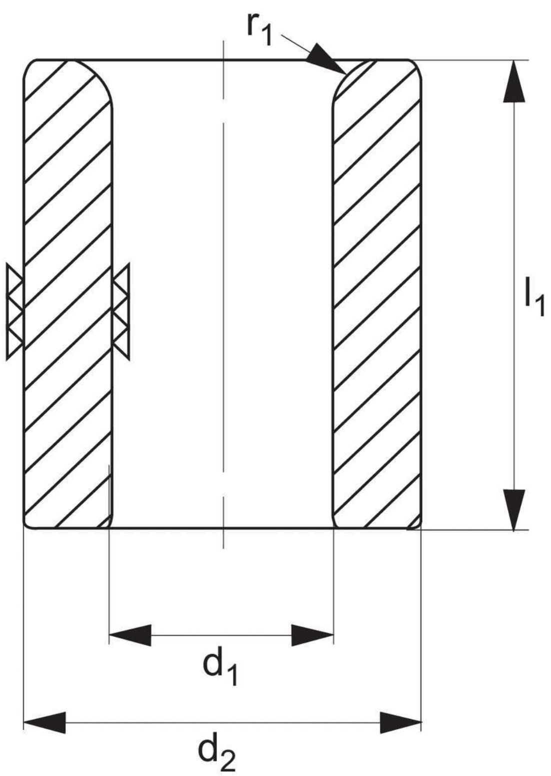
A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order.
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores:
i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc.
i/d's 15,1mm and over -0,5mm increments.



ordering example

30800.WPP 3 A 0.90

headless o/d l_1 id

when ordering please always state internal bore (i/d) required - see d_1^{F7}

Material
High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes
d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips
Sizes 48,0 i/d and above are made to order.
Please note sizes d_1 <0,9 prices available on request.

Important Notes
Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Order No.	i/d - d_1 tol. F7	Length gen	Length letter	l_1 ± 0,2	d_2 tol. N6	r_1
30800.WPP6F2.7	2,7	long	F	16	6	1
30800.WPP6F2.8	2,8	long	F	16	6	1
30800.WPP6F2.9	2,9	long	F	16	6	1
30800.WPP6F3.0	3,0	long	F	16	6	1
30800.WPP6F3.1	3,1	long	F	16	6	1
30800.WPP6F3.2	3,2	long	F	16	6	1
30800.WPP6F3.3	3,3	long	F	16	6	1
30800.WPP7F3.4	3,4	long	F	16	7	1
30800.WPP7F3.5	3,5	long	F	16	7	1
30800.WPP7F3.6	3,6	long	F	16	7	1
30800.WPP7F3.7	3,7	long	F	16	7	1
30800.WPP7F3.8	3,8	long	F	16	7	1
30800.WPP7F3.9	3,9	long	F	16	7	1
30800.WPP7F4.0	4,0	long	F	16	7	1

Headless Drill Bushes - DIN 179
long

30800

Order No.	i/d - d_1 tol. F7	Length gen	Length letter	l_1 ± 0,2	d_2 tol. N6	r_1
30800.WPP8F4.1	4,1	long	F	16	8	1
30800.WPP8F4.2	4,2	long	F	16	8	1
30800.WPP8F4.3	4,3	long	F	16	8	1
30800.WPP8F4.4	4,4	long	F	16	8	1
30800.WPP8F4.5	4,5	long	F	16	8	1
30800.WPP8F4.6	4,6	long	F	16	8	1
30800.WPP8F4.7	4,7	long	F	16	8	1
30800.WPP8F4.8	4,8	long	F	16	8	1
30800.WPP8F4.9	4,9	long	F	16	8	1
30800.WPP8F5.0	5,0	long	F	16	8	1
30800.WPP10H5.1	5,1	long	H	20	10	1,5
30800.WPP10H5.2	5,2	long	H	20	10	1,5
30800.WPP10H5.3	5,3	long	H	20	10	1,5
30800.WPP10H5.4	5,4	long	H	20	10	1,5
30800.WPP10H5.5	5,5	long	H	20	10	1,5
30800.WPP10H5.6	5,6	long	H	20	10	1,5
30800.WPP10H5.7	5,7	long	H	20	10	1,5
30800.WPP10H5.8	5,8	long	H	20	10	1,5
30800.WPP10H5.9	5,9	long	H	20	10	1,5
30800.WPP10H6.0	6,0	long	H	20	10	1,5
30800.WPP12H6.1	6,1	long	H	20	12	1,5
30800.WPP12H6.2	6,2	long	H	20	12	1,5
30800.WPP12H6.3	6,3	long	H	20	12	1,5
30800.WPP12H6.4	6,4	long	H	20	12	1,5
30800.WPP12H6.5	6,5	long	H	20	12	1,5
30800.WPP12H6.6	6,6	long	H	20	12	1,5
30800.WPP12H6.7	6,7	long	H	20	12	1,5
30800.WPP12H6.8	6,8	long	H	20	12	1,5
30800.WPP12H6.9	6,9	long	H	20	12	1,5
30800.WPP12H7.0	7,0	long	H	20	12	1,5
30800.WPP12H7.1	7,1	long	H	20	12	1,5
30800.WPP12H7.2	7,2	long	H	20	12	1,5
30800.WPP12H7.3	7,3	long	H	20	12	1,5
30800.WPP12H7.4	7,4	long	H	20	12	1,5
30800.WPP12H7.5	7,5	long	H	20	12	1,5

Material
High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes
d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips
Sizes 48,0 i/d and above are made to order.
Please note sizes d_1 <0,9 prices available on request.

Important Notes
Drill bushes produced to standard DIN increments for internal bores:
i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc.
i/d's 15,1mm and over -0,5mm increments.

Headless Drill Bushes - DIN 179

long

30800

Order No.	i/d - d_1 tol. F7	Length gen	Length letter	l_1 ± 0,2	d_2 tol. N6	r_1
30800.WPP12 H7.6	7,6	long	H	20	12	1,5
30800.WPP12 H7.7	7,7	long	H	20	12	1,5
30800.WPP12 H7.8	7,8	long	H	20	12	1,5
30800.WPP12 H7.9	7,9	long	H	20	12	1,5
30800.WPP12 H8.0	8,0	long	H	20	12	1,5
30800.WPP15J 8.1	8,1	long	J	25	15	2
30800.WPP15J 8.2	8,2	long	J	25	15	2
30800.WPP15J 8.3	8,3	long	J	25	15	2
30800.WPP15J 8.4	8,4	long	J	25	15	2
30800.WPP15J 8.5	8,5	long	J	25	15	2
30800.WPP15J 8.6	8,6	long	J	25	15	2
30800.WPP15J 8.7	8,7	long	J	25	15	2
30800.WPP15J 8.8	8,8	long	J	25	15	2
30800.WPP15J 8.9	8,9	long	J	25	15	2
30800.WPP15J 9.0	9,0	long	J	25	15	2
30800.WPP15J 9.1	9,1	long	J	25	15	2
30800.WPP15J 9.2	9,2	long	J	25	15	2
30800.WPP15J 9.3	9,3	long	J	25	15	2
30800.WPP15J 9.4	9,4	long	J	25	15	2
30800.WPP15J 9.5	9,5	long	J	25	15	2
30800.WPP15J 9.6	9,6	long	J	25	15	2
30800.WPP15J 9.7	9,7	long	J	25	15	2
30800.WPP15J 9.8	9,8	long	J	25	15	2
30800.WPP15J 9.9	9,9	long	J	25	15	2
30800.WPP15J 10.0	10,0	long	J	25	15	2
30800.WPP18J 10.1	10,1	long	J	25	18	2
30800.WPP18J 10.2	10,2	long	J	25	18	2
30800.WPP18J 10.3	10,3	long	J	25	18	2
30800.WPP18J 10.4	10,4	long	J	25	18	2
30800.WPP18J 10.5	10,5	long	J	25	18	2
30800.WPP18J 10.6	10,6	long	J	25	18	2
30800.WPP18J 10.7	10,7	long	J	25	18	2
30800.WPP18J 10.8	10,8	long	J	25	18	2
30800.WPP18J 10.9	10,9	long	J	25	18	2
30800.WPP18J 11.0	11,0	long	J	25	18	2

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order.
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Headless Drill Bushes - DIN 179

long

30800

Order No.	i/d - d_1 tol. F7	Length gen	Length letter	l_1 ± 0,2	d_2 tol. N6	r_1
30800.WPP18J 11.1	11,1	long	J	25	18	2
30800.WPP18J 11.2	11,2	long	J	25	18	2
30800.WPP18J 11.3	11,3	long	J	25	18	2
30800.WPP18J 11.4	11,4	long	J	25	18	2
30800.WPP18J 11.5	11,5	long	J	25	18	2
30800.WPP18J 11.6	11,6	long	J	25	18	2
30800.WPP18J 11.7	11,7	long	J	25	18	2
30800.WPP18J 11.8	11,8	long	J	25	18	2
30800.WPP18J 11.9	11,9	long	J	25	18	2
30800.WPP18J 12.0	12,0	long	J	25	18	2
30800.WPP22 N12.1	12,1	long	N	36	22	2
30800.WPP22 N12.2	12,2	long	N	36	22	2
30800.WPP22 N12.3	12,3	long	N	36	22	2
30800.WPP22 N12.4	12,4	long	N	36	22	2
30800.WPP22 N12.5	12,5	long	N	36	22	2
30800.WPP22 N12.6	12,6	long	N	36	22	2
30800.WPP22 N12.7	12,7	long	N	36	22	2
30800.WPP22 N12.8	12,8	long	N	36	22	2
30800.WPP22 N12.9	12,9	long	N	36	22	2
30800.WPP22 N13.0	13,0	long	N	36	22	2
30800.WPP22 N13.1	13,1	long	N	36	22	2
30800.WPP22 N13.2	13,2	long	N	36	22	2
30800.WPP22 N13.3	13,3	long	N	36	22	2
30800.WPP22 N13.4	13,4	long	N	36	22	2
30800.WPP22 N13.5	13,5	long	N	36	22	2
30800.WPP22 N13.6	13,6	long	N	36	22	2
30800.WPP22 N13.7	13,7	long	N	36	22	2
30800.WPP22 N13.8	13,8	long	N	36	22	2
30800.WPP22 N13.9	13,9	long	N	36	22	2
30800.WPP22 N14.0	14,0	long	N	36	22	2
30800.WPP22 N14.1	14,1	long	N	36	22	2
30800.WPP22 N14.2	14,2	long	N	36	22	2
30800.WPP22 N14.3	14,3	long	N	36	22	2
30800.WPP22 N14.4	14,4	long	N	36	22	2
30800.WPP22 N14.5	14,5	long	N	36	22	2

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order.
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Headless Drill Bushes - DIN 179

long

30800

Order No.	i/d - d_1 tol. F7	Length gen	Length letter	l_1 ± 0,2	d_2 tol. N6	r_1
30800.WPP22N14.6	14,6	long	N	36	22	2
30800.WPP22N14.7	14,7	long	N	36	22	2
30800.WPP22N14.8	14,8	long	N	36	22	2
30800.WPP22N14.9	14,9	long	N	36	22	2
30800.WPP22N15.0	15,0	long	N	36	22	2
30800.WPP26N15.5	15,5	long	N	36	26	2
30800.WPP26N16.0	16,0	long	N	36	26	2
30800.WPP26N16.5	16,5	long	N	36	26	2
30800.WPP26N17.0	17,0	long	N	36	26	2
30800.WPP26N17.5	17,5	long	N	36	26	2
30800.WPP26N18.0	18,0	long	N	36	26	2
30800.WPP30R18.5	18,5	long	R	45	30	3
30800.WPP30R19.0	19,0	long	R	45	30	3
30800.WPP30R19.5	19,5	long	R	45	30	3
30800.WPP30R20.0	20,0	long	R	45	30	3
30800.WPP30R20.5	20,5	long	R	45	30	3
30800.WPP30R21.0	21,0	long	R	45	30	3
30800.WPP30R21.5	21,5	long	R	45	30	3
30800.WPP30R22.0	22,0	long	R	45	30	3
30800.WPP35R22.5	22,5	long	R	45	35	3
30800.WPP35R23.0	23,0	long	R	45	35	3
30800.WPP35R23.5	23,5	long	R	45	35	3
30800.WPP35R24.0	24,0	long	R	45	35	3
30800.WPP35R24.5	24,5	long	R	45	35	3
30800.WPP35R25.0	25,0	long	R	45	35	3
30800.WPP35R25.5	25,5	long	R	45	35	3
30800.WPP35R26.0	26,0	long	R	45	35	3
30800.WPP42S26.5	26,5	long	S	56	42	3
30800.WPP42S27.0	27,0	long	S	56	42	3
30800.WPP42S27.5	27,5	long	S	56	42	3
30800.WPP42S28.0	28,0	long	S	56	42	3
30800.WPP42S28.5	28,5	long	S	56	42	3
30800.WPP42S29.0	29,0	long	S	56	42	3
30800.WPP42S29.5	29,5	long	S	56	42	3
30800.WPP42S30.0	30,0	long	S	56	42	3

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order.
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores:
i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc.
i/d's 15,1mm and over -0,5mm increments.

Headless Drill Bushes - DIN 179

long

30800

Order No.	i/d - d_1 tol. F7	Length gen	Length letter	l_1 ± 0,2	d_2 tol. N6	r_1
30800.WPP48S 30.5	30,5	long	S	56	48	3
30800.WPP48S 31.0	31,0	long	S	56	48	3
30800.WPP48S 31.5	31,5	long	S	56	48	3
30800.WPP48S 32.0	32,0	long	S	56	48	3
30800.WPP48S 32.5	32,5	long	S	56	48	3
30800.WPP48S 33.0	33,0	long	S	56	48	3
30800.WPP48S 33.5	33,5	long	S	56	48	3
30800.WPP48S 34.0	34,0	long	S	56	48	3
30800.WPP48S 34.5	34,5	long	S	56	48	3
30800.WPP48S 35.0	35,0	long	S	56	48	3
30800.WPP55T 35.5	35,5	long	T	67	55	3,5
30800.WPP55T 36.0	36,0	long	T	67	55	3,5
30800.WPP55T 36.5	36,5	long	T	67	55	3,5
30800.WPP55T 37.0	37,0	long	T	67	55	3,5
30800.WPP55T 37.5	37,5	long	T	67	55	3,5
30800.WPP55T 38.0	38,0	long	T	67	55	3,5
30800.WPP55T 38.5	38,5	long	T	67	55	3,5
30800.WPP55T 39.0	39,0	long	T	67	55	3,5
30800.WPP55T 39.5	39,5	long	T	67	55	3,5
30800.WPP55T 40.0	40,0	long	T	67	55	3,5
30800.WPP55T 40.5	40,5	long	T	67	55	3,5
30800.WPP55T 42.0	42,0	long	T	67	55	3,5
30800.WPP55T 41.5	41,5	long	T	67	55	3,5
30800.WPP55T 42.0	42,0	long	T	67	55	3,5
30800.WPP62T 42.5	42,5	long	T	67	62	3,5
30800.WPP62T 43.0	43,0	long	T	67	62	3,5
30800.WPP62T 43.5	43,5	long	T	67	62	3,5
30800.WPP62T 44.0	44,0	long	T	67	62	3,5
30800.WPP62T 44.5	44,5	long	T	67	62	3,5
30800.WPP62T 45.0	45,0	long	T	67	62	3,5
30800.WPP62T 45.5	45,5	long	T	67	62	3,5
30800.WPP62T 46.0	46,0	long	T	67	62	3,5
30800.WPP62T 46.5	46,5	long	T	67	62	3,5
30800.WPP62T 47.0	47,0	long	T	67	62	3,5
30800.WPP62T 47.5	47,5	long	T	67	62	3,5

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order.
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Headless Drill Bushes - DIN 179

long

30800

Order No.	i/d - d_1 tol. F7	Length gen	Length letter	$l_1 \pm 0{,}2$	d_2 tol. N6	r_1
30800.WPP62T 48.0	48,0	long	T	67	62	3,5
30800.WPP70T 48.5	48,5	long	T	67	70	3,5
30800.WPP70T 49.0	49,0	long	T	67	70	3,5
30800.WPP70T 49.5	49,5	long	T	67	70	3,5
30800.WPP70T 50.0	50,0	long	T	67	70	3,5
30800.WPP70T 50.5	50,5	long	T	67	70	3,5
30800.WPP70T 51.0	51,0	long	T	67	70	3,5
30800.WPP70T 51.5	51,5	long	T	67	70	3,5
30800.WPP70T 52.0	52,0	long	T	67	70	3,5
30800.WPP70T 52.5	52,5	long	T	67	70	3,5
30800.WPP70T 53.0	53,0	long	T	67	70	3,5
30800.WPP70T 53.5	53,5	long	T	67	70	3,5
30800.WPP70T 54.0	54,0	long	T	67	70	3,5
30800.WPP70T 54.5	54,5	long	T	67	70	3,5
30800.WPP70T 55.0	55,0	long	T	67	70	3,5
30800.WPP78 W55.5	55,5	long	W	78	78	4
30800.WPP78 W56.0	56,0	long	W	78	78	4
30800.WPP78 W56.5	56,5	long	W	78	78	4
30800.WPP78 W57.0	57,0	long	W	78	78	4
30800.WPP78 W57.5	57,5	long	W	78	78	4
30800.WPP78 W58.0	58,0	long	W	78	78	4
30800.WPP78 W58.5	58,5	long	W	78	78	4
30800.WPP78 W59.0	59,0	long	W	78	78	4
30800.WPP78 W59.5	59,5	long	W	78	78	4
30800.WPP78 W60.0	60,0	long	W	78	78	4
30800.WPP78 W60.5	60,5	long	W	78	78	4
30800.WPP78 W61.0	61,0	long	W	78	78	4
30800.WPP78 W61.5	61,5	long	W	78	78	4
30800.WPP78 W62.0	62,0	long	W	78	78	4
30800.WPP78 W62.5	62,5	long	W	78	78	4
30800.WPP78 W63.0	63,0	long	W	78	78	4

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

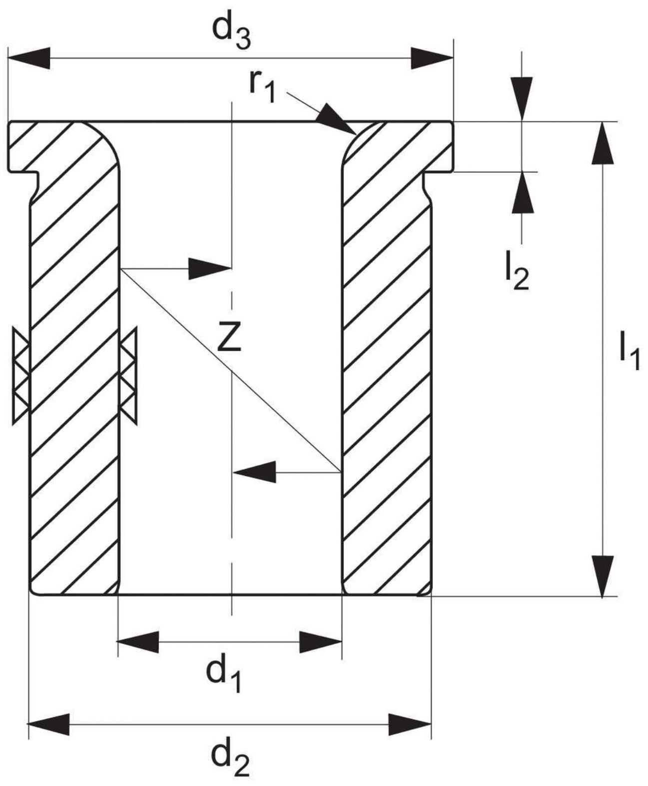
A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order.
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.



ordering example

30820.WPP 3 A 0.9

headless o/d l_1 id

when ordering please always state internal bore (i/d) required - see d_1^{F7}

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH3A 0.9	0,9	short	A	6	3	1	6	2
30820.WPH3A 1.0	1,0	short	A	6	3	1	6	2
30820.WPH4A 1.1	1,1	short	A	6	4	1	7	2
30820.WPH4A 1.2	1,2	short	A	6	4	1	7	2
30820.WPH4A 1.3	1,3	short	A	6	4	1	7	2
30820.WPH4A 1.4	1,4	short	A	6	4	1	7	2
30820.WPH4A 1.5	1,5	short	A	6	4	1	7	2
30820.WPH4A 1.6	1,6	short	A	6	4	1	7	2
30820.WPH4A 1.7	1,7	short	A	6	4	1	7	2
30820.WPH4A 1.8	1,8	short	A	6	4	1	7	2
30820.WPH5A 1.9	1,9	short	A	6	5	1	8	2
30820.WPH5A 2.0	2,0	short	A	6	5	1	8	2
30820.WPH5A 2.1	2,1	short	A	6	5	1	8	2
30820.WPH5A 2.2	2,2	short	A	6	5	1	8	2

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A

short

30820

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH5A 2.3	2,3	short	A	6	5	1	8	2
30820.WPH5A 2.4	2,4	short	A	6	5	1	8	2
30820.WPH5A 2.5	2,5	short	A	6	5	1	8	2
30820.WPH5A 2.6	2,6	short	A	6	5	1	8	2
30820.WPH6B 2.7	2,7	short	B	8	6	1	9	2,5
30820.WPH6B 2.8	2,8	short	B	8	6	1	9	2,5
30820.WPH6B 2.9	2,9	short	B	8	6	1	9	2,5
30820.WPH6B 3.0	3,0	short	B	8	6	1	9	2,5
30820.WPH6B 3.1	3,1	short	B	8	6	1	9	2,5
30820.WPH6B 3.2	3,2	short	B	8	6	1	9	2,5
30820.WPH6B 3.3	3,3	short	B	8	6	1	9	2,5
30820.WPH7B 3.4	3,4	short	B	8	7	1	10	2,5
30820.WPH7B 3.5	3,5	short	B	8	7	1	10	2,5
30820.WPH7B 3.6	3,6	short	B	8	7	1	10	2,5
30820.WPH7B 3.7	3,7	short	B	8	7	1	10	2,5
30820.WPH7B 3.8	3,8	short	B	8	7	1	10	2,5
30820.WPH7B 3.9	3,9	short	B	8	7	1	10	2,5
30820.WPH7B 4.0	4,0	short	B	8	7	1	10	2,5
30820.WPH8B 4.1	4,1	short	B	8	8	1	11	2,5
30820.WPH8B 4.2	4,2	short	B	8	8	1	11	2,5
30820.WPH8B 4.3	4,3	short	B	8	8	1	11	2,5
30820.WPH8B 4.4	4,4	short	B	8	8	1	11	2,5
30820.WPH8B 4.5	4,5	short	B	8	8	1	11	2,5
30820.WPH8B 4.6	4,6	short	B	8	8	1	11	2,5
30820.WPH8B 4.7	4,7	short	B	8	8	1	11	2,5
30820.WPH8B 4.8	4,8	short	B	8	8	1	11	2,5
30820.WPH8B 4.9	4,9	short	B	8	8	1	11	2,5
30820.WPH8B 5.0	5,0	short	B	8	8	1	11	2,5
30820.WPH10 D5.1	5,1	short	D	10	10	1,5	13	3
30820.WPH10 D5.2	5,2	short	D	10	10	1,5	13	3
30820.WPH10 D5.3	5,3	short	D	10	10	1,5	13	3
30820.WPH10 D5.4	5,4	short	D	10	10	1,5	13	3
30820.WPH10 D5.5	5,5	short	D	10	10	1,5	13	3
30820.WPH10 D5.6	5,6	short	D	10	10	1,5	13	3
30820.WPH10 D5.7	5,7	short	D	10	10	1,5	13	3

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A

short

30820

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH10D5.8	5,8	short	D	10	10	1,5	13	3
30820.WPH10D5.9	5,9	short	D	10	10	1,5	13	3
30820.WPH10D6.0	6,0	short	D	10	10	1,5	13	3
30820.WPH12D6.1	6,1	short	D	10	12	1,5	15	3
30820.WPH12D6.2	6,2	short	D	10	12	1,5	15	3
30820.WPH12D6.3	6,3	short	D	10	12	1,5	15	3
30820.WPH12D6.4	6,4	short	D	10	12	1,5	15	3
30820.WPH12D6.5	6,5	short	D	10	12	1,5	15	3
30820.WPH12D6.6	6,6	short	D	10	12	1,5	15	3
30820.WPH12D6.7	6,7	short	D	10	12	1,5	15	3
30820.WPH12D6.8	6,8	short	D	10	12	1,5	15	3
30820.WPH12D6.9	6,9	short	D	10	12	1,5	15	3
30820.WPH12D7.0	7,0	short	D	10	12	1,5	15	3
30820.WPH12D7.1	7,1	short	D	10	12	1,5	15	3
30820.WPH12D7.2	7,2	short	D	10	12	1,5	15	3
30820.WPH12D7.3	7,3	short	D	10	12	1,5	15	3
30820.WPH12D7.4	7,4	short	D	10	12	1,5	15	3
30820.WPH12D7.5	7,5	short	D	10	12	1,5	15	3
30820.WPH12D7.6	7,6	short	D	10	12	1,5	15	3
30820.WPH12D7.7	7,7	short	D	10	12	1,5	15	3
30820.WPH12D7.8	7,8	short	D	10	12	1,5	15	3
30820.WPH12D7.9	7,9	short	D	10	12	1,5	15	3
30820.WPH12D8.0	8,0	short	D	10	12	1,5	15	3
30820.WPH15E8.1	8,1	short	E	12	15	2	18	3
30820.WPH15E8.2	8,2	short	E	12	15	2	18	3
30820.WPH15E8.3	8,3	short	E	12	15	2	18	3
30820.WPH15E8.4	8,4	short	E	12	15	2	18	3
30820.WPH15E8.5	8,5	short	E	12	15	2	18	3
30820.WPH15E8.6	8,6	short	E	12	15	2	18	3
30820.WPH15E8.7	8,7	short	E	12	15	2	18	3
30820.WPH15E8.8	8,8	short	E	12	15	2	18	3
30820.WPH15E8.9	8,9	short	E	12	15	2	18	3
30820.WPH15E9.0	9,0	short	E	12	15	2	18	3
30820.WPH15E9.1	9,1	short	E	12	15	2	18	3
30820.WPH15E9.2	9,2	short	E	12	15	2	18	3

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

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D- 10mm
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H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
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T- 67mm
W- 78mm

Tips

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Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A

short

30820

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH15E 9.3	9,3	short	E	12	15	2	18	3
30820.WPH15E 9.4	9,4	short	E	12	15	2	18	3
30820.WPH15E 9.5	9,5	short	E	12	15	2	18	3
30820.WPH15E 9.6	9,6	short	E	12	15	2	18	3
30820.WPH15E 9.7	9,7	short	E	12	15	2	18	3
30820.WPH15E 9.8	9,8	short	E	12	15	2	18	3
30820.WPH15E 9.9	9,9	short	E	12	15	2	18	3
30820.WPH15E 10.0	10,0	short	E	12	15	2	18	3
30820.WPH18E 10.1	10,1	short	E	12	18	2	22	4
30820.WPH18E 10.2	10,2	short	E	12	18	2	22	4
30820.WPH18E 10.3	10,3	short	E	12	18	2	22	4
30820.WPH18E 10.4	10,4	short	E	12	18	2	22	4
30820.WPH18E 10.5	10,5	short	E	12	18	2	22	4
30820.WPH18E 10.6	10,6	short	E	12	18	2	22	4
30820.WPH18E 10.7	10,7	short	E	12	18	2	22	4
30820.WPH18E 10.8	10,8	short	E	12	18	2	22	4
30820.WPH18E 10.9	10,9	short	E	12	18	2	22	4
30820.WPH18E 11.0	11,0	short	E	12	18	2	22	4
30820.WPH18E 11.1	11,1	short	E	12	18	2	22	4
30820.WPH18E 11.2	11,2	short	E	12	18	2	22	4
30820.WPH18E 11.3	11,3	short	E	12	18	2	22	4
30820.WPH18E 11.4	11,4	short	E	12	18	2	22	4
30820.WPH18E 11.5	11,5	short	E	12	18	2	22	4
30820.WPH18E 11.6	11,6	short	E	12	18	2	22	4
30820.WPH18E 11.7	11,7	short	E	12	18	2	22	4
30820.WPH18E 11.8	11,8	short	E	12	18	2	22	4
30820.WPH18E 11.9	11,9	short	E	12	18	2	22	4
30820.WPH18E 12.0	12,0	short	E	12	18	2	22	4
30820.WPH22F 12.1	12,1	short	F	16	22	2	26	4
30820.WPH22F 12.2	12,2	short	F	16	22	2	26	4
30820.WPH22F 12.3	12,3	short	F	16	22	2	26	4
30820.WPH22F 12.4	12,4	short	F	16	22	2	26	4
30820.WPH22F 12.5	12,5	short	F	16	22	2	26	4
30820.WPH22F 12.6	12,6	short	F	16	22	2	26	4
30820.WPH22F 12.7	12,7	short	F	16	22	2	26	4

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A

short

30820

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH22F 12.8	12,8	short	F	16	22	2	26	4
30820.WPH22F 12.9	12,9	short	F	16	22	2	26	4
30820.WPH22F 13.0	13,0	short	F	16	22	2	26	4
30820.WPH22F 13.1	13,1	short	F	16	22	2	26	4
30820.WPH22F 13.2	13,2	short	F	16	22	2	26	4
30820.WPH22F 13.3	13,3	short	F	16	22	2	26	4
30820.WPH22F 13.4	13,4	short	F	16	22	2	26	4
30820.WPH22F 13.5	13,5	short	F	16	22	2	26	4
30820.WPH22F 13.6	13,6	short	F	16	22	2	26	4
30820.WPH22F 13.7	13,7	short	F	16	22	2	26	4
30820.WPH22F 13.8	13,8	short	F	16	22	2	26	4
30820.WPH22F 13.9	13,9	short	F	16	22	2	26	4
30820.WPH22F 14.0	14,0	short	F	16	22	2	26	4
30820.WPH22F 14.1	14,1	short	F	16	22	2	26	4
30820.WPH22F 14.2	14,2	short	F	16	22	2	26	4
30820.WPH22F 14.3	14,3	short	F	16	22	2	26	4
30820.WPH22F 14.4	14,4	short	F	16	22	2	26	4
30820.WPH22F 14.5	14,5	short	F	16	22	2	26	4
30820.WPH22F 14.6	14,6	short	F	16	22	2	26	4
30820.WPH22F 14.7	14,7	short	F	16	22	2	26	4
30820.WPH22F 14.8	14,8	short	F	16	22	2	26	4
30820.WPH22F 14.9	14,9	short	F	16	22	2	26	4
30820.WPH22F 15.0	15,0	short	F	16	22	2	26	4
30820.WPH26F 15.5	15,5	short	F	16	26	2	30	4
30820.WPH26F 16.0	16,0	short	F	16	26	2	30	4
30820.WPH26F 16.5	16,5	short	F	16	26	2	30	4
30820.WPH26F 17.0	17,0	short	F	16	26	2	30	4
30820.WPH26F 17.5	17,5	short	F	16	26	2	30	4
30820.WPH26F 18.0	18,0	short	F	16	26	2	30	4
30820.WPH30 H18.5	18,5	short	H	20	30	3	34	5
30820.WPH30 H19.0	19,0	short	H	20	30	3	34	5
30820.WPH30 H19.5	19,5	short	H	20	30	3	34	5
30820.WPH30 H20.0	20,0	short	H	20	30	3	34	5
30820.WPH30 H20.5	20,5	short	H	20	30	3	34	5
30820.WPH30 H21.0	21,0	short	H	20	30	3	34	5

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A

short

30820

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH30 H21.5	21,5	short	H	20	30	3	34	5
30820.WPH30 H22.0	22,0	short	H	20	30	3	34	5
30820.WPH35 H22.5	22,5	short	H	20	35	3	39	5
30820.WPH35 H23.0	23,0	short	H	20	35	3	39	5
30820.WPH35 H23.5	23,5	short	H	20	35	3	39	5
30820.WPH35 H24.0	24,0	short	H	20	35	3	39	5
30820.WPH35 H24.5	24,5	short	H	20	35	3	39	5
30820.WPH35 H25.0	25,0	short	H	20	35	3	39	5
30820.WPH35 H25.5	25,5	short	H	20	35	3	39	5
30820.WPH35 H26.0	26,0	short	H	20	35	3	39	5
30820.WPH42J 26.5	26,5	short	J	25	42	3	46	5
30820.WPH42J 27.0	27,0	short	J	25	42	3	46	5
30820.WPH42J 27.5	27,5	short	J	25	42	3	46	5
30820.WPH42J 28.0	28,0	short	J	25	42	3	46	5
30820.WPH42J 28.5	28,5	short	J	25	42	3	46	5
30820.WPH42J 29.0	29,0	short	J	25	42	3	46	5
30820.WPH42J 29.5	29,5	short	J	25	42	3	46	5
30820.WPH42J 30.0	30,0	short	J	25	42	3	46	5
30820.WPH48J 30.5	30,5	short	J	25	48	3	52	5
30820.WPH48J 31.0	31,0	short	J	25	48	3	52	5
30820.WPH48J 31.5	31,5	short	J	25	48	3	52	5
30820.WPH48J 32.0	32,0	short	J	25	48	3	52	5
30820.WPH48J 32.5	32,5	short	J	25	48	3	52	5
30820.WPH48J 33.0	33,0	short	J	25	48	3	52	5
30820.WPH48J 33.5	33,5	short	J	25	48	3	52	5
30820.WPH48J 34.0	34,0	short	J	25	48	3	52	5
30820.WPH48J 34.5	34,5	short	J	25	48	3	52	5
30820.WPH48J 35.0	35,0	short	J	25	48	3	52	5
30820.WPH55L 35.5	35,5	short	L	30	55	3,5	59	5
30820.WPH55L 36.0	36,0	short	L	30	55	3,5	59	5
30820.WPH55L 36.5	36,5	short	L	30	55	3,5	59	5
30820.WPH55L 37.0	37,0	short	L	30	55	3,5	59	5
30820.WPH55L 37.5	37,5	short	L	30	55	3,5	59	5
30820.WPH55L 38.0	38,0	short	L	30	55	3,5	59	5
30820.WPH55L 38.5	38,5	short	L	30	55	3,5	59	5

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A

short

30820

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH55L 39.0	39,0	short	L	30	55	3,5	59	5
30820.WPH55L 39.5	39,5	short	L	30	55	3,5	59	5
30820.WPH55L 40.0	40,0	short	L	30	55	3,5	59	5
30820.WPH55L 40.5	40,5	short	L	30	55	3,5	59	5
30820.WPH55L 42.0	42,0	short	L	30	55	3,5	59	5
30820.WPH55L 41.5	41,5	short	L	30	55	3,5	59	5
30820.WPH55L 42.0	42,0	short	L	30	55	3,5	59	5
30820.WPH62L 42.5	42,5	short	L	30	62	3,5	66	6
30820.WPH62L 43.0	43,0	short	L	30	62	3,5	66	6
30820.WPH62L 43.5	43,5	short	L	30	62	3,5	66	6
30820.WPH62L 44.0	44,0	short	L	30	62	3,5	66	6
30820.WPH62L 44.5	44,5	short	L	30	62	3,5	66	6
30820.WPH62L 45.0	45,0	short	L	30	62	3,5	66	6
30820.WPH62L 45.5	45,5	short	L	30	62	3,5	66	6
30820.WPH62L 46.0	46,0	short	L	30	62	3,5	66	6
30820.WPH62L 46.5	46,5	short	L	30	62	3,5	66	6
30820.WPH62L 47.0	47,0	short	L	30	62	3,5	66	6
30820.WPH62L 47.5	47,5	short	L	30	62	3,5	66	6
30820.WPH62L 48.0	48,0	short	L	30	62	3,5	66	6
30820.WPH70L 48.5	48,5	short	L	30	70	3,5	74	6
30820.WPH70L 49.0	49,0	short	L	30	70	3,5	74	6
30820.WPH70L 49.5	49,5	short	L	30	70	3,5	74	6
30820.WPH70L 50.0	50,0	short	L	30	70	3,5	74	6
30820.WPH70L 50.5	50,5	short	L	30	70	3,5	74	6
30820.WPH70L 51.0	51,0	short	L	30	70	3,5	74	6
30820.WPH70L 51.5	51,5	short	L	30	70	3,5	74	6
30820.WPH70L 52.0	52,0	short	L	30	70	3,5	74	6
30820.WPH70L 52.5	52,5	short	L	30	70	3,5	74	6
30820.WPH70L 53.0	53,0	short	L	30	70	3,5	74	6
30820.WPH70L 53.5	53,5	short	L	30	70	3,5	74	6
30820.WPH70L 54.0	54,0	short	L	30	70	3,5	74	6
30820.WPH70L 54.5	54,5	short	L	30	70	3,5	74	6
30820.WPH70L 55.0	55,0	short	L	30	70	3,5	74	6
30820.WPH78 M55.5	55,5	short	M	35	78	4	82	6
30820.WPH78 M56.0	56,0	short	M	35	78	4	82	6

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A

short

30820

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH78 M56.5	56,5	short	M	35	78	4	82	6
30820.WPH78 M57.0	57,0	short	M	35	78	4	82	6
30820.WPH78 M57.5	57,5	short	M	35	78	4	82	6
30820.WPH78 M58.0	58,0	short	M	35	78	4	82	6
30820.WPH78 M58.5	58,5	short	M	35	78	4	82	6
30820.WPH78 M59.0	59,0	short	M	35	78	4	82	6
30820.WPH78 M59.5	59,5	short	M	35	78	4	82	6
30820.WPH78 M60.0	60,0	short	M	35	78	4	82	6
30820.WPH78 M60.5	60,5	short	M	35	78	4	82	6
30820.WPH78 M61.0	61,0	short	M	35	78	4	82	6
30820.WPH78 M61.5	61,5	short	M	35	78	4	82	6
30820.WPH78 M62.0	62,0	short	M	35	78	4	82	6
30820.WPH78 M62.5	62,5	short	M	35	78	4	82	6
30820.WPH78 M63.0	63,0	short	M	35	78	4	82	6

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

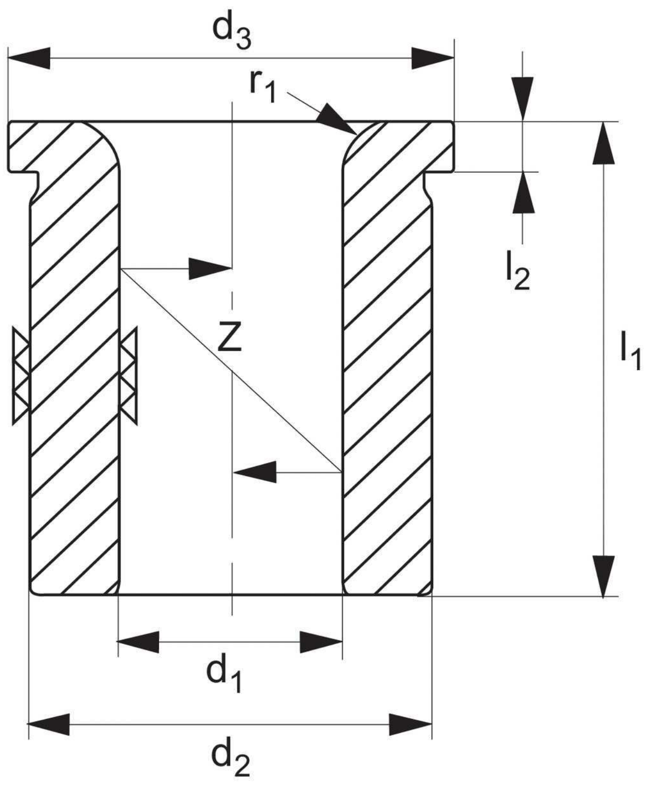
Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A

medium

30820



ordering example

30820.WPP 3 A 0.9

headless o/d l_1 id

when ordering please always state internal bore (i/d) required - see d_1^{F7}

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH3C 0.9	0,9	medium	C	9	3	1	6	2
30820.WPH3C 1.0	1,0	medium	C	9	3	1	6	2
30820.WPH4C 1.1	1,1	medium	C	9	4	1	7	2
30820.WPH4C 1.2	1,2	medium	C	9	4	1	7	2
30820.WPH4C 1.3	1,3	medium	C	9	4	1	7	2
30820.WPH4C 1.4	1,4	medium	C	9	4	1	7	2
30820.WPH4C 1.5	1,5	medium	C	9	4	1	7	2
30820.WPH4C 1.6	1,6	medium	C	9	4	1	7	2
30820.WPH4C 1.7	1,7	medium	C	9	4	1	7	2
30820.WPH4C 1.8	1,8	medium	C	9	4	1	7	2
30820.WPH5C 1.9	1,9	medium	C	9	5	1	8	2
30820.WPH5C 2.0	2,0	medium	C	9	5	1	8	2
30820.WPH5C 2.1	2,1	medium	C	9	5	1	8	2
30820.WPH5C 2.2	2,2	medium	C	9	5	1	8	2

Headed Drill Bushes - DIN 172A

medium

30820

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH5C2.3	2,3	medium	C	9	5	1	8	2
30820.WPH5C2.4	2,4	medium	C	9	5	1	8	2
30820.WPH5C2.5	2,5	medium	C	9	5	1	8	2
30820.WPH5C2.6	2,6	medium	C	9	5	1	8	2
30820.WPH6E2.7	2,7	medium	E	12	6	1	9	2,5
30820.WPH6E2.8	2,8	medium	E	12	6	1	9	2,5
30820.WPH6E2.9	2,9	medium	E	12	6	1	9	2,5
30820.WPH6E3.0	3,0	medium	E	12	6	1	9	2,5
30820.WPH6E3.1	3,1	medium	E	12	6	1	9	2,5
30820.WPH6E3.2	3,2	medium	E	12	6	1	9	2,5
30820.WPH6E3.3	3,3	medium	E	12	6	1	9	2,5
30820.WPH7E3.4	3,4	medium	E	12	7	1	10	2,5
30820.WPH7E3.5	3,5	medium	E	12	7	1	10	2,5
30820.WPH7E3.6	3,6	medium	E	12	7	1	10	2,5
30820.WPH7E3.7	3,7	medium	E	12	7	1	10	2,5
30820.WPH7E3.8	3,8	medium	E	12	7	1	10	2,5
30820.WPH7E3.9	3,9	medium	E	12	7	1	10	2,5
30820.WPH7E4.0	4,0	medium	E	12	7	1	10	2,5
30820.WPH8E4.1	4,1	medium	E	12	8	1	11	2,5
30820.WPH8E4.2	4,2	medium	E	12	8	1	11	2,5
30820.WPH8E4.3	4,3	medium	E	12	8	1	11	2,5
30820.WPH8E4.4	4,4	medium	E	12	8	1	11	2,5
30820.WPH8E4.5	4,5	medium	E	12	8	1	11	2,5
30820.WPH8E4.6	4,6	medium	E	12	8	1	11	2,5
30820.WPH8E4.7	4,7	medium	E	12	8	1	11	2,5
30820.WPH8E4.8	4,8	medium	E	12	8	1	11	2,5
30820.WPH8E4.9	4,9	medium	E	12	8	1	11	2,5
30820.WPH8E5.0	5,0	medium	E	12	8	1	11	2,5
30820.WPH10F5.1	5,1	medium	F	16	10	1,5	13	3
30820.WPH10F5.2	5,2	medium	F	16	10	1,5	13	3
30820.WPH10F5.3	5,3	medium	F	16	10	1,5	13	3
30820.WPH10F5.4	5,4	medium	F	16	10	1,5	13	3
30820.WPH10F5.5	5,5	medium	F	16	10	1,5	13	3
30820.WPH10F5.6	5,6	medium	F	16	10	1,5	13	3
30820.WPH10F5.7	5,7	medium	F	16	10	1,5	13	3

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A

medium

30820

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH10F 5.8	5,8	medium	F	16	10	1,5	13	3
30820.WPH10F 5.9	5,9	medium	F	16	10	1,5	13	3
30820.WPH10F 6.0	6,0	medium	F	16	10	1,5	13	3
30820.WPH12F 6.1	6,1	medium	F	16	12	1,5	15	3
30820.WPH12F 6.2	6,2	medium	F	16	12	1,5	15	3
30820.WPH12F 6.3	6,3	medium	F	16	12	1,5	15	3
30820.WPH12F 6.4	6,4	medium	F	16	12	1,5	15	3
30820.WPH12F 6.5	6,5	medium	F	16	12	1,5	15	3
30820.WPH12F 6.6	6,6	medium	F	16	12	1,5	15	3
30820.WPH12F 6.7	6,7	medium	F	16	12	1,5	15	3
30820.WPH12F 6.8	6,8	medium	F	16	12	1,5	15	3
30820.WPH12F 6.9	6,9	medium	F	16	12	1,5	15	3
30820.WPH12F 7.0	7,0	medium	F	16	12	1,5	15	3
30820.WPH12F 7.1	7,1	medium	F	16	12	1,5	15	3
30820.WPH12F 7.2	7,2	medium	F	16	12	1,5	15	3
30820.WPH12F 7.3	7,3	medium	F	16	12	1,5	15	3
30820.WPH12F 7.4	7,4	medium	F	16	12	1,5	15	3
30820.WPH12F 7.5	7,5	medium	F	16	12	1,5	15	3
30820.WPH12F 7.6	7,6	medium	F	16	12	1,5	15	3
30820.WPH12F 7.7	7,7	medium	F	16	12	1,5	15	3
30820.WPH12F 7.8	7,8	medium	F	16	12	1,5	15	3
30820.WPH12F 7.9	7,9	medium	F	16	12	1,5	15	3
30820.WPH12F 8.0	8,0	medium	F	16	12	1,5	15	3
30820.WPH15 H8.1	8,1	medium	H	20	15	2	18	3
30820.WPH15 H8.2	8,2	medium	H	20	15	2	18	3
30820.WPH15 H8.3	8,3	medium	H	20	15	2	18	3
30820.WPH15 H8.4	8,4	medium	H	20	15	2	18	3
30820.WPH15 H8.5	8,5	medium	H	20	15	2	18	3
30820.WPH15 H8.6	8,6	medium	H	20	15	2	18	3
30820.WPH15 H8.7	8,7	medium	H	20	15	2	18	3
30820.WPH15 H8.8	8,8	medium	H	20	15	2	18	3
30820.WPH15 H8.9	8,9	medium	H	20	15	2	18	3
30820.WPH15 H9.0	9,0	medium	H	20	15	2	18	3
30820.WPH15 H9.1	9,1	medium	H	20	15	2	18	3
30820.WPH15 H9.2	9,2	medium	H	20	15	2	18	3

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A
medium

30820

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH15 H9.3	9,3	medium	H	20	15	2	18	3
30820.WPH15 H9.4	9,4	medium	H	20	15	2	18	3
30820.WPH15 H9.5	9,5	medium	H	20	15	2	18	3
30820.WPH15 H9.6	9,6	medium	H	20	15	2	18	3
30820.WPH15 H9.7	9,7	medium	H	20	15	2	18	3
30820.WPH15 H9.8	9,8	medium	H	20	15	2	18	3
30820.WPH15 H9.9	9,9	medium	H	20	15	2	18	3
30820.WPH15 H10.0	10,0	medium	H	20	15	2	18	3
30820.WPH18 H10.1	10,1	medium	H	20	18	2	22	4
30820.WPH18 H10.2	10,2	medium	H	20	18	2	22	4
30820.WPH18 H10.3	10,3	medium	H	20	18	2	22	4
30820.WPH18 H10.4	10,4	medium	H	20	18	2	22	4
30820.WPH18 H10.5	10,5	medium	H	20	18	2	22	4
30820.WPH18 H10.6	10,6	medium	H	20	18	2	22	4
30820.WPH18 H10.7	10,7	medium	H	20	18	2	22	4
30820.WPH18 H10.8	10,8	medium	H	20	18	2	22	4
30820.WPH18 H10.9	10,9	medium	H	20	18	2	22	4
30820.WPH18 H11.0	11,0	medium	H	20	18	2	22	4
30820.WPH18 H11.1	11,1	medium	H	20	18	2	22	4
30820.WPH18 H11.2	11,2	medium	H	20	18	2	22	4
30820.WPH18 H11.3	11,3	medium	H	20	18	2	22	4
30820.WPH18 H11.4	11,4	medium	H	20	18	2	22	4
30820.WPH18 H11.5	11,5	medium	H	20	18	2	22	4
30820.WPH18 H11.6	11,6	medium	H	20	18	2	22	4
30820.WPH18 H11.7	11,7	medium	H	20	18	2	22	4
30820.WPH18 H11.8	11,8	medium	H	20	18	2	22	4
30820.WPH18 H11.9	11,9	medium	H	20	18	2	22	4
30820.WPH18 H12.0	12,0	medium	H	20	18	2	22	4
30820.WPH22 K12.1	12,1	medium	K	28	22	2	26	4
30820.WPH22 K12.2	12,2	medium	K	28	22	2	26	4
30820.WPH22 K12.3	12,3	medium	K	28	22	2	26	4
30820.WPH22 K12.4	12,4	medium	K	28	22	2	26	4
30820.WPH22 K12.5	12,5	medium	K	28	22	2	26	4
30820.WPH22 K12.6	12,6	medium	K	28	22	2	26	4
30820.WPH22 K12.7	12,7	medium	K	28	22	2	26	4

Material
High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes
d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips
Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes
Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH22 K12.8	12,8	medium	K	28	22	2	26	4
30820.WPH22 K12.9	12,9	medium	K	28	22	2	26	4
30820.WPH22 K13.0	13,0	medium	K	28	22	2	26	4
30820.WPH22 K13.1	13,1	medium	K	28	22	2	26	4
30820.WPH22 K13.2	13,2	medium	K	28	22	2	26	4
30820.WPH22 K13.3	13,3	medium	K	28	22	2	26	4
30820.WPH22 K13.4	13,4	medium	K	28	22	2	26	4
30820.WPH22 K13.5	13,5	medium	K	28	22	2	26	4
30820.WPH22 K13.6	13,6	medium	K	28	22	2	26	4
30820.WPH22 K13.7	13,7	medium	K	28	22	2	26	4
30820.WPH22 K13.8	13,8	medium	K	28	22	2	26	4
30820.WPH22 K13.9	13,9	medium	K	28	22	2	26	4
30820.WPH22 K14.0	14,0	medium	K	28	22	2	26	4
30820.WPH22 K14.1	14,1	medium	K	28	22	2	26	4
30820.WPH22 K14.2	14,2	medium	K	28	22	2	26	4
30820.WPH22 K14.3	14,3	medium	K	28	22	2	26	4
30820.WPH22 K14.4	14,4	medium	K	28	22	2	26	4
30820.WPH22 K14.5	14,5	medium	K	28	22	2	26	4
30820.WPH22 K14.6	14,6	medium	K	28	22	2	26	4
30820.WPH22 K14.7	14,7	medium	K	28	22	2	26	4
30820.WPH22 K14.8	14,8	medium	K	28	22	2	26	4
30820.WPH22 K14.9	14,9	medium	K	28	22	2	26	4
30820.WPH22 K15.0	15,0	medium	K	28	22	2	26	4
30820.WPH26 K15.5	15,5	medium	K	28	26	2	30	4
30820.WPH26 K16.0	16,0	medium	K	28	26	2	30	4
30820.WPH26 K16.5	16,5	medium	K	28	26	2	30	4
30820.WPH26 K17.0	17,0	medium	K	28	26	2	30	4
30820.WPH26 K17.5	17,5	medium	K	28	26	2	30	4
30820.WPH26 K18.0	18,0	medium	K	28	26	2	30	4
30820.WPH30 N18.5	18,5	medium	N	36	30	3	34	5
30820.WPH30 N19.0	19,0	medium	N	36	30	3	34	5
30820.WPH30 N19.5	19,5	medium	N	36	30	3	34	5
30820.WPH30 N20.0	20,0	medium	N	36	30	3	34	5
30820.WPH30 N20.5	20,5	medium	N	36	30	3	34	5
30820.WPH30 N21.0	21,0	medium	N	36	30	3	34	5

Material
High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes
d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips
Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes
Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A

medium

30820

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH30 N21.5	21,5	medium	N	36	30	3	34	5
30820.WPH30 N22.0	22,0	medium	N	36	30	3	34	5
30820.WPH35 N22.5	22,5	medium	N	36	35	3	39	5
30820.WPH35 N23.0	23,0	medium	N	36	35	3	39	5
30820.WPH35 N23.5	23,5	medium	N	36	35	3	39	5
30820.WPH35 N24.0	24,0	medium	N	36	35	3	39	5
30820.WPH35 N24.5	24,5	medium	N	36	35	3	39	5
30820.WPH35 N25.0	25,0	medium	N	36	35	3	39	5
30820.WPH35 N25.5	25,5	medium	N	36	35	3	39	5
30820.WPH35 N26.0	26,0	medium	N	36	35	3	39	5
30820.WPH42 R26.5	26,5	medium	R	45	42	3	46	5
30820.WPH42 R27.0	27,0	medium	R	45	42	3	46	5
30820.WPH42 R27.5	27,5	medium	R	45	42	3	46	5
30820.WPH42 R28.0	28,0	medium	R	45	42	3	46	5
30820.WPH42 R28.5	28,5	medium	R	45	42	3	46	5
30820.WPH42 R29.0	29,0	medium	R	45	42	3	46	5
30820.WPH42 R29.5	29,5	medium	R	45	42	3	46	5
30820.WPH42 R30.0	30,0	medium	R	45	42	3	46	5
30820.WPH48 R30.5	30,5	medium	R	45	48	3	52	5
30820.WPH48 R31.0	31,0	medium	R	45	48	3	52	5
30820.WPH48 R31.5	31,5	medium	R	45	48	3	52	5
30820.WPH48 R32.0	32,0	medium	R	45	48	3	52	5
30820.WPH48 R32.5	32,5	medium	R	45	48	3	52	5
30820.WPH48 R33.0	33,0	medium	R	45	48	3	52	5
30820.WPH48 R33.5	33,5	medium	R	45	48	3	52	5
30820.WPH48 R34.0	34,0	medium	R	45	48	3	52	5
30820.WPH48 R34.5	34,5	medium	R	45	48	3	52	5
30820.WPH48 R35.0	35,0	medium	R	45	48	3	52	5
30820.WPH55 S35.5	35,5	medium	S	56	55	3,5	59	5
30820.WPH55 S36.0	36,0	medium	S	56	55	3,5	59	5
30820.WPH55 S36.5	36,5	medium	S	56	55	3,5	59	5
30820.WPH55 S37.0	37,0	medium	S	56	55	3,5	59	5
30820.WPH55 S37.5	37,5	medium	S	56	55	3,5	59	5
30820.WPH55 S38.0	38,0	medium	S	56	55	3,5	59	5
30820.WPH55 S38.5	38,5	medium	S	56	55	3,5	59	5

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A
medium

30820

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH55 S39.0	39,0	medium	S	56	55	3,5	59	5
30820.WPH55 S39.5	39,5	medium	S	56	55	3,5	59	5
30820.WPH55 S40.0	40,0	medium	S	56	55	3,5	59	5
30820.WPH55 S40.5	40,5	medium	S	56	55	3,5	59	5
30820.WPH55 S42.0	42,0	medium	S	56	55	3,5	59	5
30820.WPH55 S41.5	41,5	medium	S	56	55	3,5	59	5
30820.WPH55 S42.0	42,0	medium	S	56	55	3,5	59	5
30820.WPH62 S42.5	42,5	medium	S	56	62	3,5	66	6
30820.WPH62 S43.0	43,0	medium	S	56	62	3,5	66	6
30820.WPH62 S43.5	43,5	medium	S	56	62	3,5	66	6
30820.WPH62 S44.0	44,0	medium	S	56	62	3,5	66	6
30820.WPH62 S44.5	44,5	medium	S	56	62	3,5	66	6
30820.WPH62 S45.0	45,0	medium	S	56	62	3,5	66	6
30820.WPH62 S45.5	45,5	medium	S	56	62	3,5	66	6
30820.WPH62 S46.0	46,0	medium	S	56	62	3,5	66	6
30820.WPH62 S46.5	46,5	medium	S	56	62	3,5	66	6
30820.WPH62 S47.0	47,0	medium	S	56	62	3,5	66	6
30820.WPH62 S47.5	47,5	medium	S	56	62	3,5	66	6
30820.WPH62 S48.0	48,0	medium	S	56	62	3,5	66	6
30820.WPH70 S48.5	48,5	medium	S	56	70	3,5	74	6
30820.WPH70 S49.0	49,0	medium	S	56	70	3,5	74	6
30820.WPH70 S49.5	49,5	medium	S	56	70	3,5	74	6
30820.WPH70 S50.0	50,0	medium	S	56	70	3,5	74	6
30820.WPH70 S50.5	50,5	medium	S	56	70	3,5	74	6
30820.WPH70 S51.0	51,0	medium	S	56	70	3,5	74	6
30820.WPH70 S51.5	51,5	medium	S	56	70	3,5	74	6
30820.WPH70 S52.0	52,0	medium	S	56	70	3,5	74	6
30820.WPH70 S52.5	52,5	medium	S	56	70	3,5	74	6
30820.WPH70 S53.0	53,0	medium	S	56	70	3,5	74	6
30820.WPH70 S53.5	53,5	medium	S	56	70	3,5	74	6
30820.WPH70 S54.0	54,0	medium	S	56	70	3,5	74	6
30820.WPH70 S54.5	54,5	medium	S	56	70	3,5	74	6
30820.WPH70 S55.0	55,0	medium	S	56	70	3,5	74	6
30820.WPH78T 55.5	55,5	medium	T	67	78	4	82	6
30820.WPH78T 56.0	56,0	medium	T	67	78	4	82	6

Material
High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes
d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips
Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes
Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A

medium

30820

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH78T 56.5	56,5	medium	T	67	78	4	82	6
30820.WPH78T 57.0	57,0	medium	T	67	78	4	82	6
30820.WPH78T 57.5	57,5	medium	T	67	78	4	82	6
30820.WPH78T 58.0	58,0	medium	T	67	78	4	82	6
30820.WPH78T 58.5	58,5	medium	T	67	78	4	82	6
30820.WPH78T 59.0	59,0	medium	T	67	78	4	82	6
30820.WPH78T 59.5	59,5	medium	T	67	78	4	82	6
30820.WPH78T 60.0	60,0	medium	T	67	78	4	82	6
30820.WPH78T 60.5	60,5	medium	T	67	78	4	82	6
30820.WPH78T 61.0	61,0	medium	T	67	78	4	82	6
30820.WPH78T 61.5	61,5	medium	T	67	78	4	82	6
30820.WPH78T 62.0	62,0	medium	T	67	78	4	82	6
30820.WPH78T 62.5	62,5	medium	T	67	78	4	82	6
30820.WPH78T 63.0	63,0	medium	T	67	78	4	82	6

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

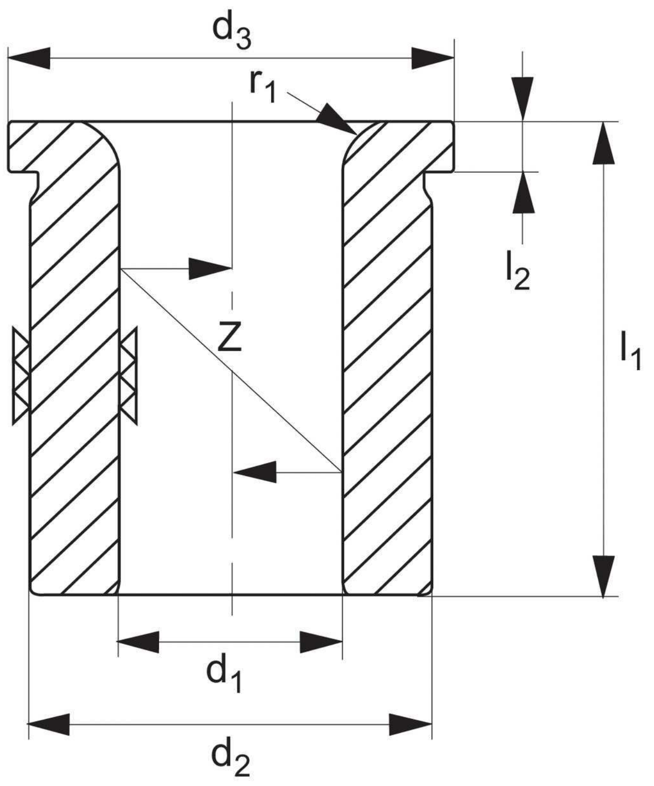
Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A

long

30820



ordering example

30820.WPP 3 A 0.9

headless o/d l_1 id

when ordering please always state internal bore (i/d) required - see d_1^{F7}

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH6F2.7	2,7	long	F	16	6	1	9	2,5
30820.WPH6F2.8	2,8	long	F	16	6	1	9	2,5
30820.WPH6F2.9	2,9	long	F	16	6	1	9	2,5
30820.WPH6F3.0	3,0	long	F	16	6	1	9	2,5
30820.WPH6F3.1	3,1	long	F	16	6	1	9	2,5
30820.WPH6F3.2	3,2	long	F	16	6	1	9	2,5
30820.WPH6F3.3	3,3	long	F	16	6	1	9	2,5
30820.WPH7F3.4	3,4	long	F	16	7	1	10	2,5
30820.WPH7F3.5	3,5	long	F	16	7	1	10	2,5
30820.WPH7F3.6	3,6	long	F	16	7	1	10	2,5
30820.WPH7F3.7	3,7	long	F	16	7	1	10	2,5
30820.WPH7F3.8	3,8	long	F	16	7	1	10	2,5
30820.WPH7F3.9	3,9	long	F	16	7	1	10	2,5
30820.WPH7F4.0	4,0	long	F	16	7	1	10	2,5

Headded Drill Bushes - DIN 172A

long

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH8F4.1	4,1	long	F	16	8	1	11	2,5
30820.WPH8F4.2	4,2	long	F	16	8	1	11	2,5
30820.WPH8F4.3	4,3	long	F	16	8	1	11	2,5
30820.WPH8F4.4	4,4	long	F	16	8	1	11	2,5
30820.WPH8F4.5	4,5	long	F	16	8	1	11	2,5
30820.WPH8F4.6	4,6	long	F	16	8	1	11	2,5
30820.WPH8F4.7	4,7	long	F	16	8	1	11	2,5
30820.WPH8F4.8	4,8	long	F	16	8	1	11	2,5
30820.WPH8F4.9	4,9	long	F	16	8	1	11	2,5
30820.WPH8F5.0	5,0	long	F	16	8	1	11	2,5
30820.WPH10H5.1	5,1	long	H	20	10	1,5	13	3
30820.WPH10H5.2	5,2	long	H	20	10	1,5	13	3
30820.WPH10H5.3	5,3	long	H	20	10	1,5	13	3
30820.WPH10H5.4	5,4	long	H	20	10	1,5	13	3
30820.WPH10H5.5	5,5	long	H	20	10	1,5	13	3
30820.WPH10H5.6	5,6	long	H	20	10	1,5	13	3
30820.WPH10H5.7	5,7	long	H	20	10	1,5	13	3
30820.WPH10H5.8	5,8	long	H	20	10	1,5	13	3
30820.WPH10H5.9	5,9	long	H	20	10	1,5	13	3
30820.WPH10H6.0	6,0	long	H	20	10	1,5	13	3
30820.WPH12H6.1	6,1	long	H	20	12	1,5	15	3
30820.WPH12H6.2	6,2	long	H	20	12	1,5	15	3
30820.WPH12H6.3	6,3	long	H	20	12	1,5	15	3
30820.WPH12H6.4	6,4	long	H	20	12	1,5	15	3
30820.WPH12H6.5	6,5	long	H	20	12	1,5	15	3
30820.WPH12H6.6	6,6	long	H	20	12	1,5	15	3
30820.WPH12H6.7	6,7	long	H	20	12	1,5	15	3
30820.WPH12H6.8	6,8	long	H	20	12	1,5	15	3
30820.WPH12H6.9	6,9	long	H	20	12	1,5	15	3
30820.WPH12H7.0	7,0	long	H	20	12	1,5	15	3
30820.WPH12H7.1	7,1	long	H	20	12	1,5	15	3
30820.WPH12H7.2	7,2	long	H	20	12	1,5	15	3
30820.WPH12H7.3	7,3	long	H	20	12	1,5	15	3
30820.WPH12H7.4	7,4	long	H	20	12	1,5	15	3
30820.WPH12H7.5	7,5	long	H	20	12	1,5	15	3

30820

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A
long

30820

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH12H7.6	7,6	long	H	20	12	1,5	15	3
30820.WPH12H7.7	7,7	long	H	20	12	1,5	15	3
30820.WPH12H7.8	7,8	long	H	20	12	1,5	15	3
30820.WPH12H7.9	7,9	long	H	20	12	1,5	15	3
30820.WPH12H8.0	8,0	long	H	20	12	1,5	15	3
30820.WPH15J8.1	8,1	long	J	25	15	2	18	3
30820.WPH15J8.2	8,2	long	J	25	15	2	18	3
30820.WPH15J8.3	8,3	long	J	25	15	2	18	3
30820.WPH15J8.4	8,4	long	J	25	15	2	18	3
30820.WPH15J8.5	8,5	long	J	25	15	2	18	3
30820.WPH15J8.6	8,6	long	J	25	15	2	18	3
30820.WPH15J8.7	8,7	long	J	25	15	2	18	3
30820.WPH15J8.8	8,8	long	J	25	15	2	18	3
30820.WPH15J8.9	8,9	long	J	25	15	2	18	3
30820.WPH15J9.0	9,0	long	J	25	15	2	18	3
30820.WPH15J9.1	9,1	long	J	25	15	2	18	3
30820.WPH15J9.2	9,2	long	J	25	15	2	18	3
30820.WPH15J9.3	9,3	long	J	25	15	2	18	3
30820.WPH15J9.4	9,4	long	J	25	15	2	18	3
30820.WPH15J9.5	9,5	long	J	25	15	2	18	3
30820.WPH15J9.6	9,6	long	J	25	15	2	18	3
30820.WPH15J9.7	9,7	long	J	25	15	2	18	3
30820.WPH15J9.8	9,8	long	J	25	15	2	18	3
30820.WPH15J9.9	9,9	long	J	25	15	2	18	3
30820.WPH15J10.0	10,0	long	J	25	15	2	18	3
30820.WPH18J10.1	10,1	long	J	25	18	2	22	4
30820.WPH18J10.2	10,2	long	J	25	18	2	22	4
30820.WPH18J10.3	10,3	long	J	25	18	2	22	4
30820.WPH18J10.4	10,4	long	J	25	18	2	22	4
30820.WPH18J10.5	10,5	long	J	25	18	2	22	4
30820.WPH18J10.6	10,6	long	J	25	18	2	22	4
30820.WPH18J10.7	10,7	long	J	25	18	2	22	4
30820.WPH18J10.8	10,8	long	J	25	18	2	22	4
30820.WPH18J10.9	10,9	long	J	25	18	2	22	4
30820.WPH18J11.0	11,0	long	J	25	18	2	22	4

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A

long

30820

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH18J11.1	11,1	long	J	25	18	2	22	4
30820.WPH18J11.2	11,2	long	J	25	18	2	22	4
30820.WPH18J11.3	11,3	long	J	25	18	2	22	4
30820.WPH18J11.4	11,4	long	J	25	18	2	22	4
30820.WPH18J11.5	11,5	long	J	25	18	2	22	4
30820.WPH18J11.6	11,6	long	J	25	18	2	22	4
30820.WPH18J11.7	11,7	long	J	25	18	2	22	4
30820.WPH18J11.8	11,8	long	J	25	18	2	22	4
30820.WPH18J11.9	11,9	long	J	25	18	2	22	4
30820.WPH18J12.0	12,0	long	J	25	18	2	22	4
30820.WPH22N12.1	12,1	long	N	36	22	2	26	4
30820.WPH22N12.2	12,2	long	N	36	22	2	26	4
30820.WPH22N12.3	12,3	long	N	36	22	2	26	4
30820.WPH22N12.4	12,4	long	N	36	22	2	26	4
30820.WPH22N12.5	12,5	long	N	36	22	2	26	4
30820.WPH22N12.6	12,6	long	N	36	22	2	26	4
30820.WPH22N12.7	12,7	long	N	36	22	2	26	4
30820.WPH22N12.8	12,8	long	N	36	22	2	26	4
30820.WPH22N12.9	12,9	long	N	36	22	2	26	4
30820.WPH22N13.0	13,0	long	N	36	22	2	26	4
30820.WPH22N13.1	13,1	long	N	36	22	2	26	4
30820.WPH22N13.2	13,2	long	N	36	22	2	26	4
30820.WPH22N13.3	13,3	long	N	36	22	2	26	4
30820.WPH22N13.4	13,4	long	N	36	22	2	26	4
30820.WPH22N13.5	13,5	long	N	36	22	2	26	4
30820.WPH22N13.6	13,6	long	N	36	22	2	26	4
30820.WPH22N13.7	13,7	long	N	36	22	2	26	4
30820.WPH22N13.8	13,8	long	N	36	22	2	26	4
30820.WPH22N13.9	13,9	long	N	36	22	2	26	4
30820.WPH22N14.0	14,0	long	N	36	22	2	26	4
30820.WPH22N14.1	14,1	long	N	36	22	2	26	4
30820.WPH22N14.2	14,2	long	N	36	22	2	26	4
30820.WPH22N14.3	14,3	long	N	36	22	2	26	4
30820.WPH22N14.4	14,4	long	N	36	22	2	26	4
30820.WPH22N14.5	14,5	long	N	36	22	2	26	4

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A

long

30820

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH22N14.6	14,6	long	N	36	22	2	26	4
30820.WPH22N14.7	14,7	long	N	36	22	2	26	4
30820.WPH22N14.8	14,8	long	N	36	22	2	26	4
30820.WPH22N14.9	14,9	long	N	36	22	2	26	4
30820.WPH22N15.0	15,0	long	N	36	22	2	26	4
30820.WPH26N15.5	15,5	long	N	36	26	2	30	4
30820.WPH26N16.0	16,0	long	N	36	26	2	30	4
30820.WPH26N16.5	16,5	long	N	36	26	2	30	4
30820.WPH26N17.0	17,0	long	N	36	26	2	30	4
30820.WPH26N17.5	17,5	long	N	36	26	2	30	4
30820.WPH26N18.0	18,0	long	N	36	26	2	30	4
30820.WPH30R18.5	18,5	long	R	45	30	3	34	5
30820.WPH30R19.0	19,0	long	R	45	30	3	34	5
30820.WPH30R19.5	19,5	long	R	45	30	3	34	5
30820.WPH30R20.0	20,0	long	R	45	30	3	34	5
30820.WPH30R20.5	20,5	long	R	45	30	3	34	5
30820.WPH30R21.0	21,0	long	R	45	30	3	34	5
30820.WPH30R21.5	21,5	long	R	45	30	3	34	5
30820.WPH30R22.0	22,0	long	R	45	30	3	34	5
30820.WPH35R22.5	22,5	long	R	45	35	3	39	5
30820.WPH35R23.0	23,0	long	R	45	35	3	39	5
30820.WPH35R23.5	23,5	long	R	45	35	3	39	5
30820.WPH35R24.0	24,0	long	R	45	35	3	39	5
30820.WPH35R24.5	24,5	long	R	45	35	3	39	5
30820.WPH35R25.0	25,0	long	R	45	35	3	39	5
30820.WPH35R25.5	25,5	long	R	45	35	3	39	5
30820.WPH35R26.0	26,0	long	R	45	35	3	39	5
30820.WPH42S26.5	26,5	long	S	56	42	3	46	5
30820.WPH42S27.0	27,0	long	S	56	42	3	46	5
30820.WPH42S27.5	27,5	long	S	56	42	3	46	5
30820.WPH42S28.0	28,0	long	S	56	42	3	46	5
30820.WPH42S28.5	28,5	long	S	56	42	3	46	5
30820.WPH42S29.0	29,0	long	S	56	42	3	46	5
30820.WPH42S29.5	29,5	long	S	56	42	3	46	5
30820.WPH42S30.0	30,0	long	S	56	42	3	46	5

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A

long

30820

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH48 S30.5	30,5	long	S	56	48	3	52	5
30820.WPH48 S31.0	31,0	long	S	56	48	3	52	5
30820.WPH48 S31.5	31,5	long	S	56	48	3	52	5
30820.WPH48 S32.0	32,0	long	S	56	48	3	52	5
30820.WPH48 S32.5	32,5	long	S	56	48	3	52	5
30820.WPH48 S33.0	33,0	long	S	56	48	3	52	5
30820.WPH48 S33.5	33,5	long	S	56	48	3	52	5
30820.WPH48 S34.0	34,0	long	S	56	48	3	52	5
30820.WPH48 S34.5	34,5	long	S	56	48	3	52	5
30820.WPH48 S35.0	35,0	long	S	56	48	3	52	5
30820.WPH55T 35.5	35,5	long	T	67	55	3,5	59	5
30820.WPH55T 36.0	36,0	long	T	67	55	3,5	59	5
30820.WPH55T 36.5	36,5	long	T	67	55	3,5	59	5
30820.WPH55T 37.0	37,0	long	T	67	55	3,5	59	5
30820.WPH55T 37.5	37,5	long	T	67	55	3,5	59	5
30820.WPH55T 38.0	38,0	long	T	67	55	3,5	59	5
30820.WPH55T 38.5	38,5	long	T	67	55	3,5	59	5
30820.WPH55T 39.0	39,0	long	T	67	55	3,5	59	5
30820.WPH55T 39.5	39,5	long	T	67	55	3,5	59	5
30820.WPH55T 40.0	40,0	long	T	67	55	3,5	59	5
30820.WPH55T 40.5	40,5	long	T	67	55	3,5	59	5
30820.WPH55T 42.0	42,0	long	T	67	55	3,5	59	5
30820.WPH55T 41.5	41,5	long	T	67	55	3,5	59	5
30820.WPH55T 42.0	42,0	long	T	67	55	3,5	59	5
30820.WPH62T 42.5	42,5	long	T	67	62	3,5	66	6
30820.WPH62T 43.0	43,0	long	T	67	62	3,5	66	6
30820.WPH62T 43.5	43,5	long	T	67	62	3,5	66	6
30820.WPH62T 44.0	44,0	long	T	67	62	3,5	66	6
30820.WPH62T 44.5	44,5	long	T	67	62	3,5	66	6
30820.WPH62T 45.0	45,0	long	T	67	62	3,5	66	6
30820.WPH62T 45.5	45,5	long	T	67	62	3,5	66	6
30820.WPH62T 46.0	46,0	long	T	67	62	3,5	66	6
30820.WPH62T 46.5	46,5	long	T	67	62	3,5	66	6
30820.WPH62T 47.0	47,0	long	T	67	62	3,5	66	6
30820.WPH62T 47.5	47,5	long	T	67	62	3,5	66	6

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
- l_1 medium
- l_1 long

Table of lengths l_1:

A- 6mm
B- 8mm
C- 9mm
D- 10mm
E- 12mm
F- 16mm
H- 20mm
J- 25mm
K- 28mm
L- 30mm
M- 35mm
N- 36mm
P- 40mm
R- 45mm
S- 56mm
T- 67mm
W- 78mm

Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

Drill bushes produced to standard DIN increments for internal bores: i/d's 0,9mm to 15,0mm - 0,1mm increments e.g. 1,1 mm, 1,2mm etc. i/d's 15,1mm and over -0,5mm increments.

Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

Headed Drill Bushes - DIN 172A

long

Order No.	i/d - d_1	length gen	length letter	length mm	d_2	r_1	d_3	l_2
30820.WPH62T 48.0	48,0	long	T	67	62	3,5	66	6
30820.WPH70T 48.5	48,5	long	T	67	70	3,5	74	6
30820.WPH70T 49.0	49,0	long	T	67	70	3,5	74	6
30820.WPH70T 49.5	49,5	long	T	67	70	3,5	74	6
30820.WPH70T 50.0	50,0	long	T	67	70	3,5	74	6
30820.WPH70T 50.5	50,5	long	T	67	70	3,5	74	6
30820.WPH70T 51.0	51,0	long	T	67	70	3,5	74	6
30820.WPH70T 51.5	51,5	long	T	67	70	3,5	74	6
30820.WPH70T 52.0	52,0	long	T	67	70	3,5	74	6
30820.WPH70T 52.5	52,5	long	T	67	70	3,5	74	6
30820.WPH70T 53.0	53,0	long	T	67	70	3,5	74	6
30820.WPH70T 53.5	53,5	long	T	67	70	3,5	74	6
30820.WPH70T 54.0	54,0	long	T	67	70	3,5	74	6
30820.WPH70T 54.5	54,5	long	T	67	70	3,5	74	6
30820.WPH70T 55.0	55,0	long	T	67	70	3,5	74	6
30820.WPH78 W55.5	55,5	long	W	78	78	4	82	6
30820.WPH78 W56.0	56,0	long	W	78	78	4	82	6
30820.WPH78 W56.5	56,5	long	W	78	78	4	82	6
30820.WPH78 W57.0	57,0	long	W	78	78	4	82	6
30820.WPH78 W57.5	57,5	long	W	78	78	4	82	6
30820.WPH78 W58.0	58,0	long	W	78	78	4	82	6
30820.WPH78 W58.5	58,5	long	W	78	78	4	82	6
30820.WPH78 W59.0	59,0	long	W	78	78	4	82	6
30820.WPH78 W59.5	59,5	long	W	78	78	4	82	6
30820.WPH78 W60.0	60,0	long	W	78	78	4	82	6
30820.WPH78 W60.5	60,5	long	W	78	78	4	82	6
30820.WPH78 W61.0	61,0	long	W	78	78	4	82	6
30820.WPH78 W61.5	61,5	long	W	78	78	4	82	6
30820.WPH78 W62.0	62,0	long	W	78	78	4	82	6
30820.WPH78 W62.5	62,5	long	W	78	78	4	82	6
30820.WPH78 W63.0	63,0	long	W	78	78	4	82	6

30820

Material

High grade steel. Hardened 740 +HV10.
Hole, d_1 ground ISO tolerance F7.
o/d-d_2 ground ISO tolerance n6, to fit standard hole tolerance H_7.
Length l_1 to ±0,2 for lengths 6 to 30mm.

Technical Notes

d_1 dimension tolerance to F7.
Key to dimensions l_1:
- l_1 short
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S- 56mm
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Tips

Sizes 48,0 i/d and above are made to order
Please note sizes d_1 <0,9 prices available on request.

Important Notes

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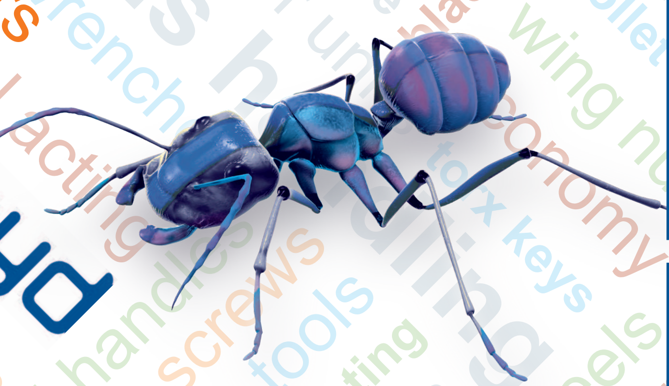
Ordering drill bushes to DIN standard increments offers a cost advantage, as non-standard bores are machined to order as specials.

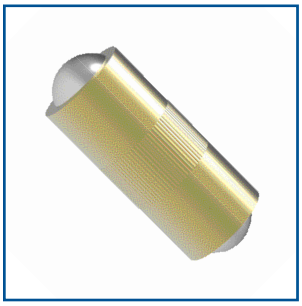
Wixroyd

spring plungers

detent pins

positioning elements

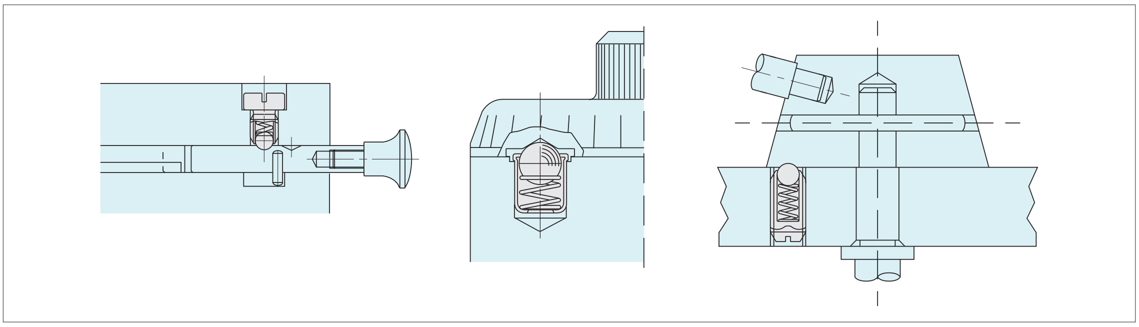




Spring Plungers & Detent Pins

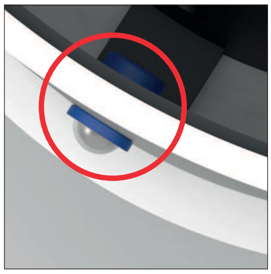
Wixroyd Spring Plungers - A Range of Endless Possibilities

Made of high quality steel and stainless steel, Wixroyd's Spring Plunger range is proven to be reliable for millions of repetitions in securing, positioning, positive locking, indexing and quick release. Their application is limited only by the imagination!



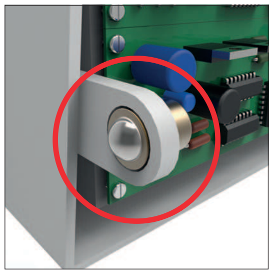
Commercial lighting

Three push-fit spring plungers no. 32000 have been added to the design of this recessed commercial light fitting. The push-fit design of the plunger makes for easy assembly during production. Their use greatly simplifies the mounting and servicing of the units, reducing handling costs and saving valuable operator time.



Medical applications

Used in conjunction with a simple hinge, Wixroyd spring plunger 32300 provides an easy and secure means to positively position and secure the back panel of a blood gas analysis machine. With both brass and stainless steel varieties, our spring plungers have a wide range of application in the medical, pharmaceutical, food and drink processing industries.



Applications

Uses

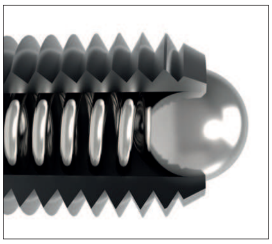
- For location, applying pressure and "lifting off".
- Securing and positioning.
- Positive locking and indexing.
- Quick release.

Industry Sectors

- Machine and fixture design.
- Measuring equipment.
- Electronic components.
- Lighting equipment.
- Medical, optics and orthopaedics.

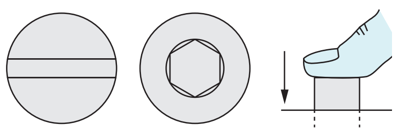
Wixroyd Spring Plungers - Uses and Mounting Options

Ball Type



- 31400
- 31420
- 31500
- 32000
- 32100
- 32102
- 32280
- 32300
- 32302
- 32350

Mounting Options

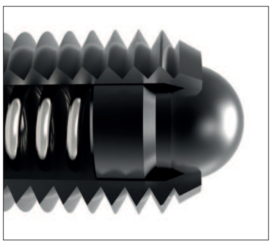


Rear slot

Rear hexagon

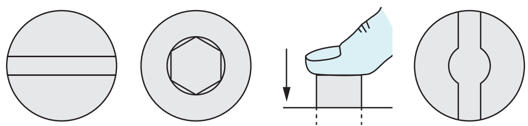
Push fit

Pin Head Type



- 31000
- 31600
- 32150
- 32200
- 32220
- 32282
- 32400
- 32420

Mounting Options



Rear slot

Rear hexagon

Push fit

Front slot

ov-31400-32420-a - Updated - 10-01-2017

Thread details

All Wixroyd metric spring plungers have a course thread.

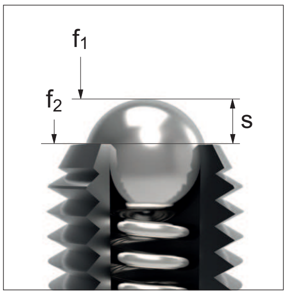
ISO metric coarse threads (mm)																
O. dia. (D)	3	3,5	4	4,5	5	6	7	8	10	12	14	16	18	20	22	24
Pitch	0,50	0,60	0,70	0,75	0,80	1,00	1,00	1,25	1,50	1,75	2,00	2,00	2,50	2,50	2,50	3,00

Spring loads

s Stroke, or movement of plunger's ball or pin.

f_1 The force required in Newtons (N) to over come the static strength of the spring and achieve initial movement of the plunger's ball or pin.

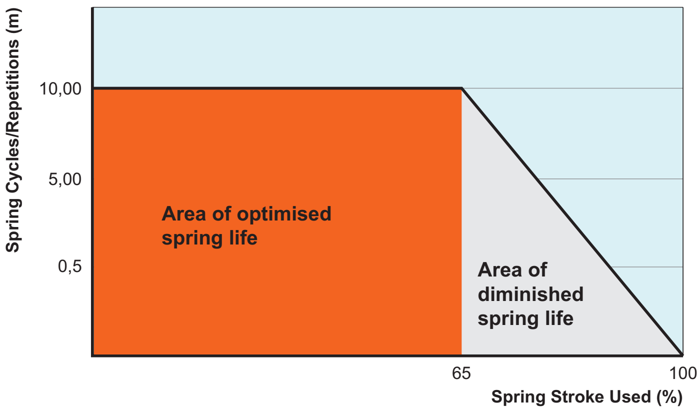
f_2 The force required in Newtons (N) to fully compress the spring until the ball or pin is fully depressed against the plunger's body.



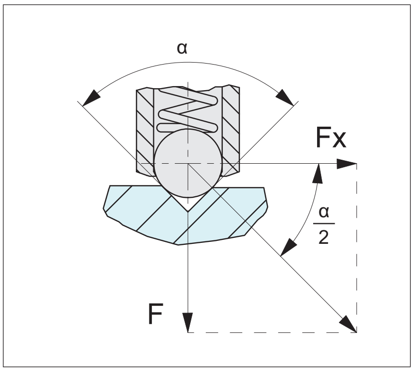
Typical spring repetitions

Although dependent upon a number of application specific factors, we are able to give the following guide relating to the maximum number of spring repetitions or cycles of our spring plungers.

- 100% or full stroke "s" used: approx. 300,000 cycles.
- 65% of stroke "s" used: approx 10,000,000 cycles.



Calculating indexing resistance



We are able to provide the following formula as an approximation of the pull or push force (N) required to 'release' a ball plunger from its indexing counterpart.

$$Fx = \frac{F}{\tan \frac{\alpha}{2}}$$

Fx = pull or push force (N)

F = plungers spring force (see relevant product table)

α = angle of the indexing counter part face

For example:

For Spring plunger 31500.W0010;

F = 24N (see product table)

If α = 90°

$$Fx = \frac{24}{\tan \frac{90}{2}} = 24N$$

If α = 60°

$$Fx = \frac{24}{\tan \frac{60}{2}} = 41{,}5N$$

If α = 120°

$$Fx = \frac{24}{\tan \frac{120}{2}} = 13{,}8N$$

Important Note: This is only an approximation formula. For more accurate calculation the roughness of the counterpart surface as well as any variation in the plungers spring force(due to age or high repetitions) should be considered.

Electrical conductivity

We are often asked the electrical conductivity of our spring plungers, unfortunately we are unable to provide any reliable information related to this as there are many factors in an application. We recommend you study the specific material properties of the spring plunger's component parts to make your own calculations, alternatively if in doubt make a test application.

Specials to your own design

Manufacturing exactly to your specific requirements is also our strength. If you need a variation in spring pressure, plunger body or pin design we can assist with a special design item for volumes as low as 1,000 units.

For further information, or to request a quotation, please call our sales office on 0845 26 66 577.

Quality products every time

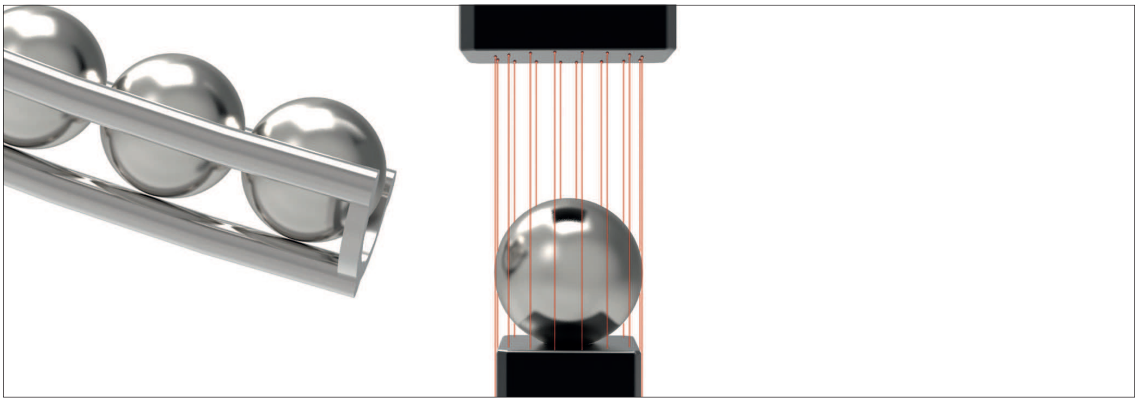
100% testing

- Every spring plunger that is produced on the Wixroyd assembly line is individually tested. That is how we guarantee the quality of our products.
- A Wixroyd spring plunger is tested against four key criteria during manufacture.

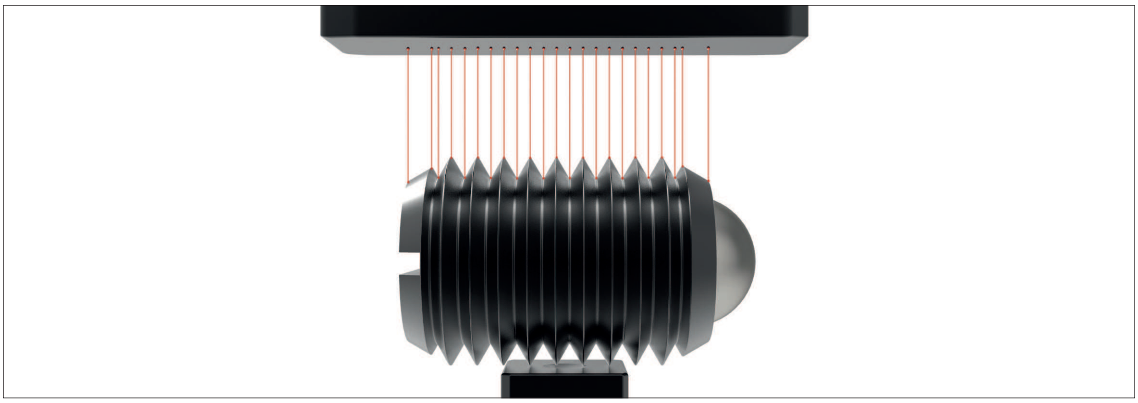
Accuracy of 'S' stroke/ spring range

Accuracy of f_1 and f_2 spring forces

Accuracy of ball diameter



Accuracy of thread

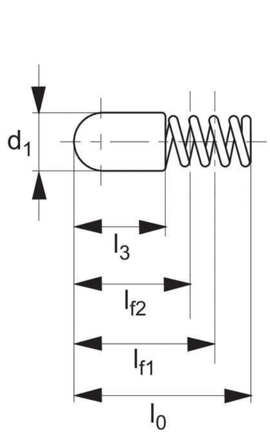


ov-31400-32420-b - Updated - 10-01-2017

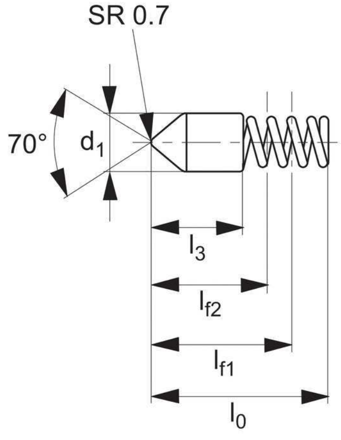
Spring Bodies

steel or stainless steel

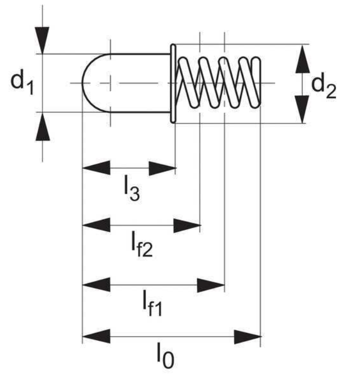
31000



round

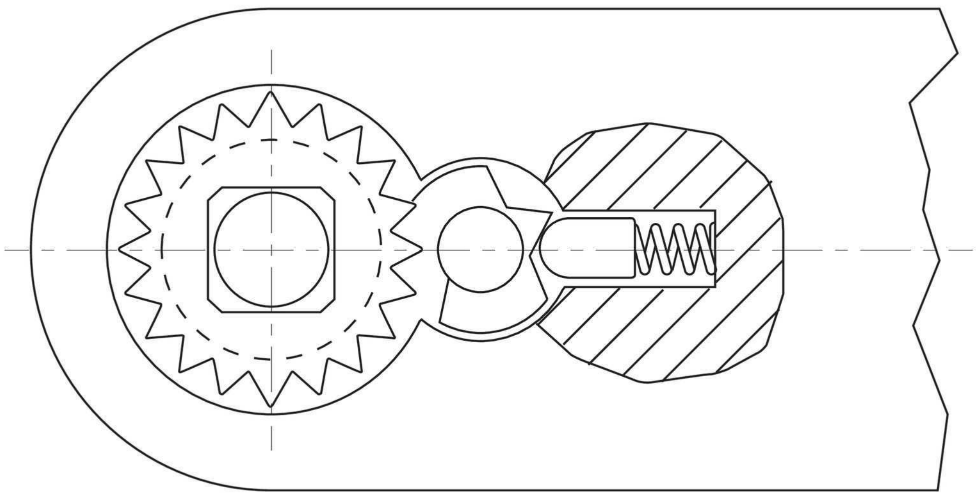


tipped



round, with collar

Order No.	Type	Finish	d_1 ±0.05	l_0	d_2	l_3	l_{f1}	l_{f2}	Spring load* f_1 N	Spring load* f_2 N	R N/mm	g
31000.W0012	Round	Steel	2,2	16	-	7,8	12,0	10,5	2,2	3,0	0,53	0,13
31000.W0016	Round	Steel	2,6	8	-	3,8	6,5	5,2	1,1	2,0	0,70	0,07
31000.W0022	Round	Steel	3,0	12	-	6,0	9,0	8,7	6,2	6,8	2,00	0,18
31000.W0024	Round	Steel	3,0	16	-	8,5	13,0	10,7	4,8	8,4	1,60	0,23
31000.W0034	Round	Steel	3,4	12	-	6,0	9,0	7,8	5,0	7,0	1,69	0,18
31000.W0036	Round	Steel	3,4	15	-	7,3	12,0	8,2	5,9	13,3	1,95	0,22
31000.W0042	Round	Steel	4,0	14	-	8,0	12,0	9,0	5,0	12,3	2,45	0,41
31000.W0052	Round	Steel	5,0	16	-	8,0	13,0	10,4	8,0	15,0	2,70	0,59
31000.W0124	Round	Stainless	3,0	16	-	8,0	13,0	10,6	4,8	8,6	1,60	0,22
31000.W0137	Round	Stainless	3,6	18	-	9,0	15,0	11,5	6,7	14,5	2,24	0,36
31000.W0144	Round	Stainless	4,0	16	-	7,5	13,0	11,4	8,0	12,3	2,70	0,37
31000.W0212	Tipped	Steel	2,2	16	-	7,8	12,0	10,5	2,2	3,0	0,53	0,12
31000.W0222	Tipped	Steel	3,0	11	-	5,0	9,0	6,7	1,6	3,4	0,78	0,11
31000.W0224	Tipped	Steel	3,0	16	-	8,5	13,0	10,7	4,8	8,4	1,60	0,23
31000.W0373	Round, with Collar	Stainless	3,0	13	4,1	7,0	10,0	8,9	5,3	7,2	1,75	0,19



Material

Body: steel, nickel-plated.
Stainless steel 1.4303 (AISI 305).
Brass, nickel-plated.
Spring: stainless steel 1,4310 (AISI 301).

Technical Notes

Max. temperature 250°C. Spring load * = statistical average.

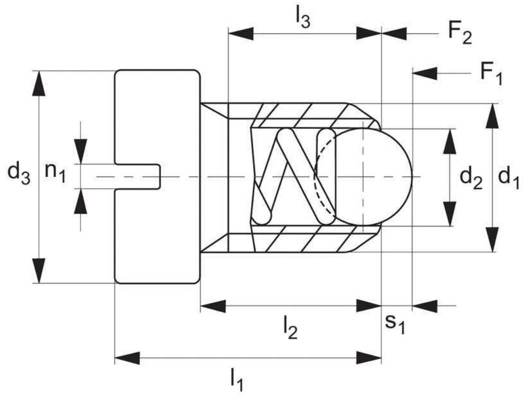
Tips

To be used for locating or as a detent.
Special springs available on request.

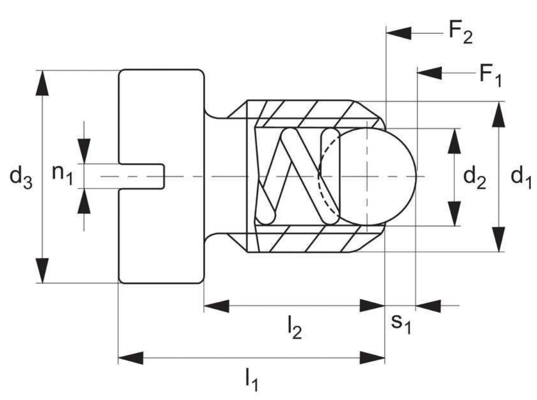
Spring Plungers

with ball & slot, headed - stainless steel

31400

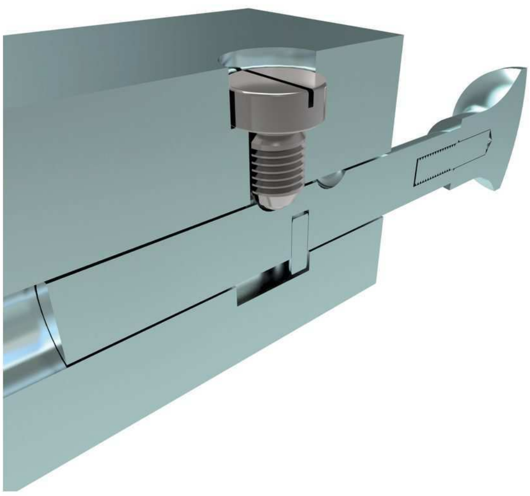


size M4 and M5



size M6 to M12

Order No. Steel	Order No. Stainless	d_1	d_2	d_3	l_1	l_2	l_3 **	s_1	n_1	Spring load* F_1 N	Spring load* F_2 N	g
31400.W0930	31400.W0940	M 4	2,5	6	9,5	6,5	5,0	0,8	0,6	8	14	1,2
31400.W0931	31400.W0941	M 5	3,0	8	12,5	8,5	6,7	0,9	0,8	8	14	2,4
31400.W0932	31400.W0942	M 6	3,5	10	14,0	9,0	-	1,0	1,0	11	18	3,9
31400.W0933	31400.W0943	M 8	4,5	13	16,5	11,0	-	1,5	1,2	18	31	7,9
31400.W0934	31400.W0944	M10	6,0	16	20,0	14,0	-	2,0	1,5	24	45	14,0
31400.W0935	31400.W0945	M12	8,0	18	22,0	15,0	-	2,5	2,0	26	49	20,0



Material

Free cutting steel type-
Body: free cutting steel, blackened.
Ball: ball bearing steel 1.3505 (100Cr6), hardened.
Spring: stainless steel.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Ball: stainless steel 1.3505 (100Cr6), hardened.
Spring: stainless steel.
For calculation of indexing resistance please refer to appendix - Technical Data.

Technical Notes

Max. temperature 250°C. Spring loads * = statistical average.
** For M4 and M5 threads dimension l_3 is max. screw in depth, i.e. there is no undercut.
For calculation of indexing resistance please refer to spring plunger technical pages.

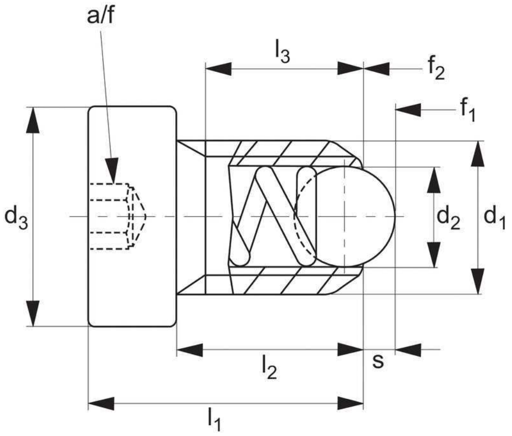
Important Notes

All metric Wixroyd spring plungers have a coarse thread, see appendix five for thread details.

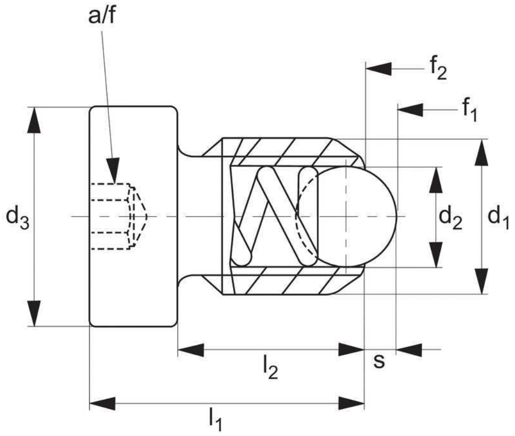
Spring Plungers

with ball end & hex. socket, headed - stainless steel

31420



size M4 and M5



size M6 and M12

Order No. Steel	Order No. Stainless	d_1	d_2	d_3	l_1	l_2	l_3 **	s	a/f	Spring load* f_1 N	Spring load* f_2 N	g
31420.W0930	31420.W0940	M 4	2,5	6	12	9,0	7,5	0,8	2,0	8	14	1,1
31420.W0931	31420.W0941	M 5	3,0	8	14	10,0	8,2	0,9	2,5	8	14	2,3
31420.W0932	31420.W0942	M 6	3,5	10	15	10,0	-	1,0	3,0	11	18	3,9
31420.W0933	31420.W0943	M 8	4,5	13	18	12,5	-	1,5	4,0	18	31	7,8
31420.W0934	31420.W0944	M10	6,0	16	23	17,0	-	2,0	5,0	24	45	14,0
31420.W0935	31420.W0945	M12	8,0	18	26	19,0	-	2,5	6,0	26	49	21,0

Material

Free cutting steel type-
Body: free cutting steel, blackened.
Ball: ball bearing steel 1.3505 (100Cr6) hardened.
Spring: stainless steel.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Ball: stainless steel 1.3505 (100Cr6), hardened.
Spring: stainless steel.

Technical Notes

Max. temperature 250°C. Spring loads * = statistical average. ** For M4 and M5 threads dimension l_3 is max. screw in depth, i.e. there is no undercut.
For calculation of indexing resistance please refer to spring plunger technical pages.

Tips

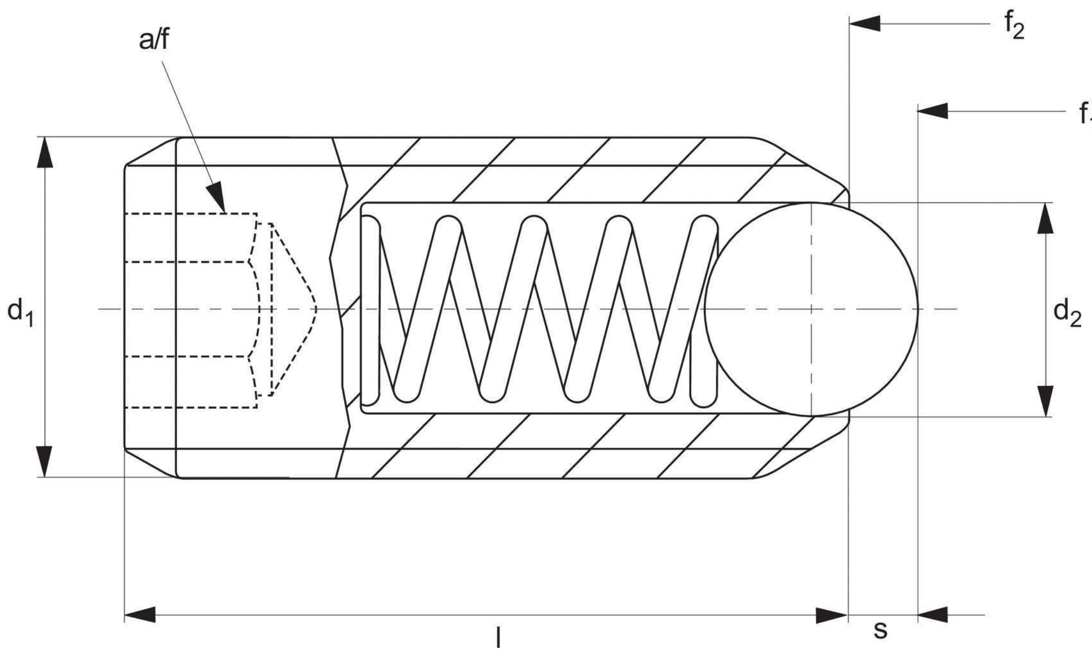
Used for locating, applying pressure or lifting off. Special types available on request.

Important Notes

All metric Wixroyd spring plungers have a coarse thread, see appendix five for thread details.

Spring Plungers

with ball end & hex. socket - stainless steel



Order No. Steel	Order No. Stainless	Spring load	d_1	d_2	l	s	a/f	Spring load* f_1 N≈	Spring load* f_2 N≈	g
31500.W0004	31500.W0204	Normal	M 4	2,5	12	0,8	2,0	8,5	14,0	0,7
31500.W0003	31500.W0203	Normal	M 3	1,5	8	0,4	1,5	3,0	4,5	0,3
31500.W0005	31500.W0205	Normal	M 5	3,0	14	0,9	2,5	8,0	14,0	1,2
31500.W0006	31500.W0206	Normal	M 6	3,5	15	1,0	3,0	11,0	18,0	1,8
31500.W0008	31500.W0208	Normal	M 8	4,5	18	1,5	4,0	18,0	31,0	3,9
31500.W0010	31500.W0210	Normal	M10	6,0	23	2,0	5,0	24,0	45,0	8,1
31500.W0012	31500.W0212	Normal	M12	8,0	26	2,5	6,0	26,0	49,0	13,0
31500.W0016	31500.W0216	Normal	M16	10,0	33	3,5	8,0	41,0	86,0	32,0
31500.W0020	31500.W0220	Normal	M20	12,0	43	4,5	10,0	56,0	111,0	66,0
31500.W0024	31500.W0224	Normal	M24	15,0	48	5,5	12,0	81,0	151,0	106,0
31500.W0045	31500.W0245	Increased	M 5	3,0	14	0,9	2,5	15,0	22,0	1,2
31500.W0046	31500.W0246	Increased	M 6	3,5	15	1,0	3,0	19,0	28,0	1,9
31500.W0048	31500.W0248	Increased	M 8	4,5	18	1,5	4,0	36,0	62,0	4,2
31500.W0050	31500.W0250	Increased	M10	6,0	23	2,0	5,0	57,0	104,0	8,2
31500.W0052	31500.W0252	Increased	M12	8,0	26	2,5	6,0	61,0	110,0	13,0
31500.W0056	31500.W0256	Increased	M16	10,0	33	3,5	8,0	68,0	142,0	33,0
31500.W0060	31500.W0260	Increased	M20	12,0	43	4,5	10,0	84,0	166,0	66,0
31500.W0064	31500.W0264	Increased	M24	15,0	48	5,5	12,0	127,0	237,0	107,0

Material

Free cutting steel type-
Body: free cutting steel, blackened.
Ball: ball bearing steel 1.3505 (100Cr6) hardened. Spring: stainless steel.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Ball: stainless steel 1.3505 (100Cr6), hardened.
Spring: stainless steel.

Technical Notes

These spring plungers may be used for location, for applying pressure or lifting off.
Temperature range max. 250° C.
Spring load * = statistical average value.
For calculation of indexing resistance please refer to spring plunger technical pages.

Tips

Spring load identifier:
Normal spring load - no marking.
Increased spring load - body marked with two lines.
Special types available on request.

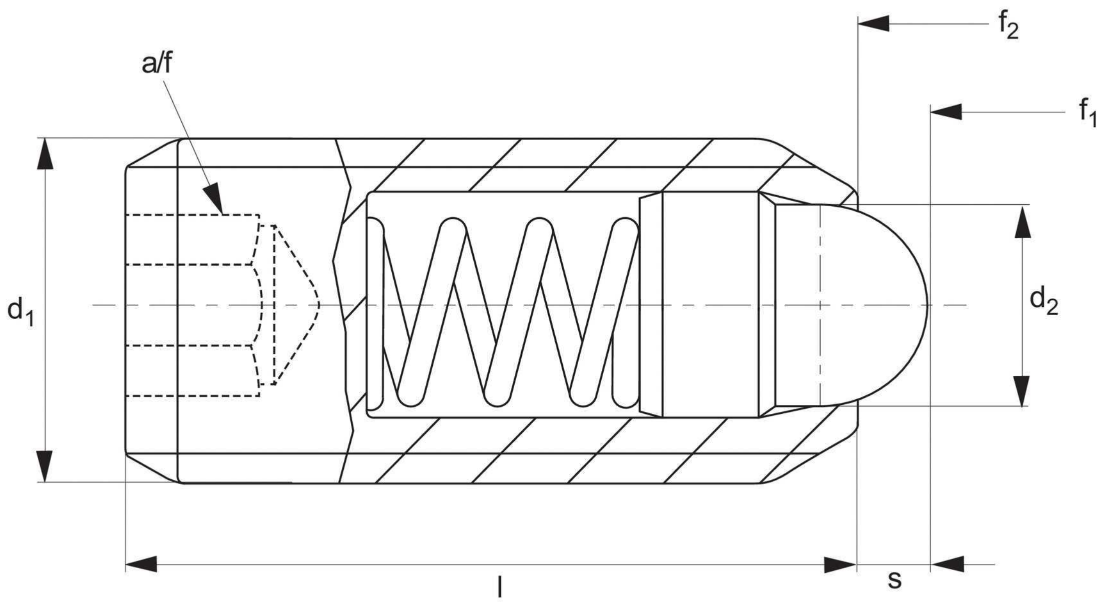
Important Notes

All metric Wixroyd spring plungers have a coarse thread, see appendix five for thread details.

Spring Plungers

with round-ended pin & hex. socket - stainless steel

31600



Order No. Steel	Order No. Stainless	Spring load	d_1	d_2	l	s	a/f	Spring load* f_1 N	Spring load* f_2 N	g
31600.W0104	31600.W0304	Normal	M 4	1,8	12	1,5	2,0	4,5	12,5	0,6
31600.W0105	31600.W0305	Normal	M 5	2,4	14	2,0	2,5	5,0	13,0	1,3
31600.W0106	31600.W0306	Normal	M 6	2,7	15	2,0	3,0	6,0	17,0	1,9
31600.W0108	31600.W0308	Normal	M 8	3,8	18	2,0	4,0	16,0	33,0	4,2
31600.W0110	31600.W0310	Normal	M10	4,5	23	2,5	5,0	19,0	42,0	8,5
31600.W0112	31600.W0312	Normal	M12	6,2	26	3,5	6,0	22,0	57,0	13,0
31600.W0116	31600.W0316	Normal	M16	8,5	33	4,5	8,0	38,0	78,0	32,0
31600.W0120	31600.W0320	Normal	M20	10,0	43	6,5	10,0	39,0	81,0	67,0
31600.W0124	31600.W0324	Normal	M24	13,0	48	8,0	12,0	72,0	155,0	106,0
31600.W0146	31600.W0346	Increased	M 6	2,7	15	2,0	3,0	11,0	25,0	2,0
31600.W0148	31600.W0348	Increased	M 8	3,8	18	2,0	4,0	23,0	59,0	4,2
31600.W0150	31600.W0350	Increased	M10	4,5	23	2,5	5,0	20,0	54,0	8,5
31600.W0152	31600.W0352	Increased	M12	6,2	26	3,5	6,0	38,0	96,0	13,0
31600.W0156	31600.W0356	Increased	M16	8,5	33	4,5	8,0	50,0	100,0	32,0
31600.W0160	31600.W0360	Increased	M20	10,0	43	6,5	10,0	52,0	133,0	67,0
31600.W0164	31600.W0364	Increased	M24	13,0	48	8,0	12,0	91,0	223,0	106,0

Material

Free cutting steel type-
Body: free cutting steel, blackened.
Pin: free cutting steel, hardened, blackened.
Spring: stainless steel.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303).
Spring: stainless steel.

Technical Notes

These spring plungers may be used for locating, for applying pressure or lifting off.
Temperature range max. 250° C.
Spring load * = statistical average value.

Tips

Spring load identifier:
Normal spring load - no marking.
Increased spring load - body marked with two lines.
Special types available on request.

Important Notes

All metric Wixroyd spring plungers have a coarse thread, see appendix five for thread details.

Referral

For imperial version of this plunger see 3B200.

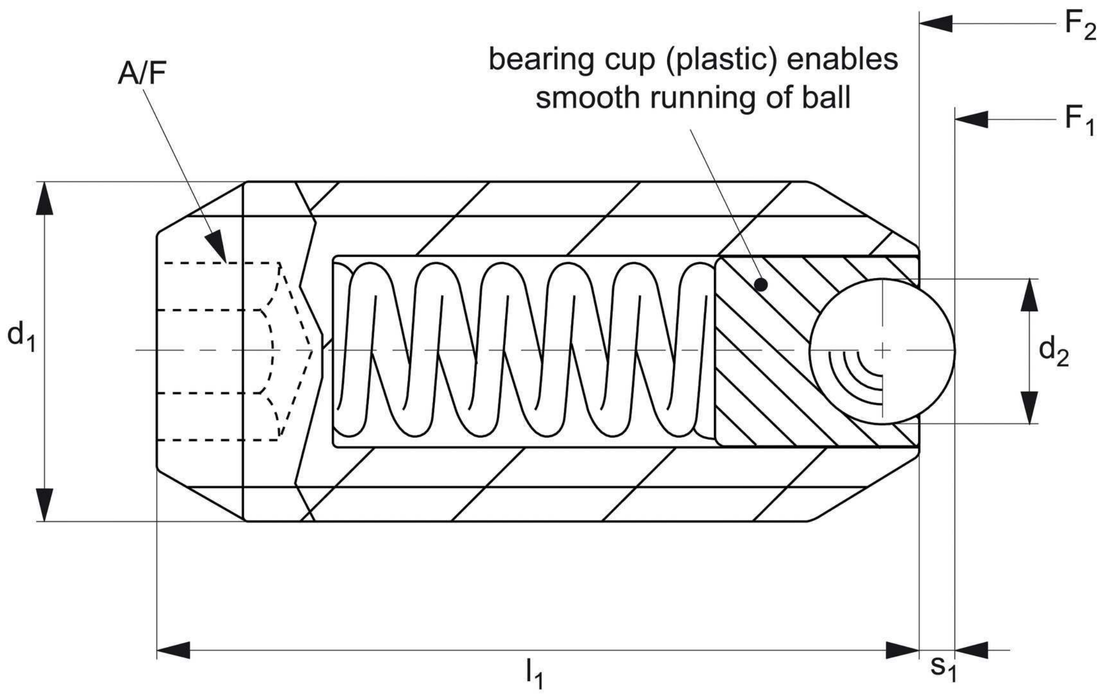
STAINLESS STEEL 303

upto 250°

Smooth Running - Spring Plungers

with ball and a hex. socket - stainless steel

31610



Order No.	Material	Spring load	d_1	d_2	l_1	A/F	s_1	Spring load F_1 N	Spring load F_2 N	g
31610.W0005	Steel	Normal	M 5	2,0	14	2,5	0,50	4,8	6,8	1,1
31610.W0006	Steel	Normal	M 6	2,5	15	3,0	0,70	6,3	10,0	2,1
31610.W0008	Steel	Normal	M 8	3,5	18	4,0	0,95	16,0	24,0	4,8
31610.W0010	Steel	Normal	M10	4,5	23	5,0	1,40	18,8	31,7	10,0
31610.W0012	Steel	Normal	M12	6,5	26	6,0	2,30	26,0	49,0	15,0
31610.W0016	Steel	Normal	M16	8,5	33	8,0	3,10	38,0	68,0	37,0
31610.W0045	Steel	Increased	M 5	2,0	14	2,5	0,50	10,0	14,0	1,2
31610.W0046	Steel	Increased	M 6	2,5	15	3,0	0,70	11,0	16,0	2,2
31610.W0048	Steel	Increased	M 8	3,5	18	4,0	0,95	23,0	40,0	5,0
31610.W0050	Steel	Increased	M10	4,5	23	5,0	1,40	54,3	54,3	10,0
31610.W0052	Steel	Increased	M12	6,5	26	6,0	2,30	39,5	77,3	15,0
31610.W0056	Steel	Increased	M16	8,5	33	8,0	3,10	50,0	88,7	37,0
31610.W0205	Stainless	Normal	M 5	2,0	14	2,5	0,50	4,8	6,8	1,1
31610.W0206	Stainless	Normal	M 6	2,5	15	3,0	0,70	6,3	10,0	2,1
31610.W0208	Stainless	Normal	M 8	3,5	18	4,0	0,95	16,0	24,0	4,8
31610.W0210	Stainless	Normal	M10	4,5	23	5,0	1,40	18,8	31,7	10,0
31610.W0212	Stainless	Normal	M12	6,5	26	6,0	2,30	26,0	49,0	15,0
31610.W0216	Stainless	Normal	M16	8,5	33	8,0	3,10	38,0	68,0	37,0
31610.W0245	Stainless	Increased	M 5	2,0	14	2,5	0,50	10,0	14,0	1,2
31610.W0246	Stainless	Increased	M 6	2,5	15	3,0	0,70	11,0	16,0	2,2
31610.W0248	Stainless	Increased	M 8	3,5	18	4,0	0,95	23,0	40,0	5,0
31610.W0250	Stainless	Increased	M10	4,5	23	5,0	1,40	28,0	54,3	10,0
31610.W0252	Stainless	Increased	M12	6,5	26	6,0	2,30	39,5	77,3	15,0
31610.W0256	Stainless	Increased	M16	8,5	33	8,0	3,10	50,0	88,7	37,0

Material

Free cutting steel type-
Body: free cutting steel, blackened.
Ball: ball bearing steel 1.3505(100Crb), hardened.
Spring: stainless steel.
Bearing cup: plastic.

Stainless steel type-
Body: stainless steel, 1.4305(AISI 303).
Ball: ball bearing steel 1.3505(100Crb), hardened.
Spring: stainless steel.
Bearing cup: plastic.

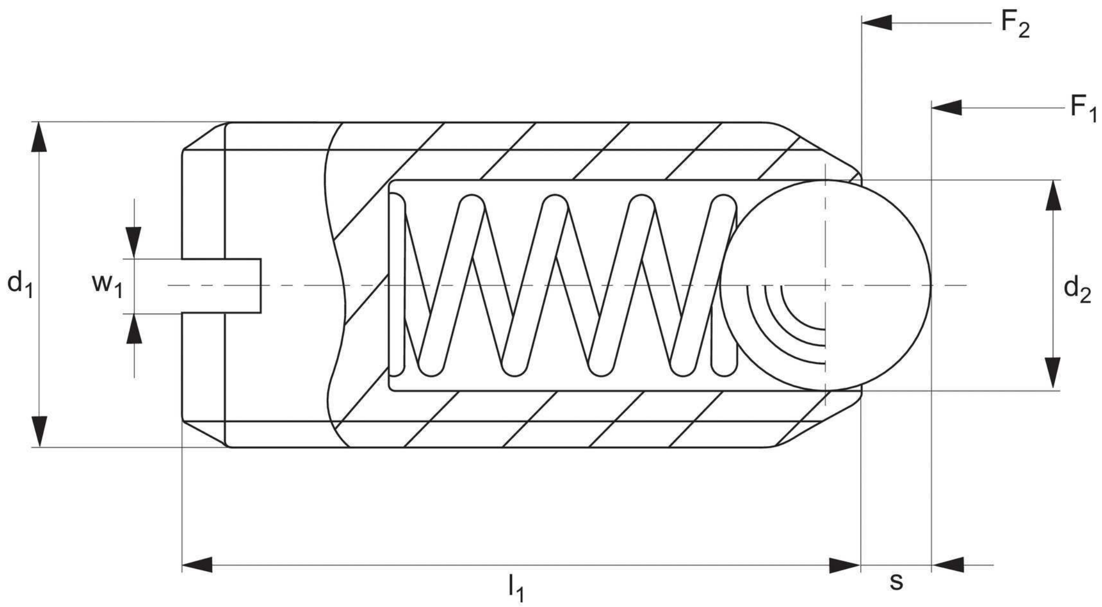
Technical Notes

Plunger's ball bearing is mounted in a unique plastic "bearing cup", angling the smooth running of the ball.
This offers a solution with less friction, for reduced surface damage to mounting parts.
In addition the plastic cup offers electrical insulation.

Temperature range -30°C to +90°C.

Spring Plungers
plastic version

32000



Order No.	Ball finish	d_1	d_2	l_1	s	w_1	Spring load* F_1 N	Spring load* F_2 N	g
32000.W0006	Stainless	M 6	3,5	14	0,9	1,0	12	17	0,6
32000.W0008	Stainless	M 8	5,0	16	1,5	1,2	20	35	1,3
32000.W0010	Stainless	M10	6,0	19	1,9	1,5	25	45	2,6
32000.W0406	Thermo	M 6	3,5	14	0,9	1,0	12	17	0,5
32000.W0408	Thermo	M 8	5,0	16	1,5	1,2	20	35	1,0
32000.W0410	Thermo	M10	6,0	19	1,9	1,5	25	45	1,8

Material
Body: thermoplastic POM, blue.
Ball: hardened stainless steel 1.3541 or white thermoplastic POM.
Spring: stainless steel.

Technical Notes
Used for locating, applying pressure or lifting off.
Temperature range -30ºC to +50ºC.
Spring loads * = statistical average value.
For calculation of indexing resistance please refer to spring plunger technical pages.

Tips
May be used where electrical conductivity is not required.
Special types available on request.

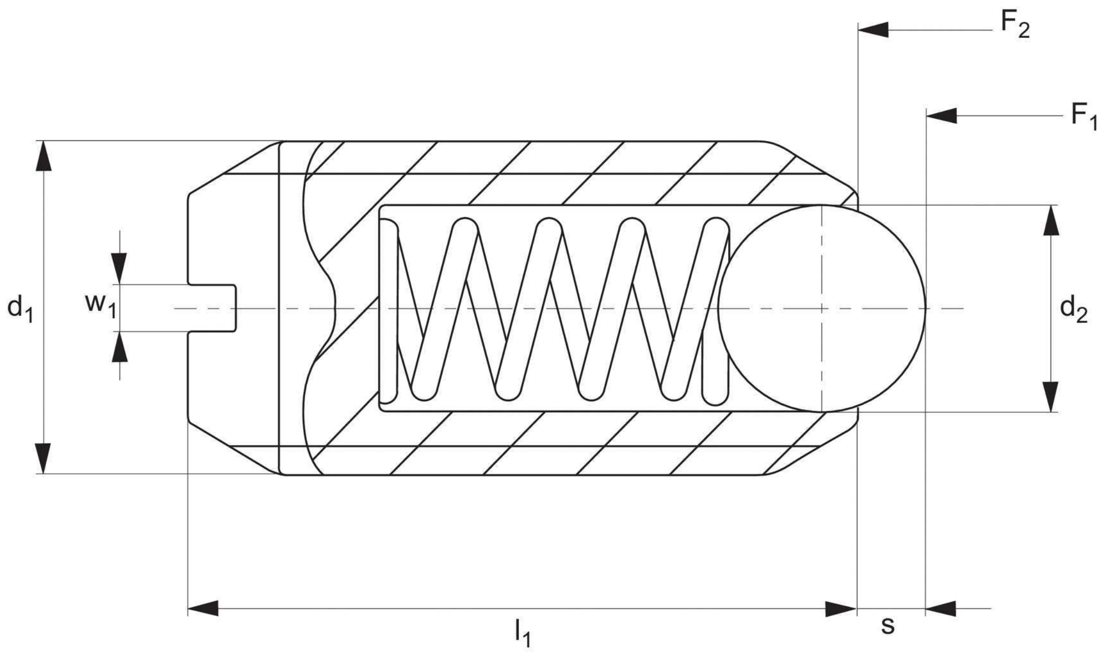
Important Notes
All metric Wixroyd spring plungers have a coarse thread, see appendix five for thread details.

POM

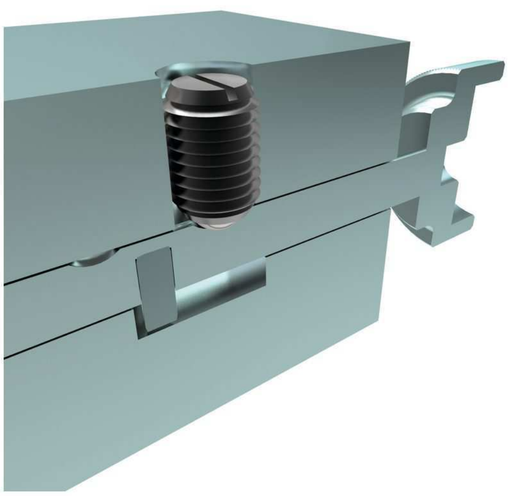
+50º -30º

Spring Plungers
with ball & slot - stainless steel

32100



Order No. Steel	Order No. Stainless	Spring load	d_1	d_2	l_1	s	w_1	Spring load* F_1 N	Spring load* F_2 N	g
-	32100.W0402	Normal	M 2	1,0	4	0,3	0,25	0,8	1,5	0,1
32100.W0003	32100.W0403	Normal	M 3	1,5	7	0,4	0,40	3,0	4,5	0,2
32100.W0004	32100.W0404	Normal	M 4	2,5	9	0,8	0,60	8,5	14,0	0,4
32100.W0005	32100.W0405	Normal	M 5	3,0	12	0,9	0,80	8,0	14,0	1,0
32100.W0006	32100.W0406	Normal	M 6	3,5	14	1,0	1,00	11,0	18,0	1,7
32100.W0008	32100.W0408	Normal	M 8	4,5	16	1,5	1,20	18,0	31,0	3,5
32100.W0010	32100.W0410	Normal	M10	6,0	19	2,0	1,50	24,0	45,0	6,6
32100.W0012	32100.W0412	Normal	M12	8,0	22	2,5	2,00	26,0	49,0	11,0
32100.W0016	32100.W0416	Normal	M16	10,0	24	3,5	2,00	41,0	86,0	23,0
32100.W0020	32100.W0420	Normal	M20	12,0	30	4,5	2,50	56,0	111,0	45,0
32100.W0024	32100.W0424	Normal	M24	15,0	34	5,5	3,00	81,0	151,0	72,0
32100.W0205	32100.W0605	Increased	M 5	3,0	12	0,9	0,80	15,0	22,0	1,0
32100.W0206	32100.W0606	Increased	M 6	3,5	14	1,0	1,00	19,0	28,0	1,7
32100.W0208	32100.W0608	Increased	M 8	4,5	16	1,5	1,20	36,0	62,0	3,6
32100.W0210	32100.W0610	Increased	M10	6,0	19	2,0	1,50	57,0	104,0	6,6
32100.W0212	32100.W0612	Increased	M12	8,0	22	2,5	2,00	61,0	110,0	11,0
32100.W0216	32100.W0616	Increased	M16	10,0	24	3,5	2,00	68,0	142,0	23,0
32100.W0220	32100.W0620	Increased	M20	12,0	30	4,5	2,50	84,0	166,0	43,0
32100.W0224	32100.W0624	Increased	M24	15,0	34	5,5	3,00	127,0	237,0	72,0



Material

Free cutting steel type-
Body: free cutting steel, blackened.
Ball: ball bearing steel 1.3505 (100Cr6) hardened.
Spring: stainless steel.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Ball: stainless steel 1.3505 (100Cr6), hardened.
Spring: stainless steel.

Technical Notes

These spring plungers may be used for location, for applying pressure or lifting off.
Temperature range up to 250ºC.
Spring load * = statistical average value.
For calculation of indexing resistance please refer to spring plunger technical pages.

Tips

Spring load identifier:
Normal spring load - no marking.
Increased spring load - body marked with two lines.
Special types available on request.

Important Notes

All metric Wixroyd spring plungers have a coarse thread, see appendix five for thread details.

Referral

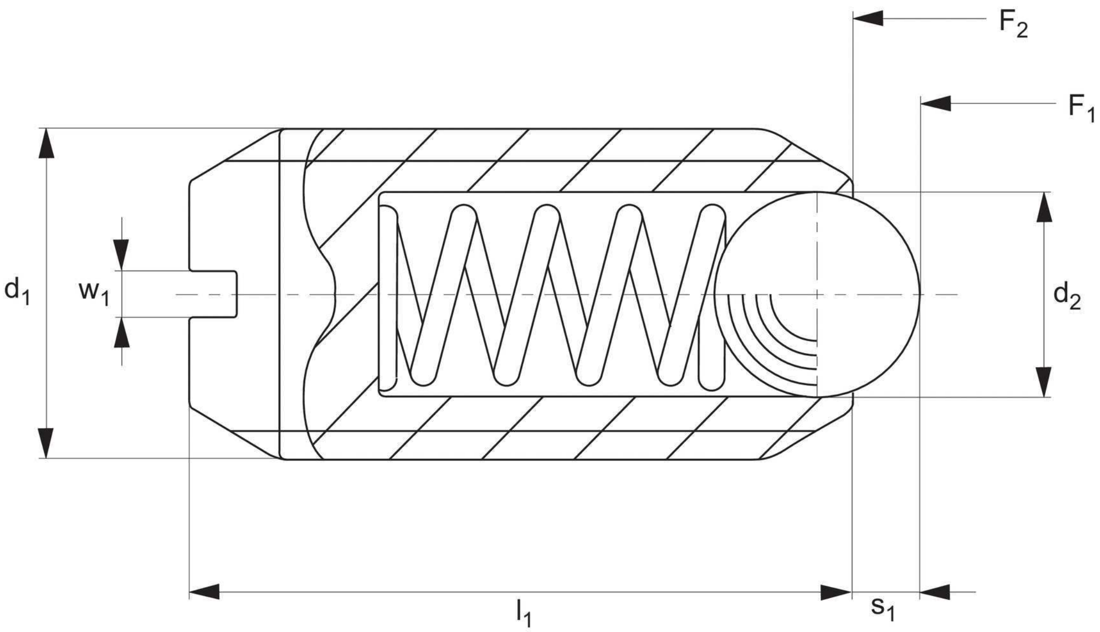
For imperial version of this plunger see 3B100.

STAINLESS STEEL 303
upto 250º

Spring Plunger

with ceramic ball and slot - stainless steel

32102



Order No.	Spring Load	d_1	d_2	l_1	s_1	w_1	Spring load F_1 N≈*	Spring load F2 N≈*	g
32102.W1404	Normal	M 4	2,5	9	0,8	0,6	8,5	14	0,4
32102.W1405	Normal	M 5	3,0	12	0,9	0,8	8,0	14	0,9
32102.W1406	Normal	M 6	3,5	14	1,0	1,0	11,0	18	1,6
32102.W1408	Normal	M 8	4,5	16	1,5	1,2	18,0	31	3,5
32102.W1410	Normal	M10	6,0	19	2,0	1,5	24,0	45	6,2
32102.W1412	Normal	M12	8,0	22	2,5	2,0	26,0	49	9,8
32102.W1416	Normal	M16	10,0	24	3,5	2,0	41,0	86	19,8
32102.W1605	Increased	M 5	3,0	12	0,9	0,8	15,0	22	1,1
32102.W1606	Increased	M 6	3,5	14	1,0	1,0	19,0	28	1,8
32102.W1608	Increased	M 8	4,5	16	1,5	1,2	36,0	62	3,4
32102.W1610	Increased	M10	6,0	19	2,0	1,5	57,0	104	6,1
32102.W1612	Increased	M12	8,0	22	2,5	2,0	61,0	110	9,8
32102.W1616	Increased	M16	10,0	24	3,5	2,0	68,0	142	19,8

Material

Body: stainless steel A4, passivated.
Ball: ceramic (silicone nitride), black.
Spring: stainless steel A4, passivated

Technical Notes

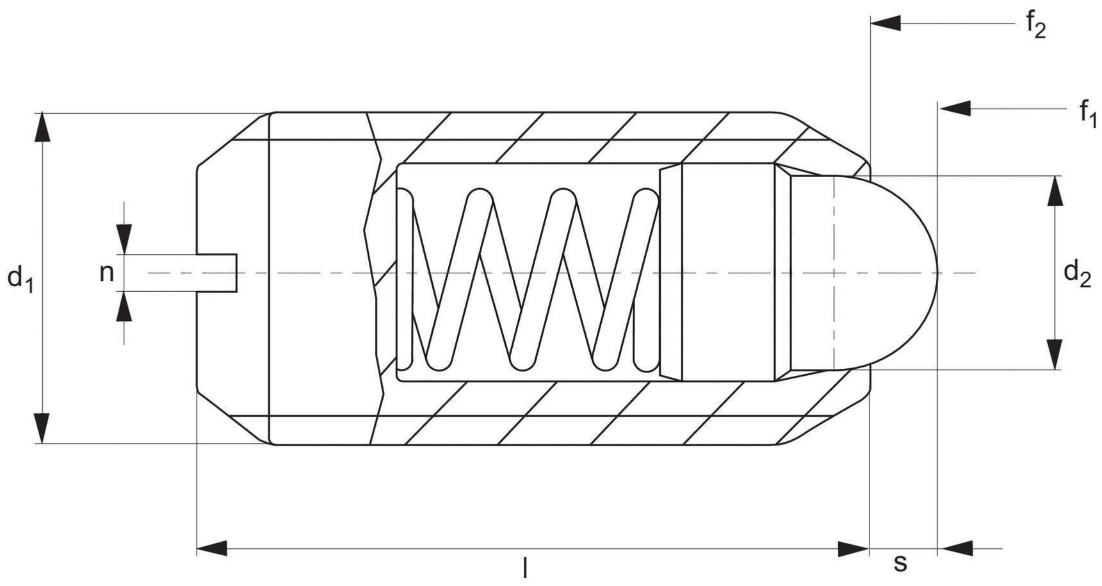
To be used for locating or for applying pressure, as a detent or for ejection. The version from stainless steel A4 guarantees the highest corrosion protection.
Ceramic ball: abrasion resistant, antimagnetic, electically isolating.
Temperature range up to max. 250°C.
Spring load * = Statistical average value.
For calculation of indexing resistance please refer to spring plunger technical pages.

Tips

Spring load identifier:
Normal spring load - no marking.
Increased spring load - body marked with two lines.
Special types available on request.

Spring Plungers

with round-ended pin & slot - stainless steel



Order No. Steel	Order No. Stainless	Spring load	d_1	d_2	l	s	n	Spring load* f_1 N	Spring load* f_2 N	g
32150.W0104	32150.W0504	Normal	M 4	1,8	9	1,5	0,6	4,5	12,5	0,4
32150.W0105	32150.W0505	Normal	M 5	2,4	12	2,0	0,8	5,0	13,0	1,1
32150.W0106	32150.W0506	Normal	M 6	2,7	14	2,0	1,0	6,0	17,0	1,8
32150.W0108	32150.W0508	Normal	M 8	3,8	16	2,0	1,2	16,0	33,0	3,7
32150.W0110	32150.W0510	Normal	M10	4,5	19	2,5	1,5	19,0	42,0	7,1
32150.W0112	32150.W0512	Normal	M12	6,2	22	3,5	2,0	22,0	57,0	11,0
32150.W0116	32150.W0516	Normal	M16	8,5	24	4,5	2,0	38,0	78,0	23,0
32150.W0120	32150.W0520	Normal	M20	10,0	30	6,5	2,5	39,0	81,0	46,0
32150.W0124	32150.W0524	Normal	M24	13,0	34	8,0	3,0	72,0	155,0	73,0
32150.W0306	32150.W0706	Increased	M 6	2,7	14	2,0	1,0	11,0	25,0	1,8
32150.W0308	32150.W0708	Increased	M 8	3,8	16	2,0	1,2	23,0	59,0	3,8
32150.W0310	32150.W0710	Increased	M10	4,5	19	2,5	1,5	20,0	54,0	7,0
32150.W0312	32150.W0712	Increased	M12	6,2	22	3,5	2,0	38,0	96,0	11,0
32150.W0116	32150.W0516	Normal	M16	8,5	24	4,5	2,0	38,0	78,0	23,0
32150.W0320	32150.W0720	Increased	M20	10,0	30	6,5	2,5	52,0	133,0	46,0
32150.W0324	32150.W0724	Increased	M24	13,0	34	8,0	3,0	91,0	223,0	74,0

Material

Free cutting steel type-
Body: free cutting steel, blackened.
Pin: free cutting steel, hardened, blackened.
Spring: stainless steel.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel, 1.4305 (AISI 303).
Spring: stainless steel.

Technical Notes

These spring plungers may be used for location, for applying pressure or lifting off.
Temperature range up to 250ºC.
Spring load * = statistical average value.

Tips

Spring load identifier:
Normal spring load - no marking.
Increased spring load - body marked with two lines.
Special types available on request.

Important Notes

All metric Wixroyd spring plungers have a coarse thread, see appendix five for thread details.

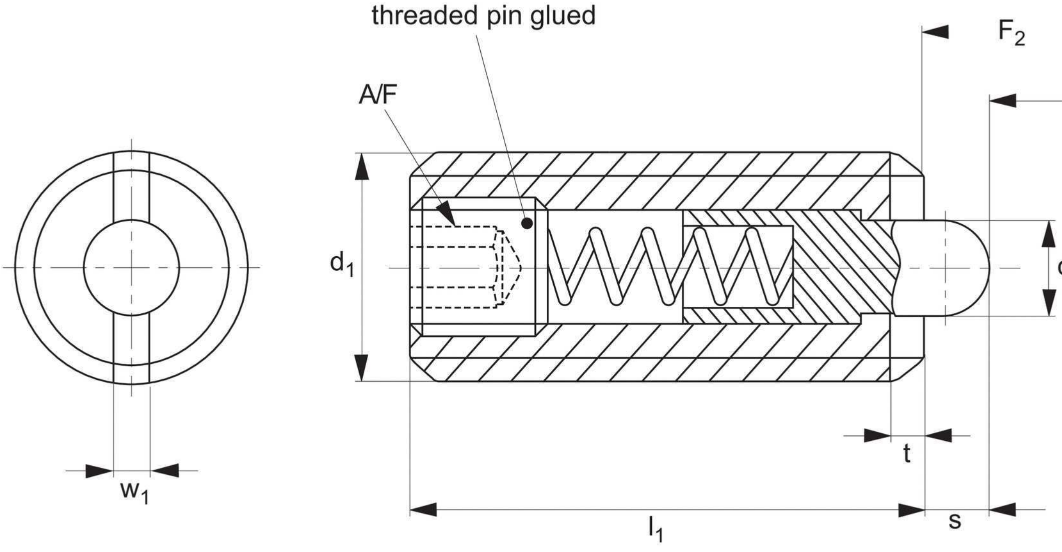
Referral

For imperial version of this plunger see 3B150.

Spring Plungers

with pin end & hex. socket - stainless steel

32200



Order No.	Finish	Spring load	d_1	d_2	l_1	w_1	s	t	A/F	Spring load* F_1 N≈	Spring load* F_2 N≈	g
32200.W0003	All Steel	Normal	M 3	1,0	12	0,4	1,0	0,5	0,7	2,0	4	0,40
32200.W0004	All Steel	Normal	M 4	1,5	15	0,6	1,5	0,6	1,3	4,5	16	0,93
32200.W0005	All Steel	Normal	M 5	2,4	18	1,2	2,3	0,8	1,5	6,0	19	1,70
32200.W0006	All Steel	Normal	M 6	2,7	20	1,3	2,5	0,9	2,0	6,0	19	2,80
32200.W0008	All Steel	Normal	M 8	3,5	22	1,5	3,0	1,4	2,5	10,0	39	5,80
32200.W0010	All Steel	Normal	M10	4,0	22	1,5	3,0	1,4	3,0	10,0	39	9,20
32200.W0012	All Steel	Normal	M12	6,0	28	2,7	4,0	2,0	4,0	12,0	53	16,00
32200.W0016	All Steel	Normal	M16	7,5	32	3,2	5,0	2,5	5,0	45,0	100	35,00
32200.W0020	All Steel	Normal	M20	10,0	40	3,7	7,0	3,0	6,0	52,0	125	68,00
32200.W0024	All Steel	Normal	M24	12,0	52	3,7	10,0	3,0	8,0	70,0	170	131,00
32200.W0105	All Steel	Increased	M 5	2,4	18	1,2	2,3	0,8	1,5	11,0	40	1,60
32200.W0106	All Steel	Increased	M 6	2,7	20	1,3	2,5	0,9	2,0	15,0	43	2,80
32200.W0108	All Steel	Increased	M 8	3,5	22	1,5	3,0	1,4	2,5	20,0	75	5,80
32200.W0110	All Steel	Increased	M10	4,0	22	1,5	3,0	1,4	3,0	20,0	75	9,30
32200.W0112	All Steel	Increased	M12	6,0	28	2,7	4,0	2,0	4,0	45,0	120	16,00
32200.W0116	All Steel	Increased	M16	7,5	32	3,2	5,0	2,5	5,0	64,0	160	33,00
32200.W0120	All Steel	Increased	M20	10,0	40	3,7	7,0	3,0	6,0	75,0	195	67,00
32200.W0124	All Steel	Increased	M24	12,0	52	3,7	10,0	3,0	8,0	75,0	245	129,00
32200.W0204	Steel, Thermo Pin	Normal	M 4	1,5	15	0,6	1,5	0,6	1,3	4,5	16	0,86
32200.W0205	Steel, Thermo Pin	Normal	M 5	2,4	18	1,2	2,3	0,8	1,5	6,0	19	1,50
32200.W0206	Steel, Thermo Pin	Normal	M 6	2,7	20	1,3	2,5	0,9	2,0	6,0	19	2,30
32200.W0208	Steel, Thermo Pin	Normal	M 8	3,5	22	1,5	3,0	1,4	2,5	10,0	39	5,10
32200.W0210	Steel, Thermo Pin	Normal	M10	4,0	22	1,5	3,0	1,4	3,0	10,0	39	8,10
32200.W0212	Steel, Thermo Pin	Normal	M12	6,0	28	2,7	4,0	2,0	4,0	12,0	53	14,00
32200.W0216	Steel, Thermo Pin	Normal	M16	7,5	32	3,2	5,0	2,5	5,0	45,0	100	31,00
32200.W0404	All Stainless	Normal	M 4	1,5	15	0,6	1,5	0,6	1,3	4,5	16	1,10
32200.W0405	All Stainless	Normal	M 5	2,4	18	1,2	2,3	0,8	1,5	6,0	19	1,70
32200.W0406	All Stainless	Normal	M 6	2,7	20	1,3	2,5	0,9	2,0	6,0	19	2,80
32200.W0408	All Stainless	Normal	M 8	3,5	22	1,5	3,0	1,4	2,5	10,0	39	5,90
32200.W0410	All Stainless	Normal	M10	4,0	22	1,5	3,0	1,4	3,0	10,0	39	9,50
32200.W0412	All Stainless	Normal	M12	6,0	28	2,7	4,0	2,0	4,0	12,0	53	17,00
32200.W0416	All Stainless	Normal	M16	7,5	32	3,2	5,0	2,5	5,0	45,0	100	35,00
32200.W0420	All Stainless	Normal	M20	10,0	40	3,7	7,0	3,0	6,0	52,0	125	68,00
32200.W0604	S/S, Thermo Pin	Normal	M 4	1,5	15	0,6	1,5	0,6	1,3	4,5	16	0,93
32200.W0605	S/S, Thermo Pin	Normal	M 5	2,4	18	1,2	2,3	0,8	1,5	6,0	19	1,60
32200.W0606	S/S, Thermo Pin	Normal	M 6	2,7	20	1,3	2,5	0,9	2,0	6,0	19	2,50
32200.W0608	S/S, Thermo Pin	Normal	M 8	3,5	22	1,5	3,0	1,4	2,5	10,0	39	5,10
32200.W0610	S/S, Thermo Pin	Normal	M10	4,0	22	1,5	3,0	1,4	3,0	10,0	39	8,50
32200.W0612	S/S, Thermo Pin	Normal	M12	6,0	28	2,7	4,0	2,0	4,0	12,0	53	14,00
32200.W0616	S/S, Thermo Pin	Normal	M16	7,5	32	3,2	5,0	2,5	5,0	45,0	100	32,00
32200.W0803	Screwdriver	Head ø2,5	M 3	-	-	-	-	-	-	-	-	13,00
32200.W0804	Screwdriver	Head ø4,0	M 4	-	-	-	-	-	-	-	-	29,00
32200.W0805	Screwdriver	Head ø5,0	M 5	-	-	-	-	-	-	-	-	61,00
32200.W0806	Screwdriver	Head ø5,5	M 6	-	-	-	-	-	-	-	-	65,00
32200.W0808	Screwdriver	Head ø7,0	M 8	-	-	-	-	-	-	-	-	108,00
32200.W0810	Screwdriver	Head ø8,0	M10	-	-	-	-	-	-	-	-	124,00

Material

Free cutting steel type-
Body: free cutting steel, blackened.
Pin: free cutting steel, hardened, blackened, or thermoplastic POM, white.
Spring: stainless steel.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303), or thermoplastic POM, white.
Spring: stainless steel.

Technical Notes

These spring plungers may be used for location, for applying pressure or lifting off.
Temperature range: all steel or stainless, up to 250ºC.
Steel or stainless with thermoplastic pin, -30ºC to +50ºC.
Spring load * = statistical average value.

Tips

Spring load identifier:
Normal spring load - no marking.
Increased spring load - body marked with two lines.
These spring plungers can be assembled by use of a hexagon key at the rear, or from the front with special slotted screwdrivers, see 32200.W0803 to .W0824.
Special types available on request.

Important Notes

All metric Wixroyd spring plungers have a coarse thread, see appendix five for thread details.

STAINLESS STEEL 303

upto 250°

Order No.	Finish	Spring load	d_1	d_2	l_1	w_1	s	t	A/F	Spring load* F_1 N≈	Spring load* F_2 N≈	g
32200.W0812	Screwdriver	Head ø11,0	M12	-	-	-	-	-	-	-	-	112,00
32200.W0816	Screwdriver	Head ø14,0	M16	-	-	-	-	-	-	-	-	173,00
32200.W0820	Screwdriver	Head ø18,0	M20	-	-	-	-	-	-	-	-	226,00
32200.W0824	Screwdriver	Head ø19,9	M24	-	-	-	-	-	-	-	-	258,00

Material

Free cutting steel type-
Body: free cutting steel, blackened.
Pin: free cutting steel, hardened, blackened, or thermoplastic POM, white.
Spring: stainless steel.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303), or thermoplastic POM, white.
Spring: stainless steel.

Technical Notes

These spring plungers may be used for location, for applying pressure or lifting off.
Temperature range: all steel or stainless, up to 250ºC.
Steel or stainless with thermoplastic pin, -30ºC to +50ºC.
Spring load * = statistical average value.

Tips

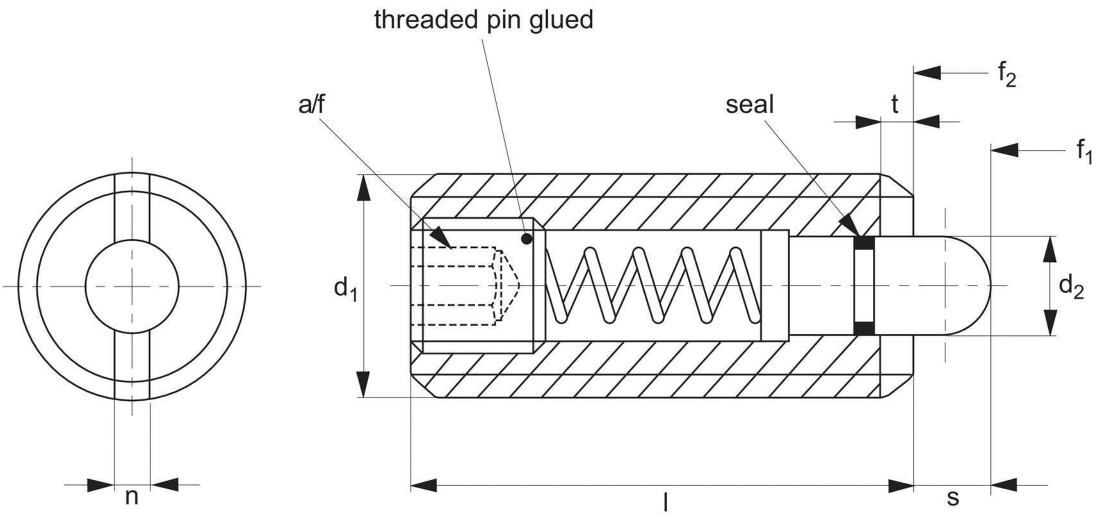
Spring load identifier:
Normal spring load - no marking.
Increased spring load - body marked with two lines.
These spring plungers can be assembled by use of a hexagon key at the rear, or from the front with special slotted screwdrivers, see 32200.W0803 to .W0824.
Special types available on request.

Important Notes

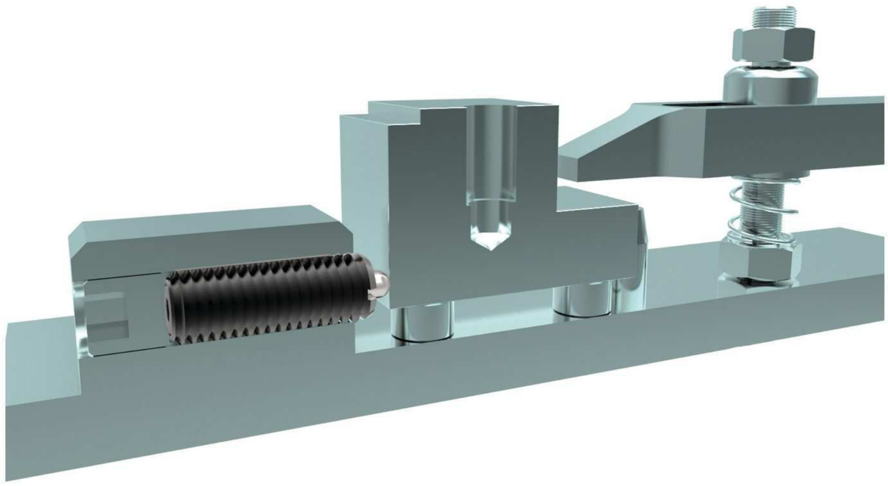
All metric Wixroyd spring plungers have a coarse thread, see appendix five for thread details.

STAINLESS STEEL 303

upto 250°



Order No.	Finish	Spring load	d_1	d_2	l	n	s	t	a/f	Spring load* f_1 N≈	Spring load* f_2 N≈	g
32220.W0048	All Steel	Normal	M 8	3,8	26	1,5	3,0	1,4	2,5	9	24	6,9
32220.W0050	All Steel	Normal	M10	4,0	28	1,5	3,5	1,4	3,0	15	30	11,0
32220.W0052	All Steel	Normal	M12	6,0	35	2,7	4,0	2,0	4,0	24	50	20,0
32220.W0056	All Steel	Normal	M16	7,5	40	3,2	5,0	2,5	5,0	36	58	43,0
32220.W0148	All Steel	Increased	M 8	3,8	26	1,5	3,0	1,4	2,5	17	39	6,6
32220.W0150	All Steel	Increased	M10	4,0	28	1,5	3,5	1,4	3,0	22	43	12,0
32220.W0152	All Steel	Increased	M12	6,0	35	2,7	4,0	2,0	4,0	40	80	20,0
32220.W0156	All Steel	Increased	M16	7,5	40	3,2	5,0	2,5	5,0	44	113	45,0
32220.W0448	All Stainless	Normal	M 8	3,8	26	1,5	3,0	1,4	2,5	9	24	7,2
32220.W0450	All Stainless	Normal	M10	4,0	28	1,5	3,5	1,4	3,0	15	30	12,0
32220.W0452	All Stainless	Normal	M12	6,0	35	2,7	4,0	2,0	4,0	24	50	20,0
32220.W0456	All Stainless	Normal	M16	7,5	40	3,2	5,0	2,5	5,0	36	58	44,0



Material

Free cutting steel type-
Body: free cutting steel, blackened.
Pin: free cutting steel, blackened.
Spring: stainless steel. Seal NBR plastic.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303).
Spring: stainless steel.
Seal: NBR plastic.

Technical Notes

These spring plungers may be used for location, for applying pressure or lifting off. Incorporation of a seal into the design prevents liquid penetrating into the spring plunger.
Temperature range -30°C to +80°C.
Spring load * = statistical average value.

Tips

Spring load identifier:
Normal spring load - no marking.
Increased spring load - body marked with two lines.
Please note these items vary in dimension l, spring load and temperature range in comparison to no-sealed item 32200. Spring plungers can be assembled by use of a hexagon key at the rear, or from the front with special slotted screwdrivers, see 32200.W0808 to .W0816.
Special types available on request.

Important Notes

All metric Wixroyd spring plungers have a coarse thread, see appendix five for thread details.

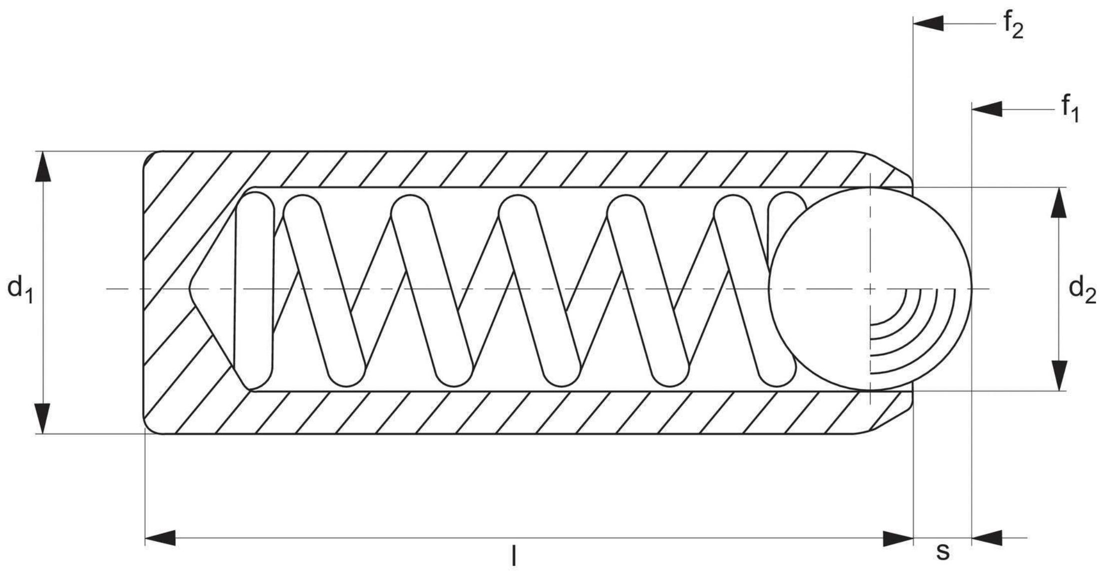
STAINLESS STEEL 303

+80° -30°

Spring Plungers

smooth model, without collar - stainless steel

32280



Material

Body: stainless steel 1.4305 (AISI 303).
Ball: ball bearing steel 1.3505 (100Cr6) hardened.
Spring: stainless steel

Technical Notes

Used for locating, applying pressure or lifting off.
Temperature range up to +250ºC.
Spring load * = statistical average value.

Tips

These are press fit spring plungers, use tolerance of F8 for easy fit, or H9 when tight fit required. These tolerances vary with material type, hence a trial hole is recommended. Special types available on request.

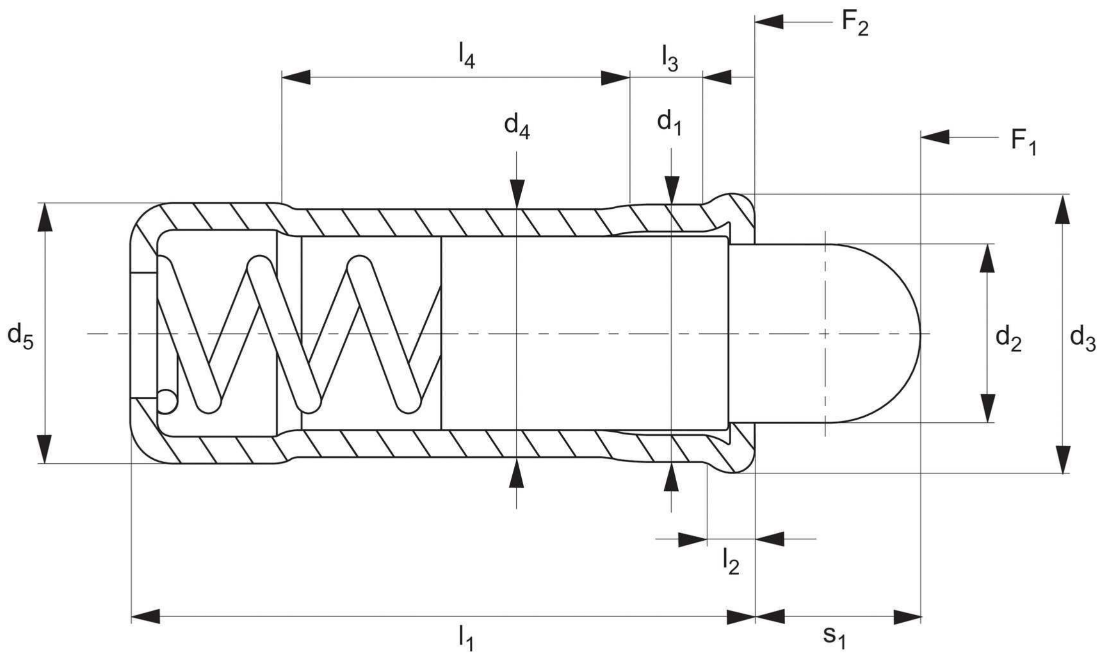
STAINLESS STEEL 303 · upto 250º

Order No.	Pressure	d_1 ±0,04	d_2	l_1	s_1	Spring load* f_1 N	Spring load* f_2 N	g
32280.W0306	Standard pressure	2,0	1,0	3,5	0,3	0,8	1,5	0,1
32280.W0308	Standard pressure	2,5	1,5	5,0	0,40	2,8	4,7	0,2
32280.W0310	Standard pressure	3,0	2,0	7,0	0,7	4,5	7,5	0,4
32280.W0312	Standard pressure	3,5	2,5	9,0	0,8	6,0	14,5	0,6
32280.W0315	Standard pressure	4,0	3,0	11,0	0,9	8,0	14,0	0,8
32280.W0317	Standard pressure	4,5	3,2	12,0	1,0	9,5	16,5	1,1
32280.W0320	Standard pressure	5,0	3,5	13,0	1,0	11,0	18,0	1,5
32280.W0322	Standard pressure	5,5	4,0	14,0	1,2	15,5	25,0	1,9
32280.W0325	Standard pressure	6,0	4,5	15,0	1,5	18,0	31,0	2,3
32280.W0327	Standard pressure	8,0	6,0	18,0	2,0	24,0	45,0	5,0
32280.W0330	Standard pressure	10,0	8,0	20,0	2,5	26,0	49,0	8,3
32280.W0332	Standard pressure	12,0	10,0	22,0	3,5	41,0	86,0	12
32280.W0356	High pressure	2,0	1,0	3,5	0,3	1,3	2,2	0,1
32280.W0358	High pressure	2,5	1,5	5,0	2,5	4,7	7,1	0,2
32280.W0360	High pressure	3,0	2,0	7,0	0,7	7,8	11,6	0,3
32280.W0362	High pressure	3,5	2,5	9,0	0,8	12,0	18,0	0,5
32280.W0365	High pressure	4,0	3,0	11,0	0,9	15,0	22,0	0,7
32280.W0367	High pressure	4,5	3,2	12,0	1,0	18,7	25,1	1,0
32280.W0370	High pressure	5,0	3,5	13,0	1,0	19,3	26,6	1,4
32280.W0372	High pressure	5,5	4,0	14,0	1,2	25,1	39,2	1,8
32280.W0375	High pressure	6,0	4,5	15,0	1,5	36,0	60,5	2,3
32280.W0377	High pressure	8,0	6,0	18,0	2,0	57,0	103,5	5,2
32280.W0380	High pressure	10,0	8,0	20,0	2,5	61,0	110,0	8,5
32280.W0382	High pressure	12,0	10,0	22,0	3,5	68,0	143,0	13

Spring Plunger - Pin End - Smooth

stainless steel - with collar

32282



Order No.	Pin type	d_1 +0,1 +0,04	d_2	d_3	d_4	d_5 ±0,04	l_1	l_2 ≈	l_3 ≈	l_4 ≈	s_1	max. °C	Spring load* F_1 N≈	Spring load* F_2 N≈	g
32282.W0104	Stainless	4	2,8	4,6	3,85	4	10,7	0,9	1,8	5,6	2,7	+250	3,0	8,2	0,7
32282.W0105	Stainless	5	3,8	5,6	4,85	5	12,0	0,9	2,1	6,0	4,0	+250	3,3	9,0	1,2
32282.W0106	Stainless	6	4,8	6,5	5,85	6	15,0	1,0	2,3	8,2	5,5	+250	6,1	12,0	2,2
32282.W0108	Stainless	8	6,2	8,5	7,55	8	18,0	1,1	2,9	9,5	6,5	+250	9,0	20,1	4,2
32282.W0110	Stainless	10	8,1	11,0	9,55	10	26,0	1,5	4,2	14,3	8,0	+250	16,2	29,0	9,0
32282.W0124	Plastic	4	2,8	4,6	3,85	4	10,7	0,9	1,8	5,6	2,7	-30/+50	3,0	8,2	0,5
32282.W0125	Plastic	5	3,8	5,6	4,85	5	12,0	0,9	2,1	6,0	4,0	-30/+50	3,3	9,0	0,8
32282.W0126	Plastic	6	4,8	6,5	5,85	6	15,0	1,0	2,3	8,2	5,5	-30/+50	6,1	12,0	1,3
32282.W0128	Plastic	8	6,2	8,5	7,55	8	18,0	1,1	2,9	9,5	6,5	-30/+50	9,0	20,1	2,5
32282.W0130	Plastic	10	8,1	11,0	9,55	10	26,0	1,5	4,2	15,0	8,0	-30/+50	16,2	29,0	5,0

Material

Body: stainless steel 1.4303 (AISI 305).
Pin: stainless steel 1.4305 (AISI 303), or thermoplastic POM white.
Spring: stainless steel

Technical Notes

Used for locating, applying pressure or lifting off.
Thermoplastic type temperature range -30°C to +50°C.
Stainless type, temperature range max. 250°C.
Spring load * = statistical average value.

Tips

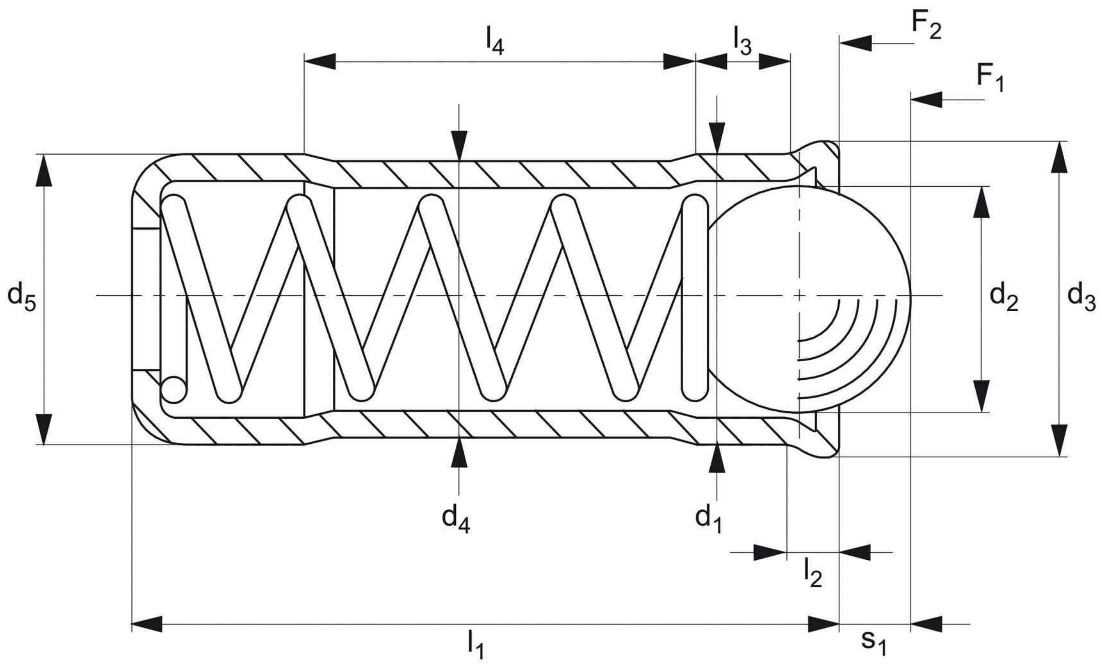
Special types available on request.
A tolerance of H7 is recommended for the locating hole of d_1.

STAINLESS STEEL 305

upto 250°

Spring Plunger - Ball End - Smooth

stainless steel - with collar



Material

Body: stainless steel 1.4303 (AISI 303).
Pin: stainless steel 1.4303 (AISI 303),
Spring: stainless steel.

Technical Notes

Used for locating, applying pressure or lifting off.
Temperature range max. 250°C.
Spring load * = statistical average value.

Tips

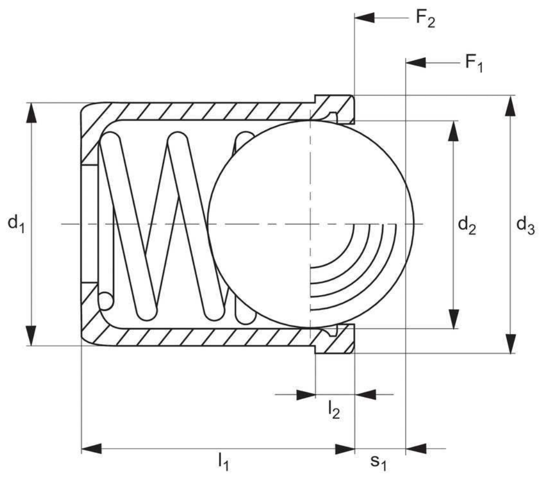
Special types available on request.
A tolerance of H7 is recommended for the locating hole of d_1.

Order No.	d_1 +0,10 +0,04	d_2	d_3	d_4	d_5 ±0,04	l_1	l_2 ≈	l_3 ≈	l_4 ≈	Stroke s_1	Spring Load* F_1 N≈	Spring Load* F_2 N≈	g
32284.W1104	4	3,0	4,6	3,85	4	10,7	0,9	1,8	5,6	0,9	12,9	19,0	0,6
32284.W1105	5	4,0	5,6	4,85	5	12,0	0,9	2,1	6,0	1,3	19,3	29,2	1,0
32284.W1106	6	5,0	6,5	5,85	6	15,0	1,0	2,3	8,2	1,7	28,0	47,5	2,0
32284.W1108	8	6,5	8,5	7,55	8	18,0	1,1	2,9	9,5	2,3	40,0	67,3	4,0
32284.W1110	10	8,5	11,0	9,55	10	26,0	1,5	4,2	14,3	3,1	66,0	105,0	8,0

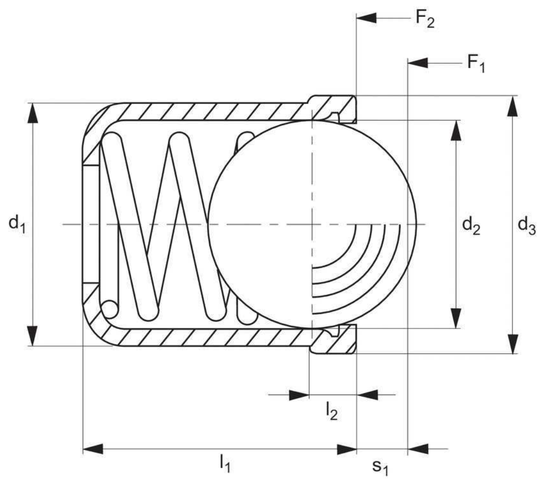
Spring Plungers

smooth model, with collar and ball- stainless steel

32300



brass or thermoplastic bodies



stainless steel bodies

Order No.	Spring load	Finish	d_1 -0 +0,1	d_2	d_3	l_1	l_2 ≈	s_1	Spring load* F_1 N≈	Spring load* F_2 N≈	max. °C	g
32300.W1004	Light	Body & Ball Stainless	4	3,00	4,6	5,0	0,90	1,00	0,4	1,0	250	0,30
32300.W1005	Light	Body & Ball Stainless	5	4,00	5,6	6,0	0,90	1,40	0,5	4,7	250	0,60
32300.W1006	Light	Body & Ball Stainless	6	5,00	6,5	7,0	1,00	1,80	2,3	6,5	250	1,00
32300.W1008	Light	Body & Ball Stainless	8	6,50	8,5	9,0	1,10	2,40	4,0	9,0	250	2,10
32300.W1010	Light	Body & Ball Stainless	10	8,50	11,0	13,0	1,50	3,30	3,9	10,0	250	4,40
32300.W1012	Light	Body & Ball Stainless	12	10,00	13,0	16,0	2,30	4,00	6,2	14,6	250	7,30
32300.W0003	Standard	Body & Ball Stainless	3	2,38	3,5	4,0	0,60	0,70	1,8	3,5	+250	0,20
32300.W0004	Standard	Body & Ball Stainless	4	3,00	4,6	5,0	0,90	1,00	2,5	6,0	+250	0,30
32300.W0005	Standard	Body & Ball Stainless	5	4,00	5,6	6,0	0,90	1,40	3,0	6,5	+250	0,60
32300.W0006	Standard	Body & Ball Stainless	6	5,00	6,5	7,0	1,00	1,80	5,5	11,5	+250	1,00
32300.W0008	Standard	Body & Ball Stainless	8	6,50	8,5	9,0	1,10	2,40	7,0	12,5	+250	2,10
32300.W0010	Standard	Body & Ball Stainless	10	8,50	11,0	13,0	1,50	3,30	8,5	18,5	+250	4,40
32300.W0012	Standard	Body & Ball Stainless	12	10,00	13,0	16,0	2,30	4,00	12,0	26,5	+250	7,30
32300.W0203	Standard	Body Brass, Ball Stainless	3	2,38	3,6	4,0	0,60	0,60	1,8	3,5	+250	0,20
32300.W0204	Standard	Body Brass, Ball Stainless	4	3,00	4,5	5,0	1,00	0,80	3,0	6,0	+250	0,50
32300.W0205	Standard	Body Brass, Ball Stainless	5	4,00	5,5	6,0	1,00	1,00	4,0	6,5	+250	0,80
32300.W0206	Standard	Body Brass, Ball Stainless	6	5,00	6,5	7,0	1,00	1,60	6,0	11,5	+250	1,30
32300.W0208	Standard	Body Brass, Ball Stainless	8	6,50	8,5	9,0	1,00	1,90	8,0	12,5	+250	2,80
32300.W0403	Standard	Body Thermo, Ball S/S	3	2,00	3,6	4,0	0,60	0,55	1,7	3,5	-30/+50	0,09
32300.W0404	Standard	Body Thermo, Ball S/S	4	3,00	4,6	5,0	1,00	0,80	3,0	6,5	-30/+50	0,20
32300.W0405	Standard	Body Thermo, Ball S/S	5	4,00	5,6	6,0	1,00	1,00	6,0	9,4	-30/+50	0,40
32300.W0406	Standard	Body Thermo, Ball S/S	6	5,00	6,5	7,0	1,00	1,60	6,2	12,6	-30/+50	0,70
32300.W0408	Standard	Body Thermo, Ball S/S	8	6,50	8,5	9,0	1,00	1,90	10,0	20,4	-30/+50	1,50
32300.W0410	Standard	Body Thermo, Ball S/S	10	8,00	11,0	13,5	1,50	2,40	11,9	22,3	-30/+50	3,20
32300.W0412	Standard	Body Thermo, Ball S/S	12	10,00	13,0	16,0	1,50	3,30	14,0	25,0	-30/+50	5,80
32300.W0604	Standard	Body & Ball Thermoplast	4	3,00	4,6	5,0	1,00	0,80	3,0	6,5	-30/+50	0,10
32300.W0605	Standard	Body & Ball Thermoplast	5	4,00	5,6	6,0	1,00	1,00	6,0	9,4	-30/+50	0,20
32300.W0606	Standard	Body & Ball Thermoplast	6	5,00	6,5	7,0	1,00	1,60	6,2	12,6	-30/+50	0,30
32300.W0608	Standard	Body & Ball Thermoplast	8	6,50	8,5	9,0	1,00	1,90	10,0	20,4	-30/+50	0,60
32300.W0610	Standard	Body & Ball Thermoplast	10	8,00	11,0	13,5	1,50	2,40	11,9	22,3	-30/+50	1,50
32300.W0612	Standard	Body & Ball Thermoplast	12	10,00	13,0	16,0	1,50	3,30	14,0	25,0	-30/+50	2,50
32300.W2004	Heavy	Body & Ball Stainless	4	3,00	4,6	5,0	0,90	1,00	5,0	10,4	+250	0,30
32300.W2005	Heavy	Body & Ball Stainless	5	4,00	5,6	6,0	0,90	1,40	6,0	12,0	+250	0,60
32300.W2006	Heavy	Body & Ball Stainless	6	5,00	6,5	7,0	1,00	1,80	7,3	19,0	+250	1,00
32300.W2008	Heavy	Body & Ball Stainless	8	6,50	8,5	9,0	1,10	2,40	11,0	25,0	+250	2,10
32300.W2010	Heavy	Body & Ball Stainless	10	8,50	11,0	13,0	1,50	3,30	17,0	37,0	+250	4,40
32300.W2012	Heavy	Body & Ball Stainless	12	10,00	13,0	16,0	2,30	4,00	30,0	54,0	+250	7,30

Material

Body: stainless steel 1.4303 (AISI 305), brass, or thermoplastic POM, blue.
Ball: ball bearing steel 1.3505 (100Cr6) hardened or thermoplastic POM, white.
Spring: stainless steel 1.4568 (X7CrNiAl17-7).

Technical Notes

Used for locating, applying pressure or lifting off.
Spring loads * = statistical average values.
Thermo type temperature range -30°C to +50°C.
Stainless and brass type, temperature range max. 250°C.
For calculation of indexing resistance please refer to spring plunger technical pages.

Tips

These are press fit spring plungers. Typical hole tolerance is H7 for manual assembly.
These fit tolerances vary with type of material so a trial hole is recommended.
Light spring load- marked with one line.
Standard spring load- no marking.
Heavy spring load- marked with two lines.
Special types available on request.

STAINLESS STEEL 305

POM

Material
Body: stainless steel 1.4303 (AISI 305), brass, or thermoplastic POM, blue.
Ball: ball bearing steel 1.3505 (100Cr6) hardened or thermoplastic POM, white.
Spring: stainless steel 1.4568 (X7CrNiAl17-7).

Technical Notes
Used for locating, applying pressure or lifting off.
Spring loads * = statistical average values.
Thermo type temperature range -30°C to +50°C.
Stainless and brass type, temperature range max. 250°C.
For calculation of indexing resistance please refer to spring plunger technical pages.

Tips
These are press fit spring plungers.
Typical hole tolerance is H7 for manual assembly.
These fit tolerances vary with type of material so a trial hole is recommended.
Light spring load- marked with one line.
Standard spring load- no marking.
Heavy spring load- marked with two lines.
Special types available on request.

STAINLESS STEEL 305 POM

Wixroyd Expander Fit Spring Plunger

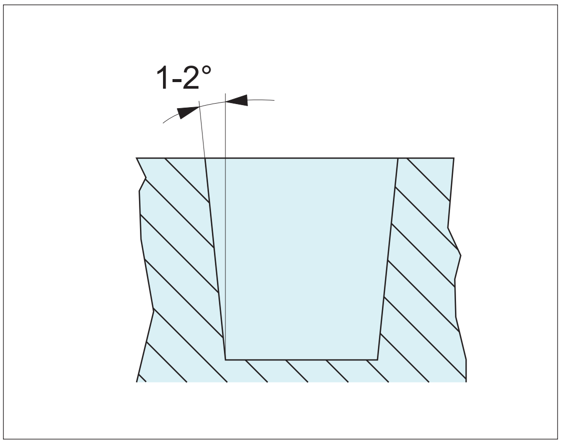
smooth body

Struggle with inconsistent location bore tolerances and wide material variation?

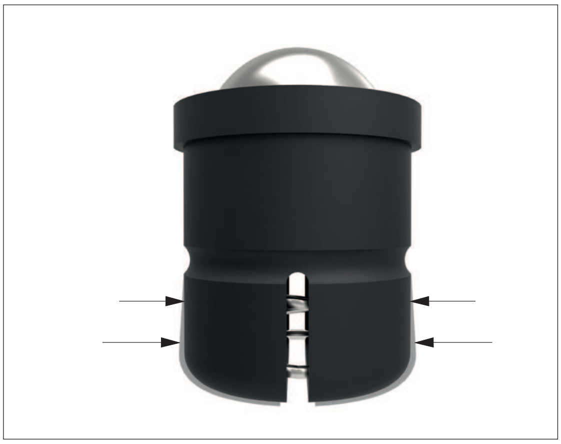
Looking to reduce machining costs?

Our smooth body expander fit spring plunger offers a simple and accommodating solution - with the capacity to accommodate location bore tolerances as wide as +0.2mm.

Unique expander fit design

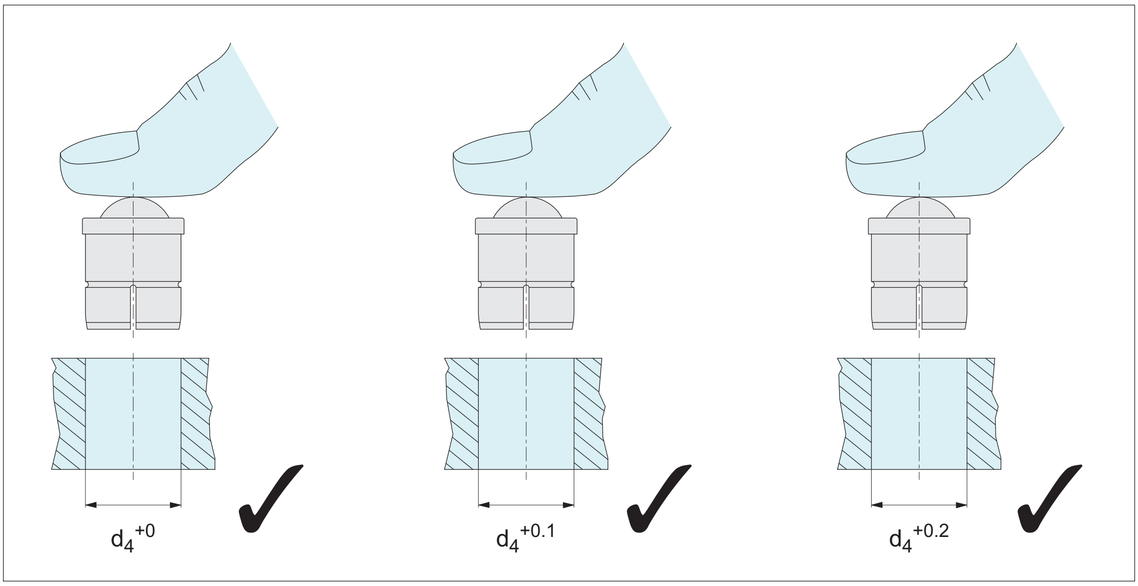


Typically, unmachined plastic injection moulded holes can vary widely in accuracy, with sidewall variation of ± 1 to 2°.



Unique body design flexes to expand and contract to fit in location bore tolerances as wide as +0,2mm.

Especially suited to installation in plastic moulded components where hole and bore precision is not high.



Expands/contracts to fit a range of hole tolerances from +0 to +0,2.

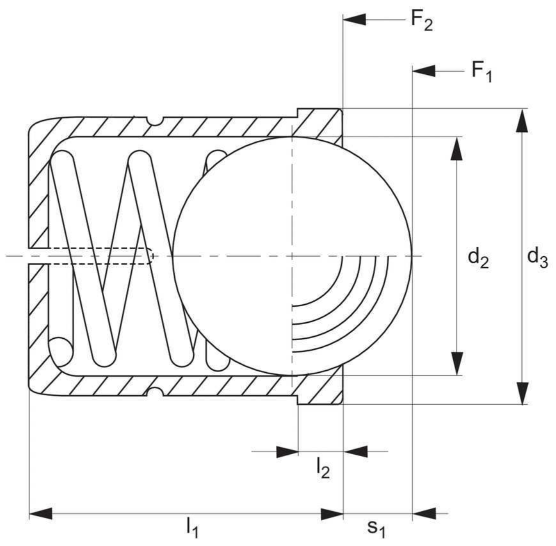
Unique advantages

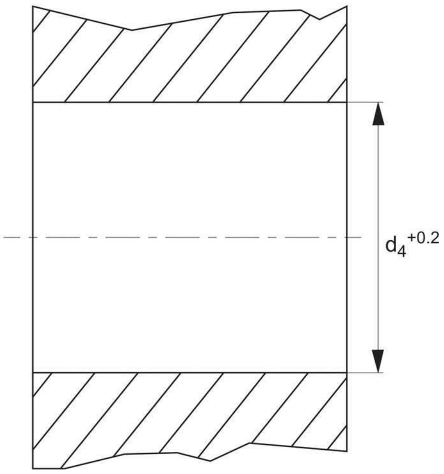
- Speed and flexibility in production and assembly.
- Removes need and cost of high tolerance machining and workpiece preparation.
- Easy push fit installation, no special tools or punches required.

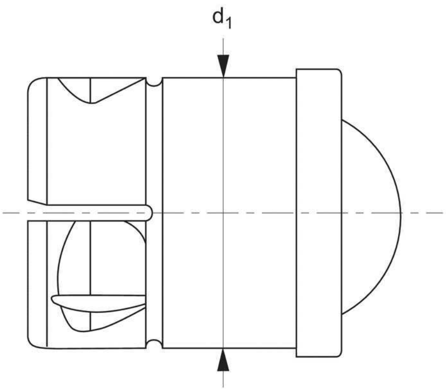
Important note

Important Note: It is not recommended to repeatedly install and uninstall expander fit spring plungers between locating bores of different tolerances, as such repeated action can lead to reduction of its capacity to expand into holes of wider tolerances (due to slight plastic fatigue).

As with all our smooth bodied spring plungers, best results are achieved when used as a single one-off installation.







Material

Body: thermoplastic POM, black.
Ball: ball bearing steel 1.3505 (100Cr6) hardened or thermoplastic POM, white.
Spring: stainless steel.

Technical Notes

Unique body design flexes to expand and contract to fit in location bore tolerances as wide as + 0,2mm of d_4. Especially suited to installation in plastic moulded components where hole and bore precision is not high.
Guarantees a secure overhead installation. Simple push fit design, no special tooling necessary.
For calculation of indexing resistance please refer to spring plunger technical pages.

Tips

Spring load* - statistical average value.
Temperature range -30°C to +50°C

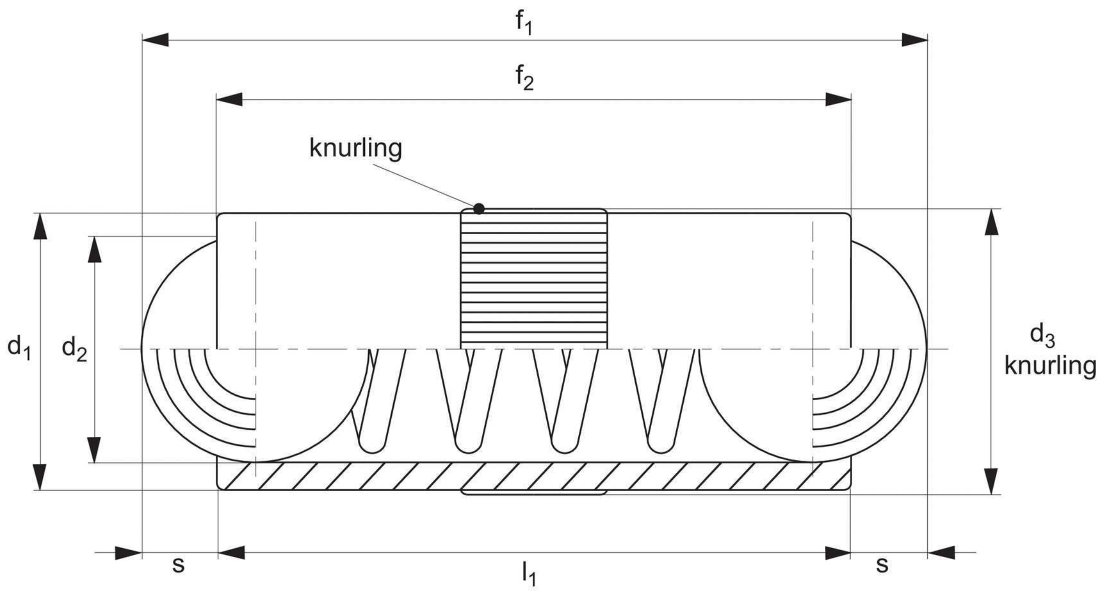
See Wixroyd.com for:
32305 - Spring plungers - INCH

Order No.	Finish	d_1 +0,1	d_2	d_3	d_4 +0,2	l_1 ±0,2	l_2 ≈	s_1	Spring load F_1 N≈*	Spring load F_2 N≈*	Max. °C	g
32302.W0704	Body Thermo & Ball Stainless	4	3,0	4,6	4	5,0	1,0	0,8	3,0	6,5	-30/+50	0,12
32302.W0705	Body Thermo & Ball Stainless	5	4,0	5,6	5	6,0	1,0	1,0	6,0	9,4	-30/+50	0,34
32302.W0706	Body Thermo & Ball Stainless	6	5,0	6,5	6	7,0	1,0	1,6	6,2	12,6	-30/+50	0,63
32302.W0708	Body Thermo & Ball Stainless	8	6,5	8,5	8	9,0	1,0	1,9	10,0	20,4	-30/+50	1,40
32302.W0710	Body Thermo & Ball Stainless	10	8,0	11,0	10	13,5	1,5	2,4	11,9	22,3	-30/+50	2,90
32302.W0804	Body & Ball Thermo	4	3,0	4,6	4	5,0	1,0	0,8	3,0	6,5	-30/+50	0,06
32302.W0805	Body & Ball Thermo	5	4,0	5,6	5	6,0	1,0	1,0	6,0	9,4	-30/+50	0,17
32302.W0806	Body & Ball Thermo	6	5,0	6,5	6	7,0	1,0	1,6	6,2	12,6	-30/+50	0,23
32302.W0808	Body & Ball Thermo	8	6,5	8,5	8	9,0	1,0	1,9	10,0	20,4	-30/+50	0,57
32302.W0810	Body & Ball Thermo	10	8,0	11,0	10	13,5	1,5	2,4	11,9	22,3	-30/+50	1,21

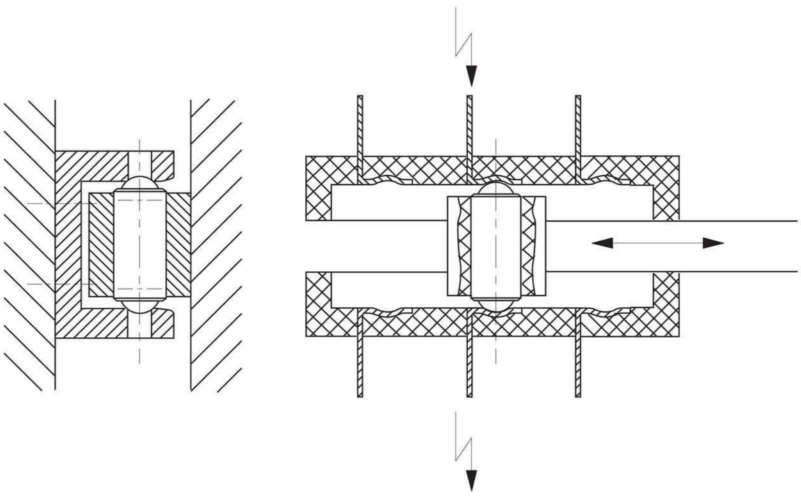
Spring Plungers

double ended

32350



Order No.	d_1 h10	d_2	d_3 +0,05	l_1	s	Spring load* f_1 N≈	Spring load* f_2 N≈	g
32350.W0025	2,5	2,0	2,52	5,3	0,65	1,3	2,5	0,22
32350.W0030	3,0	2,5	3,02	7,3	0,80	2,0	4,5	0,34
32350.W0040	4,0	3,0	4,03	9,0	0,90	2,5	7,5	0,65
32350.W0050	5,0	4,0	5,03	10,8	1,20	3,5	8,0	1,27
32350.W0060	6,0	5,0	6,03	12,6	1,60	3,5	10,5	1,99
32350.W0070	7,0	6,0	7,03	14,0	2,00	4,0	12,0	3,00
32350.W0080	8,0	6,5	8,03	18,0	2,10	6,0	15,0	5,10



Material

Body: brass.
Ball: stainless steel, hardened.
Spring: stainless steel.

Technical Notes

Double ended spring plungers are used for axial locations and securing of bolts, as well as a means of electrical contact (see diagram).
Spring loads * = statistical average value.
For calculation of indexing resistance please refer to spring plunger technical pages.

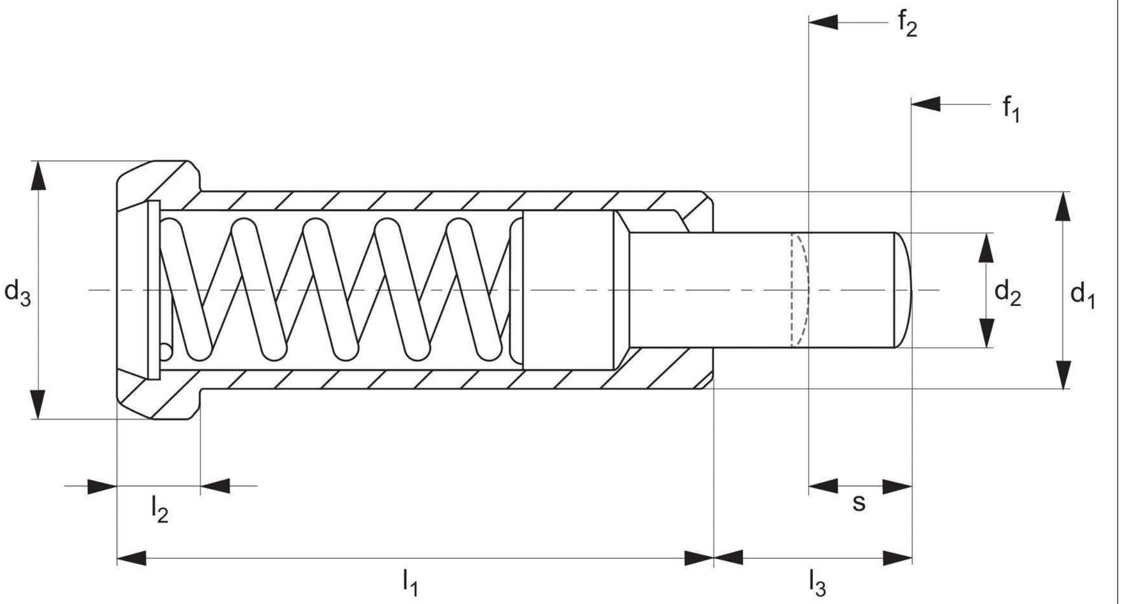
Temperature resistance up to 250°C

Tips

Suggested hole tolerance for these spring plungers is H8.
Special types available on request.

Spring Plungers
smooth model, long

32400

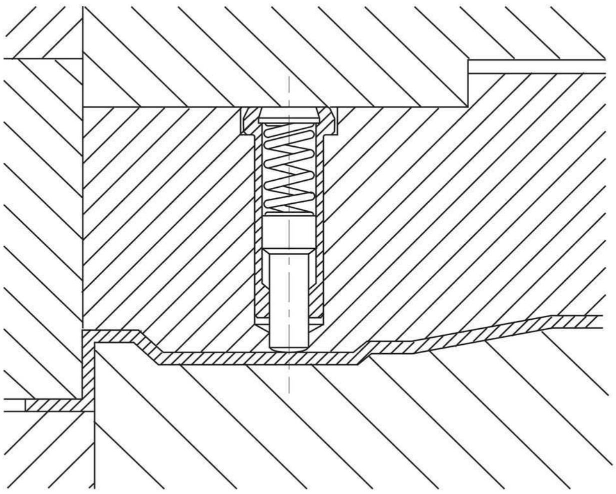


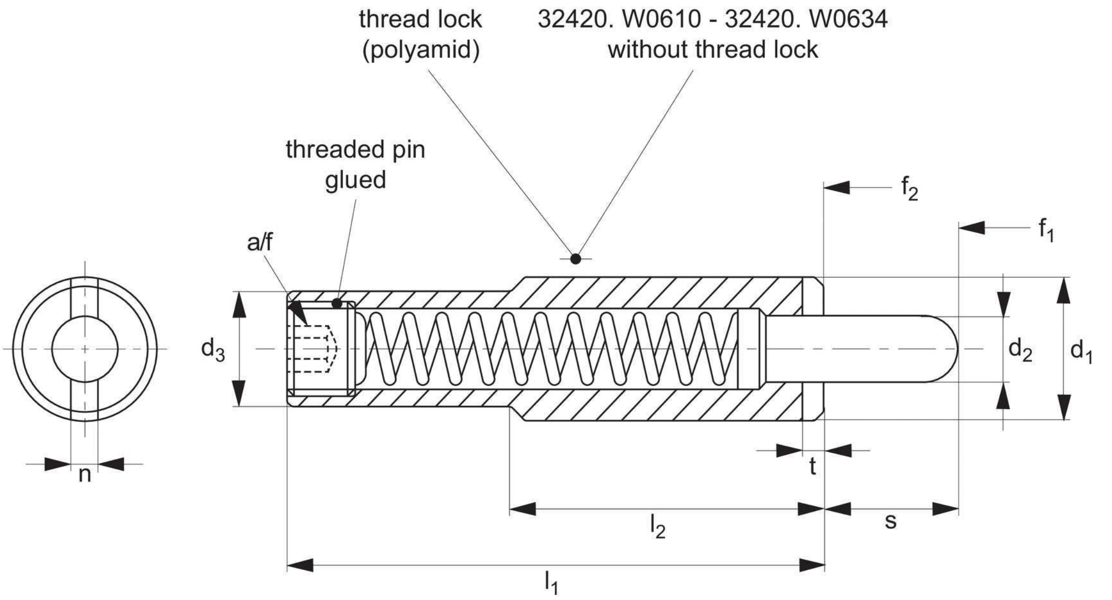
Material
Body: free cutting steel, blackened.
Pin: case hardened steel, blackened.
Spring: stainless steel.

Technical Notes
Used as pulling off pins and spring stops in tool making. No part of the spring plunger can come out of the retaining bore. Recommended installation hole tolerance H7.
Temperature range up to 250°C.
Spring load * = statistical average values.

Tips
Do not push pin beyond spring range 's', as this will damage spring and result in reduction of spring load.
Special types available on request.

Order No.	d_1 0 -0,05	d_2	d_3	l_1	l_2	l_3	s Spring-range	Spring load* f_1 N	Spring load* f_2 N	g
32400.W0010	10	5,9	13	30	4,0	10	5,5	42	110	16,0
32400.W0006	6	2,7	8	20	3,2	6	3,5	10	22	4,2
32400.W0008	8	3,9	10	24	3,2	8	4,5	30	88	7,7
32400.W0012	12	7,9	16	36	5,0	12	6,5	50	130	27,0





Order No.	Spring Load	d_1	s	d_2	d_3	l_1	l_2	n	t	a/f	Spring Load* f_1 N	Spring Load* f_2 N	g
32420.W0408	Normal	M10	8	4,0	7,8	35	25	1,5	1,4	3	6	16	13
32420.W0412	Normal	M12	10	5,5	9,5	43	35	2,7	2,0	4	4	18	22
32420.W0430	Normal	M16	10	8,0	13,4	48	35	3,2	3,0	6	7	24	47
32420.W0432	Normal	M16	10	8,0	13,4	58	35	3,2	3,0	6	15	42	52
32420.W0436	Normal	M16	15	8,0	13,4	58	35	3,2	3,0	6	9	33	54
32420.W0440	Normal	M16	20	8,0	13,4	58	35	3,2	3,0	6	4	23	55
32420.W0442	Normal	M16	20	8,0	13,4	83	35	3,2	3,0	6	11	43	71
32420.W0444	Normal	M16	25	8,0	13,4	98	35	3,2	3,0	6	13	41	81
32420.W0450	Normal	M16	30	8,0	13,4	98	35	3,2	3,0	6	13	47	83
32420.W0452	Normal	M16	30	8,0	13,4	118	35	3,2	3,0	6	24	110	97
32420.W0455	Normal	M16	40	8,0	13,4	148	35	3,2	3,0	6	13	63	117
32420.W0460	Normal	M16	50	8,0	13,4	148	35	3,2	3,0	6	7	43	117
32420.W0480	Normal	M24	15	10,0	19,6	60	45	3,7	3,0	8	14	87	132
32420.W0512	Increased	M12	10	5,5	9,5	43	35	2,7	2,0	4	7	46	23
32420.W0530	Increased	M16	10	8,0	13,4	48	35	3,2	3,0	6	10	43	47
32420.W0532	Increased	M16	10	8,0	13,4	58	35	3,2	3,0	6	14	84	54
32420.W0536	Increased	M16	15	8,0	13,4	58	35	3,2	3,0	6	10	57	55
32420.W0542	Increased	M16	20	8,0	13,4	83	35	3,2	3,0	6	18	72	72
32420.W0544	Increased	M16	25	8,0	13,4	98	35	3,2	3,0	6	20	70	82
32420.W0550	Increased	M16	30	8,0	13,4	98	35	3,2	3,0	6	20	80	83
32420.W0555	Increased	M16	40	8,0	13,4	148	35	3,2	3,0	6	21	113	121
32420.W0560	Increased	M16	50	8,0	13,4	148	35	3,2	3,0	6	13	75	121
32420.W0580	Increased	M24	15	10,0	19,6	60	45	3,7	3,0	8	24	192	134
32420.W0610	Normal, Heat-Treated	M16	11	7,3	13,4	80	35	3,2	3,0	8	17	74	69
32420.W0612	Normal, Heat-Treated	M16	21	7,3	13,4	120	35	3,2	3,0	8	21	81	96
32420.W0614	Normal, Heat-Treated	M16	31	7,3	13,4	150	35	3,2	3,0	8	21	89	117
32420.W0616	Normal, Heat-Treated	M16	41	7,3	13,4	200	35	3,2	3,0	8	16	80	149
32420.W0630	Normal, Heat-Treated	M22	21	9,0	19,0	130	50	3,5	4,0	8	80	214	211
32420.W0632	Normal, Heat-Treated	M22	31	9,0	19,0	168	50	3,5	4,0	8	70	210	278
32420.W0634	Normal, Heat-Treated	M22	41	9,0	19,0	226	50	3,5	4,0	8	76	208	358
32420.W0830	Screwdriver	for M10	-	-	-	-	-	-	-	-	-	-	87
32420.W0832	Screwdriver	for M12	-	-	-	-	-	-	-	-	-	-	88
32420.W0834	Screwdriver	for M16	-	-	-	-	-	-	-	-	-	-	110
32420.W0836	Screwdriver	for M22	-	-	-	-	-	-	-	-	-	-	245
32420.W0838	Screwdriver	for M24	-	-	-	-	-	-	-	-	-	-	258

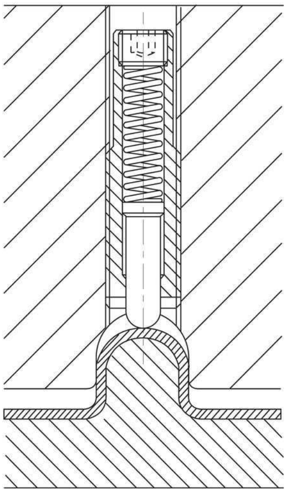
Material
Body: free cutting steel, blackened or heat-treated steel tempered blackened.
Part nos. 32420.W0512 to 32420.W0580 - threaded body bright finish.
Pin: case hardened steel, blackened.
Spring: stainless steel.

Technical Notes
Used for ejecting parts (particularly in press tools), and applying pressure. They are fitted/removed by means of the slot or internal hexagon.
Spring load* = statistical average value.

Tips
Spring Load Identifier:
Normal spring load - no marking.
Increased spring load - body marked with two lines.
Parts 32420.W0408 to 32420.W0580 with thread-lock.

Important Notes
All metric Wixroyd spring plungers have a coarse thread, see appendix five for thread details.

32420



Material
Body: free cutting steel, blackened or heat-treated steel tempered blackened.
Part nos. 32420.W0512 to 32420.W0580 - threaded body bright finish.
Pin: case hardened steel, blackened.
Spring: stainless steel.

Technical Notes
Used for ejecting parts (particularly in press tools), and applying pressure. They are fitted/removed by means of the slot or internal hexagon.
Spring load* = statistical average value.

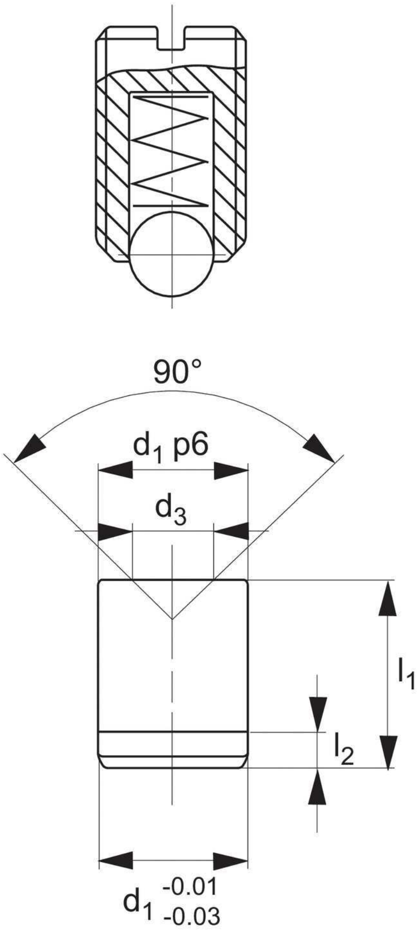
Tips
Spring Load Identifier:
Normal spring load - no marking.
Increased spring load - body marked with two lines.
Parts 32420.W0408 to 32420.W0580 with thread-lock.

Important Notes
All metric Wixroyd spring plungers have a coarse thread, see appendix five for thread details.

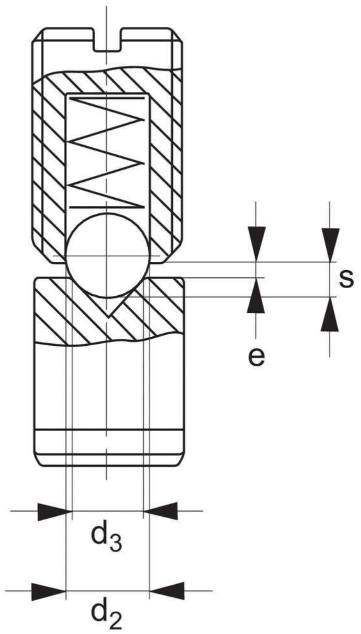
Striker Bushes

for spring plungers

32440



$$e = s - \left(\frac{d_2 + d_3}{2} - \frac{\sqrt{2}}{2} d_2 \right)$$



Material

Burnished, ground, hardened steel.

Technical Notes

Striker bushings are used together with spring plungers when a contact surface is required with high resistance. In particular they are recommended for use with spring plungers equipped with high load value and those with increased spring loads.

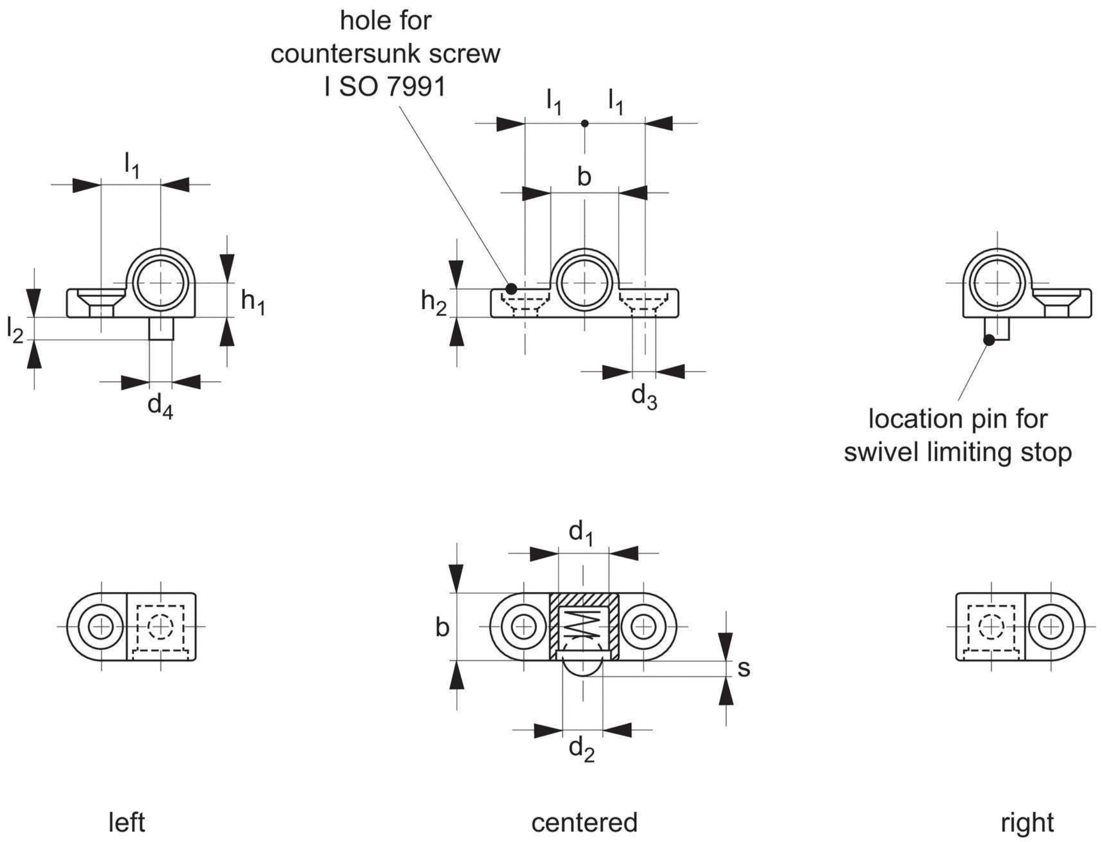
Tips

For dimensions d2 and s, please see corresponding spring plunger. Striker bushes are for use with Wixroyd nos. 31500, 32100, 32150, 32200 & 32300 see stated 'e' values for each type.

Order No.	d_1 p6	d_2	d_3	l_1 ± 0,05	l_2	s	For 32300 e =	For 32100 e =	For 32150 e =	For 32200 e =	g
32440.W0004	4		1,5	5	2		-	M 4 = 0,6	M 4 = 1,1	M 4 = 1,1	1
32440.W0005	5		2,0	6	2		Ø 4 mm = 0,4	M 5 = 0,4	M 5 = 1,5	M 5 = 1,8	1
32440.W0006	6		2,0	8	2		Ø 5 mm = 0,8	M 6 = 0,6	M 6 = 1,6	M 6 = 2,1	2
32440.W0008	8		3,0	10	2		Ø 6 mm = 1,1	M 8 = 0,9	M 8 = 1,3	M 8 = 2,2	4
32440.W0010	10		4,0	12	3		Ø 8 mm = 1,2	M10 = 1,2	M10 = 1,4	M10 = 1,8	7
32440.W0012	12		6,0	14	3		Ø 10 mm = 1,9	M12 = 1,2	M12 = 1,7	M12 = 2,2	12
32440.W0016	16		8,0	18	3		Ø 12 mm = 1,9	M16 = 1,6	M16 = 2,3	M16 = 2,5	26

Spring Plunger Holder

for part no. 32300



Material
Die-cast zinc, nickel plated.

Technical Notes
Left, right and centre mounting options available.

Tips
Assist in the easy mounting of smooth bodied spring plunger 32300, their small dimensions make them ideal for confined spaces.

Order No.	Type	Body Ø plunger 32300 d_1 -0,05	Ball Ø plunger 32300 d_2	d_3 for countersunk screw ISO 7991	d_4 -0,05	b	h_1 ±0.05	h_2	l_1 ±0.05	l_2	w -0,1 stroke
32450.W0006	Left	6	5,0	M 3-3,2	3	8,5	4,25	3,2	7,5	3	1,5
32450.W0008	Left	8	6,5	M 4-4,3	4	10,5	5,25	4,2	9,5	4	1,8
32450.W0016	Right	6	5,0	M 3-3,2	3	8,5	4,25	3,2	7,5	3	1,5
32450.W0018	Right	8	6,5	M 4-4,3	4	10,5	5,25	4,2	9,5	4	1,8
32450.W0026	Centered	6	5,0	M 3-3,2	3	8,5	4,25	3,2	7,5	3	1,5
32450.W0028	Centered	8	6,5	M 4-4,3	4	10,5	5,25	4,2	9,5	4	1,8

Index Plungers & Pins

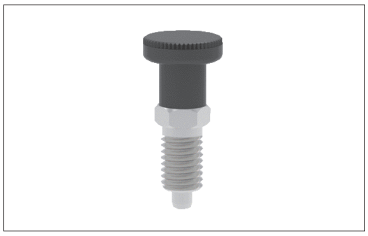
A wide selection of solutions

Applications

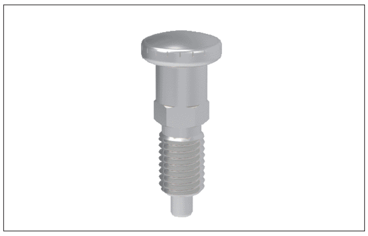
- Locating and positioning.
- Indexing.
- Securing.
- Positive locking.
- Rapid adjustment of all kinds of tables, platforms and fixtures.
- Machine and fixture design.
- OEM products.
- Sports equipment.
- Medical aides (wheelchairs etc.).
- Aerospace.
- Machine cabinets.

Materials

Steel with plastic grip

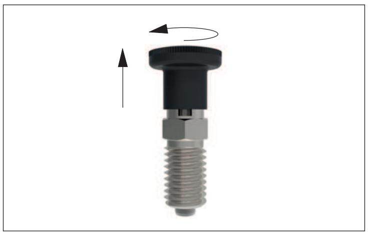


Stainless with plastic grip

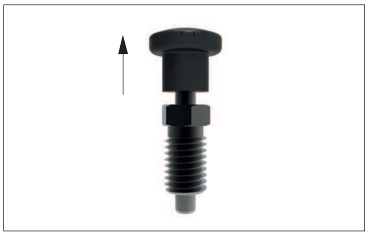


Stainless body and grip

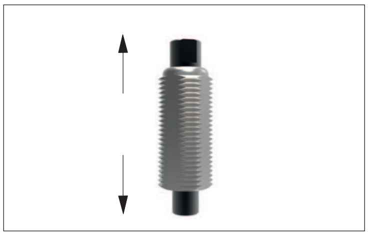
Locking or non locking



Locking (park)



Non locking (spring back)



Push pull

Handling and actuation methods

Standard grip

Lever grip

T-handle

Pull ring

Threaded for bespoke handle

Mounting options

Fine threaded (standard)

Coarse thread

Flange mount

Thin wall mount

Weldable

Additional technical notes

- Unless otherwise stated, grips on index plungers are not removeable.
- Many of the pins on index plungers are toleranced to either the pin or the hole. Please refer to the specific product table.
- Index plungers are not recommended for shear load applications.

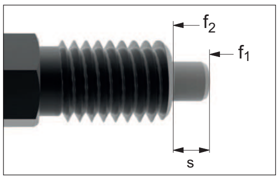
	Pin Tol.	Hole Tol.
1	h_9	+0,03 +0,08
2	-0,02 -0,04	H_7

Spring loads

s Stroke, or movement of plunger's pin.

f_1 The force required in Newtons (N) to over come the static strength of the spring and achieve initial movement of the plunger's pin.

f_2 The force required in Newtons (N) to fully compress the spring until the pin is fully depressed against the plunger's body.



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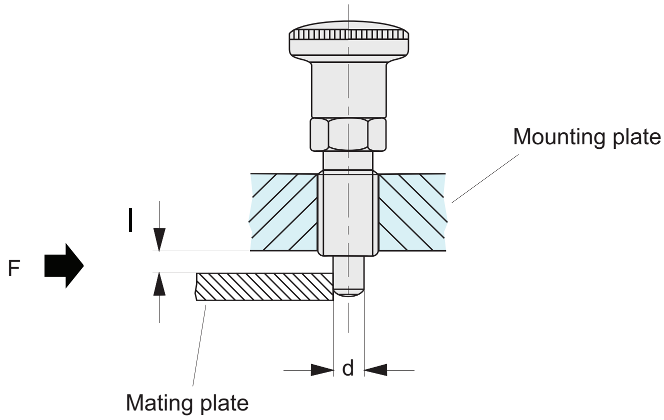
Flexure loads

As soon as a gap **l** exists between the mounting plate in which the index plunger is installed, and the mating or base plate, the load must be considered to be as per a flexure load, with rod clamped at one side.
With this approach, the calculation is made against the bending of the index plunger.



Formulas for computation

Resistance torque	Flexural stress	Flexural strength
$W = \frac{\pi \times d^3}{32}$	$M_b = \sigma_b \times W$	$F = \frac{M_b}{l} = \frac{\sigma_b \times \pi \times d^3}{l \times 32}$

Material characteristics

The yield or substitute yield limit (Re / Rp 0,2) shown in the table opposite has been determine in tension tests involving tension specimen in accordance with DIN 50125-B6-30.
These tests constitute the basis for the load bearing details given.

Material Description	Material no.	Re in N/mm²(≈ per. flexural tension σ_b)
C45Pb	1.0504	560
X 10 CrNiS 18 9A	ISI 303	580

Calculation example, load values

Example:
Index plungers with a bolt diameter of 5 mm made of steel with a yield limit of Re = 560 N/mm², calculation against permanent deformation, the maximum permissible flexural strength is calculated as:

$$F_{per} = \frac{560\ \text{N/mm}^2 \times \pi \times (5\text{mm})^3}{2\text{mm} \times 32} = 3430\ \text{N}$$

d Bolt diameter	max. flexural strength **F** in **N**, acc. to material and gap **l** differentiated — C45Pb/1.0504 **l** = 2 mm	C45Pb/1.0504 **l** = 3 mm	X 10 CrNiS 18 9/1.4305 **l** = 2 mm	X 10 CrNiS 18 9/1.4305 **l** = 3 mm
3	740	490	760	510
4	1750	1170	1820	1210
5	3430	2290	3550	2370
65	930	3950	6140	4100
8	14070	9380	14570	9710
10	27480	18320	28470	18980
12	47490	31660	49190	32790
16	90070	102940	93290	119020

Safety information

On principle, the design also needs an adequate safety coefficient to be taken into account. The usual safety coefficients under static load 1.2 to 1.5; pulsating 1.8 to 2.4 and alternating 3 to 4.

Disclaimer:
You should carry out your own test series to verify whether a certain product is suitable for your specific applications.

Computing the strength of index plungers

for shear loads / flexure loads of the plunger pin

Shear loads

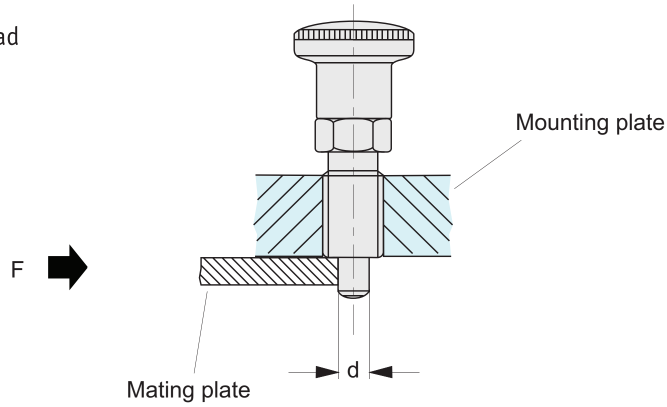
Providing only a very small gap exists between the mounting plate in which the index plunger is installed, and the mounting plate or base plate, the load can be calculated as a clean shear action.

As this is normally not the case, the "flexure" load should be used - see following page.

Approximately 80 % of the bolt's tensile strength is assumed for the shear strength. This approach calculates against the tensile strength Rm, i.e. against the index pin shearing off.

To ensure the permanent and proper function of the index plunger, the yield limit Re must be considered in place of the tensile strength Rm.

Stop using the index plunger if the pin is damaged or deformed.



Formulas for computation

Bolt cross-section	Limit tension	Shear force
$S = \frac{d^2 \times \pi}{4}$	$\tau_a = 0{,}8 \times R_m$	$F = S \times \tau_a = \frac{d^2 \times \pi}{4} \times 0{,}8 \times R_m$

Material characteristics

The tensile strength shown in the table opposite (Rm) and the yield or substitute yield limit (Re / Rp 0,2) have been determine in tension tests involving tension specimen in accordance with DIN 50125- B6-30

These tests constitute the basis for the load bearing details given.

Material Description	Material no.	Re in N/mm²	Rm in N/mm²
C45Pb	1.0504	560	640
X 10 CrNiS 18 9A	ISI 303	580	740

Calculation example, load values

Example:

Index plungers with a bolt diameter of 6 mm made of Stainless Steel with a yield limit of Re = 580 N/mm², calculation against permanent deformation, the maximum permissible shear stress is calculated as:

$$F_{per} = \frac{(6\ \text{mm})^2 \times \pi}{4} \times 0.8 \times 580\ \text{N/mm}^2 = 13120\ \text{N}$$

d Bolt diametre	max. force F in N, acc. to material and strength value differs C45Pb/1.05045 at Re	C45Pb/1.05045 at Rm	X 10 CrNiS 18 9/1.4305 at Re	X 10 CrNiS 18 9/1.4305 at Rm
3	3160	3610	3270	4180
4	5620	6430	5830	7430
58	790	10050	9110	11620
6	12660	14470	13120	16730
8	22510	25730	23320	29750
10	35180	40210	36440	46490
12	50660	57900	52470	66950
16	90070	102940	93290	119020

Safety information

On principle, the design also needs an adequate safety coefficient to be taken into account. The usual safety coefficients under static load 1.2 to 1,5; pulsating 1.8 to 2.4 and alternating 3 to 4.

Disclaimer:

You should carry out your own test series to verify whether a certain product is suitable for your specific applications.

Index Plungers - Precision

cylindrical pin

32460

Order No.	Type	d_1 -0,005 -0,01	d_2	d_3 n6	d_4	d_5	l_1 min.	l_2	l_3	l_4	l_5	l_6	Spring load* f_1 N≈	Spring load* f_2 N≈	g
32460.W0010	Non Locking	10	19	16	25	M 6	10	2,5	31	13	25,0	-	15	30	79
32460.W0012	Non Locking	12	23	20	32	M 8	10	3,0	35	13	33,0	-	15	35	138
32460.W0016	Non Locking	16	28	25	40	M10	10	3,0	42	13	41,5	-	20	50	226
32460.W0020	Non Locking	20	33	30	40	M10	10	3,0	50	13	41,5	-	36	63	350
32460.W0025	Non Locking	25	42	38	50	M10	10	3,0	60	13	51,0	-	20	73	649
32460.W0060	Locking	10	19	16	25	M 6	10	2,5	31	13	25,0	36,5	15	30	79
32460.W0062	Locking	12	23	20	32	M 8	10	3,0	35	13	33,0	44,5	15	35	136
32460.W0066	Locking	16	28	25	40	M10	10	3,0	42	13	41,5	53,0	20	50	228
32460.W0070	Locking	20	33	30	40	M10	10	3,0	50	13	41,5	53,0	36	63	350
32460.W0075	Locking	25	42	38	50	M10	10	3,0	60	13	51,0	62,5	20	73	649
32460.W0090	Bush	10	19	16	-	-	11	8,5	-	-	-	-	-	-	11
32460.W0092	Bush	12	23	20	-	-	13	10,0	-	-	-	-	-	-	22
32460.W0093	Bush	16	28	25	-	-	17	14,0	-	-	-	-	-	-	40
32460.W0094	Bush	20	33	30	-	-	16	13,0	-	-	-	-	-	-	51
32460.W0096	Bush	25	42	38	-	-	19	16,0	-	-	-	-	-	-	99

Material

Pin, Body & Bush: case-hardened steel, blackened and ground.
Grip: thermoplastic, black.

Technical Notes

Supplied part assembled to enable precise setting, grip and body must be glued after mounting. Non removable once installed.

"Locking" type - enable pin to be held in retracted/non-projecting position; pull back grip, turn 90 to engage 'locking' on a notched catch.
"Non Locking" type - pin simply springs back when grip released.

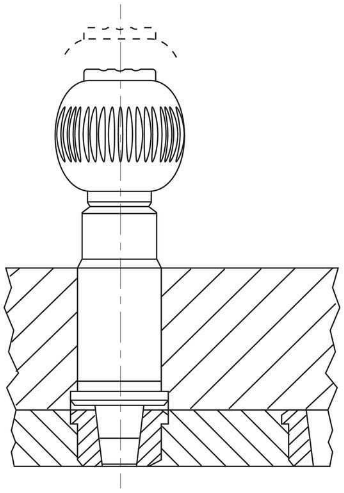
Tips

When used for alignment of two sub-plates, the plunger's precise finish guarantees high repetition accuracy.
Spring loads * = statistical average.

Index Plungers - Precision

tapered pin

Order No.	Type	Nom. dia.	d_1	d_2	d_3 n6	d_4	d_5	l_1 min.	l_2	l_3	l_4	l_5	l_6	Spring load * f_1 N≈	Spring load * f_2 N≈	g
32480.W0110	Non Locking	10	10,00	19	16	25	M 6	6	2,5	31	13	25,0	-	19	29	78
32480.W0112	Non Locking	12	12,00	23	20	32	M 8	6	3,0	35	13	33,0	-	22	35	135
32480.W0116	Non Locking	16	16,00	28	25	40	M10	6	3,0	42	13	41,5	-	30	50	227
32480.W0120	Non Locking	20	20,00	33	30	40	M10	6	3,0	50	13	41,5	-	46	63	348
32480.W0125	Non Locking	25	25,00	42	38	50	M10	6	3,0	60	13	51,0	-	39	73	654
32480.W0160	Locking	10	10,00	19	16	25	M 6	6	2,5	31	13	25,0	32,5	19	29	78
32480.W0162	Locking	12	12,00	23	20	32	M 8	6	3,0	35	13	33,0	40,5	22	35	135
32480.W0166	Locking	16	16,00	28	25	40	M10	6	3,0	42	13	41,5	49,0	30	50	228
32480.W0170	Locking	20	20,00	33	30	40	M10	6	3,0	50	13	41,5	49,0	46	63	348
32480.W0175	Locking	25	25,00	42	38	50	M10	6	3,0	60	13	51,0	58,5	39	73	651
32480.W0190	Tapered Bush	10	7,10	19	16	-	-	11	8,5	-	-	-	-	-	-	13
32480.W0192	Tapered Bush	12	8,28	23	20	-	-	13	10,0	-	-	-	-	-	-	25
32480.W0193	Tapered Bush	16	11,52	28	25	-	-	17	14,0	-	-	-	-	-	-	47
32480.W0194	Tapered Bush	20	15,49	33	30	-	-	16	13,0	-	-	-	-	-	-	60
32480.W0196	Tapered Bush	25	19,70	42	38	-	-	19	16,0	-	-	-	-	-	-	114



Material
Pin, body & bush: case hardened steel, blackened and ground.
Grip: thermoplastic, black.

Technical Notes
Supplied part assembled to enable precise setting, grip and body must be glued after mounting. Non removable once installed.

"Locking" type - enable pin to be held in retracted/non-projecting position; pull back grip, turn 90° to engage 'locking' on a notched catch.
"Non Locking" type - pin simply springs back when grip released.

Tips
When used for alignment of two sub-plates, the plunger's precise finish on pin allows easier alignment of pin and bushing.
Spring loads * = statistical average.

Index Plungers - Lever Grip

pin protruding at start

32491

Order No.	Type	d_1	d_2	d_3	l_1 ≈	l_2	l_3 min.	l_4	Spring load* f_1 N≈	Spring load* f_2 N≈
32491.W0006	W/o Rest Position - Spring Back	6	M16x1,5	16	51	8	35	32	6,5	20
32491.W0007	W/o Rest Position - Spring Back	8	M16x1,5	16	51	8	35	32	6,5	20
32491.W0009	W/o Rest Position - Spring Back	10	M16x1,5	16	51	8	35	32	6,5	20
32491.W0356	With Rest Position	6	M16x1,5	16	51	8	35	32	6,5	20
32491.W0357	With Rest Position	8	M16x1,5	16	51	8	35	32	6,5	20
32491.W0359	With Rest Position	10	M16x1,5	16	51	8	35	32	6,5	20
32491.W0456	With Safety Rest Position	6	M16x1,5	16	51	8	35	32	6,5	20
32491.W0457	With Safety Rest Position	8	M16x1,5	16	51	8	35	32	6,5	20
32491.W0459	With Safety Rest Position	10	M16x1,5	16	51	8	35	32	6,5	20
32700.W0118	Locknut	-	M16x1,5	-	-	-	-	-	-	-

Material

Body: steel zinc plated, blue passivated.
Pin: stainless steel 1.4305 (AISI 303).
Grip/Lever: thermoplastic, black.

Technical Notes

At start position locking pin is protruding, when lever is actuated locking pin retracts.
The lever can be turned anti-clockwise by 90° or 120°, over a cam guide, to retract the pin.
Three different types available;
1)without rest position- sprung loaded pin which springs back to start position whenever released.
2) with rest position- pin held in retracted position via indexed notch on cam.
3) with safety rest position- pin held in retracted position via deep notch, to avoid accidental actuation, lever must first be pulled out of notch prior to release.

Tips

Spring Loads* = statistical average.

Index Plungers - Lever Grip

pin retracted at start

32492

Order No.	Type	d_1	d_2	d_3	l_1 ≈	l_2	l_3 min.	l_4	Spring load* f_1 N≈	Spring load* f_2 N≈
32492.W0326	W/o Rest Position - Spring Back	6	M16x1,5	16	60	8	35	32	7	16,5
32492.W0327	W/o Rest Position - Spring Back	8	M16x1,5	16	60	8	35	32	7	16,5
32492.W0366	With Rest Position	6	M16x1,5	16	60	8	35	32	7	16,5
32492.W0367	With Rest Position	8	M16x1,5	16	60	8	35	32	7	16,5
32492.W0466	With Safety Rest Position	6	M16x1,5	16	60	6	35	32	7	16,5
32492.W0467	With Safety Rest Position	8	M16x1,5	16	60	6	35	32	7	16,5
32700.W0118	Locknut	-	M16x1,5	-	-	-	-	-	-	-

Material

Body: steel, zinc plated, blue passivated.
Pin: stainless steel, 1.4305 (AISI 303).
Grip/Lever: thermoplastic, black.

Technical Notes

At start position locking pin is retracted, when lever is actuated locking pin protrudes.
The lever can be turned anti-clockwise by 90° or 120°, over a cam guide, to extend the pin.
Three different types available;
1) without rest position- sprung loaded pin which springs back to start position whenever released.
2) with rest position- pin held in protruding position via indexed notch on cam,
3) with safety rest position- pin held in protruding position via deep notch, to avoid accidental actuation, lever must first be pulled out of notch prior to release.

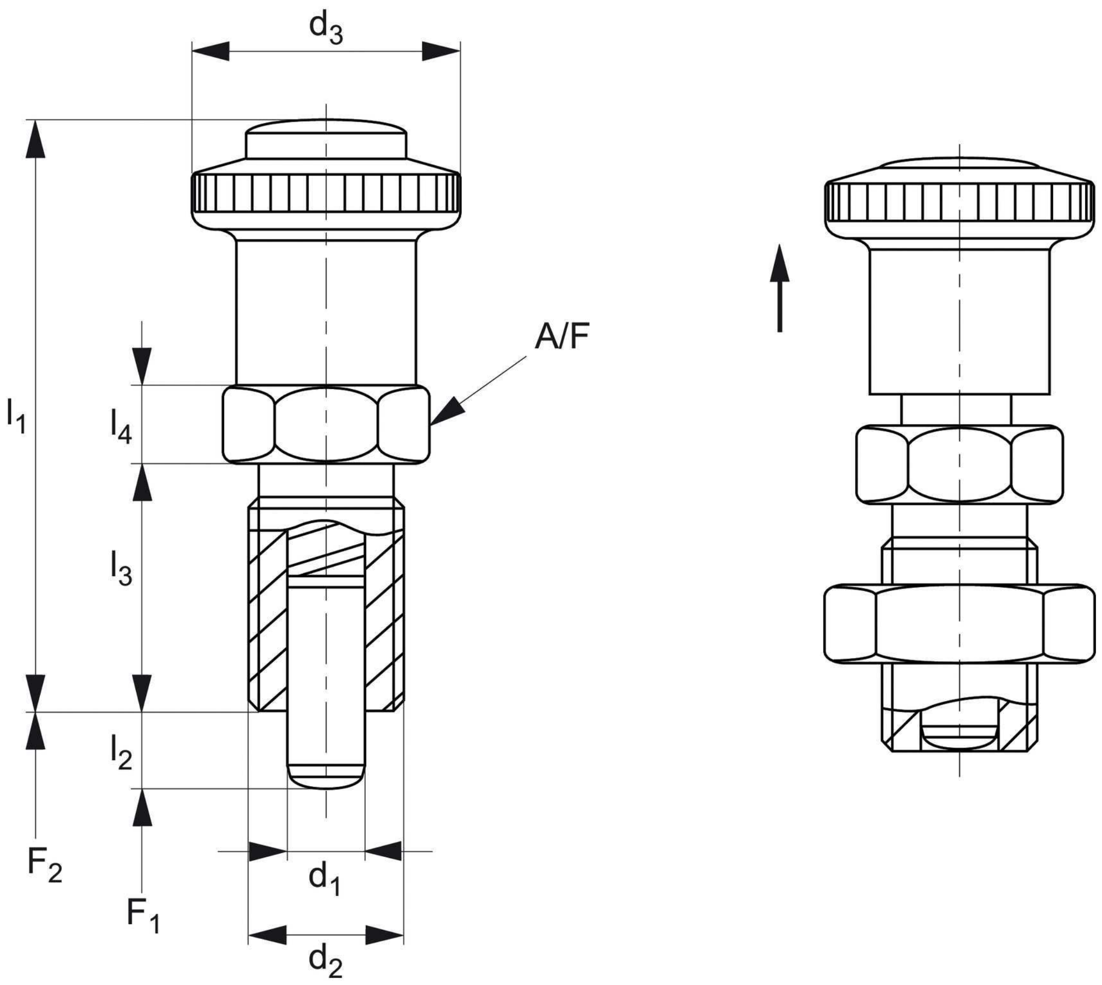
Tips

Spring Loads* = statistical average.

Index Plungers - Pull Grip

release lock

32494



Material

Body:steel, blackened or stainless steel 1.4305.
Knob: thermoplastic,black-grey, matt.
Button: thermoplastic POM, red.
Locking pin:steel, hardened or stainless steel, nickel-plated.

Technical Notes

Press red button and hold whilst pulling knob to release pin.
Temperature range -30 to +80°C.

Tips

Knob is non removable.
Lock nuts available separately.

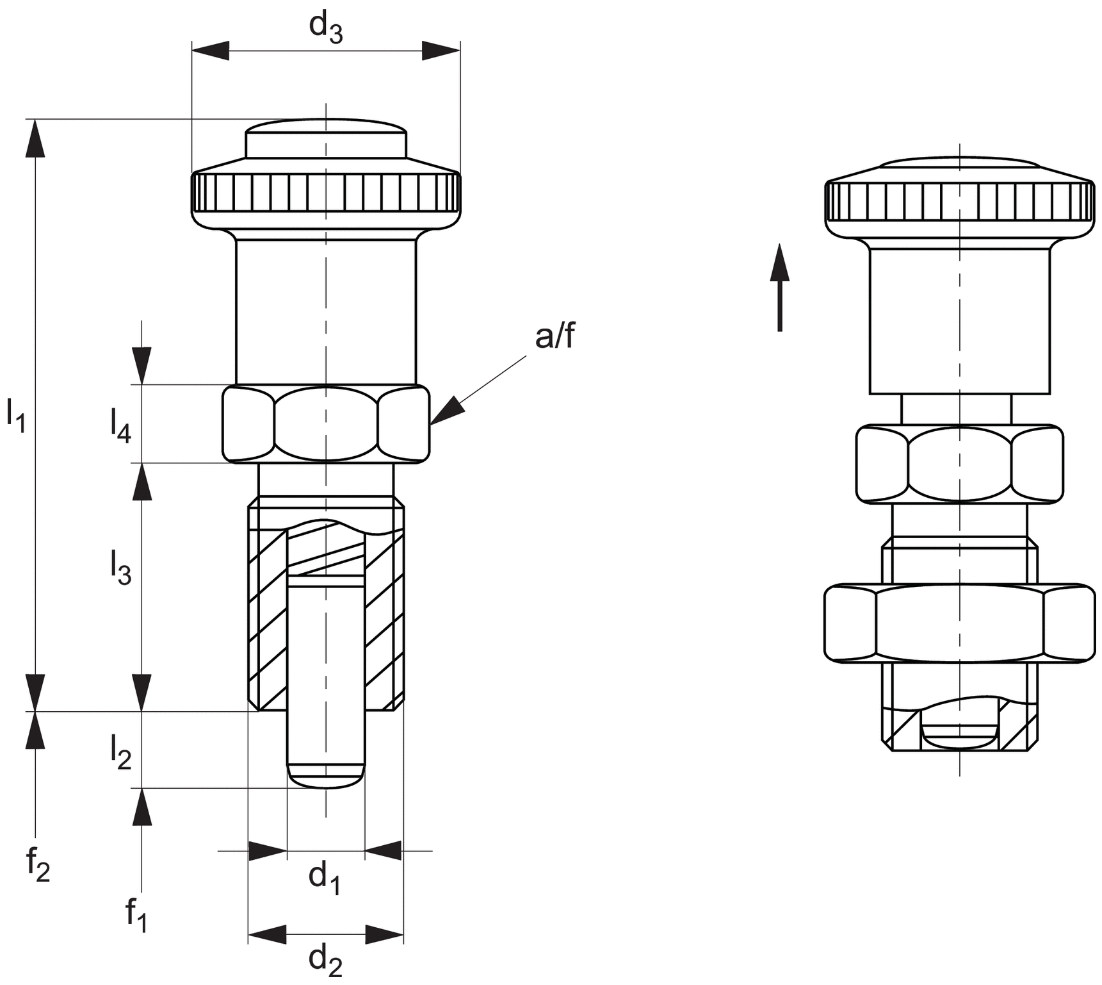
Used with:
32510 Mounting blocks.
32700 Lock nut .
32750 Distance collars.
32752 Locating bushes.
32753 Locating bushes.

Order No.	Type	d_1 -0,02 -0,04	d_2	l_2 min.	d_3	l_1 ≈	l_3	l_4	A/F	Spring load F_1 N ≈	Spring load F_2 N ≈	g
32494.W0005	Steel	6	M12x1,5	6	28	56	22	6	19	6,5	19	44
32494.W0010	Steel	6	M12x1,5	9	28	56	22	6	19	6,0	25	45
32494.W0015	Steel	8	M16x1,5	8	28	62	26	8	19	8,5	26	70
32494.W0020	Steel	8	M16x1,5	12	28	62	26	8	19	8,5	28	72
32494.W0025	Steel	10	M16x1,5	12	28	62	26	8	19	9,5	38	74
32494.W0105	Stainless	6	M12x1,5	6	28	56	22	6	19	6,5	19	44
32494.W0110	Stainless	6	M12x1,5	9	28	56	22	6	19	6,0	25	45
32494.W0115	Stainless	8	M16x1,5	8	28	62	26	8	19	8,5	26	70
32494.W0120	Stainless	8	M16x1,5	12	28	62	26	8	19	8,5	28	72
32494.W0125	Stainless	10	M16x1,5	12	28	62	26	8	19	9,5	38	74

Index Plungers -Pull Grip

Rapid locking head

32495



Material

Body:
Steel: Steel,blackened.
Stainless: Stainless steel 1.4305.
Knob: thermoplastic,black-grey, matt.
Button: thermoplastic POM, red.
Locking pin. Steel: hardened.
Stainless: stainless steel 1.4305, nickel-plated.

Technical Notes

Pull knob up, red button flush = pin locked.
Press red button, red button out = pin unlocked.
Temperature range -30 to +80 °C.

Tips

Knob is non removable.
Lock nuts available separately.

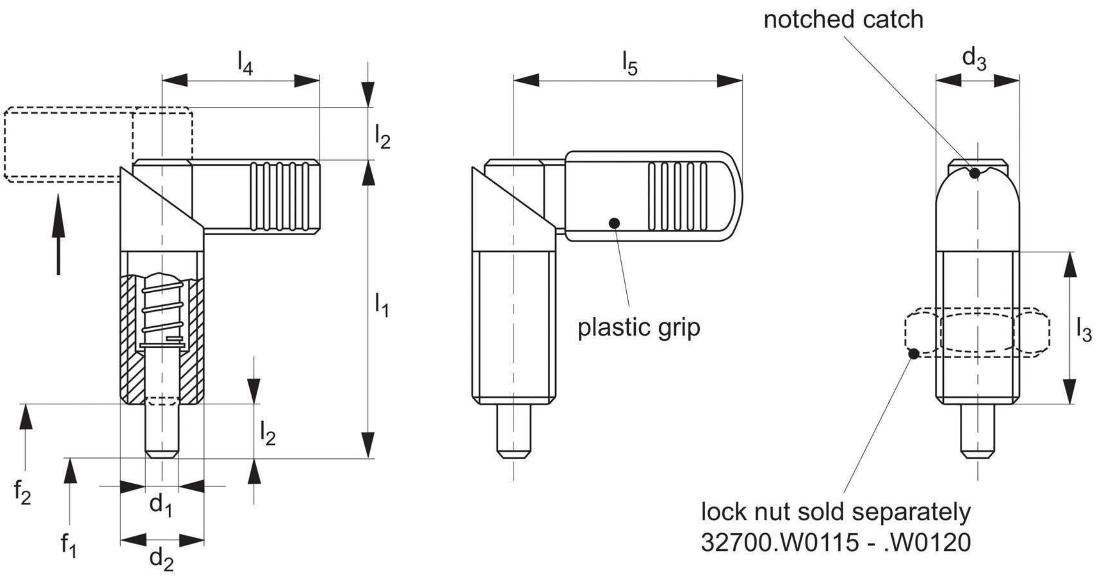
Used with:
32510 Mounting blocks.
32700 Lock nut .
32750 Distance collars.
32752 Locating bushes.
32753 Locating bushes.

Order No.	Type	d_1 -0.02 -0.04	d_2	l_2 min	d_3	l_1 ≈	l_3	l_4	a/f	Spring load F_1N ≈	Spring load F_2N ≈	g
32495.W0205	Steel	6	M12x1,5	6	30	53,5	22	6	19	6,5	19	47
32495.W0210	Steel	6	M12x1,5	9	30	53,5	22	6	19	6,0	25	48
32495.W0215	Steel	8	M16x1,5	8	30	59,5	26	8	19	8,5	26	74
32495.W0220	Steel	8	M16x1,5	12	30	59,5	26	8	19	8,5	28	77
32495.W0225	Steel	10	M16x1,5	12	30	59,5	26	8	19	9,5	38	78
32495.W0305	Stainless	6	M12x1,5	6	30	53,5	22	6	19	6,5	19	47
32495.W0310	Stainless	6	M12x1,5	9	30	53,5	22	6	19	6,0	25	48
32495.W0315	Stainless	8	M16x1,5	8	30	59,5	26	8	19	8,5	26	74
32495.W0320	Stainless	8	M16x1,5	12	30	59,5	26	8	19	8,5	28	77
32495.W0325	Stainless	10	M16x1,5	12	30	59,5	26	8	19	9,5	38	78

Index Plungers - Lever Grip

locking - steel

32500



without grip

with grip

Order No.	Type	d_1 -0,02 -0,04	d_2	d_3	l_1 ≈	l_2 min.	l_3 +1,5	l_4	l_5	Spring Load* f_1 ≈	Spring Load* f_2 ≈	g
32500.W0000	Without Grip	4	M10x1,0	10	37,5	6	19	21	-	8,5	25,0	17,0
32500.W0001	Without Grip	5	M10x1,0	10	37,5	6	19	21	-	8,5	25,0	18,0
32500.W0002	Without Grip	6	M10x1,0	10	37,5	6	19	21	-	8,5	25,0	18,0
32500.W0003	Without Grip	5	M12x1,5	12	47,0	8	26	26	-	8,5	19,5	29,0
32500.W0004	Without Grip	6	M12x1,5	12	47,0	8	26	26	-	8,5	19,5	29,0
32500.W0006	Without Grip	6	M16x1,5	16	56,0	10	30	32	-	11,5	30,5	59,0
32500.W0005	Without Grip	8	M12x1,5	12	47,0	8	26	26	-	8,5	19,5	30,0
32500.W0007	Without Grip	8	M16x1,5	16	56,0	10	30	32	-	11,5	30,5	61,0
32500.W0008	Without Grip	8	M20x1,5	20	69,0	12	36	37	-	21,0	57,5	121,0
32500.W0009	Without Grip	10	M16x1,5	16	56,0	10	30	32	-	11,5	30,5	64,0
32500.W0010	Without Grip	10	M20x1,5	20	69,0	12	36	37	-	21,0	57,5	123,0
32500.W0012	Without Grip	12	M20x1,5	20	69,0	12	36	37	-	21,0	57,5	127,0
32500.W0353	With Grip	5	M12x1,5	12	47,0	8	26	-	32	8,5	19,5	30,0
32500.W0354	With Grip	6	M12x1,5	12	47,0	8	26	-	32	8,5	19,5	30,0
32500.W0356	With Grip	6	M16x1,5	16	56,0	10	30	-	42	11,5	30,5	61,0
32500.W0355	With Grip	8	M12x1,5	12	47,0	8	26	-	32	8,5	19,5	32,0
32500.W0357	With Grip	8	M16x1,5	16	56,0	10	30	-	42	11,5	30,5	63,0
32500.W0358	With Grip	8	M20x1,5	20	69,0	12	36	-	52	21,0	57,5	124,0
32500.W0359	With Grip	10	M16x1,5	16	56,0	10	30	-	42	11,5	30,5	66,0
32500.W0360	With Grip	10	M20x1,5	20	69,0	12	36	-	52	21,0	57,5	128,0
32500.W0362	With Grip	12	M20x1,5	20	69,0	12	36	-	52	21,0	57,5	131,0
32700.W0115	Locknut	-	M10x1,0	-	-	-	-	-	-	-	-	5,2
32700.W0116	Locknut	-	M12x1,5	-	-	-	-	-	-	-	-	7,4
32700.W0118	Locknut	-	M16x1,5	-	-	-	-	-	-	-	-	18,0
32700.W0120	Locknut	-	M20x1,5	-	-	-	-	-	-	-		32,0

Material

Body: free-cutting steel, blackened.
Pin: hardened steel.
Plastic grip: thermoplastic, black, dull.

Technical Notes

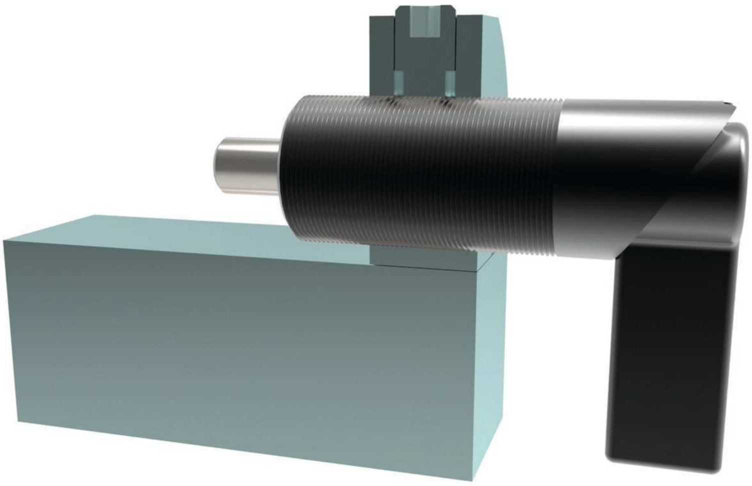
Turn lever 180º to retract pin. To enable pin to be held in retracted position, secure lever in notched catch on plunger body.

Plastic grip type, improves handling. Temperature resistance of type with plastic grip is -30ºC to +80ºCa

Tips

Spring loads * = statistical average.

32500

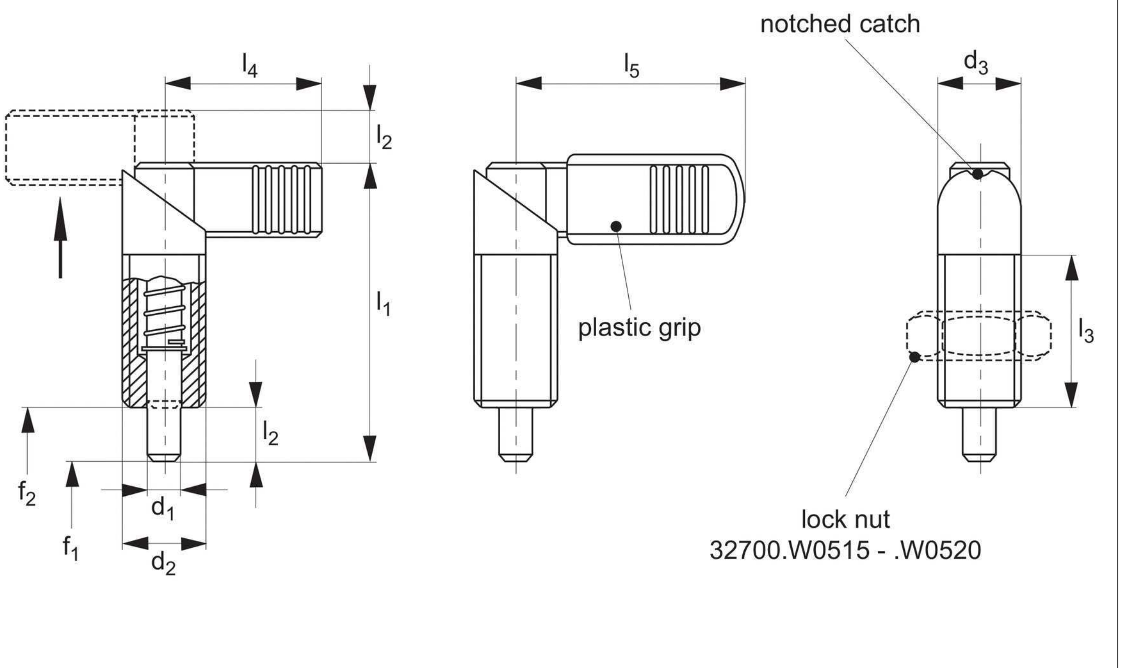


Material
Body: free-cutting steel, blackened.
Pin: hardened steel.
Plastic grip: thermoplastic, black, dull.

Technical Notes
Turn lever 180º to retract pin. To enable pin to be held in retracted position, secure lever in notched catch on plunger body.

Plastic grip type, improves handling. Temperature resistance of type with plastic grip is -30ºC to +80ºCa

Tips
Spring loads * = statistical average.



without grip

with grip

Order No.	Type	d_1 -0,02 -0,04	d_2	d_3	l_1 ≈	l_2 min.	l_3 +1,5	l_4	l_5	Spring load* f_1 ≈	Spring load* f_2 ≈	g
32501.W0308	Without Grip	4	M10x1,0	10	37,5	6	19	21	-	8,5	25,0	17
32501.W0310	Without Grip	5	M10x1,0	10	37,5	6	19	21	-	8,5	25,0	18
32501.W0312	Without Grip	6	M10x1,0	10	37,5	6	19	21	-	8,5	25,0	18
32501.W0323	Without Grip	5	M12x1,5	12	47	8	26	26	-	8,5	19,5	29,0
32501.W0324	Without Grip	6	M12x1,5	12	47	8	26	26	-	8,5	19,5	29,0
32501.W0326	Without Grip	6	M16x1,5	16	56	10	30	32	-	11,5	30,5	59,0
32501.W0325	Without Grip	8	M12x1,5	12	47	8	26	26	-	8,5	19,5	30,0
32501.W0327	Without Grip	8	M16x1,5	16	56	10	30	32	-	11,5	30,5	61,0
32501.W0328	Without Grip	8	M20x1,5	20	69	12	36	37	-	21,0	57,5	121,0
32501.W0329	Without Grip	10	M16x1,5	16	56	10	30	32	-	11,5	30,5	64,0
32501.W0330	Without Grip	10	M20x1,5	20	69	12	36	37	-	21,0	57,5	123,0
32501.W0332	Without Grip	12	M20x1,5	20	69	12	36	37	-	21,0	57,5	127,0
32501.W0363	With Grip	5	M12x1,5	12	47	8	26	-	32	8,5	19,5	30,0
32501.W0364	With Grip	6	M12x1,5	12	47	8	26	-	32	8,5	19,5	30,0
32501.W0366	With Grip	6	M16x1,5	16	56	10	30	-	42	11,5	30,5	61,0
32501.W0365	With Grip	8	M12x1,5	12	47	8	26	-	32	8,5	19,5	32,0
32501.W0367	With Grip	8	M16x1,5	16	56	10	30	-	42	11,5	30,5	63,0
32501.W0368	With Grip	8	M20x1,5	20	69	12	36	-	52	21,0	57,5	124,0
32501.W0369	With Grip	10	M16x1,5	16	56	10	30	-	42	11,5	30,5	66,0
32501.W0370	With Grip	10	M20x1,5	20	69	12	36	-	52	21,0	57,5	128,0
32501.W0372	With Grip	12	M20x1,5	20	69	12	36	-	52	21,0	57,5	131,0
32700.W0515	Locknut	-	M10x1,0	-	-	-	-	-	-	-	-	5,2
32700.W0516	Locknut	-	M12x1,5	-	-	-	-	-	-	-	-	7,4
32700.W0518	Locknut	-	M16x1,5	-	-	-	-	-	-	-	-	18,0
32700.W0520	Locknut	-	M20x1,5	-	-	-	-	-	-	-		32,0

Material

Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303).
Plastic Grip: thermoplastic, black, dull.

Technical Notes

Turn lever 180° to retract pin. To enable pin to be held in retracted position, secure lever in notched catch on plunger body.

Plastic grip type, improves handling. Temperature resistance of type with plastic grip is -30°C to +80°C

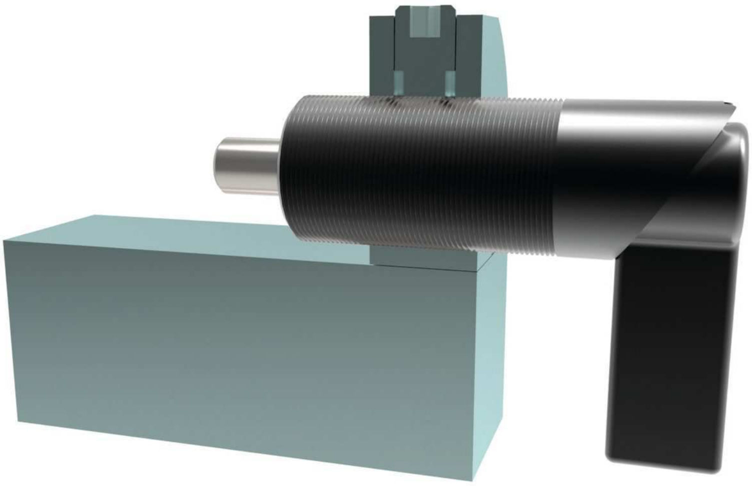
Tips

Spring loads * = statistical average.

STAINLESS STEEL 303

Index Plungers - Lever Grip
locking - stainless

32501



Material
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303).
Plastic Grip: thermoplastic, black, dull.

Technical Notes
Turn lever 180º to retract pin. To enable pin to be held in retracted position, secure lever in notched catch on plunger body.

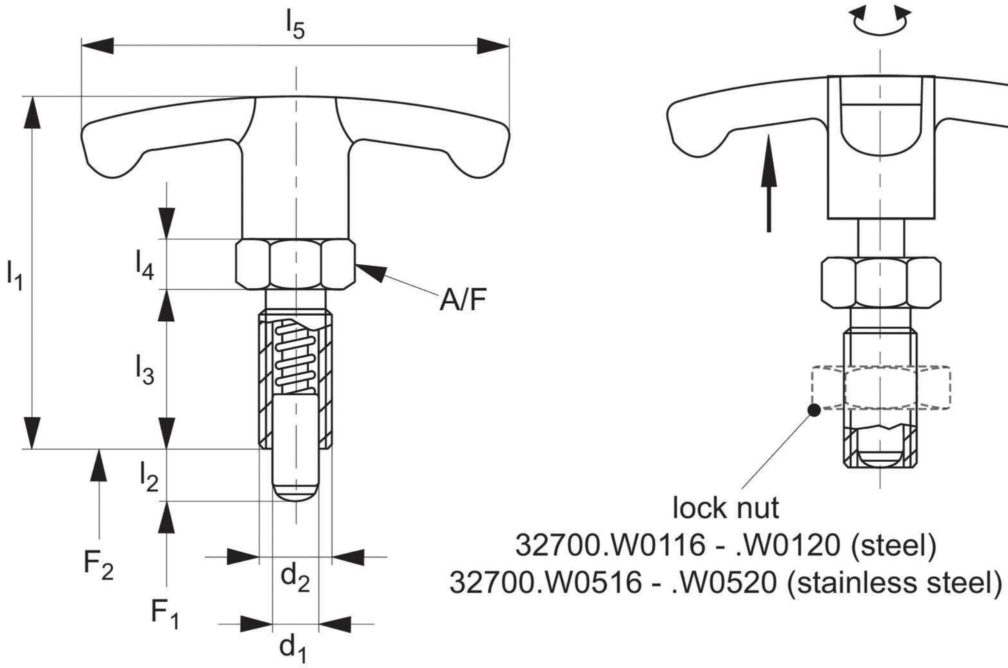
Plastic grip type, improves handling. Temperature resistance of type with plastic grip is -30ºC to +80ºC

Tips
Spring loads * = statistical average.

Index Plungers - T-handle Grip

compact - non locking

32502



Order No.	Type	Material	d_1 -0,02 -0,04	l_2	d_2	l_1	l_3	l_4	l_5	A/F	Spring load F_1 N≈*	g
32502.W0820	Non Locking	Steel	6	6	M12x1,5	48	22	6	54	14	6,5	31,0
32502.W0822	Non Locking	Steel	6	9	M12x1,5	48	22	6	54	14	6,0	32,0
32502.W0824	Non Locking	Steel	8	8	M16x1,5	59	26	8	59	17	8,5	64,0
32502.W0826	Non Locking	Steel	8	12	M16x1,5	59	26	8	59	17	8,5	65,0
32502.W0828	Non Locking	Steel	10	12	M16x1,5	59	26	8	59	17	9,5	66,0
32502.W0830	Non Locking	Steel	12	15	M20x1,5	68	33	10	59	22	11,5	120,0
32700.W0116	Lock Nuts	Steel	-	-	M12x1,5	-	-	-	-	-	-	7,4
32700.W0118	Lock Nuts	Steel	-	-	M16x1,5	-	-	-	-	-	-	18,0
32700.W0120	Lock Nuts	Steel	-	-	M20x1,5	-	-	-	-	-	-	32,0
32502.W0920	Non Locking	Stainless steel	6	6	M12x1,5	48	22	6	54	14	6,5	31,0
32502.W0922	Non Locking	Stainless steel	6	9	M12x1,5	48	22	6	54	14	6,0	32,0
32502.W0924	Non Locking	Stainless steel	8	8	M16x1,5	59	26	8	59	17	8,5	64,0
32502.W0926	Non Locking	Stainless steel	8	12	M16x1,5	59	26	8	59	17	8,5	65,0
32502.W0928	Non Locking	Stainless steel	10	12	M16x1,5	59	26	8	59	17	9,5	66,0
32502.W0930	Non Locking	Stainless steel	12	15	M20x1,5	68	33	10	59	22	11,5	120,0
32700.W0516	Lock Nuts	Stainless steel	-	-	M12x1,5	-	-	-	-	-	-	7,4
32700.W0518	Lock Nuts	Stainless steel	-	-	M16x1,5	-	-	-	-	-	-	18,0
32700.W0520	Lock Nuts	Stainless steel	-	-	M20x1,5	-	-	-	-	-	-	32,0

Material

Free cutting Steel Type-
Body: Free cutting steel, blackened.
Pin: Steel, hardened.
Grip: Thermoplastic PA6, black, dull.
Stainless Steel Type-
Body: Stainless steel 1.4305 (AISI 303).
Pin: Stainless steel 1.4305 (AISI 303), nickel plated.
Grip: Thermosplastic PA6, black, dull.

Technical Notes

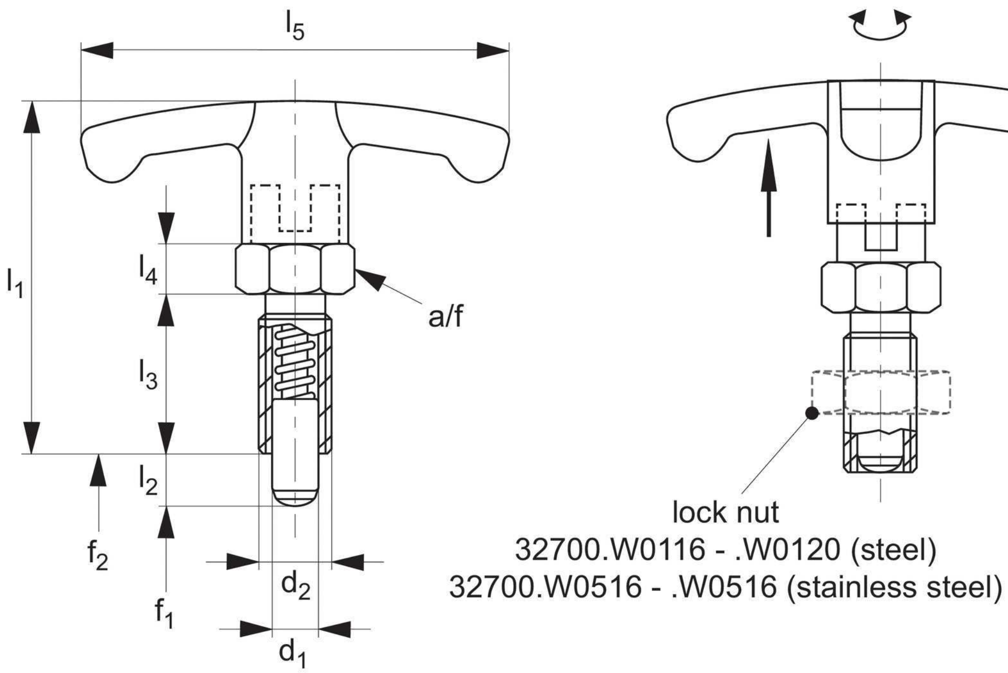
T-handle grip makes for improved handling, especially when operator is using safety gloves etc.

Thread recess on body allows full engagement of thread length. Hexagon collar improves leverage for secure installation.

"Non Locking" type- pin simply springs back when grip released.

Tips

Distance collars no. 32750 can be used to adapt screw length.
Grip non-removable.
Spring loads* = statistical average.



Order No. Steel	Order No. Stainless Steel	Type	d_1	d_2	l_1	l_3	l_4	l_5	a/f	l_2	Spring load f_1 N≈*	Spring load f_2 N≈*	g
32504.W0832	32504.W0932	Locking	6	M12x1,5	48	22	6	54	14	6	6,5	19	33,0
32504.W0834	32504.W0934	Locking	6	M12x1,5	48	22	6	54	14	9	6,0	25	34,0
32504.W0836	32504.W0936	Locking	8	M16x1,5	59	26	8	59	17	8	8,5	26	68,0
32504.W0838	32504.W0938	Locking	8	M16x1,5	59	26	8	59	17	12	8,5	28	71,0
32504.W0840	32504.W0940	Locking	10	M16x1,5	59	26	8	59	17	12	9,5	38	72,0
32504.W0842	32504.W0942	Locking	12	M20x1,5	68	33	10	59	22	15	11,5	40	127,0
32700.W0116	32700.W0516	Locknuts	-	M12x1,5	-	-	-	-	-	-	-	-	7,4
32700.W0118	32700.W0518	Locknuts	-	M16x1,5	-	-	-	-	-	-	-	-	18,0
32700.W0120	32700.W0520	Locknuts	-	M20x1,5	-	-	-	-	-	-	-	-	32,0

Material
Free cutting Steel Type-
Body: free cutting steel, blackened.
Pin: steel, hardened.
Grip: thermplastic PA6, black, dull.
Stainless Steel Type-
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303), nickel plated.
Grip: thermosplastic PA6, black, dull.

Technical Notes
T-handle grip makes for improved handling, especialy when operator is using safety gloves etc.

Thread recess on body allows full engagement of thread length.
Hexagon collar improves leverage for secure installation.

"Locking" type- enable pin to be held in retracted/non-projecting position; pull back grip, turn 90º to engage 'locking' on a notched catch.

Tips
Distance collars no. 32750 can be used to adapt screw length.
Grip non-removable.
Spring loads* = statistical average.

Mounting Blocks

for index plungers - fine thread

32510

Order No. Steel	Order No. Stainless	Type	d_1	d_2	d_3	d_4	k ± 0,1	l_1	l_2 ≈	l_3	s	g
32510.W0345	32510.W0545	Parallel	M12x1,5	32	M 5	4,5	21	22	26,5	9	12	43
32510.W0346	32510.W0546	Parallel	M16x1,5	46	M 8	5,5	32	33	38,0	13	15	122
32510.W0350	32510.W0550	Parallel	M20x1,5	46	M 8	5,5	32	33	37,0	13	15	109
32510.W0347	32510.W0547	Vertical	M12x1,5	32	M 5	4,5	21	22	26,5	9	12	37
32510.W0348	32510.W0548	Vertical	M16x1,5	46	M 8	5,5	32	33	38,0	13	15	106
32510.W0352	32510.W0552	Vertical	M20x1,5	46	M 8	5,5	32	33	38,0	13	15	94

Material

Steel type-
Body: Steel, blackened.
Grub Screw: M8 with brass tip.
Stainless steel type-
Body: Stainless steel 1.4305 (AISI 303).

Technical Notes

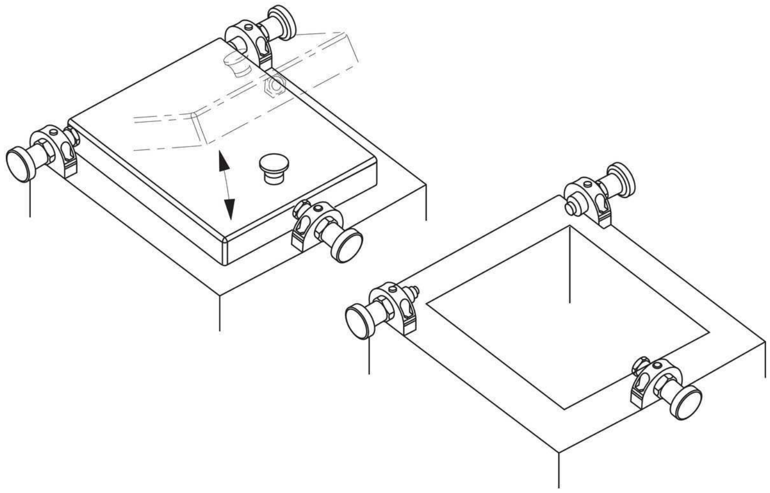
Mounting blocks provide assembly support for mounting of index plungers. **(Not suitable for index plungers with coarse thread)**.

Mounting Blocks

for index plungers - fine thread

32512

Order No.	Type	d_1	d_2	d_3	k	l_1	l_2	l_3 - 0,2	l_4	g
32512.W0408	Vertical	M 8x1,0	4,3	M 4	25	35	26	11,5	14	39
32512.W0410	Vertical	M10x1,0	4,3	M 4	25	35	26	11,5	14	36
32512.W0412	Vertical	M12x1,5	4,3	M 4	25	35	26	11,5	14	41
32512.W0416	Vertical	M16x1,5	5,3	M 5	35	47	34	15,5	18	77
32512.W0420	Vertical	M20x1,5	5,3	M 5	35	47	34	15,5	18	68



Material

Body: die-cast zinc, black plastic coated.
Grub screw: M8 with brass tip.

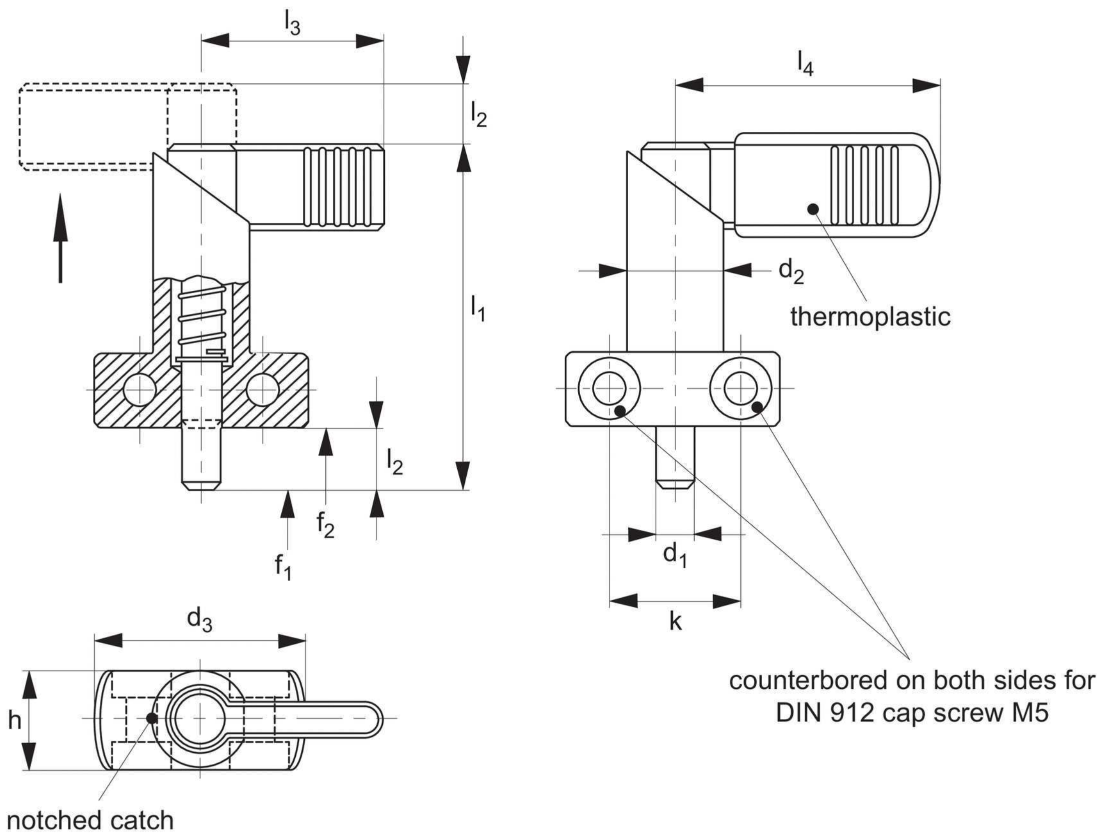
Technical Notes

Mounting blocks provide assembly support for mounting of index plungers. **(Not suitable for index plungers with coarse thread)**.

Index plunger must be assembled in hole d_1 on countersunk side.

Index Plungers - Lever Grip

flange mounting - locking



without grip

with grip

Material

Body & Lever: free cutting steel, blackened.
Pin: steel, nitrided, black.
Plastic Grip: thermoplastic, black, dull.

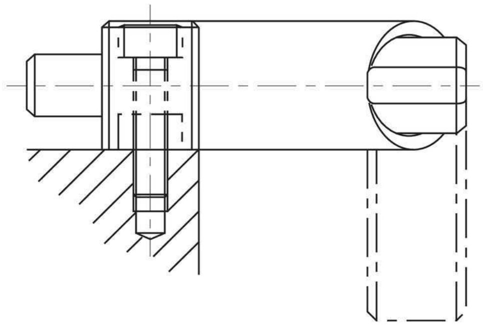
Technical Notes

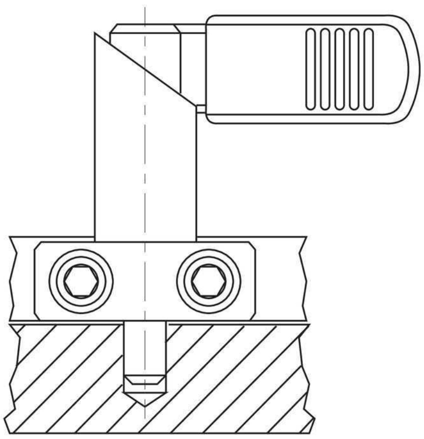
Turn lever 180° to retract pin. To enable pin to be held in retracted position, secure lever in notched catch on plunger body.
Countersunk holes on both sides of mounting flange enable both right or left mounting.
Plastic grip type, improves handling. Temperature resistance of type with plastic grip is -30°C to +80°C.

Tips

Spring loads * = statistical average.

Order No.	Type	d_1 0 -0,05	l_2	d_2	d_3	h	k	l_1	l_3	l_4	s	Sprin g load* f_1 N	Sprin g load* f_2 N	g
32520.W0376	Without Grip	6	10	16	35	16	20	56	32	-	12	12	32	82
32520.W0378	Without Grip	8	10	16	35	16	20	56	32	-	12	12	32	85
32520.W0379	Without Grip	8	12	20	40	20	22	69	37	-	15	21	58	163
32520.W0381	Without Grip	10	10	16	35	16	20	56	32	-	12	12	32	85
32520.W0382	Without Grip	10	12	20	40	20	22	69	37	-	15	21	58	167
32520.W0384	Without Grip	12	12	20	40	20	22	69	37	-	15	21	58	168
32520.W0386	With Grip	6	10	16	35	16	20	56	-	42	12	12	32	83
32520.W0388	With Grip	8	10	16	35	16	20	56	-	42	12	12	32	85
32520.W0389	With Grip	8	12	20	40	20	22	69	-	52	15	21	58	169
32520.W0391	With Grip	10	10	16	35	16	20	56	-	42	12	12	32	86
32520.W0392	With Grip	10	12	20	40	20	22	69	-	52	15	21	58	171
32520.W0394	With Grip	12	12	20	40	20	22	69	-	52	15	21	58	171

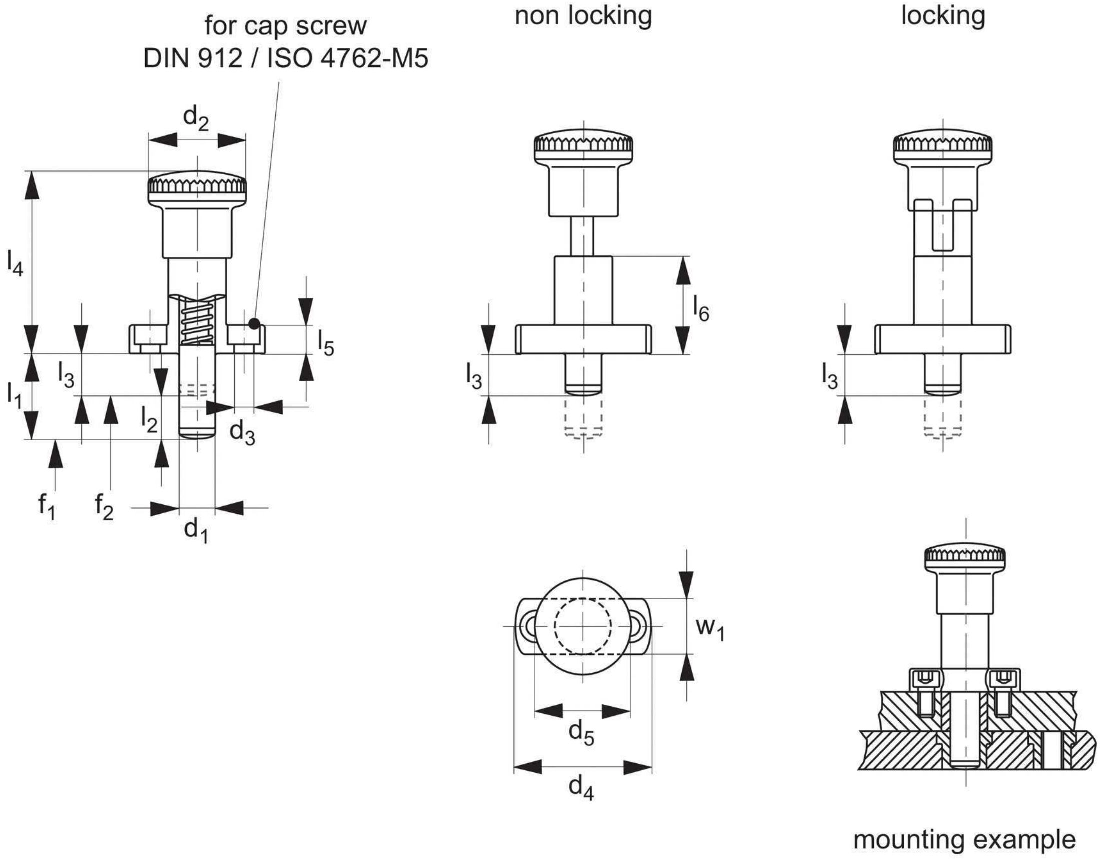




Index Plungers - Pull Grip

flange mounting - extended pin

32530



Order No.	Type	l_1	Stroke l_2	l_3	l_4	l_5	l_6	w_1	d_1 tol. h7	d_2	d_3	d_4	d_5	Spring load $*f_1$N ≈	Spring load $*f_2$N ≈	g
32530.W0081	Non Locking	20	10	10	51	8	27	16	8	28	5,5	38	26	8,5	28	74
32530.W0083	Non Locking	26	10	16	51	8	27	16	8	28	5,5	38	26	8,5	28	77
32530.W0101	Non Locking	24	12	12	51	8	27	16	10	28	5,5	38	26	9,5	38	77
32530.W0102	Non Locking	24	12	12	51	8	27	16	10	28	5,5	38	26	9,5	38	77
32530.W0104	Non Locking	32	12	20	51	8	27	16	10	28	5,5	38	26	9,5	38	80
32530.W0281	Locking	20	10	10	51	8	27	16	8	28	5,5	38	26	8,5	28	80
32530.W0282	Locking	22	10	12	51	8	27	16	8	28	5,5	38	26	8,5	28	80
32530.W0283	Locking	26	10	16	51	8	27	16	8	28	5,5	38	26	8,5	28	83
32530.W0202	Locking	24	12	12	51	8	27	16	10	28	5,5	38	26	9,5	38	83
32530.W0204	Locking	32	12	20	51	8	27	16	10	28	5,5	38	26	9,5	38	100

Material

Body: steel, blackened.
Pin: steel, hardened and ground.
Grip: thermoplastic PA6, black.

Technical Notes

"Locking" type- enable pin to be held in retracted position; pull back grip, turn 90º to engage 'locking' on a notched catch.
"Non Locking" type- pin simply springs back when grip is released.
Due to extended length pin does not fully retreat into plunger body when grip activated - note dimension l_3 for length pin remains exposed.
Extended pin assists locating and indexing of components. Due to its extended length the pin does not fully retract flush to the plunber body - please note dimensions l_1 for extended pin length and l_3 for retracted pin length. Pin is toleranced to h7 for improved location accuracy. Accuracy dependant upon suitable tolerance of bush, we suggest H7, with min. pin engagement to dim. l_3.

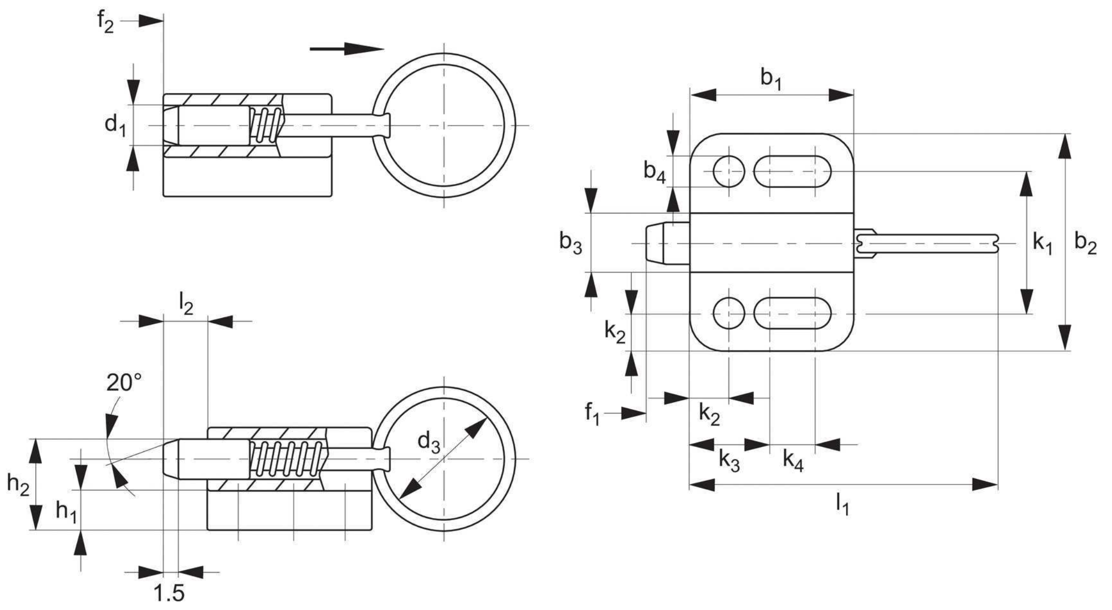
Tips

Grip non-removable.
Spring Loads* = statistical average.

Index Plungers - Pull Grip & Pull Ring

flange mounting - non-locking

32540



Order No.	Type	d_1 h9	d_3	b_1	b_2	b_3	b_4 -0,2	h_1	h_2	k_1 ±0,05	k_2	k_3	k_4	l_1	l_2 min.	Spring load* f_1 N ≈	Spring load* f_2 N≈	g
32540.W0304	Non Locking	4	14	16,5	22	6	3,3	4,0	7,0	14	4,0	8	4,5	34,5	4	3	12	10
32540.W0305	Non Locking	5	18	22,0	28	8	4,3	4,5	9,5	18	5,0	10	7,0	45,0	5	5	24	20
32540.W0306	Non Locking	6	24	27,5	32	10	5,4	5,0	10,5	21	5,5	12	10,0	57,5	6	5	21	40
32540.W0308	Non Locking	8	30	33,0	34	12	5,4	6,0	12,5	23	5,5	12	15,5	71,0	8	6	22	58
32540.W0310	Non Locking	10	30	35,0	39	14,5	6,5	6,0	14,5	27	6,0	15	13,5	75,0	10	4	25	83

Material

Body: die cast zinc, black.
Pin: stainless steel 1.4305 (AISI 303).
Pull ring: stainless steel 1.4305 (AISI 303).

Technical Notes

"Non Locking" type- pin simply srings back when pull ring relased.

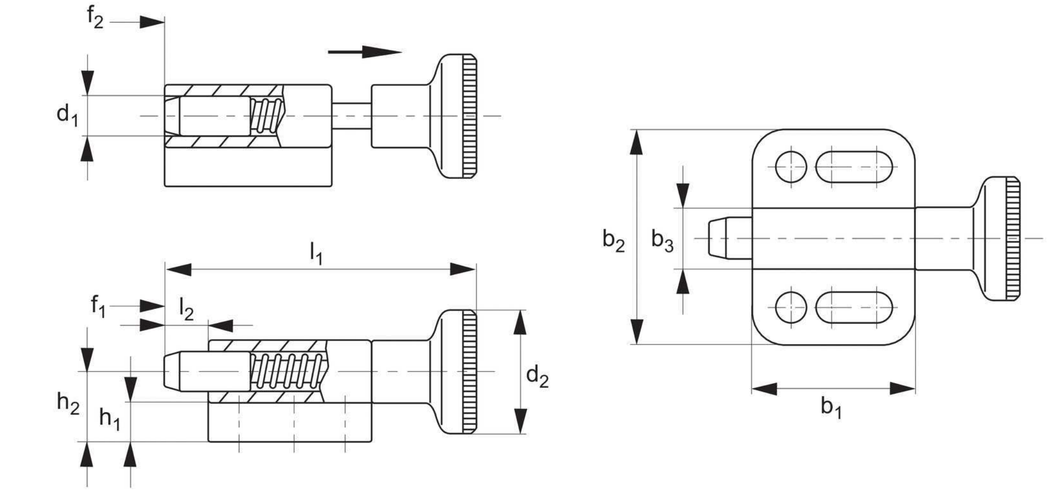
Integral mounting flange simplifies installation on flat surfaces.
Temperature resistant to 100°C.

Tips

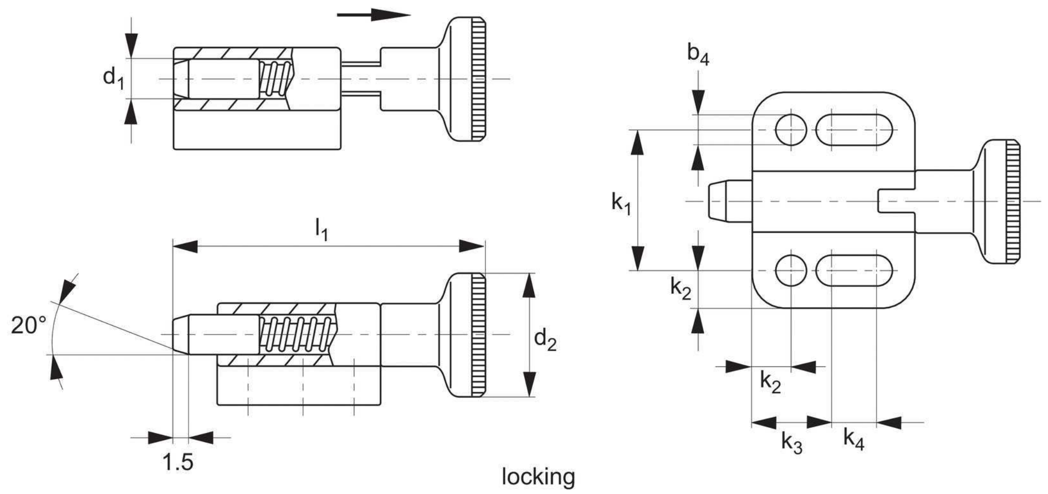
Spring loads * = statistical average.

Index Plungers - Pull Grip

flange mounting - locking



non locking



locking

Material

Body: die cast zinc, black.
Pin: stainless steel 1.4305 (AIAI 303).
Grip: thermoplastic PA6, black.

Technical Notes

"Locking" type- enable pin to be held in retracted/non-projecting position; pull back grip, turn 90º to engage 'locking' on a notched catch.
"Non Locking" type- pin simply springs back when grip released.

Integral mounting flange simplifies installation of index plunger on horizontal surfaces.
Temperature resistance from -30°C up to +80°C.

Tips

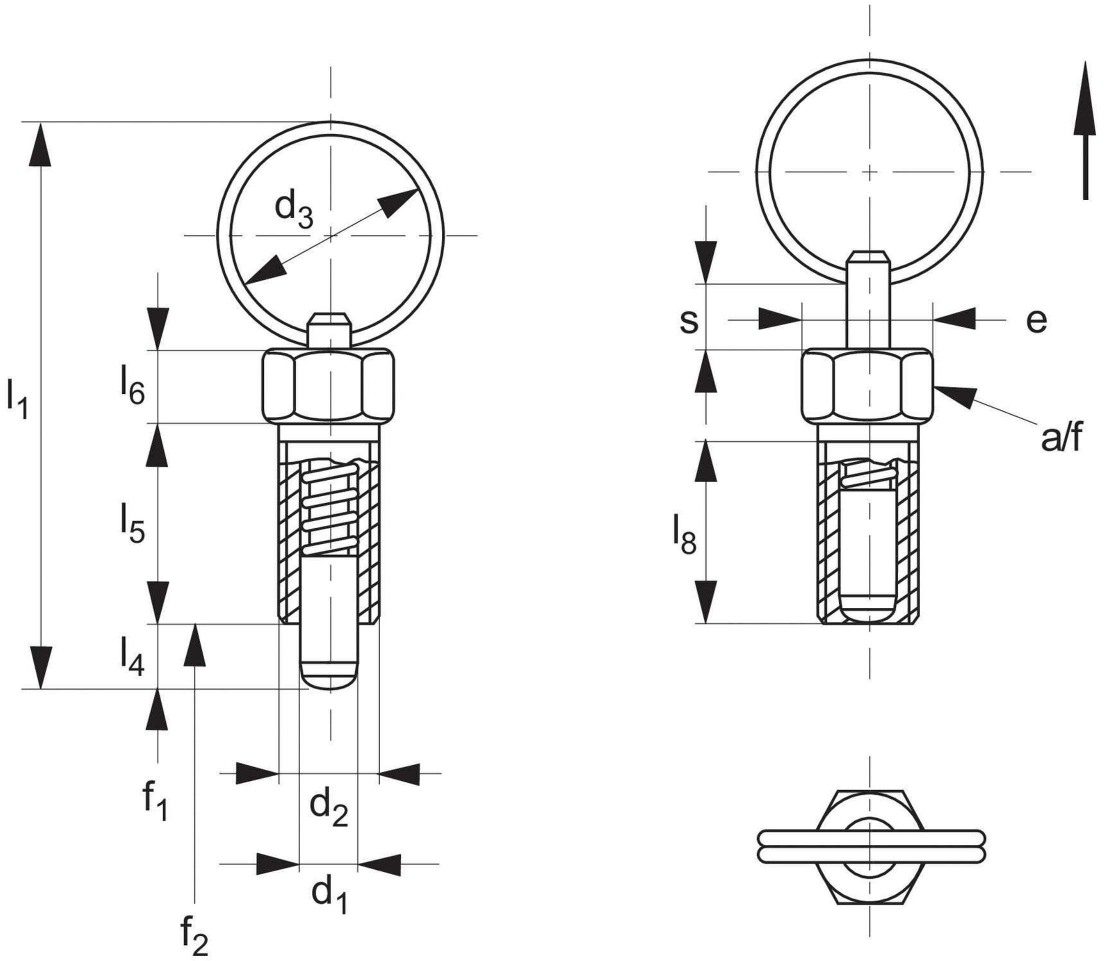
Grip non-removable.
Spring loads * = statistical average.

Order No.	Type	d_1 h9	d_2	b_1	b_2	b_3	b_4 -0,2	h_1	h_2	k_1 ±0,05	k_2	k_3	k_4	l_1	l_2 min.	Spring load* f_1 N ≈	Spring load* f_2 N ≈	g
32542.W0324	Non Locking	4	12	16,5	22	6	3,3	4,0	7,0	14	4,0	8	4,5	30,5	4	3	12	11
32542.W0325	Non Locking	5	16	22,0	28	8	4,3	4,5	9,5	18	5,0	10	7,0	40,0	5	5	24	20
32542.W0326	Non Locking	6	18	27,5	32	10	5,4	5,0	10,5	21	5,5	12	10,0	49,0	6	5	21	37
32542.W0328	Non Locking	8	21	33,0	34	12	5,4	6,0	12,5	23	5,5	12	15,5	59,0	8	6	22	61
32542.W0330	Non Locking	10	25	35,0	39	14,5	6,5	6,0	14,5	27	6,0	15	13,5	67,5	10	4	25	90
32542.W0344	Locking	4	12	19,0	22	6	3,3	4,0	7,0	14	4,0	8	7,0	33,0	4	3	12	10
32542.W0345	Locking	5	16	25,5	28	8	4,3	4,5	9,5	18	5,0	10	10,5	43,5	5	5	24	26
32542.W0346	Locking	6	18	30,5	32	10	5,4	5,0	10,5	21	5,5	12	13,0	52,0	6	5	21	40
32542.W0348	Locking	8	21	37,5	34	12	5,4	6,0	12,5	23	5,5	12	20,0	63,5	8	6	22	67
32542.W0350	Locking	10	25	40,0	39	14,5	27	6,0	14,5	27	6,0	15	18,5	72,5	10	4	25	98

Index Plungers - Pull Ring

non-locking - coarse thread

32550



Material

Body: free cutting steel, galvanized.
Pin: stainless steel 1.4305 (AISI 303).
Pull Ring: stainless steel 1.4310 (AISI 301).

Technical Notes

For applications where high precision is not required.
Coarse thread.
Temperature resistance up to 250°C

Tips

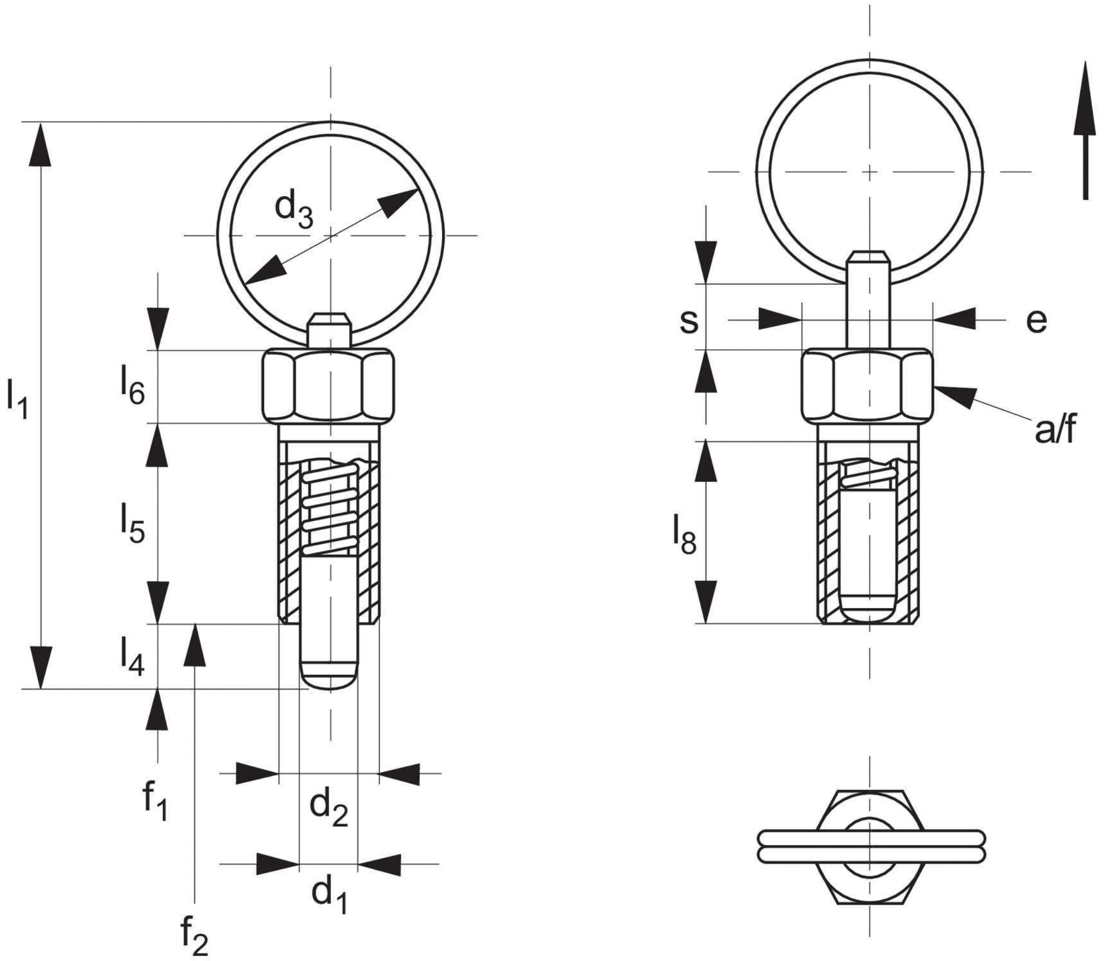
Spring loads * = statistical average

Order No.	Type	d_1 h9	d_2	d_3	e	l_1	l_4=s min	l_5	l_6	l_8	a/f	Spring load* f_1 N	Spring load* f_2 N	Tightening torque max. Nm	g
32550.W0723	Non Locking	3	M 6x1,00	14	6,9	34,0	3,5	12	4,5	10,0	6	3	12	2	3,2
32550.W0724	Non Locking	4	M 6x1,00	14	6,9	34,5	4	12	4,5	10,0	6	3	12	2	3,6
32550.W0725	Non Locking	5	M 8x1,25	18	9,2	45,0	5	15	6,0	13,5	8	5	24	7	8,4
32550.W0726	Non Locking	6	M10x1,50	24	11,5	57,5	6	20	7,5	17,0	10	5	21	15	17,0
32550.W0728	Non Locking	8	M12x1,75	30	13,8	71,0	8	24	9,0	20,5	12	6	22	20	31,0
32550.W0704	Locknut	-	M 6x1,00	-	-	-	-	-	-	-	-	-	-	-	1,3
32550.W0705	Locknut	-	M 8x1,25	-	-	-	-	-	-	-	-	-	-	-	2,8
32550.W0706	Locknut	-	M10x1,5	-	-	-	-	-	-	-	-	-	-	-	5,3
32550.W0708	Locknut	-	M12x1,75	-	-	-	-	-	-	-	-	-	-	-	7,6

Index Plungers - Pull Ring

non-locking - coarse thread - stainless steel

32551



Material

Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303).
Pull ring: stainless steel 1.4310 (AISI 301).

Technical Notes

For applications where high precision is not required.
Coarse thread.
Temperature resistance up to 250°C

Tips

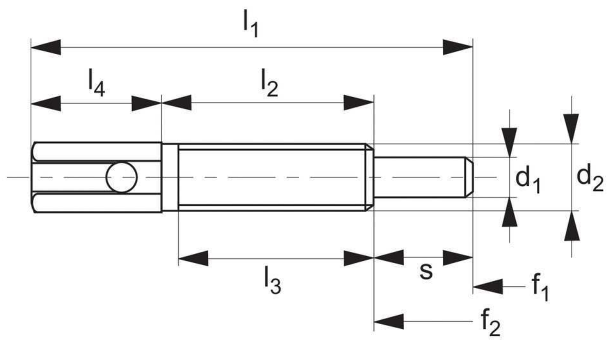
Spring loads * = statistical average.

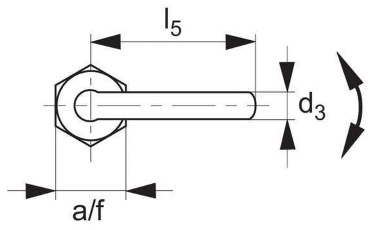
Order No.	Type	d_1 h9	d_2	d_3	e	l_1	l_4=s min	l_5	l_6	l_8	a/f	Spring load* f_1 N	Spring load* f_2 N	Tightening torque max. Nm	g
32551.W0773	Non Locking	3	M 6x1,00	14	6,9	34,0	3,5	12	4,5	10,0	6	3	12	2	3,2
32551.W0774	Non Locking	4	M 6x1,00	14	6,9	34,5	4	12	4,5	10,0	6	3	12	2	3,6
32551.W0775	Non Locking	5	M 8x1,25	18	92	45,0	5	15	6,0	13,5	8	5	24	7	8,4
32551.W0776	Non Locking	6	M10x1,50	24	11,5	57,5	6	20	7,5	17,0	10	5	21	15	17,0
32551.W0778	Non Locking	8	M12x1,75	30	13,8	71,0	8	24	9,0	20,5	12	6	22	30	31,0
32550.W0714	Lock Nut	-	M 6x1,00	-	-	-	-	-	-	-	-	-	-	-	1,3
32550.W0715	Lock Nut	-	M 8x1,25	-	-	-	-	-	-	-	-	-	-	-	2,8
32550.W0716	Lock Nut	-	M10x1,50	-	-	-	-	-	-	-	-	-	-	-	5,3
32550.W0718	Lock Nut	-	M12x1,75	-	-	-	-	-	-	-	-	-	-	-	7,6

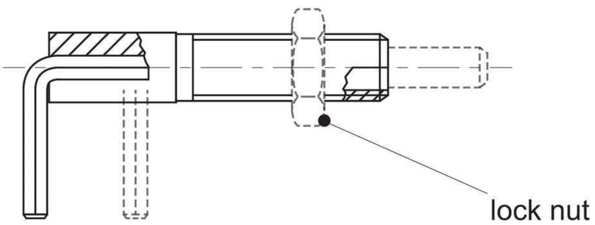
Index Plungers - Lever Grip

locking - coarse thread

32555







Material

Body: free cutting steel, zinc plated.
Pin: steel, galvanised.
Lever: steel, galvanised.

Technical Notes

Pull back and turn lever 180º to retract pin. To enable pin to be held in retracted position, secure lever in notched catch on plunger body.
For applications where high precision is not requried.
Coarse thread.
Temperature resistance up to 250ºC

Tips

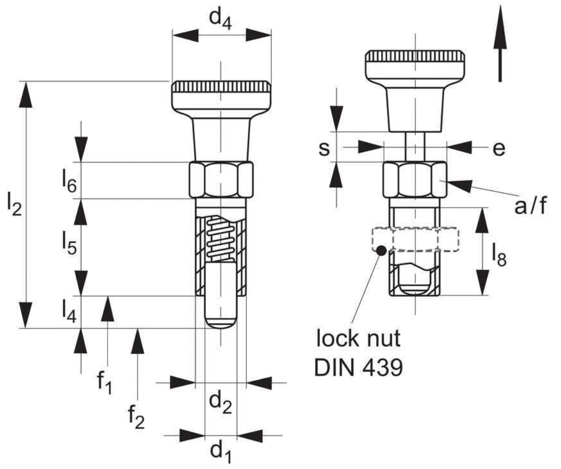
Spring loads* = statistical average.

Order No.	Type	d_1	d_2	d_3	l_1	l_2	l_3	l_4	l_5	s	a/f	Spring load f_1 N≈*	g
32555.W0105	Locking	4	M 6x1,00	2,3	41,5	20,0	17,0	12,0	15,5	9,5	6	3,0	6
32555.W0110	Locking	5	M 8x1,25	3,0	54,0	27,0	24,0	15,0	19,2	12,0	8	3,5	14
32555.W0115	Locking	6	M10x1,50	3,5	65,0	33,5	30,0	17,5	22,9	14,0	10	4,0	26
32555.W0120	Locking	8	M12x1,75	4,7	73,0	31,8	28,0	22,2	31,2	19,0	12	4,0	55
32555.W0125	Locking	10	M16x2,00	4,7	102,5	50,5	44,5	27,0	32,7	25,0	16	4,0	103
32550.W0704	Lock Nut	-	M 6x1,00	-	-	-	-	-	-	-	-	-	1,3
32550.W0705	Lock Nut	-	M 8x1,00	-	-	-	-	-	-	-	-	-	2,8
32550.W0706	Lock Nut	-	M10x1,50	-	-	-	-	-	-	-	-	-	5,3
32550.W0708	Lock Nut	-	M12x1,75	-	-	-	-	-	-	-	-	-	7,6
32550.W0710	Lock Nut	-	M16x2,00	-	-	-	-	-	-	-	-	-	18,0

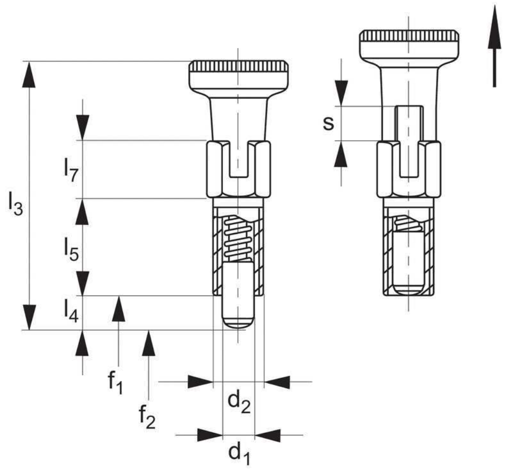
Index Plungers - Pull Grip

steel - coarse thread

32570



non locking



locking

Order No.	Type	d_1 h9	d_2	d_4	e	l_2	l_3	l_4=s min.	l_5	l_6	l_7	l_8	a/f	Spring load* f_1 N ≈	Spring load* f_2 N ≈	Tightening torque max. Nm	g
32570.W0743	Non Lock	3	M 6x1,00	12	6,9	30,0	-	3,5	12	4,5	-	10,0	6	3	12	2	3,6
32570.W0744	Non Lock	4	M 6x1,00	12	6,9	30,5	-	4	12	4,5	-	10,0	6	3	12	2	4,0
32570.W0745	Non Lock	5	M 8x1,25	16	9,2	40,0	-	5	16	6,0	-	13,5	8	5	24	7	9,2
32570.W0746	Non Lock	6	M10x1,50	18	11,5	49,0	-	6	20	7,5	-	17,0	10	5	21	15	18,0
32570.W0748	Non Lock	8	M12x1,75	21	13,8	59,0	-	8	24	9,0	-	20,5	12	6	22	20	32,0
32570.W0763	Lock	3	M 6x1,00	12	6,9	-	32,5	3,5	12	-	7,0	10,0	6	3	12	2	3,8
32570.W0764	Lock	4	M 6x1,00	12	6,9	-	33,0	4	12	-	7,0	10,0	6	3	12	2	4,2
32570.W0765	Lock	5	M 8x1,25	16	9,2	-	43,5	5	16	-	9,5	13,5	8	5	24	7	9,8
32570.W0766	Lock	6	M10x1,50	18	11,5	-	52,0	6	20	-	10,5	17,0	10	5	21	15	18,0
32570.W0768	Lock	8	M12x1,75	21	13,8	-	63,5	8	24	-	13,5	20,5	12	6	22	20	32,0
32550.W0704	Nut	-	M 6x1,00	-	-	-	-	-	-	-	-	-	-	-	-		1,3
32550.W0705	Nut	-	M 8x1,25	-	-	-	-	-	-	-	-	-	-	-	-		2,8
32550.W0706	Nut	-	M10x1,50	-	-	-	-	-	-	-	-	-	-	-	-		5,3
32550.W0708	Nut	-	M12x1,75	-	-	-	-	-	-	-	-	-	-	-	-		7,6

Material

Body: steel, galvanized.
Pin: stainless steel 1.4305 (AISI 303).
Grip: thermoplastic PA 6, black.

Technical Notes

"Locking" type- enable pin to be held in retracted/non-projecting position; pull back grip, turn 90º to engage 'locking' on a notched catch.
"Non Locking" type- pin simply springs back when grip relased.

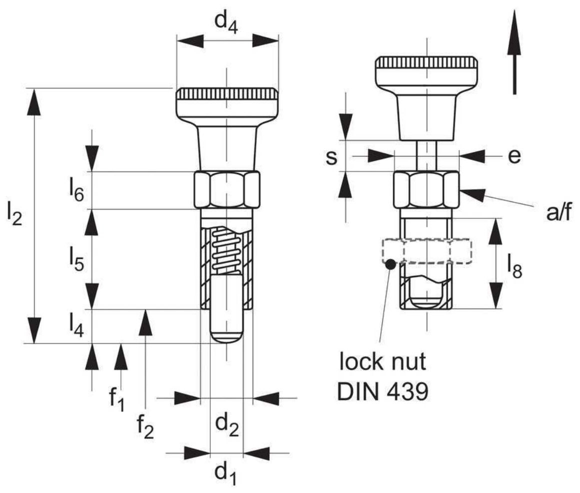
For applications where high precision is not required.
Coarse thread.
Temperature resistance -30° C to +80° C.

Tips

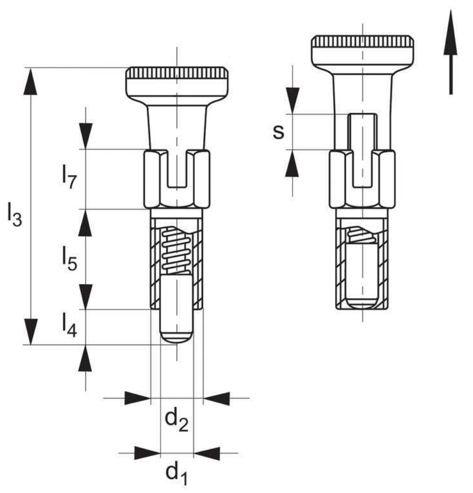
Grip non-removable.
Spring loads * = statistical average.

Index Plungers - Pull Grip

stainless - coarse thread



non locking



locking

Order No.	Type	d_1 h9	d_2	d_4	e	l_2	l_3	l_4=s min.	l_5	l_6	l_7	l_8	a/f	Spring load* f_1 N ≈	Spring load* f_2 N ≈	Tightening torque max. Nm	g
32571.W0783	Non Lock	3	M 6x1,00	12	6,9	30,0	-	3,5	12	4,5	-	10,0	6	3	12	2	3,2
32571.W0784	Non Lock	4	M 6x1,00	12	6,9	30,5	-	4,0	12	4,5	-	10,0	6	3	12	2	4,0
32571.W0785	Non Lock	5	M 8x1,25	16	9,2	40,0	-	5,0	16	6,0	-	13,5	8	5	24	7	9,2
32571.W0786	Non Lock	6	M10x1,50	18	11,5	49,0	-	6,0	20	7,5	-	17,0	10	5	21	15	18,0
32571.W0788	Non Lock	8	M12x1,75	21	13,8	59,0	-	8,0	24	9,0	-	20,5	12	6	22	20	32,0
32571.W0793	Lock	3	M 6x1,00	12	6,9	-	32,5	3,5	12	-	7,0	10,0	6	3	12	2	3,8
32571.W0794	Lock	4	M 6x1,00	12	6,9	-	33,0	4,0	12	-	7,0	10,0	6	3	12	2	4,2
32571.W0795	Lock	5	M 8x1,25	16	9,2	-	43,5	5,0	16	-	9,5	13,5	8	5	24	7	9,8
32571.W0796	Lock	6	M10x1,50	18	11,5	-	52,0	6,0	20	-	10,5	17,0	10	5	21	15	18,0
32571.W0798	Lock	8	M12x1,75	21	13,8	-	63,5	8,0	24	-	13,5	20,5	12	6	22	20	32,0
32550.W0714	Nut	-	M 6x1,00	-	-	-	-	-	-	-	-	-	-	-	-		1,3
32550.W0715	Nut	-	M 8x1,25	-	-	-	-	-	-	-	-	-	-	-	-		2,8
32550.W0716	Nut	-	M10x1,50	-	-	-	-	-	-	-	-	-	-	-	-		5,3
32550.W0718	Nut	-	M12x1,75	-	-	-	-	-	-	-	-	-	-	-	-		7,6

Material

Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303).
Grip: thermoplastic PA 6, black.

Technical Notes

"Locking" type- enable pin to be held in retracted/non-projecting position; pull back grip, turn 90º to engage 'locking' on a notched catch.
"Non Locking" type- pin simply springs back when grip relased.
For applications where high precision is not required.
Coarse thread.
Temperature resistance -30° C to +80° C.

Tips

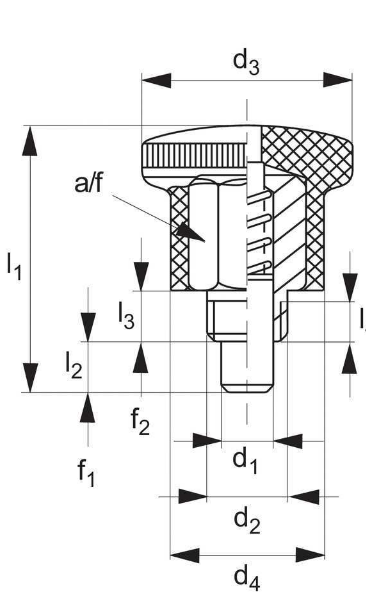
Grip non-removable.
Spring loads * = statistical average.

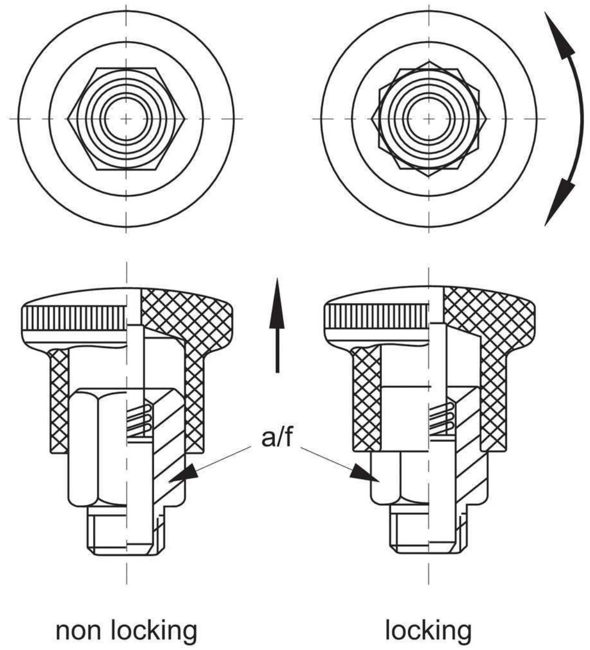
STAINLESS STEEL 303

Index Plungers - Pull Grip

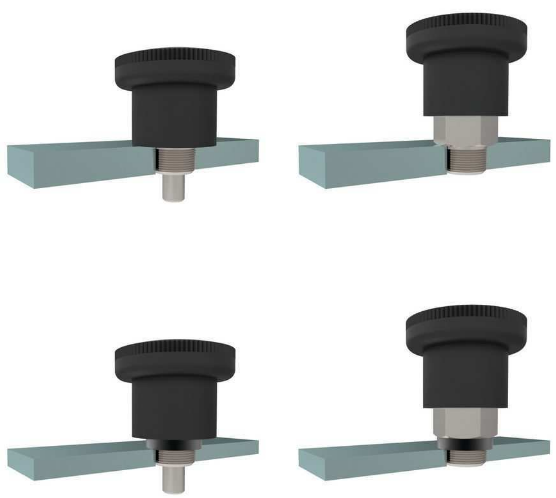
mini - for thin walled parts - extra fine thread

32600





Order No. Steel	Order No. Stainless	Type	d_1 0 -0,06	d_2	d_3	d_4	l_1	l_2 min	l_3	l_4 min	a/f	Spring load* f_1 N≈	Spring load* f_2 N≈	g
32600.W0024	32600.W0224	Non Locking	4	M 8x0,75	21	15	26,5	5	5	3,5	10	4,5	12	14
32600.W0026	32600.W0226	Non Locking	5	M 8x0,75	21	15	26,5	5	5	3,5	10	4,5	12	14
32600.W0028	32600.W0228	Non Locking	6	M10x1,00	25	18	34,0	7	7	4,5	12	5,0	18	25
32600.W0030	32600.W0230	Non Locking	7	M10x1,00	25	18	34,0	7	7	4,5	12	5,0	18	26
32600.W0034	32600.W0234	Locking	4	M 8x0,75	21	15	26,5	5	5	3,5	10	4,5	12	13
32600.W0036	32600.W0236	Locking	5	M 8x0,75	21	15	26,5	5	5	3,5	10	4,5	12	14
32600.W0038	32600.W0238	Locking	6	M10x1,00	25	18	34,0	7	7	4,5	12	5,0	18	24
32600.W0040	32600.W0240	Locking	7	M10x1,00	25	18	34,0	7	7	4,5	12	5,0	18	25



Material

Free cutting steel type-
Body: free cutting steel, galvanized.
Pin: stainless steel 1.4305 (AISI 303).
Grip: thermoplastic PA 6, black.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303).
Grip: thermoplastic PA 6, black.

Technical Notes

"Locking" type- enable pin to be held in retracted/non-projecting position; pull back grip, turn 90º to engage 'locking' on a notched catch.
"Non Locking" type- pin simply springs back when grip relased.

For positioning and indexing in the smallest of spaces. Particularly suited for use on sheet metal assemblies; e.g shopfitting displays, electrical cabinets and enclosures etc.
Extra fine thread
Temperature resistance from -30° to +80°C.
Distance collars no. 32750 can be used to adapt screw length.

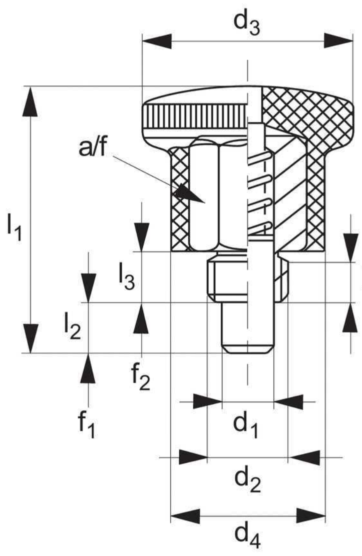
Tips

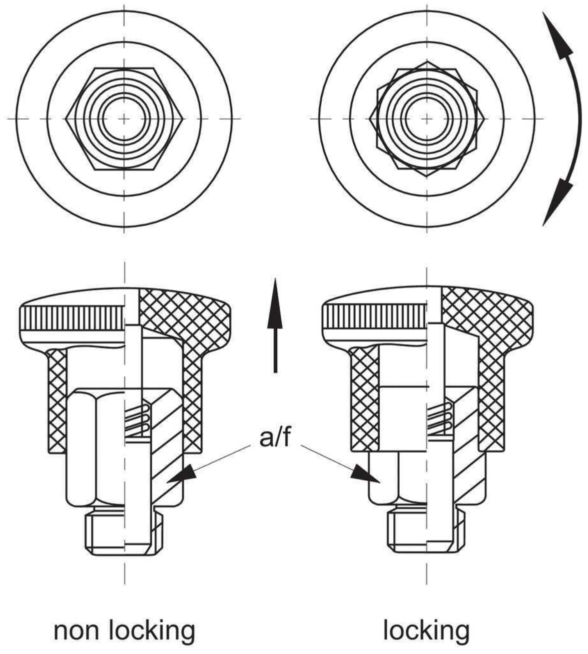
Grip non-removable.
Spring loads * = statistical average.

Index Plungers - Pull Grip

mini - for thin walled parts - fine thread

32602





Order No. Steel	Order No. Stainless Steel	Finish	d_1	d_2	d_3	d_4	l_1	l_2	l_3	a/f	Spring load f_1 N*	Spring load f_2 N*	g
32602.W0604	32602.W0704	Non Locking	4	M 8x1,00	21	15	27,5	5	6	10	4	12	14
32602.W0608	32602.W0708	Non Locking	5	M10x1,00	25	18	34,0	6	8	12	6	16	25
32602.W0612	32602.W0712	Non Locking	6	M10x1,00	25	18	34,0	6	8	12	6	16	25
32602.W0616	32602.W0716	Non Locking	6	M12x1,50	28	20	40,5	7	10	14	10	23	40
32602.W0620	32602.W0720	Non Locking	7	M12x1,50	28	20	40,5	7	10	14	10	23	41
32602.W0624	32602.W0724	Non Locking	8	M16x1,50	33	23	47,5	10	12	17	11	35	67
32602.W0628	32602.W0728	Non Locking	10	M16x1,50	33	23	47,5	10	12	17	11	35	69
32602.W0632	32602.W0732	Locking	4	M 8x1,00	21	15	27,5	5	6	10	4	12	13
32602.W0636	32602.W0736	Locking	5	M10x1,00	25	18	34,0	6	8	12	6	16	23
32602.W0640	32602.W0740	Locking	6	M10x1,00	25	18	34,0	6	8	12	6	16	25
32602.W0644	32602.W0744	Locking	6	M12x1,50	28	20	40,5	7	10	14	10	23	39
32602.W0648	32602.W0748	Locking	7	M12x1,50	28	20	40,5	7	10	14	10	23	39
32602.W0652	32602.W0752	Locking	8	M16x1,50	33	23	47,5	10	12	17	11	35	65
32602.W0656	32602.W0756	Locking	10	M16x1,50	33	23	47,5	10	12	17	11	35	67

Material

Free cutting steel type-
Body: free cutting steel, galvanized.
Pin: stainless steel 1.4305 (AISI 303).
Grip: thermoplastic PA 6, black.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303).
Grip: thermoplastic PA 6, black.

Technical Notes

"Locking" type- enable pin to be held in retracted/non-projecting position; pull back grip, turn 90° to engage 'locking' on a notched catch.
"Non Locking" type- pin simply springs back when grip relased.
For positioning and indexing in the smallest of spaces. Particularly suited for use on sheet metal assemblies; e.g shopfitting displays, electrical cabinets and enclosures etc.
Temperature resistance from -30° to +80°C.
Distance collars no. 32750 can be used to adapt screw length.
Fine Thread

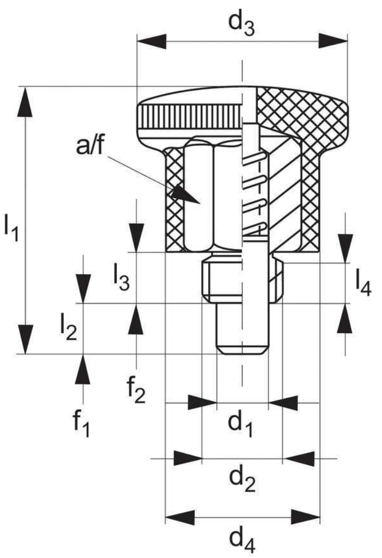
Tips

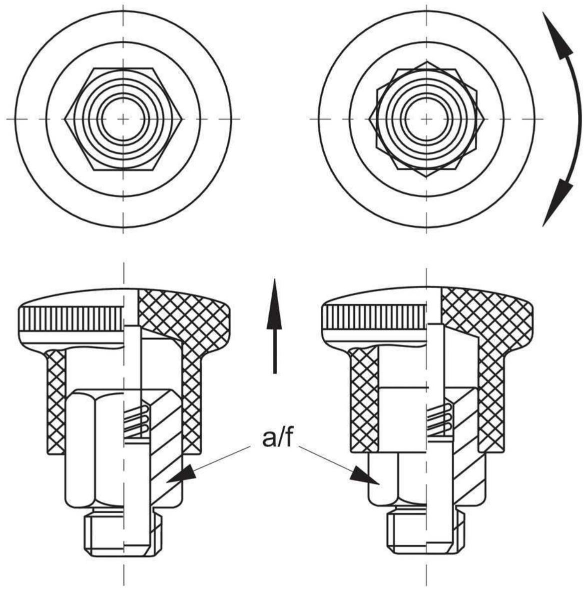
Grip non-removable.
Spring loads * = statistical average.

Index Plungers - Pull Grip

mini - for thin walled parts - coarse thread

32604





non locking　　locking

Order No. Steel	Order No. Stainless Steel	Finish	d_1	d_2	d_3	d_4	l_1	l_2	l_3	a/f	Spring load f_1 N≈*	Spring load f_2 N≈*	g
32604.W0602	32604.W0702	Non Locking	4	M 8x1,25	21	15	27,5	5	6	10	4	12	14
32604.W0606	32604.W0706	Non Locking	5	M10x1,50	25	18	34,0	6	8	12	6	16	25
32604.W0610	32604.W0710	Non Locking	6	M10x1,50	25	18	34,0	6	8	12	6	16	25
32604.W0614	32604.W0714	Non Locking	6	M12x1,75	28	20	40,5	7	10	14	10	23	40
32604.W0618	32604.W0718	Non Locking	7	M12x1,75	28	20	40,5	7	10	14	10	23	41
32604.W0622	32604.W0722	Non Locking	8	M16x2,00	33	23	47,5	10	12	17	11	35	66
32604.W0626	32604.W0726	Non Locking	10	M16x2,00	33	23	47,5	10	12	17	11	35	68
32604.W0630	32604.W0730	Locking	4	M 8x1,25	21	15	27,5	5	6	10	4	12	13
32604.W0634	32604.W0734	Locking	5	M10x1,50	23	18	34,0	6	8	12	6	16	23
32604.W0638	32604.W0738	Locking	6	M10x1,50	25	18	34,0	6	8	12	6	16	24
32604.W0642	32604.W0742	Locking	6	M12x1,75	28	20	40,5	7	10	14	10	23	38
32604.W0646	32604.W0746	Locking	7	M12x1,75	28	20	40,5	7	10	14	10	23	39
32604.W0650	32604.W0750	Locking	8	M16x2,00	33	23	47,5	10	12	17	11	35	64
32604.W0654	32604.W0754	Locking	10	M16x2,00	33	23	47,5	10	12	17	11	35	66

Material

Free cutting steel type-
Body: free cutting steel, galvanized.
Pin: stainless steel 1.4305 (AISI 303).
Grip: thermoplastic PA 6, black.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303).
Grip: thermoplastic PA 6, black.

Technical Notes

"Locking" type- enable pin to be held in retracted/non-projecting position; pull back grip, turn 90° to engage 'locking' on a notched catch.
"Non Locking" type- pin simply springs back when grip relased.
For positioning and indexing in the smallest of spaces. Particularly suited for use on sheet metal assemblies; e.g shopfitting displays, electrical cabinets and enclosures etc.
Temperature resistance from -30° to +80°C.
Distance collars no. 32750 can be used to adapt screw length.
Coarse thread.

Tips

Grip non-removable.
Spring loads * = statistical average

Index Plungers - Pull Grip

mini - for thin walled parts - extra fine thread

32606

Order No.	Type	d_1 0 -0,06	d_2	d_3	d_4	l_1	l_2 min	l_3	a/f	Spring load* f_1 N≈	Spring load* f_2 N≈	g
32606.W1102	Non-Locking	4	M 8	21	15	27,5	5	6	10	4	12	28
32606.W1104	Non-Locking	4	M 8x1	21	15	27,5	5	6	10	4	12	28
32606.W1106	Non-Locking	5	M10	25	18	34,0	6	8	12	6	16	49
32606.W1108	Non-Locking	5	M10x1	25	18	34,0	6	8	12	6	16	50
32606.W1110	Non-Locking	6	M10	25	18	34,0	6	8	12	6	16	50
32606.W1112	Non-Locking	6	M10x1	25	18	34,0	6	8	12	6	16	50
32606.W1114	Non-Locking	6	M12	28	20	40,5	7	10	14	10	23	74
32606.W1116	Non-Locking	6	M12x1,5	28	20	40,5	7	10	14	10	23	75
32606.W1118	Non-Locking	7	M12	28	20	40,5	7	10	14	10	23	75
32606.W1120	Non-Locking	7	M12x1,5	28	20	40,5	7	10	14	10	23	75
32606.W1122	Non-Locking	8	M16	33	23	47,5	10	12	17	11	34	110
32606.W1124	Non-Locking	8	M16x1,5	33	23	47,5	10	12	17	11	35	113
32606.W1126	Non-Locking	10	M16	33	23	47,5	10	12	17	11	35	113
32606.W1128	Non-Locking	10	M16x1,5	33	23	47,5	10	12	17	11	35	113
32606.W1130	Locking	4	M 8	21	15	27,5	5	6	10	4	12	28
32606.W1132	Locking	4	M 8x1	21	15	27,5	5	6	10	4	12	28
32606.W1134	Locking	5	M10	25	18	34,0	6	8	12	6	16	49
32606.W1136	Locking	5	M10x1	25	18	34,0	6	8	12	6	16	50
32606.W1138	Locking	6	M10	25	18	34,0	6	8	12	6	16	50
32606.W1140	Locking	6	M10x1	25	18	34,0	6	8	12	6	16	50
32606.W1142	Locking	6	M12	28	20	40,5	7	10	14	10	23	74
32606.W1144	Locking	6	M12x1,5	28	20	40,5	7	10	14	10	23	75
32606.W1146	Locking	7	M12	28	20	40,5	7	10	14	10	23	75
32606.W1148	Locking	7	M12x1,5	28	20	40,5	7	10	14	10	23	75
32606.W1150	Locking	8	M16	33	23	47,5	10	12	17	11	35	110
32606.W1152	Locking	8	M16x1,5	33	23	47,5	10	12	17	11	35	113
32606.W1154	Locking	10	M16	33	23	47,5	10	12	17	11	35	113
32606.W1156	Locking	10	M16x1,5	33	23	47,5	10	12	17	11	35	113

Material

Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303).
Grip: stainless steel 1.4308 (AISI 304).

Technical Notes

"Locking" type- enable pin to be held in retracted/non-projecting position; pull back grip, turn 90º to engage 'locking' on a notched catch.
"Non Locking" type- pin simply springs back when grip relased.

For positioning and indexing in the smallest of spaces. Particularly suited for use on sheet metal assemblies; e.g shopfitting displays, electrical cabinets and enclosures etc.
Extra fine thread
Temperature resistance up to 250°C.
Distance collars no. 32750 can be used to adapt screw length.

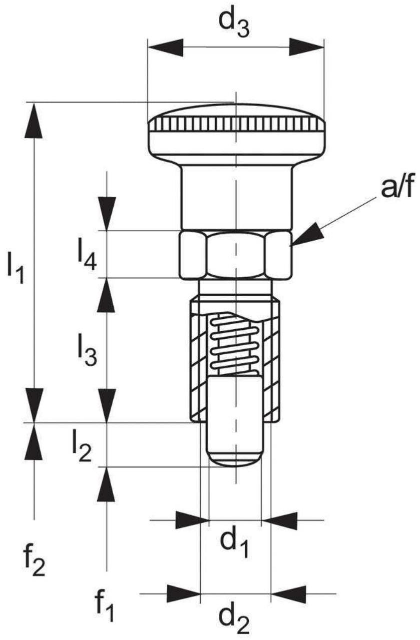
Tips

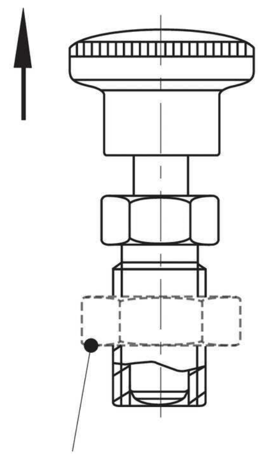
Grip non-removable.
Spring loads * = statistical average.

Index Plungers - Pull Grip

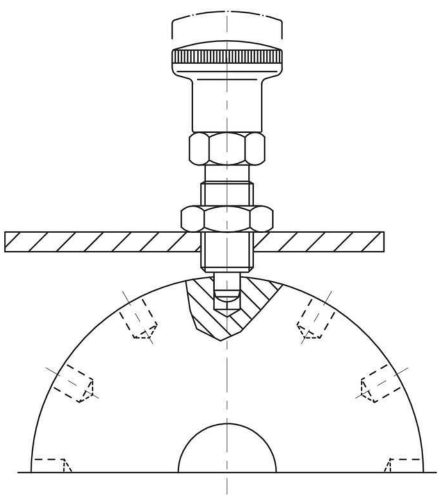
compact - non-locking

32680





Order No. Steel	Order No. Stainless	Type	d_1 -0,02 -0,04	l_2 min.	d_2	d_3	l_1	l_3	l_4	a/f	Spring load* f_1 N	Spring load* f_2 N	g
32680.W0103	32680.W0203	No Lock	4	4	M 8x1,0	16	35,0	16	5	10	4,5	12,0	10
32680.W0104	32680.W0204	No Lock	4	6	M 8x1,0	16	35,0	16	5	10	4,0	12,5	10
32680.W0106	32680.W0206	No Lock	5	5	M10x1,0	19	40,0	18	6	12	5,0	15,5	18
32680.W0107	32680.W0207	No Lock	5	8	M10x1,0	19	40,0	18	6	12	5,0	18,0	18
32680.W0109	32680.W0209	No Lock	6	6	M12x1,5	23	48,0	22	6	14	6,5	19,0	29
32680.W0110	32680.W0210	No Lock	6	9	M12x1,5	23	48,0	22	6	14	6,0	25,0	29
32680.W0112	32680.W0212	No Lock	8	8	M16x1,5	28	58,0	26	8	17	8,5	26,0	62
32680.W0113	32680.W0213	No Lock	8	12	M16x1,5	28	58,0	26	8	17	8,5	28,0	62
32680.W0115	32680.W0215	No Lock	10	12	M16x1,5	28	58,0	26	8	17	9,5	38,0	63
32680.W0116	32680.W0216	No Lock	12	15	M20x1,5	33	67,0	33	10	22	11,5	40,0	117
32680.W0117	32680.W0217	No Lock	16	20	M24x 2	33	78,5	38	12	27	13,0	54,0	204
32700.W0114	32700.W0514	Lock Nuts	-	-	M 8x1,0	-	-	-	-	-	-	-	3
32700.W0115	32700.W0515	Lock Nuts	-	-	M10x1,0	-	-	-	-	-	-	-	5
32700.W0116	32700.W0516	Lock Nuts	-	-	M12x1,5	-	-	-	-	-	-	-	7
32700.W0118	32700.W0518	Lock Nuts	-	-	M16x1,5	-	-	-	-	-	-	-	18
32700.W0120	32700.W0520	Lock Nuts	-	-	M20x1,5	-	-	-	-	-	-	-	32
32700.W0122	32700.W0522	Lock Nut	-	-	M24 x 2	-	-	-	-	-	-	-	58



Material

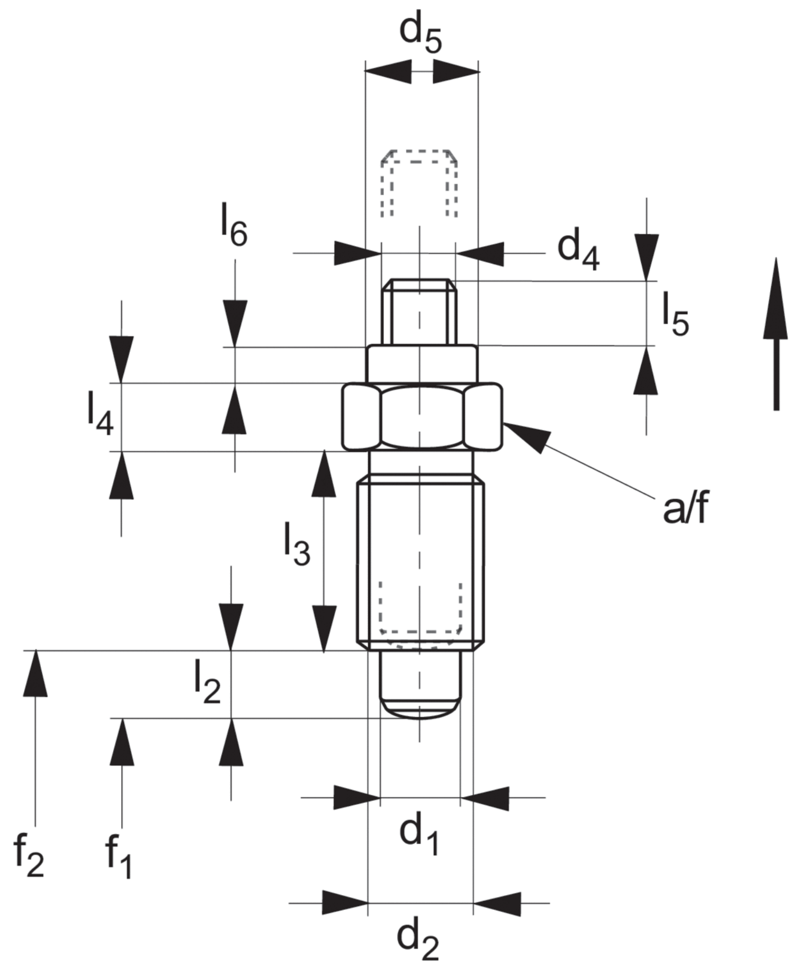
Free cutting steel type-
Body: free cutting steel, blackened.
Pin: steel, hardened.
Grip:thermoplastic PA6, black.
Stainless steel type -
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303), nickel plated.
Grip: thermoplastic PA6, black.

Technical Notes

"Non Locking" type- pin simply springs back when grip relased.
Thread recess on body allows full engagement of thread length.
Hexagon collar improves leverage for secure installation. Benefits from a more compact design and hence shorter overall length.
Temperature resistance from -30° to +80°C.
Distance collars no. 32750 can be used to adapt screw length.

Tips

Grip non-removable.
Spring loads * = statistical average.



No grip

Order No. Steel	Order No. Stainless	Type	d_1 -0,02 -0,04	l_2 min.	d_2	d_4	d_5	l_3	l_4	l_5	l_6	a/f	g
32681.W0143	32681.W0243	No Grip	4	4	M 8x1,0	M 3	7	16	5	4,5	2,5	10	9
32681.W0144	32681.W0244	No Grip	4	6	M 8x1,0	M 3	7	16	5	4,5	2,5	10	9
32681.W0146	32681.W0246	No Grip	5	5	M10x1,0	M 4	8	18	6	5,5	3,0	12	16
32681.W0147	32681.W0247	No Grip	5	8	M10x1,0	M 4	8	18	6	5,5	3,0	12	16
32681.W0149	32681.W0249	No Grip	6	6	M12x1,5	M 5	9	22	6	7,0	3,5	14	25
32681.W0150	32681.W0250	No Grip	6	9	M12x1,5	M 5	9	22	6	7,0	3,5	14	25
32681.W0152	32681.W0252	No Grip	8	8	M16x1,5	M 6	10	26	8	8,5	4,0	17	55
32681.W0153	32681.W0253	No Grip	8	12	M16x1,5	M 6	10	26	8	8,5	4,0	17	55
32681.W0155	32681.W0255	No Grip	10	12	M16x1,5	M 6	10	26	8	8,5	4,0	17	56
32681.W0156	32681.W0256	No Grip	12	15	M20x1,5	M 6	12	33	10	8,5	4,0	22	111
32681.W0157	32681.W0257	No Grip	16	20	M24 x 2	M8	15	38	12	11,5	5,0	27	194
32700.W0114	32700.W0514	Lock Nuts	-	-	M 8x1,0	-	-	-	-	-	-	-	3
32700.W0115	32700.W0515	Lock Nuts	-	-	M10x1,0	-	-	-	-	-	-	-	5
32700.W0116	32700.W0516	Lock Nuts	-	-	M12x1,5	-	-	-	-	-	-	-	7
32700.W0118	32700.W0518	Lock Nuts	-	-	M16x1,5	-	-	-	-	-	-	-	18
32700.W0120	32700.W0520	Lock Nuts	-	-	M20x1,5	-	-	-	-	-	-	-	32
32700.W0122	32700.W0522	Lock Nut	-	-	M24 x 2	-	-	-	-	-	-	-	58,0

Material

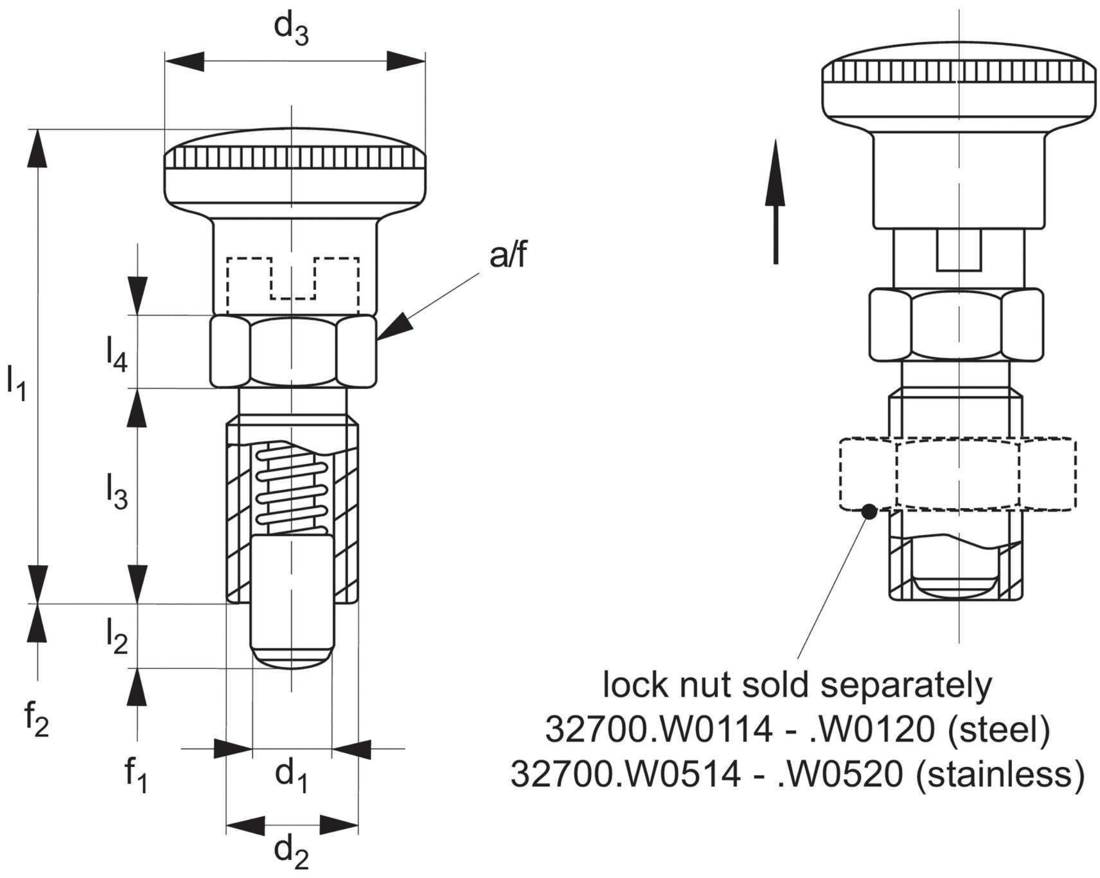
Free cutting steel type-
Body: free cutting steel, blackened.
Pin: steel, hardened.
Stainless steel type -
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303), nickel plated.

Technical Notes

"Non Locking" type- pin simply springs back when grip relased. Thread recess on body allows full engagement of thread length. Hexagon collar improves leverage for secure installation. Benefits from a more compact design and hence shorter overall length. Temperature resistance up to 250°C Distance collars no. 32750 can be used to adapt screw length.

Tips

Spring loads * = statistical average. Threaded head of d_4 enables use of larger handle or grip better suited to your application. See palm grip no. 70000, or similar.



Order No. Steel	Order No. Stainless	Type	d_1 -0,02 -0,04	l_2 min.	d_2	d_3	l_1	l_3	l_4	a/f	Spring load* f_1 N≈	Spring load* f_2 N≈	g
32690.W0123	32690.W0223	Locking	4	4	M 8x1,0	16	35	16	5	10	4,5	12,0	12,0
32690.W0124	32690.W0224	Locking	4	6	M 8x1,0	16	35	16	5	10	4,0	12,5	12,0
32690.W0126	32690.W0226	Locking	5	5	M10x1,0	19	40	18	6	12	5,0	15,0	20,0
32690.W0127	32690.W0227	Locking	5	8	M10x1,0	19	40	18	6	12	5,0	18,0	20,0
32690.W0129	32690.W0229	Locking	6	6	M12x1,5	23	48	22	6	14	6,5	19,0	31,0
32690.W0130	32690.W0230	Locking	6	9	M12x1,5	23	48	22	6	14	6,0	25,0	33,0
32690.W0132	32690.W0232	Locking	8	8	M16x1,5	28	58	26	8	17	8,5	26,0	65,0
32690.W0133	32690.W0233	Locking	8	12	M16x1,5	28	58	26	8	17	8,5	28,0	68,0
32690.W0135	32690.W0235	Locking	10	12	M16x1,5	28	58	26	8	17	9,5	38,0	69,0
32690.W0136	32690.W0236	Locking	12	15	M20x1,5	33	67	33	10	22	11,5	40,0	125,0
32690.W0137	32690.W0237	Locking	16	20	M24 x 2	33	78,5	38	12	27	13,0	54,0	220
32700.W0114	32700.W0514	Lock Nut	-	-	M 8x1,0	-	-	-	-	-	-	-	2,7
32700.W0115	32700.W0515	Lock Nut	-	-	M10x1,0	-	-	-	-	-	-	-	5,2
32700.W0116	32700.W0516	Lock Nut	-	-	M12x1,5	-	-	-	-	-	-	-	7,4
32700.W0118	32700.W0518	Lock Nut	-	-	M16x1,5	-	-	-	-	-	-	-	18,0
32700.W0120	32700.W0520	Lock Nut	-	-	M20x1,5	-	-	-	-	-	-	-	32,0
32700.W0122	32700.W0522	Lock Nut	-	-	M24 x 2	-	-	-	-	-	-	-	58,0

Material

Free cutting steel type-
Body: free cutting steel, blackened.
Pin: steel, hardened.
Grip: thermoplastic PA6, black.
Stainless steel type -
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303), nickel plated.
Grip: thermoplastic PA6, black.

Technical Notes

"Locking" type- enable pin to be held in retracted/non-projecting position; pull back grip, turn 90º to engage 'locking' on a notched catch.
Thread recess on body allows full engagement of thread length.
Hexagon collar improves leverage for secure installation. Benefits from a more compact design and hence shorter overall length.
Temperature resistance from -30° to +80°C.
Distance collars no. 32750 can be used to adapt screw length.

Tips

Grip non-removable.
Spring loads * = statistical average.

Material

Free cutting steel type-
Body: free cutting steel, blackened.
Pin: steel, hardened.
Grip: thermoplastic PA6, black.
Stainless steel type -
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303), nickel plated.
Grip: thermoplastic PA6, black.

Technical Notes

"Locking" type- enable pin to be held in retracted/non-projecting position; pull back grip, turn 90º to engage 'locking' on a notched catch.
Thread recess on body allows full engagement of thread length.
Hexagon collar improves leverage for secure installation. Benefits from a more compact design and hence shorter overall length.
Temperature resistance from -30° to +80°C.
Distance collars no. 32750 can be used to adapt screw length.

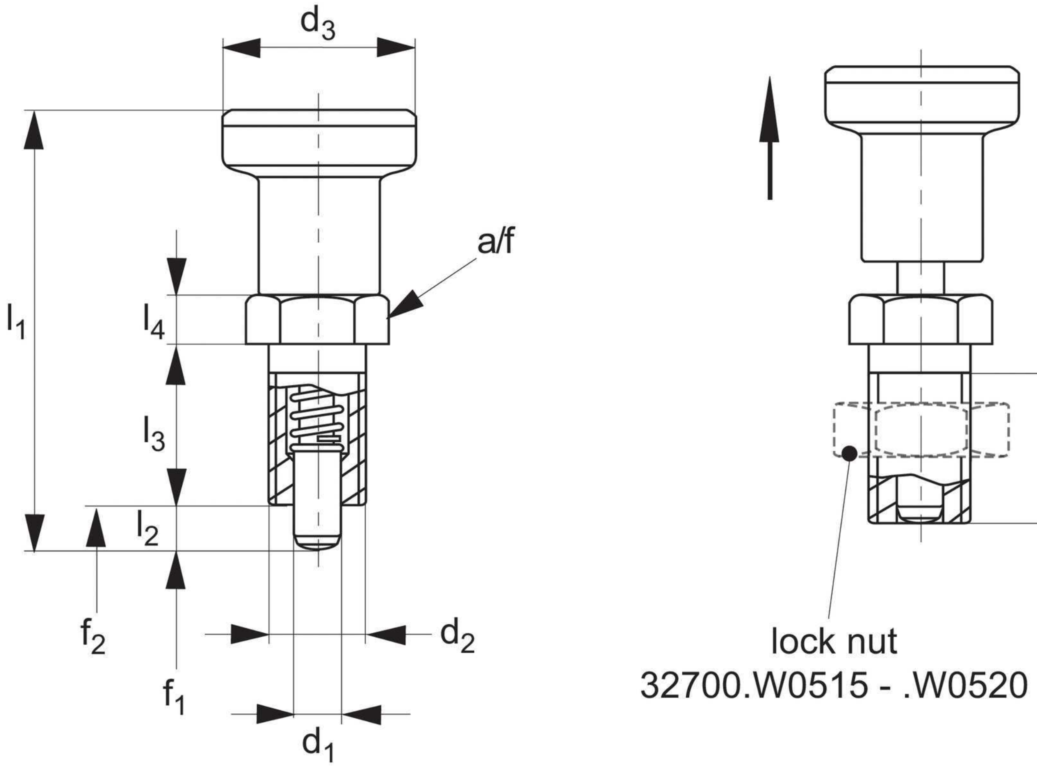
Tips

Grip non-removable.
Spring loads * = statistical average.

Index Plungers - Pull Grip

non-locking - ALL stainless

32702



Order No.	Type	d_1 - 0,02 - 0,04	d_2	d_3	l_1 ≈	l_2 min.	l_3	l_4	l_6 min.	a/f	Spring load* f_1 N≈	Spring load* f_2 N≈	g
32702.W0705	Non locking	5	M10x1,0	21	45,0	5	17	5	15	12	6,0	14	39,0
32702.W0706	Non locking	6	M12x1,5	25	54,5	6	20	6	17	14	5,5	13	65,0
32702.W0707	Non locking	8	M16x1,5	31	69,0	8	26	8	23	19	11,5	28	132,0
32702.W0710	Non locking	10	M20x1,5	31	80,0	10	33	10	30	22	23,0	54	175,0
32700.W0515	Lock Nut	-	M10x1,0	-	-	-	-	-	-	-	-	-	5,2
32700.W0516	Lock Nut	-	M12x1,5	-	-	-	-	-	-	-	-	-	7,4
32700.W0518	Lock Nut	-	M16x1,5	-	-	-	-	-	-	-	-	-	18,0
32700.W0520	Lock Nut	-	M20x1,5	-	-	-	-	-	-	-	-	-	32,0

Material

All Stainless Steel Type-
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303), nickel plated.
Grip: stainless steel 1.4305 (AISI 303).
Spring: stainless steel 1.4310 (AISI 301).

Technical Notes

"Non Locking" type- pin simply springs back when pull ring relased.
Thread recess on body allows full engagement of thread length.
Hexagon collar improves leverage for secure installation.
Temperature resistance from -30° to +80°C.
Distance collars no. 32750 can be used to adapt screw length.

Tips

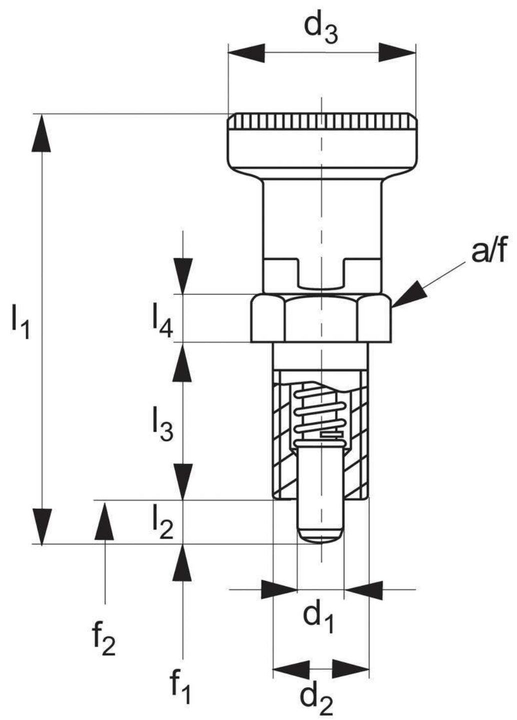
Complete stainless steel construction designed with specific demands of food processing, pharmaceutical and water treatment industries in mind. Grip non-removable.
Spring Loads* = statistical average.

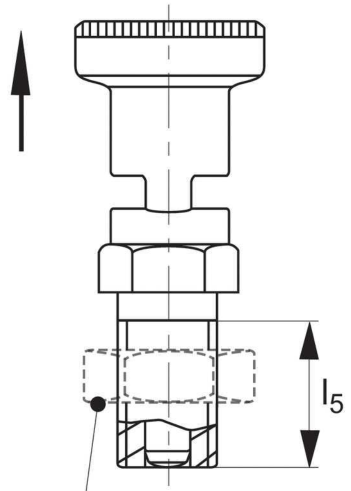
STAINLESS STEEL 303

Index Plunger - Pull Grip

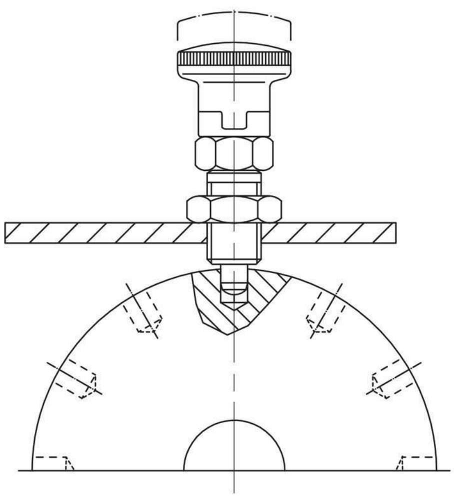
locking

32710





Order No. Steel	Order No. Stainless	Type	d_1 -0,02 -0,04	d_2	d_3	l_1 ≈	l_2 min.	l_3	l_4	l_5 min	a/f	Spring load* f_1 N≈	Spring load* f_1 N≈	g
32700.W0115	32700.W0515	Lock Nut	-	M10x1,0	-	-	-	-	-	-	-	-		5
32700.W0116	32700.W0516	Lock Nut	-	M12x1,5	-	-	-	-	-	-	-	-		7
32700.W0118	32700.W0518	Lock Nut	-	M16x1,5	-	-	-	-	-	-	-	-		18
32700.W0120	32700.W0520	Lock Nut	-	M20x1,5	-	-	-	-	-	-	-	-		32
32710.W0208	32710.W0608	Locking	8	M16x1,5	31	75,5	8	26	8	23	19	1,5	28	79
32710.W0210	32710.W0610	Locking	10	M20x1,5	31	91,0	10	33	10	30	22	28,0	54	134
32710.W0206	32710.W0606	Locking	6	M12x1,5	25	61,0	6	20	6	17	14	5,5	13	36
32710.W0205	32710.W0605	Locking	5	M10x1,0	21	51,0	5	17	5	15	12	6,0	14	22



Material

Free cutting steel type-
Body: free cutting steel, blackened.
Pin: hardened steel.
Grip: thermoplastic PA6, black.
Stainless steel type -
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303), nickel plated.
Grip: thermoplastic PA6, black.

Technical Notes

"Locking" type- enable pin to be held in retracted/non-projecting position; pull back grip, turn 90° to engage 'locking' on a notched catch.
Thread recess on body allows full engagement of thread length.
Hexagon collar improves leverage for secure installation.
Temperature resistance from -30° to +80°C.
Distance collars no. 32750 can be used to adapt screw length.

Tips

Grip non-removable.
Spring loads * = statistical average.

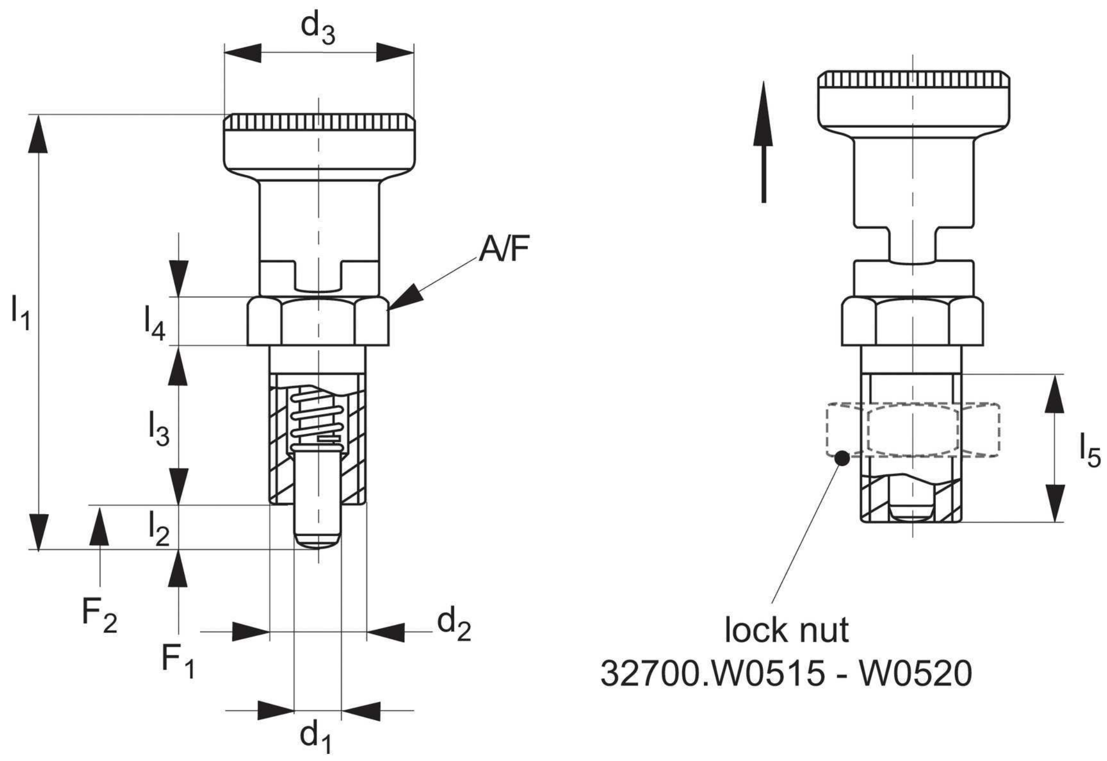
STAINLESS STEEL 303

+80° -30°

Index Plunger - Pull Grip

locking - all stainless

32712



Order No.	Type	d_1 -0,02 -0,04	d_2	d_3	l_1 ≈	l_2 min.	l_3	l_4	l_5	A/F	Spring load* F_1 N ≈	Spring load* F_2 N ≈	g
32712.W0705	Locking	5	M10x1,0	21	51,0	5	17	5	15	12	6,0	14	43
32712.W0706	Locking	6	M12x1,5	25	61,0	6	20	6	17	14	5,5	13	71
32712.W0708	Locking	8	M16x1,5	31	75,5	7	26	8	23	19	11,5	28	144
32712.W0710	Locking	10	M20x1,5	31	91,0	10	33	10	30	22	28,0	54	202
32700.W0515	Lock Nut	-	M10x1,0	-	-	-	-	-	-	-	-	-	5
32700.W0516	Lock Nut	-	M12x1,5	-	-	-	-	-	-	-	-	-	7
32700.W0518	Lock Nut	-	M16x1,5	-	-	-	-	-	-	-	-	-	18
32700.W0520	Lock Nut	-	M20x1,5	-	-	-	-	-	-	-	-	-	32

Material

All Stainless Steel Type-
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305, nickel plated.
Grip: stainless steel 1.4305 (AISI 303).
Spring: stainless steel 1.4310 (AISI 301).

Technical Notes

"Locking" type- enable pin to be held in retracted/non-projecting position; pull back grip, turn 90° to engage 'locking' on a notched catch.
Thread recess on body allows full engagement of thread length.
Hexagon collar improves leverage for secure installation.
Temperature resistance from -30° to +80°C.
Distance collars no. 32750 can be used to adapt screw length.

Tips

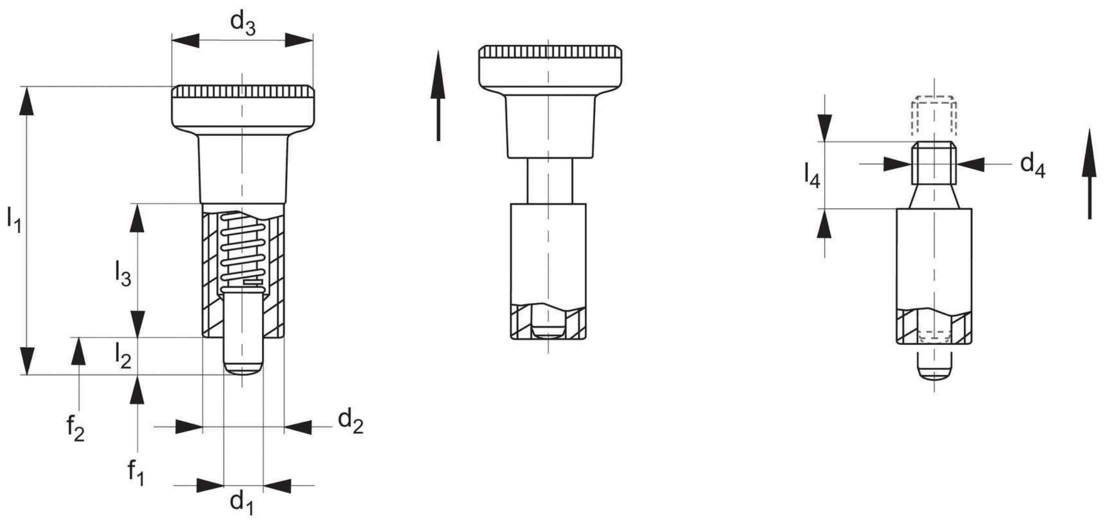
Complete stainless steel construction designed with specific demands of food processing, pharmaceutical and water treatment industries in mind. Grip non-removable.
Spring Loads* = statistical average.

STAINLESS STEEL 303

Index Plunger - Pull Grip

weldable - non-locking

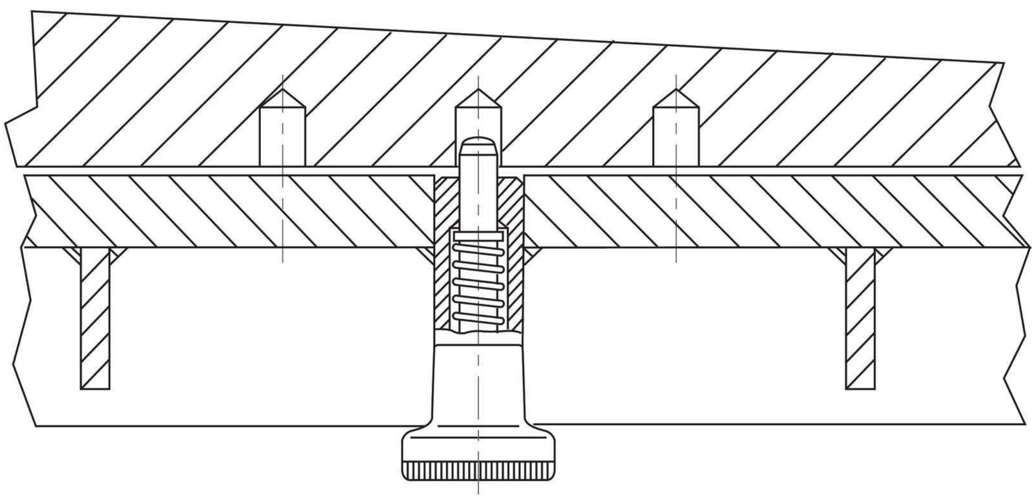
32720



with grip

no grip

Order No.	Type	d_1 -0,02 -0,04	d_2 h9	d_3	d_4	l_1 ≈	l_2 min.	l_3	l_4	Spring load* f_1 N≈	Spring load* f_2 N≈	g
32720.W0805	With Grip	5	12	21	-	45,0	5	22	-	7,0	16	25
32720.W0806	With Grip	6	14	25	-	54,5	6	26	-	6,5	15	40
32720.W0808	With Grip	8	18	31	-	69,0	8	34	-	12,0	31	84
32720.W0825	No Grip	5	12	-	M 5	-	5	22	6	7,0	16	19
32720.W0826	No Grip	6	14	-	M 6	-	6	26	10	6,5	15	32
32720.W0828	No Grip	8	18	-	M 8	-	8	34	12	12,0	31	67



Material

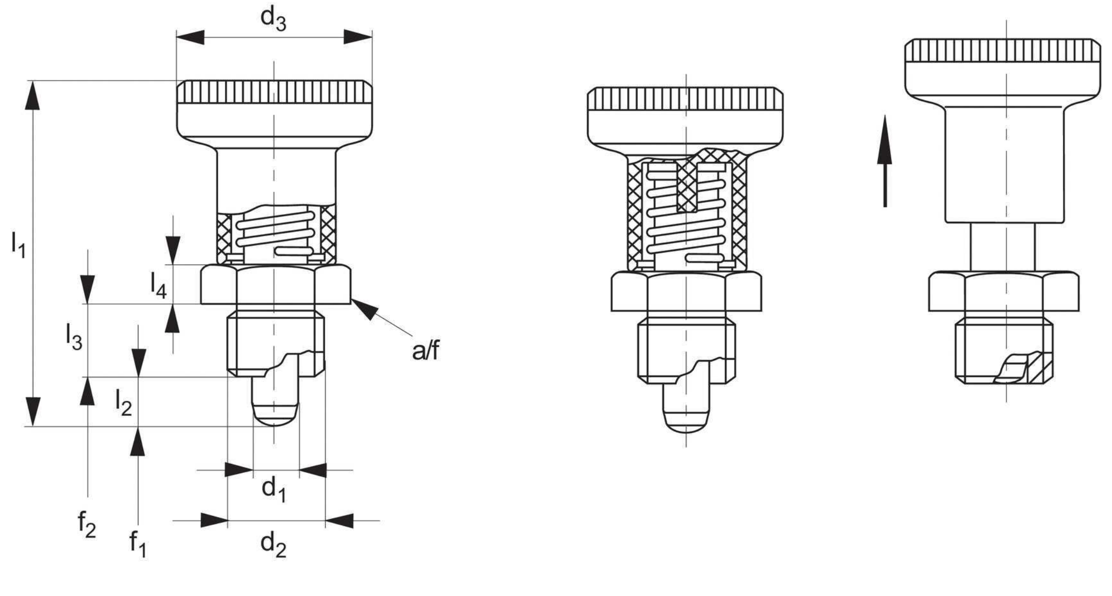
Body: free cutting steel, blackened, weldable.
Pin: hardened steel.
Grip: plastic (PA 6), black, non-removable.

Technical Notes

"Non Locking" type- pin simply springs back when pull ring released.
Designed specifically for installation via welding or use of glues. Plungers without grip enable your own adaptation with actuation grip/lever to your own design.
Without grip temperature resistance up to 250°C .

Tips

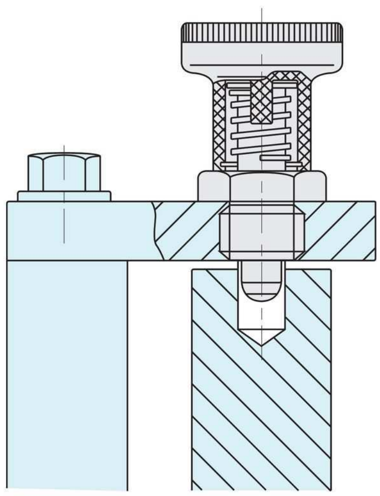
Grip non-removable.
Spring loads * = statistical average.



non locking

locking

Order No. Steel	Order No. Stainless	Type	d_1 -0,02 -0,04	d_2	d_3	l_1 ≈	l_2 min.	l_3 -0,15	l_4	a/f	Spring load* f_1 N≈	Spring load* f_2 N≈	g
32730.W0226	32730.W0246	Non Locking	6	M12x1,5	25	45	6	10	5	17	7	19	35,0
32730.W0228	32730.W0248	Non Locking	8	M16x1,5	31	54	8	12	6	19	14	24	62,0
32730.W0236	32730.W0256	Locking	6	M12x1,5	25	45	6	10	5	17	7	19	35,0
32730.W0238	32730.W0258	Locking	8	M16x1,5	31	54	8	12	6	19	14	24	61,0
32700.W0116	32700.W0516	Lock Nut	-	M12x1,5	-	-	-	-	-	-	-	-	7,4
32700.W0118	32700.W0518	Lock Nut	-	M16x1,5	-	-	-	-	-	-	-	-	18,0



Material

Free Cutting Steel type-
Body: free cutting steel, blackened.
Pin: steel, hardened.
Grip: thermoplastic PA6, black.
Stainless steel type -
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303), nickel plated.
Grip: thermoplastic PA6, black.

Technical Notes

"Locking" type- enable pin to be held in retracted/non-projecting position; pull back grip, turn 90° to engage 'locking' on a notched catch.
"Non Locking" type- pin simply springs back when grip released.
Short bodied index plungers for compact applications. Hexagon collar improves leverage for secure installation.
Temperature resistance from -30° to +80°C.

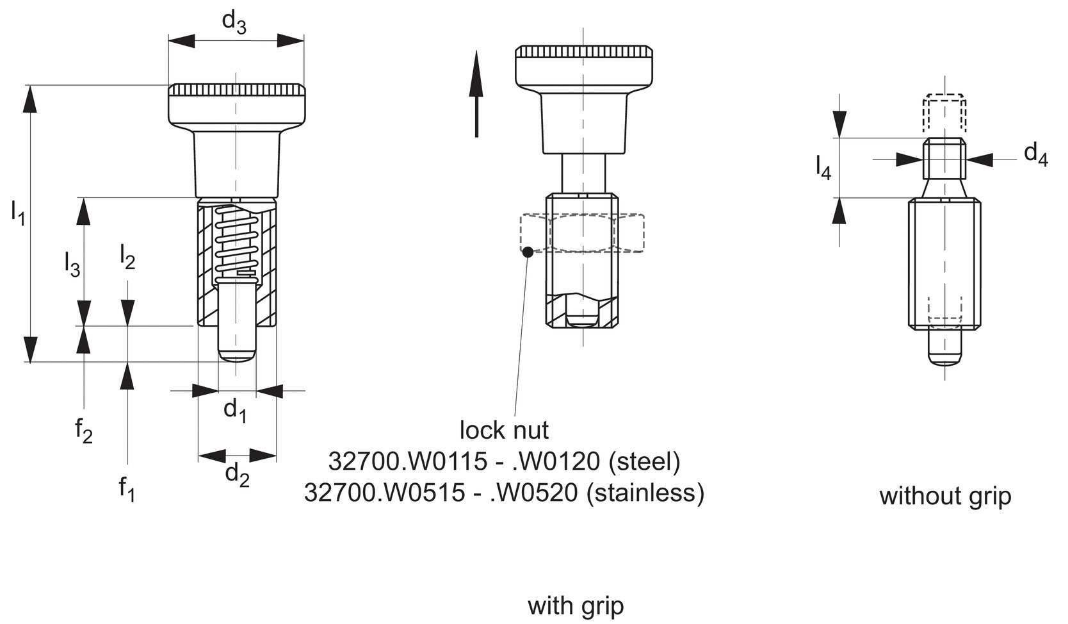
Tips

Distance collars no. 32750 can be used to adapt screw length.
Spring loads * = statistical average.

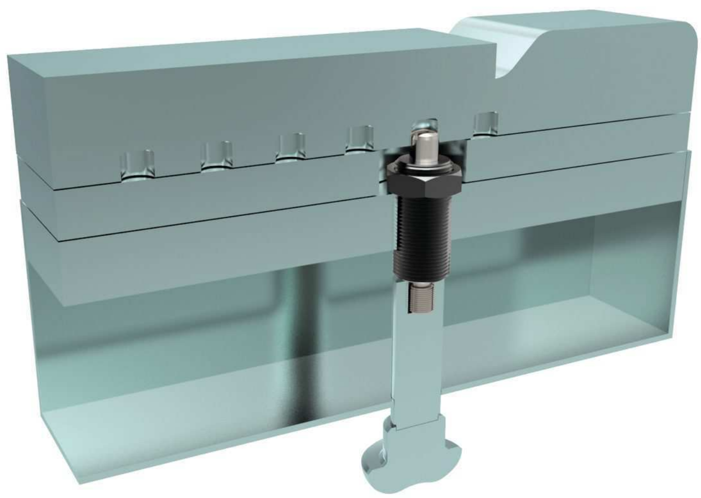
Index Plunger - Pull Grip

non-locking

32740



Order No. Steel	Order No. Stainless	Type	d_1 -0,02 -0,04	d_2	d_3	d_4	l_1 ≈	l_2 min	l_3	l_4	Spring load* f_1 N≈	Spring load* f_2 N≈	g
32700.W0115	32700.W0515	Lock Nut	-	M10x1,0	-	-	-	-	-	-	-	-	5
32700.W0116	32700.W0516	Lock Nut	-	M12x1,5	-	-	-	-	-	-	-	-	7
32700.W0118	32700.W0518	Lock Nut	-	M16x1,5	-	-	-	-	-	-	-	-	18
32700.W0120	32700.W0520	Lock Nut	-	M20x1,5	-	-	-	-	-	-	-	-	32
32740.W0045	32740.W0445	With Grip	5	M10x1,0	21	-	45,0	5	22	-	6,0	14	17
32740.W0046	32740.W0446	With Grip	6	M12x1,5	25	-	54,5	6	26	-	5,5	13	27
32740.W0048	32740.W0448	With Grip	8	M16x1,5	31	-	69,0	8	34	-	11,5	28	63
32740.W0050	32740.W0450	With Grip	10	M20x1,5	31	-	80,0	10	41	-	23,0	54	104
32740.W0955	-	Assembly Tool	-	for M10x1,0	-	-	-	-	-	-	-	-	10
32740.W0956	-	Assembly Tool	-	for M12x1,5	-	-	-	-	-	-	-	-	14
32740.W0958	-	Assembly Tool	-	for M16x1,5	-	-	-	-	-	-	-	-	25
32740.W0960	-	Assembly Tool	-	for M20x1,5	-	-	-	-	-	-	-	-	27
32740.W0065	32740.W0465	No Grip	5	M10x1,0	-	M 5	-	5	22	6	6,0	14	12
32740.W0066	32740.W0466	No Grip	6	M12x1,5	-	M 6	-	6	26	10	5,5	13	12
32740.W0068	32740.W0468	No Grip	8	M16x1,5	-	M 8	-	8	34	12	11,5	28	46
32740.W0070	32740.W0470	No Grip	10	M20x1,5	-	M 8	-	10	43	12	23,0	54	87



Material

Free Cutting Steel Type-
Body: free cutting steel, blackened.
Pin: steel, hardened.
Grip: thermoplastic PA6, black.
Stainless steel type -
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303), nickel plated.
Grip: thermoplastic PA6, black.

Technical Notes

"Non Locking" type- pin simply springs back when pull ring released.
Plungers without grip enable your own adaptation with actuation grip/lever to your own design.
Installation requires use of specific assembly tool, see data table.
Without grip temperature resistance up to 250°C.

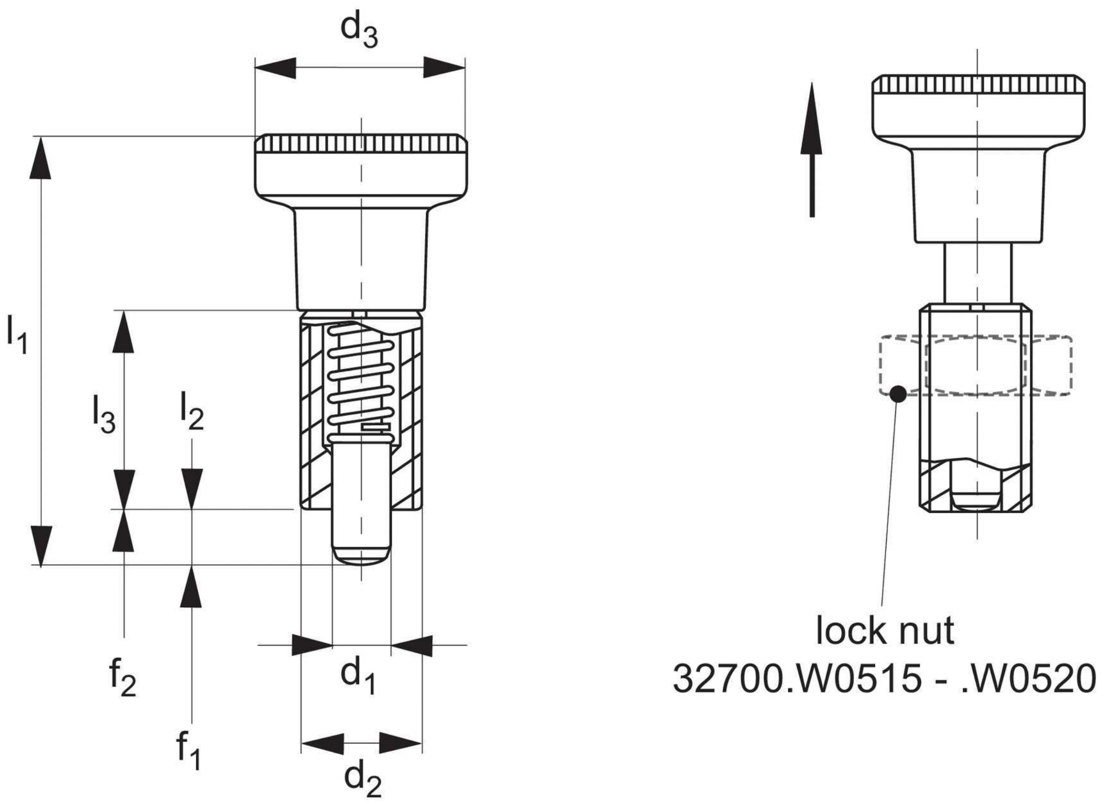
Tips

Grip non-removable.
Spring loads * = statistical average.

Index Plunger - Pull Grip

non-locking - ALL stainless

32742



Order No.	Type	d_1 -0,02 -0,04	d_2	d_3	l_1 ≈	l_2 min.	l_3	Spring load* f_1 N≈	Spring load* f_2 N≈	g
32742.W0705	Non Locking	5	M10x1,0	21	45,0	5	22	6,0	14	37,0
32742.W0706	Non Locking	6	M12x1,5	25	54,5	6	26	5,5	13	62,0
32742.W0707	Non Locking	8	M16x1,5	31	69,0	8	34	11,5	28	124,0
32742.W0710	Non Locking	10	M20x1,5	31	80,0	10	43	23,0	54	165,0
32700.W0515	Lock Nut	-	M10x1,0	-	-	-	-	-	-	5,2
32700.W0516	Lock Nut	-	M12x1,5	-	-	-	-	-	-	7,4
32700.W0518	Lock Nut	-	M16x1,5	-	-	-	-	-	-	18,0
32700.W0520	Lock Nut	-	M20x1,5	-	-	-	-	-	-	32,0

Material

All Stainless Steel Type-
Body: stainless steel 1.4305 (AISI 303).
Locking pin: stainless steel 1.4305 (AISI 303), nickel plated.
Grip: stainless steel 1.4305 (AISI 303).
Spring: stainless steel 1.4310 (AISI 301).

Technical Notes

"Non Locking" type- pin simply springs back when pull ring released.
Temperature resistance -30°C to +80°C
Installation requires use of specific assembly tool, see part nos. 32740.W0955 to .W0960.

Tips

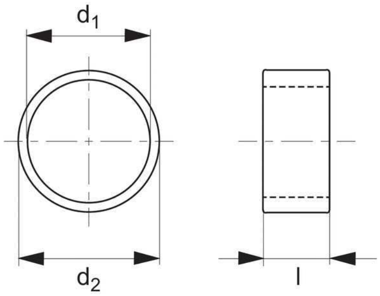
Complete stainless steel construction designed with specific demands of food processing, pharmaceutical an water treatment industries in mind. Grip non-removable.
Spring Load* = statistical average.

STAINLESS STEEL 303

Distance Collars

for index plungers

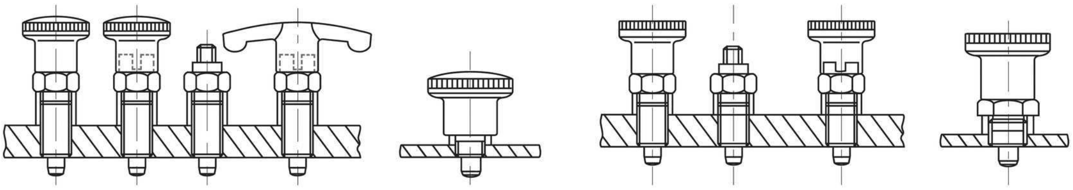
32750



Material
Stainless steel 1.4305 (AISI 303).

Technical Notes
Distance collars adapt the thread length of index plungers to enable different thread reaches. Order while stocks last.

plunger types



type 1 - 32502, 32504 32680, 32681, 32690, 32781, 32782

type 2 - 32600, 32602, 32604

type 3 - 32700, 32702, 32710, 32712

type 4 - 32730

Order No.	d_1 tol. H12	l_1 ±0,1	d_2 -0,1	For index plungers size d_1	Suitable for plunger type	g
32750.W0993	8	2	10	M 8	1/2	0,5
32750.W0933	8	3	10	M 8	1	0,8
32750.W0934	8	4	10	M 8	1	0,9
32750.W0936	8	6	10	M 8	1	1,2
32750.W0938	8	8	10	M 8	1	1,6
32750.W0940	8	10	10	M 8	1	2,0
32750.W0942	10	2	12	M10	1/2/3	0,6
32750.W0944	10	4	12	M10	1/2/3	1,1
32750.W0946	10	6	12	M10	1/3	1,6
32750.W0948	10	8	12	M10	1/3	2,1
32750.W0950	10	10	12	M10	1/3	2,7
32750.W0952	10	12	12	M10	1/3	3,0
32750.W0962	12	2	14	M12	1	0,6
32750.W0964	12	4	14	M12	1	2,5
32750.W0966	12	6	14	M12	1	1,9
32750.W0968	12	8	14	M12	1	2,4
32750.W0972	12	2	17	M12	3/4	2,0
32750.W0974	12	4	17	M12	3/4	3,4
32750.W0975	12	5	17	M12	3/4	4,4
32750.W0976	16	4	17	M16	1	0,7
32750.W0977	16	6	17	M16	1	1,2
32750.W0978	16	8	17	M16	1	1,4
32750.W0979	16	10	17	M16	1	2,0
32750.W0980	16	12	17	M16	1	2,1
32750.W0982	16	2	19	M16	3/4	1,3
32750.W0984	16	4	19	M16	3/4	2,8
32750.W0986	16	6	19	M16	3/4	3,8
32750.W0988	16	8	19	M16	3/4	4,8
32750.W0990	16	10	19	M16	3	6,1
32750.W0992	16	12	19	M16	3	9,2
32750.W0993	20	6	22	M20	1/3	3,0
32750.W0994	20	8	22	M20	1/3	4,0
32750.W0995	20	10	22	M20	1/3	4,9
32750.W0996	20	12	22	M20	1/3	5,9
32750.W0997	20	14	22	M20	1/3	6,9
32750.W0998	20	16	22	M20	1/3	9,3
32750.W0999	20	18	22	M20	1/3	9,0

Distance Collars

for index plungers

32750

Material

Stainless steel 1.4305 (AISI 303).

Technical Notes

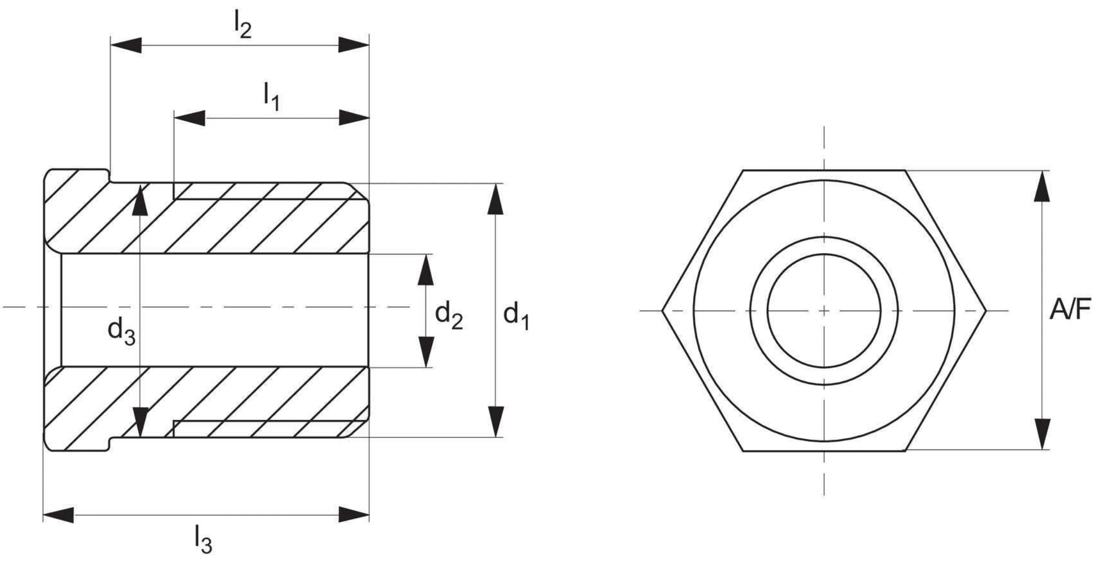
Distance collars adapt the thread length of index plungers to enable different thread reaches. Order while stocks last.

STAINLESS STEEL 303

Locating Bushes

for index plungers

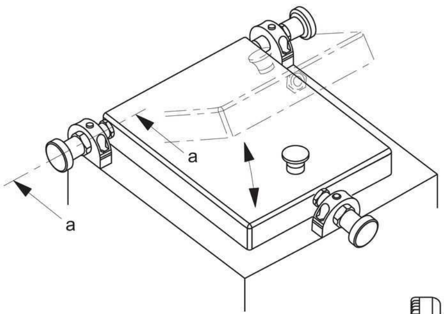
32752



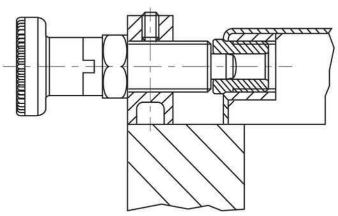
Material
Steel, nitrided.

Technical Notes
For use with our wide range of index plungers. Provide a durable location bush for index plunger pins of diameter d_2. See "for pin dia." column in data table and refer to individual index plunger production information for matching pin diameters.

Order No.	d_1	For pin dia.	d_2 +0,1	d_3 ±0,3	l_1 min.	l_2 -0,3	l_3	a/f	g
32752.W0454	M12x1,5	4	4,2	12,1	9	10	13	13	10
32752.W0455	M12x1,5	5	5,2	12,1	9	10	13	13	10
32752.W0456	M12x1,5	6	6,2	12,1	9	10	13	13	9
32752.W0458	M16x1,5	8	8,2	16,1	11	12	15	17	18
32752.W0460	M16x1,5	10	10,2	16,1	11	12	15	17	14
32752.W0462	M16x1,5	12	12,2	16,1	11	12	15	17	9



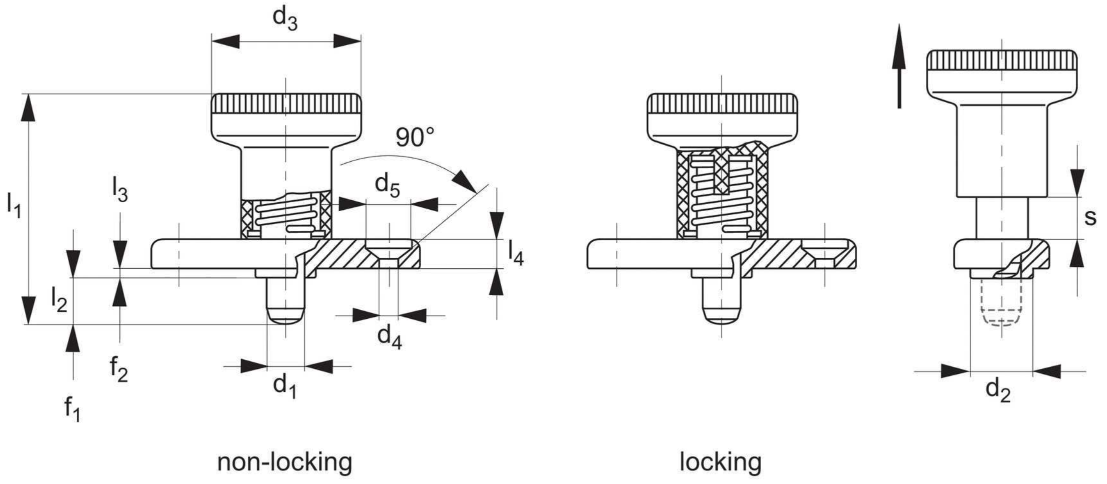
A-A

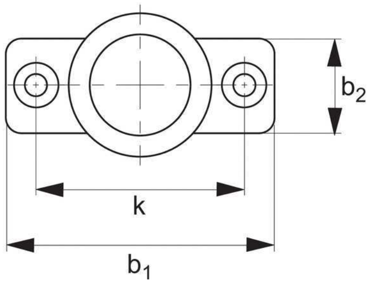


Index Plunger - Pull Grip

flange mounting

32760





note: plunger fully retracts if l_2 = s

Order No. Steel	Order No. Stainless	Type	d_1 -0,02 -0,04	l_2	b_1	b_2	d_2 -0,02 -0,1	d_3	d_4	d_5	k	l_1	l_3 -0,15	l_4	s	Spring load* f_1 N	Spring load* f_2 N	g
32760.W0926	32760.W0966	Non Locking	6	6	40	18	10	25	4,3	8,3	30	37	2,5	4,5	6	8,5	22	26
32760.W0927	32760.W0967	Non Locking	6	14	40	18	10	25	4,3	8,3	30	45	2,5	4,5	6	8,5	22	38
32760.W0928	32760.W0968	Non Locking	8	8	46	20	12	31	5,3	10,4	34	44	2,5	5,5	8	15,5	28	59
32760.W0929	32760.W0969	Non Locking	8	18	46	20	12	31	5,3	10,4	34	54	2,5	5,5	8	15,5	28	63
32760.W0936	32760.W0976	Locking	6	6	40	18	10	25	4,3	8,3	30	37	2,5	4,5	6	8,5	22	36
32760.W0937	32760.W0977	Locking	6	14	40	18	10	25	4,3	8,3	30	45	2,5	4,5	6	8,5	22	38
32760.W0938	32760.W0978	Locking	8	8	46	20	12	31	5,3	10,4	34	44	2,5	5,5	8	15,5	28	60
32760.W0939	32760.W0979	Locking	8	18	46	20	12	31	5,3	10,4	34	54	2,5	5,5	8	15,5	28	63

Material

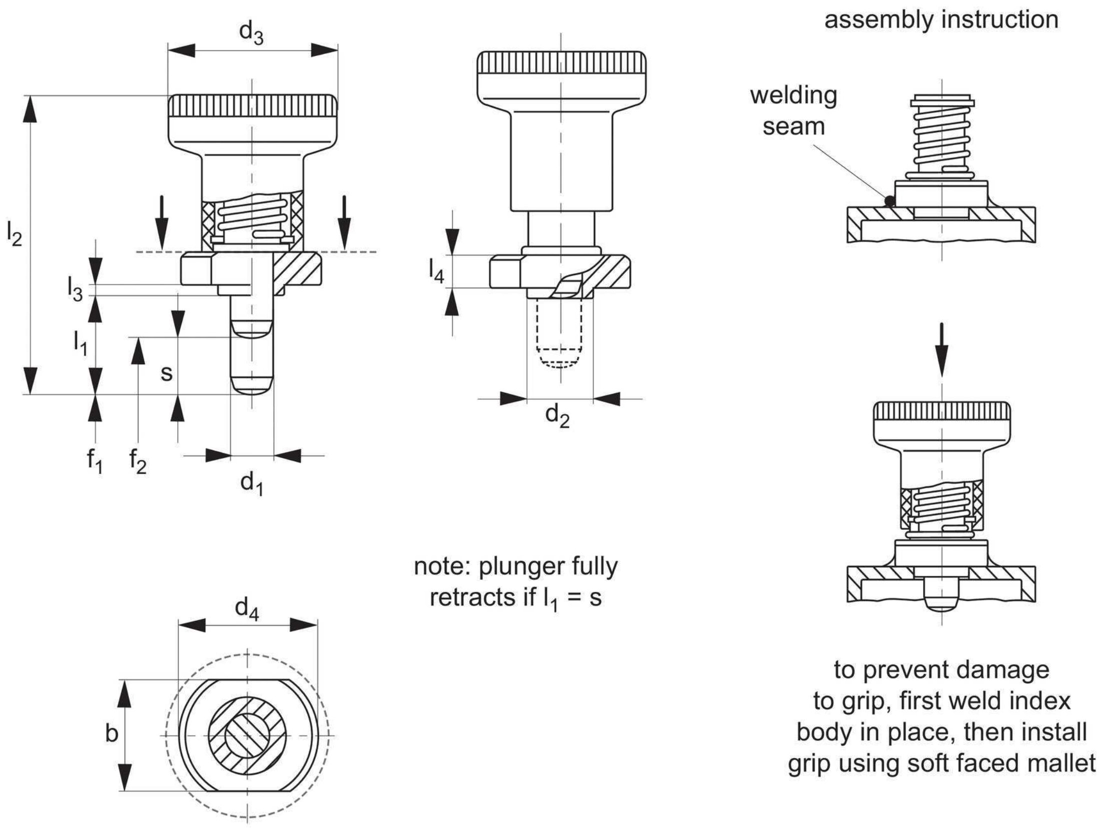
Free Cutting Steel Type-
Body: die cast zinc, galvanised.
Pin: steel, hardened.
Grip: thermoplastic PA6, black
Stainless Steel Type-
Body: die-cast zinc, galvanised.
Pin: stainless steel, 1.4305 (AISI 303), nickel plated.
Grip: thermoplastic PA6, black

Technical Notes

"Locking" type- enable pin to be held in retracted position; pull back grip, turn 90° to engage 'locking' on a notched catch.
"Non Locking" type- pin simply springs back when grip released.
Integeral mounting flange simplifies installation on flat surfaces.
Pin does not fully retract in all cases - note dimension 's' the stroke of the pin, i.e. the amount by which the pin retracts when actuated.
Temperature resistance -30°C to +80°C

Tips

Grip non-removable.
Spring loads * = statistical average.



Order No.	Type	d_1 -0,02 -0,1	l_1	b	d_2 -0,02 -0,04	d_3	d_4	l_2	l_3	l_4	s	Spring load* f_1 N	Spring load* f_2 N	Axial Load [N]	g
32762.W0826	Non Locking	6	6	18	10	25	22	37	1,5	5,5	6	8,5	22	400	35
32762.W0827	Non Locking	6	14	18	10	25	22	37	1,5	5,5	6	8,5	22	400	36
32762.W0828	Non Locking	8	8	20	12	31	25	44	2,0	6,5	8	15,5	28	500	55
32762.W0829	Non Locking	8	18	20	12	31	25	44	2,0	6,5	8	15,5	28	500	60
32762.W0836	Locking	6	6	18	10	25	22	37	1,5	5,5	6	8,5	22	400	35
32762.W0837	Locking	6	14	18	10	25	22	37	1,5	5,5	6	8,5	22	400	36
32762.W0838	Locking	8	8	20	12	31	25	44	2,0	6,5	8	15,5	28	500	55
32762.W0839	Locking	8	18	20	12	31	25	44	2,0	6,5	8	15,5	28	500	60

Material
Body: steel blackened.
Locking Pin: hardened.
Grip: black matte finish, not removable.

Technical Notes
"Locking" type- enable pin to be held in retracted position; pull back grip, turn 90° to engage 'locking' on a notched catch.
"Non Locking" type- pin simply springs back when grip released.
Installation requires welding of plunger doby to component. To avoid damage to plastic grip, item is supplied part assembled. Grip is driven in indexing mechanism with a light mallet. Non removable once installed.
Pin does not fully retract in all cases - note dimension 's' the stroke of the pin, i.e. the amount by which the pin retracts when actuated.
Temperature resistance -30°C to +80°C

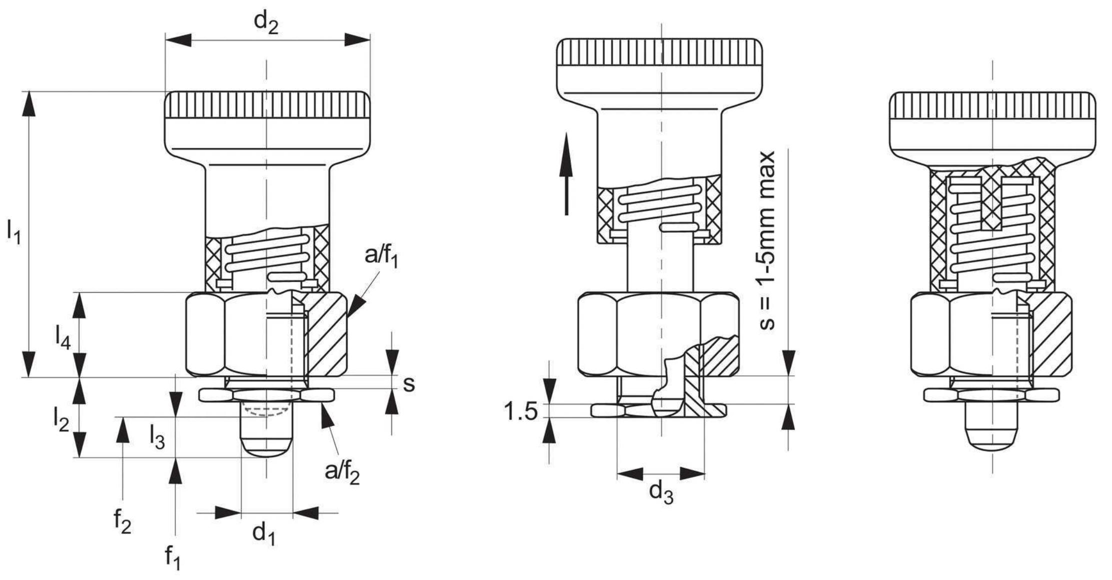
Tips
Spring load* = statistical average.

Important Notes
Only parts 32762.W0826,W0828,W0836 and W0838 have fully retractable index bolt. Bolt of other parts do not fully retract into body, instead bolt will protrude by l_1-s when grip actuated.

Index plungers - Pull Grip

compact

32770



non-locking

locking

Order No.	Type	d_1 -0,02 -0,04	l_2	d_2	d_3	l_1	l_3	l_4	s min.-max.	a/f_1	a/f_2	Spring load* f_1 N≈	Spring load* f_2 N≈	g
32770.W0266	Locking	6	8,5	25	10	34	6,0	10	1-5	17	14	8,5	22	39
32770.W0267	Locking	6	10,5	25	10	34	6,0	10	1-5	17	14	8,5	22	40
32770.W0268	Locking	8	10,0	31	12	40	7,5	12	1-5	19	16	15,5	28	63
32770.W0269	Locking	8	12,0	31	12	40	7,5	12	1-5	19	16	15,5	28	63
32770.W0286	Non Locking	6	8,5	25	10	34	6,0	10	1-5	17	14	8,5	22	39
32770.W0287	Non Locking	6	10,5	25	10	34	6,0	10	1-5	17	14	8,5	22	39
32770.W0288	Non Locking	8	10,0	31	12	40	7,5	12	1-5	19	16	15,5	28	61
32770.W0289	Non Locking	8	12,0	31	12	40	7,5	12	1-5	19	16	15,5	28	62
32770.W0299	Spanner = a/f2	-	-	-	-	-	-	-	-	-	-	-	-	27

Material

Body:steel galvanised.
Pin: stainless steel 1.4305, nickel plated.
Grip: thermoplastic PA6, black.

Technical Notes

"Locking" type- enable pin to be held in retracted position; pull back grip, turn 90° to engage 'locking' on a notched catch.
"Non Locking" type- pin simply springs back when grip released.
For installation on thin walled panels/sheet metal of thickness 1 to 5mm.
Pin does not fully retract in all cases - protrusion of pin 'l_3' dependant upon panel thickness of installation 's'
Temperature resistance -30°C to +80°C

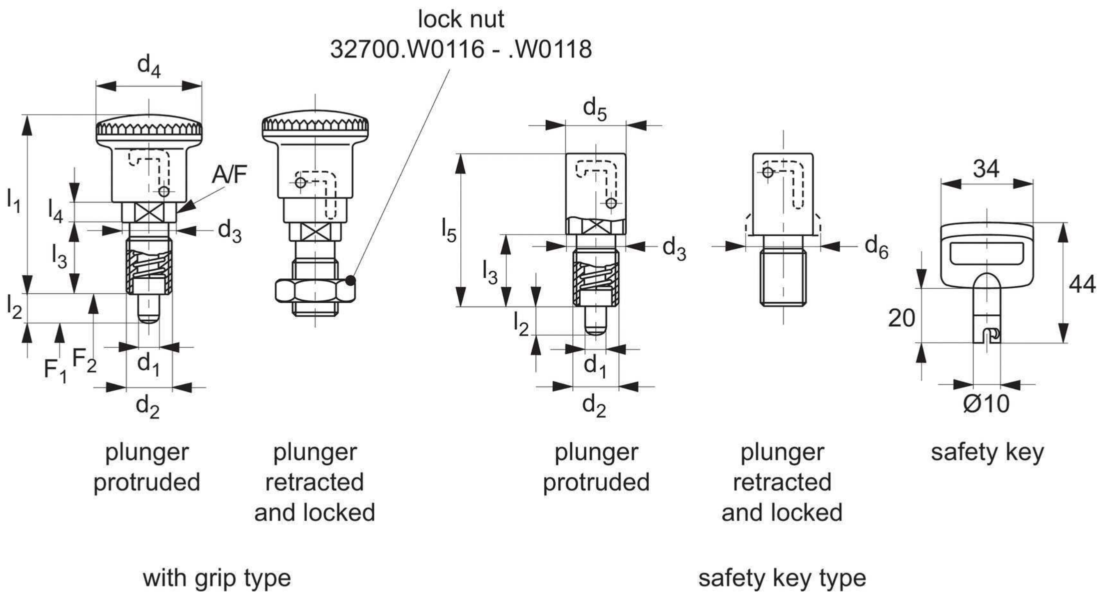
Tips

Grip non-removable.
Spring loads* = statistical average.

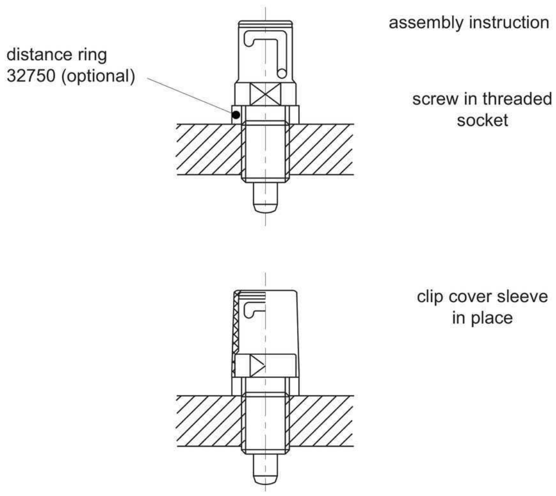
Index plungers - Pull Grip

locking - tamper resistant - pin protruding at start

32781



Order No.	Type	d_1 0 -0,05	d_2	d_3	d_4	d_5	d_6	l_1 ≈	l_2	l_3	l_4 ≈	l_5	A/F	Spring load* F_1 N≈	Spring load* F_2 N≈	Kg
32781.W0006	With Grip	6	M12x1,5	16	28	17	-	50	8	20	6	43	14	13	28	0,05
32781.W0008	With Grip	8	M16x1,5	18	28	17	20	52	10	22	6	48	16	14	38	0,05
32781.W0026	For Safety key	6	M12x1,5	16	28	17	-	50	8	20	6	43	14	13	28	0,03
32781.W0028	For Safety key	8	M16x1,5	18	28	17	20	52	10	22	6	48	16	14	38	0,05
32700.W0116	Lock Nut	-	M12x1,5	-	-	-	-	-	-	-	-	-	-	-	-	
32700.W0118	Lock Nut	-	M16x1,5	-	-	-	-	-	-	-	-	-	-	-	-	
32781.W0998	Safety key	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Material

Body: free cutting steel, zinc plated, blue passivated.
Pin: stainless steel, 1.4305 (AISI 303).
Spring: stainless steel, 1.4310 (AISI 301).
Grip: thermoplastic PA6, black.

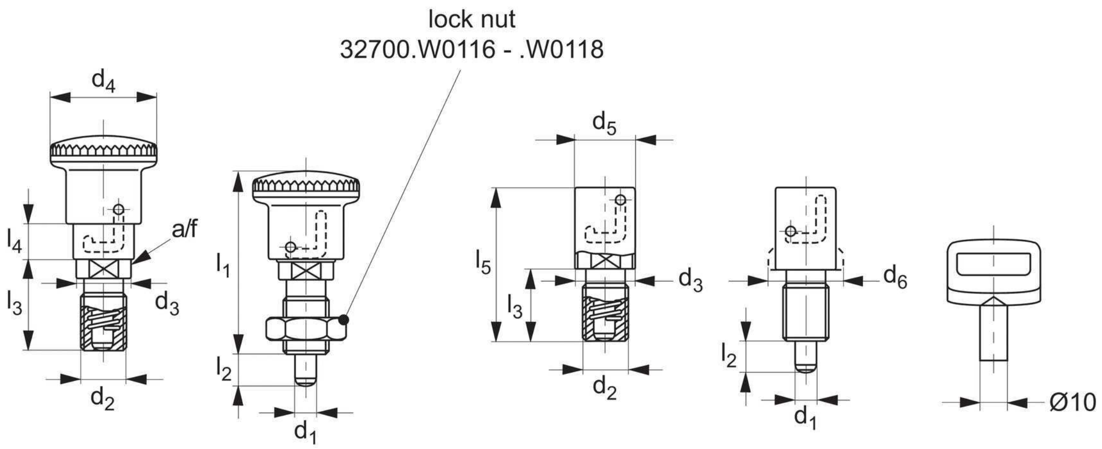
Technical Notes

Tamper resistant against unauthorised or accidental actuation.

At start position pin is protruding, when lever is actuated pin retracts.
Two different types available;
with grip - enables pin to be held in retracted/non projecting position; pull back grip, turn 90° to engage 'locking' via a deep notch in plunger body.
with safety key - use key to hold pin in retracted/non-projecting position; acuate key (please order seperately) turn 90° to engage 'locking via a deep notch in plunger body.

Tips

Grip non-removable.
Spring loads* = statisical average.



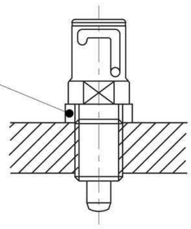
plunger retracted	plunger protruded and locked	plunger retracted	plunger protruded and locked	safety key

with grip type

safety key type

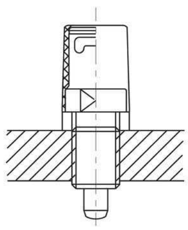
Order No.	Type	d_1 0 -0,05	d_2	d_3	d_4	d_5	d_6	l_1 ≈	l_2	l_3	l_4 ≈	l_5	a/f	Spring load* F_1 N≈	Spring load* F_2 N≈	Kg
32782.W0356	With Grip	6	M12x1,5	16	28	17	-	51,5	8	20	6	43	14	12	27	0,05
32782.W0358	With Grip	8	M16x1,5	18	28	17	20	54,5	10	22	6	48	16	12	35	0,05
32782.W0366	For Safety Key	6	M12x1,5	16	28	17	-	51,5	8	20	6	43	14	12	27	0,05
32782.W0368	For Safety Key	8	M16x1,5	18	28	17	20	54,5	10	22	6	48	16	12	35	0,05
32700.W0116	Lock Nut	-	M12x1,5	-	-	-	-	-	-	-	-	-	-	-	-	-
32700.W0118	Lock Nut	-	M16x1,5	-	-	-	-	-	-	-	-	-	-	-	-	-
32782.W0999	Key	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

distance ring
32750 (optional)



assembly instruction

screw in threaded socket



clip cover sleeve in place

Material

Body: free cutting steel, zinc plated, blue passivated.
Pin: stainless steel, 1.4305 (AISI 303).
Spring: stainless steel, 1.4301 (AISI301).
Grip: thermoplastic PA6, black.

Technical Notes

Tamper resistant against unauthorised or accidental actuation.

At start position pin is retracted, when lever is actuated pin protrudes.
Two different types available;
with grip - use key to hold pin in protruding position; pull back grip, turn 90° to engage 'locking' via a deep notch in plunger body.
with safety key - use key to hold pin in protruding position; acuate key (please order seperately) turn 90° to engage 'locking via a deep notch in plunger body.

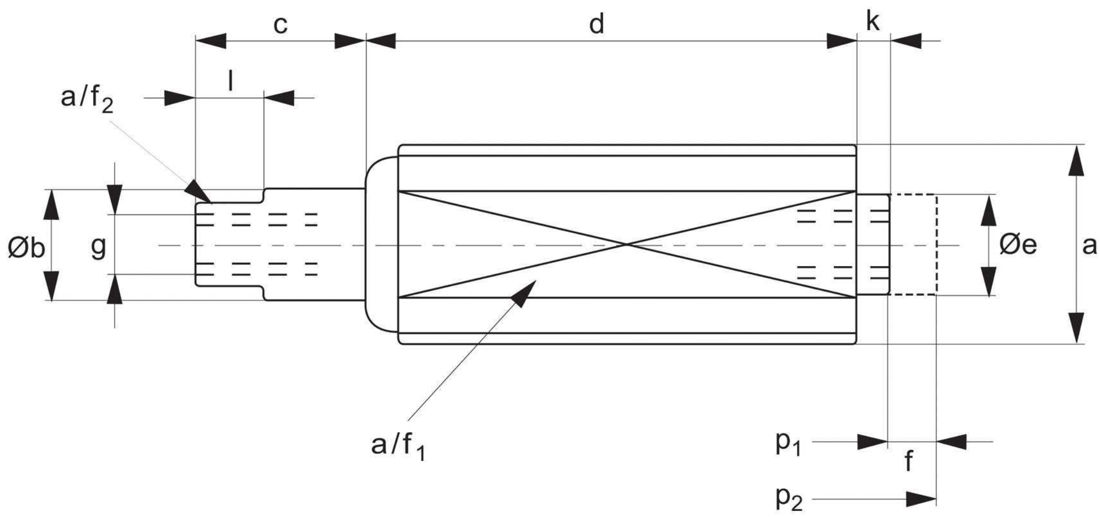
Tips

Grip non-removable.
Spring loads* = statistical average.

Index plungers - Push-Pull

non-locking

32790



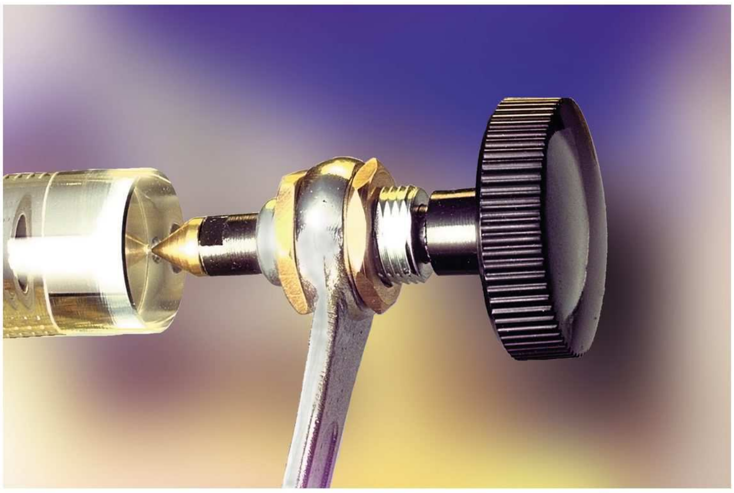
Order No.	a	Øb	c	d -1	Øe	f	g	a/f_1	k	l	p_1 N	p_2 N	a/f_2	g
32790.W0120	M12	7	4,5	11,0	6	3,5	M 4x8	10	1,5	5	5	20	6	5
32790.W0121	M12	7	7,0	18,5	6	6,0	M 4x8	10	1,5	5	5	20	6	8
32790.W0122	M12	7	11,0	26,0	6	10,0	M 4x8	10	1,5	5	5	20	6	12
32790.W0130	M12	7	4,5	11,0	6	3,0	M 4x8	10	1,5	5	15	80	6	5
32790.W0131	M12	7	7,0	18,5	6	5,0	M 4x8	10	1,5	5	15	80	6	8
32790.W0132	M12	7	11,0	26,0	6	8,0	M 4x8	10	1,5	5	15	80	6	12
32790.W0140	M12	7	4,5	11,0	6	3,0	M 4x8	10	1,5	5	30	125	6	5
32790.W0141	M12	7	7,0	18,5	6	5,0	M 4x8	10	1,5	5	30	125	6	8
32790.W0142	M12	7	11,0	26,0	6	8,0	M 4x8	10	1,5	5	30	125	6	13
32790.W0180	M18x1,5	11	6,0	17,0	10	4,0	M 6x12	16	2,0	6	50	150	9	22
32790.W0181	M18x1,5	11	11,5	29,5	10	7,0	M 6x12	16	2,0	6	50	150	9	43
32790.W0182	M18x1,5	11	16,0	45,5	10	12,5	M 6x12	16	2,0	6	50	150	9	66

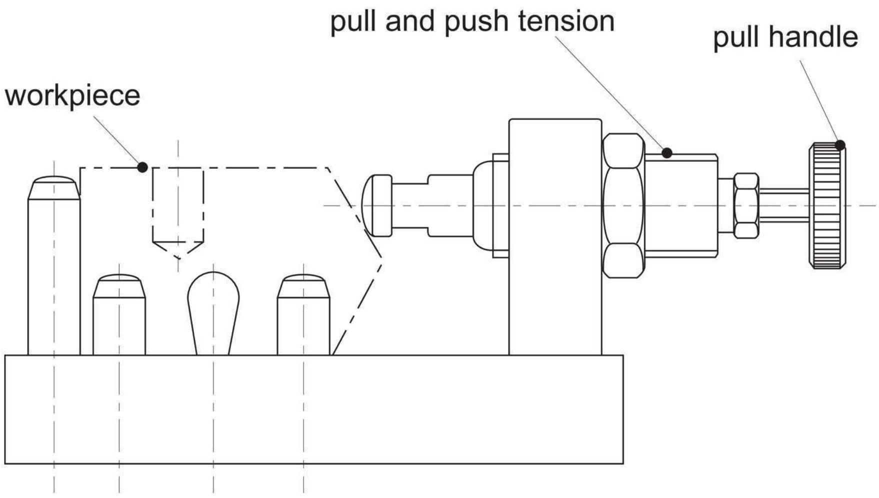
Material

Body: steel, blue galvanised.
Pins: steel, burnished.

Technical Notes

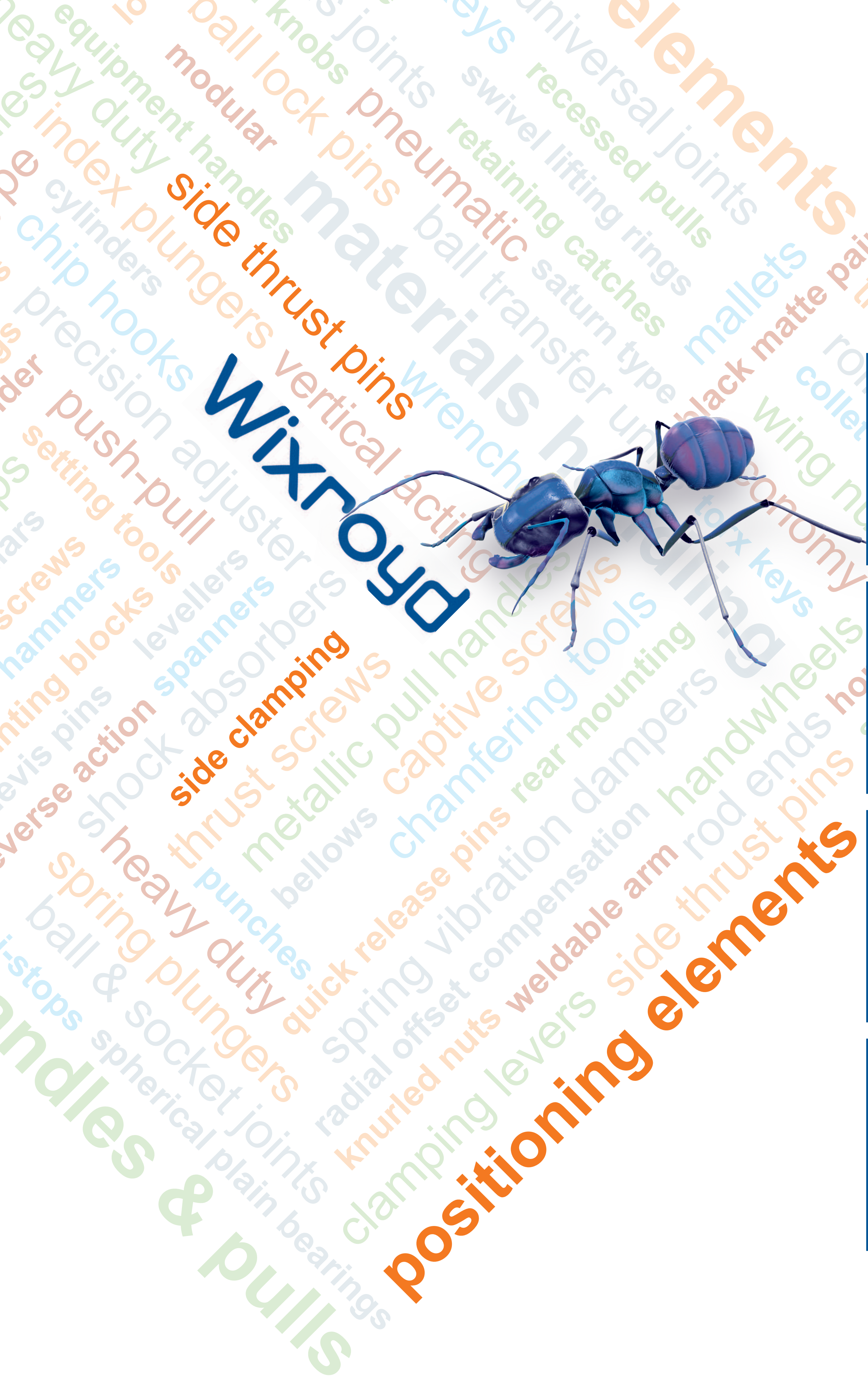
Ideal for either pressure (push) and tension (pull) applications, due to the unique designs spring loaded pin with threads at both ends to allow installation of your own adaptor or handle.
A wide range of application: pressure bolts, holding or magnets etc.
Requires very small space requirements.

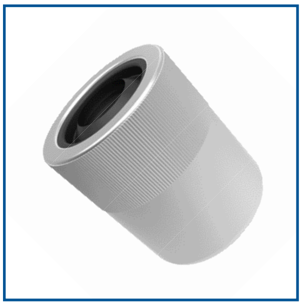


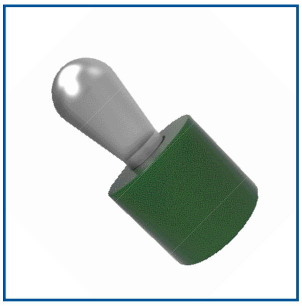


Material
Body: steel, blue galvanised.
Pins: steel, burnished.

Technical Notes
Ideal for either pressure (push) and tension (pull) applications, due to the unique designs spring loaded pin with threads at both ends to allow installation of your own adaptor or handle.
A wide range of application: pressure bolts, holding or magnets etc.
Requires very small space requirements.

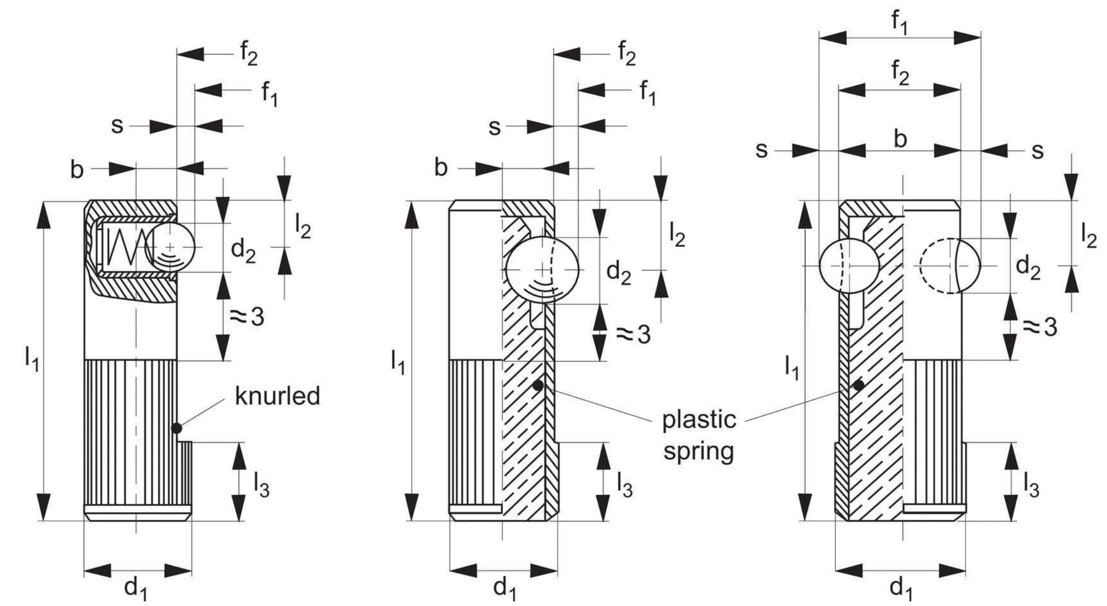






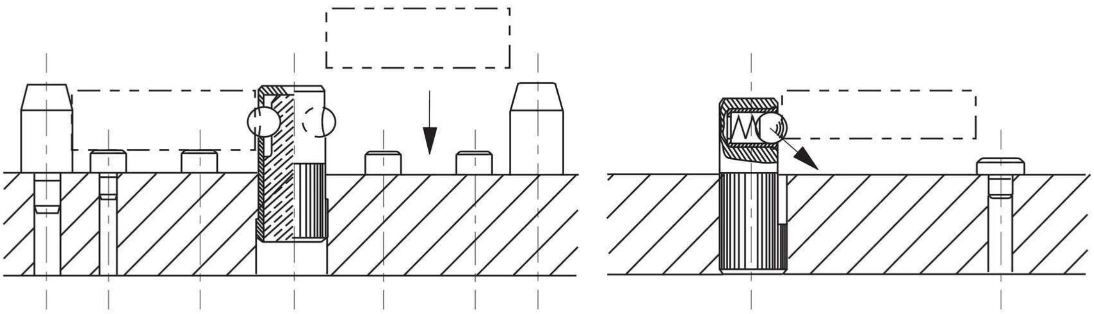
Side Thrust Pins

Lateral Spring Plungers



one sided normal load | one sided increased load | double sided increased load

Order No.	Ball type	Spring load	d_1 +0,1	d_2	l_1	l_2	l_3	b	s	Location hole H8	Spring load* f_1 N	Spring load* f_2 N	max. °C	g
32800.W0008	Stainless, One	Normal	8	3,0	25	3,6	6	3,2	0,8	8	2,5	6,5	-30/+50	9
32800.W0010	Stainless, One	Normal	10	4,0	30	4,2	7	4,0	1,0	10	4,5	9,0	-30/+50	17
32800.W0012	Stainless, One	Normal	12	5,0	35	4,8	9	5,0	1,6	12	6,5	13,0	-30/+50	29
32800.W0014	Stainless, One	Normal	14	6,5	40	5,8	10	5,4	1,9	14	8,0	18,0	-30/+50	43
32800.W0108	Thermo, One	Normal	8	3,0	25	3,6	6	3,2	0,8	8	2,5	6,5	-30/+50	9
32800.W0110	Thermo, One	Normal	10	4,0	30	4,2	7	4,0	1,0	10	4,5	9,0	-30/+50	17
32800.W0112	Thermo, One	Normal	12	5,0	35	4,8	9	5,0	1,6	12	6,5	13,0	-30/+50	28
32800.W0114	Thermo, One	Normal	14	6,5	40	5,8	10	5,4	1,9	14	8,0	18,0	-30/+50	42
32800.W0410	Steel, One	Increased	10	5,5	30	7,0	8	4,5	1,0	10	60,0	170,0	-40/+80	9
32800.W0412	Steel, One	Increased	12	6,5	35	8,0	9	5,5	1,5	12	80,0	260,0	-40/+80	14
32800.W0414	Steel, One	Increased	14	8,0	40	9,0	10	6,5	2,0	14	120,0	480,0	-40/+80	20
32800.W0616	Steel, Double	Increased	16	5,5	35	7,0	11	15,0	1,5	16	110,0	220,0	-40/+80	21
32800.W0618	Steel, Double	Increased	18	6,5	40	8,0	12	17,0	1,8	18	120,0	330,0	-40/+80	27
32800.W0622	Steel, Double	Increased	22	8,0	45	9,0	15	21,0	2,5	22	130,0	540,0	-40/+80	45



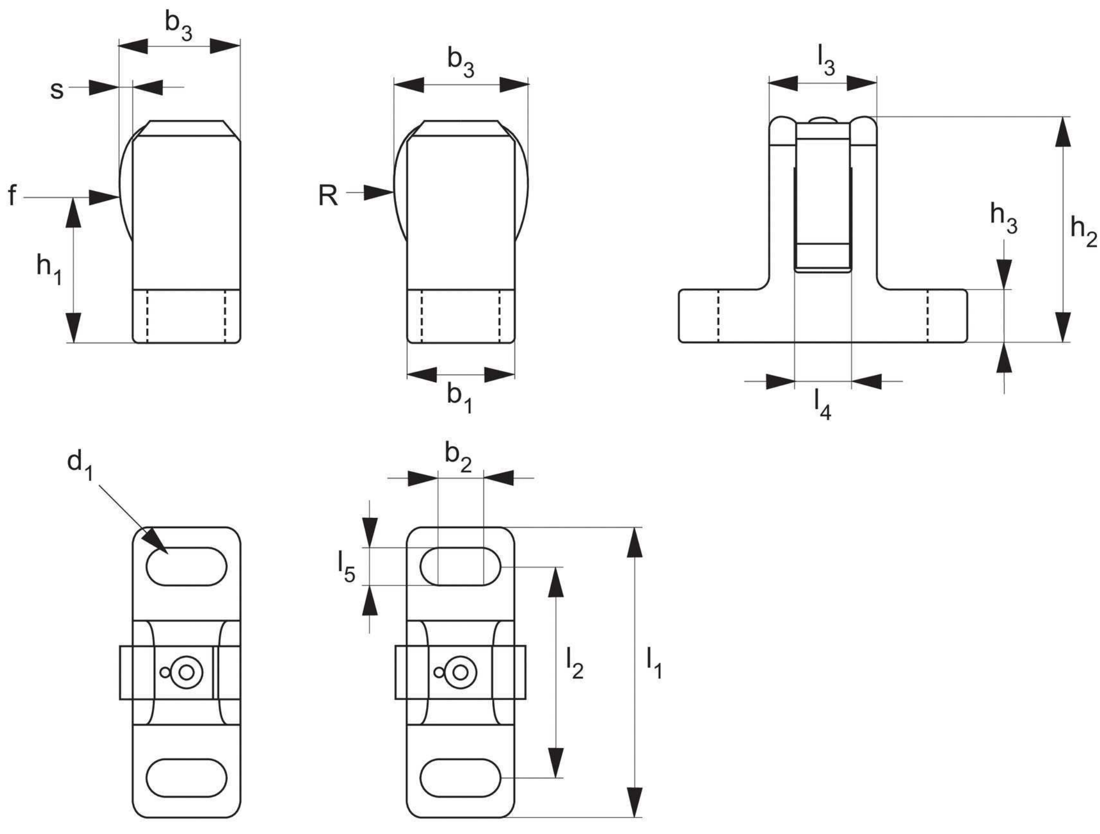
Material
Body: free cutting steel, blackened.
Ball: ball bearing steel 1.3505 (100Cr6) hardened, stainless steel, hardened or Thermoplastic white (POM).
Spring: stainless steel or plastic (PU).

Technical Notes
The lateral spring plunger must be inserted into a bore to measure at least l3. Positions and applies pressure. Spring loads * = statistical average values.

Tips
When storing the fixtures, no pressure should be applied to the plastic spring.

Lateral Spring Plungers
with sheet steel spring

32802



one-sided double-sided

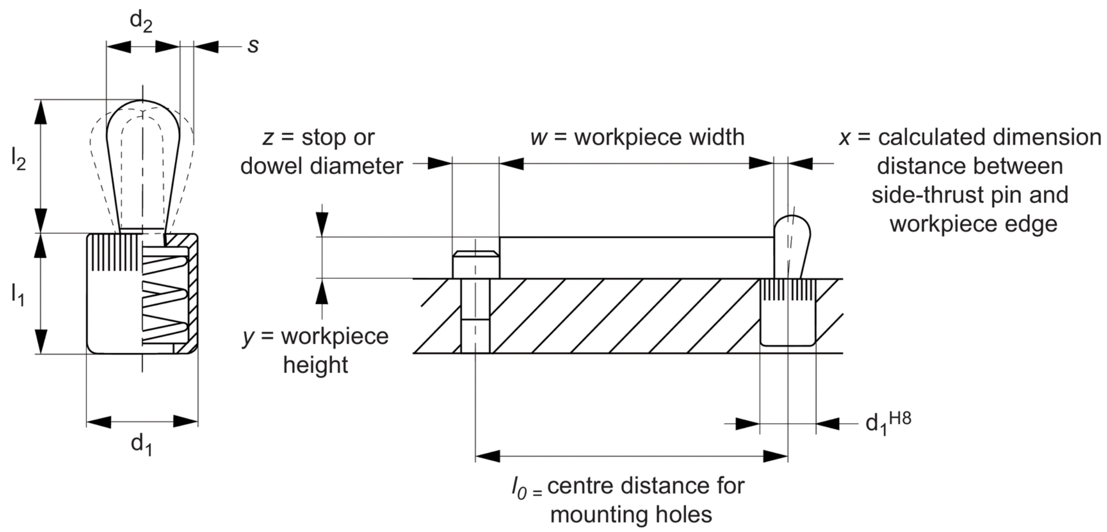
Material
Body: steel, blackened.
Spring element: stainless steel.

Technical Notes
Simple and secure positioning of work pieces or components. If component is mounted below height h_1, a down hold clamping effect is present. Double sided version, ideal for multi-component clamping.
Max. temperature resistance 250°C

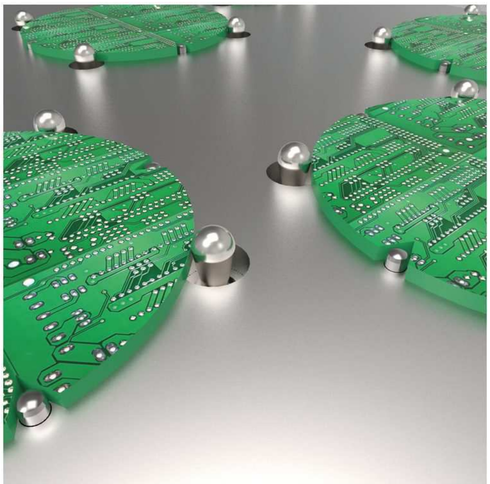
Order No.	Finish	d_1 for screw	l_1 ±1	l_2	l_3	l_4	l_5	b_1 ±0,5	b_2	b_3	h_1	h_2 ±1	h_3	s	Spring load f ≈*	R	g
32802.W0006	One-Sided	M 6	55	40	20	10	6,6	20	8	22,5	28,5	43,0	10	1,5	55	22,5	130
32802.W0012	One-Sided	M12	72	50	23	12	13,5	25	6	29,0	40,5	61,5	15	1,5	170	32,8	255
32802.W0206	Double-Sided	M 6	55	40	20	10	6,6	20	8	25,0	28,5	42,5	10	1,5	55	22,5	135
32802.W0212	Double-Sided	M12	72	50	23	12	13,5	25	6	33,5	40,5	61,5	15	1,5	170	32,8	260

Side-Thrust Pins
without seal

32810



Order No.	Pin material	Spring load	d_1	d_2	l_1 -1	l_2 ±0,5	Location hole d_1 tol. H8	Stroke *s*	Spring pressure N	Spring colour	Temp. resistance max. °C	Fitting tool 32810	g
32810.W0001	Steel Pin	Light	6	3	7	4,0	6	0,5	10	S/S	250	.W0830	1
32810.W0002	Steel Pin	Standard	6	3	7	4,0	6	0,5	20	Black	250	.W0830	1
32810.W0003	Steel Pin	Heavy	6	3	7	4,0	6	0,5	40	Blue	250	.W0830	1
32810.W0004	Steel Pin	Light	10	5	11	6,7	10	0,8	20	S/S	250	.W0831	3
32810.W0005	Steel Pin	Standard	10	5	11	6,7	10	0,8	50	Black	250	.W0831	3
32810.W0006	Steel Pin	Heavy	10	5	11	6,7	10	0,8	100	Blue	250	.W0831	3
32810.W0007	Steel Pin	Light	10	6	11	10,7	10	1,0	40	S/S	250	.W0831	4
32810.W0008	Steel Pin	Standard	10	6	11	10,7	10	1,0	75	Black	250	.W0831	4
32810.W0009	Steel Pin	Heavy	10	6	11	10,7	10	1,0	150	Blue	250	.W0831	4
32810.W0010	Steel Pin	Light	12	8	13	13,9	12	1,3	50	S/S	250	.W0832	7
32810.W0011	Steel Pin	Standard	12	8	13	13,9	12	1,3	100	Black	250	.W0832	7
32810.W0012	Steel Pin	Heavy	12	8	13	13,9	12	1,3	200	Blue	250	.W0832	7
32810.W0013	Steel Pin	Light	16	10	17	16,7	16	1,6	100	S/S	250	.W0833	15
32810.W0014	Steel Pin	Standard	16	10	17	16,7	16	1,6	200	Black	250	.W0833	15
32810.W0015	Plastic Pin	Heavy	16	10	17	16,7	16	1,6	300	Blue	80	.W0833	15
32810.W0404	Plastic Pin	Heavy	10	5	11	6,7	10	0,8	20	S/S	80	.W0831	1
32810.W0407	Plastic Pin	Standard	10	6	11	10,7	10	1,0	40	S/S	80	.W0831	2
32810.W0410	Plastic Pin	Light	12	8	13	13,9	12	1,3	50	S/S	80	.W0832	3
32810.W0413	Plastic Pin	Heavy	16	10	17	16,7	16	1,6	100	S/S	80	.W0833	7
32810.W0830	Fitting tool	-	6	-	-	-	-	-	-	-	-	-	19
32810.W0831	Fitting tool	-	10	-	-	-	-	-	-	-	-	-	49
32810.W0832	Fitting tool	-	12	-	-	-	-	-	-	-	-	-	65
32810.W0833	Fitting tool	-	16	-	-	-	-	-	-	-	-	-	105



Material

Body: aluminium.
Pin: steel, case hardened and galvanized, or thermoplastic (POM) white.
Spring: steel (blackened or blue galvanized), or stainless steel.

Technical Notes

Press fit installation into hole d_1 to tol. H8, using fitting tool (order separately).
Installation calculations;
A) Calculating centre distance for mounting holes (l_0);
$l_0=(z/2)+w+x$
B) Calculating pin location (x);

When workpiece height (y) is greater than or equal to $l_2-(d_2/2)$ then (x) is calculated as; $x=(d_2/2)-s$

When workpiece height (y) is less than

$l_2-(d_2/2)$ then (x) is calculated as;
$x=(d_2/2)-s-\{[l_2-(d_2/2)-y]*0.123\}$
l_0 = centre distance for mounting holes
y = workpiece height
w = workpiece width
x = distance between side-thrust pin and workpiece edge
s = stroke
z =stop or dowel stop diameter

Tips

Side-thrust pins are ideal for holding, clamping and positioning parts.
Spring colour gives visual indication of spring pressure (N).
Light spring load = natural stainless spring.
Standard spring load = steel spring, blackened.
Heavy spring load = steel spring, blue galvanized.

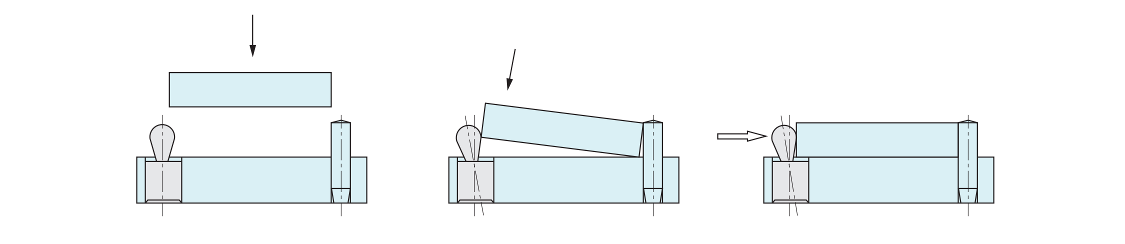
Wixroyd Side-Thrust Pins

for clamping, positioning and holding components

Wixroyd side thrust pins are an economical way to clamp, hold and position components – from low height PCB's to relatively large castings.

Easy to use

Simple to mount, easy to use and space saving.

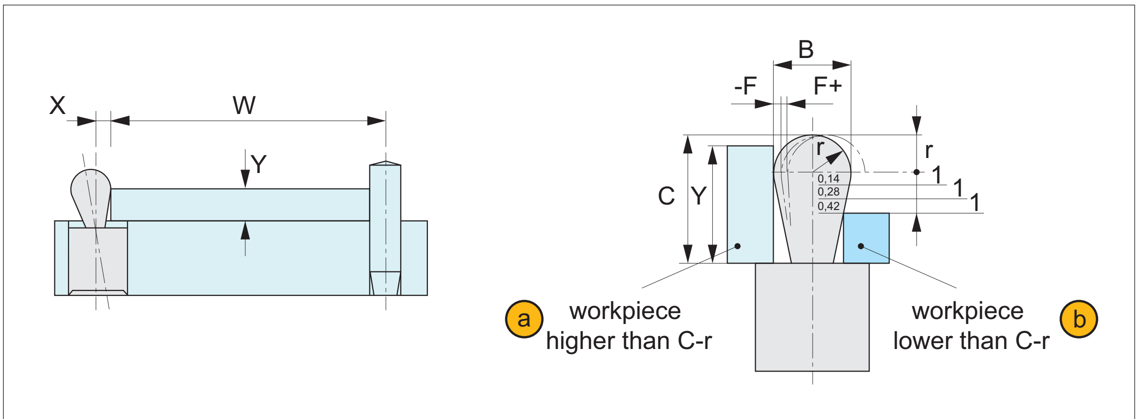


- Easy handling.
- Minimum mounting space.
- Easy and rapid changeover.
- Ideal for flat pieces.
- Reduced clamping times.
- Constant clamping pressure.

Calculating formulae for pin location (x) and pin positioning (k)

Pin location (x)

Please refer to the part tables for dimension x, or use the following formulae.



1 When work piece height is **higher than** C-r, x is calculated by:

i) For side thrust pin no. **32870**: $X = \frac{B - (F-)}{2} - \frac{(F+)}{2}$

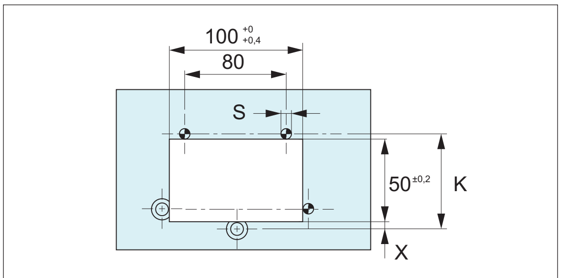
ii) For side thrust pin nos. **32810** to **32850**: $X = \frac{B - (F-)}{2}$

2 When work piece height is **lower than** C-r, x is calculated by:

i) For all side thrust pins: $X = \frac{B - (F-) - [(C-r-Y) \times 0{,}123]}{2}$

Pin positioning (k)

For positioning co-ordinates:



$K = W - \frac{T}{2} + X + \frac{S}{2}$

Formula key:

W = Workpiece width (± tolerance)

F- = Prestressing

F+ = Stress (range of spring tolerance)

F = [(F-) + (F+)] - Nett of prestress and stress

T = Workpiece Tolerance

Y = Workpiece height

B = Diameter of selected side thrust pin

C = Height of selected side thrust pin

r = Radius of selected side thrust pin

X = Distance between side thrust pin and workpiece edge

S = Diameter of positioning dowel or stop

K = Hole centre distance between positioning dowel/stop and side thrust pin

The best selection of side thrust pins is made with consideration to the following four factors:

a) Pin size Ø
b) Pin material
c) Sealed or non-sealed pin
d) Required pin force

Pin size Ø

Pin size Ø	Application
3 mm	Circuit boards, thin metals
4 mm	Electronics, measuring equipment, small precise parts
5 mm	Drilling jigs, sheet metal, measuring devices, welding fixtures
6 mm	Fixtures for light machine parts and castings
8 mm	Fixtures for medium machine parts and castings
10 mm	Fixtures for heavy machine parts and castings

Pin material

Plastic pins for sensitive parts. Steel pins for other parts. Stainless steel pins in corrosive environments.

Sealed or non-sealed pin

With/without seal	Application	Operation
Use side-thrust pins with seal e.g. 32820, 32850 etc	Milling, drilling, reaming, broaching, honing, engraving	Machining
	Washing, polishing, painting, sand blasting	After machining
Use side-thrust pins without seal e.g. 32810, 32840 etc	Gluing, welding, hard soldering	Prior to machining
	Gripping, inserting, fitting	Final mounting
	Measuring, controling, loading	Quality assurance
	Soft soldering, checking	Processing circuit boards

Pinforce - guide only

Positioning applications 30 - 60 N. Clamping applications 90 - 150 N.

Compression spring type

Available in an aluminium body, and in various spring pressures (P) from 10 to 300N. Each pin size is usually available in 3 spring pressures (P).

Pressure	Low	Medium	High
Spring Colour	Stainless	Black	Blue

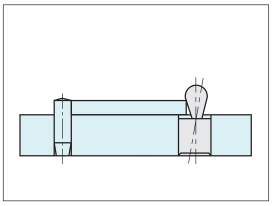
Elastomer spring type

Available in elastomer body and in various spring pressures (P) from 10 to 160N.

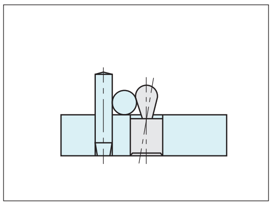
Typical applications

Side-thrust pins find applications in the following industries and more:

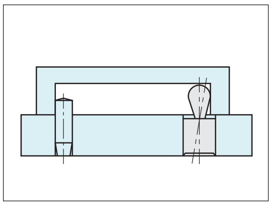
- Automotive.
- Aviation.
- Electronics.
- Computing.
- Plastics.
- Medical.
- Precision engineering.
- Tool manufacturing.



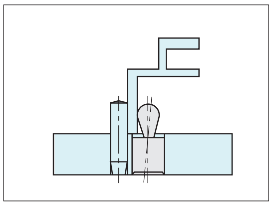
Positioning and clamping even extremely flat parts (e.g. metal sheets and printed circuit boards).



Positioning and clamping round metal using the deep drawing effect.



Space saving positioning and clamping from the inside to the outside.

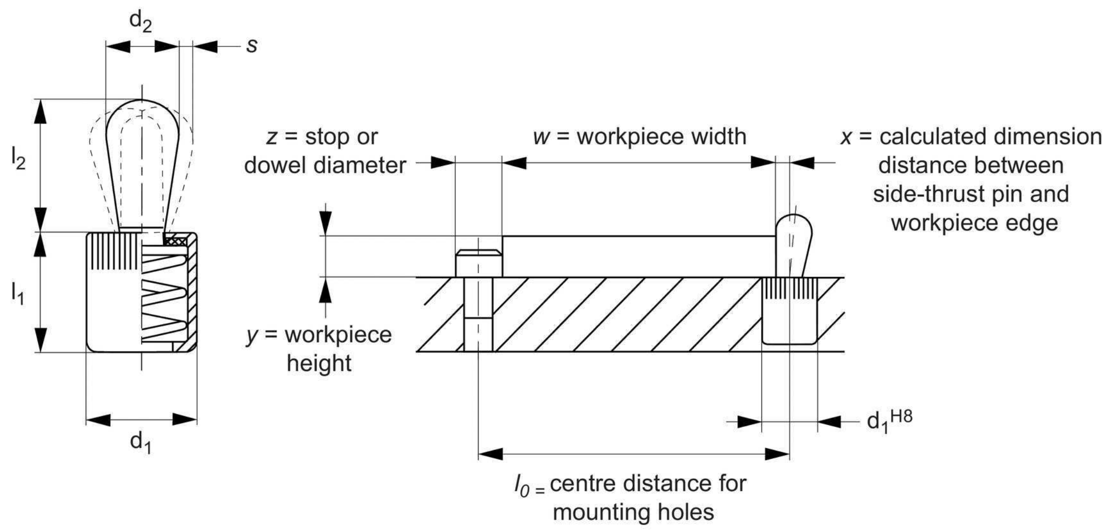


Positioning and clamping different profiles when welding. Material expansions compensated for by flexibility of the side-thrust pin.

Side-Thrust Pins

with seal

32820



Order No.	Pin material	Spring load	d_1	d_2	l_1 -1	l_2 ±0,5	Location hole d_1 tol. H8	Stroke *s*	Spring pressure N	Temp. resistance max. °C	Spring colour	Fitting tool 32810	g
32820.W0001	Steel Pin	Light	6	3	7	4	6	0,5	10	110	S/S	.W0830	1
32820.W0002	Steel Pin	Standard	6	3	7	4	6	0,5	20	110	Black	.W0830	1
32820.W0003	Steel Pin	Heavy	6	3	7	4	6	0,5	40	110	Blue	.W0830	1
32820.W0004	Steel Pin	Light	10	5	12	6	10	0,8	20	110	S/S	.W0831	3
32820.W0005	Steel Pin	Standard	10	5	12	6	10	0,8	50	110	Black	.W0831	3
32820.W0006	Steel Pin	Heavy	10	5	12	6	10	0,8	100	110	Blue	.W0831	3
32820.W0007	Steel Pin	Light	10	6	12	10	10	1,0	40	110	S/S	.W0831	4
32820.W0008	Steel Pin	Standard	10	6	12	10	10	1,0	75	110	Black	.W0831	4
32820.W0009	Steel Pin	Heavy	10	6	12	10	10	1,0	150	110	Blue	.W0831	4
32820.W0010	Steel Pin	Light	12	8	14	13	12	1,3	50	110	S/S	.W0832	7
32820.W0011	Steel Pin	Standard	12	8	14	13	12	1,3	100	110	Black	.W0832	7
32820.W0012	Steel Pin	Heavy	12	8	14	13	12	1,3	200	110	Blue	.W0832	8
32820.W0013	Steel Pin	Light	16	10	18	16	16	1,6	100	110	S/S	.W0833	15
32820.W0014	Steel Pin	Standard	16	10	18	16	16	1,6	200	110	Black	.W0833	15
32820.W0015	Steel Pin	Heavy	16	10	18	16	16	1,6	300	110	Blue	.W0833	16
32820.W0401	Plastic Pin	Light	6	3	7	4	6	0,5	10	80	S/S	.W0830	1
32820.W0404	Plastic Pin	Light	10	5	12	6	10	0,8	20	80	S/S	.W0831	1
32820.W0407	Plastic Pin	Light	10	6	12	10	10	1,0	40	80	S/S	.W0831	2
32820.W0410	Plastic Pin	Light	12	8	14	13	12	1,3	50	80	S/S	.W0832	3
32820.W0413	Plastic Pin	Light	16	10	18	16	16	1,6	100	80	S/S	.W0833	7
32810.W0830	Fitting tool	-	6	-	-	-	-	-	-	-	-	-	19
32810.W0831	Fitting tool	-	10	-	-	-	-	-	-	-	-	-	49
32810.W0832	Fitting tool	-	12	-	-	-	-	-	-	-	-	-	65
32810.W0833	Fitting tool	-	16	-	-	-	-	-	-	-	-	-	105

Material

Body: aluminium.
Pin: steel, case hardened and galvanized, or thermoplastic (POM) white.
Spring: steel (blackened or blue galvanized), or stainless steel.
Seal: rubber (CR), 60 shore.

Technical Notes

Press fit installation into hole d_1 to tol. H8, using fitting tool (order separately).
Installation calculations;
A) Calculating centre distance for mounting holes (l_0);
$l_0=(z/2)+w+x$

B) Calculating pin location (x);
When workpiece height (y) is greater than or equal to $l_2-(d_2/2)$ then (x) is calculated as; $x=(d_2/2)-s$

When workpiece height (y) is less than $l_2-(d_2/2)$ then (x) is calculated as; $x=(d_2/2)-s-\{[l_2-(d_2/2)-y]*0.123\}$

l_0 = centre distance for mounting holes
y = workpiece height
w = workpiece width
x = distance between side-thrust pin and workpiece edge
s = stroke
z =stop or dowel stop diameter

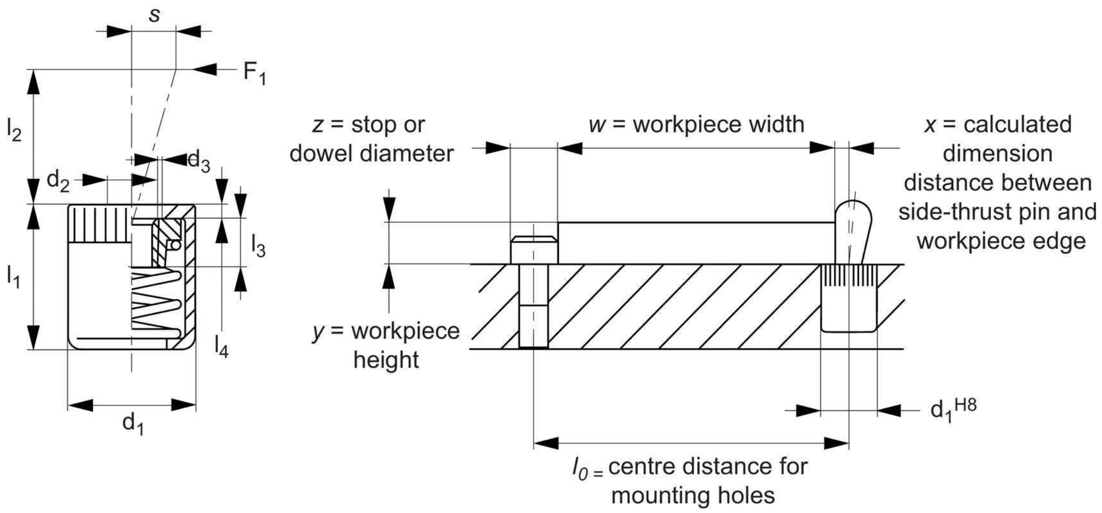
Tips

Side-thrust pins are ideal for holding, clamping and positioning parts.
Spring colour gives visual indication of spring pressure (N).
Light spring load = natural stainless spring.
Standard spring load = steel spring, blackened.
Heavy spring load = steel spring, blue galvanized.

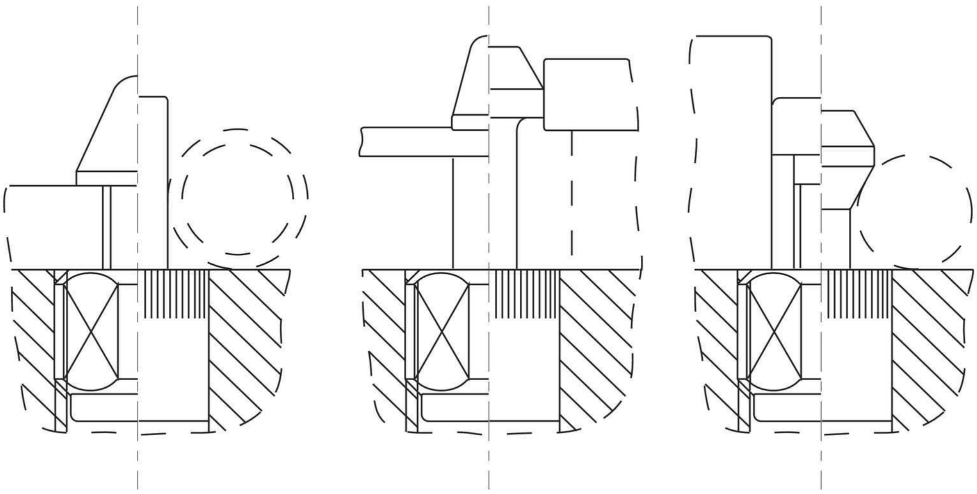
Side-Thrust Pins - Without Seal

for use with pins of your own design

32830



Order No.	Spring load	d_1	d_2	d_3	l_1 -1	l_2	l_3	l_4	Location hole d_1 tol. H8	Stroke *s*	Spring pressure N	Spring colour	Temp. resistance max. °C	Fitting tool 32810	g
32830.W0001	Light	10	M 4	6,3	11	2,5	4,5	1,2	10	1,6	20	S/S	250	.W0831	2
32830.W0002	Standard	10	M 4	6,3	11	2,5	4,5	1,2	10	1,6	50	Black	250	.W0831	2
32830.W0003	Heavy	10	M 4	6,3	11	2,5	4,5	1,2	10	1,6	100	Blue	250	.W0831	2
32830.W0004	Light	10	M 4	6,3	11	7,5	4,5	1,2	10	2,0	40	S/S	250	.W0831	2
32830.W0005	Standard	10	M 4	6,3	11	7,5	4,5	1,2	10	2,0	75	Black	250	.W0831	2
32830.W0006	Heavy	10	M 4	6,3	11	7,5	4,5	1,2	10	2,0	100	Blue	250	.W0831	3
32830.W0007	Light	16	M 6	10,3	18	11,5	7,5	1,7	16	3,2	100	S/S	250	.W0833	9
32830.W0008	Standard	16	M 6	10,3	18	11,5	7,5	1,7	16	3,2	150	Black	250	.W0833	9
32830.W0009	Heavy	16	M 6	10,3	18	11,5	7,5	1,7	16	3,2	200	Blue	250	.W0833	9
32810.W0831	Fitting tool	10	-	-	-	-	-	-	-	-	-	-	-	-	49
32810.W0833	Fitting tool	16	-	-	-	-	-	-	-	-	-	-	-	-	105



Material

Body: aluminium.
Threaded Washer: steel, blackened.
Spring: steel (blackened or blue galvanized), or stainless steel.

Technical Notes

Press fit installation into hole d_1 to tol. H8, using fitting tool (order separately).
Installation calculations;
A) Calculating centre distance for mounting holes (l_0);
$l_0=(z/2)+w+x$

B) Calculating pin location (x);

When workpiece height (y) is greater than or equal to $l_2-(d_2/2)$ then (x) is calculated as; $x=(d_2/2)-s$

When workpiece height (y) is less than $l_2-(d_2/2)$ then (x) is calculated as; $x=(d_2/2)-s-\{[l_2-(d_2/2)-y]*0.123\}$

l_0 = centre distance for mounting holes
y = workpiece height
w = workpiece width
x = distance between side-thrust pin and workpiece edge
s = stroke
z = stop or dowel stop diameter

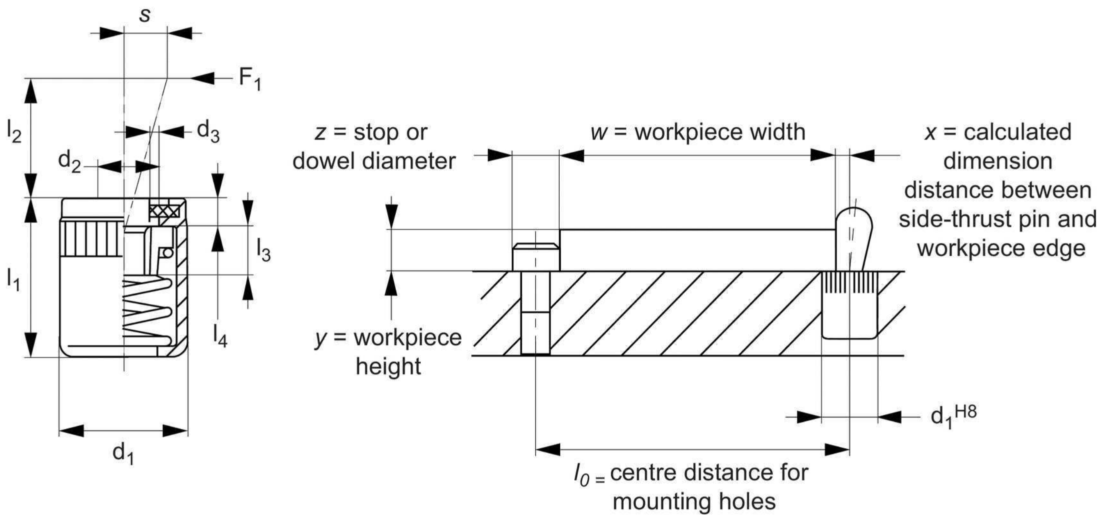
Tips

Side-thrust pins are ideal for holding, clamping and positioning parts.
Spring colour gives visual indication of spring pressure (N).
Light spring load = natural stainless spring.
Standard spring load = steel spring, blackened.
Heavy spring load = steel spring, blue galvanized.

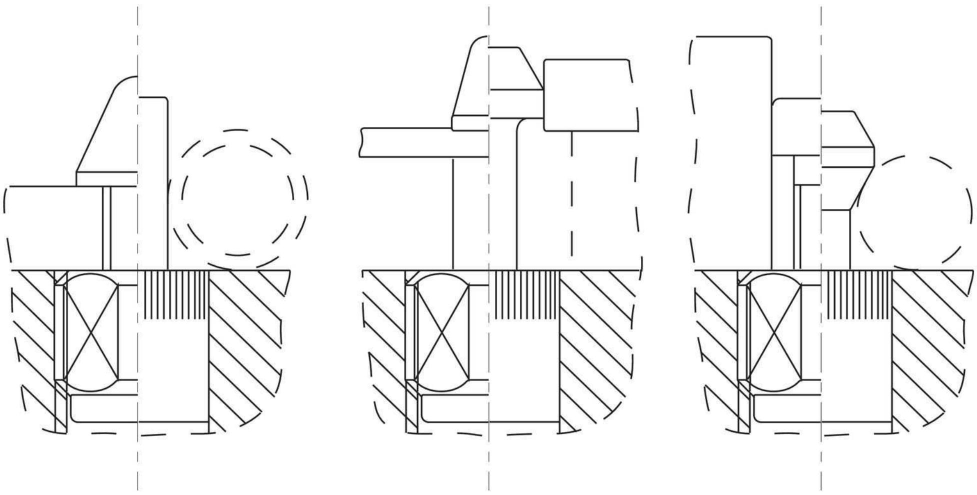
Side-Thrust Pins - With Seal

for use with pins of your own design

32830



Order No.	Spring load	d_1	d_2	d_3	l_1 -2	l_2	l_3	l_4	Location hole d_1 tol. H8	Stroke *s*	Spring pressure N	Spring colour	Temp. resistance max. °C	Fitting tool 32810	g
32830.W0401	Light	10	M 4	6,3	11	2,5	4,5	1,8	10	1,6	20	S/S	110	.W0831	2
32830.W0402	Standard	10	M 4	6,3	11	2,5	4,5	1,8	10	1,6	50	Black	110	.W0831	2
32830.W0403	Heavy	10	M 4	6,3	11	2,5	4,5	1,8	10	1,6	100	Blue	110	.W0831	2
32830.W0404	Light	10	M 4	6,3	11	7,5	4,5	1,8	10	2,0	40	S/S	110	.W0831	2
32830.W0405	Standard	10	M 4	6,3	11	7,5	4,5	1,8	10	2,0	75	Black	110	.W0831	2
32830.W0406	Heavy	10	M 4	6,3	11	7,5	4,5	1,8	10	2,0	100	Blue	110	.W0831	3
32830.W0407	Light	16	M 6	10,3	18	11,5	7,5	2,0	16	3,2	100	S/S	110	.W0833	9
32830.W0408	Standard	16	M 6	10,3	18	11,5	7,5	2,0	16	3,2	150	Black	110	.W0833	9
32830.W0409	Heavy	16	M 6	10,3	18	11,5	7,5	2,0	16	3,2	200	Blue	110	.W0833	9
32810.W0831	Fitting tool	10	-	-	-	-	-	-	-	-	-	-	-	-	49
32810.W0833	Fitting tool	16	-	-	-	-	-	-	-	-	-	-	-	-	105



Material

Body: aluminium.
Threaded Washer: steel, blackened.
Spring: steel (blackened or blue galvanized), or stainless steel.
Seal: rubber (CR), 60 shore.

Technical Notes

Press fit installation into hole d_1 to tol. H8, using fitting tool (order separately).
Installation calculations;
A) Calculating centre distance for mounting holes (l_0);
$l_0=(z/2)+w+x$

B) Calculating pin location (x);

When workpiece height (y) is greater than or equal to $l_2-(d_2/2)$ then (x) is calculated as; $x=(d_2/2)-s$

When workpiece height (y) is less than $l_2-(d_2/2)$ then (x) is calculated as; $x=(d_2/2)-s-\{[l_2-(d_2/2)-y]*0.123\}$

l_0 = centre distance for mounting holes
y = workpiece height
w = workpiece width
x = distance between side-thrust pin and workpiece edge
s = stroke
z =stop or dowel stop diameter

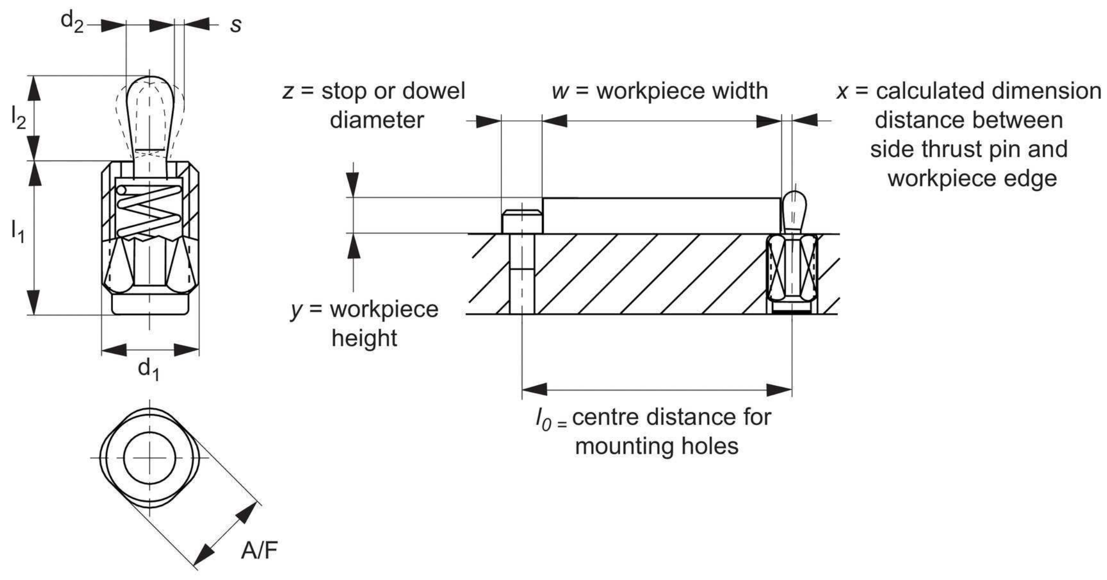
Tips

Side-thrust pins are ideal for holding, clamping and positioning parts.
Spring colour gives visual indication of spring pressure (N).
Light spring load = natural stainless spring.
Standard spring load = steel spring, blackened.
Heavy spring load = steel spring, blue galvanized.

Side-Thrust Pins - Threaded

without seal

32840



Material

Body: aluminium.
Pin: steel, case hardened and galvanized, or thermoplastic (POM) white.
Spring: steel (blackened or blue galvanized), or stainless steel.

Technical Notes

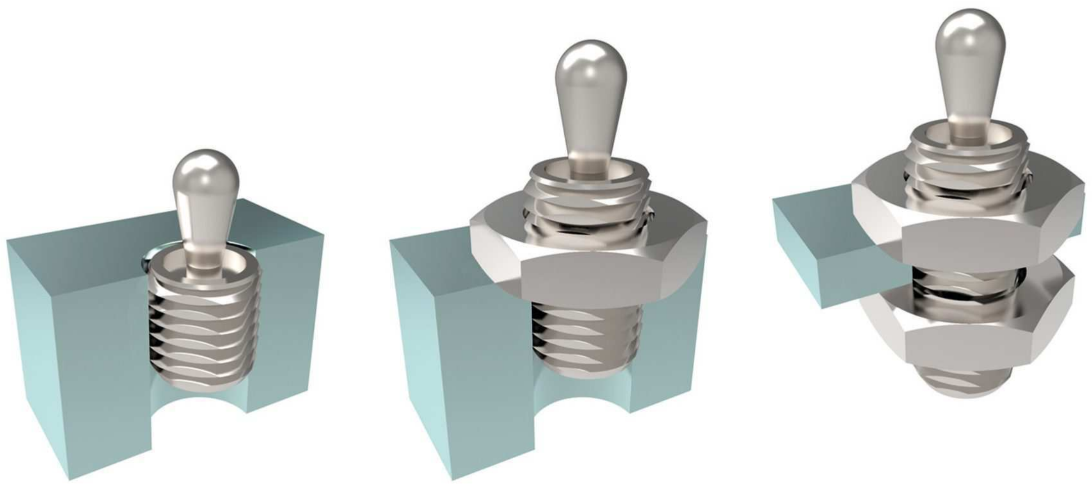
Press fit installation into hole d_1 to tol. H8, using fitting tool (order separately).
Installation calculations;
A) Calculating centre distance for mounting holes (l_0);
$l_0=(z/2)+w+x$
B) Calculating pin location (x);
When workpiece height (y) is greater than or equal to $l_2-(d_2/2)$ then (x) is calculated as; $x=(d_2/2)-s$
When workpiece height (y) is less than
$l_2-(d_2/2)$ then (x) is calculated as;
$x=(d_2/2)-s-\{[l_2-(d_2/2)-y]*0.123\}$

l_0 = centre distance for mounting holes
y = workpiece height
w = workpiece width
x = distance between side-thrust pin and workpiece edge
s = stroke
z =stop or dowel stop diameter

Tips

Side-thrust pins are ideal for holding, clamping and positioning parts.
Spring colour gives visual indication of spring pressure (N).
Light spring load = natural stainless spring.
Standard spring load = steel spring, blackened.
Heavy spring load = steel spring, blue galvanized.

Order No.	Pin material	Spring load	d_1	d_2	l_1 -2	l_2	A/F	Stroke s	Spring pressure N	Spring colour	Temp. resistance max. °C	Fitting tool 32840	g
32840.W0001	Steel pin	Light	M12	5	11,5	6,4	10	1,6	20	S/S	250	.W0820	4
32840.W0002	Steel pin	Light	M12	5	19,0	6,4	10	1,6	20	S/S	250	.W0820	6
32840.W0003	Steel pin	Light	M12	5	26,5	6,4	10	1,6	20	S/S	250	.W0820	8
32840.W0004	Steel pin	Standard	M12	5	11,5	6,4	10	1,6	50	Black	250	.W0820	4
32840.W0005	Steel pin	Standard	M12	5	19,0	6,4	10	1,6	50	Black	250	.W0820	6
32840.W0006	Steel pin	Standard	M12	5	26,5	6,4	10	1,6	50	Black	250	.W0820	8
32840.W0007	Steel pin	Heavy	M12	5	11,5	6,4	10	1,6	100	Blue	250	.W0820	4
32840.W0008	Steel pin	Heavy	M12	5	19,0	6,4	10	1,6	100	Blue	250	.W0820	7
32840.W0009	Steel pin	Heavy	M12	5	26,5	6,4	10	1,6	100	Blue	250	.W0820	9
32840.W0010	Steel pin	Light	M12	6	11,5	10,4	10	2,0	40	S/S	250	.W0820	5
32840.W0011	Steel pin	Light	M12	6	19,0	10,4	10	2,0	40	S/S	250	.W0820	6
32840.W0012	Steel pin	Light	M12	6	26,5	10,4	10	2,0	40	S/S	250	.W0820	8
32840.W0013	Steel pin	Standard	M12	6	11,5	10,4	10	2,0	75	Black	250	.W0820	5
32840.W0014	Steel pin	Standard	M12	6	19,0	10,4	10	2,0	75	Black	250	.W0820	7
32840.W0015	Steel pin	Standard	M12	6	26,5	10,4	10	2,0	75	Black	250	.W0820	10
32840.W0016	Steel pin	Heavy	M12	6	11,5	10,4	10	2,0	100	Blue	250	.W0820	5
32840.W0017	Steel pin	Heavy	M12	6	19,0	10,4	10	2,0	100	Blue	250	.W0820	8
32840.W0018	Steel pin	Heavy	M12	6	26,5	10,4	10	2,0	100	Blue	250	.W0820	10
32840.W0019	Steel pin	Light	M18x1,5	10	18,0	16,9	16	3,2	100	S/S	250	.W0822	19
32840.W0020	Steel pin	Light	M18x1,5	10	31,5	16,9	16	3,2	100	S/S	250	.W0822	28
32840.W0021	Steel pin	Light	M18x1,5	10	45,0	16,9	16	3,2	100	S/S	250	.W0822	36
32840.W0022	Steel pin	Standard	M18x1,5	10	18,0	16,9	16	3,2	150	Black	250	.W0822	20
32840.W0023	Steel pin	Standard	M18x1,5	10	31,5	16,9	16	3,2	150	Black	250	.W0822	29
32840.W0024	Steel pin	Standard	M18x1,5	10	45,0	16,9	16	3,2	150	Black	250	.W0822	39
32840.W0025	Steel pin	Heavy	M18x1,5	10	18,0	16,9	16	3,2	200	Blue	250	.W0822	21
32840.W0026	Steel pin	Heavy	M18x1,5	10	31,5	16,9	16	3,2	200	Blue	250	.W0822	30
32840.W0027	Steel pin	Heavy	M18x1,5	10	45,0	16,9	16	3,2	200	Blue	250	.W0822	40
32840.W0401	Plastic pin	Light	M12	5	11,5	6,4	10	1,6	20	S/S	80	.W0820	3
32840.W0402	Plastic pin	Light	M12	5	19,0	6,4	10	1,6	20	S/S	80	.W0820	4
32840.W0403	Plastic pin	Light	M12	5	26,5	6,4	10	1,6	20	S/S	80	.W0820	6
32840.W0410	Plastic pin	Light	M12	6	11,5	10,4	10	2,0	40	Black	80	.W0820	3
32840.W0411	Plastic pin	Light	M12	6	19,0	10,4	10	2,0	40	Black	80	.W0820	5
32840.W0412	Plastic pin	Light	M12	6	26,5	10,4	10	2,0	40	Black	80	.W0820	7
32840.W0419	Plastic pin	Light	M18x1,5	10	18,0	16,9	16	3,2	100	Blue	80	.W0822	12
32840.W0420	Plastic pin	Light	M18x1,5	10	31,5	16,9	16	3,2	100	Blue	80	.W0822	20
32840.W0421	Plastic pin	Light	M18x1,5	10	45,0	16,9	16	3,2	100	Blue	80	.W0822	30
32840.W0820	Fitting tool	-	M12	-	-	-	-	-	-	-	-	-	76
32840.W0822	Fitting tool	-	M18x1,5	-	-	-	-	-	-	-	-	-	137

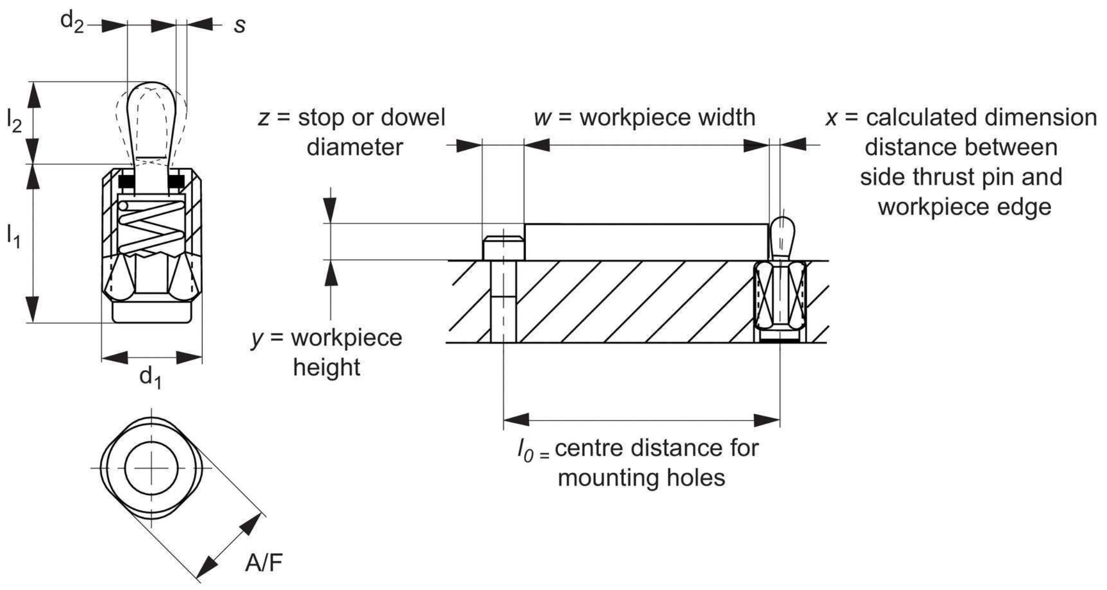


Material
Body: aluminium.
Pin: steel, case hardened and galvanized, or thermoplastic (POM) white.
Spring: steel (blackened or blue galvanized), or stainless steel.

Technical Notes
Press fit installation into hole d_1 to tol. H8, using fitting tool (order separately).
Installation calculations;
A) Calculating centre distance for mounting holes (l_0);
$l_0=(z/2)+w+x$
B) Calculating pin location (x);
When workpiece height (y) is greater than or equal to $l_2-(d_2/2)$ then (x) is calculated as; $x=(d_2/2)-s$
When workpiece height (y) is less than
$l_2-(d_2/2)$ then (x) is calculated as;
$x=(d_2/2)-s-\{[l_2-(d_2/2)-y]*0.123\}$

l_0 = centre distance for mounting holes
y = workpiece height
w = workpiece width
x = distance between side-thrust pin and workpiece edge
s = stroke
z =stop or dowel stop diameter

Tips
Side-thrust pins are ideal for holding, clamping and positioning parts.
Spring colour gives visual indication of spring pressure (N).
Light spring load = natural stainless spring.
Standard spring load = steel spring, blackened.
Heavy spring load = steel spring, blue galvanized.



Order No.	Pin material	Spring load	d_1	d_2	l_1 -2	l_2	A/F	Stroke s	Spring pressure N	Spring colour	Temp. resistance max. °C	Fitting tool 32840	g
32850.W0001	Steel pin	Light	M12	5	11,5	6	10	0,8	20	S/S	250	.W0820	4
32850.W0002	Steel pin	Light	M12	5	19,0	6	10	0,8	20	S/S	250	.W0820	6
32850.W0003	Steel pin	Light	M12	5	26,5	6	10	0,8	20	S/S	250	.W0820	8
32850.W0004	Steel pin	Standard	M12	5	11,5	6	10	0,8	50	Black	250	.W0820	4
32850.W0005	Steel pin	Standard	M12	5	19,0	6	10	0,8	50	Black	250	.W0820	6
32850.W0006	Steel pin	Standard	M12	5	26,5	6	10	0,8	50	Black	250	.W0820	8
32850.W0007	Steel pin	Heavy	M12	5	11,5	6	10	0,8	100	Blue	250	.W0820	4
32850.W0008	Steel pin	Heavy	M12	5	19,0	6	10	0,8	100	Blue	250	.W0820	7
32850.W0009	Steel pin	Heavy	M12	5	26,5	6	10	0,8	100	Blue	250	.W0820	9
32850.W0010	Steel pin	Light	M12	6	11,5	10	10	1,0	40	S/S	250	.W0820	5
32850.W0011	Steel pin	Light	M12	6	19,0	10	10	1,0	40	S/S	250	.W0820	6
32850.W0012	Steel pin	Light	M12	6	26,5	10	10	1,0	40	S/S	250	.W0820	8
32850.W0013	Steel pin	Standard	M12	6	11,5	10	10	1,0	75	Black	250	.W0820	5
32850.W0014	Steel pin	Standard	M12	6	19,0	10	10	1,0	75	Black	250	.W0820	7
32850.W0015	Steel pin	Standard	M12	6	26,5	10	10	1,0	75	Black	250	.W0820	10
32850.W0016	Steel pin	Heavy	M12	6	11,5	10	10	1,0	100	Blue	250	.W0820	5
32850.W0017	Steel pin	Heavy	M12	6	19,0	10	10	1,0	100	Blue	250	.W0820	8
32850.W0018	Steel pin	Heavy	M12	6	26,5	10	10	1,0	100	Blue	250	.W0820	10
32850.W0019	Steel pin	Light	M18x1,5	10	18,0	16	16	1,6	100	S/S	250	.W0822	19
32850.W0020	Steel pin	Light	M18x1,5	10	31,5	16	16	1,6	100	S/S	250	.W0822	28
32850.W0021	Steel pin	Light	M18x1,5	10	45,0	16	16	1,6	100	S/S	250	.W0822	36
32850.W0022	Steel pin	Standard	M18x1,5	10	18,0	16	16	1,6	150	Black	250	.W0822	20
32850.W0023	Steel pin	Standard	M18x1,5	10	31,5	16	16	1,6	150	Black	250	.W0822	29
32850.W0024	Steel pin	Standard	M18x1,5	10	45,0	16	16	1,6	150	Black	250	.W0822	39
32850.W0025	Steel pin	Heavy	M18x1,5	10	18,0	16	16	1,6	200	Blue	250	.W0822	21
32850.W0026	Steel pin	Heavy	M18x1,5	10	31,5	16	16	1,6	200	Blue	250	.W0822	30
32850.W0027	Steel pin	Heavy	M18x1,5	10	45,0	16	16	1,6	200	Blue	250	.W0822	40
32850.W0401	Plastic pin	Light	M12	5	11,5	6	10	0,8	20	S/S	80	.W0820	3
32850.W0402	Plastic pin	Light	M12	5	19,0	6	10	0,8	20	S/S	80	.W0820	4
32850.W0403	Plastic pin	Light	M12	5	26,5	6	10	0,8	20	S/S	80	.W0820	6
32850.W0410	Plastic pin	Light	M12	6	11,5	10	10	1,0	40	Black	80	.W0820	3
32850.W0411	Plastic pin	Light	M12	6	19,0	10	10	1,0	40	Black	80	.W0820	5
32850.W0412	Plastic pin	Light	M12	6	26,5	10	10	1,0	40	Black	80	.W0820	7
32850.W0419	Plastic pin	Light	M18x1,5	10	18,0	16	16	1,6	100	Blue	80	.W0822	12
32850.W0420	Plastic pin	Light	M18x1,5	10	31,5	16	16	1,6	100	Blue	80	.W0822	20
32850.W0421	Plastic pin	Light	M18x1,5	10	45,0	16	16	1,6	100	Blue	80	.W0822	30
32840.W0820	Fitting tool	-	M12	-	-	-	-	-	-	-	-	-	76
32840.W0822	Fitting tool	-	M18x1,5	-	-	-	-	-	-	-	-	-	137

Material

Body: aluminium.
Pin: steel, case hardened and galvanized, or thermoplastic (POM) white.
Spring: steel (blackened or blue galvanized), or stainless steel.
Seal: rubber (CR), 60 shore.

Technical Notes

Press fit installation into hole d_1 to tol. H8, using fitting tool (order separately).
Installation calculations;
A) Calculating centre distance for mounting holes (l_0);
$l_0=(z/2)+w+x$

B) Calculating pin location (x);

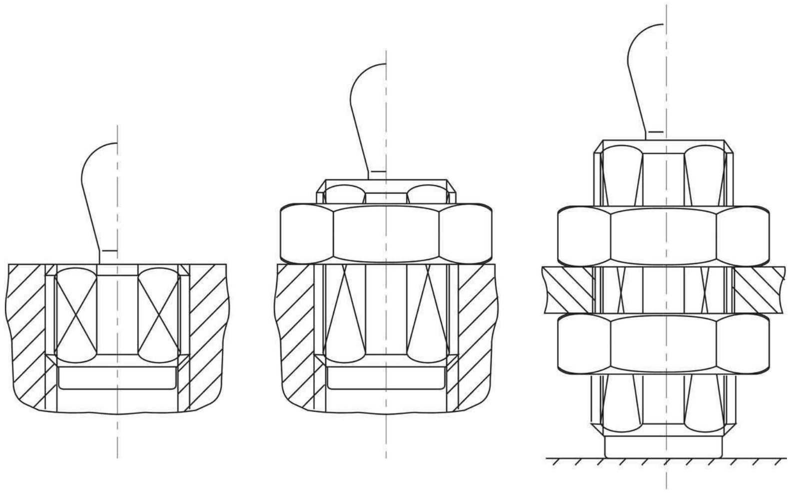
When workpiece height (y) is greater than or equal to $l_2-(d_2/2)$ then (x) is calculated as; $x=(d_2/2)-s$

When workpiece height (y) is less than
$l_2-(d_2/2)$ then (x) is calculated as; $x=(d_2/2)-s-\{[l_2-(d_2/2)-y]*0.123\}$

l_0 = centre distance for mounting holes
y = workpiece height
w = workpiece width
x = distance between side-thrust pin and workpiece edge
s = stroke
z =stop or dowel stop diameter

Tips

Side-thrust pins are ideal for holding, clamping and positioning parts.
Spring colour gives visual indication of spring pressure (N).
Light spring load = natural stainless spring.
Standard spring load = steel spring, blackened.
Heavy spring load = steel spring, blue galvanized.



Material
Body: aluminium.
Pin: steel, case hardened and galvanized, or thermoplastic (POM) white.
Spring: steel (blackened or blue galvanized), or stainless steel.
Seal: rubber (CR), 60 shore.

Technical Notes
Press fit installation into hole d_1 to tol. H8, using fitting tool (order separately).
Installation calculations;
A) Calculating centre distance for mounting holes (l_0);
$l_0=(z/2)+w+x$

B) Calculating pin location (x);

When workpiece height (y) is greater than or equal to $l_2-(d_2/2)$ then (x) is calculated as; $x=(d_2/2)-s$

When workpiece height (y) is less than
$l_2-(d_2/2)$ then (x) is calculated as;
$x=(d_2/2)-s-\{[l_2-(d_2/2)-y]*0.123\}$

l_0 = centre distance for mounting holes
y = workpiece height
w = workpiece width
x = distance between side-thrust pin and workpiece edge
s = stroke
z =stop or dowel stop diameter

Tips
Side-thrust pins are ideal for holding, clamping and positioning parts.
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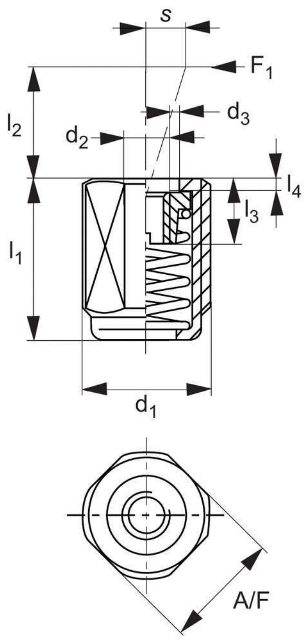
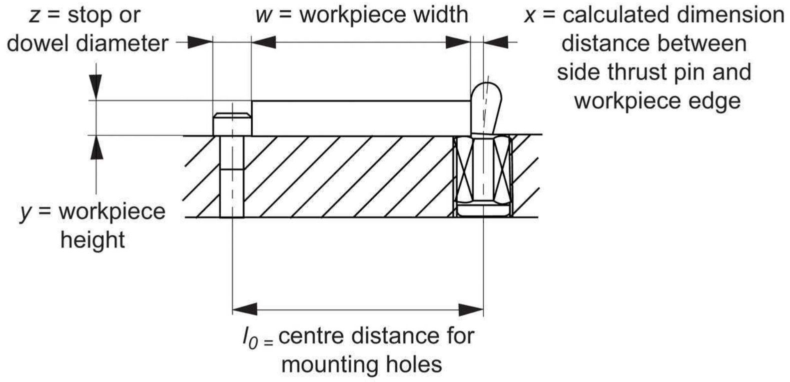
Standard spring load = steel spring, blackened.
Heavy spring load = steel spring, blue galvanized.

Side-Thrust Pins - Threaded

without seal - for use with pins of your own design

32860





Order No.	Spring load	d_1	d_2	d_3	l_1 -2	l_2	l_3	l_4	A/F	Stroke *s*	Spring pressure N	Spring colour	Temp. resistance max. °C	Fitting tool 32840	g
32860.W0001	Light	M12	M4	6,1	11,5	4,0	4,5	1,5	10	1,6	20	S/S	250	.W0820	3
32860.W0002	Light	M12	M4	6,1	19,0	4,0	4,5	1,5	10	1,6	20	S/S	250	.W0820	5
32860.W0003	Light	M12	M4	6,1	26,5	4,0	4,5	1,5	10	1,6	20	S/S	250	.W0820	7
32860.W0004	Standard	M12	M4	6,1	11,5	4,0	4,5	1,5	10	1,6	50	Black	250	.W0820	3
32860.W0005	Standard	M12	M4	6,1	19,0	4,0	4,5	1,5	10	1,6	50	Black	250	.W0820	6
32860.W0006	Standard	M12	M4	6,1	26,5	4,0	4,5	1,5	10	1,6	50	Black	250	.W0820	8
32860.W0007	Heavy	M12	M4	6,1	11,5	4,0	4,5	1,5	10	1,6	100	Blue	250	.W0820	4
32860.W0008	Heavy	M12	M4	6,1	19,0	4,0	4,5	1,5	10	1,6	100	Blue	250	.W0820	6
32860.W0009	Heavy	M12	M4	6,1	26,5	4,0	4,5	1,5	10	1,6	100	Blue	250	.W0820	8
32860.W0010	Light	M12	M4	6,1	11,5	7,5	4,5	1,5	10	2,0	40	S/S	250	.W0820	3
32860.W0011	Light	M12	M4	6,1	19,0	7,5	4,5	1,5	10	2,0	40	S/S	250	.W0820	5
32860.W0012	Light	M12	M4	6,1	26,5	7,5	4,5	1,5	10	2,0	40	S/S	250	.W0820	7
32860.W0013	Standard	M12	M4	6,1	11,5	7,5	4,5	1,5	10	2,0	75	Black	250	.W0820	3
32860.W0014	Standard	M12	M4	6,1	19,0	7,5	4,5	1,5	10	2,0	75	Black	250	.W0820	6
32860.W0015	Standard	M12	M4	6,1	26,5	7,5	4,5	1,5	10	2,0	75	Black	250	.W0820	8
32860.W0016	Heavy	M12	M4	6,1	11,5	7,5	4,5	1,5	10	2,0	100	Blue	250	.W0820	4
32860.W0017	Heavy	M12	M4	6,1	19,0	7,5	4,5	1,5	10	2,0	100	Blue	250	.W0820	6
32860.W0018	Heavy	M12	M4	6,1	26,5	7,5	4,5	1,5	10	2,0	100	Blue	250	.W0820	9
32860.W0019	Light	M18x1,5	M6	10,1	18,0	11,5	7,5	1,5	16	3,2	100	S/S	250	.W0822	15
32860.W0020	Light	M18x1,5	M6	10,1	31,5	11,5	7,5	1,5	16	3,2	100	S/S	250	.W0822	23
32860.W0021	Light	M18x1,5	M6	10,1	45,0	11,5	7,5	1,5	16	3,2	100	S/S	250	.W0822	32
32860.W0022	Standard	M18x1,5	M6	10,1	18,0	11,5	7,5	1,5	16	3,2	150	Black	250	.W0822	14
32860.W0023	Standard	M18x1,5	M6	10,1	31,5	11,5	7,5	1,5	16	3,2	150	Black	250	.W0822	23
32860.W0024	Standard	M18x1,5	M6	10,1	45,0	11,5	7,5	1,5	16	3,2	150	Black	250	.W0822	32
32860.W0025	Heavy	M18x1,5	M6	10,1	18,0	11,5	7,5	1,5	16	3,2	200	Blue	250	.W0822	14
32860.W0026	Heavy	M18x1,5	M6	10,1	31,5	11,5	7,5	1,5	16	3,2	200	Blue	250	.W0822	23
32860.W0027	Heavy	M18x1,5	M6	10,1	45,0	11,5	7,5	1,5	16	3,2	200	Blue	250	.W0822	32
32840.W0820	Fitting tool	M12	-	-	-	-	-	-	-	-	-	-	-	-	76
32840.W0822	Fitting tool	M18x1,5	-	-	-	-	-	-	-	-	-	-	-	-	137

Material

Body: aluminium.
Threaded washer: steel, blackened.
Spring: steel (blackened or blue galvanized), or stainless steel.

Technical Notes

Press fit installation into hole d_1 to tol. H8, using fitting tool (order separately).
Installation calculations;
A) Calculating centre distance for mounting holes (l_0);
$l_0=(z/2)+w+x$

B) Calculating pin location (x);

When workpiece height (y) is greater than or equal to $l_2-(d_2/2)$ then (x) is calculated as; $x=(d_2/2)-s$

When workpiece height (y) is less than
$l_2-(d_2/2)$ then (x) is calculated as;
$x=(d_2/2)-s-\{[l_2-(d_2/2)-y]*0.123\}$

l_0 = centre distance for mounting holes
y = workpiece height
w = workpiece width
x = distance between side-thrust pin and workpiece edge
s = stroke
z =stop or dowel stop diameter

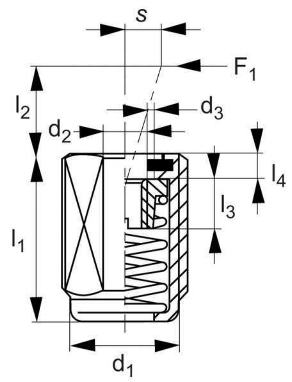
Tips

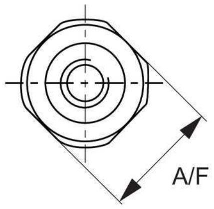
Side-thrust pins are ideal for holding, clamping and positioning parts.
Spring colour gives visual indication of spring pressure (N).
Light spring load = natural stainless spring.
Standard spring load = steel spring, blackened.
Heavy spring load = steel spring, blue galvanized.

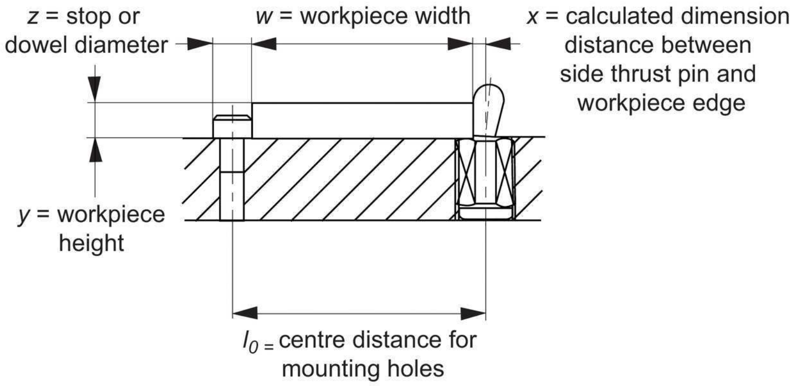
Side-Thrust Pins - Threaded

with seal - for use with pins of your own design

32860







Order No.	Spring load	d_1	d_2	d_3	l_1 -2	l_2	l_3	l_4	A/F	Stroke s	Spring pressure N	Spring colour	Temp. resistance max. °C	Fitting tool 32840	g
32860.W0401	Light	M12	M4	6,1	11,5	4,0	4,5	2,0	10	1,6	20	S/S	110	.W0820	3
32860.W0402	Light	M12	M4	6,1	19,0	4,0	4,5	2,0	10	1,6	20	S/S	110	.W0820	5
32860.W0403	Light	M12	M4	6,1	26,5	4,0	4,5	2,0	10	1,6	20	S/S	110	.W0820	7
32860.W0404	Standard	M12	M4	6,1	11,5	4,0	4,5	2,0	10	1,6	50	Black	110	.W0820	3
32860.W0405	Standard	M12	M4	6,1	19,0	4,0	4,5	2,0	10	1,6	50	Black	110	.W0820	6
32860.W0406	Standard	M12	M4	6,1	26,5	4,0	4,5	2,0	10	1,6	50	Black	110	.W0820	8
32860.W0407	Heavy	M12	M4	6,1	11,5	4,0	4,5	2,0	10	1,6	100	Blue	110	.W0820	4
32860.W0408	Heavy	M12	M4	6,1	19,0	4,0	4,5	2,0	10	1,6	100	Blue	110	.W0820	6
32860.W0409	Heavy	M12	M4	6,1	26,5	4,0	4,5	2,0	10	1,6	100	Blue	110	.W0820	8
32860.W0410	Light	M12	M4	6,1	11,5	7,5	4,5	2,0	10	2,0	40	S/S	110	.W0820	3
32860.W0411	Light	M12	M4	6,1	19,0	7,5	4,5	2,0	10	2,0	40	S/S	110	.W0820	5
32860.W0412	Light	M12	M4	6,1	26,5	7,5	4,5	2,0	10	2,0	40	S/S	110	.W0820	7
32860.W0413	Standard	M12	M4	6,1	11,5	7,5	4,5	2,0	10	2,0	75	Black	110	.W0820	3
32860.W0414	Standard	M12	M4	6,1	19,0	7,5	4,5	2,0	10	2,0	75	Black	110	.W0820	6
32860.W0415	Standard	M12	M4	6,1	26,5	7,5	4,5	2,0	10	2,0	75	Black	110	.W0820	8
32860.W0416	Heavy	M12	M4	6,1	11,5	7,5	4,5	2,0	10	2,0	100	Blue	110	.W0820	4
32860.W0417	Heavy	M12	M4	6,1	19,0	7,5	4,5	2,0	10	2,0	100	Blue	110	.W0820	6
32860.W0418	Heavy	M12	M4	6,1	26,5	7,5	4,5	2,0	10	2,0	100	Blue	110	.W0820	9
32860.W0419	Light	M18x1,5	M6	10,1	18,0	11,5	7,5	2,3	16	3,2	100	S/S	110	.W0822	15
32860.W0420	Light	M18x1,5	M6	10,1	31,5	11,5	7,5	2,3	16	3,2	100	S/S	110	.W0822	23
32860.W0421	Light	M18x1,5	M6	10,1	45,0	11,5	7,5	2,3	16	3,2	100	S/S	110	.W0822	32
32860.W0422	Standard	M18x1,5	M6	10,1	18,0	11,5	7,5	2,3	16	3,2	150	Black	110	.W0822	14
32860.W0423	Standard	M18x1,5	M6	10,1	31,5	11,5	7,5	2,3	16	3,2	150	Black	110	.W0822	23
32860.W0424	Standard	M18x1,5	M6	10,1	45,0	11,5	7,5	2,3	16	3,2	150	Black	110	.W0822	32
32860.W0425	Heavy	M18x1,5	M6	10,1	18,0	11,5	7,5	2,3	16	3,2	200	Blue	110	.W0822	14
32860.W0426	Heavy	M18x1,5	M6	10,1	31,5	11,5	7,5	2,3	16	3,2	200	Blue	110	.W0822	23
32860.W0427	Heavy	M18x1,5	M6	10,1	45,0	11,5	7,5	2,3	16	3,2	200	Blue	110	.W0822	32
32840.W0820	Fitting tool	M12	-	-	-	-	-	-	-	-	-	-	-	-	76
32840.W0822	Fitting tool	M18x1,5	-	-	-	-	-	-	-	-	-	-	-	-	137

Material

Body: aluminium.
Threaded washer: steel, blackened
Spring: steel (blackened or blue galvanized), or stainless steel.
Seal: rubber (CR), 60 shore.

Technical Notes

Press fit installation into hole d_1 to tol. H8, using fitting tool (order separately).
Installation calculations;
A) Calculating centre distance for mounting holes (l_0);
$l_0=(z/2)+w+x$

B) Calculating pin location (x);

When workpiece height (y) is greater than or equal to $l_2-(d_2/2)$ then (x) is calculated as; $x=(d_2/2)-s$

When workpiece height (y) is less than $l_2-(d_2/2)$ then (x) is calculated as; $x=(d_2/2)-s-\{[l_2-(d_2/2)-y]*0.123\}$

l_0 = centre distance for mounting holes
y = workpiece height
w = workpiece width
x = distance between side-thrust pin and workpiece edge
s = stroke
z =stop or dowel stop diameter

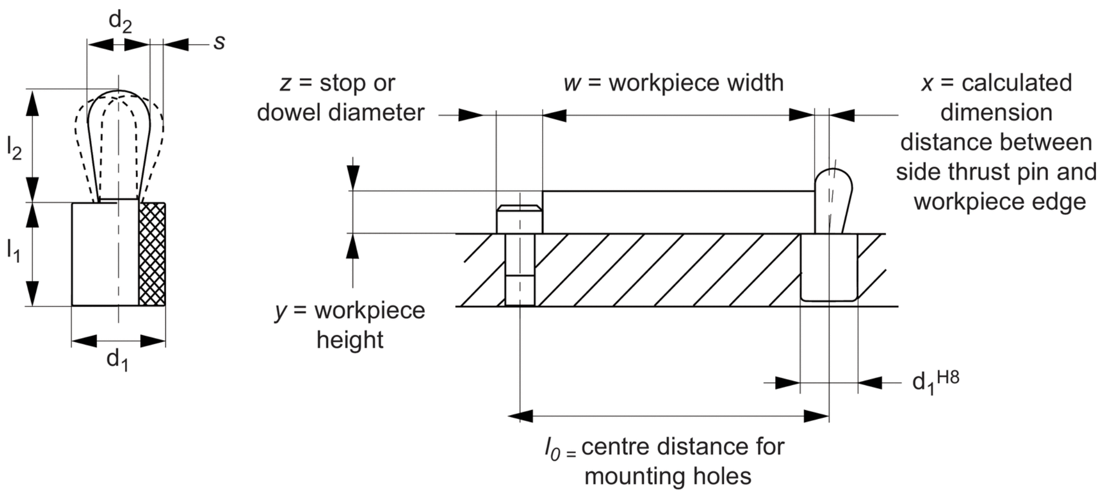
Tips

Side-thrust pins are ideal for holding, clamping and positioning parts.
Spring colour gives visual indication of spring pressure (N).
Light spring load = natural stainless spring.
Standard spring load = steel spring, blackened.
Heavy spring load = steel spring, blue galvanized.

Side-Thrust Pins

with plastic spring

32870



Order No.	Pin material	Spring load	d_1	d_2	l_1 -1	l_2 ±0,5	Location hole d_1 tol. H8	Strokes	Spring pressure N	Spring colour	Temp. resistance max. °C	Fitting tool 32870	g
32870.W0001	Steel Pin	Light	6	3	7	3,7	5,9	0,4	10	Blue	100	.W0840	1
32870.W0002	Steel Pin	Standard	6	3	7	3,7	5,9	0,4	20	Red	100	.W0840	1
32870.W0003	Steel Pin	Light	8	4	9	5,2	7,9	0,6	15	Blue	100	.W0841	1
32870.W0004	Steel Pin	Standard	8	4	9	5,2	7,9	0,6	30	Red	100	.W0841	1
32870.W0005	Steel Pin	Light	10	5	9	7,3	9,9	0,8	30	Blue	100	.W0842	2
32870.W0006	Steel Pin	Standard	10	5	9	7,3	9,9	0,8	60	Red	100	.W0842	2
32870.W0007	Steel Pin	Heavy	10	5	9	7,3	9,9	0,8	90	Green	100	.W0842	2
32870.W0008	Steel Pin	Light	10	6	9	10,3	9,9	1,0	20	Blue	100	.W0842	3
32870.W0009	Steel Pin	Standard	10	6	9	10,3	9,9	1,0	30	Red	100	.W0842	3
32870.W0010	Steel Pin	Heavy	10	6	9	10,3	9,9	1,0	60	Green	100	.W0842	3
32870.W0012	Steel Pin	Standard	12	8	13	13,3	11,6	1,2	50	Red	100	.W0843	7
32870.W0013	Steel Pin	Heavy	12	8	13	13,3	11,9	1,2	100	Green	100	.W0843	7
32870.W0014	Steel Pin	Standard	16	10	16	16,9	15,9	1,6	60	Red	100	.W0844	15
32870.W0015	Steel Pin	Heavy	16	10	16	16,9	15,9	1,6	160	Green	100	.W0844	15
32870.W0401	Plastic Pin	Light	6	3	7	3,7	5,9	0,4	10	Blue	100	.W0840	1
32870.W0402	Plastic Pin	Standard	6	3	7	3,7	5,9	0,4	20	Red	100	.W0840	1
32870.W0403	Plastic Pin	Light	8	4	9	5,2	7,9	0,6	15	Blue	100	.W0841	1
32870.W0404	Plastic Pin	Standard	8	4	9	5,2	7,9	0,6	30	Red	100	.W0841	1
32870.W0405	Plastic Pin	Light	10	5	9	7,3	9,9	0,8	30	Blue	100	.W0842	2
32870.W0406	Plastic Pin	Standard	10	5	9	7,3	9,9	0,8	60	Red	100	.W0842	2
32870.W0407	Plastic Pin	Heavy	10	5	9	7,3	9,9	0,8	90	Green	100	.W0842	2
32870.W0408	Plastic Pin	Light	10	6	9	10,3	9,9	1,0	20	Blue	100	.W0842	3
32870.W0409	Plastic Pin	Standard	10	6	9	10,3	9,9	1,0	30	Red	100	.W0842	3
32870.W0410	Plastic Pin	Heavy	10	6	9	10,3	9,9	1,0	60	Green	100	.W0842	3
32870.W0412	Plastic Pin	Standard	12	8	13	13,3	11,6	1,2	50	Red	100	.W0843	7
32870.W0413	Plastic Pin	Heavy	12	8	13	13,3	11,9	1,2	100	Green	100	.W0843	7
32870.W0414	Plastic Pin	Standard	16	10	16	16,9	15,9	1,6	60	Red	100	.W0844	15
32870.W0415	Plastic Pin	Heavy	16	10	16	16,9	15,9	1,6	160	Green	100	.W0844	15
32870.W0601	Stainless Pin	Light	6	3	7	3,7	5,9	0,4	10	Blue	100	.W0840	1
32870.W0602	Stainless Pin	Standard	6	3	7	3,7	5,9	0,4	20	Red	100	.W0840	1
32870.W0603	Stainless Pin	Light	8	4	9	5,2	7,9	0,6	15	Blue	100	.W0841	1
32870.W0604	Stainless Pin	Standard	8	4	9	5,2	7,9	0,6	30	Red	100	.W0841	1
32870.W0605	Stainless Pin	Light	10	5	9	7,3	9,9	0,8	30	Blue	100	.W0842	2
32870.W0606	Stainless Pin	Standard	10	5	9	7,3	9,9	0,8	60	Red	100	.W0842	2
32870.W0607	Stainless Pin	Heavy	10	5	9	7,3	9,9	0,8	90	Green	100	.W0842	2
32870.W0608	Stainless Pin	Light	10	6	9	10,3	9,9	1,0	20	Blue	100	.W0842	3
32870.W0609	Stainless Pin	Standard	10	6	9	10,3	9,9	1,0	30	Red	100	.W0842	3
32870.W0610	Stainless Pin	Heavy	10	6	9	10,3	9,9	1,0	60	Green	100	.W0842	3
32870.W0612	Stainless Pin	Standard	12	8	13	13,3	11,6	1,2	50	Red	100	.W0843	7
32870.W0613	Stainless Pin	Heavy	12	8	13	13,3	11,9	1,2	100	Green	100	.W0843	7
32870.W0614	Stainless Pin	Standard	16	10	16	16,9	15,9	1,6	60	Red	100	.W0844	15
32870.W0615	Stainless Pin	Heavy	16	10	16	16,9	15,9	1,6	160	Green	100	.W0844	15
32870.W0840	Fitting Tool	-	-	-	-	-	-	-	-	-	-	-	23
32870.W0841	Fitting Tool	-	-	-	-	-	-	-	-	-	-	-	47
32870.W0842	Fitting Tool	-	-	-	-	-	-	-	-	-	-	-	46
32870.W0843	Fitting Tool	-	-	-	-	-	-	-	-	-	-	-	98
32870.W0844	Fitting Tool	-	-	-	-	-	-	-	-	-	-	-	145

Material

Spring Body: plastic.
Pin: steel, case hardened and galvanized, stainless steel or thermoplastic (POM) white.

Technical Notes

Press fit installation into hole d_1 to tol. H8, using fitting tool (order separately).
Installation calculations;
A) Calculating centre distance for mounting holes (l_0);
$l_0=(z/2)+w+x$

B) Calculating pin location (x);

When workpiece height (y) is greater than or equal to $l_2-(d_2/2)$ then (x) is calculated as; $x=(d_2/2)-s$

When workpiece height (y) is less than $l_2-(d_2/2)$ then (x) is calculated as; $x=(d_2/2)-s-\{[l_2-(d_2/2)-y]*0.123\}$

l_0 = centre distance for mounting holes
y = workpiece height
w = workpiece width
x = distance between side-thrust pin and workpiece edge
s = stroke
z =stop or dowel stop diameter

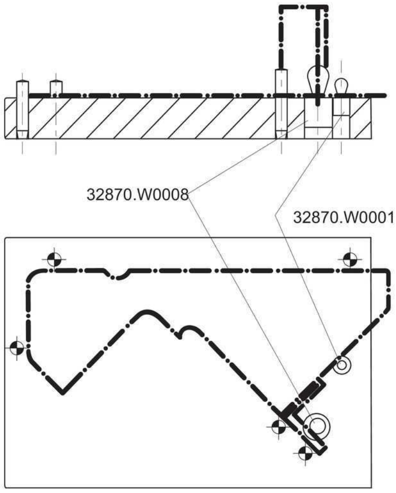
Tips

Side-thrust pins are ideal for holding, clamping and positioning parts.
Spring colour gives visual indication of spring pressure (N).
Light spring load = blue plastic.
Standard spring load = red plastic.
Heavy spring load = green plastic.

Side-Thrust Pins

with plastic spring

32870



Material

Spring Body: plastic.
Pin: steel, case hardened and galvanized, stainless steel or thermoplastic (POM) white.

Technical Notes

Press fit installation into hole d_1 to tol. H8, using fitting tool (order separately).
Installation calculations;
A) Calculating centre distance for mounting holes (l_0);
$l_0=(z/2)+w+x$

B) Calculating pin location (x);

When workpiece height (y) is greater than or equal to $l_2-(d_2/2)$ then (x) is calculated as; $x=(d_2/2)-s$

When workpiece height (y) is less than
$l_2-(d_2/2)$ then (x) is calculated as;
$x=(d_2/2)-s-\{[l_2-(d_2/2)-y]*0.123\}$

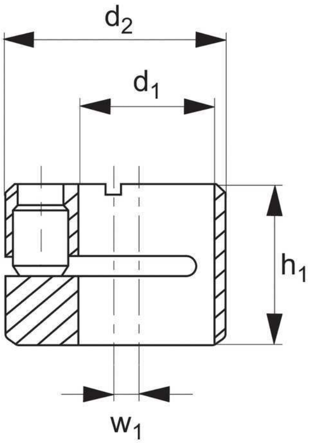
l_0 = centre distance for mounting holes
y = workpiece height
w = workpiece width
x = distance between side-thrust pin and workpiece edge
s = stroke
z =stop or dowel stop diameter

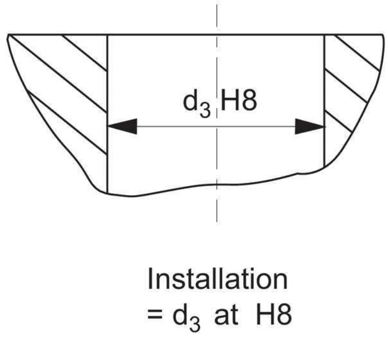
Tips

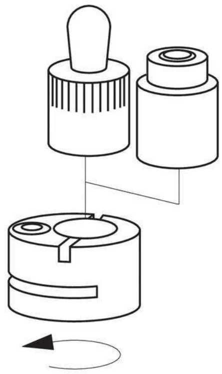
Side-thrust pins are ideal for holding, clamping and positioning parts.
Spring colour gives visual indication of spring pressure (N).
Light spring load = blue plastic.
Standard spring load = red plastic.
Heavy spring load = green plastic.

Eccentric Bushings Mounting
smooth - for lateral plungers

32900



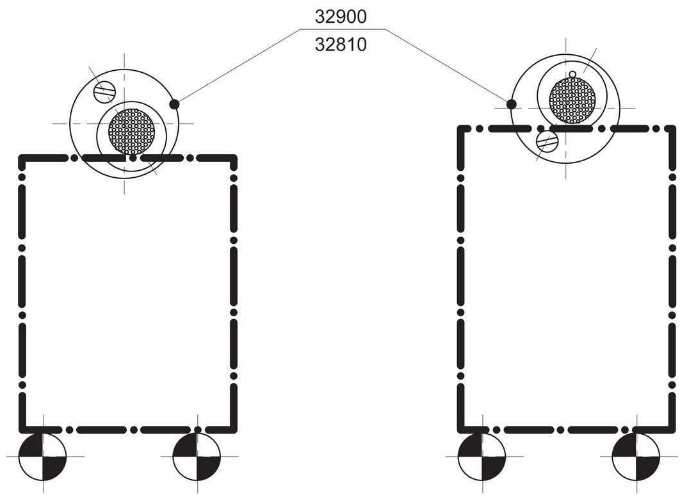




Material
Steel, blackend.

Technical Notes
The eccentric bushings are used to position side-thrust pins nos. 32810, 32820 and side-thrust roller bearing no. 32880 when workpieces have large tolerances.

Order No.	d_1 tol. H8	d_2 tol. h9	d_3 tol. H8	h_1	w_1	g
32900.W0001	6	12	12	9,9	2	6
32900.W0003	10	16	16	11,9	2	10
32900.W0004	12	18	18	13,9	2	13
32900.W0005	16	25	25	17,9	3	35

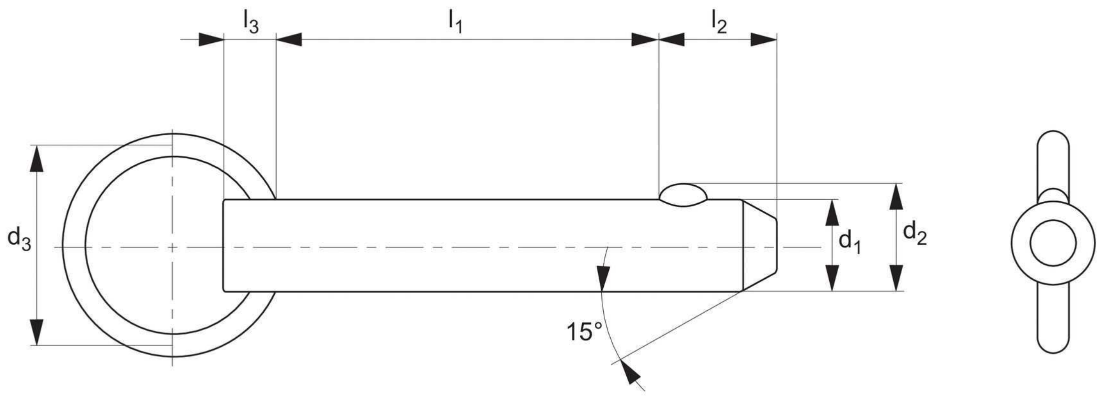


Ball Lock Pins & Quick Release Pins

Detent Pin - Ring Handle - No shoulder

steel

33010



Order No.	d_1 +0.00 -0.08	l_1 grip +1,50 -0,00	d_2	d_3	l_2	l_3	Pull out strength kg	Min. single shear strength kN
33010.W1183	4,76 (3/16")	7,62 (0,3")	5,18	25,4	5,08	4,75	1, 9 - 2, 3	10,8
33010.W1805	4,76 (3/16")	12,7 (0,5")	5,18	25,4	5,08	4,75	1, 9 - 2, 3	10,8
33010.W1810	4,76 (3/16")	25,4 (1")	5,18	25,4	5,08	4,75	1, 9 - 2, 3	10,8
33010.W1815	4,76 (3/16")	38,1 (1,5")	5,18	25,4	5,08	4,75	1, 9 - 2, 3	10,8
33010.W1820	4,76 (3/16")	50,8 (2")	5,18	25,4	5,08	4,75	1, 9 - 2, 3	10,8
33010.W1825	4,76 (3/16")	63,5 (2,5")	5,18	25,4	5,08	4,75	1, 9 - 2, 3	10,8
33010.W1830	4,76 (3/16")	76,2 (3")	5,18	25,4	5,08	4,75	1, 9 - 2, 3	10,8
33010.W1835	4,76 (3/16")	88,9 (3,5")	5,18	25,4	5,08	4,75	1, 9 - 2, 3	10,8
33010.W1840	4,76 (3/16")	101,6 (4")	5,18	25,4	5,08	4,75	1, 9 - 2, 3	10,8
33010.W2505	6,35 (1/4")	12,7 (0,5")	7,26	25,4	7,92	5,59	2,27 - 2,73	19,3
33010.W2510	6,35 (1/4")	25,4 (1")	7,26	25,4	7,92	5,59	2,27 - 2,73	19,3
33010.W2515	6,35 (1/4")	38,1 (1,5")	7,26	25,4	7,92	5,59	2,27 - 2,73	19,3
33010.W2520	6,35 (1/4")	50,8 (2")	7,26	25,4	7,92	5,59	2,27 - 2,73	19,3
33010.W2525	6,35 (1/4")	63,5 (2,5")	7,26	25,4	7,92	5,59	2,27 - 2,73	19,3
33010.W2530	6,35 (1/4")	76,2 (3")	7,26	25,4	7,92	5,59	2,27 - 2,73	19,3
33010.W2535	6,35 (1/4")	88,9 (3,5")	7,26	25,4	7,92	5,59	2,27 - 2,73	19,3
33010.W2540	6,35 (1/4")	101,6 (4")	7,26	25,4	7,92	5,59	2,27 - 2,73	19,3
33010.W3105	7,94 (5/16")	12,7 (0,5")	9,09	25,4	9,53	6,35	2,27 - 2,73	30,0
33010.W3110	7,94 (5/16")	25,4 (1")	9,09	25,4	9,53	6,35	2,27 - 2,73	30,0
33010.W3115	7,94 (5/16")	38,1 (1,5")	9,09	25,4	9,53	6,35	2,27 - 2,73	30,0
33010.W3120	7,94 (5/16")	50,8 (2")	9,09	25,4	9,53	6,35	2,27 - 2,73	30,0
33010.W3125	7,94 (5/16")	63,5 (2,5")	9,09	25,4	9,53	6,35	2,27 - 2,73	30,0
33010.W3130	7,94 (5/16")	76,2 (3")	9,09	25,4	9,53	6,35	2,27 - 2,73	30,0
33010.W3135	7,94 (5/16")	88,9 (3,5")	9,09	25,4	9,53	6,35	2,27 - 2,73	30,0
33010.W3140	7,94 (5/16")	101,6 (4")	9,09	25,4	9,53	6,35	2,27 - 2,73	30,0
33010.W3145	7,94 (5/16")	114,3 (4,5")	9,09	25,4	9,53	6,35	2,27 - 2,73	30,0
33010.W3150	7,94 (5/16")	127 (5")	9,09	25,4	9,53	6,35	2,27 - 2,73	30,0
33010.W3705	9,52 (3/8")	12,7 (0,5")	10,82	25,4	12,7	6,35	3,63 - 4,54	43,3
33010.W3710	9,52 (3/8")	25,4 (1")	10,82	25,4	12,7	6,35	3,63 - 4,54	43,3
33010.W3715	9,52 (3/8")	38,1 (1,5")	10,82	25,4	12,7	6,35	3,63 - 4,54	43,3
33010.W3720	9,52 (3/8")	50,8 (2")	10,82	25,4	12,7	6,35	3,63 - 4,54	43,3
33010.W3725	9,52 (3/8")	63,5 (2,5")	10,82	25,4	12,7	6,35	3,63 - 4,54	43,3
33010.W3730	9,52 (3/8")	76,2 (3")	10,82	25,4	12,7	6,35	3,63 - 4,54	43,3
33010.W3735	9,52 (3/8")	88,9 (3,5")	10,82	25,4	12,7	6,35	3,63 - 4,54	43,3
33010.W3740	9,52 (3/8")	101,6 (4")	10,82	25,4	12,7	6,35	3,63 - 4,54	43,3
33010.W3745	9,52 (3/8")	114,3 (4,5")	10,82	25,4	12,7	6,35	3,63 - 4,54	43,3
33010.W3750	9,52 (3/8")	127 (5")	10,82	25,4	12,7	6,35	3,63 - 4,54	43,3
33010.W3755	9,52 (3/8")	139,7 (5,5")	10,82	25,4	12,7	6,35	3,63 - 4,54	43,3
33010.W3760	9,52 (3/8")	152,4 (6")	10,82	25,4	12,7	6,35	3,63 - 4,54	43,3
33010.W4305	11,11 (7/16")	12,7 (0,5")	12,6	25,4	14,27	6,35	4,09 - 5,45	58,9
33010.W4310	11,11 (7/16")	25,4 (1")	12,6	25,4	14,27	6,35	4,09 - 5,45	58,9
33010.W4315	11,11 (7/16")	38,1 (1,5")	12,6	25,4	14,27	6,35	4,09 - 5,45	58,9
33010.W4320	11,11 (7/16")	50,8 (2")	12,6	25,4	14,27	6,35	4,09 - 5,45	58,9
33010.W4325	11,11 (7/16")	63,5 (2,5")	12,6	25,4	14,27	6,35	4,09 - 5,45	58,9
33010.W4330	11,11 (7/16")	76,2 (3")	12,6	25,4	14,27	6,35	4,09 - 5,45	58,9
33010.W4335	11,11 (7/16")	88,9 (3,5")	12,6	25,4	14,27	6,35	4,09 - 5,45	58,9
33010.W4340	11,11 (7/16")	101,6 (4")	12,6	25,4	14,27	6,35	4,09 - 5,45	58,9
33010.W4345	11,11 (7/16")	114,3 (4,5")	12,6	25,4	14,27	6,35	4,09 - 5,45	58,9

Material

Shaft: Carbon steel (C1144), zinc plated.
Ball & spring: Stainless steel AISI 316.

Technical Notes

Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
Can be used for locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins and as replacement for cotter pins where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

Tips

Also available in stainless steel see part no. 33012.

Detent Pin - Ring Handle - No shoulder

steel

33010

Order No.	d_1 +0.00 -0.08	l_1 grip +1,50 -0,00	d_2	d_3	l_2	l_3	Pull out strength kg	Min. single shear strength kN
33010.W4350	11,11 (7/16")	127 (5")	12,6	25,4	14,27	6,35	4,09 - 5,45	58,9
33010.W4355	11,11 (7/16")	139,7 (5,5")	12,6	25,4	14,27	6,35	4,09 - 5,45	58,9
33010.W4360	11,11 (7/16")	152,4 (6")	12,6	25,4	14,27	6,35	4,09 - 5,45	58,9
33010.W5005	12,70 (1/2")	12,7 (0,5")	14,48	31,75	15,88	7,92	4,54 - 5,45	77,0
33010.W5010	12,70 (1/2")	25,4 (1")	14,48	31,75	15,88	7,92	4,54 - 5,45	77,0
33010.W5015	12,70 (1/2")	38,1 (1,5")	14,48	31,75	15,88	7,92	4,54 - 5,45	77,0
33010.W5020	12,70 (1/2")	50,8 (2")	14,48	31,75	15,88	7,92	4,54 - 5,45	77,0
33010.W5025	12,70 (1/2")	63,5 (2,5")	14,48	31,75	15,88	7,92	4,54 - 5,45	77,0
33010.W5030	12,70 (1/2")	76,2 (3")	14,48	31,75	15,88	7,92	4,54 - 5,45	77,0
33010.W5035	12,70 (1/2")	88,9 (3,5")	14,48	31,75	15,88	7,92	4,54 - 5,45	77,0
33010.W5040	12,70 (1/2")	101,6 (4")	14,48	31,75	15,88	7,92	4,54 - 5,45	77,0
33010.W5045	12,70 (1/2")	114,3 (4,5")	14,48	31,75	15,88	7,92	4,54 - 5,45	77,0
33010.W5050	12,70 (1/2")	127 (5")	14,48	31,75	15,88	7,92	4,54 - 5,45	77,0
33010.W5055	12,70 (1/2")	139,7 (5,5")	14,48	31,75	15,88	7,92	4,54 - 5,45	77,0
33010.W5060	12,70 (1/2")	152,4 (6")	14,48	31,75	15,88	7,92	4,54 - 5,45	77,0
33010.W5065	12,70 (1/2")	165,1 (6,5")	14,48	31,75	15,88	7,92	4,54 - 5,45	77,0
33010.W5070	12,70 (1/2")	177,8 (7")	14,48	31,75	15,88	7,92	4,54 - 5,45	77,0
33010.W5610	14,22 (9/16")	25,4 (1")	16,31	31,75	17,45	7,92	5,45 - 6,81	97,6
33010.W5615	14,22 (9/16")	38,1 (1,5")	16,31	31,75	17,45	7,92	5,45 - 6,81	97,6
33010.W5620	14,22 (9/16")	50,8 (2")	16,31	31,75	17,45	7,92	5,45 - 6,81	97,6
33010.W5625	14,22 (9/16")	63,5 (2,5")	16,31	31,75	17,45	7,92	5,45 - 6,81	97,6
33010.W5630	14,22 (9/16")	76,2 (3")	16,31	31,75	17,45	7,92	5,45 - 6,81	97,6
33010.W5635	14,22 (9/16")	88,9 (3,5")	16,31	31,75	17,45	7,92	5,45 - 6,81	97,6
33010.W5640	14,22 (9/16")	101,6 (4")	16,31	31,75	17,45	7,92	5,45 - 6,81	97,6
33010.W5645	14,22 (9/16")	114,3 (4,5")	16,31	31,75	17,45	7,92	5,45 - 6,81	97,6
33010.W5650	14,22 (9/16")	127 (5")	16,31	31,75	17,45	7,92	5,45 - 6,81	97,6
33010.W5655	14,22 (9/16")	139,7 (5,5")	16,31	31,75	17,45	7,92	5,45 - 6,81	97,6
33010.W5660	14,22 (9/16")	152,4 (6")	16,31	31,75	17,45	7,92	5,45 - 6,81	97,6
33010.W5670	14,22 (9/16")	177,8 (7")	16,31	31,75	17,45	7,92	5,45 - 6,81	97,6
33010.W6210	15,88 (5/8")	25,4 (1")	18,03	31,75	19,05	9,53	6,36 - 7,26	121,6
33010.W6215	15,88 (5/8")	38,1 (1,5")	18,03	31,75	19,05	9,53	6,36 - 7,26	121,6
33010.W6220	15,88 (5/8")	50,8 (2")	18,03	31,75	19,05	9,53	6,36 - 7,26	121,6
33010.W6225	15,88 (5/8")	63,5 (2,5")	18,03	31,75	19,05	9,53	6,36 - 7,26	121,6
33010.W6230	15,88 (5/8")	76,2 (3")	18,03	31,75	19,05	9,53	6,36 - 7,26	121,6
33010.W6235	15,88 (5/8")	88,9 (3,5")	18,03	31,75	19,05	9,53	6,36 - 7,26	121,6
33010.W6240	15,88 (5/8")	101,6 (4")	18,03	31,75	19,05	9,53	6,36 - 7,26	121,6
33010.W6245	15,88 (5/8")	114,3 (4,5")	18,03	31,75	19,05	9,53	6,36 - 7,26	121,6
33010.W6250	15,88 (5/8")	127 (5")	18,03	31,75	19,05	9,53	6,36 - 7,26	121,6
33010.W6255	15,88 (5/8")	139,7 (5,5")	18,03	31,75	19,05	9,53	6,36 - 7,26	121,6
33010.W6260	15,88 (5/8")	152,4 (6")	18,03	31,75	19,05	9,53	6,36 - 7,26	121,6
33010.W6265	15,88 (5/8")	165,1 (6,5")	18,03	31,75	19,05	9,53	6,36 - 7,26	121,6
33010.W6270	15,88 (5/8")	177,8 (7")	18,03	31,75	19,05	9,53	6,36 - 7,26	121,6
33010.W6280	15,88 (5/8")	203,2 (8")	18,03	31,75	19,05	9,53	6,36 - 7,26	121,6
33010.W7510	19,05 (3/4")	25,4 (1")	21,74	38,1	23,8	9,53	8,17 - 9,98	173,6
33010.W7515	19,05 (3/4")	38,1 (1,5")	21,74	38,1	23,8	9,53	8,17 - 9,98	173,6
33010.W7520	19,05 (3/4")	50,8 (2")	21,74	38,1	23,8	9,53	8,17 - 9,98	173,6
33010.W7525	19,05 (3/4")	63,5 (2,5")	21,74	38,1	23,8	9,53	8,17 - 9,98	173,6
33010.W7530	19,05 (3/4")	76,2 (3")	21,74	38,1	23,8	9,53	8,17 - 9,98	173,6
33010.W7535	19,05 (3/4")	88,9 (3,5")	21,74	38,1	23,8	9,53	8,17 - 9,98	173,6
33010.W7540	19,05 (3/4")	101,6 (4")	21,74	38,1	23,8	9,53	8,17 - 9,98	173,6
33010.W7545	19,05 (3/4")	114,3 (4,5")	21,74	38,1	23,8	9,53	8,17 - 9,98	173,6
33010.W7550	19,05 (3/4")	127 (5")	21,74	38,1	23,8	9,53	8,17 - 9,98	173,6
33010.W7555	19,05 (3/4")	139,7 (5,5")	21,74	38,1	23,8	9,53	8,17 - 9,98	173,6
33010.W7560	19,05 (3/4")	152,4 (6")	21,74	38,1	23,8	9,53	8,17 - 9,98	173,6
33010.W7570	19,05 (3/4")	177,8 (7")	21,74	38,1	23,8	9,53	8,17 - 9,98	173,6
33010.W7580	19,05 (3/4")	203,2 (8")	21,74	38,1	23,8	9,53	8,17 - 9,98	173,6
33010.W8810	22,23 (7/8")	25,4 (1")	25,3	38,1	25,4	12,7	12,71 - 14,07	239,4
33010.W8815	22,23 (7/8")	38,1 (1,5")	25,3	38,1	25,4	12,7	12,71 - 14,07	239,4
33010.W8820	22,23 (7/8")	50,8 (2")	25,3	38,1	25,4	12,7	12,71 - 14,07	239,4
33010.W8825	22,23 (7/8")	63,5 (2,5")	25,3	38,1	25,4	12,7	12,71 - 14,07	239,4
33010.W8830	22,23 (7/8")	76,2 (3")	25,3	38,1	25,4	12,7	12,71 - 14,07	239,4
33010.W8835	22,23 (7/8")	88,9 (3,5")	25,3	38,1	25,4	12,7	12,71 - 14,07	239,4
33010.W8840	22,23 (7/8")	101,6 (4")	25,3	38,1	25,4	12,7	12,71 - 14,07	239,4

Material

Shaft: Carbon steel (C1144), zinc plated.
Ball & spring: Stainless steel AISI 316.

Technical Notes

Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
Can be used for locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins and as replacement for cotter pins where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

Tips

Also available in stainless steel see part no. 33012.

Detent Pin - Ring Handle - No shoulder

steel

33010

Order No.	d_1 +0.00 -0.08	l_1 grip +1,50 -0,00	d_2	d_3	l_2	l_3	Pull out strength kg	Min. single shear strength kN
33010.W8845	22,23 (7/8")	114,3 (4,5")	25,3	38,1	25,4	12,7	12,71 - 14,07	239,4
33010.W8850	22,23 (7/8")	127 (5")	25,3	38,1	25,4	12,7	12,71 - 14,07	239,4
33010.W8855	22,23 (7/8")	139,7 (5,5")	25,3	38,1	25,4	12,7	12,71 - 14,07	239,4
33010.W8860	22,23 (7/8")	152,4 (6")	25,3	38,1	25,4	12,7	12,71 - 14,07	239,4
33010.W8865	22,23 (7/8")	165,1 (6,5")	25,3	38,1	25,4	12,7	12,71 - 14,07	239,4
33010.W8870	22,23 (7/8")	177,8 (7")	25,3	38,1	25,4	12,7	12,71 - 14,07	239,4
33010.W8880	22,23 (7/8")	203,2 (8")	25,3	38,1	25,4	12,7	12,71 - 14,07	239,4
33010.W1010	25,4 (1")	25,4 (1")	28,96	38,1	31,75	12,7	15,88 - 18,15	312,3
33010.W1015	25,4 (1")	38,1 (1,5")	28,96	38,1	31,75	12,7	15,88 - 18,15	312,3
33010.W1020	25,4 (1")	50,8 (2")	28,96	38,1	31,75	12,7	15,88 - 18,15	312,3
33010.W1025	25,4 (1")	63,5 (2,5")	28,96	38,1	31,75	12,7	15,88 - 18,15	312,3
33010.W1030	25,4 (1")	76,2 (3")	28,96	38,1	31,75	12,7	15,88 - 18,15	312,3
33010.W1035	25,4 (1")	88,9 (3,5")	28,96	38,1	31,75	12,7	15,88 - 18,15	312,3
33010.W1040	25,4 (1")	101,6 (4")	28,96	38,1	31,75	12,7	15,88 - 18,15	312,3
33010.W1045	25,4 (1")	114,3 (4,5")	28,96	38,1	31,75	12,7	15,88 - 18,15	312,3
33010.W1050	25,4 (1")	127 (5")	28,96	38,1	31,75	12,7	15,88 - 18,15	312,3
33010.W1055	25,4 (1")	139,7 (5,5")	28,96	38,1	31,75	12,7	15,88 - 18,15	312,3
33010.W1060	25,4 (1")	152,4 (6")	28,96	38,1	31,75	12,7	15,88 - 18,15	312,3
33010.W1070	25,4 (1")	177,8 (7")	28,96	38,1	31,75	12,7	15,88 - 18,15	312,3
33010.W1080	25,4 (1")	203,2 (8")	28,96	38,1	31,75	12,7	15,88 - 18,15	312,3

Material

Shaft: Carbon steel (C1144), zinc plated.
Ball & spring: Stainless steel AISI 316.

Technical Notes

Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
Can be used for locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins and as replacement for cotter pins where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

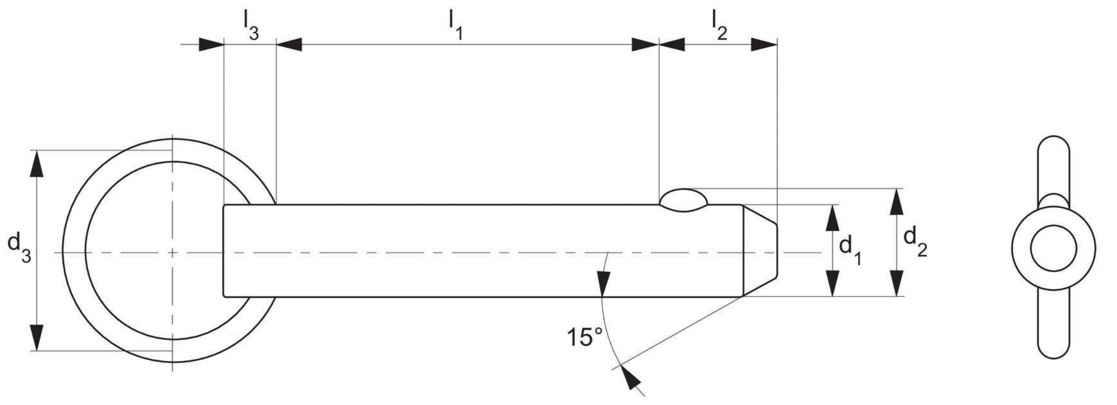
Tips

Also available in stainless steel see part no. 33012.

Detent Pin - Ring Handle - No shoulder

stainless steel

33012



Order No.	d1 +0,00-0,08	d2	d3	l1 grip +1,5-0,00	l2	l3	Pull out strength kg	Min. single shear strength kN.
33012.W1803	4,76 (3/16")	5,18	25,4	7,62 (0,3")	5,08	4,74	1,9 - 2,3	12,2
33012.W1805	4,76 (3/16")	5,18	25,4	12,7 (0,5")	5,08	4,74	1,9 - 2,3	12,2
33012.W1810	4,76 (3/16")	5,18	25,4	25,4 (1,0")	5,08	4,74	1,9 - 2,3	12,2
33012.W1815	4,76 (3/16")	5,18	25,4	38,1 (1,5")	5,08	4,74	1,9 - 2,3	12,2
33012.W1820	4,76 (3/16")	5,18	25,4	50,8 (2,0")	5,08	4,74	1,9 - 2,3	12,2
33012.W1825	4,76 (3/16")	5,18	25,4	63,5 (2,5")	5,08	4,74	1,9 - 2,3	12,2
33012.W1830	4,76 (3/16")	5,18	25,4	76,2 (3,0")	5,08	4,74	1,9 - 2,3	12,2
33012.W1835	4,76 (3/16")	5,18	25,4	88,9 (3,5")	5,08	4,74	1,9 - 2,3	12,2
33012.W1840	4,76 (3/16")	5,18	25,4	101,6 (4,0")	5,08	4,74	1,9 - 2,3	12,2
33012.W2505	6,35 (1/4")	7,26	25,4	12,7 (0,5")	7,92	5,58	2,27 - 2,73	21,7
33012.W2510	6,35 (1/4")	7,26	25,4	25,4 (1,0")	7,92	5,58	2,27 - 2,73	21,7
33012.W2515	6,35 (1/4")	7,26	25,4	38,1 (1,5")	7,92	5,58	2,27 - 2,73	21,7
33012.W2520	6,35 (1/4")	7,26	25,4	50,8 (2,0")	7,92	5,58	2,27 - 2,73	21,7
33012.W2525	6,35 (1/4")	7,26	25,4	63,5 (2,5")	7,92	5,58	2,27 - 2,73	21,7
33012.W2530	6,35 (1/4")	7,26	25,4	76,2 (3,0")	7,92	5,58	2,27 - 2,73	21,7
33012.W2535	6,35 (1/4")	7,26	25,4	88,9 (3,5")	7,92	5,58	2,27 - 2,73	21,7
33012.W2540	6,35 (1/4")	7,26	25,4	101,6 (4,0")	7,92	5,58	2,27 - 2,73	21,7
33012.W3105	7,93 (5/16")	9,09	25,4	12,7 (0,5")	9,52	6,35	2,27 - 2,73	33,8
33012.W3110	7,93 (5/16")	9,09	25,4	25,4 (1,0")	9,52	6,35	2,27 - 2,73	33,8
33012.W3115	7,93 (5/16")	9,09	25,4	38,1 (1,5")	9,52	6,35	2,27 - 2,73	33,8
33012.W3120	7,93 (5/16")	9,09	25,4	50,8 (2,0")	9,52	6,35	2,27 - 2,73	33,8
33012.W3125	7,93 (5/16")	9,09	25,4	63,5 (2,5")	9,52	6,35	2,27 - 2,73	33,8
33012.W3130	7,93 (5/16")	9,09	25,4	76,2 (3,0")	9,52	6,35	2,27 - 2,73	33,8
33012.W3135	7,93 (5/16")	9,09	25,4	88,9 (3,5")	9,52	6,35	2,27 - 2,73	33,8
33012.W3140	7,93 (5/16")	9,09	25,4	101,6 (4,0")	9,52	6,35	2,27 - 2,73	33,8
33012.W3145	7,93 (5/16")	9,09	25,4	114,3 (4,5")	9,52	6,35	2,27 - 2,73	33,8
33012.W3150	7,93 (5/16")	9,09	25,4	127,0 (5,0")	9,52	6,35	2,27 - 2,73	33,8
33012.W3705	9,52 (3/8")	10,8	25,4	12,7 (0,5")	12,7	6,35	3,63 - 4,54	49,1
33012.W3710	9,52 (3/8")	10,8	25,4	25,4 (1,0")	12,7	6,35	3,63 - 4,54	49,1
33012.W3715	9,52 (3/8")	10,8	25,4	38,1 (1,5")	12,7	6,35	3,63 - 4,54	49,1
33012.W3720	9,52 (3/8")	10,8	25,4	50,8 (2,0")	12,7	6,35	3,63 - 4,54	49,1
33012.W3725	9,52 (3/8")	10,8	25,4	63,5 (2,5")	12,7	6,35	3,63 - 4,54	49,1
33012.W3730	9,52 (3/8")	10,8	25,4	76,2 (3,0")	12,7	6,35	3,63 - 4,54	49,1
33012.W3735	9,52 (3/8")	10,8	25,4	88,9 (3,5")	12,7	6,35	3,63 - 4,54	49,1
33012.W3740	9,52 (3/8")	10,8	25,4	101,6 (4,0")	12,7	6,35	3,63 - 4,54	49,1
33012.W3745	9,52 (3/8")	10,8	25,4	114,3 (4,5")	12,7	6,35	3,63 - 4,54	49,1
33012.W3750	9,52 (3/8")	10,8	25,4	127,0 (5,0")	12,7	6,35	3,63 - 4,54	49,1
33012.W3755	9,52 (3/8")	10,8	25,4	139,7 (5,5")	12,7	6,35	3,63 - 4,54	49,1
33012.W3760	9,52 (3/8")	10,8	25,4	152,4 (6")	12,7	6,35	3,63 - 4,54	49,1
33012.W4305	11,1 (7/16")	12,5	25,4	12,7 (0,5")	14,2	6,35	4,09 - 5,45	66,5
33012.W4310	11,1 (7/16")	12,5	25,4	25,4 (1,0")	14,2	6,35	4,09 - 5,45	66,5
33012.W4315	11,1 (7/16")	12,5	25,4	38,1 (1,5")	14,2	6,35	4,09 - 5,45	66,5
33012.W4320	11,1 (7/16")	12,5	25,4	50,8 (2,0")	14,2	6,35	4,09 - 5,45	66,5
33012.W4325	11,1 (7/16")	12,5	25,4	63,5 (2,5")	14,2	6,35	4,09 - 5,45	66,5
33012.W4330	11,1 (7/16")	12,5	25,4	76,2 (3,0")	14,2	6,35	4,09 - 5,45	66,5
33012.W4335	11,1 (7/16")	12,5	25,4	88,9 (3,5")	14,2	6,35	4,09 - 5,45	66,5
33012.W4340	11,1 (7/16")	12,5	25,4	101,6 (4,0")	14,2	6,35	4,09 - 5,45	66,5
33012.W4345	11,1 (7/16")	12,5	25,4	114,3 (4,5")	14,2	6,35	4,09 - 5,45	66,5
33012.W4350	11,1 (7/16")	12,5	25,4	127,0 (5,0")	14,2	6,35	4,09 - 5,45	66,5
33012.W4355	11,1 (7/16")	12,5	25,4	139,7 (5,5")	14,2	6,35	4,09 - 5,45	66,5
33012.W4360	11,1 (7/16")	12,5	25,4	152,4 (6")	14,2	6,35	4,09 - 5,45	66,5
33012.W5005	12,7 (1/2")	14,4	31,7	12,7 (0,5")	15,8	7,92	4,54 - 5,45	87,1
33012.W5010	12,7 (1/2")	14,4	31,7	25,4 (1,0")	15,8	7,92	4,54 - 5,45	87,1

Material

Shaft: Stainless steel, AISI 303.
Ball & Spring: Stainless steel, AISI 316.

Technical Notes

Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
For locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins etc where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

Tips

Also available on request in A4 (AISI 316) stainless steel, subject to min. quantity.

Referral

Also available in steel, see part no. 33010.

Detent Pin - Ring Handle - No shoulder

stainless steel

33012

Order No.	d_1 +0,00-0,08	d_2	d_3	l_1 grip$_{+1,5-0,00}$	l_2	l_3	Pull out strength kg	Min. single shear strength kN.
33012.W5015	12,7 (1/2")	14,4	31,7	38,1 (1,5")	15,8	7,92	4,54 - 5,45	87,1
33012.W5020	12,7 (1/2")	14,4	31,7	50,8 (2,0")	15,8	7,92	4,54 - 5,45	87,1
33012.W5025	12,7 (1/2")	14,4	31,7	63,5 (2,5")	15,8	7,92	4,54 - 5,45	87,1
33012.W5030	12,7 (1/2")	14,4	31,7	76,2 (3,0")	15,8	7,92	4,54 - 5,45	87,1
33012.W5035	12,7 (1/2")	14,4	31,7	88,9 (3,5")	15,8	7,92	4,54 - 5,45	87,1
33012.W5040	12,7 (1/2")	14,4	31,7	101,6 (4,0")	15,8	7,92	4,54 - 5,45	87,1
33012.W5045	12,7 (1/2")	14,4	31,7	114,3 (4,5")	15,8	7,92	4,54 - 5,45	87,1
33012.W5050	12,7 (1/2")	14,4	31,7	127,0 (5,0")	15,8	7,92	4,54 - 5,45	87,1
33012.W5055	12,7 (1/2")	14,4	31,7	139,7 (5,5")	15,8	7,92	4,54 - 5,45	87,1
33012.W5060	12,7 (1/2")	14,4	31,7	152,4 (6")	15,8	7,92	4,54 - 5,45	87,1
33012.W5065	12,7 (1/2")	14,4	31,7	165,1 (6,5")	15,8	7,92	4,54 - 5,45	87,1
33012.W5070	12,7 (1/2")	14,4	31,7	177,8 (7,0")	15,8	7,92	4,54 - 5,45	87,1
33012.W5610	14,2 (9/16")	16,3	31,7	25,4 (1,0")	17,4	7,92	5,45 - 6,81	110,3
33012.W5615	14,2 (9/16")	16,3	31,7	38,1 (1,5")	17,4	7,92	5,45 - 6,81	110,3
33012.W5620	14,2 (9/16")	16,3	31,7	50,8 (2,0")	17,4	7,92	5,45 - 6,81	110,3
33012.W5625	14,2 (9/16")	16,3	31,7	63,5 (2,5")	17,4	7,92	5,45 - 6,81	110,3
33012.W5630	14,2 (9/16")	16,3	31,7	76,2 (3,0")	17,4	7,92	5,45 - 6,81	110,3
33012.W5635	14,2 (9/16")	16,3	31,7	88,9 (3,5")	17,4	7,92	5,45 - 6,81	110,3
33012.W5640	14,2 (9/16")	16,3	31,7	101,6 (4,0")	17,4	7,92	5,45 - 6,81	110,3
33012.W5645	14,2 (9/16")	16,3	31,7	114,3 (4,5")	17,4	7,92	5,45 - 6,81	110,3
33012.W5650	14,2 (9/16")	16,3	31,7	127,0 (5,0")	17,4	7,92	5,45 - 6,81	110,3
33012.W5655	14,2 (9/16")	16,3	31,7	139,7 (5,5")	17,4	7,92	5,45 - 6,81	110,3
33012.W5660	14,2 (9/16")	16,3	31,7	152,4 (6,0")	17,4	7,92	5,45 - 6,81	110,3
33012.W5670	14,2 (9/16")	16,3	31,7	177,8 (7,0")	17,4	7,92	5,45 - 6,81	110,3
33012.W6210	15,8 (5/8")	18,0	31,7	25,4 (1,0")	19,0	9,52	6,36 - 7,26	137,3
33012.W6215	15,8 (5/8")	18,0	31,7	38,1 (1,5")	19,0	9,52	6,36 - 7,26	137,3
33012.W6220	15,8 (5/8")	18,0	31,7	50,8 (2,0")	19,0	9,52	6,36 - 7,26	137,3
33012.W6225	15,8 (5/8")	18,0	31,7	63,5 (2,5")	19,0	9,52	6,36 - 7,26	137,3
33012.W6230	15,8 (5/8")	18,0	31,7	76,2 (3,0")	19,0	9,52	6,36 - 7,26	137,3
33012.W6235	15,8 (5/8")	18,0	31,7	88,9 (3,5")	19,0	9,52	6,36 - 7,26	137,3
33012.W6240	15,8 (5/8")	18,0	31,7	101,6 (4,0")	19,0	9,52	6,36 - 7,26	137,3
33012.W6245	15,8 (5/8")	18,0	31,7	114,3 (4,5")	19,0	9,52	6,36 - 7,26	137,3
33012.W6250	15,8 (5/8")	18,0	31,7	127,0 (5,0")	19,0	9,52	6,36 - 7,26	137,3
33012.W6255	15,8 (5/8")	18,0	31,7	139,7 (5,5")	19,0	9,52	6,36 - 7,26	137,3
33012.W6260	15,8 (5/8")	18,0	31,7	152,4 (6,0")	19,0	9,52	6,36 - 7,26	137,3
33012.W6265	15,8 (5/8")	18,0	31,7	165,1 (6,5")	19,0	9,52	6,36 - 7,26	137,3
33012.W6270	15,8 (5/8")	18,0	31,7	177,8 (7,0")	19,0	9,52	6,36 - 7,26	137,3
33012.W6280	15,8 (5/8")	18,0	31,7	203,2 (8,0")	19,0	9,52	6,36 - 7,26	137,3
33012.W7510	19,0 (3/4")	21,7	38,1	25,4 (1,0")	23,7	9,52	8,17 - 9,98	195,9
33012.W7515	19,0 (3/4")	21,7	38,1	38,1 (1,5")	23,7	9,52	8,17 - 9,98	195,9
33012.W7520	19,0 (3/4")	21,7	38,1	50,8 (2,0")	23,7	9,52	8,17 - 9,98	195,9
33012.W7525	19,0 (3/4")	21,7	38,1	63,5 (2,5")	23,7	9,52	8,17 - 9,98	195,9
33012.W7530	19,0 (3/4")	21,7	38,1	76,2 (3,0")	23,7	9,52	8,17 - 9,98	195,9
33012.W7535	19,0 (3/4")	21,7	38,1	88,9 (3,5")	23,7	9,52	8,17 - 9,98	195,9
33012.W7540	19,0 (3/4")	21,7	38,1	101,6 (4,0")	23,7	9,52	8,17 - 9,98	195,9
33012.W7545	19,0 (3/4")	21,7	38,1	114,3 (4,5")	23,7	9,52	8,17 - 9,98	195,9
33012.W7550	19,0 (3/4")	21,7	38,1	127,0 (5,0")	23,7	9,52	8,17 - 9,98	195,9
33012.W7555	19,0 (3/4")	21,7	38,1	139,7 (5,5")	23,7	9,52	8,17 - 9,98	195,9
33012.W7560	19,0 (3/4")	21,7	38,1	152,4 (6,0")	23,7	9,52	8,17 - 9,98	195,9
33012.W7570	19,0 (3/4")	21,7	38,1	177,8 (7,0")	23,7	9,52	8,17 - 9,98	195,9
33012.W7580	19,0 (3/4")	21,7	38,1	203,2 (8,0")	23,7	9,52	8,17 - 9,98	195,9
33012.W8810	22,2 (7/8")	25,2	38,1	25,4 (1,0")	25,4	12,7	12,71 - 14,07	262,4
33012.W8815	22,2 (7/8")	25,2	38,1	38,1 (1,5")	25,4	12,7	12,71 - 14,07	262,4
33012.W8820	22,2 (7/8")	25,2	38,1	50,8 (2,0")	25,4	12,7	12,71 - 14,07	262,4
33012.W8825	22,2 (7/8")	25,2	38,1	63,5 (2,5")	25,4	12,7	12,71 - 14,07	262,4
33012.W8830	22,2 (7/8")	25,2	38,1	76,2 (3,0")	25,4	12,7	12,71 - 14,07	262,4
33012.W8835	22,2 (7/8")	25,2	38,1	88,9 (3,5")	25,4	12,7	12,71 - 14,07	262,4
33012.W8840	22,2 (7/8")	25,2	38,1	101,6 (4,0")	25,4	12,7	12,71 - 14,07	262,4
33012.W8845	22,2 (7/8")	25,2	38,1	114,3 (4,5")	25,4	12,7	12,71 - 14,07	262,4
33012.W8850	22,2 (7/8")	25,2	38,1	127,0 (5,0")	25,4	12,7	12,71 - 14,07	262,4
33012.W8855	22,2 (7/8")	25,2	38,1	139,7 (5,5")	25,4	12,7	12,71 - 14,07	262,4
33012.W8860	22,2 (7/8")	25,2	38,1	152,4 (6,0")	25,4	12,7	12,71 - 14,07	262,4
33012.W8865	22,2 (7/8")	25,2	38,1	165,1 (6,5")	25,4	12,7	12,71 - 14,07	262,4
33012.W8870	22,2 (7/8")	25,2	38,1	177,8 (7,0")	25,4	12,7	12,71 - 14,07	262,4
33012.W8880	22,2 (7/8")	25,2	38,1	203,2 (8,0")	25,4	12,7	12,71 - 14,07	262,4
33012.W1010	25,4 (1,0")	28,9	38,1	25,4 (1,0")	31,7	12,7	15,88 - 18,15	353,0
33012.W1015	25,4 (1,0")	28,9	38,1	38,1 (1,5")	31,7	12,7	15,88 - 18,15	353,0
33012.W1020	25,4 (1,0")	28,9	38,1	50,8 (2,0")	31,7	12,7	15,88 - 18,15	353,0
33012.W1025	25,4 (1,0")	28,9	38,1	63,5 (2,5")	31,7	12,7	15,88 - 18,15	353,0

Material

Shaft: Stainless steel, AISI 303.
Ball & Spring: Stainless steel, AISI 316.

Technical Notes

Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
For locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins etc where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

Tips

Also available on request in A4 (AISI 316) stainless steel, subject to min. quantity.

Referral

Also available in steel, see part no. 33010.

Detent Pin - Ring Handle - No shoulder

stainless steel

33012

Order No.	d_1 +0,00-0,08	d_2	d_3	l_1 grip$_{+1,5-0,00}$	l_2	l_3	Pull out strength kg	Min. single shear strength kN.
33012.W1030	25,4 (1,0")	28,9	38,1	76,2 (3,0")	31,7	12,7	15,88 - 18,15	353,0
33012.W1035	25,4 (1,0")	28,9	38,1	88,9 (3,5")	31,7	12,7	15,88 - 18,15	353,0
33012.W1040	25,4 (1,0")	28,9	38,1	101,6 (4,0")	31,7	12,7	15,88 - 18,15	353,0
33012.W1045	25,4 (1,0")	28,9	38,1	114,3 (4,5")	31,7	12,7	15,88 - 18,15	353,0
33012.W1050	25,4 (1,0")	28,9	38,1	127,0 (5,0")	31,7	12,7	15,88 - 18,15	353,0
33012.W1055	25,4 (1,0")	28,9	38,1	139,7 (5,5")	31,7	12,7	15,88 - 18,15	353,0
33012.W1060	25,4 (1,0")	28,9	38,1	152,4 (6,0")	31,7	12,7	15,88 - 18,15	353,0
33012.W1070	25,4 (1,0")	28,9	38,1	177,8 (7,0")	31,7	12,7	15,88 - 18,15	353,0
33012.W1080	25,4 (1,0")	28,9	38,1	203,2 (8,0")	31,7	12,7	15,88 - 18,15	353,0

Material

Shaft: Stainless steel, AISI 303.
Ball & Spring: Stainless steel, AISI 316.

Technical Notes

Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
For locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins etc where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

Tips

Also available on request in A4 (AISI 316) stainless steel, subject to min. quantity.

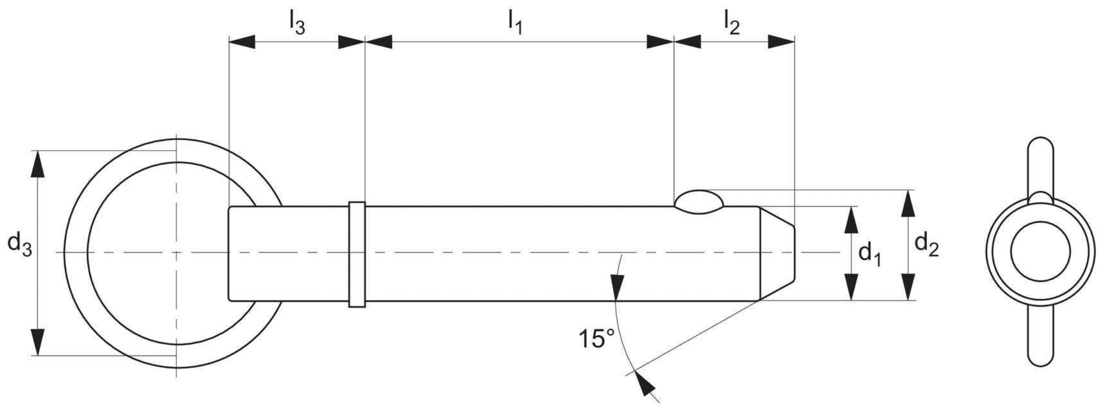
Referral

Also available in steel, see part no. 33010.

Detent Pin - Ring Handle - Shoulder

steel

33014



Order No.	d_1 +0.00 -0.08	l_1 grip +1,50 -0,00	d_2	d_3	l_2	l_3	Pull out strength kg	Min. single shear strength kN
33014.W1803	4,76 (3/16")	7,62 (0,3")	5,18	25,4	5,08	17,45	1, 9 - 2, 3	10,8
33014.W1805	4,76 (3/16")	12,7 (0,5")	5,18	25,4	5,08	17,45	1, 9 - 2, 3	10,8
33014.W1810	4,76 (3/16")	25,4 (1")	5,18	25,4	5,08	17,45	1, 9 - 2, 3	10,8
33014.W1815	4,76 (3/16")	38,1 (1,5")	5,18	25,4	5,08	17,45	1, 9 - 2, 3	10,8
33014.W1820	4,76 (3/16")	50,8 (2")	5,18	25,4	5,08	17,45	1, 9 - 2, 3	10,8
33014.W1825	4,76 (3/16")	63,5 (2,5")	5,18	25,4	5,08	17,45	1, 9 - 2, 3	10,8
33014.W1830	4,76 (3/16")	76,2 (3")	5,18	25,4	5,08	17,45	1, 9 - 2, 3	10,8
33014.W1835	4,76 (3/16")	88,9 (3,5")	5,18	25,4	5,08	17,45	1, 9 - 2, 3	10,8
33014.W1840	4,76 (3/16")	101,6 (4")	5,18	25,4	5,08	17,45	1, 9 - 2, 3	10,8
33014.W2505	6,35 (1/4")	12,7 (0,5")	7,26	31,75	7,92	18,29	2,27 - 2,73	19,3
33014.W2506	6,35 (1/4")	15,24 (0,6")	7,26	31,75	7,92	18,29	2,27 - 2,73	19,3
33014.W2510	6,35 (1/4")	25,4 (1")	7,26	31,75	7,92	18,29	2,27 - 2,73	19,3
33014.W2515	6,35 (1/4")	38,1 (1,5")	7,26	31,75	7,92	18,29	2,27 - 2,73	19,3
33014.W2520	6,35 (1/4")	50,8 (2")	7,26	31,75	7,92	18,29	2,27 - 2,73	19,3
33014.W2525	6,35 (1/4")	63,5 (2,5")	7,26	31,75	7,92	18,29	2,27 - 2,73	19,3
33014.W2530	6,35 (1/4")	76,2 (3")	7,26	31,75	7,92	18,29	2,27 - 2,73	19,3
33014.W2535	6,35 (1/4")	88,9 (3,5")	7,26	31,75	7,92	18,29	2,27 - 2,73	19,3
33014.W2540	6,35 (1/4")	101,6 (4")	7,26	31,75	7,92	18,29	2,27 - 2,73	19,3
33014.W3105	7,94 (5/16")	12,7 (0,5")	9,09	31,75	9,53	19,05	2,27 - 2,73	30,0
33014.W3110	7,94 (5/16")	25,4 (1")	9,09	31,75	9,53	19,05	2,27 - 2,73	30,0
33014.W3115	7,94 (5/16")	38,1 (1,5")	9,09	31,75	9,53	19,05	2,27 - 2,73	30,0
33014.W3120	7,94 (5/16")	50,8 (2")	9,09	31,75	9,53	19,05	2,27 - 2,73	30,0
33014.W3125	7,94 (5/16")	63,5 (2,5")	9,09	31,75	9,53	19,05	2,27 - 2,73	30,0
33014.W3130	7,94 (5/16")	76,2 (3")	9,09	31,75	9,53	19,05	2,27 - 2,73	30,0
33014.W3135	7,94 (5/16")	88,9 (3,5")	9,09	31,75	9,53	19,05	2,27 - 2,73	30,0
33014.W3140	7,94 (5/16")	101,6 (4")	9,09	31,75	9,53	19,05	2,27 - 2,73	30,0
33014.W3145	7,94 (5/16")	114,3 (4,5")	9,09	31,75	9,53	19,05	2,27 - 2,73	30,0
33014.W3150	7,94 (5/16")	127 (5")	9,09	31,75	9,53	19,05	2,27 - 2,73	30,0
33014.W3705	9,53 (3,8")	12,7 (0,5")	10,82	44,45	12,7	19,05	3,63 - 4,54	43,3
33014.W3706	9,53 (3,8")	15,24 (0,6")	10,82	44,45	12,7	19,05	3,63 - 4,54	43,3
33014.W3710	9,53 (3,8")	25,4 (1")	10,82	44,45	12,7	19,05	3,63 - 4,54	43,3
33014.W3715	9,53 (3,8")	38,1 (1,5")	10,82	44,45	12,7	19,05	3,63 - 4,54	43,3
33014.W3718	9,53 (3,8")	45,72 (1,8")	10,82	44,45	12,7	19,05	3,63 - 4,54	43,3
33014.W3720	9,53 (3,8")	50,8 (2")	10,82	44,45	12,7	19,05	3,63 - 4,54	43,3
33014.W3725	9,53 (3,8")	63,5 (2,5")	10,82	44,45	12,7	19,05	3,63 - 4,54	43,3
33014.W3730	9,53 (3,8")	76,2 (3")	10,82	44,45	12,7	19,05	3,63 - 4,54	43,3
33014.W3735	9,53 (3,8")	88,9 (3,5")	10,82	44,45	12,7	19,05	3,63 - 4,54	43,3
33014.W3740	9,53 (3,8")	101,6 (4")	10,82	44,45	12,7	19,05	3,63 - 4,54	43,3
33014.W3745	9,53 (3,8")	114,3 (4,5")	10,82	44,45	12,7	19,05	3,63 - 4,54	43,3
33014.W3750	9,53 (3,8")	127 (5")	10,82	44,45	12,7	19,05	3,63 - 4,54	43,3
33014.W3755	9,53 (3,8")	139,7 (5,5")	10,82	44,45	12,7	19,05	3,63 - 4,54	43,3
33014.W3760	9,53 (3,8")	152,4 (6")	10,82	44,45	12,7	19,05	3,63 - 4,54	43,3
33014.W4305	11,11(7,16")	12,7 (0,5")	12,6	44,45	14,27	24,13	4,09 - 5,45	58,9
33014.W4310	11,11(7,16")	25,4 (1")	12,6	44,45	14,27	24,13	4,09 - 5,45	58,9
33014.W4315	11,11(7,16")	38,1 (1,5")	12,6	44,45	14,27	24,13	4,09 - 5,45	58,9
33014.W4320	11,11(7,16")	50,8 (2")	12,6	44,45	14,27	24,13	4,09 - 5,45	58,9
33014.W4325	11,11(7,16")	63,5 (2,5")	12,6	44,45	14,27	24,13	4,09 - 5,45	58,9

Material

Shaft: Carbon steel (C1144), zinc plated.
Ball & spring: Stainless steel AISI 316.

Technical Notes

Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
Can be used for locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins and as replacement for cotter pins where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

Tips

Also available in stainless steel see part no. 33016.

Detent Pin - Ring Handle - Shoulder

steel

33014

Order No.	d_1 +0.00 -0.08	l_1 grip +1,50 -0,00	d_2	d_3	l_2	l_3	Pull out strength kg	Min. single shear strength kN
33014.W4330	11,11(7,16")	76,2 (3")	12,6	44,45	14,27	24,13	4,09 - 5,45	58,9
33014.W4335	11,11(7,16")	88,9 (3,5")	12,6	44,45	14,27	24,13	4,09 - 5,45	58,9
33014.W4340	11,11(7,16")	101,6 (4")	12,6	44,45	14,27	24,13	4,09 - 5,45	58,9
33014.W4345	11,11(7,16")	114,3 (4,5")	12,6	44,45	14,27	24,13	4,09 - 5,45	58,9
33014.W4350	11,11(7,16")	127 (5")	12,6	44,45	14,27	24,13	4,09 - 5,45	58,9
33014.W4355	11,11(7,16")	139,7 (5,5")	12,6	44,45	14,27	24,13	4,09 - 5,45	58,9
33014.W4360	11,11(7,16")	152,4 (6")	12,6	44,45	14,27	24,13	4,09 - 5,45	58,9
33014.W5005	12,7 (1/2")	12,7 (0,5")	14,48	50,8	15,88	25,7	4,54 - 5,45	77,0
33014.W5010	12,7 (1/2")	25,4 (1")	14,48	50,8	15,88	25,7	4,54 - 5,45	77,0
33014.W5013	12,7 (1/2")	33,02 (1,3")	14,48	50,8	15,88	25,7	4,54 - 5,45	77,0
33014.W5015	12,7 (1/2")	38,1 (1,5")	14,48	50,8	15,88	25,7	4,54 - 5,45	77,0
33014.W5020	12,7 (1/2")	50,8 (2")	14,48	50,8	15,88	25,7	4,54 - 5,45	77,0
33014.W5025	12,7 (1/2")	63,5 (2,5")	14,48	50,8	15,88	25,7	4,54 - 5,45	77,0
33014.W5035	12,7 (1/2")	88,9 (3,5")	14,48	50,8	15,88	25,7	4,54 - 5,45	77,0
33014.W5040	12,7 (1/2")	101,6 (4")	14,48	50,8	15,88	25,7	4,54 - 5,45	77,0
33014.W5045	12,7 (1/2")	114,3 (4,5")	14,48	50,8	15,88	25,7	4,54 - 5,45	77,0
33014.W5050	12,7 (1/2")	127 (5")	14,48	50,8	15,88	25,7	4,54 - 5,45	77,0
33014.W5055	12,7 (1/2")	139,7 (5,5")	14,48	50,8	15,88	25,7	4,54 - 5,45	77,0
33014.W5060	12,7 (1/2")	152,4 (6")	14,48	50,8	15,88	25,7	4,54 - 5,45	77,0
33014.W5065	12,7 (1/2")	165,1 (6,5")	14,48	50,8	15,88	25,7	4,54 - 5,45	77,0
33014.W5070	12,7 (1/2")	177,8 (7")	14,48	50,8	15,88	25,7	4,54 - 5,45	77,0
33014.W5610	14,29 (9/16")	25,4 (1")	16,31	50,8	17,45	25,7	5,45 - 6,81	97,6
33014.W5615	14,29 (9/16")	38,1 (1,5")	16,31	50,8	17,45	25,7	5,45 - 6,81	97,6
33014.W5620	14,29 (9/16")	50,8 (2")	16,31	50,8	17,45	25,7	5,45 - 6,81	97,6
33014.W5625	14,29 (9/16")	63,5 (2,5")	16,31	50,8	17,45	25,7	5,45 - 6,81	97,6
33014.W5630	14,29 (9/16")	76,2 (3")	16,31	50,8	17,45	25,7	5,45 - 6,81	97,6
33014.W5635	14,29 (9/16")	88,9 (3,5")	16,31	50,8	17,45	25,7	5,45 - 6,81	97,6
33014.W5640	14,29 (9/16")	101,6 (4")	16,31	50,8	17,45	25,7	5,45 - 6,81	97,6
33014.W5645	14,29 (9/16")	114,3 (4,5")	16,31	50,8	17,45	25,7	5,45 - 6,81	97,6
33014.W5650	14,29 (9/16")	127 (5")	16,31	50,8	17,45	25,7	5,45 - 6,81	97,6
33014.W5655	14,29 (9/16")	139,7 (5,5")	16,31	50,8	17,45	25,7	5,45 - 6,81	97,6
33014.W5660	14,29 (9/16")	152,4 (6")	16,31	50,8	17,45	25,7	5,45 - 6,81	97,6
33014.W5670	14,29 (9/16")	177,8 (7")	16,31	50,8	17,45	25,7	5,45 - 6,81	97,6
33014.W6210	15,88 (5/8")	25,4 (1")	18,03	57,15	19,05	27,31	6,36 - 7,26	121,6
33014.W6215	15,88 (5/8")	38,1 (1,5")	18,03	57,15	19,05	27,31	6,36 - 7,26	121,6
33014.W6220	15,88 (5/8")	50,8 (2")	18,03	57,15	19,05	27,31	6,36 - 7,26	121,6
33014.W6225	15,88 (5/8")	63,5 (2,5")	18,03	57,15	19,05	27,31	6,36 - 7,26	121,6
33014.W6230	15,88 (5/8")	76,2 (3")	18,03	57,15	19,05	27,31	6,36 - 7,26	121,6
33014.W6235	15,88 (5/8")	88,9 (3,5")	18,03	57,15	19,05	27,31	6,36 - 7,26	121,6
33014.W6240	15,88 (5/8")	101,6 (4")	18,03	57,15	19,05	27,31	6,36 - 7,26	121,6
33014.W6245	15,88 (5/8")	114,3 (4,5")	18,03	57,15	19,05	27,31	6,36 - 7,26	121,6
33014.W6250	15,88 (5/8")	127 (5")	18,03	57,15	19,05	27,31	6,36 - 7,26	121,6
33014.W6255	15,88 (5/8")	139,7 (5,5")	18,03	57,15	19,05	27,31	6,36 - 7,26	121,6
33014.W6260	15,88 (5/8")	152,4 (6")	18,03	57,15	19,05	27,31	6,36 - 7,26	121,6
33014.W6270	15,88 (5/8")	177,8 (7")	18,03	57,15	19,05	27,31	6,36 - 7,26	121,6
33014.W6280	15,88 (5/8")	203,2 (8")	18,03	57,15	19,05	27,31	6,36 - 7,26	121,6
33014.W7510	19,05 (3/4")	25,4 (1")	21,74	57,15	23,8	34,93	8,17 - 9,98	173,6
33014.W7515	19,05 (3/4")	38,1 (1,5")	21,74	57,15	23,8	34,93	8,17 - 9,98	173,6
33014.W7520	19,05 (3/4")	50,8 (2")	21,74	57,15	23,8	34,93	8,17 - 9,98	173,6
33014.W7525	19,05 (3/4")	63,5 (2,5")	21,74	57,15	23,8	34,93	8,17 - 9,98	173,6
33014.W7530	19,05 (3/4")	76,2 (3")	21,74	57,15	23,8	34,93	8,17 - 9,98	173,6
33014.W7535	19,05 (3/4")	88,9 (3,5")	21,74	57,15	23,8	34,93	8,17 - 9,98	173,6
33014.W7540	19,05 (3/4")	101,6 (4")	21,74	57,15	23,8	34,93	8,17 - 9,98	173,6
33014.W7545	19,05 (3/4")	114,3 (4,5")	21,74	57,15	23,8	34,93	8,17 - 9,98	173,6
33014.W7550	19,05 (3/4")	127 (5")	21,74	57,15	23,8	34,93	8,17 - 9,98	173,6
33014.W7555	19,05 (3/4")	139,7 (5,5")	21,74	57,15	23,8	34,93	8,17 - 9,98	173,6
33014.W7560	19,05 (3/4")	152,4 (6")	21,74	57,15	23,8	34,93	8,17 - 9,98	173,6
33014.W7570	19,05 (3/4")	177,8 (7")	21,74	57,15	23,8	34,93	8,17 - 9,98	173,6
33014.W7580	19,05 (3/4")	203,2 (8")	21,74	57,15	23,8	34,93	8,17 - 9,98	173,6
33014.W8810	22,23 (7/8")	25,4 (1")	25,3	63,5	25,4	38,1	12,71 - 14,07	239,4
33014.W8815	22,23 (7/8")	38,1 (1,5")	25,3	63,5	25,4	38,1	12,71 - 14,07	239,4
33014.W8820	22,23 (7/8")	50,8 (2")	25,3	63,5	25,4	38,1	12,71 - 14,07	239,4
33014.W8825	22,23 (7/8")	63,5 (2,5")	25,3	63,5	25,4	38,1	12,71 - 14,07	239,4

Material

Shaft: Carbon steel (C1144), zinc plated.
Ball & spring: Stainless steel AISI 316.

Technical Notes

Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
Can be used for locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins and as replacement for cotter pins where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

Tips

Also available in stainless steel see part no. 33016.

Detent Pin - Ring Handle - Shoulder

steel

33014

Order No.	d_1 +0.00 -0.08	l_1 grip +1,50 -0,00	d_2	d_3	l_2	l_3	Pull out strength kg	Min. single shear strength kN
33014.W8830	22,23 (7/8")	76,2 (3")	25,3	63,5	25,4	38,1	12,71 - 14,07	239,4
33014.W8835	22,23 (7/8")	88,9 (3,5")	25,3	63,5	25,4	38,1	12,71 - 14,07	239,4
33014.W8840	22,23 (7/8")	101,6 (4")	25,3	63,5	25,4	38,1	12,71 - 14,07	239,4
33014.W8845	22,23 (7/8")	114,3 (4,5")	25,3	63,5	25,4	38,1	12,71 - 14,07	239,4
33014.W8850	22,23 (7/8")	127 (5")	25,3	63,5	25,4	38,1	12,71 - 14,07	239,4
33014.W8855	22,23 (7/8")	139,7 (5,5")	25,3	63,5	25,4	38,1	12,71 - 14,07	239,4
33014.W8860	22,23 (7/8")	152,4 (6")	25,3	63,5	25,4	38,1	12,71 - 14,07	239,4
33014.W8865	22,23 (7/8")	165,1 (6,5")	25,3	63,5	25,4	38,1	12,71 - 14,07	239,4
33014.W8870	22,23 (7/8")	177,8 (7")	25,3	63,5	25,4	38,1	12,71 - 14,07	239,4
33014.W8880	22,23 (7/8")	203,2 (8")	25,3	63,5	25,4	38,1	12,71 - 14,07	239,4
33014.W1010	25,4 (1")	25,4 (1")	28,96	63,5	31,75	38,1	15,88 - 18,15	312,3
33014.W1015	25,4 (1")	38,1 (1,5")	28,96	63,5	31,75	38,1	15,88 - 18,15	312,3
33014.W1020	25,4 (1")	50,8 (2")	28,96	63,5	31,75	38,1	15,88 - 18,15	312,3
33014.W1025	25,4 (1")	63,5 (2,5")	28,96	63,5	31,75	38,1	15,88 - 18,15	312,3
33014.W1030	25,4 (1")	76,2 (3")	28,96	63,5	31,75	38,1	15,88 - 18,15	312,3
33014.W1035	25,4 (1")	88,9 (3,5")	28,96	63,5	31,75	38,1	15,88 - 18,15	312,3
33014.W1040	25,4 (1")	101,6 (4")	28,96	63,5	31,75	38,1	15,88 - 18,15	312,3
33014.W1045	25,4 (1")	114,3 (4,5")	28,96	63,5	31,75	38,1	15,88 - 18,15	312,3
33014.W1050	25,4 (1")	127 (5")	28,96	63,5	31,75	38,1	15,88 - 18,15	312,3
33014.W1055	25,4 (1")	139,7 (5,5")	28,96	63,5	31,75	38,1	15,88 - 18,15	312,3
33014.W1060	25,4 (1")	152,4 (6")	28,96	63,5	31,75	38,1	15,88 - 18,15	312,3
33014.W1070	25,4 (1")	177,8 (7")	28,96	63,5	31,75	38,1	15,88 - 18,15	312,3
33014.W1080	25,4 (1")	203,2 (8")	28,96	63,5	31,75	38,1	15,88 - 18,15	312,3

Material

Shaft: Carbon steel (C1144), zinc plated.
Ball & spring: Stainless steel AISI 316.

Technical Notes

Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
Can be used for locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins and as replacement for cotter pins where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

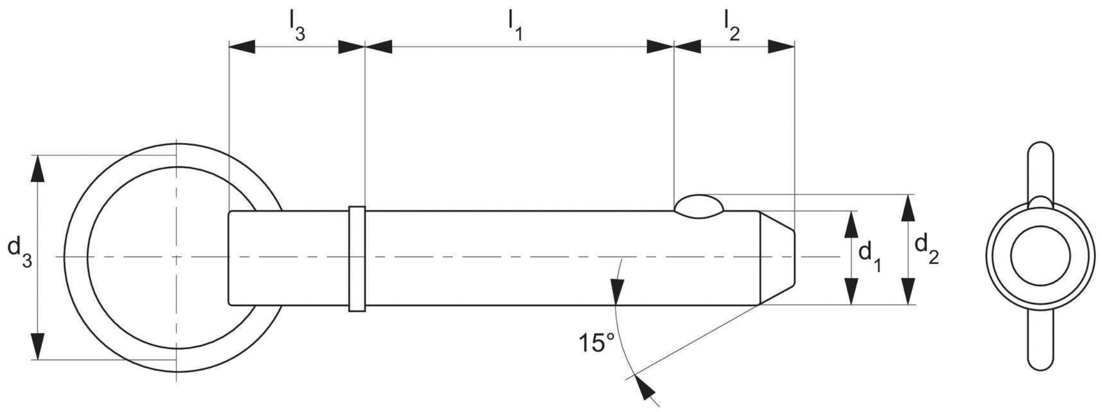
Tips

Also available in stainless steel see part no. 33016.

Detent Pin - Ring Handle - Shoulder

stainless steel

33016



Order No.	d_1 +0.00 -0.08	l_1 grip +1,50 -0,00	d_2	d_3	l_2	l_3	Pull out strength kg	Min. single shear strength kN
33016.W1803	4,76 (3/16")	7,62 (0,3")	5,18	25,4	5,08	17,45	1, 9 - 2, 3	12,2
33016.W1805	4,76 (3/16")	12,7 (0,5")	5,18	25,4	5,08	17,45	1, 9 - 2, 3	12,2
33016.W1810	4,76 (3/16")	25,4 (1")	5,18	25,4	5,08	17,45	1, 9 - 2, 3	12,2
33016.W1815	4,76 (3/16")	38,1 (1,5")	5,18	25,4	5,08	17,45	1, 9 - 2, 3	12,2
33016.W1820	4,76 (3/16")	50,8 (2")	5,18	25,4	5,08	17,45	1, 9 - 2, 3	12,2
33016.W1825	4,76 (3/16")	63,5 (2,5")	5,18	25,4	5,08	17,45	1, 9 - 2, 3	12,2
33016.W1830	4,76 (3/16")	76,2 (3")	5,18	25,4	5,08	17,45	1, 9 - 2, 3	12,2
33016.W1835	4,76 (3/16")	88,9 (3,5")	5,18	25,4	5,08	17,45	1, 9 - 2, 3	12,2
33016.W1840	4,76 (3/16")	101,6 (4")	5,18	25,4	5,08	17,45	1, 9 - 2, 3	12,2
33016.W2505	6,35 (1/4")	12,7 (0,5")	7,26	25,4	7,92	18,29	2,27 - 2,73	21,7
33016.W2506	6,35 (1/4")	15,24 (0,6")	7,26	25,4	7,92	18,29	2,27 - 2,73	21,7
33016.W2510	6,35 (1/4")	25,4 (1")	7,26	25,4	7,92	18,29	2,27 - 2,73	21,7
33016.W2515	6,35 (1/4")	38,1 (1,5")	7,26	25,4	7,92	18,29	2,27 - 2,73	21,7
33016.W2520	6,35 (1/4")	50,8 (2")	7,26	25,4	7,92	18,29	2,27 - 2,73	21,7
33016.W2525	6,35 (1/4")	63,5 (2,5")	7,26	25,4	7,92	18,29	2,27 - 2,73	21,7
33016.W2530	6,35 (1/4")	76,2 (3")	7,26	25,4	7,92	18,29	2,27 - 2,73	21,7
33016.W2535	6,35 (1/4")	88,9 (3,5")	7,26	25,4	7,92	18,29	2,27 - 2,73	21,7
33016.W2540	6,35 (1/4")	101,6 (4")	7,26	25,4	7,92	18,29	2,27 - 2,73	21,7
33016.W3105	7,94 (5/16")	12,7 (0,5")	9,09	25,4	9,53	19,05	2,27 - 2,73	33,8
33016.W3110	7,94 (5/16")	25,4 (1")	9,09	25,4	9,53	19,05	2,27 - 2,73	33,8
33016.W3115	7,94 (5/16")	38,1 (1,5")	9,09	25,4	9,53	19,05	2,27 - 2,73	33,8
33016.W3120	7,94 (5/16")	50,8 (2")	9,09	25,4	9,53	19,05	2,27 - 2,73	33,8
33016.W3125	7,94 (5/16")	63,5 (2,5")	9,09	25,4	9,53	19,05	2,27 - 2,73	33,8
33016.W3130	7,94 (5/16")	76,2 (3")	9,09	25,4	9,53	19,05	2,27 - 2,73	33,8
33016.W3135	7,94 (5/16")	88,9 (3,5")	9,09	25,4	9,53	19,05	2,27 - 2,73	33,8
33016.W3140	7,94 (5/16")	101,6 (4")	9,09	25,4	9,53	19,05	2,27 - 2,73	33,8
33016.W3145	7,94 (5/16")	114,3 (4,5")	9,09	25,4	9,53	19,05	2,27 - 2,73	33,8
33016.W3150	7,94 (5/16")	127 (5")	9,09	25,4	9,53	19,05	2,27 - 2,73	33,8
33016.W3705	9,53 (3,8")	12,7 (0,5")	10,82	25,4	12,7	19,05	3,63 - 4,54	49,1
33016.W3706	9,53 (3,8")	15,24 (0,6")	10,82	25,4	12,7	19,05	3,63 - 4,54	49,1
33016.W3710	9,53 (3,8")	25,4 (1")	10,82	25,4	12,7	19,05	3,63 - 4,54	49,1
33016.W3715	9,53 (3,8")	38,1 (1,5")	10,82	25,4	12,7	19,05	3,63 - 4,54	49,1
33016.W3718	9,53 (3,8")	45,72 (1,8")	10,82	25,4	12,7	19,05	3,63 - 4,54	49,1
33016.W3720	9,53 (3,8")	50,8 (2")	10,82	25,4	12,7	19,05	3,63 - 4,54	49,1
33016.W3725	9,53 (3,8")	63,5 (2,5")	10,82	25,4	12,7	19,05	3,63 - 4,54	49,1
33016.W3730	9,53 (3,8")	76,2 (3")	10,82	25,4	12,7	19,05	3,63 - 4,54	49,1
33016.W3735	9,53 (3,8")	88,9 (3,5")	10,82	25,4	12,7	19,05	3,63 - 4,54	49,1
33016.W3740	9,53 (3,8")	101,6 (4")	10,82	25,4	12,7	19,05	3,63 - 4,54	49,1
33016.W3745	9,53 (3,8")	114,3 (4,5")	10,82	25,4	12,7	19,05	3,63 - 4,54	49,1
33016.W3750	9,53 (3,8")	127 (5")	10,82	25,4	12,7	19,05	3,63 - 4,54	49,1
33016.W3755	9,53 (3,8")	139,7 (5,5")	10,82	25,4	12,7	19,05	3,63 - 4,54	49,1
33016.W3760	9,53 (3,8")	152,4 (6")	10,82	25,4	12,7	19,05	3,63 - 4,54	49,1
33016.W4305	11,11(7,16")	12,7 (0,5")	12,6	25,4	14,27	24,13	4,09 - 5,45	66,5
33016.W4310	11,11(7,16")	25,4 (1")	12,6	25,4	14,27	24,13	4,09 - 5,45	66,5
33016.W4315	11,11(7,16")	38,1 (1,5")	12,6	25,4	14,27	24,13	4,09 - 5,45	66,5
33016.W4320	11,11(7,16")	50,8 (2")	12,6	25,4	14,27	24,13	4,09 - 5,45	66,5
33016.W4325	11,11(7,16")	63,5 (2,5")	12,6	25,4	14,27	24,13	4,09 - 5,45	66,5

Material

Shaft: Stainless steel, AISI 303.
Ball & Spring: Stainless steel, AISI 316.

Technical Notes

Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
For locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins etc where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins. H7 tolerance recommended.
Inch dimensions in brackets ( ).

Tips

Also available on request in A4 (AISI 316) stainless steel, subject to min. quantity.

Referral

Also available in steel, see part no. 33014.

Detent Pin - Ring Handle - Shoulder

stainless steel

33016

Order No.	d_1 +0.00 -0.08	l_1 grip +1,50 -0,00	d_2	d_3	l_2	l_3	Pull out strength kg	Min. single shear strength kN
33016.W4330	11,11(7,16")	76,2 (3")	12,6	25,4	14,27	24,13	4,09 - 5,45	66,5
33016.W4335	11,11(7,16")	88,9 (3,5")	12,6	25,4	14,27	24,13	4,09 - 5,45	66,5
33016.W4340	11,11(7,16")	101,6 (4")	12,6	25,4	14,27	24,13	4,09 - 5,45	66,5
33016.W4345	11,11(7,16")	114,3 (4,5")	12,6	25,4	14,27	24,13	4,09 - 5,45	66,5
33016.W4350	11,11(7,16")	127 (5")	12,6	25,4	14,27	24,13	4,09 - 5,45	66,5
33016.W4355	11,11(7,16")	139,7 (5,5")	12,6	25,4	14,27	24,13	4,09 - 5,45	66,5
33016.W4360	11,11(7,16")	152,4 (6")	12,6	25,4	14,27	24,13	4,09 - 5,45	66,5
33016.W5005	12,7 (1/2")	12,7 (0,5")	14,48	31,75	15,88	25,7	4,54 - 5,45	87,1
33016.W5010	12,7 (1/2")	25,4 (1")	14,48	31,75	15,88	25,7	4,54 - 5,45	87,1
33016.W5013	12,7 (1/2")	33,02 (1,3")	14,48	31,75	15,88	25,7	4,54 - 5,45	87,1
33016.W5015	12,7 (1/2")	38,1 (1,5")	14,48	31,75	15,88	25,7	4,54 - 5,45	87,1
33016.W5020	12,7 (1/2")	50,8 (2")	14,48	31,75	15,88	25,7	4,54 - 5,45	87,1
33016.W5025	12,7 (1/2")	63,5 (2,5")	14,48	31,75	15,88	25,7	4,54 - 5,45	87,1
33016.W5035	12,7 (1/2")	88,9 (3,5")	14,48	31,75	15,88	25,7	4,54 - 5,45	87,1
33016.W5040	12,7 (1/2")	101,6 (4")	14,48	31,75	15,88	25,7	4,54 - 5,45	87,1
33016.W5045	12,7 (1/2")	114,3 (4,5")	14,48	31,75	15,88	25,7	4,54 - 5,45	87,1
33016.W5050	12,7 (1/2")	127 (5")	14,48	31,75	15,88	25,7	4,54 - 5,45	87,1
33016.W5055	12,7 (1/2")	139,7 (5,5")	14,48	31,75	15,88	25,7	4,54 - 5,45	87,1
33016.W5060	12,7 (1/2")	152,4 (6")	14,48	31,75	15,88	25,7	4,54 - 5,45	87,1
33016.W5065	12,7 (1/2")	165,1 (6,5")	14,48	31,75	15,88	25,7	4,54 - 5,45	87,1
33016.W5070	12,7 (1/2")	177,8 (7")	14,48	31,75	15,88	25,7	4,54 - 5,45	87,1
33016.W5610	14,29 (9/16")	25,4 (1")	16,31	31,75	17,45	25,7	5,45 - 6,81	110,3
33016.W5615	14,29 (9/16")	38,1 (1,5")	16,31	31,75	17,45	25,7	5,45 - 6,81	110,3
33016.W5620	14,29 (9/16")	50,8 (2")	16,31	31,75	17,45	25,7	5,45 - 6,81	110,3
33016.W5625	14,29 (9/16")	63,5 (2,5")	16,31	31,75	17,45	25,7	5,45 - 6,81	110,3
33016.W5630	14,29 (9/16")	76,2 (3")	16,31	31,75	17,45	25,7	5,45 - 6,81	110,3
33016.W5635	14,29 (9/16")	88,9 (3,5")	16,31	31,75	17,45	25,7	5,45 - 6,81	110,3
33016.W5640	14,29 (9/16")	101,6 (4")	16,31	31,75	17,45	25,7	5,45 - 6,81	110,3
33016.W5645	14,29 (9/16")	114,3 (4,5")	16,31	31,75	17,45	25,7	5,45 - 6,81	110,3
33016.W5650	14,29 (9/16")	127 (5")	16,31	31,75	17,45	25,7	5,45 - 6,81	110,3
33016.W5655	14,29 (9/16")	139,7 (5,5")	16,31	31,75	17,45	25,7	5,45 - 6,81	110,3
33016.W5660	14,29 (9/16")	152,4 (6")	16,31	31,75	17,45	25,7	5,45 - 6,81	110,3
33016.W5670	14,29 (9/16")	177,8 (7")	16,31	31,75	17,45	25,7	5,45 - 6,81	110,3
33016.W6210	15,88 (5/8")	25,4 (1")	18,03	31,75	19,05	27,31	6,36 - 7,26	137,3
33016.W6215	15,88 (5/8")	38,1 (1,5")	18,03	31,75	19,05	27,31	6,36 - 7,26	137,3
33016.W6220	15,88 (5/8")	50,8 (2")	18,03	31,75	19,05	27,31	6,36 - 7,26	137,3
33016.W6225	15,88 (5/8")	63,5 (2,5")	18,03	31,75	19,05	27,31	6,36 - 7,26	137,3
33016.W6230	15,88 (5/8")	76,2 (3")	18,03	31,75	19,05	27,31	6,36 - 7,26	137,3
33016.W6235	15,88 (5/8")	88,9 (3,5")	18,03	31,75	19,05	27,31	6,36 - 7,26	137,3
33016.W6240	15,88 (5/8")	101,6 (4")	18,03	31,75	19,05	27,31	6,36 - 7,26	137,3
33016.W6245	15,88 (5/8")	114,3 (4,5")	18,03	31,75	19,05	27,31	6,36 - 7,26	137,3
33016.W6250	15,88 (5/8")	127 (5")	18,03	31,75	19,05	27,31	6,36 - 7,26	137,3
33016.W6255	15,88 (5/8")	139,7 (5,5")	18,03	31,75	19,05	27,31	6,36 - 7,26	137,3
33016.W6260	15,88 (5/8")	152,4 (6")	18,03	31,75	19,05	27,31	6,36 - 7,26	137,3
33016.W6270	15,88 (5/8")	177,8 (7")	18,03	31,75	19,05	27,31	6,36 - 7,26	137,3
33016.W6280	15,88 (5/8")	203,2 (8")	18,03	31,75	19,05	27,31	6,36 - 7,26	137,3
33016.W7510	19,05 (3/4")	25,4 (1")	21,74	38,1	23,8	34,93	8,17 - 9,98	195,9
33016.W7515	19,05 (3/4")	38,1 (1,5")	21,74	38,1	23,8	34,93	8,17 - 9,98	195,9
33016.W7520	19,05 (3/4")	50,8 (2")	21,74	38,1	23,8	34,93	8,17 - 9,98	195,9
33016.W7525	19,05 (3/4")	63,5 (2,5")	21,74	38,1	23,8	34,93	8,17 - 9,98	195,9
33016.W7530	19,05 (3/4")	76,2 (3")	21,74	38,1	23,8	34,93	8,17 - 9,98	195,9
33016.W7535	19,05 (3/4")	88,9 (3,5")	21,74	38,1	23,8	34,93	8,17 - 9,98	195,9
33016.W7540	19,05 (3/4")	101,6 (4")	21,74	38,1	23,8	34,93	8,17 - 9,98	195,9
33016.W7545	19,05 (3/4")	114,3 (4,5")	21,74	38,1	23,8	34,93	8,17 - 9,98	195,9
33016.W7550	19,05 (3/4")	127 (5")	21,74	38,1	23,8	34,93	8,17 - 9,98	195,9
33016.W7555	19,05 (3/4")	139,7 (5,5")	21,74	38,1	23,8	34,93	8,17 - 9,98	195,9
33016.W7560	19,05 (3/4")	152,4 (6")	21,74	38,1	23,8	34,93	8,17 - 9,98	195,9
33016.W7570	19,05 (3/4")	177,8 (7")	21,74	38,1	23,8	34,93	8,17 - 9,98	195,9
33016.W7580	19,05 (3/4")	203,2 (8")	21,74	38,1	23,8	34,93	8,17 - 9,98	195,9
33016.W8810	22,23 (7/8")	25,4 (1")	25,3	38,1	25,4	38,1	12,71 - 14,07	262,4
33016.W8815	22,23 (7/8")	38,1 (1,5")	25,3	38,1	25,4	38,1	12,71 - 14,07	262,4
33016.W8820	22,23 (7/8")	50,8 (2")	25,3	38,1	25,4	38,1	12,71 - 14,07	262,4
33016.W8825	22,23 (7/8")	63,5 (2,5")	25,3	38,1	25,4	38,1	12,71 - 14,07	262,4

Material
Shaft: Stainless steel, AISI 303.
Ball & Spring: Stainless steel, AISI 316.

Technical Notes
Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
For locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins etc where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins. H7 tolerance recommended.
Inch dimensions in brackets ( ).

Tips
Also available on request in A4 (AISI 316) stainless steel, subject to min. quantity.

Referral
Also available in steel, see part no. 33014.

Detent Pin - Ring Handle - Shoulder

stainless steel

33016

Order No.	d_1 +0.00 -0.08	l_1 grip +1,50 -0,00	d_2	d_3	l_2	l_3	Pull out strength kg	Min. single shear strength kN
33016.W8830	22,23 (7/8")	76,2 (3")	25,3	38,1	25,4	38,1	12,71 - 14,07	262,4
33016.W8835	22,23 (7/8")	88,9 (3,5")	25,3	38,1	25,4	38,1	12,71 - 14,07	262,4
33016.W8840	22,23 (7/8")	101,6 (4")	25,3	38,1	25,4	38,1	12,71 - 14,07	262,4
33016.W8845	22,23 (7/8")	114,3 (4,5")	25,3	38,1	25,4	38,1	12,71 - 14,07	262,4
33016.W8850	22,23 (7/8")	127 (5")	25,3	38,1	25,4	38,1	12,71 - 14,07	262,4
33016.W8855	22,23 (7/8")	139,7 (5,5")	25,3	38,1	25,4	38,1	12,71 - 14,07	262,4
33016.W8860	22,23 (7/8")	152,4 (6")	25,3	38,1	25,4	38,1	12,71 - 14,07	262,4
33016.W8865	22,23 (7/8")	165,1 (6,5")	25,3	38,1	25,4	38,1	12,71 - 14,07	262,4
33016.W8870	22,23 (7/8")	177,8 (7")	25,3	38,1	25,4	38,1	12,71 - 14,07	262,4
33016.W8880	22,23 (7/8")	203,2 (8")	25,3	38,1	25,4	38,1	12,71 - 14,07	262,4
33016.W1010	25,4 (1")	25,4 (1")	28,96	39	31,75	38,1	15,88 - 18,15	353,0
33016.W1015	25,4 (1")	38,1 (1,5")	28,96	39	31,75	38,1	15,88 - 18,15	353,0
33016.W1020	25,4 (1")	50,8 (2")	28,96	39	31,75	38,1	15,88 - 18,15	353,0
33016.W1025	25,4 (1")	63,5 (2,5")	28,96	39	31,75	38,1	15,88 - 18,15	353,0
33016.W1030	25,4 (1")	76,2 (3")	28,96	39	31,75	38,1	15,88 - 18,15	353,0
33016.W1035	25,4 (1")	88,9 (3,5")	28,96	39	31,75	38,1	15,88 - 18,15	353,0
33016.W1040	25,4 (1")	101,6 (4")	28,96	39	31,75	38,1	15,88 - 18,15	353,0
33016.W1045	25,4 (1")	114,3 (4,5")	28,96	39	31,75	38,1	15,88 - 18,15	353,0
33016.W1050	25,4 (1")	127 (5")	28,96	39	31,75	38,1	15,88 - 18,15	353,0
33016.W1055	25,4 (1")	139,7 (5,5")	28,96	39	31,75	38,1	15,88 - 18,15	353,0
33016.W1060	25,4 (1")	152,4 (6")	28,96	39	31,75	38,1	15,88 - 18,15	353,0
33016.W1070	25,4 (1")	177,8 (7")	28,96	39	31,75	38,1	15,88 - 18,15	353,0
33016.W1080	25,4 (1")	203,2 (8")	28,96	39	31,75	38,1	15,88 - 18,15	353,0

Material

Shaft: Stainless steel, AISI 303.
Ball & Spring: Stainless steel, AISI 316.

Technical Notes

Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
For locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins etc where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins. H7 tolerance recommended.
Inch dimensions in brackets ( ).

Tips

Also available on request in A4 (AISI 316) stainless steel, subject to min. quantity.

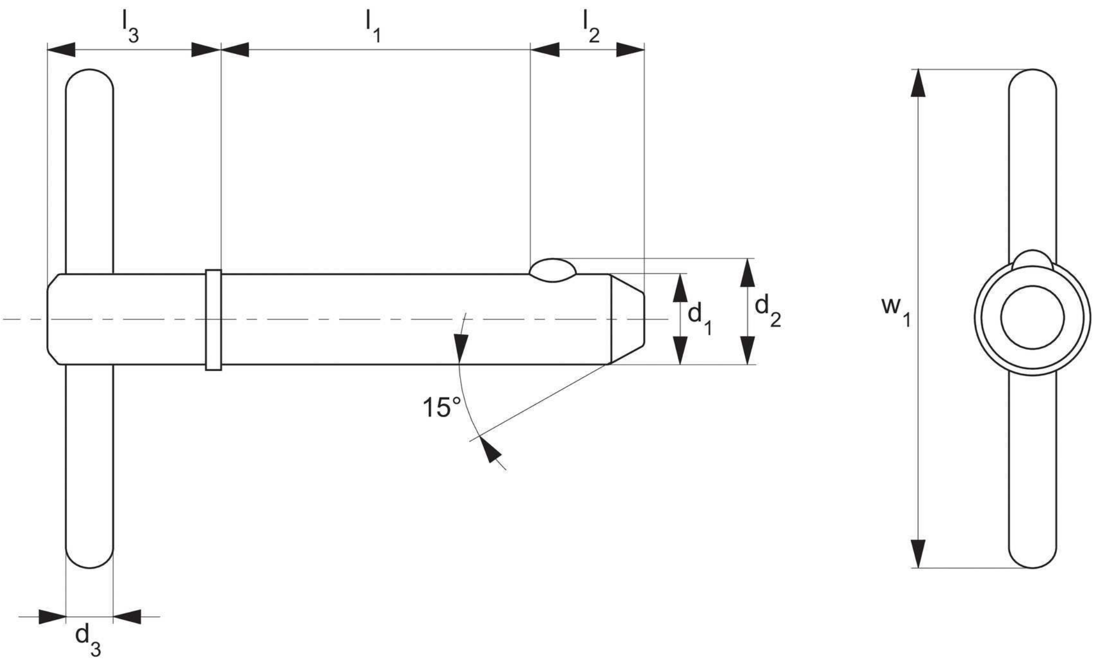
Referral

Also available in steel, see part no. 33014.

Detent Pin - T Handle - Shoulder

steel

33018



Order No.	d1 +0.00 -0.08	l1 grip +1,50 -0,00	d2	d3	l2	l3	w1	Pull out strength kg	Min. single shear strength kN
33018.W1803	4,76 (3/16")	7,62 (0,3")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	10,8
33018.W1805	4,76 (3/16")	12,7 (0,5")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	10,8
33018.W1810	4,76 (3/16")	25,4 (1")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	10,8
33018.W1815	4,76 (3/16")	38,1 (1,5")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	10,8
33018.W1820	4,76 (3/16")	50,8 (2")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	10,8
33018.W1825	4,76 (3/16")	63,5 (2,5")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	10,8
33018.W1830	4,76 (3/16")	76,2 (3")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	10,8
33018.W1835	4,76 (3/16")	88,9 (3,5")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	10,8
33018.W1840	4,76 (3/16")	101,6 (4")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	10,8
33018.W2505	6,35 (1/4")	12,7 (0,5")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	19,3
33018.W2506	6,35 (1/4")	15,24 (0,6")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	19,3
33018.W2510	6,35 (1/4")	25,4 (1")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	19,3
33018.W2515	6,35 (1/4")	38,1 (1,5")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	19,3
33018.W2520	6,35 (1/4")	50,8 (2")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	19,3
33018.W2525	6,35 (1/4")	63,5 (2,5")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	19,3
33018.W2530	6,35 (1/4")	76,2 (3")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	19,3
33018.W2535	6,35 (1/4")	88,9 (3,5")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	19,3
33018.W2540	6,35 (1/4")	101,6 (4")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	19,3
33018.W3105	7,94 (5/16")	12,7 (0,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33018.W3110	7,94 (5/16")	25,4 (1")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33018.W3115	7,94 (5/16")	38,1 (1,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33018.W3120	7,94 (5/16")	50,8 (2")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33018.W3125	7,94 (5/16")	63,5 (2,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33018.W3130	7,94 (5/16")	76,2 (3")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33018.W3135	7,94 (5/16")	88,9 (3,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33018.W3140	7,94 (5/16")	101,6 (4")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33018.W3145	7,94 (5/16")	114,3 (4,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33018.W3150	7,94 (5/16")	127 (5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33018.W3705	9,53 (3,8")	12,7 (0,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33018.W3706	9,53 (3,8")	15,24 (0,6")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33018.W3710	9,53 (3,8")	25,4 (1")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33018.W3715	9,53 (3,8")	38,1 (1,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33018.W3718	9,53 (3,8")	45,72 (1,8")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33018.W3720	9,53 (3,8")	50,8 (2")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33018.W3725	9,53 (3,8")	63,5 (2,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33018.W3730	9,53 (3,8")	76,2 (3")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33018.W3735	9,53 (3,8")	88,9 (3,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33018.W3740	9,53 (3,8")	101,6 (4")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33018.W3745	9,53 (3,8")	114,3 (4,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3

Material

Shaft: Carbon steel (C1144), zinc plated.
Ball & spring: Stainless steel AISI 316.

Technical Notes

Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
Can be used for locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins and as replacement for cotter pins where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

Tips

Also available in stainless steel see part no. 33020.

Detent Pin - T Handle - Shoulder

steel

33018

Order No.	d_1 +0.00 -0.08	l_1 grip +1,50 -0,00	d_2	d_3	l_2	l_3	w_1	Pull out strength kg	Min. single shear strength kN
33018.W3750	9,53 (3,8")	127 (5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33018.W3755	9,53 (3,8")	139,7 (5,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33018.W3760	9,53 (3,8")	152,4 (6")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33018.W4305	11,11(7/16")	12,7 (0,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	58,9
33018.W4310	11,11(7/16")	25,4 (1")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	58,9
33018.W4315	11,11(7/16")	38,1 (1,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	58,9
33018.W4320	11,11(7/16")	50,8 (2")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	58,9
33018.W4325	11,11(7/16")	63,5 (2,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	58,9
33018.W4330	11,11(7/16")	76,2 (3")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	58,9

Material

Shaft: Carbon steel (C1144), zinc plated.
Ball & spring: Stainless steel AISI 316.

Technical Notes

Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
Can be used for locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins and as replacement for cotter pins where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

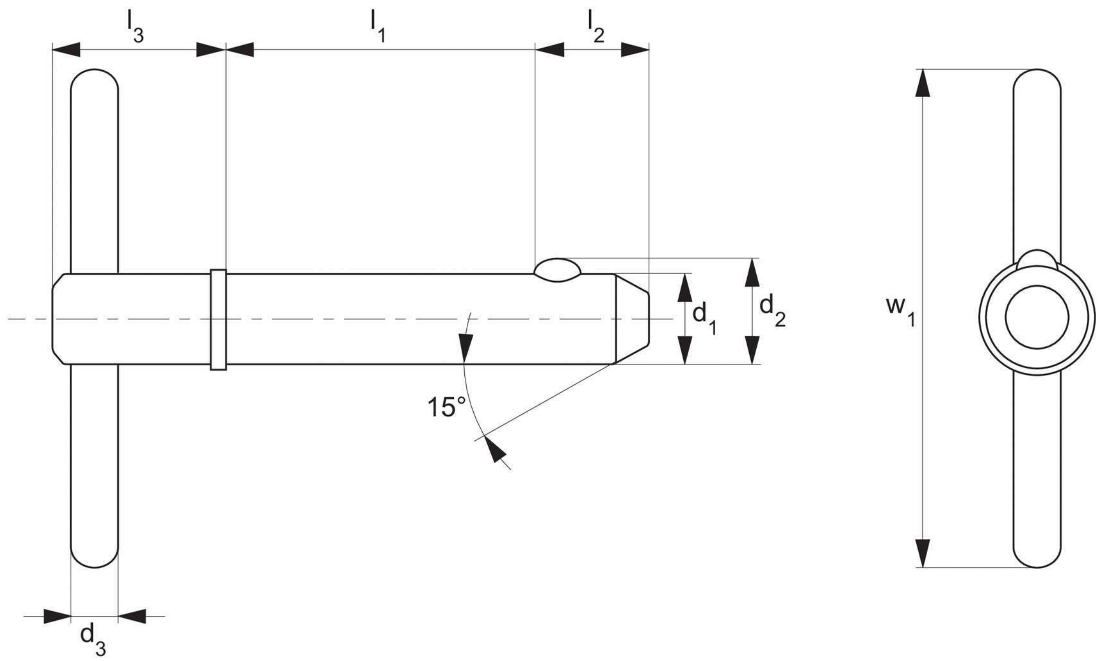
Tips

Also available in stainless steel see part no. 33020.

Detent Pin - T Handle - Shoulder

stainless steel

33020



Order No.	d_1 +0.00 -0.08	l_1 grip +1,50 -0,00	d_2	d_3	l_2	l_3	w_1	Pull out strength kg	Min. single shear strength kN
33020.W1803	4,76 (3/16")	7,62 (0,3")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	12,2
33020.W1805	4,76 (3/16")	12,7 (0,5")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	12,2
33020.W1810	4,76 (3/16")	25,4 (1")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	12,2
33020.W1815	4,76 (3/16")	38,1 (1,5")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	12,2
33020.W1820	4,76 (3/16")	50,8 (2")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	12,2
33020.W1825	4,76 (3/16")	63,5 (2,5")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	12,2
33020.W1830	4,76 (3/16")	76,2 (3")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	12,2
33020.W1835	4,76 (3/16")	88,9 (3,5")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	12,2
33020.W1840	4,76 (3/16")	101,6 (4")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	12,2
33020.W2505	6,35 (1/4")	12,7 (0,5")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	21,7
33020.W2506	6,35 (1/4")	15,24 (0,6")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	21,7
33020.W2510	6,35 (1/4")	25,4 (1")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	21,7
33020.W2515	6,35 (1/4")	38,1 (1,5")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	21,7
33020.W2520	6,35 (1/4")	50,8 (2")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	21,7
33020.W2525	6,35 (1/4")	63,5 (2,5")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	21,7
33020.W2530	6,35 (1/4")	76,2 (3")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	21,7
33020.W2535	6,35 (1/4")	88,9 (3,5")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	21,7
33020.W2540	6,35 (1/4")	101,6 (4")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	21,7
33020.W3105	7,94 (5/16")	12,7 (0,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33020.W3110	7,94 (5/16")	25,4 (1")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33020.W3115	7,94 (5/16")	38,1 (1,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33020.W3120	7,94 (5/16")	50,8 (2")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33020.W3125	7,94 (5/16")	63,5 (2,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33020.W3130	7,94 (5/16")	76,2 (3")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33020.W3135	7,94 (5/16")	88,9 (3,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33020.W3140	7,94 (5/16")	101,6 (4")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33020.W3145	7,94 (5/16")	114,3 (4,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33020.W3150	7,94 (5/16")	127 (5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33020.W3705	9,53 (3,8")	12,7 (0,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33020.W3706	9,53 (3,8")	15,24 (0,6")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33020.W3710	9,53 (3,8")	25,4 (1")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33020.W3715	9,53 (3,8")	38,1 (1,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33020.W3718	9,53 (3,8")	45,72 (1,8")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33020.W3720	9,53 (3,8")	50,8 (2")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33020.W3725	9,53 (3,8")	63,5 (2,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33020.W3730	9,53 (3,8")	76,2 (3")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33020.W3735	9,53 (3,8")	88,9 (3,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33020.W3740	9,53 (3,8")	101,6 (4")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33020.W3745	9,53 (3,8")	114,3 (4,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1

Material

Shaft: Stainless steel, AISI 303.
Ball & Spring: Stainless steel, AISI 316.

Technical Notes

Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
For locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins etc where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

Tips

Also available on request in A4 (AISI 316) stainless steel, subject to min. quantity.

Referral

Also available in steel, see part no. 33018.

Detent Pin - T Handle - Shoulder

stainless steel

33020

Order No.	d_1 +0.00 -0.08	l_1 grip +1,50 -0,00	d_2	d_3	l_2	l_3	w_1	Pull out strength kg	Min. single shear strength kN
33020.W3750	9,53 (3,8")	127 (5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33020.W3755	9,53 (3,8")	139,7 (5,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33020.W3760	9,53 (3,8")	152,4 (6")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33020.W4305	11,11(7,16")	12,7 (0,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33020.W4310	11,11(7,16")	25,4 (1")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33020.W4315	11,11(7,16")	38,1 (1,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33020.W4320	11,11(7,16")	50,8 (2")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33020.W4325	11,11(7,16")	63,5 (2,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33020.W4330	11,11(7,16")	76,2 (3")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33020.W4335	11,11(7,16")	88,9 (3,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33020.W4340	11,11(7,16")	101,6 (4")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33020.W4345	11,11(7,16")	114,3 (4,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33020.W4350	11,11(7,16")	127 (5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33020.W4355	11,11(7,16")	139,7 (5,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33020.W4360	11,11(7,16")	152,4 (6")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33020.W5005	12,7 (1/2")	12,7 (0,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33020.W5010	12,7 (1/2")	25,4 (1")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33020.W5013	12,7 (1/2")	33,02 (1,3")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33020.W5015	12,7 (1/2")	38,1 (1,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33020.W5020	12,7 (1/2")	50,8 (2")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33020.W5025	12,7 (1/2")	63,5 (2,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33020.W5035	12,7 (1/2")	88,9 (3,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33020.W5040	12,7 (1/2")	101,6 (4")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33020.W5045	12,7 (1/2")	114,3 (4,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33020.W5050	12,7 (1/2")	127 (5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33020.W5055	12,7 (1/2")	139,7 (5,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33020.W5060	12,7 (1/2")	152,4 (6")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33020.W5065	12,7 (1/2")	165,1 (6,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33020.W5070	12,7 (1/2")	177,8 (7")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33020.W5610	14,29 (9/16")	25,4 (1")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33020.W5615	14,29 (9/16")	38,1 (1,5")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33020.W5620	14,29 (9/16")	50,8 (2")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33020.W5625	14,29 (9/16")	63,5 (2,5")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33020.W5630	14,29 (9/16")	76,2 (3")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33020.W5635	14,29 (9/16")	88,9 (3,5")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33020.W5640	14,29 (9/16")	101,6 (4")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33020.W5645	14,29 (9/16")	114,3 (4,5")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33020.W5650	14,29 (9/16")	127 (5")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33020.W5655	14,29 (9/16")	139,7 (5,5")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33020.W5660	14,29 (9/16")	152,4 (6")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33020.W5670	14,29 (9/16")	177,8 (7")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33020.W6210	15,88 (5/8")	25,4 (1")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33020.W6215	15,88 (5/8")	38,1 (1,5")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33020.W6220	15,88 (5/8")	50,8 (2")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33020.W6225	15,88 (5/8")	63,5 (2,5")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33020.W6230	15,88 (5/8")	76,2 (3")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33020.W6235	15,88 (5/8")	88,9 (3,5")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33020.W6240	15,88 (5/8")	101,6 (4")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33020.W6245	15,88 (5/8")	114,3 (4,5")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33020.W6250	15,88 (5/8")	127 (5")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33020.W6255	15,88 (5/8")	139,7 (5,5")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33020.W6260	15,88 (5/8")	152,4 (6")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33020.W6270	15,88 (5/8")	177,8 (7")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33020.W6280	15,88 (5/8")	203,2 (8")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33020.W7510	19,05 (3/4")	25,4 (1")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33020.W7515	19,05 (3/4")	38,1 (1,5")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33020.W7520	19,05 (3/4")	50,8 (2")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33020.W7525	19,05 (3/4")	63,5 (2,5")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33020.W7530	19,05 (3/4")	76,2 (3")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33020.W7535	19,05 (3/4")	88,9 (3,5")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33020.W7540	19,05 (3/4")	101,6 (4")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33020.W7545	19,05 (3/4")	114,3 (4,5")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33020.W7550	19,05 (3/4")	127 (5")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9

Material

Shaft: Stainless steel, AISI 303.
Ball & Spring: Stainless steel, AISI 316.

Technical Notes

Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
For locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins etc where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

Tips

Also available on request in A4 (AISI 316) stainless steel, subject to min. quantity.

Referral

Also available in steel, see part no. 33018.

Detent Pin - T Handle - Shoulder

stainless steel

33020

Order No.	d_1 +0.00 -0.08	l_1 grip +1,50 -0,00	d_2	d_3	l_2	l_3	w_1	Pull out strength kg	Min. single shear strength kN
33020.W7555	19,05 (3/4")	139,7 (5,5")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33020.W7560	19,05 (3/4")	152,4 (6")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33020.W7570	19,05 (3/4")	177,8 (7")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33020.W7580	19,05 (3/4")	203,2 (8")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33020.W8810	22,23 (7/8")	25,4 (1")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33020.W8815	22,23 (7/8")	38,1 (1,5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33020.W8820	22,23 (7/8")	50,8 (2")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33020.W8825	22,23 (7/8")	63,5 (2,5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33020.W8830	22,23 (7/8")	76,2 (3")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33020.W8835	22,23 (7/8")	88,9 (3,5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33020.W8840	22,23 (7/8")	101,6 (4")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33020.W8845	22,23 (7/8")	114,3 (4,5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33020.W8850	22,23 (7/8")	127 (5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33020.W8855	22,23 (7/8")	139,7 (5,5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33020.W8860	22,23 (7/8")	152,4 (6")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33020.W8865	22,23 (7/8")	165,1 (6,5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33020.W8870	22,23 (7/8")	177,8 (7")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33020.W8880	22,23 (7/8")	203,2 (8")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33020.W1010	25,4 (1")	25,4 (1")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33020.W1015	25,4 (1")	38,1 (1,5")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33020.W1020	25,4 (1")	50,8 (2")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33020.W1025	25,4 (1")	63,5 (2,5")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33020.W1030	25,4 (1")	76,2 (3")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33020.W1035	25,4 (1")	88,9 (3,5")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33020.W1040	25,4 (1")	101,6 (4")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33020.W1045	25,4 (1")	114,3 (4,5")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33020.W1050	25,4 (1")	127 (5")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33020.W1055	25,4 (1")	139,7 (5,5")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33020.W1060	25,4 (1")	152,4 (6")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33020.W1070	25,4 (1")	177,8 (7")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33020.W1080	25,4 (1")	203,2 (8")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0

Material
Shaft: Stainless steel, AISI 303.
Ball & Spring: Stainless steel, AISI 316.

Technical Notes
Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
For locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins etc where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

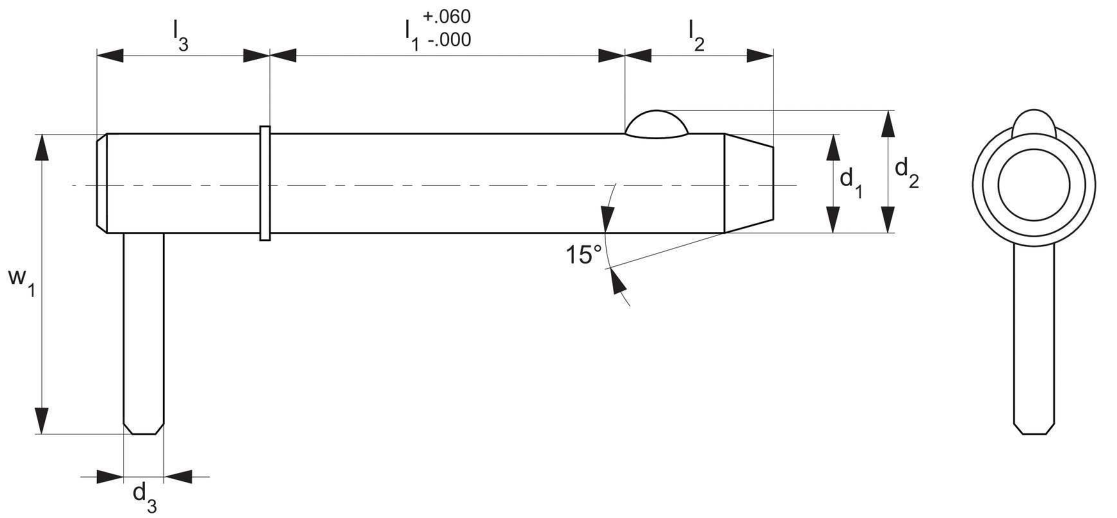
Tips
Also available on request in A4 (AISI 316) stainless steel, subject to min. quantity.

Referral
Also available in steel, see part no. 33018.

Detent Pin - L Handle - Shoulder

steel

33022



Order No.	d1 +0.00 -0.08	l1 grip +1,50 -0,00	d2	d3	l2	l3	w1	Pull out strength kg	Min. single shear strength kN
33022.W1803	4,76 (3/16")	7,62 (0,3")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	10,8
33022.W1805	4,76 (3/16")	12,7 (0,5")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	10,8
33022.W1810	4,76 (3/16")	25,4 (1")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	10,8
33022.W1815	4,76 (3/16")	38,1 (1,5")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	10,8
33022.W1820	4,76 (3/16")	50,8 (2")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	10,8
33022.W1825	4,76 (3/16")	63,5 (2,5")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	10,8
33022.W1830	4,76 (3/16")	76,2 (3")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	10,8
33022.W1835	4,76 (3/16")	88,9 (3,5")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	10,8
33022.W1840	4,76 (3/16")	101,6 (4")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	10,8
33022.W2505	6,35 (1/4")	12,7 (0,5")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	19,3
33022.W2506	6,35 (1/4")	15,24 (0,6")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	19,3
33022.W2510	6,35 (1/4")	25,4 (1")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	19,3
33022.W2515	6,35 (1/4")	38,1 (1,5")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	19,3
33022.W2520	6,35 (1/4")	50,8 (2")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	19,3
33022.W2525	6,35 (1/4")	63,5 (2,5")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	19,3
33022.W2530	6,35 (1/4")	76,2 (3")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	19,3
33022.W2535	6,35 (1/4")	88,9 (3,5")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	19,3
33022.W2540	6,35 (1/4")	101,6 (4")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	19,3
33022.W3105	7,94 (5/16")	12,7 (0,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33022.W3110	7,94 (5/16")	25,4 (1")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33022.W3115	7,94 (5/16")	38,1 (1,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33022.W3120	7,94 (5/16")	50,8 (2")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33022.W3125	7,94 (5/16")	63,5 (2,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33022.W3130	7,94 (5/16")	76,2 (3")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33022.W3135	7,94 (5/16")	88,9 (3,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33022.W3140	7,94 (5/16")	101,6 (4")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33022.W3145	7,94 (5/16")	114,3 (4,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33022.W3150	7,94 (5/16")	127 (5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	30,0
33022.W3705	9,53 (3,8")	12,7 (0,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33022.W3706	9,53 (3,8")	15,24 (0,6")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33022.W3710	9,53 (3,8")	25,4 (1")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33022.W3715	9,53 (3,8")	38,1 (1,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33022.W3718	9,53 (3,8")	45,72 (1,8")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33022.W3720	9,53 (3,8")	50,8 (2")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33022.W3725	9,53 (3,8")	63,5 (2,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33022.W3730	9,53 (3,8")	76,2 (3")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33022.W3735	9,53 (3,8")	88,9 (3,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33022.W3740	9,53 (3,8")	101,6 (4")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33022.W3745	9,53 (3,8")	114,3 (4,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33022.W3750	9,53 (3,8")	127 (5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33022.W3755	9,53 (3,8")	139,7 (5,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33022.W3760	9,53 (3,8")	152,4 (6")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	43,3
33022.W4305	11,11(7,16")	12,7 (0,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	58,9

Material

Shaft: Carbon steel (C1144), zinc plated.
Ball & spring: Stainless steel AISI 316.

Technical Notes

Detent Pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
Can be used for locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins and as replacement for cotter pins where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

Tips

Also available in stainless steel see part no. 33024.

Detent Pin - L Handle - Shoulder

steel

33022

Order No.	d_1 +0.00 -0.08	l_1 grip +1,50 -0,00	d_2	d_3	l_2	l_3	w_1	Pull out strength kg	Min. single shear strength kN
33022.W4310	11,11(7,16")	25,4 (1")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	58,9
33022.W4315	11,11(7,16")	38,1 (1,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	58,9
33022.W4320	11,11(7,16")	50,8 (2")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	58,9
33022.W4325	11,11(7,16")	63,5 (2,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	58,9
33022.W4330	11,11(7,16")	76,2 (3")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	58,9
33022.W4335	11,11(7,16")	88,9 (3,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	58,9
33022.W4340	11,11(7,16")	101,6 (4")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	58,9
33022.W4345	11,11(7,16")	114,3 (4,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	58,9
33022.W4350	11,11(7,16")	127 (5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	58,9
33022.W4355	11,11(7,16")	139,7 (5,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	58,9
33022.W4360	11,11(7,16")	152,4 (6")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	58,9
33022.W5005	12,7 (1/2")	12,7 (0,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	77,0
33022.W5010	12,7 (1/2")	25,4 (1")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	77,0
33022.W5013	12,7 (1/2")	33,02 (1,3")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	77,0
33022.W5015	12,7 (1/2")	38,1 (1,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	77,0
33022.W5020	12,7 (1/2")	50,8 (2")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	77,0
33022.W5025	12,7 (1/2")	63,5 (2,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	77,0
33022.W5035	12,7 (1/2")	88,9 (3,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	77,0
33022.W5040	12,7 (1/2")	101,6 (4")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	77,0
33022.W5045	12,7 (1/2")	114,3 (4,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	77,0
33022.W5050	12,7 (1/2")	127 (5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	77,0
33022.W5055	12,7 (1/2")	139,7 (5,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	77,0
33022.W5060	12,7 (1/2")	152,4 (6")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	77,0
33022.W5065	12,7 (1/2")	165,1 (6,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	77,0
33022.W5070	12,7 (1/2")	177,8 (7")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	77,0
33022.W5610	14,29 (9/16")	25,4 (1")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	97,6
33022.W5615	14,29 (9/16")	38,1 (1,5")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	97,6
33022.W5620	14,29 (9/16")	50,8 (2")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	97,6
33022.W5625	14,29 (9/16")	63,5 (2,5")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	97,6
33022.W5630	14,29 (9/16")	76,2 (3")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	97,6
33022.W5635	14,29 (9/16")	88,9 (3,5")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	97,6
33022.W5640	14,29 (9/16")	101,6 (4")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	97,6
33022.W5645	14,29 (9/16")	114,3 (4,5")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	97,6
33022.W5650	14,29 (9/16")	127 (5")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	97,6
33022.W5655	14,29 (9/16")	139,7 (5,5")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	97,6
33022.W5660	14,29 (9/16")	152,4 (6")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	97,6
33022.W5670	14,29 (9/16")	177,8 (7")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	97,6
33022.W6210	15,88 (5/8")	25,4 (1")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	121,6
33022.W6215	15,88 (5/8")	38,1 (1,5")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	121,6
33022.W6220	15,88 (5/8")	50,8 (2")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	121,6
33022.W6225	15,88 (5/8")	63,5 (2,5")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	121,6
33022.W6230	15,88 (5/8")	76,2 (3")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	121,6
33022.W6235	15,88 (5/8")	88,9 (3,5")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	121,6
33022.W6240	15,88 (5/8")	101,6 (4")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	121,6
33022.W6245	15,88 (5/8")	114,3 (4,5")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	121,6
33022.W6250	15,88 (5/8")	127 (5")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	121,6
33022.W6255	15,88 (5/8")	139,7 (5,5")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	121,6
33022.W6260	15,88 (5/8")	152,4 (6")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	121,6
33022.W6270	15,88 (5/8")	177,8 (7")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	121,6
33022.W6280	15,88 (5/8")	203,2 (8")	18,03	57,15	19,05	27,31	31,75	6,36 - 7,26	121,6
33022.W7510	19,05 (3/4")	25,4 (1")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	173,6
33022.W7515	19,05 (3/4")	38,1 (1,5")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	173,6
33022.W7520	19,05 (3/4")	50,8 (2")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	173,6
33022.W7525	19,05 (3/4")	63,5 (2,5")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	173,6
33022.W7530	19,05 (3/4")	76,2 (3")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	173,6
33022.W7535	19,05 (3/4")	88,9 (3,5")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	173,6
33022.W7540	19,05 (3/4")	101,6 (4")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	173,6
33022.W7545	19,05 (3/4")	114,3 (4,5")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	173,6
33022.W7550	19,05 (3/4")	127 (5")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	173,6
33022.W7555	19,05 (3/4")	139,7 (5,5")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	173,6
33022.W7560	19,05 (3/4")	152,4 (6")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	173,6
33022.W7570	19,05 (3/4")	177,8 (7")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	173,6
33022.W7580	19,05 (3/4")	203,2 (8")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	173,6

Material

Shaft: Carbon steel (C1144), zinc plated.
Ball & spring: Stainless steel AISI 316.

Technical Notes

Detent Pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
Can be used for locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins and as replacement for cotter pins where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

Tips

Also available in stainless steel see part no. 33024.

Detent Pin - L Handle - Shoulder

steel

33022

Order No.	d_1 +0.00 -0.08	l_1 grip +1,50 -0,00	d_2	d_3	l_2	l_3	w_1	Pull out strength kg	Min. single shear strength kN
33022.W8810	22,23 (7/8")	25,4 (1")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	239,4
33022.W8815	22,23 (7/8")	38,1 (1,5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	239,4
33022.W8820	22,23 (7/8")	50,8 (2")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	239,4
33022.W8825	22,23 (7/8")	63,5 (2,5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	239,4
33022.W8830	22,23 (7/8")	76,2 (3")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	239,4
33022.W8835	22,23 (7/8")	88,9 (3,5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	239,4
33022.W8840	22,23 (7/8")	101,6 (4")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	239,4
33022.W8845	22,23 (7/8")	114,3 (4,5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	239,4
33022.W8850	22,23 (7/8")	127 (5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	239,4
33022.W8855	22,23 (7/8")	139,7 (5,5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	239,4
33022.W8860	22,23 (7/8")	152,4 (6")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	239,4
33022.W8865	22,23 (7/8")	165,1 (6,5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	239,4
33022.W8870	22,23 (7/8")	177,8 (7")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	239,4
33022.W8880	22,23 (7/8")	203,2 (8")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	239,4
33022.W1010	25,4 (1")	25,4 (1")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	312,3
33022.W1015	25,4 (1")	38,1 (1,5")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	312,3
33022.W1020	25,4 (1")	50,8 (2")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	312,3
33022.W1025	25,4 (1")	63,5 (2,5")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	312,3
33022.W1030	25,4 (1")	76,2 (3")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	312,3
33022.W1035	25,4 (1")	88,9 (3,5")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	312,3
33022.W1040	25,4 (1")	101,6 (4")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	312,3
33022.W1045	25,4 (1")	114,3 (4,5")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	312,3
33022.W1050	25,4 (1")	127 (5")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	312,3
33022.W1055	25,4 (1")	139,7 (5,5")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	312,3
33022.W1060	25,4 (1")	152,4 (6")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	312,3
33022.W1070	25,4 (1")	177,8 (7")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	312,3
33022.W1080	25,4 (1")	203,2 (8")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	312,3

Material

Shaft: Carbon steel (C1144), zinc plated.
Ball & spring: Stainless steel AISI 316.

Technical Notes

Detent Pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
Can be used for locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins and as replacement for cotter pins where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

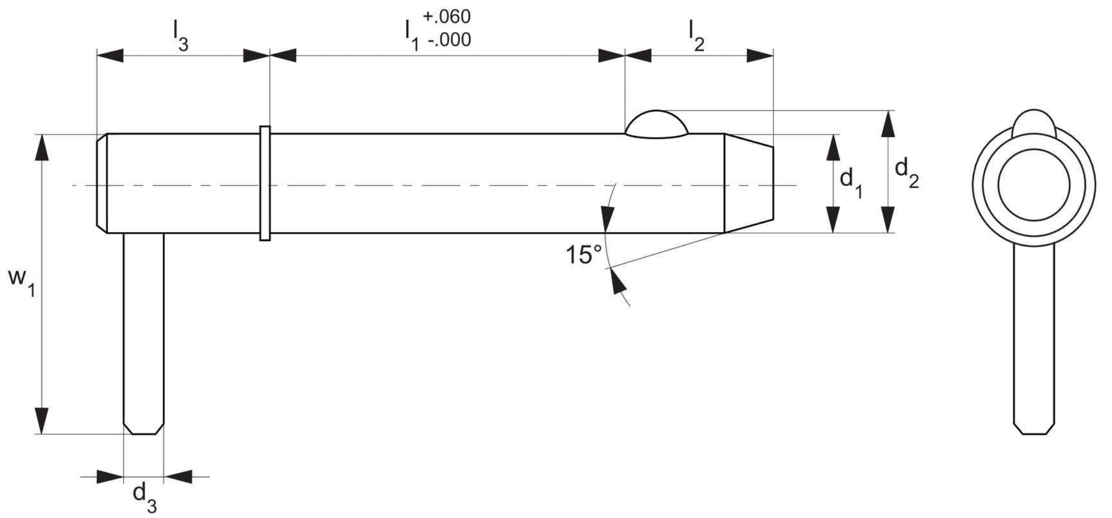
Tips

Also available in stainless steel see part no. 33024.

Detent Pin - L Handle - Shoulder

stainless steel

33024



Order No.	d1 +0.00, -0.08	l1 +1.5, -0.0	d2	d3	l2	l3	w1	Pull out strength kg	Min. single shear strength kN
33024.W1803	4,76 (3/16")	7,62 (0,3")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	12,2
33024.W1805	4,76 (3/16")	12,7 (0,5")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	12,2
33024.W1810	4,76 (3/16")	25,4 (1")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	12,2
33024.W1815	4,76 (3/16")	38,1 (1,5")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	12,2
33024.W1820	4,76 (3/16")	50,8 (2")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	12,2
33024.W1825	4,76 (3/16")	63,5 (2,5")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	12,2
33024.W1830	4,76 (3/16")	76,2 (3")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	12,2
33024.W1835	4,76 (3/16")	88,9 (3,5")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	12,2
33024.W1840	4,76 (3/16")	101,6 (4")	5,18	2,38	5,08	17,45	25,4	1, 9 - 2, 3	12,2
33024.W2505	6,35 (1/4")	12,7 (0,5")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	21,7
33024.W2506	6,35 (1/4")	15,24 (0,6")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	21,7
33024.W2510	6,35 (1/4")	25,4 (1")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	21,7
33024.W2515	6,35 (1/4")	38,1 (1,5")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	21,7
33024.W2520	6,35 (1/4")	50,8 (2")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	21,7
33024.W2525	6,35 (1/4")	63,5 (2,5")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	21,7
33024.W2530	6,35 (1/4")	76,2 (3")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	21,7
33024.W2535	6,35 (1/4")	88,9 (3,5")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	21,7
33024.W2540	6,35 (1/4")	101,6 (4")	7,26	3,17	7,92	18,29	25,4	2,27 - 2,73	21,7
33024.W3105	7,94 (5/16")	12,7 (0,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33024.W3110	7,94 (5/16")	25,4 (1")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33024.W3115	7,94 (5/16")	38,1 (1,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33024.W3120	7,94 (5/16")	50,8 (2")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33024.W3125	7,94 (5/16")	63,5 (2,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33024.W3130	7,94 (5/16")	76,2 (3")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33024.W3135	7,94 (5/16")	88,9 (3,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33024.W3140	7,94 (5/16")	101,6 (4")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33024.W3145	7,94 (5/16")	114,3 (4,5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33024.W3150	7,94 (5/16")	127 (5")	9,09	3,96	9,53	19,05	25,4	2,27 - 2,73	33,8
33024.W3705	9,53 (3,8")	12,7 (0,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33024.W3706	9,53 (3,8")	15,24 (0,6")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33024.W3710	9,53 (3,8")	25,4 (1")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33024.W3715	9,53 (3,8")	38,1 (1,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33024.W3718	9,53 (3,8")	45,72 (1,8")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33024.W3720	9,53 (3,8")	50,8 (2")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33024.W3725	9,53 (3,8")	63,5 (2,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33024.W3730	9,53 (3,8")	76,2 (3")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33024.W3735	9,53 (3,8")	88,9 (3,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33024.W3740	9,53 (3,8")	101,6 (4")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33024.W3745	9,53 (3,8")	114,3 (4,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33024.W3750	9,53 (3,8")	127 (5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33024.W3755	9,53 (3,8")	139,7 (5,5")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33024.W3760	9,53 (3,8")	152,4 (6")	10,82	3,96	12,7	19,05	25,4	3,63 - 4,54	49,1
33024.W4305	11,11(7/16")	12,7 (0,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5

Material

Shaft: Stainless steel, AISI 303.
Ball & Spring: Stainless steel, AISI 316.

Technical Notes

Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
For locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins etc where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

Tips

Also available on request in A4 (AISI 316) stainless steel, subject to min. quantity.

Referral

Also available in steel, see part no. 33022.

Detent Pin - L Handle - Shoulder

stainless steel

33024

Order No.	d_1 +0.00, -0.08	l_1 +1.5, -0.0	d_2	d_3	l_2	l_3	w_1	Pull out strength kg	Min. single shear strength kN
33024.W4310	11,11(7/16")	25,4 (1")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33024.W4315	11,11(7/16")	38,1 (1,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33024.W4320	11,11(7/16")	50,8 (2")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33024.W4325	11,11(7/16")	63,5 (2,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33024.W4330	11,11(7/16")	76,2 (3")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33024.W4335	11,11(7/16")	88,9 (3,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33024.W4340	11,11(7/16")	101,6 (4")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33024.W4345	11,11(7/16")	114,3 (4,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33024.W4350	11,11(7/16")	127 (5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33024.W4355	11,11(7/16")	139,7 (5,5")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33024.W4360	11,11(7/16")	152,4 (6")	12,6	3,96	14,27	24,13	25,4	4,09 - 5,45	66,5
33024.W5005	12,7 (1/2")	12,7 (0,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33024.W5010	12,7 (1/2")	25,4 (1")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33024.W5013	12,7 (1/2")	33,02 (1,3")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33024.W5015	12,7 (1/2")	38,1 (1,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33024.W5020	12,7 (1/2")	50,8 (2")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33024.W5025	12,7 (1/2")	63,5 (2,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33024.W5035	12,7 (1/2")	88,9 (3,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33024.W5040	12,7 (1/2")	101,6 (4")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33024.W5045	12,7 (1/2")	114,3 (4,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33024.W5050	12,7 (1/2")	127 (5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33024.W5055	12,7 (1/2")	139,7 (5,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33024.W5060	12,7 (1/2")	152,4 (6")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33024.W5065	12,7 (1/2")	165,1 (6,5")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33024.W5070	12,7 (1/2")	177,8 (7")	14,48	4,76	15,88	25,7	31,75	4,54 - 5,45	87,1
33024.W5610	14,29 (9/16")	25,4 (1")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33024.W5615	14,29 (9/16")	38,1 (1,5")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33024.W5620	14,29 (9/16")	50,8 (2")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33024.W5625	14,29 (9/16")	63,5 (2,5")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33024.W5630	14,29 (9/16")	76,2 (3")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33024.W5635	14,29 (9/16")	88,9 (3,5")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33024.W5640	14,29 (9/16")	101,6 (4")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33024.W5645	14,29 (9/16")	114,3 (4,5")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33024.W5650	14,29 (9/16")	127 (5")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33024.W5655	14,29 (9/16")	139,7 (5,5")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33024.W5660	14,29 (9/16")	152,4 (6")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33024.W5670	14,29 (9/16")	177,8 (7")	16,31	4,76	17,45	25,7	31,75	5,45 - 6,81	110,3
33024.W6210	15,88 (5/8")	25,4 (1")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33024.W6215	15,88 (5/8")	38,1 (1,5")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33024.W6220	15,88 (5/8")	50,8 (2")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33024.W6225	15,88 (5/8")	63,5 (2,5")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33024.W6230	15,88 (5/8")	76,2 (3")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33024.W6235	15,88 (5/8")	88,9 (3,5")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33024.W6240	15,88 (5/8")	101,6 (4")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33024.W6245	15,88 (5/8")	114,3 (4,5")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33024.W6250	15,88 (5/8")	127 (5")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33024.W6255	15,88 (5/8")	139,7 (5,5")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33024.W6260	15,88 (5/8")	152,4 (6")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33024.W6270	15,88 (5/8")	177,8 (7")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33024.W6280	15,88 (5/8")	203,2 (8")	18,03	6,35	19,05	27,31	31,75	6,36 - 7,26	137,3
33024.W7510	19,05 (3/4")	25,4 (1")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33024.W7515	19,05 (3/4")	38,1 (1,5")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33024.W7520	19,05 (3/4")	50,8 (2")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33024.W7525	19,05 (3/4")	63,5 (2,5")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33024.W7530	19,05 (3/4")	76,2 (3")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33024.W7535	19,05 (3/4")	88,9 (3,5")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33024.W7540	19,05 (3/4")	101,6 (4")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33024.W7545	19,05 (3/4")	114,3 (4,5")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33024.W7550	19,05 (3/4")	127 (5")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33024.W7555	19,05 (3/4")	139,7 (5,5")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33024.W7560	19,05 (3/4")	152,4 (6")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33024.W7570	19,05 (3/4")	177,8 (7")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9
33024.W7580	19,05 (3/4")	203,2 (8")	21,74	6,35	23,8	34,93	38,1	8,17 - 9,98	195,9

Material

Shaft: Stainless steel, AISI 303.
Ball & Spring: Stainless steel, AISI 316.

Technical Notes

Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
For locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins etc where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

Tips

Also available on request in A4 (AISI 316) stainless steel, subject to min. quantity.

Referral

Also available in steel, see part no. 33022.

Detent Pin - L Handle - Shoulder

stainless steel

33024

Order No.	d_1 +0.00, -0.08	l_1 +1.5, -0.0	d_2	d_3	l_2	l_3	w_1	Pull out strength kg	Min. single shear strength kN
33024.W8810	22,23 (7/8")	25,4 (1")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33024.W8815	22,23 (7/8")	38,1 (1,5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33024.W8820	22,23 (7/8")	50,8 (2")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33024.W8825	22,23 (7/8")	63,5 (2,5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33024.W8830	22,23 (7/8")	76,2 (3")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33024.W8835	22,23 (7/8")	88,9 (3,5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33024.W8840	22,23 (7/8")	101,6 (4")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33024.W8845	22,23 (7/8")	114,3 (4,5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33024.W8850	22,23 (7/8")	127 (5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33024.W8855	22,23 (7/8")	139,7 (5,5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33024.W8860	22,23 (7/8")	152,4 (6")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33024.W8865	22,23 (7/8")	165,1 (6,5")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33024.W8870	22,23 (7/8")	177,8 (7")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33024.W8880	22,23 (7/8")	203,2 (8")	25,3	9,52	25,4	38,1	38,1	12,71 - 14,07	262,4
33024.W1010	25,4 (1")	25,4 (1")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33024.W1015	25,4 (1")	38,1 (1,5")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33024.W1020	25,4 (1")	50,8 (2")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33024.W1025	25,4 (1")	63,5 (2,5")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33024.W1030	25,4 (1")	76,2 (3")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33024.W1035	25,4 (1")	88,9 (3,5")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33024.W1040	25,4 (1")	101,6 (4")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33024.W1045	25,4 (1")	114,3 (4,5")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33024.W1050	25,4 (1")	127 (5")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33024.W1055	25,4 (1")	139,7 (5,5")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33024.W1060	25,4 (1")	152,4 (6")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33024.W1070	25,4 (1")	177,8 (7")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0
33024.W1080	25,4 (1")	203,2 (8")	28,96	9,52	31,75	38,1	38,1	15,88 - 18,15	353,0

Material

Shaft: Stainless steel, AISI 303.
Ball & Spring: Stainless steel, AISI 316.

Technical Notes

Detent pins are very economical for use in commercial and military equipment.
The solid body with direct spring loaded ball ensures reliable operation.
For locking telescopic tubing, securing bracket assemblies, as anchor clevis fittings, hinge pins etc where frequent removal is necessary.
Hole sizes - commercial drills provide clearance for our standard pins.
Inch dimensions in brackets ( ).

Tips

Also available on request in A4 (AISI 316) stainless steel, subject to min. quantity.

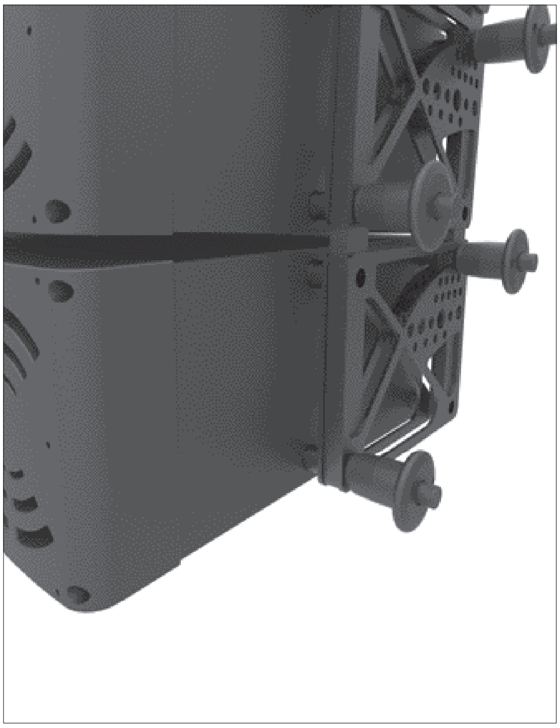
Referral

Also available in steel, see part no. 33022.

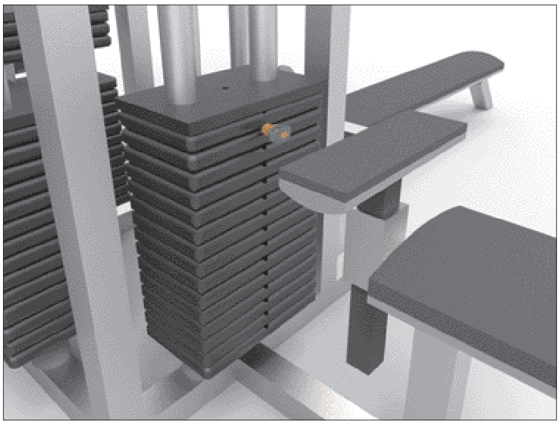
Sound rigging systems

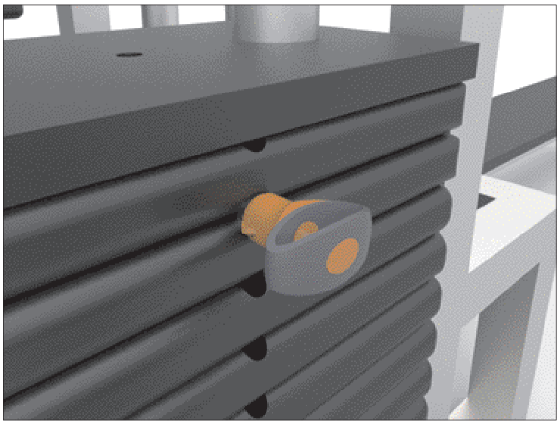
Ball lock pins on a sound rigging system. Offering secure fixing with high shear forces and easy fitting for operators at heights.

In addition full black powder coating of grip and actuation button eliminates glare from other stage lighting.

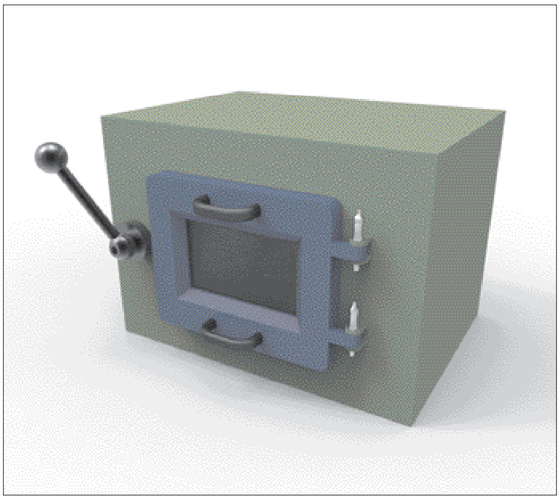


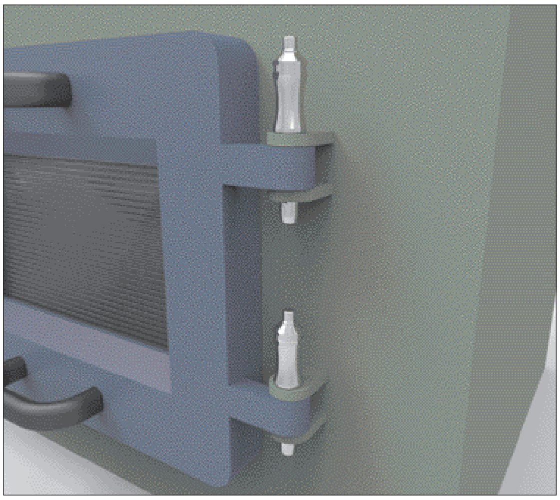
Gym equipment





Scientific and medical

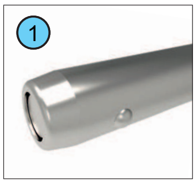


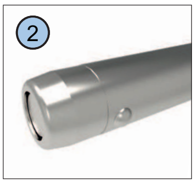


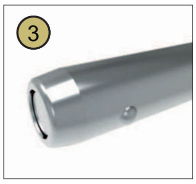
Wixroyd 0845 26 66 577 info@wixroyd.com

Pin material

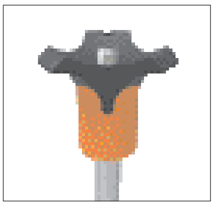
1. 1.4305 (AISI 303) - shear force approx. 60% of higher material version 1.4542
2. 1.4542 (AISI 630) - identified by the ridge on the pin
3. CRES 17-4PH (AMS 5643) aviation standard







Handle style

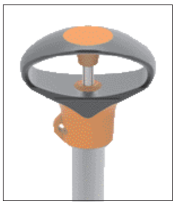

Plastic tri-star


T-handled, metal


L-handled, metal


Mushroom, metal


Single piece metal, contoured


Special plastic self-spring


Adjustable grip length, plastic


Key ring


Safety, metal


Mushroom Type B aviation


Type R aviation

Lanyards and locating bushes


Stainless wire - (coated) - 2 x key ring


Stainless wire - Key ring and fixing loop


Plastic - 2 x cable tie

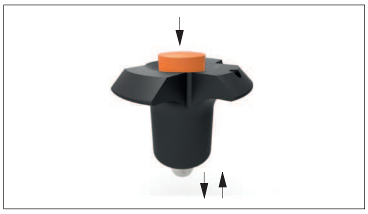

Steel wire - (coated) - 2 x key ring


Stainless bead chain - 2 x key ring


Locating bushes

Actuation

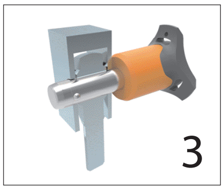

Press = unlock
Release = lock
(standard)


Press = unlock and position
Release = lock and simultaneous clamp

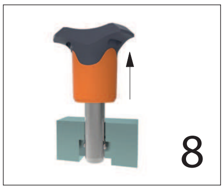

Simple spring loaded balls "pullout pin"

Important note

Important Note: Ball lock pins are not suited to lifting applications!
For quick release lifting pins, see part 33400.



Shear force



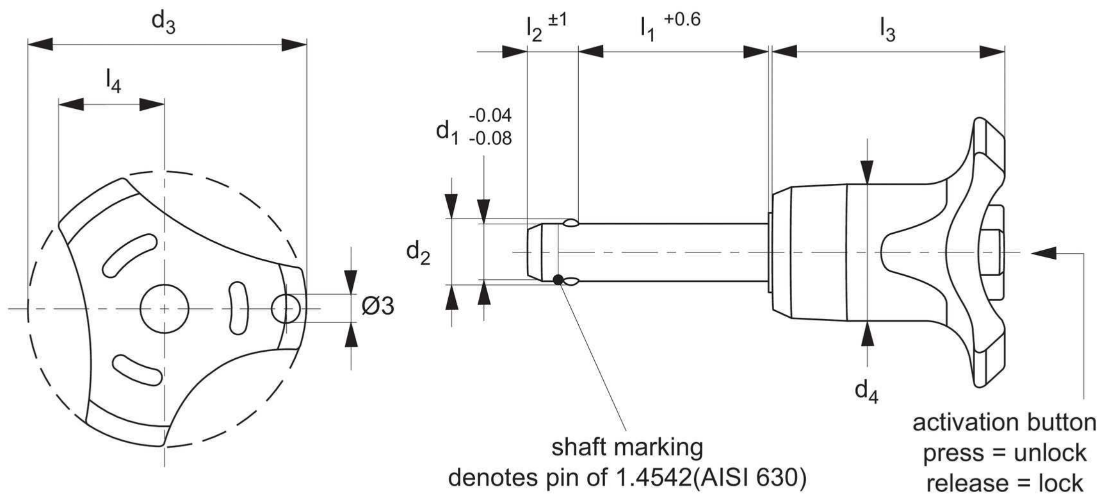
Lifting force

Special variations

Variations on our standard designs are possible, please contact our sales team for technical assistance. Quick production on specials can be as little as 3 weeks.

Ball Lock Pins - Single Acting - Black Plastic Handle

self-locking - stainless steel 1.4542 (AISI 630)



Order No.	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Loc'n hole H11	Shearing resistance, double kN min.*	g
33060.W0812	5	10	5,5	33,2	14,5	6,0	26,7	10,8	5	24	15
33060.W0813	5	15	5,5	33,2	14,5	6,0	26,7	10,8	5	24	15
33060.W0814	5	20	5,5	33,2	14,5	6,0	26,7	10,8	5	24	16
33060.W0815	5	25	5,5	33,2	14,5	6,0	26,7	10,8	5	24	17
33060.W0816	5	30	5,5	33,2	14,5	6,0	26,7	10,8	5	24	18
33060.W0817	6	60	7,0	33,2	14,5	7,0	26,7	10,8	6	21	26
33060.W0818	6	70	7,0	33,2	14,5	7,0	26,7	10,8	6	21	28
33060.W0819	6	80	7,0	33,2	14,5	7,0	26,7	10,8	6	21	30
33060.W0805	5	35	5,5	33,2	14,5	6,0	26,7	10,8	5	14	19
33060.W0806	5	40	5,5	33,2	14,5	6,0	26,7	10,8	5	14	20
33060.W0807	5	45	5,5	33,2	14,5	6,0	26,7	10,8	5	14	21
33060.W0808	5	50	5,5	33,2	14,5	6,0	26,7	10,8	5	14	23
33060.W0809	5	60	5,5	33,2	14,5	6,0	26,7	10,8	5	14	24
33060.W0810	5	70	5,5	33,2	14,5	6,0	26,7	10,8	5	14	18
33060.W0811	5	80	5,5	33,2	14,5	6,0	26,7	10,8	5	14	19
33060.W0821	8	100	9,6	39,2	18,4	8,2	33,3	13,4	8	38	54
33060.W0822	6	10	7,0	33,2	14,5	7,0	26,7	10,8	6	35	16
33060.W0823	6	15	7,0	33,2	14,5	7,0	26,7	10,8	6	35	17
33060.W0824	6	20	7,0	33,2	14,5	7,0	26,7	10,8	6	35	18
33060.W0825	6	25	7,0	33,2	14,5	7,0	26,7	10,8	6	35	19
33060.W0826	6	30	7,0	33,2	14,5	7,0	26,7	10,8	6	35	20
33060.W0827	6	35	7,0	33,2	14,5	7,0	26,7	10,8	6	35	21
33060.W0828	6	40	7,0	33,2	14,5	7,0	26,7	10,8	6	35	22
33060.W0829	6	45	7,0	33,2	14,5	7,0	26,7	10,8	6	35	23
33060.W0830	6	50	7,0	33,2	14,5	7,0	26,7	10,8	6	35	24
33060.W0831	8	90	9,6	39,2	18,4	8,2	33,3	13,4	8	38	36
33060.W0832	8	10	9,6	39,2	18,4	8,2	33,3	13,4	8	38	38
33060.W0833	8	15	9,6	39,2	18,4	8,2	33,3	13,4	8	38	58
33060.W0834	8	20	9,6	39,2	19,3	8,2	33,3	13,4	8	63	40
33060.W0835	8	25	9,6	39,2	19,3	8,2	33,3	13,4	8	63	40
33060.W0836	8	30	9,6	39,2	19,3	8,2	33,3	13,4	8	63	44
33060.W0837	8	35	9,6	39,2	19,3	8,2	33,3	13,4	8	63	44
33060.W0838	8	40	9,6	39,2	19,3	8,2	33,3	13,4	8	63	47
33060.W0839	8	45	9,6	39,2	19,3	8,2	33,3	13,4	8	63	47
33060.W0840	8	50	9,6	39,2	19,3	8,2	33,3	13,4	8	63	47
33060.W0841	8	60	9,6	39,2	18,4	8,2	33,3	13,4	8	38	62
33060.W0842	8	70	9,6	39,2	18,4	8,2	33,3	13,4	8	38	65
33060.W0843	8	80	9,6	39,2	18,4	8,2	33,3	13,4	8	38	69
33060.W0844	10	20	12,0	39,2	19,3	9,6	33,3	13,4	10	100	47
33060.W0845	10	25	12,0	39,2	19,3	9,6	33,3	13,4	10	100	49
33060.W0846	10	30	12,0	39,2	19,3	9,6	33,3	13,4	10	100	53
33060.W0847	10	35	12,0	39,2	19,3	9,6	33,3	13,4	10	100	55
33060.W0848	10	40	12,0	39,2	19,3	9,6	33,3	13,4	10	100	58
33060.W0849	10	45	12,0	39,2	19,3	9,6	33,3	13,4	10	100	61
33060.W0850	10	50	12,0	39,2	19,3	9,6	33,3	13,4	10	100	61
33060.W0851	10	15	12,0	39,2	18,4	9,6	33,3	13,4	10	60	86
33060.W0852	10	60	12,0	39,2	19,3	9,6	33,3	13,4	10	100	70
33060.W0853	10	70	12,0	39,2	18,4	9,6	33,3	13,4	10	60	91

Material

Pin: stainless steel 1,4542 (AISI 630), precipitation hardened, blast finish. (marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey, black/black.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips

For lanyards & retaining cables see part no.33250. Easy install locating bushes available see part no.33248.

Important Notes

Extreme load capacity due to high material grade.
*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4305 (AISI 303), see part no.33080.

STAINLESS STEEL 630

HIGH SHEAR FORCES

Ball Lock Pins - Single Acting - Black Plastic Handle

self-locking - stainless steel 1.4542 (AISI 630)

33060

Order No.	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Loc'n hole H11	Shearing resistanc e, double kN min.*	g
33060.W0854	10	80	12,0	39,2	18,4	9,6	33,3	13,4	10	60	97
33060.W0855	10	90	12,0	39,2	18,4	9,6	33,3	13,4	10	60	103
33060.W0856	10	100	12,0	39,2	18,4	9,6	33,3	13,4	10	60	109
33060.W0857	10	110	12,0	39,2	18,4	9,6	33,3	13,4	10	60	115
33060.W0858	10	120	12,0	39,2	18,4	9,6	33,3	13,4	10	60	53
33060.W0864	12	20	14,5	47,6	25,2	10,6	39,7	16,7	12	87	156
33060.W0865	10	25	12,0	39,2	19,3	9,6	33,3	13,4	10	100	70
33060.W0866	12	30	14,5	47,6	26,3	10,6	39,7	16,7	12	144	100
33060.W0867	12	35	14,5	47,6	26,3	10,6	39,7	16,7	12	144	105
33060.W0868	12	40	14,5	47,6	26,3	10,6	39,7	16,7	12	144	105
33060.W0869	12	45	14,5	47,6	26,3	10,6	39,7	16,7	12	144	113
33060.W0870	12	50	14,5	47,6	26,3	10,6	39,7	16,7	12	144	117
33060.W0872	12	60	14,5	47,6	26,3	10,6	39,7	16,7	12	144	126
33060.W0874	12	70	14,5	47,6	26,3	10,6	39,7	16,7	12	144	134
33060.W0876	12	80	14,5	47,6	26,3	10,6	39,7	16,7	12	144	143
33060.W0877	12	90	14,5	47,6	25,2	10,6	39,7	16,7	12	87	165
33060.W0878	12	100	14,5	47,6	25,2	10,6	39,7	16,7	12	87	173
33060.W0879	12	110	14,5	47,6	25,2	10,6	39,7	16,7	12	87	182
33060.W0880	12	120	14,5	47,6	25,2	10,6	39,7	16,7	12	87	96
33060.W0886	16	30	19,0	47,6	26,3	14,0	39,7	16,7	16	257	132
33060.W0887	16	35	19,0	47,6	26,3	14,0	39,7	16,7	16	257	140
33060.W0888	16	40	19,0	47,6	26,3	14,0	39,7	16,7	16	257	148
33060.W0889	16	45	19,0	47,6	26,3	14,0	39,7	16,7	16	257	155
33060.W0890	16	45	19,0	47,6	26,3	14,0	39,7	16,7	16	257	155
33060.W0892	16	60	19,0	47,6	26,3	14,0	39,7	16,7	16	257	178
33060.W0894	16	70	19,0	47,6	26,3	14,0	39,7	16,7	16	257	194
33060.W0896	16	80	19,0	47,6	26,3	14,0	39,7	16,7	16	257	208
33060.W0897	16	90	19,0	47,6	25,2	14,0	39,7	16,7	16	155	234
33060.W0898	16	10	19,0	47,6	25,2	14,0	39,7	16,7	16	155	251
33060.W0899	16	110	19,0	47,6	25,2	14,0	39,7	16,7	16	155	266
33060.W0900	16	120	19,0	47,6	25,2	14,0	39,7	16,7	16	155	281
33060.W0901	16	130	19,0	47,6	25,2	14,0	39,7	16,7	16	155	297
33060.W0902	16	140	19,0	47,6	25,2	14,0	39,7	16,7	16	155	313
33060.W0903	16	150	19,0	47,6	25,2	14,0	39,7	16,7	16	155	328
33060.W0904	20	60	25,0	57,1	35,4	20,5	50,7	21,5	20	403	343
33060.W0905	20	50	25,0	57,1	33,8	20,5	50,7	21,5	20	403	329
33060.W0906	20	70	25,0	57,1	33,8	20,5	50,7	21,5	20	403	377
33060.W0907	20	90	25,0	57,1	33,8	20,5	50,7	21,5	20	403	426
33060.W0908	20	80	25,0	57,1	35,4	20,5	50,7	21,5	20	403	392
33060.W0912	20	100	25,0	57,1	35,4	20,5	50,7	21,5	20	403	440
33060.W0913	20	110	25,0	57,1	33,8	20,5	50,7	21,5	20	403	474
33060.W0916	20	120	25,0	57,1	33,8	20,5	50,7	21,5	20	403	488
33060.W0917	20	130	25,0	57,1	33,8	20,5	50,7	21,5	20	403	523
33060.W0918	20	140	25,0	57,1	33,8	20,5	50,7	21,5	20	403	546
33060.W0919	20	150	25,0	57,1	33,8	20,5	50,7	21,5	20	403	571
33060.W0921	25	50	30,8	57,1	33,8	22,0	50,7	21,5	25	631	415
33060.W0922	25	60	30,8	57,1	33,8	22,0	50,7	21,5	25	631	453
33060.W0923	25	70	30,8	57,1	33,8	22,0	50,7	21,5	25	631	490
33060.W0924	25	80	30,8	57,1	33,8	22,0	50,7	21,5	25	631	528
33060.W0925	25	90	30,8	57,1	33,8	22,0	50,7	21,5	25	631	565
33060.W0926	25	100	30,8	57,1	33,8	22,0	50,7	21,5	25	631	603
33060.W0927	25	110	30,8	57,1	33,8	22,0	50,7	21,5	25	631	640
33060.W0928	25	120	30,8	57,1	33,8	22,0	50,7	21,5	25	631	678
33060.W0929	25	130	30,8	57,1	33,8	22,0	50,7	21,5	25	631	715
33060.W0930	25	140	30,8	57,1	33,8	22,0	50,7	21,5	25	631	753
33060.W0931	25	150	30,8	57,1	33,8	22,0	50,7	21,5	25	631	790

Material

Pin: stainless steel 1,4542 (AISI 630), precipitation hardened, blast finish. (marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey, black/black.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

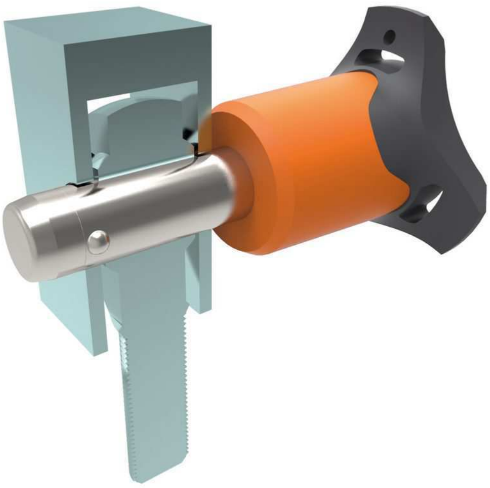
Tips

For lanyards & retaining cables see part no.33250. Easy install locating bushes available see part no.33248.

Important Notes

Extreme load capacity due to high material grade.
*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4305 (AISI 303), see part no.33080.

33060



Material
Pin: stainless steel 1,4542 (AISI 630), precipitation hardened, blast finish. (marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey, black/black.

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Releasing = locking.
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For quick fastening and locking of frequently repeated connections.

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Important Notes
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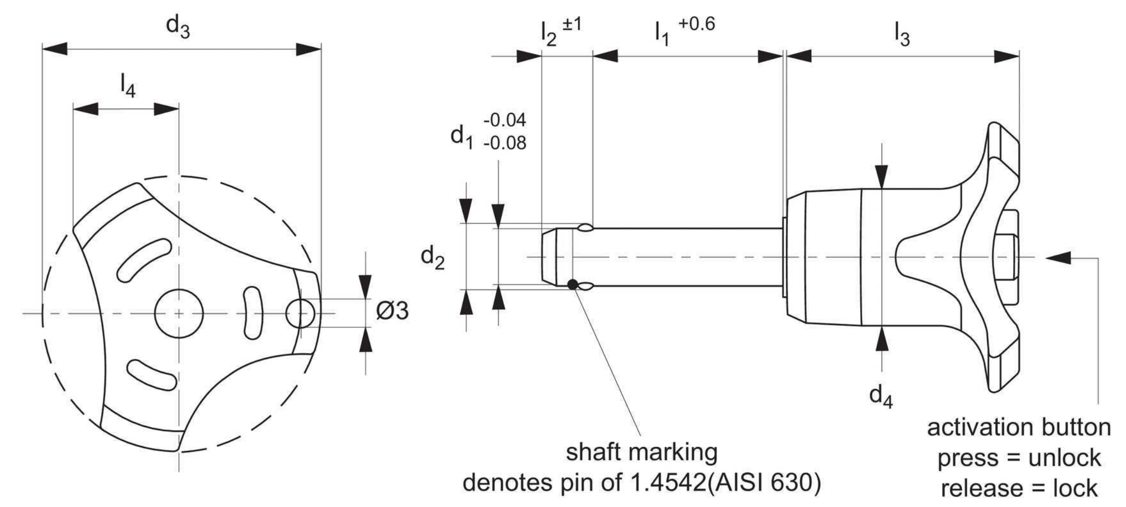
*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4305 (AISI 303), see part no.33080.



Order No.	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Loc'n hole H11	Shearing resistance, double @kN min.*	g
33060.W0432	5	10	5,5	33,2	14,5	6,0	26,7	10,8	5	24	15
33060.W0433	5	15	5,5	33,2	14,5	6,0	26,7	10,8	5	24	15
33060.W0434	5	20	5,5	33,2	14,5	6,0	26,7	10,8	5	24	16
33060.W0435	5	25	5,5	33,2	14,5	6,0	26,7	10,8	5	24	17
33060.W0436	5	30	5,5	33,2	14,5	6,0	26,7	10,8	5	24	18
33060.W0437	6	60	7,0	33,2	14,5	7,0	26,7	10,8	6	21	26
33060.W0438	6	70	7,0	33,2	14,5	7,0	26,7	10,8	6	21	28
33060.W0439	6	80	7,0	33,2	14,5	7,0	26,7	10,8	6	21	30
33060.W0425	5	35	5,5	33,2	14,5	6,0	26,7	10,8	5	14	19
33060.W0426	5	40	5,5	33,2	14,5	6,0	26,7	10,8	5	14	20
33060.W0427	5	45	5,5	33,2	14,5	6,0	26,7	10,8	5	14	21
33060.W0428	5	50	5,5	33,2	14,5	6,0	26,7	10,8	5	14	23
33060.W0429	5	60	5,5	33,2	14,5	6,0	26,7	10,8	5	14	24
33060.W0430	5	70	5,5	33,2	14,5	6,0	26,7	10,8	5	14	18
33060.W0431	5	80	5,5	33,2	14,5	6,0	26,7	10,8	5	14	19
33060.W0441	8	100	9,6	39,2	18,4	8,2	33,3	10,813,4	8	38	54
33060.W0442	6	10	7,0	33,2	14,5	7,0	26,7	10,8	6	35	16
33060.W0443	6	15	7,0	33,2	14,5	7,0	26,7	10,8	6	35	17
33060.W0444	6	20	7,0	33,2	14,5	7,0	26,7	10,8	6	35	18
33060.W0445	6	25	7,0	33,2	14,5	7,0	26,7	10,8	6	35	19
33060.W0446	6	30	7,0	33,2	14,5	7,0	26,7	10,8	6	35	20
33060.W0447	6	35	7,0	33,2	14,5	7,0	26,7	10,8	6	35	21
33060.W0448	6	40	7,0	33,2	14,5	7,0	26,7	10,8	6	35	22
33060.W0449	6	45	7,0	33,2	14,5	7,0	26,7	10,8	6	35	23
33060.W0450	6	50	7,0	33,2	14,5	7,0	26,7	10,8	6	35	24
33060.W0451	8	90	9,6	39,2	18,4	8,2	33,3	13,4	8	38	36
33060.W0452	8	10	9,6	39,2	18,4	8,2	33,3	13,4	8	38	24
33060.W0453	8	15	9,6	39,2	18,4	8,2	33,3	13,4	8	38	58
33060.W0454	8	20	9,6	39,2	19,3	8,2	33,3	13,4	8	63	40
33060.W0455	8	25	9,6	39,2	19,3	8,2	33,3	13,4	8	63	42
33060.W0456	8	30	9,6	39,2	19,3	8,2	33,3	13,4	8	63	44
33060.W0457	8	35	9,6	39,2	19,3	8,2	33,3	13,4	8	63	46
33060.W0458	8	40	9,6	39,2	19,3	8,2	33,3	13,4	8	63	47
33060.W0459	8	45	9,6	39,2	19,3	8,2	33,3	13,4	8	63	49
33060.W0460	8	50	9,6	39,2	18,4	8,2	33,3	13,4	8	63	51
33060.W0461	8	60	9,6	39,2	18,4	8,2	33,3	13,4	8	38	62
33060.W0462	8	70	9,6	39,2	18,4	8,2	33,3	13,4	8	38	65
33060.W0463	8	80	9,6	39,2	18,4	8,2	33,3	13,4	8	38	69
33060.W0464	10	20	12,0	39,2	19,3	9,6	33,3	13,4	10	100	47
33060.W0465	10	25	12,0	39,2	19,3	9,6	33,3	13,4	10	100	49
33060.W0466	10	30	12,0	39,2	19,3	9,6	33,3	13,4	10	100	53
33060.W0467	10	35	12,0	39,2	19,3	9,6	33,3	13,4	10	100	55
33060.W0468	10	40	12,0	39,2	19,3	9,6	33,3	13,4	10	100	58
33060.W0469	10	45	12,0	39,2	19,3	9,6	33,3	13,4	10	100	61
33060.W0470	10	50	12,0	39,2	19,3	9,6	33,3	13,4	10	100	64
33060.W0471	10	15	12,0	39,2	18,4	9,6	33,3	13,4	10	60	86

Material

Pin: stainless steel 1,4542 (AISI 630), precipitation hardened, blast finish. (marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey, black/black.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips

For lanyards & retaining cables see part no.33250. Easy install locating bushes available see part no.33248.

Important Notes

Extreme load capacity due to high material grade.
*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4305 (AISI 303), see part no.33080.

STAINLESS STEEL 630

HIGH SHEAR FORCES

Handle

self-locking - stainless steel 1.4542 (AISI 630)

33060

Order No.	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Loc'n hole H11	Shearing resistance, double @kN min.*	g
33060.W0472	10	60	12,0	39,2	19,3	9,6	33,3	13,4	10	100	70
33060.W0473	10	70	12,0	39,2	18,4	9,6	33,3	13,4	10	60	91
33060.W0474	10	80	12,0	39,2	18,4	9,6	33,3	13,4	10	60	97
33060.W0475	10	90	12,0	39,2	18,4	9,6	33,3	13,4	10	60	103
33060.W0476	10	100	12,0	39,2	18,4	9,6	33,3	13,4	10	60	109
33060.W0477	10	110	12,0	39,2	18,4	9,6	33,3	13,4	10	60	115
33060.W0478	10	120	12,0	39,2	18,4	9,6	33,3	13,4	10	60	53
33060.W0484	12	20	14,5	47,6	25,2	10,6	39,7	16,7	12	87	156
33060.W0485	12	25	14,5	47,6	26,3	10,6	39,7	16,7	12	144	96
33060.W0486	12	30	14,5	47,6	26,3	10,6	39,7	16,7	12	144	100
33060.W0487	12	35	14,5	47,6	26,3	10,6	39,7	16,7	12	144	105
33060.W0488	12	40	14,5	47,6	26,3	10,6	39,7	16,7	12	144	109
33060.W0489	12	45	14,5	47,6	26,3	10,6	39,7	16,7	12	144	113
33060.W0490	12	50	14,5	47,6	26,3	10,6	39,7	16,7	12	144	117
33060.W0492	12	60	14,5	47,6	26,3	10,6	39,7	16,7	12	144	126
33060.W0494	12	70	14,5	47,6	26,3	10,6	39,7	16,7	12	144	134
33060.W0496	12	80	14,5	47,6	26,3	10,6	39,7	16,7	12	144	143
33060.W0497	12	90	14,5	47,6	25,2	10,6	39,7	16,7	12	87	165
33060.W0498	12	100	14,5	47,6	25,2	10,6	39,7	16,7	12	87	173
33060.W0499	12	110	14,5	47,6	25,2	10,6	39,7	16,7	12	87	182
33060.W0500	12	120	14,5	47,6	25,2	10,6	39,7	16,7	12	87	96
33060.W0506	16	30	19,0	47,6	26,3	14,0	39,7	16,7	16	257	132
33060.W0507	16	35	19,0	47,6	26,3	14,0	39,7	16,7	16	257	140
33060.W0508	16	40	19,0	47,6	26,3	14,0	39,7	16,7	16	257	148
33060.W0509	16	45	19,0	47,6	26,3	14,0	39,7	16,7	16	257	155
33060.W0510	16	50	19,0	47,6	26,3	14,0	39,7	16,7	16	257	168
33060.W0512	16	60	19,0	47,6	26,3	14,0	39,7	16,7	16	257	178
33060.W0514	16	70	19,0	47,6	26,3	14,0	39,7	16,7	16	257	194
33060.W0516	16	80	19,0	47,6	26,3	14,0	39,7	16,7	16	257	208
33060.W0517	16	90	19,0	47,6	25,2	14,0	39,7	16,7	16	155	234
33060.W0518	16	100	19,0	47,6	25,2	14,0	39,7	16,7	16	155	251
33060.W0519	16	110	19,0	47,6	25,2	14,0	39,7	16,7	16	155	266
33060.W0520	16	120	19,0	47,6	25,2	14,0	39,7	16,7	16	155	281
33060.W0521	16	130	19,0	47,6	25,2	14,0	39,7	16,7	16	155	297
33060.W0522	16	140	19,0	47,6	25,2	14,0	39,7	16,7	16	155	313
33060.W0523	16	150	19,0	47,6	25,2	14,0	39,7	16,7	16	155	328
33060.W0531	20	50	25,0	57,1	33,8	20,5	50,7	21,5	20	403	329
33060.W0532	20	60	25,0	57,1	35,4	20,5	50,7	21,5	20	403	343
33060.W0533	20	70	25,0	57,1	33,8	20,5	50,7	21,5	20	403	377
33060.W0536	20	80	25,0	57,1	35,4	20,5	50,7	21,5	20	403	392
33060.W0537	20	90	25,0	57,1	33,8	20,5	50,7	21,5	20	403	426
33060.W0540	20	100	25,0	57,1	35,4	20,5	50,7	21,5	20	403	440
33060.W0541	20	110	25,0	57,1	33,8	20,5	50,7	21,5	20	403	474
33060.W0544	20	120	25,0	57,1	33,8	20,5	50,7	21,5	20	403	488
33060.W0545	20	130	25,0	57,1	33,8	20,5	50,7	21,5	20	403	523
33060.W0546	20	140	25,0	57,1	33,8	20,5	50,7	21,5	20	403	546
33060.W0547	20	150	25,0	57,1	33,8	20,5	50,7	21,5	20	403	571
33060.W0549	25	50	30,8	57,1	33,8	22,0	50,7	21,5	25	631	415
33060.W0550	25	60	30,8	57,1	33,8	22,0	50,7	21,5	25	631	453
33060.W0551	25	70	30,8	57,1	33,8	22,0	50,7	21,5	25	631	490
33060.W0552	25	80	30,8	57,1	33,8	22,0	50,7	21,5	25	631	528
33060.W0553	25	90	30,8	57,1	33,8	22,0	50,7	21,5	25	631	565
33060.W0554	25	100	30,8	57,1	33,8	22,0	50,7	21,5	25	631	603
33060.W0555	25	110	30,8	57,1	33,8	22,0	50,7	21,5	25	631	640
33060.W0556	25	120	30,8	57,1	33,8	22,0	50,7	21,5	25	631	678
33060.W0557	25	130	30,8	57,1	33,8	22,0	50,7	21,5	25	631	715
33060.W0558	25	140	30,8	57,1	33,8	22,0	50,7	21,5	25	631	753
33060.W0559	25	150	30,8	57,1	33,8	22,0	50,7	21,5	25	631	790

Material

Pin: stainless steel 1,4542 (AISI 630), precipitation hardened, blast finish. (marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey, black/black.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips

For lanyards & retaining cables see part no.33250. Easy install locating bushes available see part no.33248.

Important Notes

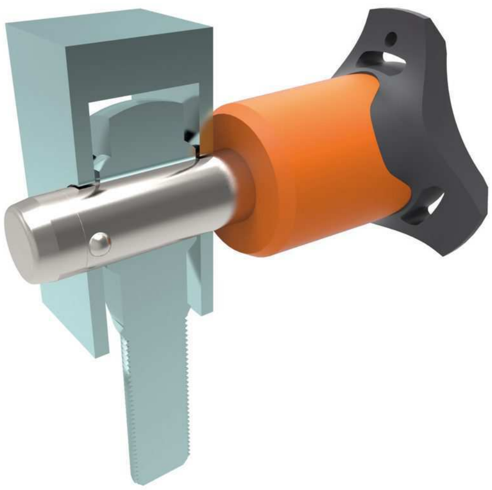
Extreme load capacity due to high material grade.
*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4305 (AISI 303), see part no.33080.

STAINLESS STEEL 630

HIGH SHEAR FORCES

Ball Lock Pins - Single Acting - Blue Plastic Handle

self-locking - stainless steel 1.4542 (AISI 630)



Material

Pin: stainless steel 1,4542 (AISI 630), precipitation hardened, blast finish. (marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey, black/black.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips

For lanyards & retaining cables see part no.33250. Easy install locating bushes available see part no.33248.

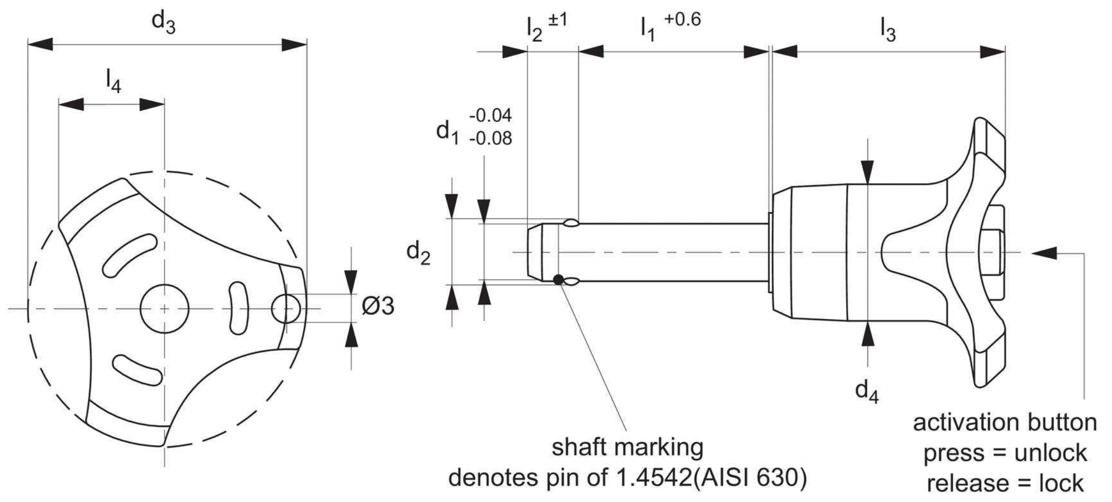
Important Notes

Extreme load capacity due to high material grade.
*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4305 (AISI 303), see part no.33080.

Ball Lock Pins - Single Acting - Grey Plastic Handle

self-locking - stainless steel 1.4542 (AISI 630)

33060



Order No.	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Loc'n hole H11	Shearing resistance, double kN min.*	g
33060.W0292	5	10	5,5	33,2	14,5	6,0	26,7	10,8	5	24	15
33060.W0293	5	15	5,5	33,2	14,5	6,0	26,7	10,8	5	24	15
33060.W0294	5	20	5,5	33,2	14,5	6,0	26,7	10,8	5	24	16
33060.W0295	5	25	5,5	33,2	14,5	6,0	26,7	10,8	5	24	17
33060.W0296	5	30	5,5	33,2	14,5	6,0	26,7	10,8	5	24	18
33060.W0297	6	60	7,0	33,2	14,5	7,0	26,7	10,8	6	21	26
33060.W0298	6	70	7,0	33,2	14,5	7,0	26,7	10,8	6	21	28
33060.W0299	6	80	7,0	33,2	14,5	7,0	26,7	10,8	6	21	30
33060.W0285	5	35	5,5	33,3	14,5	6,0	26,7	10,8	5	14	19
33060.W0286	5	40	5,5	33,4	14,5	6,0	26,7	10,8	5	14	20
33060.W0287	5	45	5,5	33,5	14,5	6,0	26,7	10,8	5	14	21
33060.W0288	5	50	5,5	33,6	14,5	6,0	26,7	10,8	5	14	23
33060.W0289	5	60	5,5	33,7	14,5	6,0	26,7	10,8	5	14	24
33060.W0290	5	70	5,5	33,8	14,5	6,0	26,7	10,8	5	14	18
33060.W0291	5	80	5,5	33,9	14,5	6,0	26,7	10,8	5	14	19
33060.W0301	8	100	9,6	39,2	18,4	8,2	33,3	13,4	8	38	54
33060.W0302	6	10	7,0	33,2	14,5	7,0	26,7	10,8	6	35	16
33060.W0303	6	15	7,0	33,2	14,5	7,0	26,7	10,8	6	35	17
33060.W0304	6	20	7,0	33,2	14,5	7,0	26,7	10,8	6	35	18
33060.W0305	6	25	7,0	33,2	14,5	7,0	26,7	10,8	6	35	19
33060.W0306	6	30	7,0	33,2	14,5	7,0	26,7	10,8	6	35	20
33060.W0307	6	35	7,0	33,2	14,5	7,0	26,7	10,8	6	35	21
33060.W0308	6	40	7,0	33,2	14,5	7,0	26,7	10,8	6	35	22
33060.W0309	6	45	7,0	33,2	14,5	7,0	26,7	10,8	6	35	23
33060.W0310	6	50	7,0	33,2	14,5	7,0	26,7	10,8	6	35	24
33060.W0311	8	90	7,0	39,2	18,4	8,2	33,3	13,4	8	38	36
33060.W0312	8	10	9,6	39,2	18,5	8,2	33,3	13,4	8	38	38
33060.W0313	8	15	9,6	39,2	18,5	8,2	33,3	13,4	8	38	58
33060.W0314	8	20	9,6	39,2	19,3	8,2	33,3	13,4	8	63	40
33060.W0315	8	25	9,6	39,2	19,3	8,2	33,3	13,4	8	63	42
33060.W0316	8	30	9,6	39,2	19,3	8,2	33,3	13,4	8	63	44
33060.W0317	8	35	9,6	39,2	19,3	8,2	33,3	13,4	8	63	46
33060.W0318	8	40	9,6	39,2	19,3	8,2	33,3	13,4	8	63	47
33060.W0319	8	45	9,6	39,2	19,3	8,2	33,3	13,4	8	63	49
33060.W0320	8	50	9,6	39,2	19,3	8,2	33,3	13,4	8	63	51
33060.W0321	8	50	9,6	39,2	19,3	8,2	33,3	13,4	8	63	51
33060.W0322	8	50	9,6	39,2	19,3	8,2	33,3	13,4	8	63	51
33060.W0323	8	80	9,6	39,2	18,4	8,2	33,3	13,4	8	38	69
33060.W0324	10	20	12,0	39,2	19,3	9,6	33,3	13,4	10	100	47
33060.W0325	10	25	12,0	39,2	19,3	9,6	33,3	13,4	10	100	49
33060.W0326	10	30	12,0	39,2	19,3	9,6	33,3	13,4	10	100	53
33060.W0327	10	35	12,0	39,2	19,3	9,6	33,3	13,4	10	100	55
33060.W0328	10	40	12,0	39,2	19,3	9,6	33,3	13,4	10	100	58
33060.W0329	10	45	12,0	39,2	19,3	9,6	33,3	13,4	10	100	61
33060.W0330	10	50	12,0	39,2	19,3	9,6	33,3	13,4	10	100	64
33060.W0331	10	15	12,0	39,2	18,4	9,6	33,3	13,4	10	60	86
33060.W0332	10	60	12,0	39,2	19,3	9,6	33,3	13,4	10	100	70
33060.W0333	10	91	12,0	39,2	18,4	9,6	33,3	13,4	10	60	70

Material

Pin: stainless steel 1,4542 (AISI 630), precipitation hardened, blast finish. (marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey, black/black.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips

For lanyards & retaining cables see part no.33250. Easy install locating bushes available see part no.33248.

Important Notes

Extreme load capacity due to high material grade.
*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4305 (AISI 303), see part no.33080.

Ball Lock Pins - Single Acting - Grey Plastic Handle

self-locking - stainless steel 1.4542 (AISI 630)

33060

Order No.	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Loc'n hole H11	Shearing resistance, double kN min.*	g
33060.W0334	10	80	12,0	39,2	18,4	9,6	33,3	13,4	10	60	97
33060.W0335	10	90	12,0	39,2	18,4	9,6	33,3	13,4	10	60	103
33060.W0336	10	100	12,0	39,2	18,4	9,6	33,3	13,4	10	60	109
33060.W0337	10	110	12,0	39,2	18,4	9,6	33,3	13,4	10	60	115
33060.W0338	10	120	12,0	39,2	18,4	9,6	33,3	13,4	10	60	53
33060.W0339	12	20	14,5	47,6	25,2	10,6	39,7	16,7	12	87	156
33060.W0344	12	20	14,5	47,6	26,3	10,6	39,7	16,7	12	87	156
33060.W0345	12	25	14,5	47,6	26,3	10,6	39,7	16,7	12	144	96
33060.W0346	12	30	14,5	47,6	26,3	10,6	39,7	16,7	12	144	100
33060.W0347	12	35	14,5	47,6	26,3	10,6	39,7	16,7	12	144	105
33060.W0348	12	40	14,5	47,6	26,3	10,6	39,7	16,7	12	144	109
33060.W0349	12	45	14,5	47,6	26,3	10,6	39,7	16,7	12	144	113
33060.W0350	12	50	14,5	47,6	26,3	10,6	39,7	16,7	12	144	117
33060.W0352	12	60	14,5	47,6	26,3	10,6	39,7	16,7	12	144	126
33060.W0354	12	70	14,5	47,6	26,3	10,6	39,7	16,7	12	144	134
33060.W0356	12	80	14,5	47,6	26,3	10,6	39,7	16,7	12	144	143
33060.W0357	12	90	14,5	47,6	25,2	10,6	39,7	16,7	12	87	165
33060.W0358	12	100	14,5	47,6	25,2	10,6	39,7	16,7	12	87	173
33060.W0359	12	110	14,5	47,6	25,2	10,6	39,7	16,7	12	87	182
33060.W0360	12	120	14,5	47,6	25,2	10,6	39,7	16,7	12	87	96
33060.W0366	16	30	19,0	47,6	26,3	14,0	39,7	16,7	16	257	132
33060.W0367	16	35	19,0	47,6	26,3	14,0	39,7	16,7	16	257	140
33060.W0368	16	40	19,0	47,6	26,3	14,0	39,7	16,7	16	257	148
33060.W0369	16	45	19,0	47,6	26,3	14,0	39,7	16,7	16	257	155
33060.W0370	16	50	19,0	47,6	26,3	14,0	39,7	16,7	16	257	168
33060.W0372	16	60	19,0	47,6	26,3	14,0	39,7	16,7	16	257	178
33060.W0374	16	70	19,0	47,6	26,3	14,0	39,7	16,7	16	257	194
33060.W0376	16	80	19,0	47,6	26,3	14,0	39,7	16,7	16	257	208
33060.W0377	16	90	19,0	47,6	25,2	14,0	39,7	16,7	16	155	234
33060.W0378	16	100	19,0	47,6	25,2	14,0	39,7	16,7	16	155	251
33060.W0379	16	110	19,0	47,6	25,2	14,0	39,7	16,7	16	155	266
33060.W0380	16	120	19,0	47,6	25,2	14,0	39,7	16,7	16	155	281
33060.W0381	16	130	19,0	47,6	25,2	14,0	39,7	16,7	16	155	297
33060.W0382	16	140	19,0	47,6	25,2	14,0	39,7	16,7	16	155	313
33060.W0383	16	150	19,0	47,6	25,2	14,0	39,7	16,7	16	155	328
33060.W0391	20	50	25,0	57,1	33,8	20,5	50,7	21,5	20	403	329
33060.W0392	20	60	25,0	57,1	35,4	20,5	50,7	21,5	20	403	343
33060.W0393	20	90	25,0	57,1	33,8	20,5	50,7	21,5	20	403	377
33060.W0396	20	80	25,0	57,1	35,4	20,5	50,7	21,5	20	403	392
33060.W0397	20	90	25,0	57,1	33,8	20,5	50,7	21,5	20	403	426
33060.W0400	20	100	25,0	57,1	35,4	20,5	50,7	21,5	20	403	440
33060.W0401	20	110	25,0	57,1	33,8	20,5	50,7	21,5	20	403	474
33060.W0404	20	120	25,0	57,1	35,4	20,5	50,7	21,5	20	403	488
33060.W0405	20	130	25,0	57,1	33,8	20,5	50,7	21,5	20	403	523
33060.W0406	20	140	25,0	57,1	33,8	20,5	50,7	21,5	20	403	546
33060.W0407	20	150	25,0	57,1	33,8	20,5	50,7	21,5	20	403	571
33060.W0409	25	50	30,8	57,1	33,8	22,0	50,7	21,5	25	631	415
33060.W0410	25	60	30,8	57,1	33,8	22,0	50,7	21,5	25	631	453
33060.W0411	25	70	30,8	57,1	33,8	22,0	50,7	21,5	25	631	490
33060.W0412	25	80	30,8	57,1	33,8	22,0	50,7	21,5	25	631	528
33060.W0413	25	90	30,8	57,1	33,8	22,0	50,7	21,5	25	631	565
33060.W0414	25	100	30,8	57,1	33,8	22,0	50,7	21,5	25	631	603
33060.W0415	25	110	30,8	57,1	33,8	22,0	50,7	21,5	25	631	640
33060.W0416	25	120	30,8	57,1	33,8	22,0	50,7	21,5	25	631	678
33060.W0417	25	130	30,8	57,1	33,8	22,0	50,7	21,5	25	631	715
33060.W0418	25	140	30,8	57,1	33,8	22,0	50,7	21,5	25	631	753
33060.W0419	25	150	30,8	57,1	33,8	22,0	50,7	21,5	25	631	790

Material

Pin: stainless steel 1,4542 (AISI 630), precipitation hardened, blast finish. (marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey, black/black.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips

For lanyards & retaining cables see part no.33250. Easy install locating bushes available see part no.33248.

Important Notes

Extreme load capacity due to high material grade.
*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4305 (AISI 303), see part no.33080.

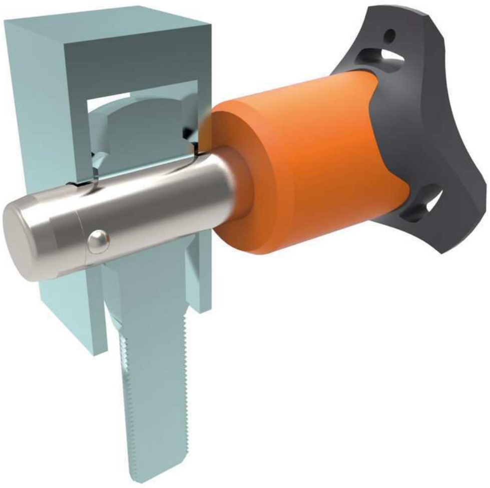
STAINLESS STEEL 630

HIGH SHEAR FORCES

Ball Lock Pins - Single Acting - Grey Plastic Handle

self-locking - stainless steel 1.4542 (AISI 630)

33060



Material

Pin: stainless steel 1,4542 (AISI 630), precipitation hardened, blast finish. (marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey, black/black.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips

For lanyards & retaining cables see part no.33250. Easy install locating bushes available see part no.33248.

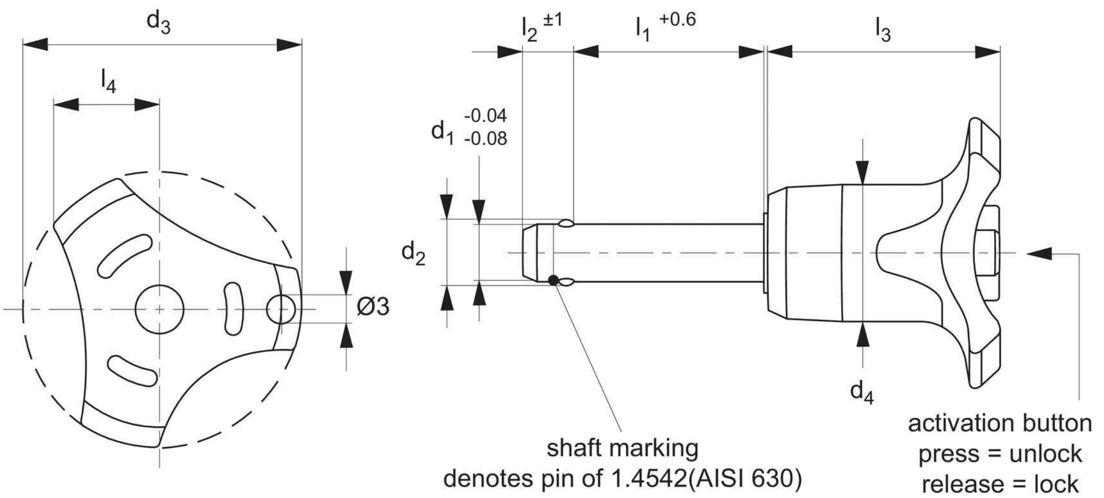
Important Notes

Extreme load capacity due to high material grade.
*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4305 (AISI 303), see part no.33080.

STAINLESS STEEL 630

HIGH SHEAR FORCES

33060



Order No.	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Loc'n hole H11	Shearing resistance, double kN min.*	g
33060.W0152	5	10	5,5	33,2	14,5	6,0	26,7	10,8	5	24	15
33060.W0153	5	15	5,5	33,2	14,5	6,0	26,7	10,8	5	24	15
33060.W0154	5	20	5,5	33,2	14,5	6,0	26,7	10,8	5	24	16
33060.W0155	5	25	5,5	33,2	14,5	6,0	26,7	10,8	5	24	17
33060.W0156	5	30	5,5	33,2	14,5	6,0	26,7	10,8	5	24	18
33060.W0157	6	60	7,0	33,2	14,5	7,0	26,7	10,8	6	21	26
33060.W0158	6	70	7,0	33,2	14,5	7,0	26,7	10,8	6	21	28
33060.W0159	6	80	7,0	33,2	14,5	7,0	26,7	10,8	6	21	30
33060.W0145	5	35	5,5	33,2	14,5	6,0	26,7	10,8	5	14	19
33060.W0146	5	40	5,5	33,2	14,5	6,0	26,7	10,8	5	14	20
33060.W0147	5	45	5,5	33,2	14,5	6,0	26,7	10,8	5	14	21
33060.W0148	5	50	5,5	33,2	14,5	6,0	26,7	10,8	5	14	23
33060.W0149	5	60	5,5	33,2	14,5	6,0	26,7	10,8	5	14	24
33060.W0150	5	70	5,5	33,2	14,5	6,0	26,7	10,8	5	14	18
33060.W0151	5	80	5,5	33,2	14,5	6,0	26,7	10,8	5	14	19
33060.W0161	8	100	9,6	39,2	18,4	8,2	33,3	13,4	8	38	54
33060.W0162	6	10	7,0	33,2	14,5	7,0	26,7	10,8	6	35	16
33060.W0163	6	15	7,0	33,2	14,5	7,0	26,7	10,8	6	35	17
33060.W0164	6	20	7,0	33,2	14,5	7,0	26,7	10,8	6	35	18
33060.W0165	6	25	7,0	33,2	14,5	7,0	26,7	10,8	6	35	19
33060.W0166	6	30	7,0	33,2	14,5	7,0	26,7	10,8	6	35	20
33060.W0167	6	35	7,0	33,2	14,5	7,0	26,7	10,8	6	35	21
33060.W0168	6	40	7,0	33,2	14,5	7,0	26,7	10,8	6	35	22
33060.W0169	6	45	7,0	33,2	14,5	7,0	26,7	10,8	6	35	23
33060.W0170	6	50	7,0	33,2	14,5	7,0	26,7	10,8	6	35	24
33060.W0171	8	90	9,6	39,2	18,4	8,2	33,3	13,4	8	38	36
33060.W0172	8	10	9,6	39,2	18,4	8,2	33,3	13,4	8	38	38
33060.W0173	8	15	9,6	39,2	18,4	8,2	33,3	13,4	8	38	58
33060.W0174	8	20	9,6	39,2	19,3	8,2	33,3	13,4	8	63	40
33060.W0175	8	25	9,6	39,2	19,3	8,2	33,3	13,4	8	63	42
33060.W0176	8	30	9,6	39,2	19,3	8,2	33,3	13,4	8	63	44
33060.W0177	8	35	9,6	39,2	19,3	8,2	33,3	13,4	8	63	46
33060.W0178	8	40	9,6	39,2	19,3	8,2	33,3	13,4	8	63	47
33060.W0179	8	45	9,6	39,2	19,3	8,2	33,3	13,4	8	63	49
33060.W0180	8	50	9,6	39,2	19,3	8,2	33,3	13,4	8	63	51
33060.W0181	8	60	9,6	39,2	18,4	8,2	33,3	13,4	8	38	62
33060.W0182	8	70	9,6	39,2	18,4	8,2	33,3	13,4	8	38	65
33060.W0183	8	80	9,6	39,2	18,4	8,2	33,3	13,4	8	38	69
33060.W0184	10	20	12,0	39,2	19,3	9,6	33,3	13,4	10	100	47
33060.W0185	10	25	12,0	39,2	19,3	9,6	33,3	13,4	10	100	49
33060.W0186	10	30	12,0	39,2	19,3	9,6	33,3	13,4	10	100	53
33060.W0187	10	35	12,0	39,2	19,3	9,6	33,3	13,4	10	100	55
33060.W0188	10	40	12,0	39,2	19,3	9,6	33,3	13,4	10	100	58
33060.W0189	10	45	12,0	39,2	19,3	9,6	33,3	13,4	10	100	61
33060.W0190	10	50	12,0	39,2	19,3	9,6	33,3	13,4	10	100	64
33060.W0191	10	15	12,0	39,2	18,4	9,6	33,3	13,4	10	60	86
33060.W0192	10	60	12,0	39,2	19,3	9,6	33,3	13,4	10	100	70
33060.W0193	10	70	12,0	39,2	18,4	9,6	33,3	13,4	10	60	70

Material
Pin: stainless steel 1,4542 (AISI 630), precipitation hardened, blast finish. (marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey, black/black.

Technical Notes
Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips
For lanyards & retaining cables see part no.33250. Easy install locating bushes available see part no.33248.

Important Notes
Extreme load capacity due to high material grade.
*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4305 (AISI 303), see part no.33080.

STAINLESS STEEL 630

HIGH SHEAR FORCES

Handle

self-locking - stainless steel 1.4542 (AISI 630)

33060

Order No.	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Loc'n hole H11	Shearing resistance, double kN min.*	g
33060.W0194	10	80	12,0	39,2	18.4	9,6	33,3	13,4	10	60	97
33060.W0195	10	90	12,0	39,2	18,4	9,6	33,3	13,4	10	60	103
33060.W0196	10	100	12,0	39,2	18,4	9,6	33,3	13,4	10	60	109
33060.W0197	10	110	12,0	39,2	18,4	9,6	33,3	13,4	10	60	115
33060.W0198	10	120	12,0	39,2	18,4	9,6	33,3	13,4	10	60	53
33060.W0204	12	20	14,5	47,6	25,2	10,6	39,7	16,7	12	87	156
33060.W0205	12	25	14,5	47,6	26,3	10,6	39,7	16,7	12	144	96
33060.W0206	12	30	14,5	47,6	26,3	10,6	39,7	16,7	12	144	100
33060.W0207	12	35	14,5	47,6	26,3	10,6	39,7	16,7	12	144	105
33060.W0208	12	40	14,5	47,6	26,3	10,6	39,7	16,7	12	144	109
33060.W0209	12	45	14,5	47,6	26,3	10,6	39,7	16,7	12	144	113
33060.W0210	12	50	14,5	47,6	26,3	10,6	39,7	16,7	12	144	117
33060.W0212	12	60	14,5	47,6	26,3	10,6	39,7	16,7	12	144	126
33060.W0214	12	70	14,5	47,6	26,3	10,6	39,7	16,7	12	144	134
33060.W0216	12	80	14,5	47,6	26,3	10,6	39,7	16,7	12	144	143
33060.W0217	12	90	14,5	47,6	25,2	10,6	39,7	16,7	12	87	165
33060.W0218	12	100	14,5	47,6	25,2	10,6	39,7	16,7	12	87	173
33060.W0219	12	110	14,5	47,6	25,2	10,6	39,7	16,7	12	87	182
33060.W0220	12	120	14,5	47,6	25,2	10,6	39,7	16,7	12	87	177
33060.W0226	16	30	19,0	47,6	26,3	14,0	39,7	16,7	16	257	132
33060.W0227	16	35	19,0	47,6	26,3	14,0	39,7	16,7	16	257	140
33060.W0228	16	40	19,0	47,6	26,3	14,0	39,7	16,7	16	257	148
33060.W0229	16	45	19,0	47,6	26,3	14,0	39,7	16,7	16	257	155
33060.W0230	16	50	19,0	47,6	26,3	14,0	39,7	16,7	16	257	168
33060.W0232	16	60	19,0	47,6	26,3	14,0	39,7	16,7	16	257	178
33060.W0234	16	70	19,0	47,6	26,3	14,0	39,7	16,7	16	257	194
33060.W0236	16	80	19,0	47,6	26,3	14,0	39,7	16,7	16	257	208
33060.W0237	16	90	19,0	47,6	25,2	14,0	39,7	16,7	16	155	234
33060.W0238	16	100	19,0	47,6	25,2	14,0	39,7	16,7	16	155	151
33060.W0239	16	110	19,0	47,6	25,2	14,0	39,7	16,7	16	155	266
33060.W0240	16	120	19,0	47,6	25,2	14,0	39,7	16,7	16	155	281
33060.W0241	16	130	19,0	47,6	25,2	14,0	39,7	16,7	16	155	297
33060.W0242	16	140	19,0	47,6	25,2	14,0	39,7	16,7	16	155	313
33060.W0243	16	150	19,0	47,6	25,2	14,0	39,7	16,7	16	155	328
33060.W0251	20	50	25,0	57,1	33,8	20,5	50,7	21,5	20	403	329
33060.W0252	20	60	25,0	57,1	35,4	20,5	50,7	21,5	20	403	343
33060.W0253	20	70	25,0	57,1	33,8	20,5	50,7	21,5	20	403	377
33060.W0256	20	80	25,0	57,1	35,4	20,5	50,7	21,5	20	403	392
33060.W0257	20	90	25,0	57,1	33,8	20,5	50,7	21,5	20	403	426
33060.W0260	20	100	25,0	57,1	35,4	20,5	50,7	21,5	20	403	440
33060.W0261	20	110	25,0	57,1	33,5	20,5	50,7	21,5	20	403	474
33060.W0264	20	120	25,0	57,1	35,4	20,5	50,7	21,5	20	403	488
33060.W0265	20	130	25,0	57,1	33,8	20,5	50,7	21,5	20	403	523
33060.W0266	20	140	25,0	57,1	33,8	20,5	50,7	21,5	20	403	546
33060.W0267	20	150	25,0	57,1	33,8	20,5	50,7	21,5	20	403	571
33060.W0269	25	50	30,8	57,1	33,8	22,0	50,7	21,5	25	631	415
33060.W0270	25	60	30,8	57,1	33,8	22,0	50,7	21,5	25	631	453
33060.W0271	25	70	30,8	57,1	33,8	22,0	50,7	21,5	25	631	490
33060.W0272	25	80	30,8	57,1	33,8	22,0	50,7	21,5	25	631	528
33060.W0273	25	90	30,8	57,1	33,8	22,0	50,7	21,5	25	631	565
33060.W0274	25	100	30,8	57,1	33,8	22,0	50,7	21,5	25	631	603
33060.W0275	25	110	30,8	57,1	33,8	22,0	50,7	21,5	25	631	640
33060.W0276	25	120	30,8	57,1	33,8	22,0	50,7	21,5	25	631	678
33060.W0277	25	130	30,8	57,1	33,8	22,0	50,7	21,5	25	631	715
33060.W0278	25	140	30,8	57,1	33,8	22,0	50,7	21,5	25	631	753
33060.W0279	25	150	30,8	57,1	33,8	22,0	50,7	21,5	25	631	790

Material
Pin: stainless steel 1,4542 (AISI 630), precipitation hardened, blast finish. (marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey, black/black.

Technical Notes
Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips
For lanyards & retaining cables see part no.33250. Easy install locating bushes available see part no.33248.

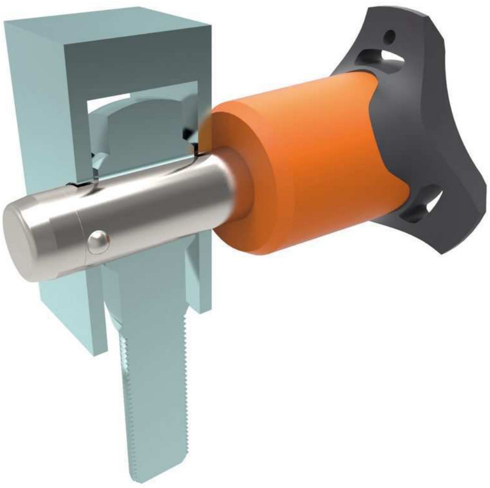
Important Notes
Extreme load capacity due to high material grade.
*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4305 (AISI 303), see part no.33080.

STAINLESS STEEL 630

HIGH SHEAR FORCES

Ball Lock Pins - Single Acting - Orange Plastic Handle

self-locking - stainless steel 1.4542 (AISI 630)



Material
Pin: stainless steel 1,4542 (AISI 630), precipitation hardened, blast finish. (marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey, black/black.

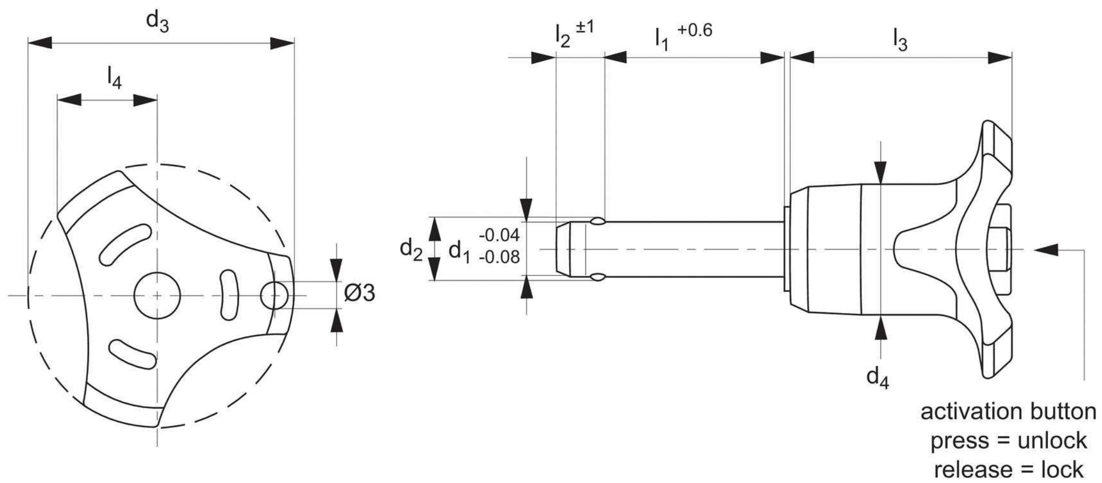
Technical Notes
Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips
For lanyards & retaining cables see part no.33250. Easy install locating bushes available see part no.33248.

Important Notes
Extreme load capacity due to high material grade.
*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4305 (AISI 303), see part no.33080.

Ball Lock Pins - Single Acting - Black Plastic Handle

self-locking - stainless steel 1.4305 (AISI 303)



Order No.	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Loc'n hole H11	Shearing resistance, double kN min.*	g
33080.W0812	5	10	5,5	33,2	14,5	6,0	26,7	10,8	5	14	15
33080.W0813	5	15	5,5	33,2	14,5	6,0	26,7	10,8	5	14	15
33080.W0814	5	20	5,5	33,2	14,5	6,0	26,7	10,8	5	14	16
33080.W0815	5	20	5,5	33,2	14,5	6,0	26,7	10,8	5	14	16
33080.W0816	5	30	5,5	33,2	14,5	6,0	26,7	10,8	5	14	18
33080.W0817	6	60	7,0	33,2	14,5	7,0	26,7	10,8	6	21	26
33080.W0818	6	70	7,0	33,2	14,5	7,0	26,7	10,8	6	21	28
33080.W0819	6	80	7,0	33,2	14,5	7,0	26,7	10,8	6	21	30
33080.W0832	8	10	9,6	39,2	18,4	8,2	33,3	13,4	8	38	38
33080.W0833	8	15	9,6	39,2	18,4	8,2	33,3	13,4	8	38	58
33080.W0805	5	35	5,5	33,2	14,5	6,0	26,7	10,8	5	14	19
33080.W0806	5	40	5,5	33,2	14,5	6,0	26,7	10,8	5	14	20
33080.W0807	5	45	5,5	33,2	14,5	6,0	26,7	10,8	5	14	21
33080.W0808	5	50	5,5	33,2	14,5	6,0	26,7	10,8	5	14	23
33080.W0809	5	60	5,5	33,2	14,5	6,0	26,7	10,8	5	14	24
33080.W0810	5	70	5,5	33,2	14,5	6,0	26,7	10,8	5	14	18
33080.W0811	5	80	5,5	33,2	14,5	6,0	26,7	10,8	5	14	19
33080.W0822	6	10	7,0	33,2	14,5	7,0	26,7	10,8	6	21	16
33080.W0823	6	15	7,0	33,2	14,5	7,0	26,7	10,8	6	21	17
33080.W0824	6	20	7,0	33,2	14,5	7,0	26,7	10,8	6	21	18
33080.W0825	6	25	7,0	33,2	14,5	7,0	26,7	10,8	6	21	19
33080.W0826	6	30	7,0	33,2	14,5	7,0	26,7	10,8	6	21	20
33080.W0827	6	35	7,0	33,2	14,5	7,0	26,7	10,8	6	21	21
33080.W0828	6	35	7,0	33,2	14,5	7,0	26,7	10,8	6	21	21
33080.W0829	6	45	7,0	33,2	14,5	7,0	26,7	10,8	6	21	23
33080.W0830	6	50	7,0	33,2	14,5	7,0	26,7	10,8	6	21	24
33080.W0834	8	20	9,6	39,2	19,3	8,2	33,3	13,4	8	38	40
33080.W0835	8	25	9,6	39,2	19,3	8,2	33,3	13,4	8	38	42
33080.W0836	8	30	9,6	39,2	19,3	8,2	33,3	13,4	8	38	44
33080.W0837	8	35	9,6	39,2	19,3	8,2	33,3	13,4	8	38	46
33080.W0838	8	40	9,6	39,2	19,3	8,2	33,3	13,4	8	38	47
33080.W0839	8	45	9,6	39,2	19,3	8,2	33,3	13,4	8	38	49
33080.W0840	8	50	9,6	39,2	19,3	8,2	33,3	13,4	8	38	51
33080.W0841	8	60	9,6	39,2	18,4	8,2	33,3	13,4	8	38	62
33080.W0842	8	70	9,6	39,2	18,4	8,2	33,3	13,4	8	38	65
33080.W0843	8	80	9,6	39,2	18,4	8,2	33,3	13,4	8	38	69
33080.W0831	8	90	9,6	39,2	18,4	8,2	33,3	13,4	8	38	36
33080.W0821	8	100	9,6	39,2	18,4	8,2	33,3	13,4	8	38	54
33080.W0851	10	15	12,0	39,2	18,4	9,6	33,3	13,4	10	60	86
33080.W0844	10	20	12,0	39,2	19,3	9,6	33,3	13,4	10	60	47
33080.W0845	10	25	12,0	39,2	19,3	9,6	33,3	13,4	10	60	49
33080.W0846	10	30	12,0	39,2	19,3	9,6	33,3	13,4	10	60	53
33080.W0847	10	35	12,0	39,2	19,3	9,6	33,3	13,4	10	60	55
33080.W0848	10	40	12,0	39,2	19,3	9,6	33,3	13,4	10	60	58
33080.W0849	10	45	12,0	39,2	19,3	9,6	33,3	13,4	10	60	61
33080.W0850	10	50	12,0	39,2	19,3	9,6	33,3	13,4	10	60	64
33080.W0852	10	60	12,0	39,2	19,3	9,6	33,3	13,4	10	60	70
33080.W0853	10	70	12,0	39,2	18,4	9,6	33,3	13,4	10	60	91
33080.W0854	10	80	12,0	39,2	18,4	9,6	33,3	13,4	10	60	97

Material
Pin: stainless steel 1.4542 (AISI 630)
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey.

Technical Notes
Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips
For lanyards & retaining cables see part no.33250-33261. Easy install locating bushes available see part no.33248 + 33246.

Important Notes
*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4542 (AISI 630) for higher shear forces, see part no.33060.

STAINLESS STEEL 303

+80° -30°

Ball Lock Pins - Single Acting - Black Plastic Handle

self-locking - stainless steel 1.4305 (AISI 303)

33080

Order No.	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Loc'n hole H11	Shearing resistance, double kN min.*	g
33080.W0855	10	90	12,0	39,2	18,4	9,6	33,3	13,4	10	60	103
33080.W0856	10	100	12,0	39,2	18,4	9,6	33,3	13,4	10	60	109
33080.W0857	10	110	12,0	39,2	18,4	9,6	33,3	13,4	10	60	115
33080.W0858	10	120	12,0	39,2	18,4	9,6	33,3	13,4	10	60	53
33080.W0864	12	20	14,5	47,6	25,2	10,6	39,7	16,7	12	87	156
33080.W0866	12	30	14,5	47,6	25,2	10,6	39,7	16,7	12	87	100
33080.W0869	12	45	14,5	47,6	25,2	10,6	39,7	16,7	12	87	113
33080.W0865	12	25	14,5	47,6	26,3	10,6	39,7	16,7	12	87	96
33080.W0867	12	35	14,5	47,6	26,3	10,6	39,7	16,7	12	87	105
33080.W0868	12	40	14,5	47,6	26,3	10,6	39,7	16,7	12	87	109
33080.W0869	12	45	14,5	47,6	26,3	10,6	39,7	16,7	12	87	113
33080.W0870	12	50	14,5	47,6	26,3	10,6	39,7	16,7	12	87	117
33080.W0872	12	60	14,5	47,6	26,3	10,6	39,7	16,7	12	87	126
33080.W0874	12	70	14,5	47,6	26,3	10,6	39,7	16,7	12	87	134
33080.W0876	12	80	14,5	47,6	26,3	10,6	39,7	16,7	12	87	143
33080.W0877	12	90	14,5	47,6	25,2	10,6	39,7	16,7	12	87	165
33080.W0878	12	100	14,5	47,6	25,2	10,6	39,7	16,7	12	87	173
33080.W0879	12	110	14,5	47,6	25,2	10,6	39,7	16,7	12	87	182
33080.W0880	12	120	14,5	47,6	25,2	10,6	39,7	16,7	12	87	96
33080.W0886	16	30	19,0	47,6	26,3	14,0	39,7	16,7	16	155	132
33080.W0887	16	35	19,0	47,6	26,3	14,0	39,7	16,7	16	155	140
33080.W0888	16	40	19,0	47,6	26,3	14,0	39,7	16,7	16	155	148
33080.W0889	16	45	19,0	47,6	26,3	14,0	39,7	16,7	16	155	155
33080.W0890	16	50	19,0	47,6	26,3	14,0	39,7	16,7	16	155	168
33080.W0892	16	60	19,0	47,6	26,3	14,0	39,7	16,7	16	155	178
33080.W0894	16	70	19,0	47,6	26,3	14,0	39,7	16,7	16	155	194
33080.W0896	16	80	19,0	47,6	26,3	14,0	39,7	16,7	16	155	208
33080.W0897	16	90	19,0	47,6	25,2	14,0	39,7	16,7	16	155	234
33080.W0898	16	100	19,0	47,6	25,2	14,0	39,7	16,7	16	155	251
33080.W0899	16	110	19,0	47,6	25,2	14,0	39,7	16,7	16	155	266
33080.W0899	16	110	19,0	47,6	25,2	14,0	39,7	16,7	16	155	266
33080.W0900	16	120	19,0	47,6	25,2	14,0	39,7	16,7	16	155	281
33080.W0901	16	130	19,0	47,6	25,2	14,0	39,7	16,7	16	155	297
33080.W0902	16	140	19,0	47,6	25,2	14,0	39,7	16,7	16	155	313
33080.W0903	16	150	19,0	47,6	25,2	14,0	39,7	16,7	16	155	328
33080.W0905	20	50	25,0	57,1	33,8	20,5	50,7	21,5	20	244	329
33080.W0906	20	70	25,0	57,1	33,8	20,5	50,7	21,5	20	244	377
33080.W0909	20	90	25,0	57,1	33,8	20,5	50,7	21,5	20	244	426
33080.W0913	20	110	25,0	57,1	33,8	20,5	50,7	21,5	20	244	474
33080.W0904	20	60	25,0	57,1	35,4	20,5	50,7	21,5	20	244	343
33080.W0908	20	80	25,0	57,1	35,4	20,5	50,7	21,5	20	244	392
33080.W0912	20	100	25,0	57,1	35,4	20,5	50,7	21,5	20	244	440
33080.W0916	20	120	25,0	57,1	35,4	20,5	50,7	21,5	20	244	488
33080.W0917	20	130	25,0	57,1	33,8	20,5	50,7	21,5	20	244	523
33080.W0918	20	140	25,0	57,1	33,8	20,5	50,7	21,5	20	244	546
33080.W0919	20	150	25,0	57,1	33,8	20,5	50,7	21,5	20	244	571
33080.W0921	25	50	30,8	57,1	33,8	22,0	50,7	21,5	25	386	415
33080.W0922	25	60	30,8	57,1	33,8	22,0	50,7	21,5	25	386	453
33080.W0923	25	70	30,8	57,1	33,8	22,0	50,7	21,5	25	386	490
33080.W0924	25	80	30,8	57,1	33,8	22,0	50,7	21,5	25	386	528
33080.W0925	25	90	30,8	57,1	33,8	22,0	50,7	21,5	25	386	565
33080.W0926	25	100	30,8	57,1	33,8	22,0	50,7	21,5	25	386	603
33080.W0927	25	110	30,8	57,1	33,8	22,0	50,7	21,5	25	386	640
33080.W0928	25	120	30,8	57,1	33,8	22,0	50,7	21,5	25	386	690
33080.W0929	25	130	30,8	57,1	33,8	22,0	50,7	21,5	25	386	715
33080.W0930	25	140	30,8	57,1	33,8	22,0	50,7	21,5	25	386	753
33080.W0931	25	150	30,8	57,1	33,8	22,0	50,7	21,5	25	386	790

Material
Pin: stainless steel 1.4542 (AISI 630)
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey.

Technical Notes
Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips
For lanyards & retaining cables see part no.33250-33261. Easy install locating bushes available see part no.33248 + 33246.

Important Notes
*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4542 (AISI 630) for higher shear forces, see part no.33060.

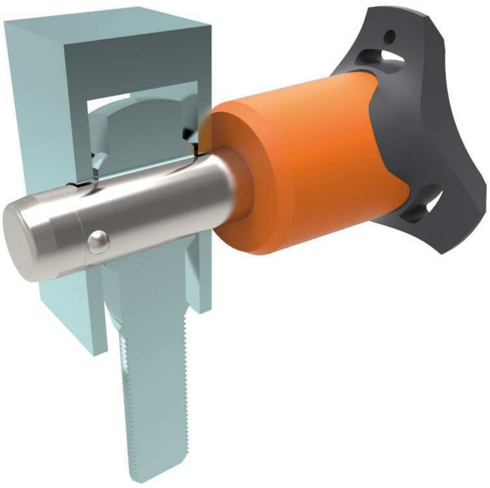
STAINLESS STEEL 303

+80° -30°

Ball Lock Pins - Single Acting - Black Plastic Handle

self-locking - stainless steel 1.4305 (AISI 303)

33080



Material
Pin: stainless steel 1.4542 (AISI 630)
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey.

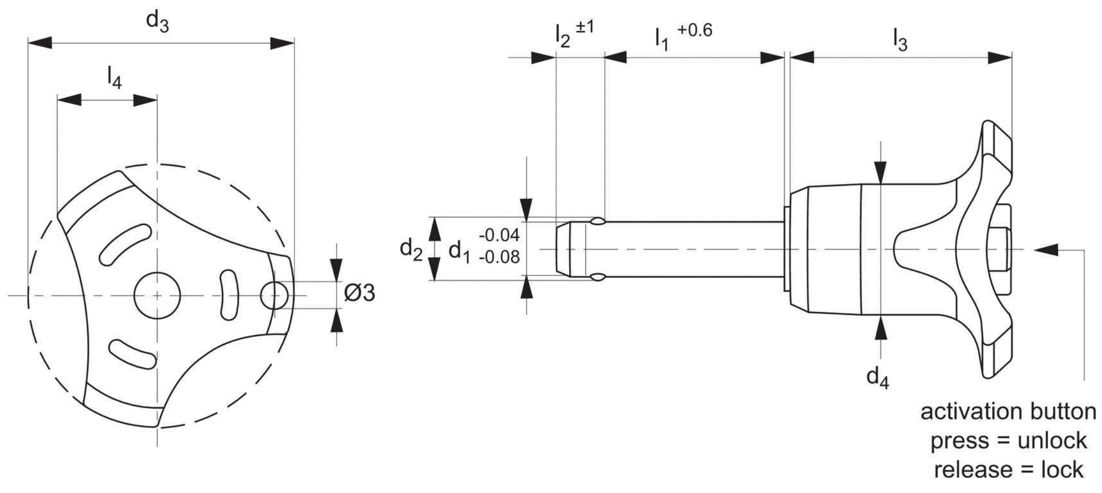
Technical Notes
Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips
For lanyards & retaining cables see part no.33250-33261. Easy install locating bushes available see part no.33248 + 33246.

Important Notes
*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4542 (AISI 630) for higher shear forces, see part no.33060.

Handle

self-locking - stainless steel 1.4305 (AISI 303)



Order No.	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Loc'n hole H11	Shearing resistance, double kN min.*	g
33080.W0432	5	10	5,5	33,2	14,5	6,0	26,7	10,8	5	14	15
33080.W0433	5	15	5,5	33,2	14,5	6,0	26,7	10,8	5	14	15
33080.W0434	5	20	5,5	33,2	14,5	6,0	26,7	10,8	5	14	16
33080.W0435	5	25	5,5	33,2	14,5	6,0	26,7	10,8	5	14	17
33080.W0436	5	30	5,5	33,2	14,5	6,0	26,7	10,8	5	14	18
33080.W0437	6	60	7,0	33,2	14,5	7,0	26,7	10,8	6	21	26
33080.W0438	6	70	7,0	33,2	14,5	7,0	26,7	10,8	6	21	28
33080.W0439	6	80	7,0	33,2	14,5	7,0	26,7	10,8	6	21	30
33080.W0425	5	35	5,5	33,2	14,5	6,0	26,7	10,8	5	14	19
33080.W0426	5	40	5,5	33,2	14,5	6,0	26,7	10,8	5	14	20
33080.W0427	5	45	5,5	33,2	14,5	6,0	26,7	10,8	5	14	21
33080.W0428	5	50	5,5	33,2	14,5	6,0	26,7	10,8	5	14	23
33080.W0429	5	60	5,5	33,2	14,5	6,0	26,7	10,8	5	14	24
33080.W0430	5	70	5,5	33,2	14,5	6,0	26,7	10,8	5	14	18
33080.W0431	5	80	5,5	33,2	14,5	6,0	26,7	10,8	5	14	19
33080.W0442	6	10	7,0	33,2	14,5	7,0	26,7	10,8	6	21	16
33080.W0443	6	15	7,0	33,2	14,5	7,0	26,7	10,8	6	21	17
33080.W0444	6	20	7,0	33,2	14,5	7,0	26,7	10,8	6	21	18
33080.W0445	6	25	7,0	33,2	14,5	7,0	26,7	10,8	6	21	19
33080.W0446	6	30	7,0	33,2	14,5	7,0	26,7	10,8	6	21	20
33080.W0447	6	35	7,0	33,2	14,5	7,0	26,7	10,8	6	21	21
33080.W0448	6	40	7,0	33,2	14,5	7,0	26,7	10,8	6	21	22
33080.W0449	6	45	7,0	33,2	14,5	7,0	26,7	10,8	6	21	23
33080.W0450	6	50	7,0	33,2	14,5	7,0	26,7	10,8	6	21	24
33080.W0452	8	10	9,6	39,2	18,4	8,2	33,3	13,4	8	38	38
33080.W0453	8	15	9,6	39,2	18,4	8,2	33,3	13,4	8	38	58
33080.W0454	8	20	9,6	39,2	19,3	8,2	33,3	13,4	8	38	40
33080.W0455	8	25	9,6	39,2	19,3	8,2	33,3	13,4	8	38	42
33080.W0456	8	30	9,6	39,2	19,3	8,2	33,3	13,4	8	38	44
33080.W0457	8	35	9,6	39,2	19,3	8,2	33,3	13,4	8	38	46
33080.W0458	8	40	9,6	39,2	19,3	8,2	33,3	13,4	8	38	47
33080.W0459	8	45	9,6	39,2	19,3	8,2	33,3	13,4	8	38	49
33080.W0460	8	50	9,6	39,2	19,3	8,2	33,3	13,4	8	38	51
33080.W0461	8	60	9,6	39,2	18,4	8,2	33,3	13,4	8	38	62
33080.W0462	8	70	9,6	39,2	18,4	8,2	33,3	13,4	8	38	65
33080.W0463	8	80	9,6	39,2	18,4	8,2	33,3	13,4	8	38	69
33080.W0451	8	90	9,6	39,2	18,4	8,2	33,3	13,4	8	38	36
33080.W0441	8	100	9,6	39,2	18,4	8,2	33,3	13,4	8	38	54
33080.W0464	10	20	12,0	39,2	19,3	9,6	33,3	13,4	10	60	47
33080.W0465	10	25	12,0	39,2	19,3	9,6	33,3	13,4	10	60	49
33080.W0466	10	30	12,0	39,2	19,3	9,6	33,3	13,4	10	60	53
33080.W0467	10	35	12,0	39,2	19,3	9,6	33,3	13,4	10	60	55
33080.W0468	10	40	12,0	39,2	19,3	9,6	33,3	13,4	10	60	58
33080.W0469	10	45	12,0	39,2	19,3	9,6	33,3	13,4	10	60	61
33080.W0470	10	50	12,0	39,2	19,3	9,6	33,3	13,4	10	60	64
33080.W0471	10	15	12,0	39,2	18,4	9,6	33,3	13,4	10	60	86
33080.W0473	10	70	12,0	39,2	18,4	9,6	33,3	13,4	10	60	91
33080.W0474	10	80	12,0	39,2	18,4	9,6	33,3	13,4	10	60	97
33080.W0475	10	90	12,0	39,2	18,4	9,6	33,3	13,4	10	60	103

Material

Pin: stainless steel 1.4542 (AISI 630)
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips

For lanyards & retaining cables see part no.33250-33261. Easy install locating bushes available see part no.33248 + 33246.

Important Notes

*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4542 (AISI 630) for higher shear forces, see part no.33060.

STAINLESS STEEL 303

+80° -30°

Ball Lock Pins - Single Acting - Blue Plastic Handle

self-locking - stainless steel 1.4305 (AISI 303)

33080

Order No.	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Loc'n hole H11	Shearing resistance, double kN min.*	g
33080.W0476	10	100	12,0	39,2	18,4	9,6	33,3	13,4	10	60	109
33080.W0477	10	110	12,0	39,2	18,4	9,6	33,3	13,4	10	60	115
33080.W0478	10	120	12,0	39,2	18,4	9,6	33,3	13,4	10	60	53
33080.W0484	12	20	14,5	47,0	25,2	10,6	39,7	16,7	12	87	156
33080.W0472	10	60	12,0	39,2	19,3	9,6	33,3	13,4	10	60	70
33080.W0485	12	25	14,5	47,6	26,3	10,6	39,7	16,7	12	87	96
33080.W0486	12	30	14,5	47,6	26,3	10,6	39,7	16,7	12	87	100
33080.W0487	12	35	14,5	47,6	26,3	10,6	39,7	16,7	12	87	105
33080.W0488	12	40	14,5	47,6	26,3	10,6	39,7	16,7	12	87	109
33080.W0489	12	45	14,5	47,6	26,3	10,6	39,7	16,7	12	87	113
33080.W0490	12	50	14,5	47,6	26,3	10,6	39,7	16,7	12	87	117
33080.W0492	12	60	14,5	47,6	26,3	10,6	39,7	16,7	12	87	126
33080.W0494	12	70	14,5	47,6	26,3	10,6	39,7	16,7	12	87	134
33080.W0496	12	80	14,5	47,6	26,3	10,6	39,7	16,7	12	87	143
33080.W0497	12	90	14,5	47,6	25,2	10,6	39,7	16,7	12	87	165
33080.W0498	12	100	14,5	47,6	25,2	10,6	39,7	16,7	12	87	173
33080.W0499	12	110	14,5	47,6	25,2	10,6	39,7	16,7	12	87	182
33080.W0500	12	120	14,5	47,6	25,2	10,6	39,7	16,7	12	87	96
33080.W0506	16	30	19,0	47,6	26,3	14,0	39,7	16,7	16	155	132
33080.W0507	16	35	19,0	47,6	26,3	14,0	39,7	16,7	16	155	140
33080.W0508	16	40	19,0	47,6	26,3	14,0	39,7	16,7	16	155	148
33080.W0509	16	45	19,0	47,6	26,3	14,0	39,7	16,7	16	155	155
33080.W0510	16	50	19,0	47,6	26,3	14,0	39,7	16,7	16	155	168
33080.W0512	16	60	19,0	47,6	26,3	14,0	39,7	16,7	16	155	178
33080.W0514	16	70	19,0	47,6	26,3	14,0	39,7	16,7	16	155	194
33080.W0516	16	80	19,0	47,6	26,3	14,0	39,7	16,7	16	155	208
33080.W0517	16	90	19,0	47,6	25,2	14,0	39,7	16,7	16	155	234
33080.W0518	16	100	19,0	47,6	25,2	14,0	39,7	16,7	16	155	251
33080.W0519	16	110	19,0	47,6	25,2	14,0	39,7	16,7	16	155	266
33080.W0520	16	120	19,0	47,6	25,2	14,0	39,7	16,7	16	155	281
33080.W0521	16	130	19,0	47,6	25,2	14,0	39,7	16,7	16	155	297
33080.W0522	16	140	19,0	47,6	25,2	14,0	39,7	16,7	16	155	313
33080.W0523	16	150	19,0	47,6	25,2	14,0	39,7	16,7	16	155	328
33080.W0531	20	50	25,0	57,1	33,8	20,5	50,7	21,5	20	244	329
33080.W0533	20	70	25,0	57,1	33,8	20,5	50,7	21,5	20	244	377
33080.W0537	20	90	25,0	57,1	33,8	20,5	50,7	21,5	20	244	426
33080.W0532	20	60	25,0	57,1	35,4	20,5	50,7	21,5	20	244	343
33080.W0536	20	80	25,0	57,1	35,4	20,5	50,7	21,5	20	244	392
33080.W0540	20	100	25,0	57,1	35,4	20,5	50,7	21,5	20	244	440
33080.W0544	20	120	25,0	57,1	35,4	20,5	50,7	21,5	20	244	488
33080.W0545	20	130	25,0	57,1	33,8	20,5	50,7	21,5	20	244	523
33080.W0546	20	140	25,0	57,1	33,8	20,5	50,7	21,5	20	244	546
33080.W0547	20	150	25,0	57,1	33,8	20,5	50,7	21,5	20	244	571
33080.W0549	25	50	30,8	57,1	33,8	22,0	50,7	21,5	25	386	415
33080.W0550	25	60	30,8	57,1	33,8	22,0	50,7	21,5	25	386	453
33080.W0551	25	70	30,8	57,1	33,8	22,0	50,7	21,5	25	386	490
33080.W0552	25	80	30,8	57,1	33,8	22,0	50,7	21,5	25	386	528
33080.W0553	25	90	30,8	57,1	33,8	22,0	50,7	21,5	25	386	565
33080.W0554	25	100	30,8	57,1	33,8	22,0	50,7	21,5	25	386	603
33080.W0556	25	120	30,8	57,1	33,8	22,0	50,7	21,5	25	386	690
33080.W0557	25	130	30,8	57,1	33,8	22,0	50,7	21,5	25	386	715
33080.W0558	25	140	30,8	57,1	33,8	22,0	50,7	21,5	25	386	753
33080.W0559	25	150	30,8	57,1	33,8	22,0	50,7	21,5	25	386	790

Material
Pin: stainless steel 1.4542 (AISI 630)
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey.

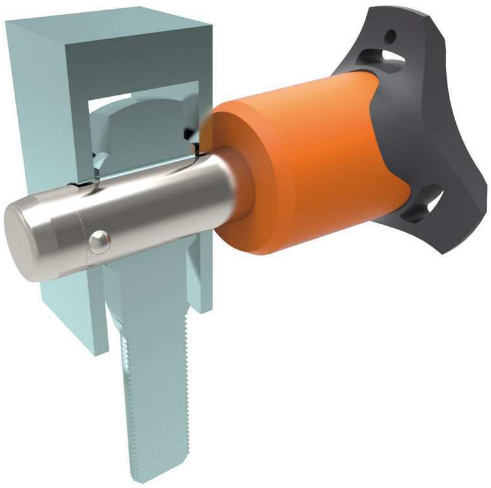
Technical Notes
Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips
For lanyards & retaining cables see part no.33250-33261. Easy install locating bushes available see part no.33248 + 33246.

Important Notes
*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4542 (AISI 630) for higher shear forces, see part no.33060.

Ball Lock Pins - Single Acting - Blue Plastic Handle

self-locking - stainless steel 1.4305 (AISI 303)



Material

Pin: stainless steel 1.4542 (AISI 630)
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips

For lanyards & retaining cables see part no.33250-33261. Easy install locating bushes available see part no.33248 + 33246.

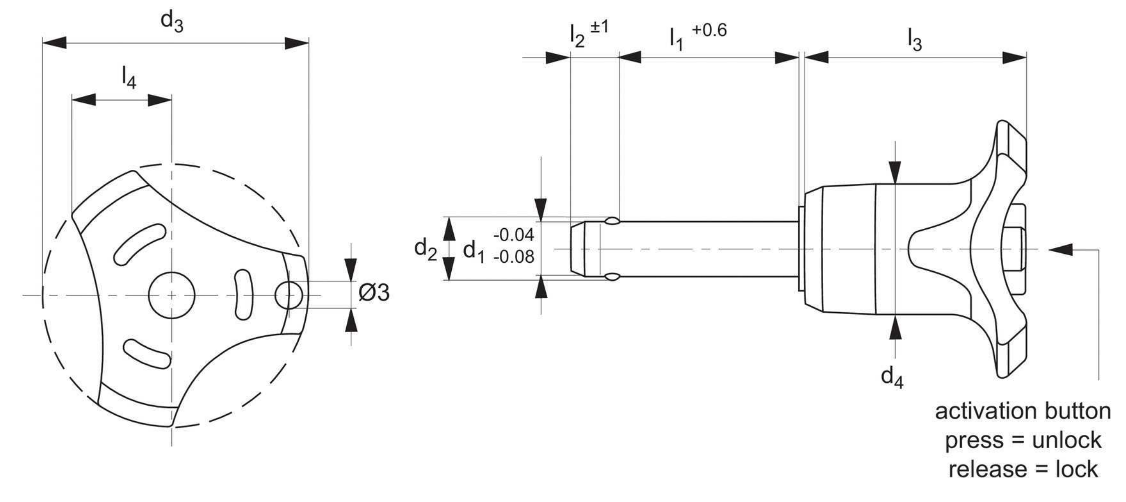
Important Notes

*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4542 (AISI 630) for higher shear forces, see part no.33060.

Ball Lock Pins - Single Acting - Grey Plastic Handle

self-locking - stainless steel 1.4305 (AISI 303)

33080



Order No.	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Loc'n hole H11	Shearing resistance, double kN min.*	g
33080.W0292	5	10	5,5	33,2	14,5	6,0	26,7	10,8	5	14	15
33080.W0293	5	15	5,5	33,2	14,5	6,0	26,7	10,8	5	14	15
33080.W0294	5	20	5,5	33,2	14,5	6,0	26,7	10,8	5	14	16
33080.W0295	5	25	5,5	33,2	14,5	6,0	26,7	10,8	5	14	17
33080.W0296	5	30	5,5	33,2	14,5	6,0	26,7	10,8	5	14	18
33080.W0297	6	60	7,0	33,2	14,5	7,0	26,7	10,8	6	21	26
33080.W0298	6	70	7,0	33,2	14,5	7,0	26,7	10,8	6	21	28
33080.W0299	6	80	7,0	33,2	14,5	7,0	26,7	10,8	6	21	30
33080.W0285	5	35	5,5	33,2	14,5	6,0	26,7	10,8	5	14	19
33080.W0286	5	40	5,5	33,2	14,5	6,0	26,7	10,8	5	14	20
33080.W0287	5	45	5,5	33,2	14,5	6,0	26,7	10,8	5	14	21
33080.W0288	5	50	5,5	33,2	14,5	6,0	26,7	10,8	5	14	23
33080.W0289	5	60	5,5	33,2	14,5	6,0	26,7	10,8	5	14	24
33080.W0290	5	70	5,5	33,2	14,5	6,0	26,7	10,8	5	14	18
33080.W0291	5	80	5,5	33,2	14,5	6,0	26,7	10,8	5	14	19
33080.W0302	6	10	7,0	33,2	14,5	7,0	26,7	10,8	6	21	16
33080.W0301	8	100	9,6	39,2	18,4	8,2	33,3	13,4	8	38	54
33080.W0303	6	15	7,0	33,2	14,5	7,0	26,7	10,8	6	21	17
33080.W0304	6	20	7,0	33,2	14,5	7,0	26,7	10,8	6	21	18
33080.W0305	6	25	7,0	33,2	14,5	7,0	26,7	10,8	6	21	19
33080.W0306	6	30	7,0	33,2	14,5	7,0	26,7	10,8	6	21	20
33080.W0307	6	35	7,0	33,2	14,5	7,0	26,7	10,8	6	21	21
33080.W0308	6	40	7,0	33,2	14,5	7,0	26,7	10,8	6	21	22
33080.W0309	6	45	7,0	33,2	14,5	7,0	26,7	10,8	6	21	23
33080.W0310	6	50	7,0	33,2	14,5	7,0	26,7	10,8	6	21	24
33080.W0311	8	90	9,6	39,2	18,4	8,2	33,3	13,4	8	38	36
33080.W0312	8	10	9,6	39,2	18,4	8,2	33,3	13,4	8	38	38
33080.W0313	8	15	9,6	39,2	18,4	8,2	33,3	13,4	8	38	58
33080.W0314	8	20	9,6	39,2	19,3	8,2	33,3	13,4	8	38	40
33080.W0315	8	25	9,6	39,2	19,3	8,2	33,3	13,4	8	38	42
33080.W0316	8	30	9,6	39,2	19,3	8,2	33,3	13,4	8	38	44
33080.W0317	8	35	9,6	39,2	19,3	8,2	33,3	13,4	8	38	46
33080.W0318	8	40	9,6	39,2	19,3	8,2	33,3	13,4	8	38	47
33080.W0319	8	45	9,6	39,2	19,3	8,2	33,3	13,4	8	38	49
33080.W0320	8	50	9,6	39,2	19,3	8,2	33,3	13,4	8	38	51
33080.W0321	8	60	9,6	39,2	18,4	8,2	33,3	13,4	8	38	62
33080.W0322	8	70	9,6	39,2	18,4	8,2	33,3	13,4	8	38	65
33080.W0323	8	80	9,6	39,2	18,4	8,2	33,3	13,4	8	38	69
33080.W0324	10	20	12,0	39,2	19,3	9,6	33,3	13,4	10	60	47
33080.W0325	10	25	12,0	39,2	19,3	9,6	33,3	13,4	10	60	49
33080.W0326	10	30	12,0	39,2	19,3	9,6	33,3	13,4	10	60	53
33080.W0327	10	35	12,0	39,2	19,3	9,6	33,3	13,4	10	60	55
33080.W0328	10	40	12,0	39,2	19,3	9,6	33,3	13,4	10	60	58
33080.W0329	10	45	12,0	39,2	19,3	9,6	33,3	13,4	10	60	61
33080.W0330	10	50	12,0	39,2	19,3	9,6	33,3	13,4	10	60	64
33080.W0331	10	15	12,0	39,2	18,4	9,6	33,3	13,4	10	60	86
33080.W0332	10	60	12,0	39,2	19,3	9,6	33,3	13,4	10	60	70
33080.W0333	10	70	12,0	39,2	18,4	9,6	33,3	13,4	10	60	91
33080.W0334	10	80	12,0	39,2	18,4	9,6	33,3	13,4	10	60	97

Material

Pin: stainless steel 1.4542 (AISI 630)
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips

For lanyards & retaining cables see part no.33250-33261. Easy install locating bushes available see part no.33248 + 33246.

Important Notes

*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4542 (AISI 630) for higher shear forces, see part no.33060.

Ball Lock Pins - Single Acting - Grey Plastic Handle

self-locking - stainless steel 1.4305 (AISI 303)

33080

Order No.	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Loc'n hole H11	Shearing resistance, double kN min.*	g
33080.W0335	10	90	12,0	39,2	18,4	9,6	33,3	13,4	10	60	103
33080.W0336	10	100	12,0	39,2	18,4	9,6	33,3	13,4	10	60	109
33080.W0337	10	110	12,0	39,2	18,4	9,6	33,3	13,4	10	60	115
33080.W0338	10	120	12,0	39,2	18,4	9,6	33,3	13,4	10	60	53
33080.W0344	12	20	14,5	47,6	25,2	10,6	39,7	16,7	12	87	156
33080.W0345	12	25	14,5	47,6	26,3	10,6	39,7	16,7	12	87	96
33080.W0346	12	30	14,5	47,6	26,3	10,6	39,7	16,7	12	87	100
33080.W0347	12	35	14,5	47,6	26,3	10,6	39,7	16,7	12	87	105
33080.W0348	12	40	14,5	47,6	26,3	10,6	39,7	16,7	12	87	109
33080.W0349	12	45	14,5	47,6	26,3	10,6	39,7	16,7	12	87	113
33080.W0350	12	50	14,5	47,6	26,3	10,6	39,7	16,7	12	87	117
33080.W0352	12	60	14,5	47,6	26,3	10,6	39,7	16,7	12	87	126
33080.W0354	12	70	14,5	47,6	26,3	10,6	39,7	16,7	12	87	134
33080.W0356	12	80	14,5	47,6	26,3	10,6	39,7	16,7	12	87	143
33080.W0357	12	90	14,5	47,6	25,2	10,6	39,7	16,7	12	87	165
33080.W0358	12	100	14,5	47,6	25,2	10,6	39,7	16,7	12	87	173
33080.W0359	12	110	14,5	47,6	25,2	10,6	39,7	16,7	12	87	182
33080.W0360	12	120	14,5	47,6	25,2	10,6	39,7	16,7	12	87	96
33080.W0366	16	30	19,0	47,6	26,3	14,0	39,7	16,7	16	155	132
33080.W0367	16	35	19,0	47,6	26,3	14,0	39,7	16,7	16	155	140
33080.W0368	16	40	19,0	47,6	26,3	14,0	39,7	16,7	16	155	148
33080.W0369	16	45	19,0	47,6	26,3	14,0	39,7	16,7	16	155	155
33080.W0370	16	50	19,0	47,6	26,3	14,0	39,7	16,7	16	155	168
33080.W0372	16	60	19,0	47,6	26,3	14,0	39,7	16,7	16	155	178
33080.W0374	16	70	19,0	47,6	26,3	14,0	39,7	16,7	16	155	194
33080.W0376	16	80	19,0	47,6	26,3	14,0	39,7	16,7	16	155	208
33080.W0377	16	90	19,0	47,6	25,2	14,0	39,7	16,7	16	155	234
33080.W0378	16	100	19,0	47,6	25,2	14,0	39,7	16,7	16	155	251
33080.W0379	16	110	19,0	47,6	25,2	14,0	39,7	16,7	16	155	266
33080.W0380	16	120	19,0	47,6	25,2	14,0	39,7	16,7	16	155	281
33080.W0381	16	130	19,0	47,6	25,2	14,0	39,7	16,7	16	155	297
33080.W0382	16	140	19,0	47,6	25,2	14,0	39,7	16,7	16	155	313
33080.W0383	16	150	19,0	47,6	25,2	14,0	39,7	16,7	16	155	328
33080.W0391	20	50	25,0	57,1	33,8	20,5	50,7	21,5	20	244	329
33080.W0392	20	60	25,0	57,1	35,4	20,5	50,7	21,5	20	244	343
33080.W0393	20	70	25,0	57,1	33,8	20,5	50,7	21,5	20	244	377
33080.W0397	20	90	25,0	57,1	33,8	20,5	50,7	21,5	20	244	426
33080.W0401	20	110	25,0	57,1	33,8	20,5	50,7	21,5	20	244	474
33080.W0396	20	80	25,0	57,1	35,4	20,5	50,7	21,5	20	244	392
33080.W0400	20	100	25,0	57,1	35,4	20,5	50,7	21,5	20	244	440
33080.W0404	20	120	25,0	57,1	33,8	20,5	50,7	21,5	20	244	488
33080.W0406	20	130	25,0	57,1	33,8	20,5	50,7	21,5	20	244	523
33080.W0407	20	150	25,0	57,1	33,8	20,5	50,7	21,5	20	244	571
33080.W0409	25	50	30,8	57,1	33,8	22,0	50,7	21,5	25	286	415
33080.W0410	25	60	30,8	57,1	33,8	22,0	50,7	21,5	25	286	453
33080.W0411	25	70	30,8	57,1	33,8	22,0	50,7	21,5	25	286	490
33080.W0412	25	80	30,8	57,1	33,8	22,0	50,7	21,5	25	286	528
33080.W0413	25	90	30,8	57,1	33,8	22,0	50,7	21,5	25	286	565
33080.W0414	25	100	30,8	57,1	33,8	22,0	50,7	21,5	25	286	603
33080.W0415	25	110	30,8	57,1	33,8	22,0	50,7	21,5	25	286	640
33080.W0416	25	120	30,8	57,1	33,8	22,0	50,7	21,5	25	286	690
33080.W0417	25	130	30,8	57,1	33,8	22,0	50,7	21,5	25	286	715
33080.W0418	25	140	30,8	57,1	33,8	22,0	50,7	21,5	25	286	753
33080.W0419	25	150	30,8	57,1	33,8	22,0	50,7	21,5	25	286	790

Material
Pin: stainless steel 1.4542 (AISI 630)
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey.

Technical Notes
Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips
For lanyards & retaining cables see part no.33250-33261. Easy install locating bushes available see part no.33248 + 33246.

Important Notes
*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4542 (AISI 630) for higher shear forces, see part no.33060.

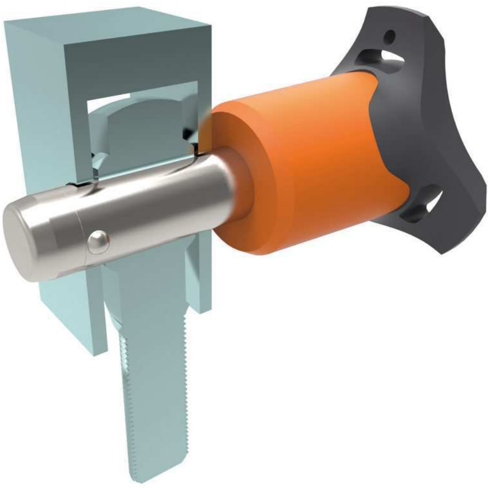
STAINLESS STEEL 303

+80° -30°

Ball Lock Pins - Single Acting - Grey Plastic Handle

self-locking - stainless steel 1.4305 (AISI 303)

33080



Material

Pin: stainless steel 1.4542 (AISI 630)
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips

For lanyards & retaining cables see part no.33250-33261. Easy install locating bushes available see part no.33248 + 33246.

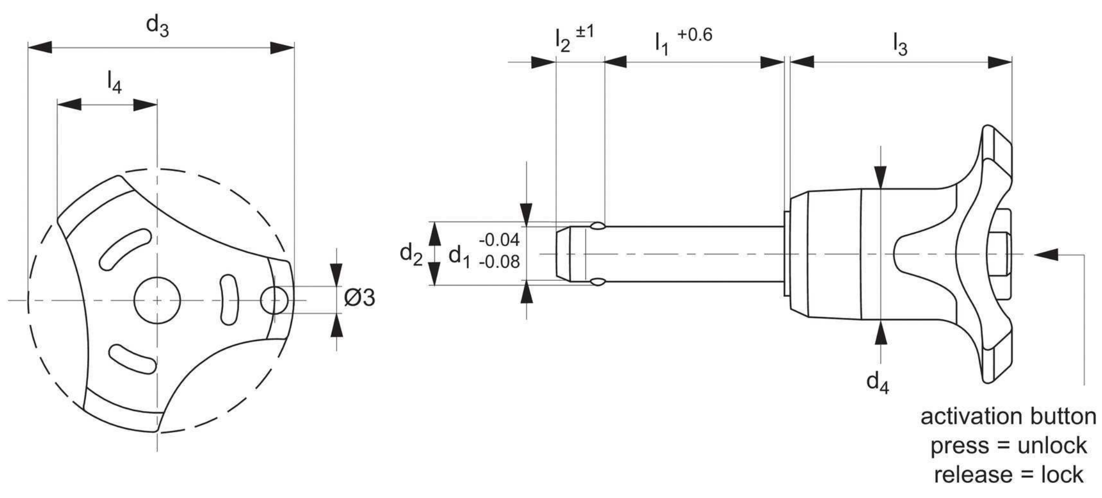
Important Notes

*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4542 (AISI 630) for higher shear forces, see part no.33060.

Ball Lock Pins - Single Acting - Orange Plastic Handle

self-locking - stainless steel 1.4305 (AISI 303)

33080



Order No.	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Loc'n hole H11	Shearing resistance, double kN min.*	g
33080.W0152	5	10	5,5	33,2	14,5	6,0	26,7	10,8	5	14	15
33080.W0153	5	15	5,5	33,2	14,5	6,0	26,7	10,8	5	14	15
33080.W0154	5	20	5,5	33,2	14,5	6,0	26,7	10,8	5	14	16
33080.W0155	5	25	5,5	33,2	14,5	6,0	26,7	10,8	5	14	17
33080.W0156	5	30	5,5	33,2	14,5	6,0	26,7	10,8	5	14	18
33080.W0157	6	60	7,0	33,2	14,5	7,0	26,7	10,8	6	21	26
33080.W0158	6	70	7,0	33,2	14,5	7,0	26,7	10,8	6	21	28
33080.W0159	6	80	7,0	33,2	14,5	7,0	26,7	10,8	6	21	30
33080.W0145	5	35	5,5	33,2	14,5	6,0	26,7	10,8	5	14	19
33080.W0146	5	40	5,5	33,2	14,5	6,0	26,7	10,8	5	14	20
33080.W0147	5	45	5,5	33,2	14,5	6,0	26,7	10,8	5	14	21
33080.W0148	5	50	5,5	33,2	14,5	6,0	26,7	10,8	5	14	23
33080.W0149	5	60	5,5	33,2	14,5	6,0	26,7	10,8	5	14	24
33080.W0150	5	70	5,5	33,2	14,5	6,0	26,7	10,8	5	14	18
33080.W0151	5	80	5,5	33,2	14,5	6,0	26,7	10,8	5	14	19
33080.W0161	8	100	9,6	39,2	18,4	8,2	33,3	13,4	8	38	54
33080.W0162	6	10	7,0	33,2	14,5	7,0	26,7	10,8	6	21	16
33080.W0163	6	15	7,0	33,2	14,5	7,0	26,7	10,8	6	21	17
33080.W0164	6	20	7,0	33,2	14,5	7,0	26,7	10,8	6	21	18
33080.W0165	6	25	7,0	33,2	14,5	7,0	26,7	10,8	6	21	19
33080.W0166	6	30	7,0	33,2	14,5	7,0	26,7	10,8	6	21	20
33080.W0167	6	35	7,0	33,2	14,5	7,0	26,7	10,8	6	21	21
33080.W0168	6	40	7,0	33,2	14,5	7,0	26,7	10,8	6	21	22
33080.W0169	6	45	7,0	33,2	14,5	7,0	26,7	10,8	6	21	23
33080.W0170	6	50	7,0	33,2	14,5	7,0	26,7	10,8	6	21	24
33080.W0171	8	90	9,6	39,2	18,4	8,2	33,3	13,4	8	38	36
33080.W0172	8	10	9,6	39,2	18,4	8,2	33,3	13,4	8	38	38
33080.W0173	8	15	9,6	39,2	18,4	8,2	33,3	13,4	8	38	58
33080.W0174	8	20	9,6	39,2	19,3	8,2	33,3	13,4	8	38	40
33080.W0175	8	25	9,6	39,2	19,3	8,2	33,3	13,4	8	38	42
33080.W0176	8	30	9,6	39,2	19,3	8,2	33,3	13,4	8	38	44
33080.W0177	8	35	9,6	39,2	19,3	8,2	33,3	13,4	8	38	46
33080.W0178	8	40	9,6	39,2	19,3	8,2	33,3	13,4	8	38	47
33080.W0179	8	45	9,6	39,2	19,3	8,2	33,3	13,4	8	38	49
33080.W0180	8	50	9,6	39,2	19,3	8,2	33,3	13,4	8	38	51
33080.W0181	8	60	9,6	39,2	19,3	8,2	33,3	13,4	8	38	62
33080.W0182	8	70	9,6	39,2	19,3	8,2	33,3	13,4	8	38	65
33080.W0183	8	80	9,6	39,2	18,4	8,2	33,3	13,4	8	38	69
33080.W0184	10	20	12,0	39,2	19,3	9,6	33,3	13,4	10	60	47
33080.W0185	10	25	12,0	39,2	19,3	9,6	33,3	13,4	10	60	49
33080.W0186	10	30	12,0	39,2	19,3	9,6	33,3	13,4	10	60	53
33080.W0187	10	35	12,0	39,2	19,3	9,6	33,3	13,4	10	60	55
33080.W0188	10	40	12,0	39,2	19,3	9,6	33,3	13,4	10	60	58
33080.W0189	10	45	12,0	39,2	19,3	9,6	33,3	13,4	10	60	61
33080.W0190	10	50	12,0	39,2	19,3	9,6	33,3	13,4	10	60	64
33080.W0191	10	15	12,0	39,2	18,4	9,6	33,3	13,4	10	60	86
33080.W0192	10	60	12,0	39,2	19,3	9,6	33,3	13,4	10	60	70
33080.W0193	10	70	12,0	39,2	18,4	9,6	33,3	13,4	10	60	91
33080.W0195	10	90	12,0	39,2	18,4	9,6	33,3	13,4	10	60	103

Material

Pin: stainless steel 1,4542 (AISI 630)
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips

For lanyards & retaining cables see part no.33250-33261. Easy install locating bushes available see part no.33248 + 33246.

Important Notes

*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4542 (AISI 630) for higher shear forces, see part no.33060.

Ball Lock Pins - Single Acting - Orange Plastic Handle

self-locking - stainless steel 1.4305 (AISI 303)

33080

Order No.	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Loc'n hole H11	Shearing resistance, double kN min.*	g
33080.W0194	10	80	12,0	39,2	18,4	9,6	33,3	13,4	10	60	97
33080.W0196	10	100	12,0	39,2	18,4	9,6	33,3	13,4	10	60	109
33080.W0197	10	110	12,0	39,2	18,4	9,6	33,3	13,4	10	60	115
33080.W0198	10	120	12,0	39,2	18,4	9,6	33,3	13,4	10	60	53
33080.W0204	12	20	14,5	47,6	25,2	10,6	39,7	16,7	12	87	156
33080.W0205	12	25	14,5	47,6	26,3	10,6	39,7	16,7	12	87	96
33080.W0206	12	30	14,5	47,6	26,3	10,6	39,7	16,7	12	87	100
33080.W0207	12	35	14,5	47,6	26,3	10,6	39,7	16,7	12	87	105
33080.W0208	12	40	14,5	47,6	26,3	10,6	39,7	16,7	12	87	109
33080.W0209	12	45	14,5	47,6	26,3	10,6	39,7	16,7	12	87	113
33080.W0210	12	50	14,5	47,6	26,3	10,6	39,7	16,7	12	87	117
33080.W0212	12	60	14,5	47,6	26,3	10,6	39,7	16,7	12	87	126
33080.W0214	12	70	14,5	47,6	26,3	10,6	39,7	16,7	12	87	134
33080.W0216	12	80	14,5	47,6	26,3	10,6	39,7	16,7	12	87	143
33080.W0217	12	90	14,5	47,6	25,2	10,6	39,7	16,7	12	87	165
33080.W0218	12	100	14,5	47,6	25,2	10,6	39,7	16,7	12	87	173
33080.W0219	12	110	14,5	47,6	25,2	10,6	39,7	16,7	12	87	182
33080.W0220	12	120	14,5	47,6	25,2	10,6	39,7	16,7	12	87	177
33080.W0226	16	30	19,0	47,6	26,3	14,0	39,7	16,7	16	155	132
33080.W0227	16	35	19,0	47,6	26,3	14,0	39,7	16,7	16	155	140
33080.W0228	16	40	19,0	47,6	26,3	14,0	39,7	16,7	16	155	148
33080.W0229	16	45	19,0	47,6	26,3	14,0	39,7	16,7	16	155	155
33080.W0230	16	50	19,0	47,6	26,3	14,0	39,7	16,7	16	155	168
33080.W0232	16	60	19,0	47,6	26,3	14,0	39,7	16,7	16	155	178
33080.W0234	16	70	19,0	47,6	26,3	14,0	39,7	16,7	16	155	194
33080.W0236	16	80	19,0	47,6	26,3	14,0	39,7	16,7	16	155	208
33080.W0237	16	90	19,0	47,6	25,2	14,0	39,7	16,7	16	155	234
33080.W0238	16	100	19,0	47,6	25,2	14,0	39,7	16,7	16	155	251
33080.W0239	16	110	19,0	47,6	25,2	14,0	39,7	16,7	16	155	266
33080.W0240	16	120	19,0	47,6	25,2	14,0	39,7	16,7	16	155	281
33080.W0241	16	130	19,0	47,6	25,2	14,0	39,7	16,7	16	155	297
33080.W0242	16	140	19,0	47,6	25,2	14,0	39,7	16,7	16	155	313
33080.W0243	16	150	19,0	47,6	25,2	14,0	39,7	16,7	16	155	328
33080.W0251	20	50	25,0	57,1	33,8	20,5	50,7	21,5	20	244	329
33080.W0252	20	60	25,0	57,1	35,4	20,5	50,7	21,5	20	244	343
33080.W0253	20	70	25,0	57,1	33,8	20,5	50,7	21,5	20	244	377
33080.W0256	20	80	25,0	57,1	35,4	20,5	50,7	21,5	20	244	392
33080.W0257	20	90	25,0	57,1	33,8	20,5	50,7	21,5	20	244	426
33080.W0260	20	100	25,0	57,1	35,4	20,5	50,7	21,5	20	244	440
33080.W0261	20	110	25,0	57,1	33,8	20,5	50,7	21,5	20	244	474
33080.W0264	20	120	25,0	57,1	35,4	20,5	50,7	21,5	20	244	488
33080.W0265	20	130	25,0	57,1	33,8	20,5	50,7	21,5	20	244	523
33080.W0266	20	140	25,0	57,1	33,8	20,5	50,7	21,5	20	244	546
33080.W0267	20	150	25,0	57,1	33,8	20,5	50,7	21,5	20	244	571
33080.W0269	25	50	30,8	57,1	33,8	22,0	50,7	21,5	25	386	415
33080.W0270	25	60	30,8	57,1	33,8	22,0	50,7	21,5	25	386	453
33080.W0271	25	70	30,8	57,1	33,8	22,0	50,7	21,5	25	386	490
33080.W0272	25	80	30,8	57,1	33,8	22,0	50,7	21,5	25	386	528
33080.W0273	25	90	30,8	57,1	33,8	22,0	50,7	21,5	25	386	565
33080.W0274	25	100	30,8	57,1	33,8	22,0	50,7	21,5	25	386	603
33080.W0275	25	110	30,8	57,1	33,8	22,0	50,7	21,5	25	386	640
33080.W0276	25	120	30,8	57,1	33,8	22,0	50,7	21,5	25	386	690
33080.W0277	25	130	30,8	57,1	33,8	22,0	50,7	21,5	25	386	715
33080.W0278	25	140	30,8	57,1	33,8	22,0	50,7	21,5	25	386	753
33080.W0279	25	150	30,8	57,1	33,8	22,0	50,7	21,5	25	386	790

Material

Pin: stainless steel 1,4542 (AISI 630)
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips

For lanyards & retaining cables see part no.33250-33261. Easy install locating bushes available see part no.33248 + 33246.

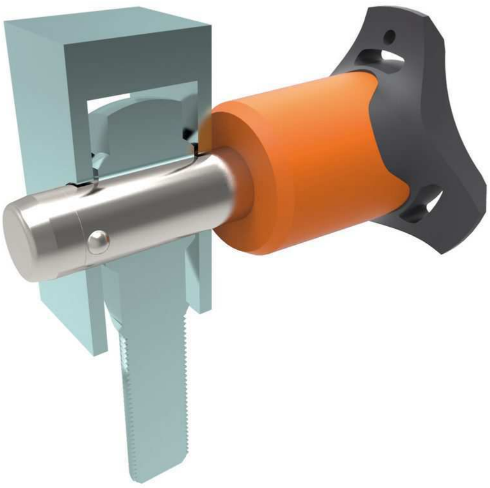
Important Notes

*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4542 (AISI 630) for higher shear forces, see part no.33060.

Ball Lock Pins - Single Acting - Orange Plastic Handle

self-locking - stainless steel 1.4305 (AISI 303)

33080



Material

Pin: stainless steel 1,4542 (AISI 630)
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: thermoplastic PA 6.
Available colours: grey/orange, grey/blue, grey/grey.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections.

Tips

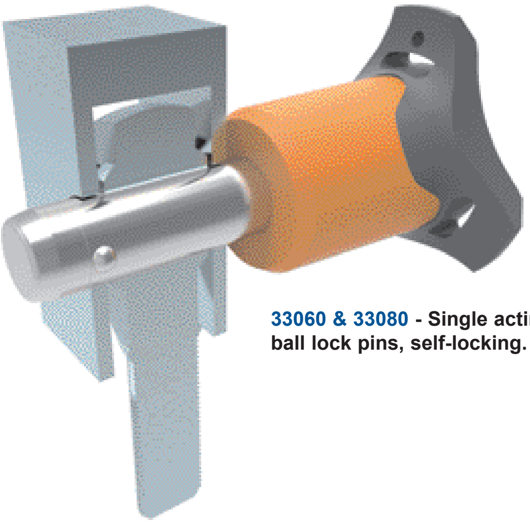
For lanyards & retaining cables see part no.33250-33261. Easy install locating bushes available see part no.33248 + 33246.

Important Notes

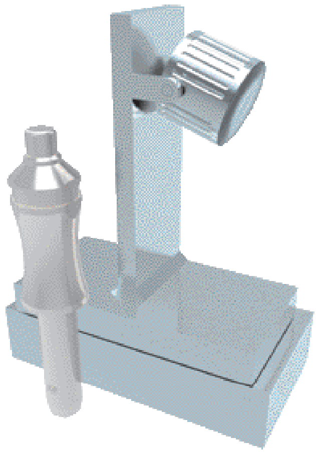
*Shearing resistance similar to DIN 50141.
Also available in stainless grade 1.4542 (AISI 630) for higher shear forces, see part no.33060.

Applications

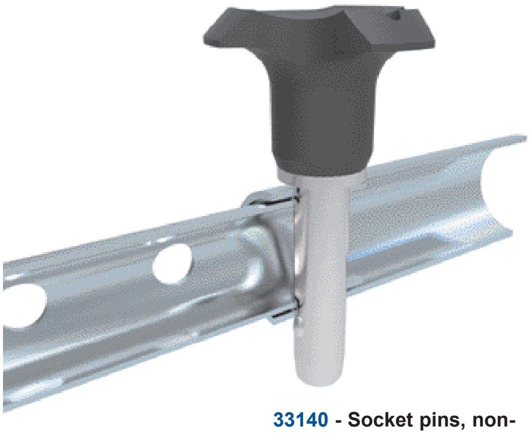
- Positioning.
- Lifting.
- Locking.
- Indexing.
- Joining.



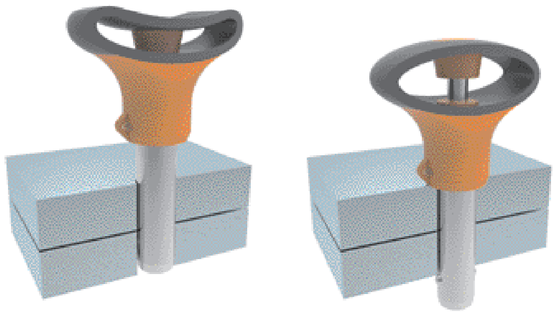
33060 & 33080 - Single acting ball lock pins, self-locking.



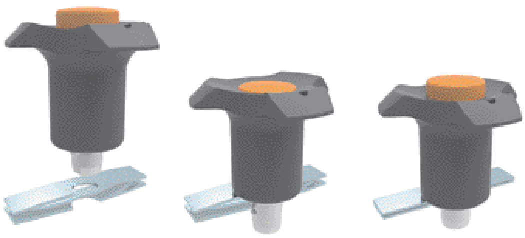
33194 - Single acting ball lock pins, self locking, simple finish.



33140 - Socket pins, non-locking, spring loaded balls.

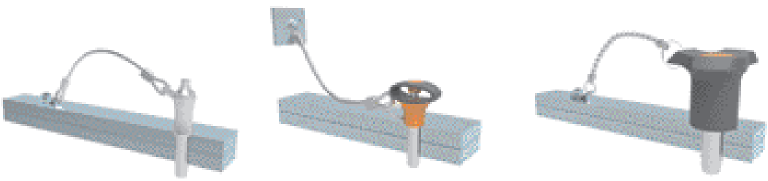


33100 - Single acting ball lock pin, self locking.



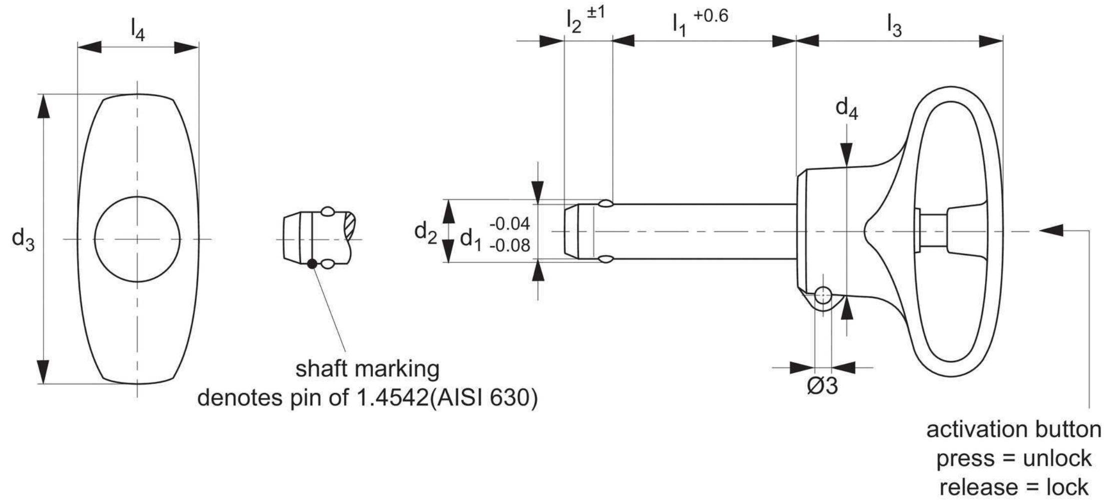
33180 - Clamping pins, with span compensation, self-locking.

33220 - Ball lock pins, single acting - L-handle



33250 & 33270 - Lanyards.

ov-33060-33250-c - Updated - 10-01-2017



Order No. Type One Stainless 1,4305	Order No. Type Two Stainless 1,4542	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Location hole H11	Shearing resistance, double kN min. 1,4305 *	Shearing resistance, double kN min. 1,4542 *	g
33100.W0712	33100.W0912	5	10	5,5	36	12,7	6,0	31,0	15,9	5	14	24	9
33100.W0713	33100.W0913	5	15	5,5	36	12,7	6,0	31,0	15,9	5	14	24	10
33100.W0714	33100.W0914	5	20	5,5	36	12,7	6,0	31,0	15,9	5	14	24	11
33100.W0715	33100.W0915	5	25	5,5	36	12,7	6,0	31,0	15,9	5	14	24	11
33100.W0716	33100.W0916	5	30	5,5	36	12,7	6,0	31,0	15,9	5	14	24	12
33100.W0722	33100.W0922	6	10	7,0	36	12,7	7,0	31,0	15,9	6	21	35	10
33100.W0723	33100.W0923	6	15	7,0	35	12,7	7,0	31,0	15,9	6	21	35	11
33100.W0724	33100.W0924	6	20	7,0	36	12,7	7,0	31,0	15,9	6	21	35	12
33100.W0725	33100.W0925	6	25	7,0	36	12,7	7,0	31,0	15,9	6	21	35	13
33100.W0726	33100.W0926	6	30	7,0	36	12,7	7,0	31,0	15,9	6	21	35	14
33100.W0727	33100.W0927	6	35	7,0	36	12,7	7,0	31,0	15,9	6	21	35	15
33100.W0728	33100.W0928	6	40	7,0	36	12,7	7,0	31,0	15,9	6	21	35	16
33100.W0729	33100.W0929	6	45	7,0	36	12,7	7,0	31,0	15,9	6	21	35	18
33100.W0730	33100.W0930	6	50	7,0	36	12,7	7,0	31,0	15,9	6	21	35	18
33100.W0734	33100.W0934	8	20	9,6	41	16,4	8,2	34,8	19,2	8	38	63	23
33100.W0735	33100.W0935	8	25	9,6	41	16,4	8,2	34,8	19,2	8	38	63	25
33100.W0736	33100.W0936	8	30	9,6	41	16,4	8,2	34,8	19,2	8	38	63	26
33100.W0737	33100.W0937	8	35	9,6	41	16,4	8,2	34,8	19,2	8	38	63	28
33100.W0738	33100.W0938	8	40	9,6	41	16,4	8,2	34,8	19,2	8	38	63	30
33100.W0739	33100.W0939	8	45	9,6	41	16,4	8,2	34,8	19,2	8	38	63	32
33100.W0740	33100.W0940	8	50	9,6	41	16,4	8,2	34,8	19,2	8	38	63	34
33100.W0744	33100.W0944	10	20	12,0	41	16,4	9,6	34,8	19,2	10	60	100	30
33100.W0745	33100.W0945	10	25	12,0	41	16,4	9,6	34,8	19,2	10	60	100	32
33100.W0746	33100.W0946	10	30	12,0	41	16,4	9,6	34,8	19,2	10	60	100	35
33100.W0747	33100.W0947	10	35	12,0	41	16,4	9,6	34,8	19,2	10	60	100	38
33100.W0748	33100.W0948	10	40	12,0	41	16,4	9,6	34,8	19,2	10	60	100	41
33100.W0749	33100.W0949	10	45	12,0	41	16,4	9,6	34,8	19,2	10	60	100	44
33100.W0750	33100.W0950	10	50	12,0	41	16,4	9,6	34,8	19,2	10	60	100	47
33100.W0752	33100.W0952	10	60	12,0	41	16,4	9,6	34,8	19,2	10	60	100	53
33100.W0765	33100.W0965	12	25	14,5	49	21,2	10,6	40,5	24,8	12	87	144	54
33100.W0766	33100.W0966	12	30	14,5	49	21,2	10,6	40,5	24,8	12	87	144	59
33100.W0767	33100.W0967	12	35	14,5	49	21,2	10,6	40,5	24,8	12	87	144	63
33100.W0768	33100.W0968	12	40	14,5	49	21,2	10,6	40,5	24,8	12	87	144	67
33100.W0769	33100.W0969	12	45	14,5	49	21,2	10,6	40,5	24,8	12	87	144	71
33100.W0770	33100.W0970	12	50	14,5	49	21,2	10,6	40,5	24,8	12	87	144	75
33100.W0772	33100.W0972	12	60	14,5	49	21,2	10,6	40,5	24,8	12	87	144	84
33100.W0774	33100.W0974	12	70	14,5	49	21,2	10,6	40,5	24,8	12	87	144	93
33100.W0776	33100.W0976	12	80	14,5	49	21,2	10,6	40,5	24,8	12	87	144	101
33100.W0786	33100.W0986	16	30	19,0	49	21,2	14,0	40,5	24,8	16	155	257	91
33100.W0787	33100.W0987	16	35	19,0	49	21,2	14,0	40,5	24,8	16	155	257	98
33100.W0788	33100.W0988	16	40	19,0	49	21,2	14,0	40,5	24,8	16	155	257	106
33100.W0789	33100.W0989	16	45	19,0	49	21,2	14,0	40,5	24,8	16	155	257	114
33100.W0790	33100.W0990	16	50	19,0	49	21,2	14,0	40,5	24,8	16	155	257	121
33100.W0792	33100.W0992	16	60	19,0	49	21,2	14,0	40,5	24,8	16	155	257	137

Material
Type One-
Pin: Stainless steel 1.4305 (AISI 303).
Type Two-
Pin: Stainless steel 1.4542 (AISI 630), precipitation hardened, blast finish. Offering extreme load capacity. (Marked at end of shaft to denote 1.4542 material).
Handle: plastic (PBT/TPE). Colours avail.; orange/grey

Technical Notes
Pressing = unlocking.
Releasing = locking.
Unique design; elastic handle provides integral spring action to reset pin (hence no internal spring mechanism required).
Tested to over 100,000+ repetitions.
Temperature resistance -30°C to 80°C.
For quick fastening and locking of requently repeated connections in applications such as; sports, leisure, medical and general engineering applications.

Tips
For easy to install locating bush see part 33248 .

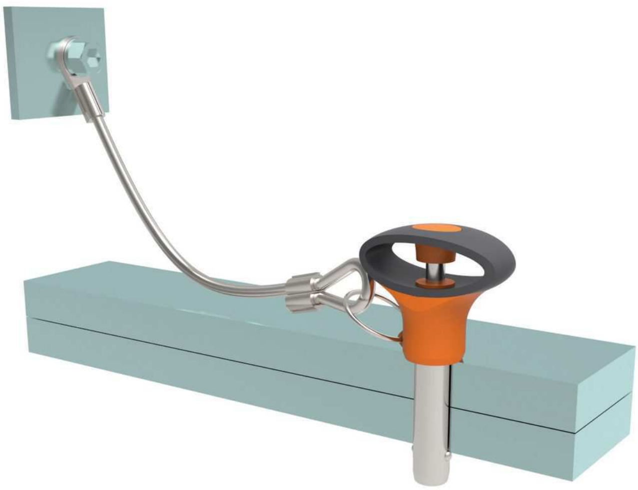
Important Notes
*Shearing resistance similar to DIN 50141.

Handle

self-locking

33100

Order No. Type One Stainless 1,4305	Order No. Type Two Stainless 1,4542	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Location hole H11	Shearing resistance, double kN min. 1,4305 *	Shearing resistance, double kN min. 1,4542 *	g
33100.W0794	33100.W0994	16	70	19,0	49	21,2	14,0	40,5	24,8	16	155	257	152
33100.W0796	33100.W0996	16	80	19,0	49	21,2	14,0	40,5	24,8	16	155	257	167



Material

Type One-
Pin: Stainless steel 1.4305 (AISI 303).
Type Two-
Pin: Stainless steel 1.4542 (AISI 630), precipitation hardened, blast finish. Offering extreme load capacity. (Marked at end of shaft to denote 1.4542 material).
Handle: plastic (PBT/TPE). Colours avail.; orange/grey

Technical Notes

Pressing = unlocking.
Releasing = locking.
Unique design; elastic handle provides integral spring action to reset pin (hence no internal spring mechanism required).
Tested to over 100,000+ repetitions.
Temperature resistance -30°C to 80°C.
For quick fastening and locking of requently repeated connections in applications such as; sports, leisure, medical and general engineering applications.

Tips

For easy to install locating bush see part 33248 .

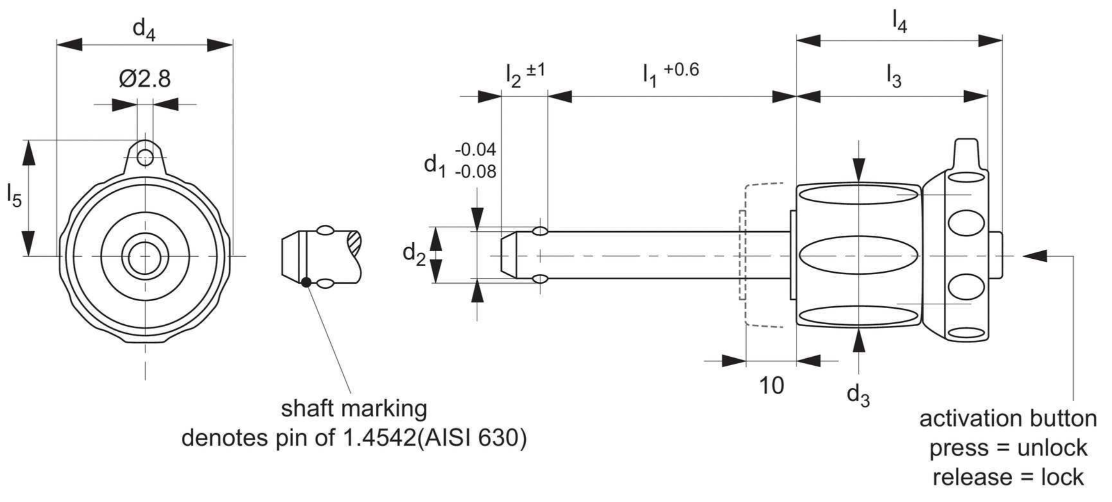
Important Notes

*Shearing resistance similar to DIN 50141.

Ball Lock Pins - Single Acting - Adj. Length

self-locking

33104



Order No. Type One Stainless 1.4305	Order No. Type Two Stainless 1.4542	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	l_5	Loc'n hole H11	Shearing resistance, double kN min. 1.4305*	Shearing resistance, double kN min. 1.4542*	g
33104.W0192	33104.W0392	5	0 - 10	5,5	17,6	23,6	6,0	25,7	26,2	15,9	5	14	24	24
33104.W0193	33104.W0393	5	5 - 15	5,5	17,6	23,6	6,0	25,7	26,2	15,9	5	14	24	25
33104.W0194	33104.W0394	5	10 - 20	5,5	17,6	23,6	6,0	25,7	26,2	15,9	5	14	24	26
33104.W0195	33104.W0395	5	15 - 25	5,5	17,6	23,6	6,0	25,7	26,2	15,9	5	14	24	27
33104.W0196	33104.W0396	5	20 - 30	5,5	17,6	23,6	6,0	25,7	26,2	15,9	5	14	24	27
33104.W0202	33104.W0402	6	0 - 10	7,0	17,6	23,6	7,0	25,7	26,2	15,9	6	21	35	25
33104.W0203	33104.W0403	6	5 - 15	7,0	17,6	23,6	7,0	25,7	26,2	15,9	6	21	35	26
33104.W0204	33104.W0404	6	10 - 20	7,0	17,6	23,6	7,0	25,7	26,2	15,9	6	21	35	27
33104.W0205	33104.W0405	6	15 - 25	7,0	17,6	23,6	7,0	25,7	26,2	15,9	6	21	35	28
33104.W0206	33104.W0406	6	20 - 30	7,0	17,6	23,6	7,0	25,7	26,2	15,9	6	21	35	29
33104.W0207	33104.W0407	6	25 - 35	7,0	17,6	23,6	7,0	25,7	26,2	15,9	6	21	35	30
33104.W0208	33104.W0408	6	30 - 40	7,0	17,6	23,6	7,0	25,7	26,2	15,9	6	21	35	31
33104.W0209	33104.W0409	6	35 - 45	7,0	17,6	23,6	7,0	25,7	26,2	15,9	6	21	35	32
33104.W0210	33104.W0410	6	40 - 50	7,0	17,6	23,6	7,0	25,7	26,2	15,9	6	21	35	33
33104.W0214	33104.W0414	8	10 - 20	9,6	23,0	27,6	8,2	31,2	33,1	18,0	8	38	63	57
33104.W0215	33104.W0415	8	15 - 25	9,6	23,0	27,6	8,2	31,2	33,1	18,0	8	38	63	58
33104.W0216	33104.W0416	8	20 - 30	9,6	23,0	27,6	8,2	31,2	33,1	18,0	8	38	63	60
33104.W0217	33104.W0417	8	25 - 35	9,6	23,0	27,6	8,2	31,2	33,1	18,0	8	38	63	62
33104.W0218	33104.W0418	8	30 - 40	9,6	23,0	27,6	8,2	31,2	33,1	18,0	8	38	63	64
33104.W0219	33104.W0419	8	35 - 45	9,6	23,0	27,6	8,2	31,2	33,1	18,0	8	38	63	66
33104.W0220	33104.W0420	8	40 - 50	9,6	23,0	27,6	8,2	31,2	33,1	18,0	8	38	63	68
33104.W0224	33104.W0424	10	10 - 20	12,0	23,0	27,6	9,6	31,2	33,1	18,0	10	60	100	63
33104.W0225	33104.W0425	10	15 - 25	12,0	23,0	27,6	9,6	31,2	33,1	18,0	10	60	100	66
33104.W0226	33104.W0426	10	20 - 30	12,0	23,0	27,6	9,6	31,2	33,1	18,0	10	60	100	69
33104.W0227	33104.W0427	10	25 - 35	12,0	23,0	27,6	9,6	31,2	33,1	18,0	10	60	100	72
33104.W0228	33104.W0428	10	30 - 40	12,0	23,0	27,6	9,6	31,2	33,1	18,0	10	60	100	75
33104.W0229	33104.W0429	10	35 - 45	12,0	23,0	27,6	9,6	31,2	33,1	18,0	10	60	100	78
33104.W0230	33104.W0430	10	40 - 50	12,0	23,0	27,6	9,6	31,2	33,1	18,0	10	60	100	81
33104.W0232	33104.W0432	10	50 - 60	12,0	23,0	27,6	9,6	31,2	33,1	18,0	10	60	100	87
33104.W0235	33104.W0435	12	15 - 25	14,5	29,0	34,6	10,6	36,7	39,5	21,8	12	87	144	123
33104.W0236	33104.W0436	12	20 - 30	14,5	29,0	34,6	10,6	36,7	39,5	21,8	12	87	144	127
33104.W0237	33104.W0437	12	25 - 35	14,5	29,0	34,6	10,6	36,7	39,5	21,8	12	87	144	131
33104.W0238	33104.W0438	12	30 - 40	14,5	29,0	34,6	10,6	36,7	39,5	21,8	12	87	144	135
33104.W0239	33104.W0439	12	35 - 45	14,5	29,0	34,6	10,6	36,7	39,5	21,8	12	87	144	140
33104.W0240	33104.W0440	12	40 - 50	14,5	29,0	34,6	10,6	36,7	39,5	21,8	12	87	144	144
33104.W0242	33104.W0442	12	50 - 60	14,5	29,0	34,6	10,6	36,7	39,5	21,8	12	87	144	152
33104.W0244	33104.W0444	12	60 - 70	14,5	29,0	34,6	10,6	36,7	39,5	21,8	12	87	144	161
33104.W0246	33104.W0446	12	70 - 80	14,5	29,0	34,6	10,6	36,7	39,5	21,8	12	87	144	169
33104.W0256	33104.W0456	16	20 - 30	19,0	29,0	34,6	14,0	36,7	39,5	21,8	16	155	257	159
33104.W0257	33104.W0457	16	25 - 35	19,0	29,0	34,6	14,0	36,7	39,5	21,8	16	155	257	166
33104.W0258	33104.W0458	16	30 - 40	19,0	29,0	34,6	14,0	36,7	39,5	21,8	16	155	257	174
33104.W0259	33104.W0459	16	35 - 45	19,0	29,0	34,6	14,0	36,7	39,5	21,8	16	155	257	182
33104.W0260	33104.W0460	16	40 - 50	19,0	29,0	34,6	14,0	36,7	39,5	21,8	16	155	257	189
33104.W0262	33104.W0462	16	50 - 60	19,0	29,0	34,6	14,0	36,7	39,5	21,8	16	155	257	205

Material

Type One -
Pin: stainless steel 1.4305 (AISI 303).
Ball: stainless steel 1.3541
Spring: stainless steel.
Type Two -
Pin: stainless steel 1.4542 (AISI 630), precipitation hardened, blast finish. Offering extreme load capacity. (Marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Spring: stainless steel.
Adj. Grip: thermoplastic, grey/black.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Unique design; adj.grip offers up to 10mm of clamping stroke on pin length l_1 after installation.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections, with additional clamping capacity of up to 10mm stroke.

Tips

For lanyards & retaining cables see part no.33250. Easy install locating bushes available see part no.33248.

Important Notes

*Shearing resistance similar to DIN 50141.

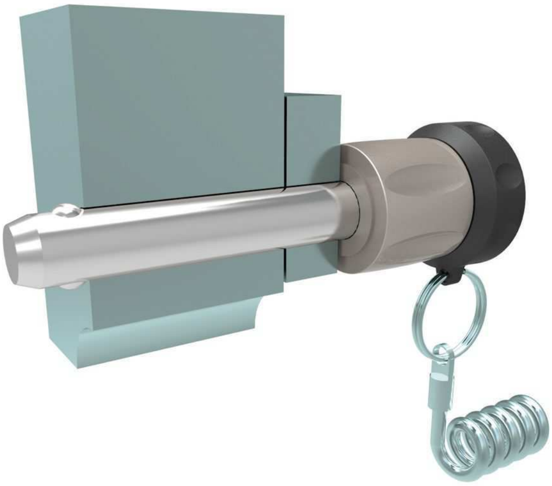
+80° -30°

Ball Lock Pins - Single Acting - Adj. Length

self-locking

33104

Order No. Type One Stainless 1.4305	Order No. Type Two Stainless 1.4542	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	l_5	Loc'n hole H11	Shearing resistance, double kN min. 1.4305*	Shearing resistance, double kN min. 1.4542*	g
33104.W0264	33104.W0464	16	60 - 70	19,0	29,0	34,6	14,0	36,7	39,5	21,8	16	155	257	220
33104.W0266	33104.W0466	16	70 - 80	19,0	29,0	34,6	14,0	36,7	39,5	21,8	16	155	257	235



Material

Type One -
Pin: stainless steel 1.4305 (AISI 303).
Ball: stainless steel 1.3541
Spring: stainless steel.
Type Two -
Pin: stainless steel 1.4542 (AISI 630), precipitation hardened, blast finish. Offering extreme load capacity. (Marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Spring: stainless steel.
Adj. Grip: thermoplastic, grey/black.

Technical Notes

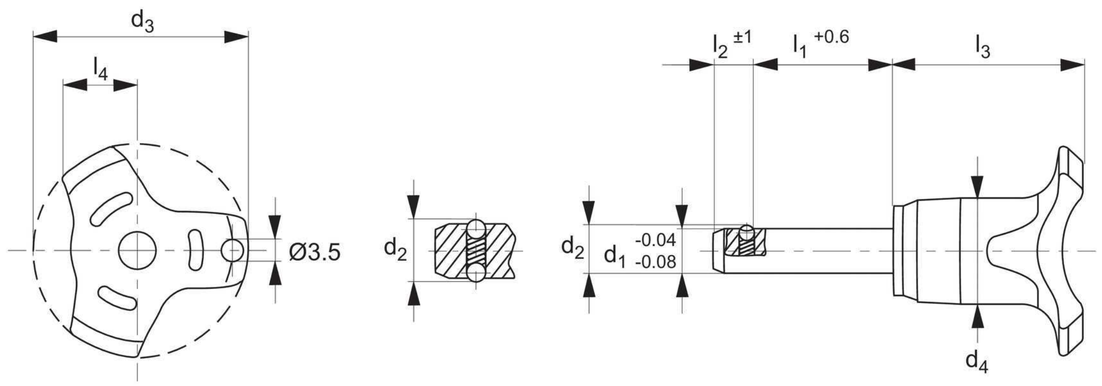
Pressing = unlocking.
Releasing = locking.
Unique design; adj.grip offers up to 10mm of clamping stroke on pin length l_1 after installation.
Temperature resistance -30°C to +80°C.
For quick fastening and locking of frequently repeated connections, with additional clamping capacity of up to 10mm stroke.

Tips

For lanyards & retaining cables see part no.33250. Easy install locating bushes available see part no.33248.

Important Notes

*Shearing resistance similar to DIN 50141.



size 10+12 - double ball

size 6+8 - single ball

Order No.	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Location hole H11	Shearing resistance, double kN	Tensile force non lubricated N max.	g
33140.W0062	6	10	6,5	38	17,3	5,0	27,0	10,8	6	22	8	14
33140.W0064	6	15	6,5	38	17,3	5,0	27,0	10,8	6	22	8	16
33140.W0066	6	20	6,5	38	17,3	5,0	27,0	10,8	6	22	8	16
33140.W0068	6	25	6,5	38	17,3	5,0	27,0	10,8	6	22	8	17
33140.W0070	6	30	6,5	38	17,3	5,0	27,0	10,8	6	22	8	18
33140.W0075	6	50	6,5	38	17,3	5,0	27,0	10,8	6	22	8	23
33140.W0084	8	15	8,7	38	17,3	6,3	28,6	10,8	8	40	15	21
33140.W0086	8	20	8,7	38	17,3	6,3	28,6	10,8	8	40	15	22
33140.W0088	8	25	8,7	38	17,3	6,3	28,6	10,8	8	40	15	25
33140.W0090	8	30	8,7	38	17,3	6,3	28,6	10,8	8	40	15	27
33140.W0095	8	50	8,7	38	17,3	6,3	28,6	10,8	8	40	15	33
33140.W0104	10	15	12,0	38	17,3	8,7	28,6	10,8	10	62	30	32
33140.W0106	10	20	12,0	38	17,3	8,7	28,6	10,8	10	62	30	35
33140.W0108	10	25	12,0	38	17,3	8,7	28,6	10,8	10	62	30	38
33140.W0110	10	30	12,0	38	17,3	8,7	28,6	10,8	10	62	30	39
33140.W0115	10	50	12,0	38	17,3	8,7	28,6	10,8	10	62	30	53
33140.W0122	12	20	14,5	38	17,3	9,5	28,6	10,8	12	90	32	43
33140.W0124	12	30	14,5	38	17,3	9,5	28,6	10,8	12	90	32	52
33140.W0126	12	40	14,5	38	17,3	9,5	28,6	10,8	12	90	32	61
33140.W0128	12	50	14,5	38	17,3	9,5	28,6	10,8	12	90	32	68

Material
Pin: stainless steel 1,4305 (AISI 303).
Handle: thermoplastic PA 6, grey.
Spring: stainless steel.

Technical Notes
Balls are simply spring loaded and do not lock out. Resulting in pins being easier to pull out.
Temperature range: -30°C to +80°C.
For a quick fastening, locking, adjusting, changing and securing.
Quickly and easily unlockable for frequently repeated connections.

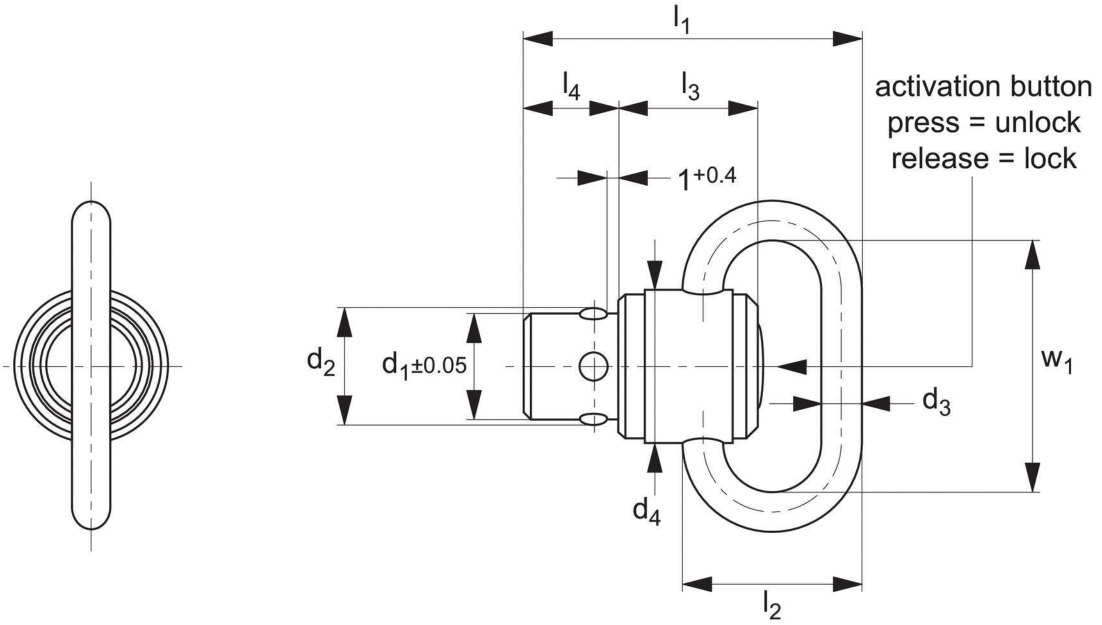
Tips
For lanyards & retaining cables see part no. 33250.

+80° -30°

PA

Sling Swivel Pin

33170



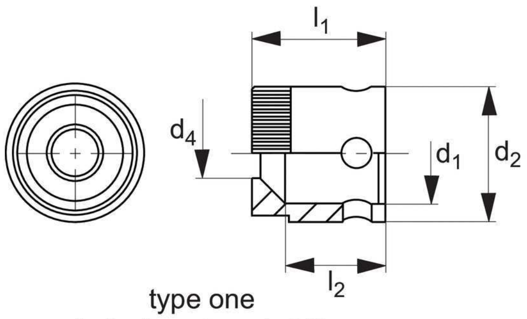
Order No.	Finish	Nom. pin dia	d_1 +0,05	w_1	d_2	d_3	d_4	l_1	l_2	l_3	l_4	Max.load capacity kN	g
33170.W0010	Black	9,5	9,5	23	11,1	3,5	14	31,3	16,5	12,5	9	1,2	20
33170.W0020	Black	9,5	9,5	40	11,1	4,5	14	36,6	23,0	12,5	9	2,0	29
33170.W0110	Natural	9,5	9,5	23	11,1	3,5	14	31,3	16,5	12,5	9	1,2	20
33170.W0120	Natural	9,5	9,5	40	11,1	4,5	14	36,6	23,0	12,5	9	2,0	29

Material
Pin: Stainless Steel 1.4305 (AISI 303)
Spring: Stainless Steel
Finish: Black or Natural

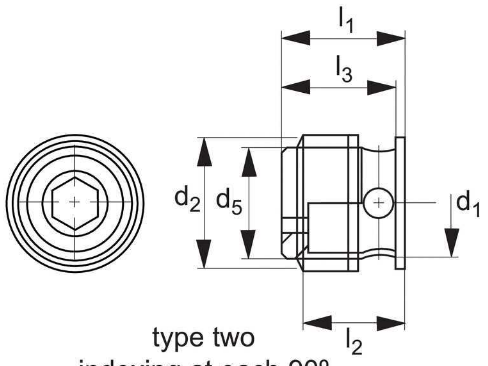
Technical Notes
Temperature range -50°C to +150°C.
For quick fastening and locking of frequently repeated conections; gun slings, tool holders etc, used in combination with sling swivel receivers no.33172.
Pressing = Unlocking
Releasing = Locking

Sling Swivel Receivers

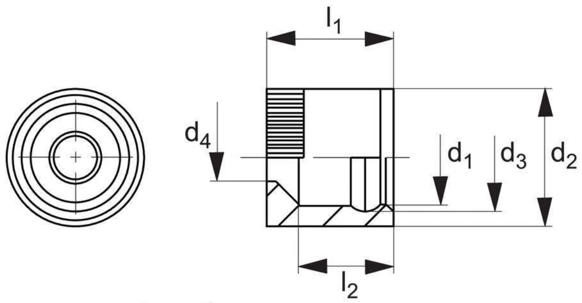
33172



type one
indexing at each 90º



type two
indexing at each 90º



type three
non-indexing, 360º rotation

Material

Pin: stainless steel 1.4305.
Spring: stainless steel.
Finish: Black or natural.

Technical Notes

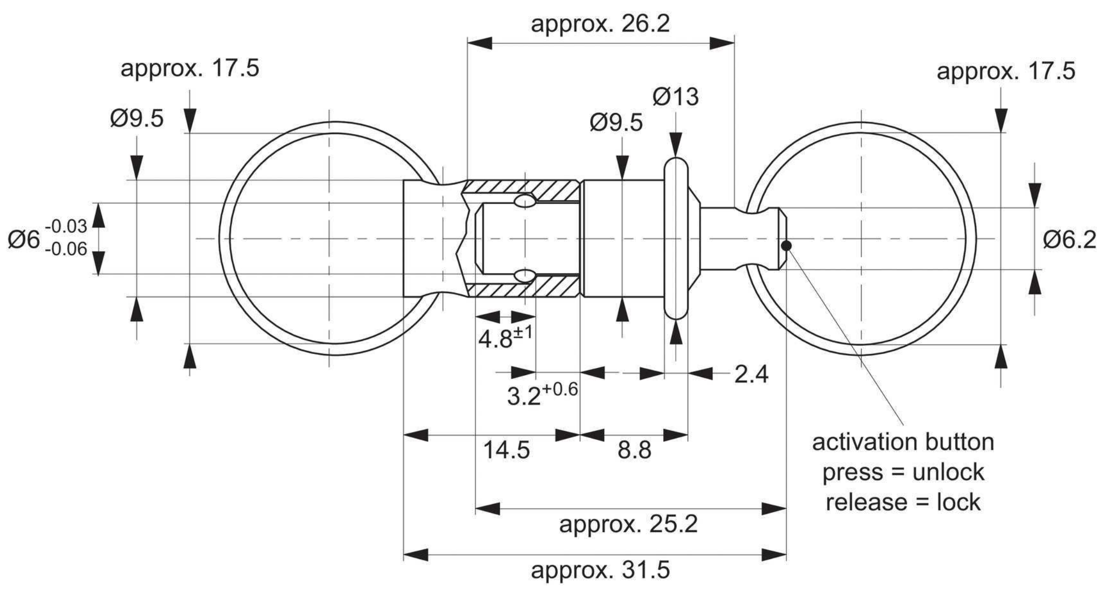
Temperature range -50°C to +150°C.
Receivers for sling swivel pins part no. 33170.
To achieve quick fastening and locking frequently repeated connections.
Type one and two: indexing at 90°.
Type three:non-indexing, 360°rotation.

Order No.	Nom. pin dia	Type	Finish	For mounting in	d_1 H9	d_2 ±0,1	d_3	d_4	d_5	l_1	l_2	l_3	a/f	g
33172.W0205	9,5	One	Black	Wood	9,6	12,65	-	4,9	-	12,65	9,65	-	-	5,6
33172.W0210	9,5	Two	Black	Plastic	9,6	12,65	-	-	10,7	12,10	9,20	11	5	3,0
33172.W0215	9,5	Three	Black	Wood 360°	9,6	13,50	11,3	4,9	-	12,65	9,65	-	-	6,5
33172.W0305	9,5	One	Natural	Wood	9,6	12,65	-	4,9	-	12,65	9,65	-	-	5,6
33172.W0310	9,5	Two	Natural	Plastic	9,6	12,65	-		10,7	12,10	9,20	11	5	3,0
33172.W0315	9,5	Three	Natural	Wood 360°	9,6	13,50	11,3	4,9	-	12,65	9,65	-	-	6,5

Ball Lock Pins - Single Acting - Key Ring

self-locking

33178



Order No.	Load capacity max. N	g
33178.W0905	30	15

Material

Pin & Bush: stainless steel 1.4305 (AISI 303).
Ball: stainless steel 1.3541
Ring & Spring: stainless steel.

Technical Notes

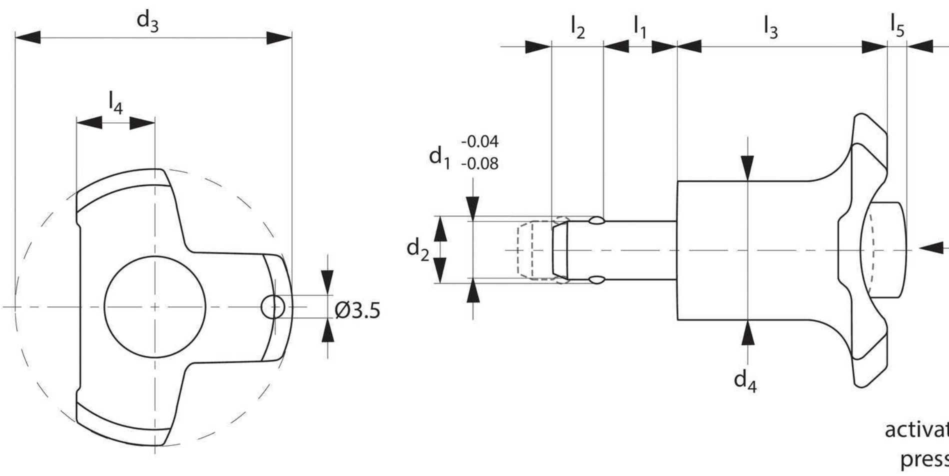
Pressing = unlocking
Releasing = locking.
Temperature resistance up to max. 250 °C.

Tips

For lanyards & retaining cables see part no. 33250.

Clamping Pin
self-locking

33180



activation button
press = unlock
release = lock and
simultaneous clamping

Order No.	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	l_5 Un-clamped	Location hole H11	Clamping force N max.	g
33180.W0010	6	0 - 5	7,0	38	17,5	5,0	30,2	11,0	3	6	16	19
33180.W0012	6	5 - 10	7,0	38	17,5	5,0	30,2	11,0	3	6	18	23
33180.W0020	8	0 - 5	9,5	38	17,5	6,5	30,2	11,0	3	8	16	22
33180.W0022	8	5 - 10	9,5	38	17,5	6,5	30,2	11,0	3	8	18	25
33180.W0030	10	0 - 5	12,0	47	23,0	8,7	36,0	11,0	4	10	21	45
33180.W0032	10	5 - 10	12,0	47	23,0	8,7	36,0	11,0	4	10	23	47
33180.W0040	12	0 - 5	14,0	47	23,0	9,4	36,0	13,5	4	12	21	47
33180.W0042	12	5 - 10	14,0	47	23,0	9,4	36,0	13,5	4	12	23	54

Material
Pin: stainless steel 1,4305 (AISI 303).
Handle: thermoplastic PA 6, grey.
Spring: stainless steel.

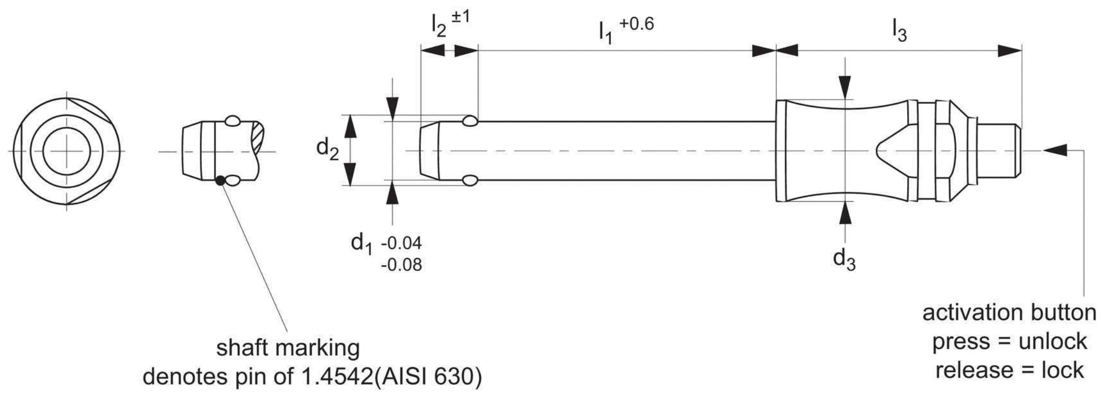
Technical Notes
Pressing = unlocking & fixing.
Releasing = locking and simultaneous clamping.
Temperature resistance: -30°C to +80°C.
Locks and simultaneously clamps thin walled plates, with clamping distance of up to 5mm. Applications in welding work, protection of covers and to close doors.

Tips
For lanyards & retaining cables see part no. 33250.

Ball Lock Pins - Contoured Handle

self-locking - single acting

33194



Order No. Type One Stainless 1,4305	Order No. Type Two Stainless 1,4542	d_1	l_1	d_2	d_3	l_2	l_3	Location hole H11	Shearing resistance, double kN min 1.4305	Shearing resistance, double kN min 1.4542	g
33194.W0012	33194.W0312	5	10	5,5	10	6,0	26,2	5	14	24	10
33194.W0013	33194.W0313	5	15	5,5	10	6,0	26,2	5	14	24	11
33194.W0014	33194.W0314	5	20	5,5	10	6,0	26,2	5	14	24	12
33194.W0015	33194.W0315	5	25	5,5	10	6,0	26,2	5	14	24	13
33194.W0016	33194.W0316	5	30	5,5	10	6,0	26,2	5	14	24	13
33194.W0017	33194.W0317	5	35	5,5	10	6,0	26,2	5	14	24	14
33194.W0018	33194.W0318	5	40	5,5	10	6,0	26,2	5	14	24	15
33194.W0007	33194.W0307	5	45	5,5	10	6,0	26,2	5	14	24	15
33194.W0008	33194.W0308	5	50	5,5	10	6,0	26,2	5	14	24	16
33194.W0009	33194.W0309	5	60	5,5	10	6,0	26,2	5	14	24	17
33194.W0010	33194.W0310	5	70	5,5	10	6,0	26,2	5	14	24	19
33194.W0011	33194.W0311	5	80	5,5	10	6,0	26,2	5	14	24	20
33194.W0022	33194.W0322	6	10	7,0	10	7,0	26,2	6	21	35	11
33194.W0023	33194.W0323	6	15	7,0	10	7,0	26,2	6	21	35	12
33194.W0024	33194.W0324	6	20	7,0	10	7,0	26,2	6	21	35	13
33194.W0025	33194.W0325	6	25	7,0	10	7,0	26,2	6	21	35	14
33194.W0026	33194.W0326	6	30	7,0	10	7,0	26,2	6	21	35	15
33194.W0027	33194.W0327	6	35	7,0	10	7,0	26,2	6	21	35	16
33194.W0028	33194.W0328	6	40	7,0	10	7,0	26,2	6	21	35	17
33194.W0029	33194.W0329	6	45	7,0	10	7,0	26,2	6	21	35	18
33194.W0030	33194.W0330	6	50	7,0	10	7,0	26,2	6	21	35	19
33194.W0019	33194.W0319	6	60	7,0	10	7,0	26,2	6	21	35	21
33194.W0020	33194.W0320	6	70	7,0	10	7,0	26,2	6	21	35	21
33194.W0021	33194.W0321	6	80	7,0	10	7,0	26,2	6	21	35	25
33194.W0032	33194.W0332	8	10	9,6	14	8,2	33,1	8	38	63	29
33194.W0033	33194.W0333	8	15	9,6	14	8,2	33,1	8	38	63	31
33194.W0034	33194.W0334	8	20	9,6	14	8,2	33,1	8	38	63	33
33194.W0035	33194.W0335	8	25	9,6	14	8,2	33,1	8	38	63	34
33194.W0036	33194.W0336	8	30	9,6	14	8,2	33,1	8	38	63	36
33194.W0037	33194.W0337	8	35	9,6	14	8,2	33,1	8	38	63	38
33194.W0038	33194.W0338	8	40	9,6	14	8,2	33,1	8	38	63	40
33194.W0039	33194.W0339	8	45	9,6	14	8,2	33,1	8	38	63	42
33194.W0040	33194.W0340	8	50	9,6	14	8,2	33,1	8	38	63	44
33194.W0031	33194.W0331	8	60	9,6	14	8,2	33,1	8	38	63	47
33194.W0041	33194.W0341	8	70	9,6	14	8,2	33,1	8	38	63	51
33194.W0042	33194.W0342	8	80	9,6	14	8,2	33,1	8	38	63	55
33194.W0043	33194.W0343	8	90	9,6	14	8,2	33,1	8	38	63	58
33194.W0051	33194.W0351	8	100	9,6	14	8,2	33,1	8	38	63	62
33194.W0059	33194.W0359	10	15	12,0	14	9,6	33,1	10	60	100	36
33194.W0044	33194.W0344	10	20	12,0	14	9,6	33,1	10	60	100	39
33194.W0045	33194.W0345	10	25	12,0	14	9,6	33,1	10	60	100	42
33194.W0046	33194.W0346	10	30	12,0	14	9,6	33,1	10	60	100	45
33194.W0047	33194.W0347	10	35	12,0	14	9,6	33,1	10	60	100	48
33194.W0048	33194.W0348	10	40	12,0	14	9,6	33,1	10	60	100	51
33194.W0049	33194.W0349	10	45	12,0	14	9,6	33,1	10	60	100	54
33194.W0050	33194.W0350	10	50	12,0	14	9,6	33,1	10	60	100	57
33194.W0052	33194.W0352	10	60	12,0	14	9,6	33,1	10	60	100	63
33194.W0053	33194.W0353	10	70	12,0	14	9,6	33,1	10	60	100	69
33194.W0054	33194.W0354	10	80	12,0	14	9,6	33,1	10	60	100	74
33194.W0055	33194.W0355	10	90	12,0	14	9,6	33,1	10	60	100	80

Material

Type One-
Pin: stainless steel 1.4305 (AISI 303).
Spring: stainless steel.
Type Two-
Pin: stainless steel 1.4542 (AISI 630), precipitation-hardened, blast finish. Offering extreme load capacity (marked at end of shaft to denote 1.4542 material).
End of shaft marked for material type 1.4542.
Spring: stainless steel.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Single piece contoured design for limited space applications.
Temperature resistance up to 250°C.
For quick fastening and locking of frequently repeated connections.
For suitable lanyards see part no. 33250.W0970 and .W0974 only.
Easy install locating bushes available see part no. 33248.

Tips

Single piece design, no danger of parts coming away from pin - ideal for applications with F.O.B (Foreign Object Body) issues.

Important Notes

*Shearing resistance similar to DIN 50141.

Ball Lock Pins - Contoured Handle

self-locking - single acting

33194

Order No. Type One Stainless 1,4305	Order No. Type Two Stainless 1,4542	d_1	l_1	d_2	d_3	l_2	l_3	Location hole H11	Shearing resistance, double kN min 1.4305	Shearing resistance, double kN min 1.4542	g
33194.W0056	33194.W0356	10	100	12,0	14	9,6	33,1	10	60	100	86
33194.W0057	33194.W0357	10	110	12,0	14	9,6	33,1	10	60	100	92
33194.W0058	33194.W0358	10	120	12,0	14	9,6	33,1	10	60	100	98
33194.W0064	33194.W0364	12	20	14,5	20	10,6	39,5	12	87	144	98
33194.W0065	33194.W0365	12	25	14,5	20	10,6	39,5	12	87	144	84
33194.W0066	33194.W0366	12	30	14,5	20	10,6	39,5	12	87	144	88
33194.W0067	33194.W0367	12	35	14,5	20	10,6	39,5	12	87	144	92
33194.W0068	33194.W0368	12	40	14,5	20	10,6	39,5	12	87	144	96
33194.W0069	33194.W0369	12	45	14,5	20	10,6	39,5	12	87	144	101
33194.W0070	33194.W0370	12	50	14,5	20	10,6	39,5	12	87	144	105
33194.W0072	33194.W0372	12	60	14,5	20	10,6	39,5	12	87	144	113
33194.W0074	33194.W0374	12	70	14,5	20	10,6	39,5	12	87	144	122
33194.W0076	33194.W0376	12	80	14,5	20	10,6	39,5	12	87	144	130
33194.W0060	33194.W0360	12	90	14,5	20	10,6	39,5	12	87	144	139
33194.W0061	33194.W0361	12	100	14,5	20	10,6	39,5	12	87	144	148
33194.W0062	33194.W0362	12	110	14,5	20	10,6	39,5	12	87	144	157
33194.W0063	33194.W0363	12	120	14,5	20	10,6	39,5	12	87	144	165
33194.W0086	33194.W0386	16	30	19,0	20	14,0	39,5	16	155	257	120
33194.W0087	33194.W0387	16	35	19,0	20	14,0	39,5	16	155	257	127
33194.W0088	33194.W0388	16	40	19,0	20	14,0	39,5	16	155	257	135
33194.W0089	33194.W0389	16	45	19,0	20	14,0	39,5	16	155	257	143
33194.W0090	33194.W0390	16	50	19,0	20	14,0	39,5	16	155	257	150
33194.W0092	33194.W0392	16	60	19,0	20	14,0	39,5	16	155	257	166
33194.W0094	33194.W0394	16	70	19,0	20	14,0	39,5	16	155	257	181
33194.W0096	33194.W0396	16	80	19,0	20	14,0	39,5	16	155	257	196
33194.W0097	33194.W0397	16	90	19,0	20	14,0	39,5	16	155	257	216
33194.W0098	33194.W0398	16	100	19,0	20	14,0	39,5	16	155	257	233
33194.W0099	33194.W0399	16	110	19,0	20	14,0	39,5	16	155	257	248
33194.W0100	33194.W3100	16	120	19,0	20	14,0	39,5	16	155	257	263
33194.W0101	33194.W3101	16	130	19,0	20	14,0	39,5	16	155	257	279
33194.W0102	33194.W3102	16	140	19,0	20	14,0	39,5	16	155	257	295
33194.W0103	33194.W3103	16	150	19,0	20	14,0	39,5	16	155	257	310
33194.W0111	33194.W0411	20	50	25,0	28	20,5	49,9	20	244	403	303
33194.W0112	33194.W0412	20	60	25,0	28	20,5	49,9	20	244	403	322
33194.W0116	33194.W0416	20	80	25,0	28	20,5	49,9	20	244	403	370
33194.W0117	33194.W0417	20	90	25,0	28	20,5	49,9	20	244	403	400
33194.W0120	33194.W0420	20	100	25,0	28	20,5	49,9	20	244	403	414
33194.W0124	33194.W0424	20	120	25,0	28	20,5	49,9	20	244	403	466
33194.W0125	33194.W0425	20	130	25,0	28	20,5	49,9	20	244	403	497
33194.W0126	33194.W0426	20	140	25,0	28	20,5	49,9	20	244	403	520
33194.W0127	33194.W0427	20	150	25,0	28	20,5	49,9	20	244	403	545
33194.W0129	33194.W0429	20	50	30,8	28	22,0	49,9	25	386	631	466
33194.W0130	33194.W0430	25	60	30,8	28	22,0	49,9	25	386	631	432
33194.W0131	33194.W0431	20	70	30,8	28	22,0	49,9	25	386	631	470
33194.W0132	33194.W0432	25	810	30,8	28	22,0	49,9	25	386	631	507
33194.W0133	33194.W0433	25	90	30,8	28	22,0	49,9	25	386	631	545
33194.W0134	33194.W0434	25	100	30,8	28	22,0	49,9	25	386	631	582
33194.W0135	33194.W0435	25	110	30,8	28	22,0	49,9	25	386	631	620
33194.W0136	33194.W0436	25	120	30,8	28	22,0	49,9	25	386	631	657
33194.W0137	33194.W0433	25	130	30,8	28	22,0	49,9	25	386	631	695
33194.W0138	33194.W0438	25	140	30,8	28	22,0	49,9	25	386	631	732
33194.W0139	33194.W0439	25	150	30,8	28	22,0	49,9	25	386	631	770

Material

Type One-
Pin: stainless steel 1.4305 (AISI 303).
Spring: stainless steel.
Type Two-
Pin: stainless steel 1.4542 (AISI 630), precipitation-hardened, blast finish. Offering extreme load capacity (marked at end of shaft to denote 1.4542 material).
End of shaft marked for material type 1.4542.
Spring: stainless steel.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Single piece contoured design for limited space applications.
Temperature resistance up to 250°C.
For quick fastening and locking of frequently repeated connections.
For suitable lanyards see part no. 33250.W0970 and .W0974 only.
Easy install locating bushes available see part no. 33248.

Tips

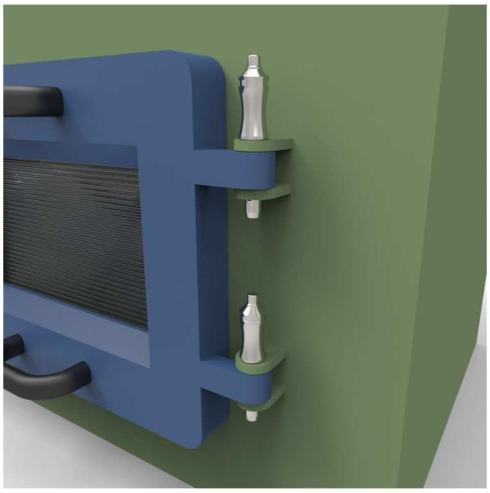
Single piece design, no danger of parts coming away from pin - ideal for applications with F.O.B (Foreign Object Body) issues.

Important Notes

*Shearing resistance similar to DIN 50141.

HIGH SHEAR FORCES

+250° -30°



Material

Type One-
Pin: stainless steel 1.4305 (AISI 303).
Spring: stainless steel.
Type Two-
Pin: stainless steel 1.4542 (AISI 630), precipitation-hardened, blast finish. Offering extreme load capacity (marked at end of shaft to denote 1.4542 material).
End of shaft marked for material type 1.4542.
Spring: stainless steel.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Single piece contoured design for limited space applications.
Temperature resistance up to 250°C.
For quick fastening and locking of frequently repeated connections.
For suitable lanyards see part no. 33250.W0970 and .W0974 only.
Easy install locating bushes available see part no. 33248.

Tips

Single piece design, no danger of parts coming away from pin - ideal for applications with F.O.B (Foreign Object Body) issues.

Important Notes

*Shearing resistance similar to DIN 50141.

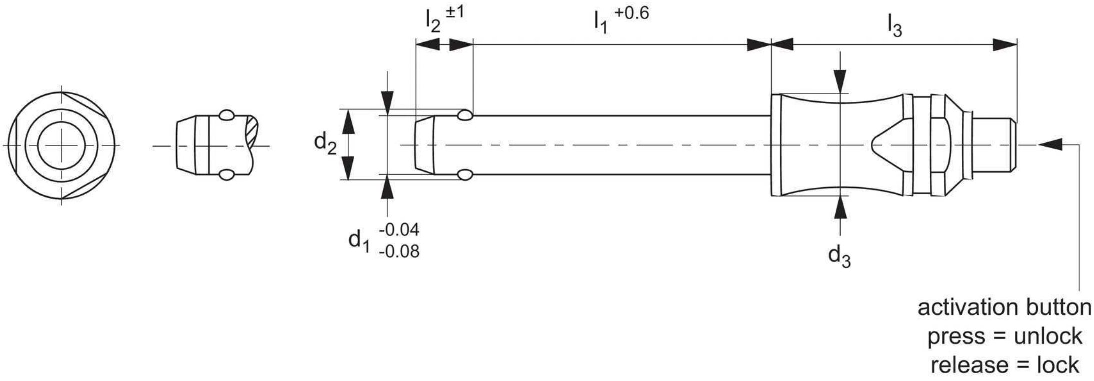
HIGH SHEAR FORCES

+250° -30°

Ball Lock Pins - Contoured Handle

self-locking - single acting - titanium

33196



Order No.	d_1	l_1	d_2	d_3	l_2	l_3	Location hole tol. H11	Shearing Resistance, double kN. min.	g
33196.W0022	6	10	7,0	10	7,0	26,2	6	23	7
33196.W0024	6	20	7,0	10	7,0	26,2	6	23	8
33196.W0026	6	30	7,0	10	7,0	26,2	6	23	9
33196.W0028	6	40	7,0	10	7,0	26,2	6	23	10
33196.W0030	6	50	7,0	10	7,0	26,2	6	23	11
33196.W0034	8	20	9,6	14	8,2	33,1	8	43	19
33196.W0036	8	30	9,6	14	8,2	33,1	8	43	21
33196.W0038	8	40	9,6	14	8,2	33,1	8	43	23
33196.W0040	8	50	9,6	14	8,2	33,1	8	43	25
33196.W0044	10	20	12,0	14	9,6	33,1	8	46	23
33196.W0046	10	30	12,0	14	9,6	26,2	10	69	26
33196.W0048	10	40	12,0	14	9,6	26,2	10	69	29
33196.W0050	10	50	12,0	14	9,6	26,2	10	69	32
33196.W0052	10	60	12,0	14	9,6	26,2	10	69	36

Material

Pin: Titanium G5 (6A/4V DIN 3.7165). Offering extreme load capacity.
Ball: Ceramic.
Spring: Corrosion resistant alloy.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Single piece contoured design for limited space applications.
Temperature resistance up to 400°C.
For quick fastening and locking of frequently repeated connections.
For suitable lanyards see part no. 33250.W0970 and .W0974 only.
Easy install locating bushes available see part no. 33248.

Tips

Single piece design, no danger of parts coming away from pin - ideal for applications with F.O.B (Foreign Object Body) issues.

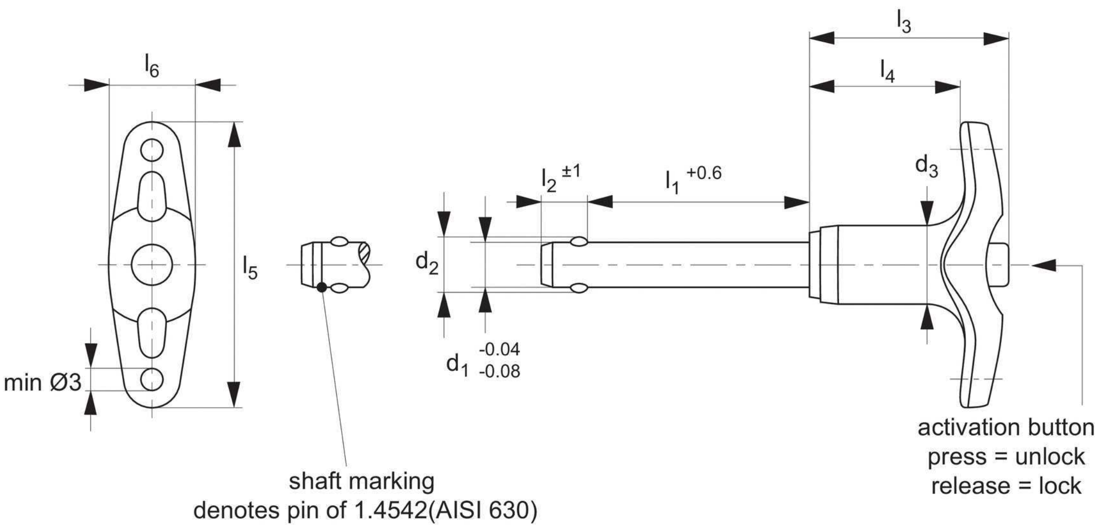
Important Notes

*Shearing resistance similar to DIN 50141.

Ball Lock Pins - Single Acting - T-Handle

self-locking

33200



Order No. Type One Stainless 1.4305	Order No. Type Two Stainless 1.4542	d_1	l_1	d_2	d_3	l_2	l_3	l_4	l_5	l_6	Loc'n hole H11	Shearing resistance, double kN min. 1.4305 *	Shearing resistance, double kN min. 1.4542 *	g
33200.W0007	33200.W0307	5	45	5,5	11,8	6,0	31,6	24,1	45,2	12,7	5	14	24	25
33200.W0008	33200.W0308	5	50	5,5	11,8	6,0	31,6	24,1	45,2	12,7	5	14	24	26
33200.W0009	33200.W0309	5	60	5,5	11,8	6,0	31,6	24,1	45,2	12,7	5	14	24	27
33200.W0011	33200.W0311	5	80	5,5	11,8	6,0	31,6	24,1	45,2	12,7	5	14	24	30
33200.W0010	33200.W0310	5	70	5,5	11,8	6,0	31,6	24,1	45,2	12,7	5	14	24	29
33200.W0012	33200.W0312	5	10	5,5	11,8	6,0	31,6	24,1	45,2	12,7	5	14	24	19
33200.W0013	33200.W0313	5	15	5,5	11,8	6,0	31,6	24,1	45,2	12,7	5	14	24	20
33200.W0014	33200.W0314	5	20	5,5	11,8	6,0	31,6	24,1	45,2	12,7	5	14	24	20
33200.W0015	33200.W0315	5	25	5,5	11,8	6,0	31,6	24,1	45,2	12,7	5	14	24	21
33200.W0016	33200.W0316	5	30	5,5	11,8	6,0	31,6	24,1	45,2	12,7	5	14	24	22
33200.W0017	33200.W0317	5	35	5,5	11,8	6,0	31,6	24,1	45,2	12,7	5	14	24	24
33200.W0018	33200.W0318	5	40	5,5	11,8	6,0	31,6	24,1	45,2	12,7	5	14	24	24
33200.W0019	33200.W0319	6	60	7,0	11,8	7,0	31,6	24,1	45,2	12,7	6	21	35	31
33200.W0020	33200.W0320	6	70	7,0	11,8	7,0	31,6	24,1	45,2	12,7	6	21	35	33
33200.W0021	33200.W0321	6	80	7,0	11,8	7,0	31,6	24,1	45,2	12,7	6	21	35	35
33200.W0022	33200.W0322	6	10	7,0	11,8	7,0	31,6	24,1	45,2	12,7	6	21	35	20
33200.W0023	33200.W0323	6	15	7,0	11,8	7,0	31,6	24,1	45,2	12,7	6	21	35	21
33200.W0024	33200.W0324	6	20	7,0	11,8	7,0	31,6	24,1	45,2	12,7	6	21	35	22
33200.W0025	33200.W0325	6	25	7,0	11,8	7,0	31,6	24,1	45,2	12,7	6	21	35	23
33200.W0026	33200.W0326	6	30	7,0	11,8	7,0	31,6	24,1	45,2	12,7	6	21	35	24
33200.W0027	33200.W0327	6	35	7,0	11,8	7,0	31,6	24,1	45,2	12,7	6	21	35	25
33200.W0028	33200.W0328	6	40	7,0	11,8	7,0	31,6	24,1	45,2	12,7	6	21	35	26
33200.W0029	33200.W0329	6	45	7,0	11,8	7,0	31,6	24,1	45,2	12,7	6	21	35	27
33200.W0030	33200.W0330	6	50	7,0	11,8	7,0	31,6	24,1	45,2	12,7	6	21	35	28
33200.W0032	33200.W0332	8	10	9,5	14,7	8,2	35,8	26,9	51,5	15,8	8	38	63	33
33200.W0033	33200.W0333	8	15	9,5	14,7	8,2	35,8	26,9	51,5	15,8	8	38	63	35
33200.W0034	33200.W0334	8	20	9,5	14,7	8,2	35,8	26,9	51,5	15,8	8	38	63	37
33200.W0035	33200.W0335	8	25	9,5	14,7	8,2	35,8	26,9	51,5	15,8	8	38	63	39
33200.W0036	33200.W0336	8	30	9,5	14,7	8,2	35,8	26,9	51,5	15,8	8	38	63	41
33200.W0037	33200.W0337	8	35	9,5	14,7	8,2	35,8	26,9	51,5	15,8	8	38	63	43
33200.W0038	33200.W0338	8	40	9,5	14,7	8,2	35,8	26,9	51,5	15,8	8	38	63	44
33200.W0039	33200.W0339	8	45	9,5	14,7	8,2	35,8	26,9	51,5	15,8	8	38	63	46
33200.W0040	33200.W0340	8	50	9,5	14,7	8,2	35,8	26,9	51,5	15,8	8	38	63	48
33200.W0031	33200.W0331	8	60	9,5	14,7	8,2	35,8	26,9	51,5	15,8	8	38	63	52
33200.W0041	33200.W0341	8	70	9,5	14,7	8,2	35,8	26,9	51,5	15,8	8	38	63	56
33200.W0042	33200.W0342	8	80	9,5	14,7	8,2	35,8	26,9	51,5	15,8	8	38	63	60
33200.W0043	33200.W0343	8	90	9,5	14,7	8,2	35,8	26,9	51,5	15,8	8	38	63	63
33200.W0051	33200.W0351	8	100	9,5	14,7	8,2	35,8	26,9	51,5	15,8	8	38	63	67
33200.W0044	33200.W0344	10	20	12,0	14,7	9,6	35,8	26,9	51,5	15,8	10	60	100	44
33200.W0045	33200.W0345	10	25	12,0	14,7	9,6	35,8	26,9	51,5	15,8	10	60	100	47
33200.W0046	33200.W0346	10	30	12,0	14,7	9,6	35,8	26,9	51,5	15,8	10	60	100	49
33200.W0047	33200.W0347	10	35	12,0	14,7	9,6	35,8	26,9	51,5	15,8	10	60	100	52
33200.W0048	33200.W0348	10	40	12,0	14,7	9,6	35,8	26,9	51,5	15,8	10	60	100	55

Material

Type One -
Pin: stainless steel 1.4305 (AISI 303).
Ball: stainless steel 1.3541
Handle: aluminium, black (similar to RAL 9005)
Spring: stainless Steel

Type Two -
Pin: stainless steel 1.4542 (AISI 630). Precipitation hardened, blast finish. Offering extreme load capacity. (Marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Handle: aluminium, black (RAL9003).
Spring: stainless steel.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature range -30°C to +150°C.
For quick fastening and locking frequently repeated connections.

Tips

For lanyards & retaining cables see part no.33250-33261. Easy install locating bushes available see part no.33248 + 33246.

Important Notes

*Shearing resistance similar to DIN 50141.

STAINLESS STEEL 303

+150° -30°

Ball Lock Pins - Single Acting - T-Handle

self-locking

Order No. Type One Stainless 1.4305	Order No. Type Two Stainless 1.4542	d_1	l_1	d_2	d_3	l_2	l_3	l_4	l_5	l_6	Loc'n hole H11	Shearing resistance, double kN min. 1.4305 *	Shearing resistance, double kN min. 1.4542 *	g
33200.W0049	33200.W0349	10	45	12,0	14,7	9,6	35,8	26,9	51,5	15,8	10	60	100	58
33200.W0050	33200.W0350	10	50	12,0	14,7	9,6	35,8	26,9	51,5	15,8	10	60	100	61
33200.W0052	33200.W0352	10	60	12,0	14,7	9,6	35,8	26,9	51,5	15,8	10	60	100	67
33200.W0053	33200.W0353	10	70	12,0	14,7	9,6	35,8	26,9	51,5	15,8	10	60	100	73
33200.W0054	33200.W0354	10	80	12,0	14,7	9,6	35,8	26,9	51,5	15,8	10	60	100	79
33200.W0055	33200.W0355	10	90	12,0	14,7	9,6	35,8	26,9	51,5	15,8	10	60	100	85
33200.W0056	33200.W0356	10	100	12,0	14,7	9,6	35,8	26,9	51,5	15,8	10	60	100	91
33200.W0057	33200.W0357	10	110	12,0	14,7	9,6	35,8	26,9	51,5	15,8	10	60	100	97
33200.W0058	33200.W0358	10	120	12,0	14,7	9,6	35,8	26,9	51,5	15,8	10	60	100	103
33200.W0064	33200.W0364	12	20	14,5	18,2	10,6	35,1	25,3	59,1	20,2	12	87	144	68
33200.W0059	33200.W0359	10	15	12,0	14,7	9,6	35,8	26,9	51,5	15,8	10	60	100	40
33200.W0065	33200.W0365	12	25	14,5	18,2	10,6	35,1	25,3	59,1	20,2	12	87	144	73
33200.W0066	33200.W0366	12	30	14,5	18,2	10,6	35,1	25,3	59,1	20,2	12	87	144	77
33200.W0067	33200.W0367	12	35	14,5	18,2	10,6	35,1	25,3	59,1	20,2	12	87	144	81
33200.W0068	33200.W0368	12	40	14,5	18,2	10,6	35,1	25,3	59,1	20,2	12	87	144	86
33200.W0069	33200.W0369	12	45	14,5	18,2	10,6	35,1	25,3	59,1	20,2	12	87	144	90
33200.W0070	33200.W0370	12	50	14,5	18,2	10,6	35,1	25,3	59,1	20,2	12	87	144	94
33200.W0072	33200.W0372	12	60	14,5	18,2	10,6	35,1	25,3	59,1	20,2	12	87	144	103
33200.W0074	33200.W0374	12	70	14,5	18,2	10,6	35,1	25,3	59,1	20,2	12	87	144	111
33200.W0076	33200.W0376	12	80	14,5	18,2	10,6	35,1	25,3	59,1	20,2	12	87	144	119
33200.W0060	33200.W0360	12	90	14,5	18,2	10,6	35,1	25,3	59,1	20,2	12	87	144	127
33200.W0061	33200.W0361	12	100	14,5	18,2	10,6	35,1	25,3	59,1	20,2	12	87	144	136
33200.W0062	33200.W0362	12	110	14,5	18,2	10,6	35,1	25,3	59,1	20,2	12	87	144	144
33200.W0063	33200.W0363	12	120	14,5	18,2	10,6	35,1	25,3	59,1	20,2	12	87	144	153
33200.W0071	33200.W0371	16	30	19,0	23,4	14,0	42,2	29,8	74,8	24,7	16	155	257	150
33200.W0073	33200.W0373	16	35	19,0	23,4	14,0	42,2	29,8	74,8	24,7	16	155	257	157
33200.W0075	33200.W0375	16	40	19,0	23,4	14,0	42,2	29,8	74,8	24,7	16	155	257	165
33200.W0077	33200.W0377	16	45	19,0	23,4	14,0	42,2	29,8	74,8	24,7	16	155	257	173
33200.W0078	33200.W0378	16	50	19,0	23,4	14,0	42,2	29,8	74,8	24,7	16	155	257	180
33200.W0079	33200.W0379	16	60	19,0	23,4	14,0	42,2	29,8	74,8	24,7	16	155	257	196
33200.W0080	33200.W0380	16	70	19,0	23,4	14,0	42,2	29,8	74,8	24,7	16	155	257	211
33200.W0081	33200.W0381	16	80	19,0	23,4	14,0	42,2	29,8	74,8	24,7	16	155	257	226
33200.W0082	33200.W0382	16	90	19,0	23,4	14,0	42,2	29,8	74,8	24,7	16	155	257	242
33200.W0083	33200.W0383	16	100	19,0	23,4	14,0	42,2	29,8	74,8	24,7	16	155	257	257
33200.W0084	33200.W0384	16	110	19,0	23,4	14,0	42,2	29,8	74,8	24,7	16	155	257	272
33200.W0085	33200.W0385	16	120	19,0	23,4	14,0	42,2	29,8	74,8	24,7	16	155	257	288
33200.W0086	33200.W0386	16	130	19,0	23,4	14,0	42,2	29,8	74,8	24,7	16	155	257	303
33200.W0087	33200.W0387	16	140	19,0	23,4	14,0	42,2	29,8	74,8	24,7	16	155	257	319
33200.W0088	33200.W0388	16	150	19,0	23,4	14,0	42,2	29,8	74,8	24,7	16	155	257	334
33200.W0089	33200.W0389	20	50	24,8	23,4	17,0	43,1	29,8	74,8	24,7	20	244	403	241
33200.W0090	33200.W3090	20	60	24,8	23,4	17,0	43,1	29,8	74,8	24,7	20	244	403	265
33200.W0091	33200.W0391	20	70	24,8	23,4	17,0	43,1	29,8	74,8	24,7	20	244	403	289
33200.W0092	33200.W0392	20	80	24,8	23,4	17,0	43,1	29,8	74,8	24,7	20	244	403	313
33200.W0093	33200.W0393	20	90	24,8	23,4	17,0	43,1	29,8	74,8	24,7	20	244	403	337
33200.W0094	33200.W0394	20	100	24,8	23,4	17,0	43,1	29,8	74,8	24,7	20	244	403	361
33200.W0095	33200.W0395	20	110	24,8	23,4	17,0	43,1	29,8	74,8	24,7	20	244	403	385
33200.W0096	33200.W0396	20	120	24,8	23,4	17,0	43,1	29,8	74,8	24,7	20	244	403	409
33200.W0097	33200.W0397	20	130	24,8	23,4	17,0	43,1	29,8	74,8	24,7	20	244	403	433
33200.W0098	33200.W0398	20	140	24,8	23,4	17,0	43,1	29,8	74,8	24,7	20	244	403	457
33200.W0099	33200.W0399	20	150	24,8	23,4	17,0	43,1	29,8	74,8	24,7	20	244	403	481
33200.W0100	33200.W3100	25	50	31,0	30,4	22,0	54,8	37,5	88,7	33,2	25	386	631	447
33200.W0101	33200.W3101	25	60	31,0	30,4	22,0	54,8	37,5	88,7	33,2	25	386	631	484
33200.W0102	33200.W3102	25	70	31,0	30,4	22,0	54,8	37,5	88,7	33,2	25	386	631	522
33200.W0103	33200.W3103	25	80	31,0	30,4	22,0	54,8	37,5	88,7	33,2	25	386	631	560
33200.W0104	33200.W3104	25	90	31,0	30,4	22,0	54,8	37,5	88,7	33,2	25	386	631	598
33200.W0105	33200.W3105	25	100	31,0	30,4	22,0	54,8	37,5	88,7	33,2	25	386	631	636
33200.W0106	33200.W3106	25	110	31,0	30,4	22,0	54,8	37,5	88,7	33,2	25	386	631	674
33200.W0107	33200.W3107	25	120	31,0	30,4	22,0	54,8	37,5	88,7	33,2	25	386	631	712
33200.W0108	33200.W3108	25	130	31,0	30,4	22,0	54,8	37,5	88,7	33,2	25	386	631	750
33200.W0109	33200.W3019	25	140	31,0	30,4	22,0	54,8	37,5	88,7	33,2	25	386	631	788
33200.W0110	33200.W3110	25	150	31,0	30,4	22,0	54,8	37,5	88,7	33,2	25	386	631	825

Material

Type One -
Pin: stainless steel 1.4305 (AISI 303).
Ball: stainless steel 1.3541
Handle: aluminium, black (similar to RAL 9005)
Spring: stainless Steel
Type Two -
Pin: stainless steel 1.4542 (AISI 630). Precipitation hardened, blast finish. Offering extreme load capacity. (Marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Handle: aluminium, black (RAL9003).
Spring: stainless steel.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature range -30°C to +150°C.
For quick fastening and locking frequently repeated connections.

Tips

For lanyards & retaining cables see part no.33250-33261. Easy install locating bushes available see part no.33248 + 33246.

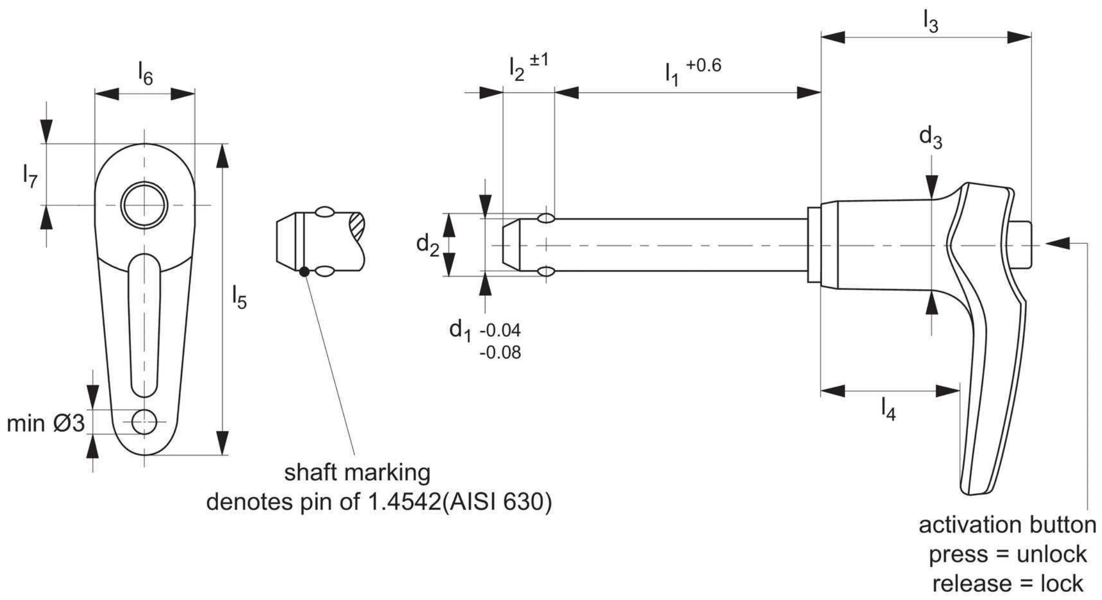
Important Notes

*Shearing resistance similar to DIN 50141.

Ball Lock Pins - Single Acting - L-Handle

self-locking

33220



Order No. Type One Stainless 1.4305	Order No. Type Two Stainless 1.4542	d_1	l_1	d_2	d_3	l_2	l_3	l_4	l_5	l_6	l_7	Location hole H11	Shearing resistance kN type 1.4305*	Shearing resistance kN type 1.4542*	g
33220.W0112	33220.W0312	5	10	5,5	11,8	6,0	31,6	21,9	43,8	12,6	8,5	5	14	24	20
33220.W0113	33220.W0313	5	15	5,5	11,8	6,0	31,6	21,9	43,8	12,6	8,5	5	14	24	21
33220.W0114	33220.W0314	5	20	5,5	11,8	6,0	31,6	21,9	43,8	12,6	8,5	5	14	24	21
33220.W0115	33220.W0315	5	25	5,5	11,8	6,0	31,6	21,9	43,8	12,6	8,5	5	14	24	22
33220.W0116	33220.W0316	5	30	5,5	11,8	6,0	31,6	21,9	43,8	12,6	8,5	5	14	24	23
33220.W0122	33220.W0322	6	10	7,0	11,8	7,0	31,6	21,9	43,8	12,6	8,5	6	21	35	21
33220.W0123	33220.W0323	6	15	7,0	11,8	7,0	31,6	21,9	43,8	12,6	8,5	6	21	35	22
33220.W0124	33220.W0324	6	20	7,0	11,8	7,0	31,6	21,9	43,8	12,6	8,5	6	21	35	23
33220.W0125	33220.W0325	6	25	7,0	11,8	7,0	31,6	21,9	43,8	12,6	8,5	6	21	35	24
33220.W0126	33220.W0326	6	30	7,0	11,8	7,0	31,6	21,9	43,8	12,6	8,5	6	21	35	25
33220.W0127	33220.W0327	6	35	7,0	11,8	7,0	31,6	21,9	43,8	12,6	8,5	6	21	35	26
33220.W0128	33220.W0328	6	40	7,0	11,8	7,0	31,6	21,9	43,8	12,6	8,5	6	21	35	27
33220.W0129	33220.W0329	6	45	7,0	11,8	7,0	31,6	21,9	43,8	12,6	8,5	6	21	35	28
33220.W0130	33220.W0330	6	50	7,0	11,8	7,0	31,6	21,9	43,8	12,6	8,5	6	21	35	29
33220.W0134	33220.W0334	8	20	9,5	14,7	8,2	35,8	24,4	49,7	15,8	9,9	8	38	63	37
33220.W0135	33220.W0335	8	25	9,5	14,7	8,2	35,8	24,4	49,7	15,8	9,9	8	38	63	39
33220.W0136	33220.W0336	8	30	9,5	14,7	8,2	35,8	24,4	49,7	15,8	9,9	8	38	63	41
33220.W0137	33220.W0337	8	35	9,5	14,7	8,2	35,8	24,4	49,7	15,8	9,9	8	38	63	43
33220.W0138	33220.W0338	8	40	9,5	14,7	8,2	35,8	24,4	49,7	15,8	9,9	8	38	63	45
33220.W0139	33220.W0339	8	45	9,5	14,7	8,2	35,8	24,4	49,7	15,8	9,9	8	38	63	46
33220.W0140	33220.W0340	8	50	9,5	14,7	8,2	35,8	24,4	49,7	15,8	9,9	8	38	63	48
33220.W0144	33220.W0344	10	20	12,0	14,7	9,6	35,8	24,4	49,7	15,8	9,9	10	60	100	44
33220.W0145	33220.W0345	10	25	12,0	14,7	9,6	35,8	24,4	49,7	15,8	9,9	10	60	100	47
33220.W0146	33220.W0346	10	30	12,0	14,7	9,6	35,8	24,4	49,7	15,8	9,9	10	60	100	50
33220.W0147	33220.W0347	10	35	12,0	14,7	9,6	35,8	24,4	49,7	15,8	9,9	10	60	100	53
33220.W0148	33220.W0348	10	40	12,0	14,7	9,6	35,8	24,4	49,7	15,8	9,9	10	60	100	56
33220.W0149	33220.W0349	10	45	12,0	14,7	9,6	35,8	24,4	49,7	15,8	9,9	10	60	100	58
33220.W0150	33220.W0350	10	50	12,0	14,7	9,6	35,8	24,4	49,7	15,8	9,9	10	60	100	62
33220.W0152	33220.W0352	10	60	12,0	14,7	9,6	35,8	24,4	49,7	15,8	9,9	10	60	100	67
33220.W0165	33220.W0365	12	25	14,5	18,2	10,6	35,1	22,7	57,1	20,2	12,6	12	87	144	73
33220.W0166	33220.W0366	12	30	14,5	18,2	10,6	35,1	22,7	57,1	20,2	12,6	12	87	144	77
33220.W0167	33220.W0367	12	35	14,5	18,2	10,6	35,1	22,7	57,1	20,2	12,6	12	87	144	82
33220.W0168	33220.W0368	12	40	14,5	18,2	10,6	35,1	22,7	57,1	20,2	12,6	12	87	144	86
33220.W0169	33220.W0369	12	45	14,5	18,2	10,6	35,1	22,7	57,1	20,2	12,6	12	87	144	90
33220.W0170	33220.W0370	12	50	14,5	18,2	10,6	35,1	22,7	57,1	20,2	12,6	12	87	144	94
33220.W0172	33220.W0372	12	60	14,5	18,2	10,6	35,1	22,7	57,1	20,2	12,6	12	87	144	103
33220.W0174	33220.W0374	12	70	14,5	18,2	10,6	35,1	22,7	57,1	20,2	12,6	12	87	144	111
33220.W0176	33220.W0376	12	80	14,5	18,2	10,6	35,1	22,7	57,1	20,2	12,6	12	87	144	120

Material

Type One -
Pin: stainless steel 1.4305 (AISI 303).
Ball: stainless steel 1.3541
Spring: stainless steel

Type Two -
Pin: stainless steel 1.4542 (AISI 630). Precipitation hardened, blast finish. Offering extreme load capacity. (Marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Handle: alumnium, black (RAL9003).
Spring: stainless steel.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +150°C.
For quick fastening and locking of frequently repeated connections.

Tips

For lanyards & retaining cables see aprt no. 33250. Easy install locating bushes available see part no. 33248.

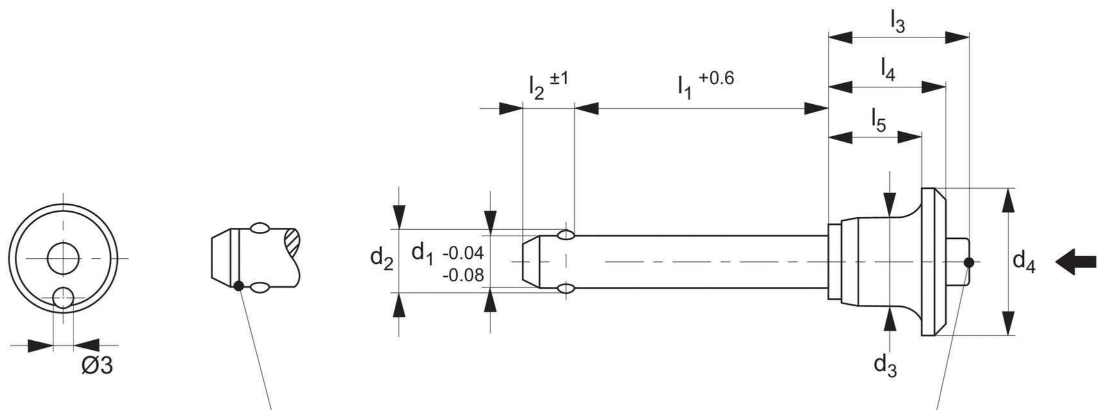
Important Notes

*Shearing resistance similar to DIN 50141.

Ball Lock Pins - Mushroom Handle

single acting - self-locking

33224



Order No.	Stainless Type	d_1	d_2	d_3	d_4	l_1	l_2	l_3	l_4	l_5	Location hole H11	Shearing resistance double kN		g
33224.W0085	Stainless 1.4305	16	19,0	23,4	40	120	14,0	42,2	34,5	28,5	16	155	-	283
33224.W0212	Stainless 1.4305	5	5,5	11,3	20	10	6,0	20,7	17,6	14,6	5	14	-	12
33224.W0213	Stainless 1.4305	5	5,5	11,3	20	15	6,0	20,7	17,6	14,6	5	14	-	12
33224.W0214	Stainless 1.4305	5	5,5	11,3	20	20	6,0	20,7	17,6	14,6	5	14	-	13
33224.W0215	Stainless 1.4305	5	5,5	11,3	20	25	6,0	20,7	17,6	14,6	5	14	-	14
33224.W0216	Stainless 1.4305	5	5,5	11,3	20	30	6,0	20,7	17,6	14,6	5	14	-	15
33224.W0221	Stainless 1.4305	6	7,0	11,3	20	80	7,0	20,7	17,6	14,6	6	21	-	27
33224.W0222	Stainless 1.4305	6	7,0	11,3	20	10	7,0	20,7	17,6	14,6	6	21	-	13
33224.W0223	Stainless 1.4305	6	7,0	11,3	20	15	7,0	20,7	17,6	14,6	6	21	-	14
33224.W0224	Stainless 1.4305	6	7,0	11,3	20	20	7,0	20,7	17,6	14,6	6	21	-	15
33224.W0225	Stainless 1.4305	6	7,0	11,3	20	25	7,0	20,7	17,6	14,6	6	21	-	16
33224.W0226	Stainless 1.4305	6	7,0	11,3	20	30	7,0	20,7	17,6	14,6	6	21	-	17
33224.W0227	Stainless 1.4305	6	7,0	11,3	20	35	7,0	20,7	17,6	14,6	6	21	-	18
33224.W0228	Stainless 1.4305	6	7,0	11,3	20	40	7,0	20,7	17,6	14,6	6	21	-	19
33224.W0229	Stainless 1.4305	6	7,0	11,3	20	45	7,0	20,7	17,6	14,6	6	21	-	20
33224.W0230	Stainless 1.4305	6	7,0	11,3	20	50	7,0	20,7	17,6	14,6	6	21	-	21
33224.W0234	Stainless 1.4305	8	9,5	14,1	25	20	8,2	27,3	22,6	18,6	8	38	-	28
33224.W0235	Stainless 1.4305	8	9,5	14,1	25	25	8,2	27,3	22,6	18,6	8	38	-	30
33224.W0236	Stainless 1.4305	8	9,5	14,1	25	30	8,2	27,3	22,6	18,6	8	38	-	32
33224.W0237	Stainless 1.4305	8	9,5	14,1	25	35	8,2	27,3	22,6	18,6	8	38	-	34
33224.W0238	Stainless 1.4305	8	9,5	14,1	25	40	8,2	27,3	22,6	18,6	8	38	-	36
33224.W0239	Stainless 1.4305	8	9,5	14,1	25	45	8,2	27,3	22,6	18,6	8	38	-	38
33224.W0240	Stainless 1.4305	8	9,5	14,1	25	50	8,2	27,3	22,6	18,6	8	38	-	40
33224.W0244	Stainless 1.4305	10	12,0	14,1	25	20	9,6	27,3	22,6	18,6	10	60	-	35
33224.W0245	Stainless 1.4305	10	12,0	14,1	25	25	9,6	27,3	22,6	18,6	10	60	-	38
33224.W0246	Stainless 1.4305	10	12,0	14,1	25	30	9,6	27,3	22,6	18,6	10	60	-	40
33224.W0247	Stainless 1.4305	10	12,0	14,1	25	35	9,6	27,3	22,6	18,6	10	60	-	44
33224.W0248	Stainless 1.4305	10	12,0	14,1	25	40	9,6	27,3	22,6	18,6	10	60	-	47
33224.W0249	Stainless 1.4305	10	12,0	14,1	25	45	9,6	27,3	22,6	18,6	10	60	-	50
33224.W0250	Stainless 1.4305	10	12,0	14,1	25	50	9,6	27,3	22,6	18,6	10	60	-	53
33224.W0252	Stainless 1.4305	10	12,0	14,1	25	60	9,6	27,3	22,6	18,6	10	60	-	59
33224.W0265	Stainless 1.4305	12	14,5	17,7	35	25	10,6	33,2	27,3	22,3	12	87	-	69
33224.W0266	Stainless 1.4305	12	14,5	17,7	35	30	10,6	33,2	27,3	22,3	12	87	-	73
33224.W0267	Stainless 1.4305	12	14,5	17,7	35	35	10,6	33,2	27,3	22,3	12	87	-	78
33224.W0268	Stainless 1.4305	12	14,5	17,7	35	40	10,6	33,2	27,3	22,3	12	87	-	82
33224.W0269	Stainless 1.4305	12	14,5	17,7	35	45	10,6	33,2	27,3	22,3	12	87	-	86
33224.W0270	Stainless 1.4305	12	14,5	17,7	35	50	10,6	33,2	27,3	22,3	12	87	-	90
33224.W0272	Stainless 1.4305	12	14,5	17,7	35	60	10,6	33,2	27,3	22,3	12	87	-	99
33224.W0274	Stainless 1.4305	12	14,5	17,7	35	70	10,6	33,2	27,3	22,3	12	87	-	108
33224.W0276	Stainless 1.4305	12	14,5	17,7	35	80	10,6	33,2	27,3	22,3	12	87	-	116
33224.W0303	Stainless 1.4305	25	31,0	30,4	50	80	22,0	54,8	43,5	36,5	25	386	-	547
33224.W0304	Stainless 1.4305	25	31,0	30,4	50	90	22,0	54,8	43,5	36,5	25	386	-	585
33224.W0306	Stainless 1.4305	25	31,0	30,4	50	110	22,0	54,8	43,5	36,5	25	386	-	660
33224.W0512	Stainless 1.4542	5	5,5	11,3	20	10	6,0	20,7	17,6	14,6	5	-	24	12
33224.W0513	Stainless 1.4542	5	5,5	11,3	20	15	6,0	20,7	17,6	14,6	5	-	24	12
33224.W0514	Stainless 1.4542	5	5,5	11,3	20	20	6,0	20,7	17,6	14,6	5	-	24	13

Material

Type One
Pin: Stainless steel 1.4305 (AISI 303).
Ball: stainless steel 1.3541
Spring: stainless steel.
Type Two
Pin: Stainless steel 1.4542 (AISI 630), precipitation hardened, blast finish. Offering extreme load capacity. (Marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: aluminium, black (RAL9003).

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +150°C
For quick fastening and locking of frequently repeated connections.

Tips

For lanyards & retaining cables see part no. 33250. Easy install locating bushes available see part no. 33248.

Important Notes

*Shearing resistance similar to DIN 50141.

STAINLESS STEEL 303 STAINLESS STEEL 630

Ball Lock Pins - Mushroom Handle

single acting - self-locking

33224

Order No.	Stainless Type	d_1	d_2	d_3	d_4	l_1	l_2	l_3	l_4	l_5	Location hole H11	Shearing resistance double kN		g
33224.W0515	Stainless 1.4542	5	5,5	11,3	20	25	6,0	20,7	17,6	14,6	5	-	24	14
33224.W0516	Stainless 1.4542	5	5,5	11,3	20	30	6,0	20,7	17,6	14,6	5	-	24	15
33224.W0522	Stainless 1.4542	6	7,0	11,3	20	10	7,0	20,7	17,6	14,6	6	-	35	13
33224.W0523	Stainless 1.4542	6	7,0	11,3	20	15	7,0	20,7	17,6	14,6	6	-	35	14
33224.W0524	Stainless 1.4542	6	7,0	11,3	20	20	7,0	20,7	17,6	14,6	6	-	35	15
33224.W0525	Stainless 1.4542	6	7,0	11,3	20	25	7,0	20,7	17,6	14,6	6	-	35	16
33224.W0526	Stainless 1.4542	6	7,0	11,3	20	30	7,0	20,7	17,6	14,6	6	-	35	17
33224.W0527	Stainless 1.4542	6	7,0	11,3	20	35	7,0	20,7	17,6	14,6	6	-	35	18
33224.W0528	Stainless 1.4542	6	7,0	11,3	20	40	7,0	20,7	17,6	14,6	6	-	35	19
33224.W0529	Stainless 1.4542	6	7,0	11,3	20	45	7,0	20,7	17,6	14,6	6	-	35	20
33224.W0530	Stainless 1.4542	6	7,0	11,3	20	50	7,0	20,7	17,6	14,6	6	-	35	21
33224.W0531	Stainless 1.4542	8	9,5	14,1	25	60	8,2	27,3	22,6	18,6	8	-	63	44
33224.W0534	Stainless 1.4542	8	9,5	14,1	25	20	8,2	27,3	22,6	18,6	8	-	63	28
33224.W0535	Stainless 1.4542	8	9,5	14,1	25	25	8,2	27,3	22,6	18,6	8	-	63	30
33224.W0536	Stainless 1.4542	8	9,5	14,1	25	30	8,2	27,3	22,6	18,6	8	-	63	32
33224.W0537	Stainless 1.4542	8	9,5	14,1	25	35	8,2	27,3	22,6	18,6	8	-	63	34
33224.W0538	Stainless 1.4542	8	9,5	14,1	25	40	8,2	27,3	22,6	18,6	8	-	63	36
33224.W0539	Stainless 1.4542	8	9,5	14,1	25	45	8,2	27,3	22,6	18,6	8	-	63	38
33224.W0540	Stainless 1.4542	8	9,5	14,1	25	50	8,2	27,3	22,6	18,6	8	-	63	40
33224.W0544	Stainless 1.4542	10	12,0	14,1	25	20	9,6	27,3	22,6	18,6	10	-	100	35
33224.W0545	Stainless 1.4542	10	12,0	14,1	25	25	9,6	27,3	22,6	18,6	10	-	100	38
33224.W0546	Stainless 1.4542	10	12,0	14,1	25	30	9,6	27,3	22,6	18,6	10	-	100	40
33224.W0547	Stainless 1.4542	10	12,0	14,1	25	35	9,6	27,3	22,6	18,6	10	-	100	44
33224.W0548	Stainless 1.4542	10	12,0	14,1	25	40	9,6	27,3	22,6	18,6	10	-	100	47
33224.W0549	Stainless 1.4542	10	12,0	14,1	25	45	9,6	27,3	22,6	18,6	10	-	100	50
33224.W0550	Stainless 1.4542	10	12,0	14,1	25	50	9,6	27,3	22,6	18,6	10	-	100	53
33224.W0552	Stainless 1.4542	10	12,0	14,1	25	60	9,6	27,3	22,6	18,6	10	-	100	59
33224.W0565	Stainless 1.4542	12	14,5	17,7	35	25	10,6	33,2	27,3	22,3	12	-	144	69
33224.W0566	Stainless 1.4542	12	14,5	17,7	35	30	10,6	33,2	27,3	22,3	12	-	144	73
33224.W0567	Stainless 1.4542	12	14,5	17,7	35	35	10,6	33,2	27,3	22,3	12	-	144	78
33224.W0568	Stainless 1.4542	12	14,5	17,7	35	40	10,6	33,2	27,3	22,3	12	-	144	82
33224.W0569	Stainless 1.4542	12	14,5	17,7	35	45	10,6	33,2	27,3	22,3	12	-	144	86
33224.W0570	Stainless 1.4542	12	14,5	17,7	35	50	10,6	33,2	27,3	22,3	12	-	144	90
33224.W0572	Stainless 1.4542	12	14,5	17,7	35	60	10,6	33,2	27,3	22,3	12	-	144	99
33224.W0574	Stainless 1.4542	12	14,5	17,7	35	70	10,6	33,2	27,3	22,3	12	-	144	108
33224.W0576	Stainless 1.4542	12	14,5	17,7	35	80	10,6	33,2	27,3	22,3	12	-	144	116
33224.W0590	Stainless 1.4542	20	24,8	23,4	40	60	17,0	43,1	34,5	28,5	20	-	403	261

Material

Type One

Pin: Stainless steel 1.4305 (AISI 303).
Ball: stainless steel 1.3541
Spring: stainless steel.

Type Two

Pin: Stainless steel 1.4542 (AISI 630), precipitation hardened, blast finish. Offering extreme load capacity. (Marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: aluminium, black (RAL9003).

Technical Notes

Pressing = unlocking.
Releasing = locking.
Temperature resistance -30°C to +150°C
For quick fastening and locking of frequently repeated connections.

Tips

For lanyards & retaining cables see part no. 33250. Easy install locating bushes available see part no. 33248.

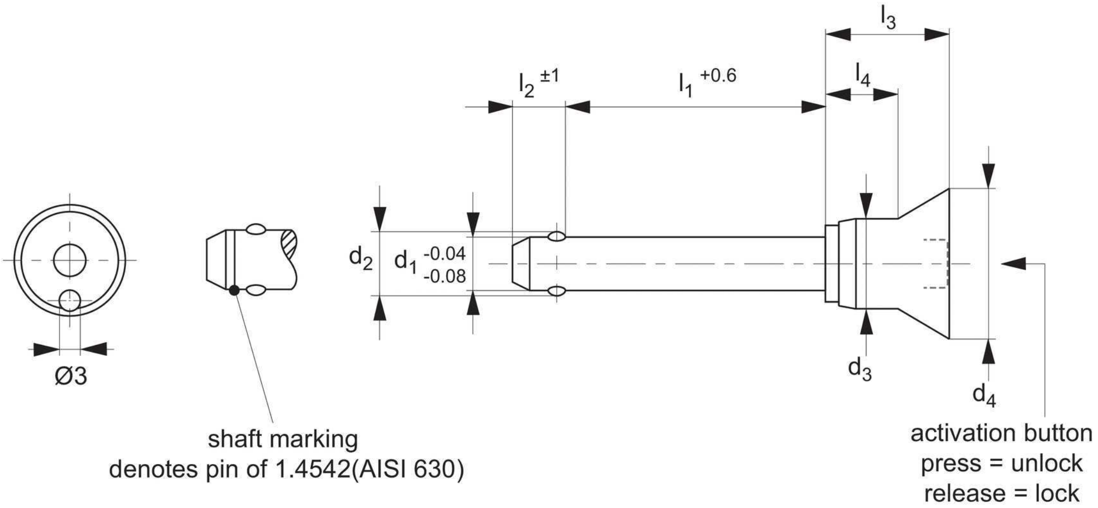
Important Notes

*Shearing resistance similar to DIN 50141.

Ball Lock Pins - Single Acting - Safety Handle

self-locking

33226



Order No. Type One Stainless 1.4305	Order No. Type Two Stainless 1.4542	d_1	l_1	d_2	d_3	d_4	l_2	l_4	l_3	Location hole H11	Shearing resistance, double kN min. 1.4305	Shearing resistance, double kN min. 1.4542	g
33226.W1012	33226.W1512	5	10	5,5	10,3	20	6,0	11,6	21,0	5	14	24	18
33226.W1013	33226.W1513	5	15	5,5	10,3	20	6,0	11,6	21,0	5	14	24	19
33226.W1014	33226.W1514	5	20	5,5	10,3	20	6,0	11,6	21,0	5	14	24	20
33226.W1015	33226.W1515	5	25	5,5	10,3	20	6,0	11,6	21,0	5	14	24	21
33226.W1016	33226.W1516	5	30	5,5	10,3	20	6,0	11,6	21,0	5	14	24	21
33226.W1022	33226.W1522	6	10	7,0	10,3	20	7,0	11,6	21,0	6	21	35	19
33226.W1023	33226.W1523	6	15	7,0	10,3	20	7,0	11,6	21,0	6	21	35	20
33226.W1024	33226.W1524	6	20	7,0	10,3	20	7,0	11,6	21,0	6	21	35	22
33226.W1025	33226.W1525	6	25	7,0	10,3	20	7,0	11,6	21,0	6	21	35	23
33226.W1026	33226.W1526	6	30	7,0	10,3	20	7,0	11,6	21,0	6	21	35	24
33226.W1027	33226.W1527	6	35	7,0	10,3	20	7,0	11,6	21,0	6	21	35	25
33226.W1028	33226.W1528	6	40	7,0	10,3	20	7,0	11,6	21,0	6	21	35	26
33226.W1029	33226.W1529	6	45	7,0	10,3	20	7,0	11,6	21,0	6	21	35	27
33226.W1030	33226.W1530	6	50	7,0	10,3	20	7,0	11,6	21,0	6	21	35	28
33226.W1034	33226.W1534	8	20	9,5	13,3	24	8,2	17,4	27,5	8	38	63	40
33226.W1035	33226.W1535	8	25	9,5	13,3	24	8,2	17,4	27,5	8	38	63	41
33226.W1036	33226.W1536	8	30	9,5	13,3	24	8,2	17,4	27,5	8	38	63	43
33226.W1037	33226.W1537	8	35	9,5	13,3	24	8,2	17,4	27,5	8	38	63	45
33226.W1038	33226.W1538	8	40	9,5	13,3	24	8,2	17,4	27,5	8	38	63	47
33226.W1039	33226.W1539	8	45	9,5	13,3	24	8,2	17,4	27,5	8	38	63	49
33226.W1040	33226.W1540	8	50	9,5	13,3	24	8,2	17,4	27,5	8	38	63	51
33226.W1044	33226.W1544	10	20	12,0	13,3	24	9,6	17,4	27,5	10	60	100	46
33226.W1045	33226.W1545	10	25	12,0	13,3	24	9,6	17,4	27,5	10	60	100	49
33226.W1046	33226.W1546	10	30	12,0	13,3	24	9,6	17,4	27,5	10	60	100	52
33226.W1047	33226.W1547	10	35	12,0	13,3	24	9,6	17,4	27,5	10	60	100	5
33226.W1048	33226.W1548	10	40	12,0	13,3	24	9,6	17,4	27,5	10	60	100	58
33226.W1049	33226.W1549	10	45	12,0	13,3	24	9,6	17,4	27,5	10	60	100	61
33226.W1050	33226.W1550	10	50	12,0	13,3	24	9,6	17,4	27,5	10	60	100	64
33226.W1052	33226.W1552	10	60	12,0	13,3	24	9,6	17,4	27,5	10	60	100	70
33226.W1065	33226.W1565	12	25	14,5	16,5	28	10,6	23,1	33,5	12	87	144	77
33226.W1066	33226.W1566	12	30	14,5	16,5	28	10,6	23,1	33,5	12	87	144	82
33226.W1067	33226.W1567	12	35	14,5	16,5	28	10,6	23,1	33,5	12	87	144	86
33226.W1068	33226.W1568	12	40	14,5	16,5	28	10,6	23,1	33,5	12	87	144	90
33226.W1069	33226.W1569	12	45	14,5	16,5	28	10,6	23,1	33,5	12	87	144	94
33226.W1070	33226.W1570	12	50	14,5	16,5	28	10,6	23,1	33,5	12	87	144	99
33226.W1072	33226.W1572	12	60	14,5	16,5	28	10,6	23,1	33,5	12	87	144	107
33226.W1074	33226.W1574	12	70	14,5	16,5	28	10,6	23,1	33,5	12	87	144	116
33226.W1076	33226.W1576	12	80	14,5	16,5	28	10,6	23,1	33,5	12	87	144	124

Material

Type One -
Pin: Stainless steel 1.4305 (AISI 303).
Ball: stainless steel 1.3541
Spring: stainless steel.
Type Two -
Pin: Stainless steel 1.4542 (AISI 630), precipitation hardened, blast finish. Offering extreme load capacity. (Marked at end of shaft to denote 1.4542 material).
Ball: stainless steel 1.3541
Spring: stainless steel.
Handle: stainless steel.

Technical Notes

Pressing = unlocking.
Releasing = locking.

Handle shape protects against accidental actuation of ball lock pin.
Temperature resistant up to 250°C
For quick fastening and locking of frequently repeated connections.

Tips

For lanyards & retaining cables see part no. 33250. Easy install locating bushes available see part no. 33248.

Important Notes

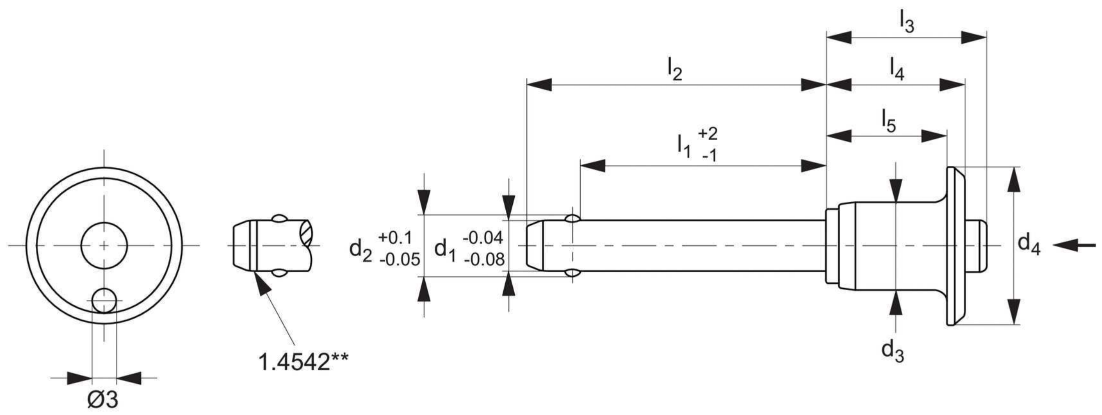
*Shearing resistance similar to DIN 50141.

STAINLESS STEEL 303 STAINLESS STEEL 630

Clamp Lock Pins - Single Acting

button handle - stainless steel

33230



Order No.	d_1	Type	l_1	d_2	d_3	d_4	l_2	l_4	l_3	Location hole tol. H11	Shearing resistance double kN min. 1.4305	Shearing resistance double kN min. 1.4542	g
33230.W0022	6	Type One Stainless 1.4305	10	6,2	11,3	20	17,4	20,7	17,6	6	21	35	13
33230.W0122	6	Type Two Stainless 1.4542	10	6,2	11,3	20	17,4	20,7	17,6	6	21	35	13
33230.W0024	6	Type One Stainless 1.4305	20	6,2	11,3	20	27,4	20,7	17,6	6	21	35	15
33230.W0124	6	Type Two Stainless 1.4542	20	6,2	11,3	20	27,4	20,7	17,6	6	21	35	15
33230.W0028	6	Type One Stainless 1.4305	40	6,2	11,3	20	47,4	20,7	17,6	6	21	35	19
33230.W0128	6	Type Two Stainless 1.4542	40	6,2	11,3	20	47,4	20,7	17,6	6	21	35	19
33230.W0032	6	Type One Stainless 1.4305	60	6,2	11,3	20	67,4	20,7	17,6	6	21	35	23
33230.W0132	6	Type Two Stainless 1.4542	60	6,2	11,3	20	67,4	20,7	17,6	6	21	35	23
33230.W0042	8	Type One Stainless 1.4305	10	8,3	14,1	25	18,6	27,3	22,6	8	38	63	25
33230.W0142	8	Type Two Stainless 1.4542	10	8,3	14,1	25	18,6	27,3	22,6	8	38	63	25
33230.W0044	8	Type One Stainless 1.4305	20	8,3	14,1	25	28,6	27,3	22,6	8	38	63	28
33230.W0144	8	Type Two Stainless 1.4542	20	8,3	14,1	25	28,6	27,3	22,6	8	38	63	28
33230.W0048	8	Type One Stainless 1.4305	40	8,3	14,1	25	48,6	27,3	22,6	8	38	63	36
33230.W0148	8	Type Two Stainless 1.4542	40	8,3	14,1	25	48,6	27,3	22,6	8	38	63	36
33230.W0052	8	Type One Stainless 1.4305	60	8,3	14,1	25	68,6	27,3	22,6	8	38	63	43
33230.W0152	8	Type Two Stainless 1.4542	60	8,3	14,1	25	68,6	27,3	22,6	8	38	63	43
33230.W0056	8	Type One Stainless 1.4305	80	8,3	14,1	25	88,6	27,3	22,6	8	38	63	51
33230.W0156	8	Type Two Stainless 1.4542	80	8,3	14,1	25	88,6	27,3	22,6	8	38	63	51
33230.W0062	10	Type One Stainless 1.4305	20	10,3	14,1	25	30,0	27,3	22,6	10	60	100	35
33230.W0162	10	Type Two Stainless 1.4542	20	10,3	14,1	25	30,0	27,3	22,6	10	60	100	35
33230.W0066	10	Type One Stainless 1.4305	40	10,3	14,1	25	50,0	27,3	22,6	10	60	100	47
33230.W0166	10	Type Two Stainless 1.4542	40	10,3	14,1	25	50,0	27,3	22,6	10	60	100	47
33230.W0070	10	Type One Stainless 1.4305	60	10,3	14,1	25	70,0	27,3	22,6	10	60	100	58
33230.W0170	10	Type Two Stainless 1.4542	60	10,3	14,1	25	70,0	27,3	22,6	10	60	100	58
33230.W0072	10	Type One Stainless 1.4305	80	10,3	14,1	25	100,0	27,3	22,6	10	60	100	70
33230.W0172	10	Type Two Stainless 1.4542	80	10,3	14,1	25	100,0	27,3	22,6	10	60	100	70
33230.W0074	10	Type One Stainless 1.4305	100	10,3	14,1	25	120,0	27,3	22,6	10	60	100	83
33230.W0174	10	Type Two Stainless 1.4542	100	10,3	14,1	25	120,0	27,3	22,6	10	60	100	83

Material

Type One
Pin: Stainless steel 1.4305 (AISI 303).
Type Two
Pin: Stainless steel 1.4542 (AISI 630), precipitation hardened.
Both
Handle: Aluminium, black.
Button: Stainless steel, yellow.
Spring: Stainless steel.

Technical Notes

Not suitable for lifting loads.
Corrosion resistant.
Press button = unlocking.
Release button = clamping.
For securing in blind holes H_{11}.
Temperature range -30 to 150°C.
Quick fastening , adjusting and locking of frequently repeated connections.

Tips

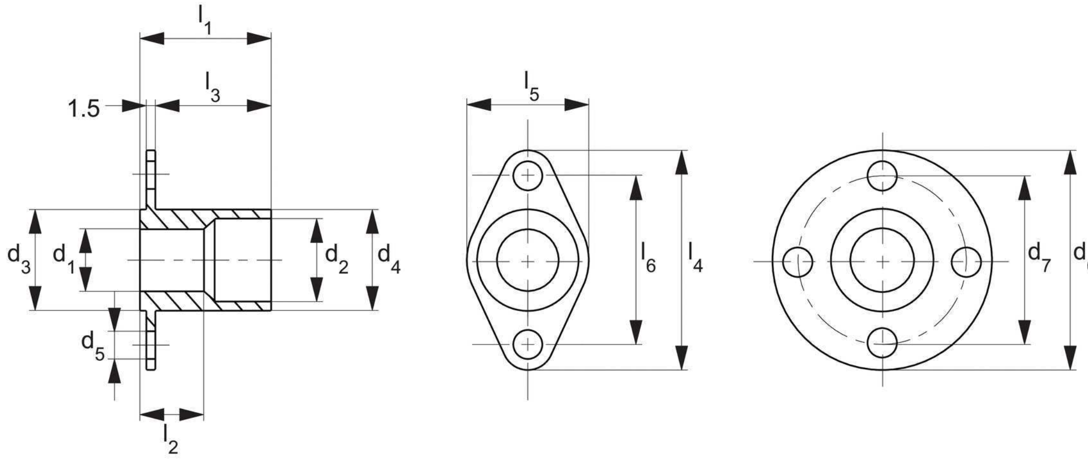
Used with:
33250: Lanyards & retaining cables

Important Notes

*Shearing resistance similar to DIN 50141.

Flange Bushings for Ball Lock pins

stainless steel



oval flange

round flange

Order No.	Type	For nom. pin dia	d_1 tol. H11	d_2	d_3 -0,05	d_4 -0,1	d_5	d_6	d_7	l_1	l_2	l_3	l_4	l_5	l_6	g
33246.W0305	Oval flange	5	5	8	10	9,9	3,4	-	-	12	5,4	9,5	25	15	19	6
33246.W0306	Oval flange	6	6	8	10	9,9	3,4	-	-	13	5,3	10,5	25	15	19	6
33246.W0308	Oval flange	8	8	10	12	11.9	4,5	-	-	19	10,3	16,5	30	18	22	10
33246.W0310	Oval flange	10	10	13	16	15,9	4,5	-	-	21	10,2	18,5	35	20	27	19
33246.W0312	Oval flange	12	12	15	19	18,9	4,5	-	-	27	15,2	24,5	40	24	30	34
33246.W0316	Oval flange	16	16	20	24	23,9	5,5	-	-	30	15,3	27,5	50	30	40	52
33246.W0405	Round flange	5	5	8	10	9,9	3,4	25	19	12	5,4	9,5	-	-	-	9
33246.W0406	Round flange	6	6	8	10	9,9	3,4	25	19	13	5,3	10,5	-	-	-	9
33246.W0408	Round flange	8	8	10	12	11,9	4,5	30	22	19	10,3	16,5	-	-	-	14
33246.W0410	Round flange	10	10	13	16	15,9	4,5	35	27	21	10,2	18,5	-	-	-	24
33246.W0412	Round flange	12	12	15	19	18,9	4,5	40	30	27	15,2	24,5	-	-	-	41
33246.W0416	Round flange	16	16	20	24	23,9	5,5	50	40	30	15,3	27,5	-	-	-	63

Material

Body: stainless steel 1.4305. (AISI 303).

Technical Notes

For quick and safe location of single acting ball lock pins - especially in soft materials such as aluminium, or in thin walled components.
Can be used from both sides.
Optimised centering due to precision collar on bush.

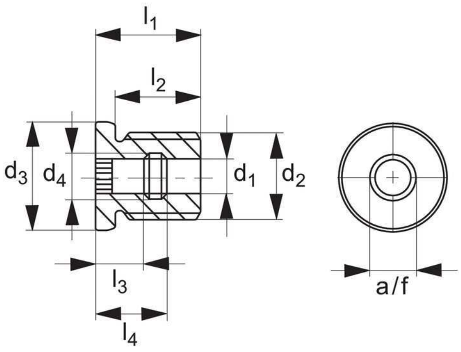
Tips

For use with our wide range of metric ball lock pins, see part no.'s 33060 through to 33226.

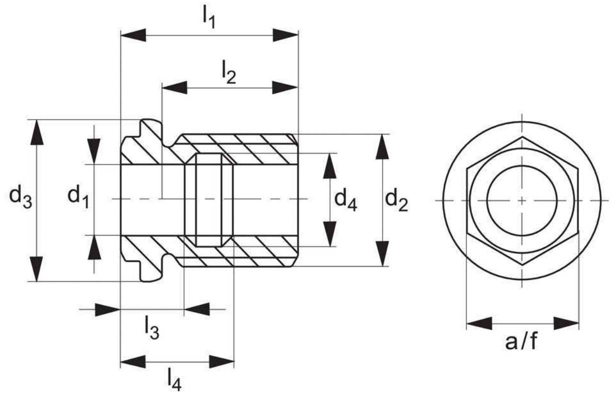
Locating Bushes

for ball lock pins

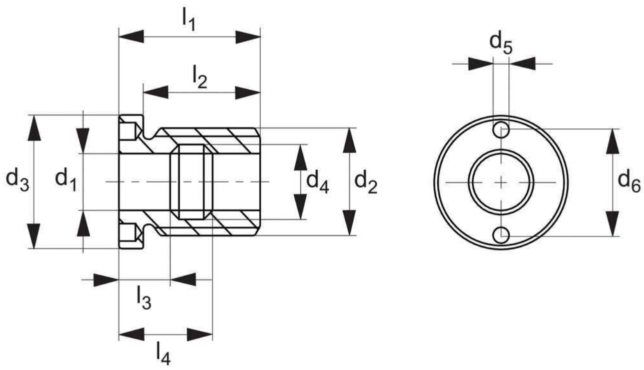
33248



internal hexagon



external hexagon



plain

Order No.	Type	d_1 H11	d_2	d_3 h9	d_4	d_5	d_6	g
33248.W0905	Int Hex	5	M12	18	6,0	-	-	15
33248.W0906	Int Hex	6	M12	18	7,5	-	-	13
33248.W0908	Int Hex	8	M16	22	10,0	-	-	29
33248.W0910	Int Hex	10	M24	30	12,5	-	-	75
33248.W0912	Int Hex	12	M24	30	15,0	-	-	66
33248.W0916	Ext Hex	16	M30	36	19,5	-	-	124
33248.W0920	Ext Hex	20	M36	45	25,5	-	-	208
33248.W0924	Ext Hex	25	M42	50	32,0	-	-	415
33248.W0925	Plain	16	M30	39	19,5	5,1	30	160
33248.W0926	Plain	20	M36	43	25,5	5,1	30	257
33248.W0927	Plain	25	M42	50	32,0	5,1	36	434

Order No.	l_1	l_2	l_3	l_4	l_5	l_6	a/f
33248.W0905	19	15	9,0	13,0	5,1	9,0	5
33248.W0906	19	15	9,4	13,0	5,6	8,8	6
33248.W0908	25	20	12,0	17,0	7,3	11,7	8
33248.W0910	29	24	13,5	19,5	8,9	14,1	10
33248.W0912	29	24	14	20	9,6	14,4	12
33248.W0916	39	29	15,5	23,5	6,1	12,8	24
33248.W0920	49	38	17,5	31,5	7,7	19,3	30
33248.W0924	65	50	26,5	38,5	13,3	21,8	36
33248.W0925	39	33	15,5	23,5	10,4	16,6	-
33248.W0926	49	42	17,5	31,5	11,9	23,1	-
33248.W0927	65	57	26,5	38,5	13,3	21,8	

Material

Body: stainless steel 1.4305. (AISI 303).

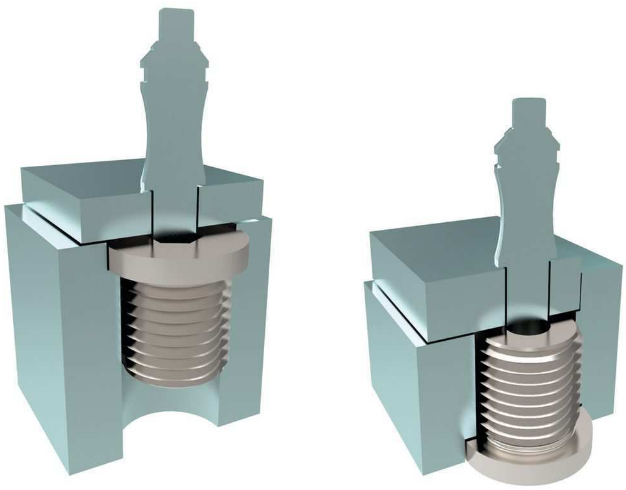
Technical Notes

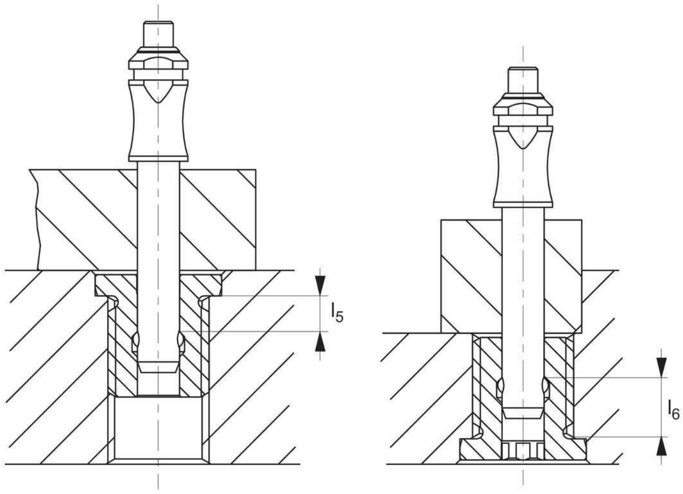
For quick and safe location of single acting ball lock pins - especially in soft materials such as aluminium, or in thin walled components.
Can be used from both sides.
Optimised centering due to precision collar on bush.

Important Notes

l_5 and l_6 refer to depths of ball locating recess when bush is installed flange collar up, or flange collar inverted (see diagram below).
Use pin face spanner with 5mm pin to install pin mount bushings.

STAINLESS STEEL 303





Material
Body: stainless steel 1.4305. (AISI 303).

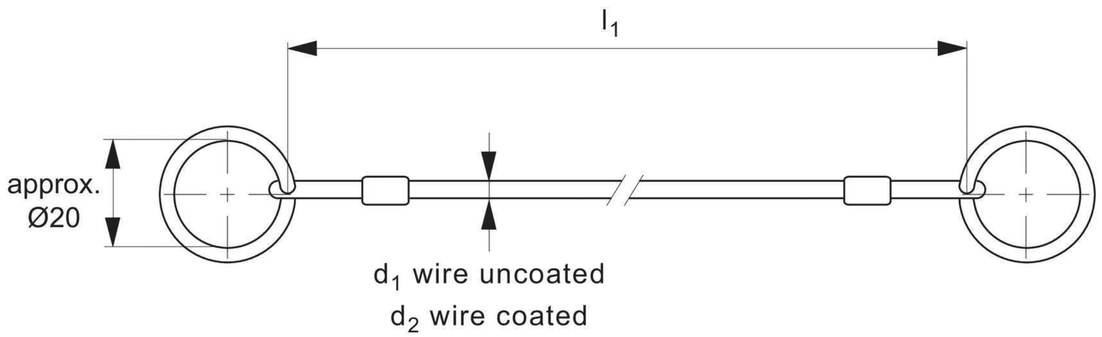
Technical Notes
For quick and safe location of single acting ball lock pins - especially in soft materials such as aluminium, or in thin walled components.
Can be used from both sides.
Optimised centering due to precision collar on bush.

Important Notes
l_5 and l_6 refer to depths of ball locating recess when bush is installed flange collar up, or flange collar inverted (see diagram below).
Use pin face spanner with 5mm pin to install pin mount bushings.

Lanyard - Loop to Loop

with split rings - crimps stainless

33250



Order No.	Coating	d_1 wire uncoated	l_1	d_2 wire coated	g
33250.W0940	Black	1,5	150	2,2	6,5
33250.W0941	Black	1,5	200	2,2	6,4
33250.W0943	Black	1,5	300	2,2	7,5
33250.W0950	Clear	1,5	150	2,2	6,5
33250.W0952	Clear	1,5	200	2,2	6,4
33250.W0956	Clear	1,5	300	2,2	7,5
33250.W0930	Uncoated	1,5	150	-	6,5
33250.W0931	Uncoated	1,5	200	-	6,4
33250.W0933	Uncoated	1,5	300	-	7,5

Material
Wire rope: stainless steel
Coating (if present): PA6 see table.
Crimps /sleeves: stainless steel
Split rings: stainless steel

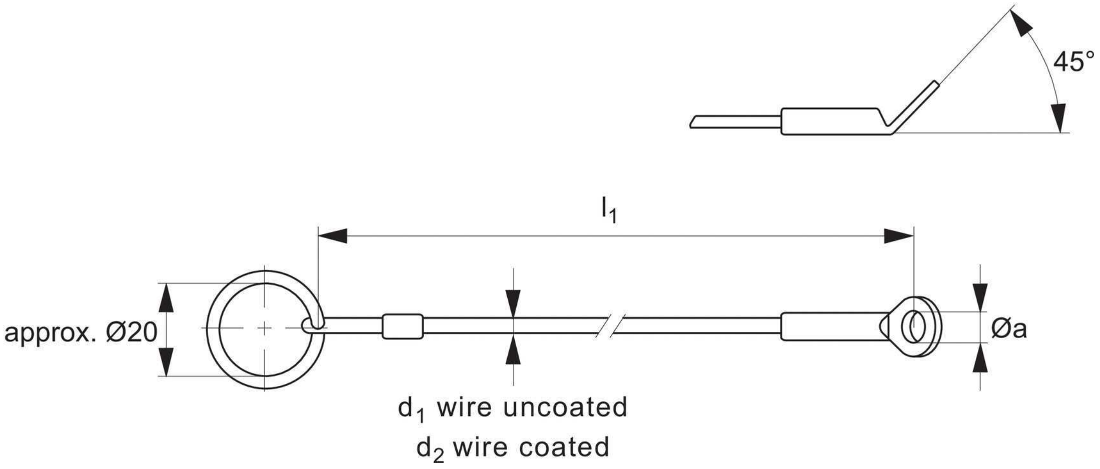
Technical Notes
Crimps tested to failure at 28 Kgf.
Temperature range: up to 250°C (uncoated)

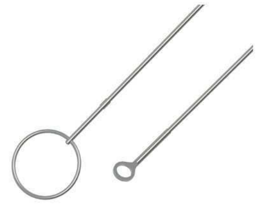
Tips
For use in securing components to assemblies, or to avoid items being misplaced. For our wide range of quick release pins nos. 33060 through 33226.

Lanyard - Eyelet to Loop

with split rings - crimps stainless

33251





Order No.	Coating	d_1 wire uncoated	l_1	d_2 wire uncoated	Ø a	g
33251.W0945	Black	1,5	150	2,0	4,8	6,9
33251.W0946	Black	1,5	200	2,0	4,8	7,6
33251.W0948	Black	1,5	300	2,0	4,8	8,6
33251.W0960	Clear	1,5	150	2,0	4,8	6,9
33251.W0962	Clear	1,5	200	2,0	4,8	7,6
33251.W0966	Clear	1,5	300	2,0	4,8	8,6
33251.W0935	Uncoated	1,5	150	2,0	4,8	6,9
33251.W0936	Uncoated	1,5	200	2,0	4,8	7,6
33251.W0938	Uncoated	1,5	300	2,0	4,8	8,6

Material

Wire rope: stainless steel.
Coating (if present): PA6, see table.
Crimps /sleeves: stainless steel.
Eyelet and split ring: stainless steel.

Technical Notes

Crimps tested for failure at 28 Kgf.
Temperature range: up to 250°C (uncoated).

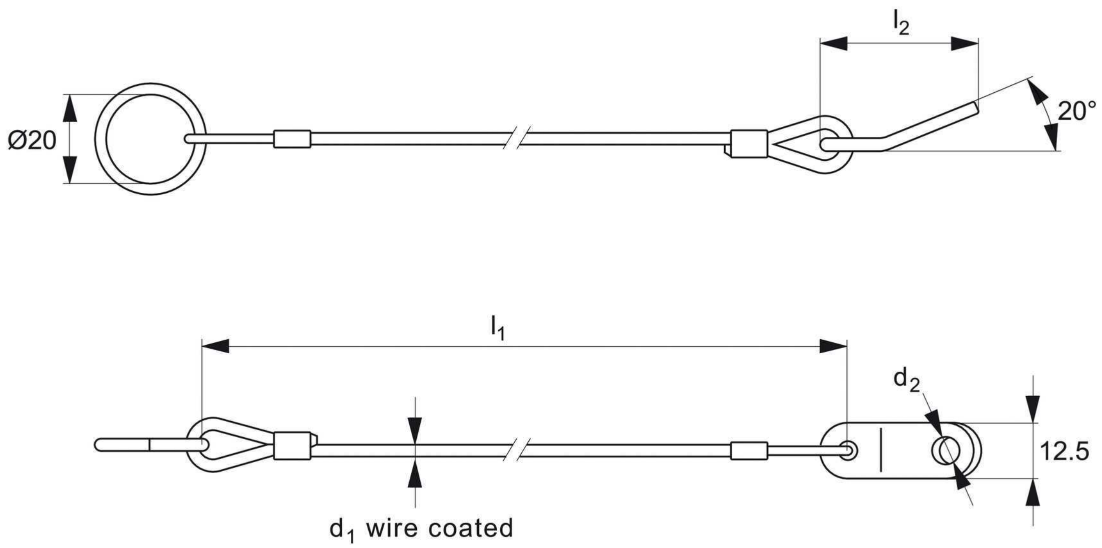
Tips

For use in securing components to assemblies, or to avoid items being misplaced. For our wide range of quick release pins nos. 33060 through 33226.

Lanyard - Split Ring to Rectangle Tab

crimps brass, tab stainless steel

33252



Order No.	Coating	d_1 wire coated	l_1	d_2	l_2	g
33252.W1301	Green	2,4	150	294,9	29	13
33252.W1302	Green	2,4	200	4,9	29	14
33252.W1303	Green	2,4	300	4,9	29	16

Material

Wire rope: stainless steel.
Coating: thermoplastic, PVC, green transparent
Crimps: brass, zinc plated.
Tabs: stainless steel
Split ring: stainless steel.

Technical Notes

Temperature range up to 80°C.

Tips

For use in securing components to assemblies, or to avoid items being misplaced. For our wide range of quick release pins nos.33060 through 33226.

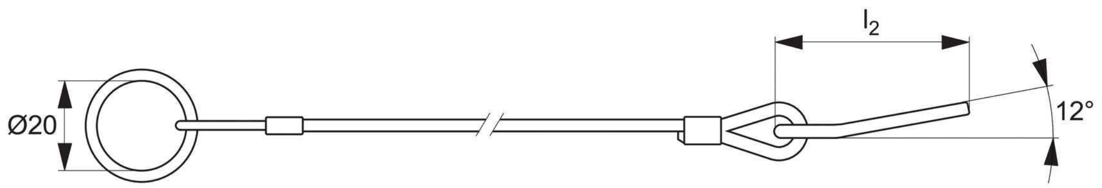
Important Notes

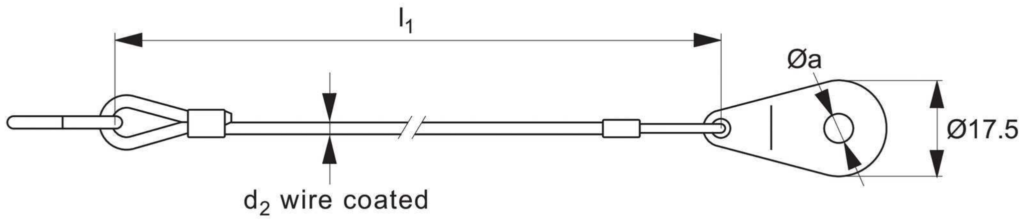
Conform to military spec MIL-DTL-83420 specification

Lanyard - Ring to Teardrop Tab

crimps brass - tab stainless steel

33253





Order No.	Coating	d_2 wire coated	l_1	Ø a	l_2	g
33253.W1311	Green	2,4	150	4,9	33	13,0
33253.W1312	Green	2,4	200	4,9	33	14,0
33253.W1313	Green	2,4	300	4,9	33	16,0

Material
Wire rope: stainless steel.
Coating: thermoplastic, PVC, green transparent
Crimps: brass, zinc plated.
Tabs: stainless steel
Split ring: stainless steel.

Technical Notes
Temperature range up to 80°C.

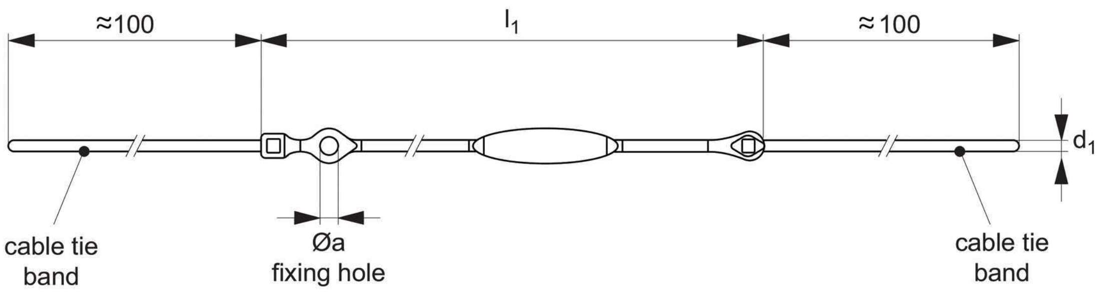
Tips
For use in securing components to assemblies, or to avoid items being misplaced. For our wide range of quick release pins nos.33060 through 33226.

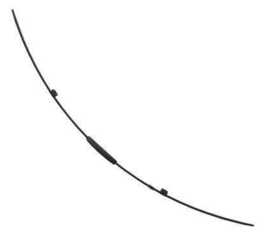
Important Notes
Conform to military spec MIL-DTL-83420 specification

Lanyard - Cable Tie Loop

thermoplastic

33260





Order No.	Coating	d_1	l_1	Øa	g
33260.W0970	n/a	2,5	150	4,2	2,1
33260.W0974	n/a	2,5	250	4,2	2,7

Material
Thermoplastic PA6, grey.

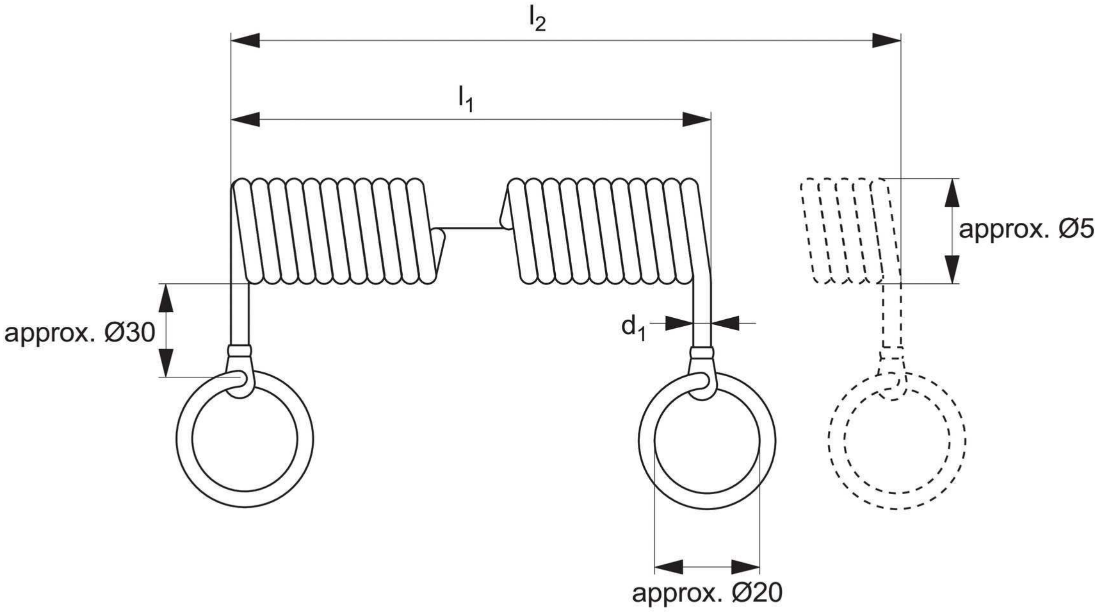
Technical Notes
Temperature range up to 80°C offers two fixing alternatives:
- Cable tie at both ends
- Cable tie one end and fixing hole at other to secure with M4 screw.

Tips
For use in securing components to assemblies, or to avoid items being misplaced.

Lanyard - Spiral Wire with Split Rings

crimps brass, zinc plated

33261



Order No.	PUR coating	d_1	l_1 retracted	l_2 extended	g
33261.W0980	Black	1,5	100	600	11,5
33261.W0982	Black	1,5	200	1200	17,4

Material
Wire rope: steel.
Coating: PUR, thermoplastic.
Eyelet: brass, zinc plated.
Split ring: stainless steel.

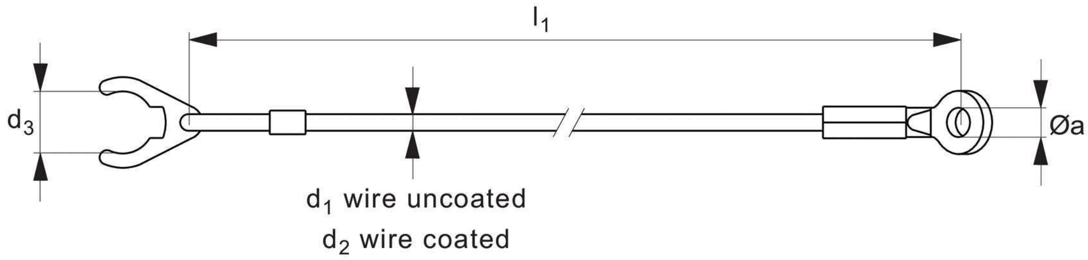
Technical Notes
Temperature range up to 80°C.
Coiled sprung wire offers high extended length in a compact design.

Tips
For use in securing components to assemblies, or to avoid items being misplaced.
For our wide range of quick release pins, part nos. 33060 to 33226.

Lanyard - Circlip End to Eyelet

crimps brass, tabs stainless steel

33265



Material
Wire rope: stainless steel.
Coating (if present): PVC, see table.
Crimps/sleeves: brass.
Eyelet, circlip end and split ring: stainless steel.

Technical Notes
Designed specifically to hold ball lock pin 33194.

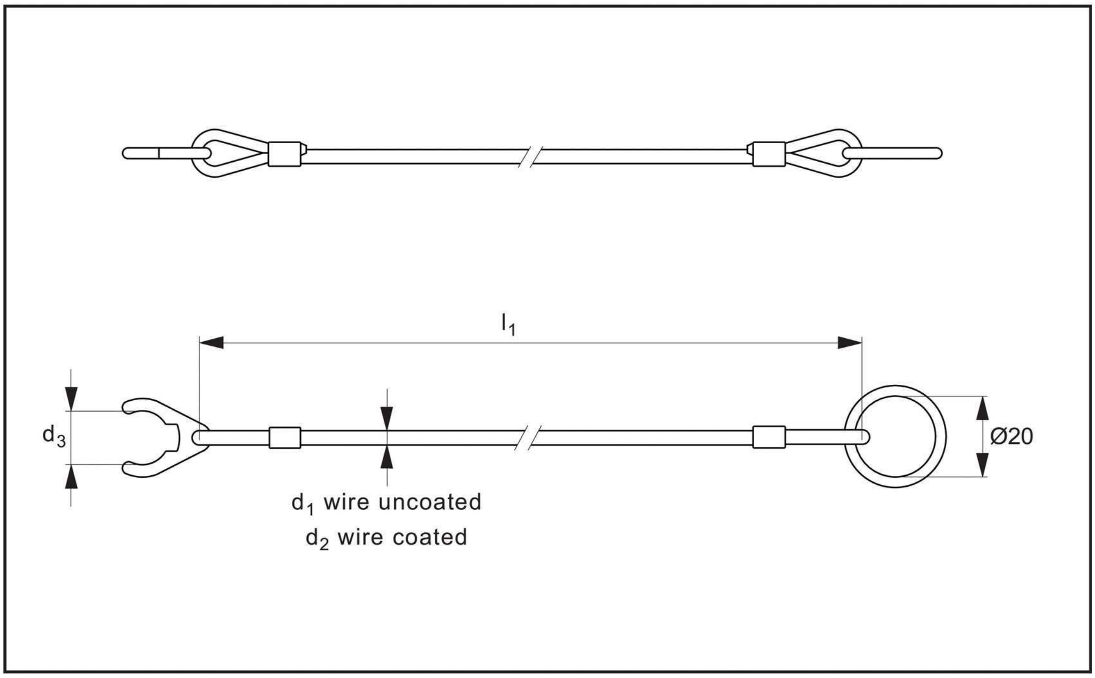
Important Notes
Assemble by attaching holding clips to the ball lock pin with a soft-face mallet, disassemble via levering off with a screw driver.

Order No.	Coating	d_1 wire uncoated	l_1	d_2 wire coated	Ø a	d_5 for use with part no. 33914 of pin dia d_1	g
33265.W1001	Clear	1,5	150	2,0	4,8	5/ 6	6,0
33265.W1021	Clear	1,5	200	2,0	4,8	5/ 6	7,0
33265.W1041	Clear	1,5	300	2,0	4,8	5/ 6	8,0
33265.W1061	Clear	1,5	150	4,8	2,0	8/10	7,0
33265.W1002	Clear	1,5	200	2,0	4,8	8/10	8,0
33265.W1022	Clear	1,5	200	2,0	4,8	8/10	9,0
33265.W1042	Clear	1,5	150	2,0	4,8	12/16	8,0
33265.W1062	Clear	1,5	200	2,0	4,8	12/16	9,0
33265.W1003	Clear	1,5	300	2,0	4,8	12/16	10,0
33265.W1023	Clear	1,5	150	2,0	4,8	20/25	12,0
33265.W1043	Clear	1,5	200	2,0	4,8	20/25	13,0
33265.W1063	Clear	1,5	300	2,0	4,8	20/25	14,0
33265.W1101	Black	1,5	150	2,0	4,8	5/ 6	6,0
33265.W1121	Black	1,5	200	2,0	4,8	5/ 6	7,0
33265.W1141	Black	1,5	300	2,0	4,8	5/ 6	8,0
33265.W1161	Black	1,5	150	2,0	4,8	8/10	7,0
33265.W1102	Black	1,5	200	2,0	4,8	8/10	8,0
33265.W1122	Black	1,5	300	2,0	4,8	8/10	9,0
33265.W1142	Black	1,5	150	2,0	4,8	12/16	8,0
33265.W1162	Black	1,5	200	2,0	4,8	12/16	9,0
33265.W1103	Black	1,5	300	2,0	4,8	12/16	10,0
33265.W1123	Black	1,5	150	2,0	4,8	20/25	12,0
33265.W1143	Black	1,5	200	2,0	4,8	20/25	13,0
33265.W1163	Black	1,5	300	2,0	4,8	20/25	14,0
33265.W1201	Uncoated	1,5	150	-	4,8	5/ 6	6,0
33265.W1221	Uncoated	1,5	200	-	4,8	5/ 6	7,0
33265.W1241	Uncoated	1,5	300	-	4,8	5/ 6	8,0
33265.W1261	Uncoated	1,5	150	-	4,8	8/10	7,0
33265.W1202	Uncoated	1,5	200	-	4,8	8/10	8,0
33265.W1222	Uncoated	1,5	300	-	4,8	8/10	9,0
33265.W1242	Uncoated	1,5	200	-	4,8	12/16	8,0
33265.W1262	Uncoated	1,5	200	-	4,8	12/16	9,0
33265.W1203	Uncoated	1,5	300	-	4,8	12/16	10,0
33265.W1223	Uncoated	1,5	150	-	4,8	20/25	12,0
33265.W1243	Uncoated	1,5	200	-	4,8	20/25	13,0
33265.W1263	Uncoated	1,5	300	-	4,8	20/25	14,0

Lanyard - Circlip End to Loop with Split Ring

crimps brass, tabs stainless steel, for ball lock pins 33194

33266



Material
Wire rope: stainless steel.
Coating (if present): PA6, see table.
Crimps/sleeves: brass.
Circlip end and split ring: stainless steel.

Technical Notes
Designed specifically to hold ball lock pin 33194.

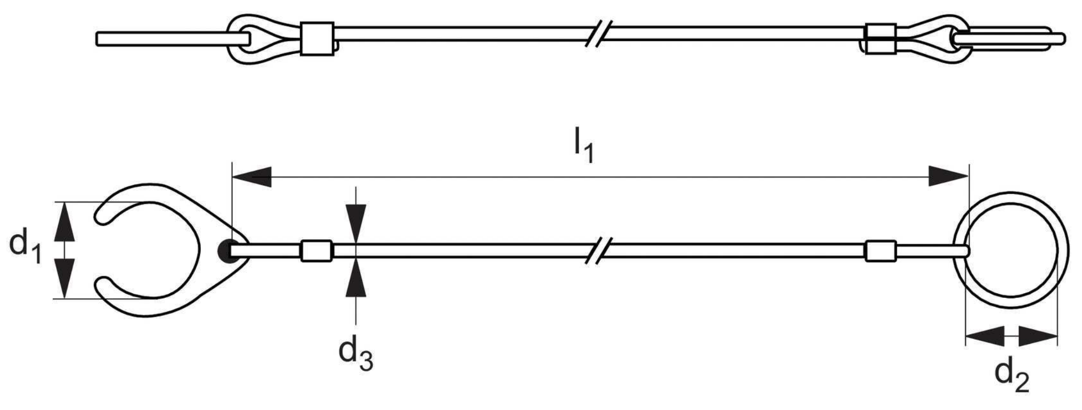
Important Notes
Assemble by attaching holding clips to the ball lock pin with a soft-face mallet, disassemble via levering off with a screw driver.

Order No.	Coating	d_1 wire uncoated	l_1	d_2 wire coated	d_5 for use with part no. 33914 of pin dia d_1	g
33266.W1011	Clear	1,5	150	2,0	5/ 6	6,0
33266.W1031	Clear	1,5	200	2,0	5/ 6	7,0
33266.W1051	Clear	1,5	300	2,0	5/ 6	8,0
33266.W1071	Clear	1,5	150	2,0	8/10	7,0
33266.W1012	Clear	1,5	200	2,0	8/10	8,0
33266.W1032	Clear	1,5	300	2,0	8/10	9,0
33266.W1052	Clear	1,5	150	2,0	12/16	8,0
33266.W1072	Clear	1,5	200	2,0	12/16	9,0
33266.W1013	Clear	1,5	300	2,0	12/16	10,0
33266.W1033	Clear	1,5	150	2,0	20/25	12,0
33266.W1053	Clear	1,5	200	2,0	20/25	13,0
33266.W1073	Clear	1,5	300	2,0	20/25	14,0
33266.W1111	Black	1,5	150	2,0	5/ 6	6,0
33266.W1131	Black	1,5	200	2,0	5/ 6	7,0
33266.W1151	Black	1,5	300	2,0	5/ 6	8,0
33266.W1171	Black	1,5	150	2,0	8/10	7,0
33266.W1112	Black	1,5	200	2,0	8/10	8,0
33266.W1132	Black	1,5	300	2,0	8/10	9,0
33266.W1152	Black	1,5	150	2,0	12/16	8,0
33266.W1172	Black	1,5	200	2,0	12/16	9,0
33266.W1113	Black	1,5	300	2,0	12/16	10,0
33266.W1133	Black	1,5	150	2,0	20/25	12,0
33266.W1153	Black	1,5	200	2,0	20/25	13,0
33266.W1173	Black	1,5	300	2,0	20/25	14,0
33266.W1211	Uncoated	1,5	150	-	5/ 6	6,0
33266.W1231	Uncoated	1,5	150	-	5/ 6	7,0
33266.W1251	Uncoated	1,5	300	-	5/ 6	8,0
33266.W1271	Uncoated	1,5	150	-	8/10	7,0
33266.W1212	Uncoated	1,5	200	-	8/10	8,0
33266.W1232	Uncoated	1,5	300	-	8/10	9,0
33266.W1252	Uncoated	1,5	150	-	12/16	8,0
33266.W1272	Uncoated	1,5	200	-	12/16	9,0
33266.W1213	Uncoated	1,5	300	-	12/16	10,0
33266.W1233	Uncoated	1,5	150	-	20/25	12,0
33266.W1253	Uncoated	1,5	200	-	20/25	13,0
33266.W1273	Uncoated	1,5	300	-	20/25	14,0

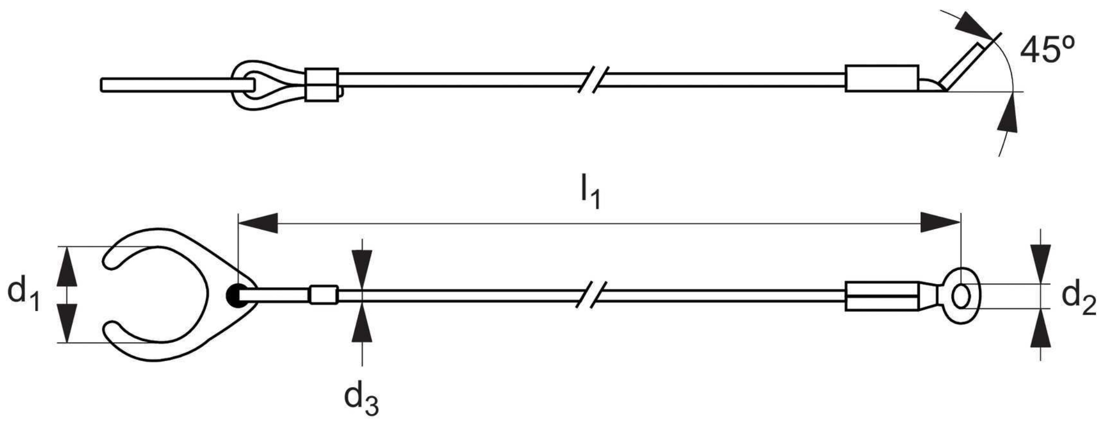
Retaining Cable

with holding clip for no. 33331

33268

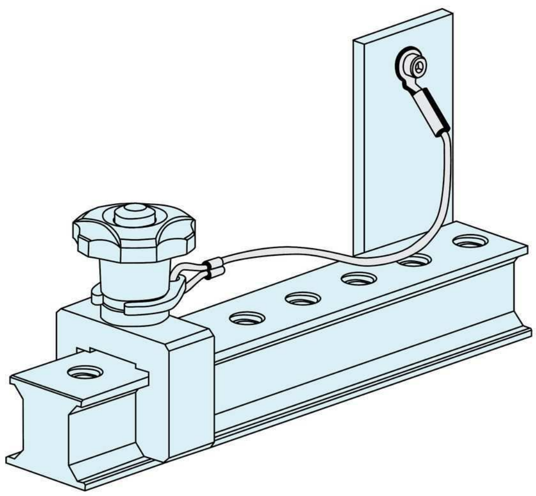


type 1 - retaining ring



type 2 - eyelet

Order No.	Type	l_1	To suite lock pin 33331	d_1	d_2	d_3 Wire coated	g
33268.W6001	1	150	M 8 to M16	20,3	20,3	2	6
33268.W6002	1	200	M 8 to M16	20,3	20,3	2	7
33268.W6003	1	300	M 8 to M16	20,3	20,3	2	8
33268.W6011	2	150	M 8 to M16	20,3	4,8	2	6
33268.W6012	2	200	M 8 to M16	20,3	4,8	2	7
33268.W6013	2	300	M 8 to M16	20,3	4,8	2	8



Material

Split ring or eyelet: stainless steel.
Holding circlip: thermoplastic PA 6, black.
Wire rope: stainless steel.
Coating: thermoplastic PA 6, black.

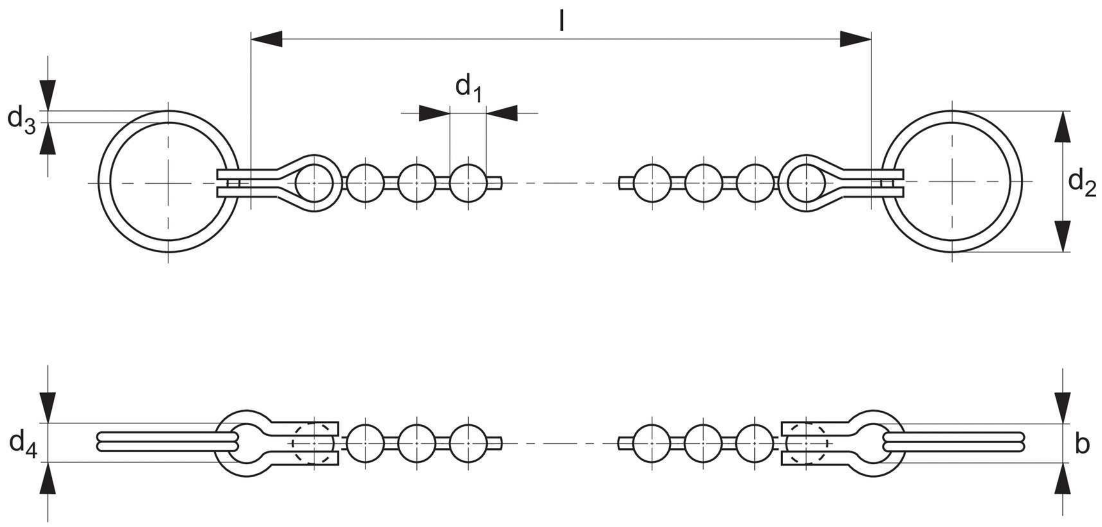
Technical Notes

Retaining cables designed specifically for use with threaded lock pin no. 33331. Lanyard prevents accidental loss of pin from application.

Retaining Bead Chain

stainless steel

33270



Order No.	Length l	d_1	Min. breaking strength Kg	d_4	b	Ring thickness d_3	Ring dia. d_2
33270.W0200	200	3.2	20	3.5	6	1.52	24
33270.W0350	350	3.2	20	3.5	6	1.52	24
33270.W0500	500	3.2	20	3.5	6	1.52	24

Material

Bead chain: stainless steel AISI 304, polished.
End attachments: brass, nickel plated.
Split rings: stainless steel.

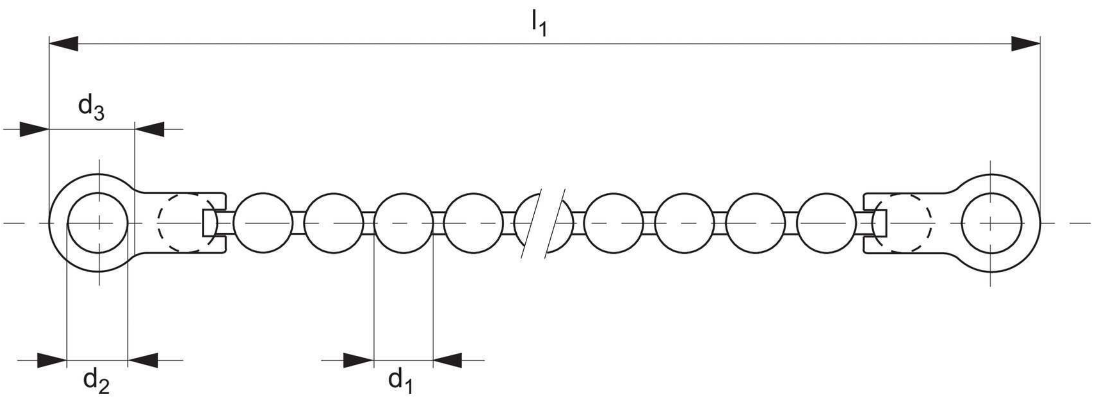
Technical Notes

Retaining chains secure single-acting ball lock pins against possible loss.
Other chain lengths available on request.

Lanyard - Bead Chain

stainless steel

33272



Order No.	Trade size	d_1	$l_{1\ nom.}$	d_2	d_3	Terminal material
33272.W0080	10	4,5	80	4,7	6,35	Brass
33272.W0100	10	4,5	100	4,7	6,35	Brass
33272.W0150	10	4,5	150	4,7	6,35	Brass
33272.W0200	10	4,5	200	4,7	6,35	Brass
33272.W0300	10	4,5	300	4,7	6,35	Brass
33272.W0450	10	4,5	450	4,7	6,35	Brass

Material

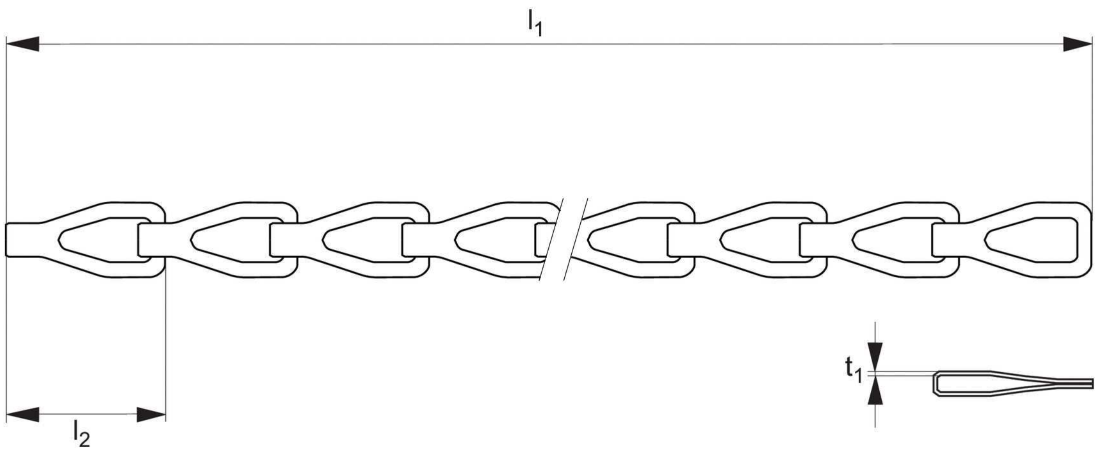
Bead chain: stainless steel AISI 304.
Terminals: brass.

Tips

For use in securing components to assemblies, or to avoid items being misplaced. For a wide range of detent pins and quick release ball lock pins see parts 33010 through 33226. Terminals also available in AISI 304 stainless steel on request. Subject to min. quantity.

Lanyard - Sash Chain

33274



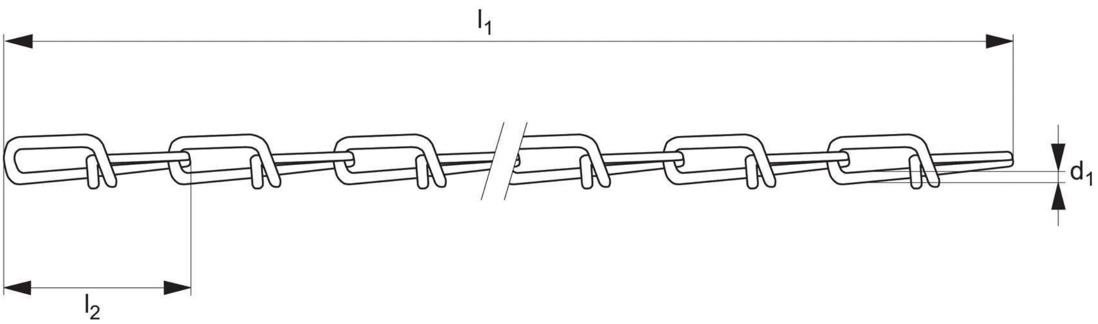
Material
Brass.

Tips
For use in securing components to assemblies, or to avoid items being misplaced. For a wide range of detent pins and quick release ball lock pins see parts 33010 through 33226.

Order No.	Trade size	Material	$l_{1\ nom.}$	l_2	t_1
33274.W0100	8	Brass	100	25	0,95
33274.W0150	8	Brass	150	25	0,95
33274.W0200	8	Brass	200	25	0,95
33274.W0300	8	Brass	300	25	0,95
33274.W0450	8	Brass	450	25	0,95

Lanyard - Tenso Chain

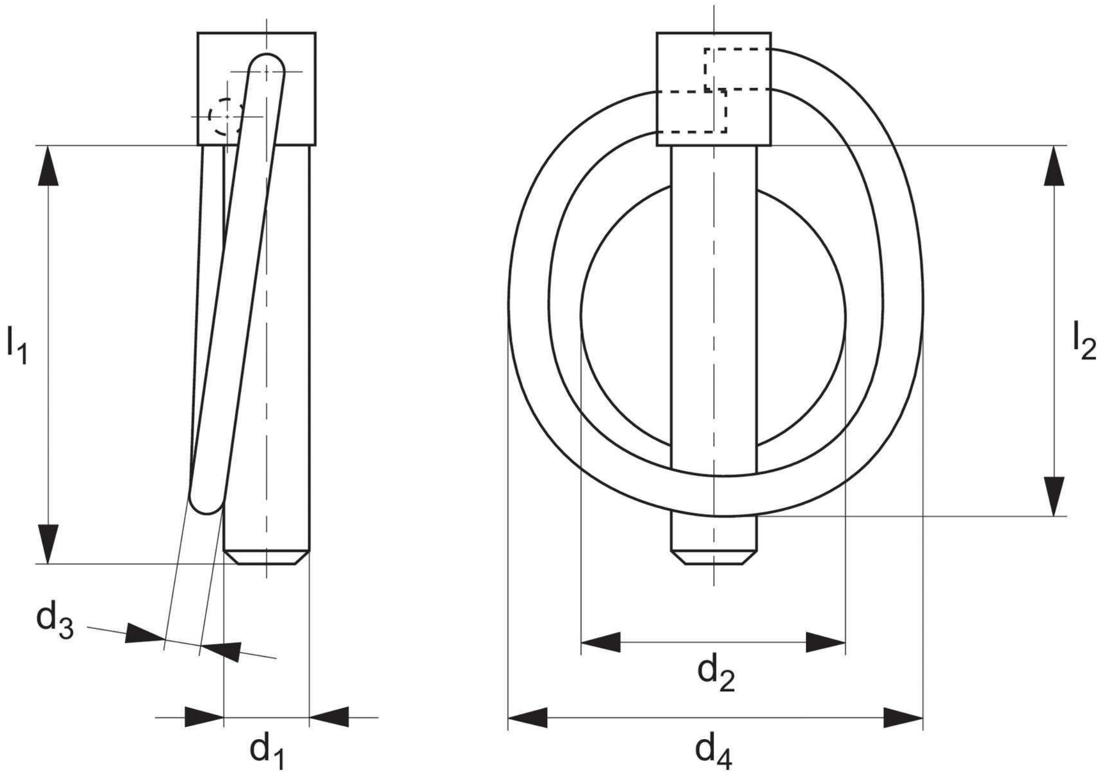
33276



Material
Steel (1008), zinc plated.

Tips
For use in securing components to assemblies, or to avoid items being misplaced. For a wide range of detent pins and quick release ball lock pins see parts 33010 through 33226. Terminals also available in AISI 304 stainless steel on request. Subject to min. quantity.

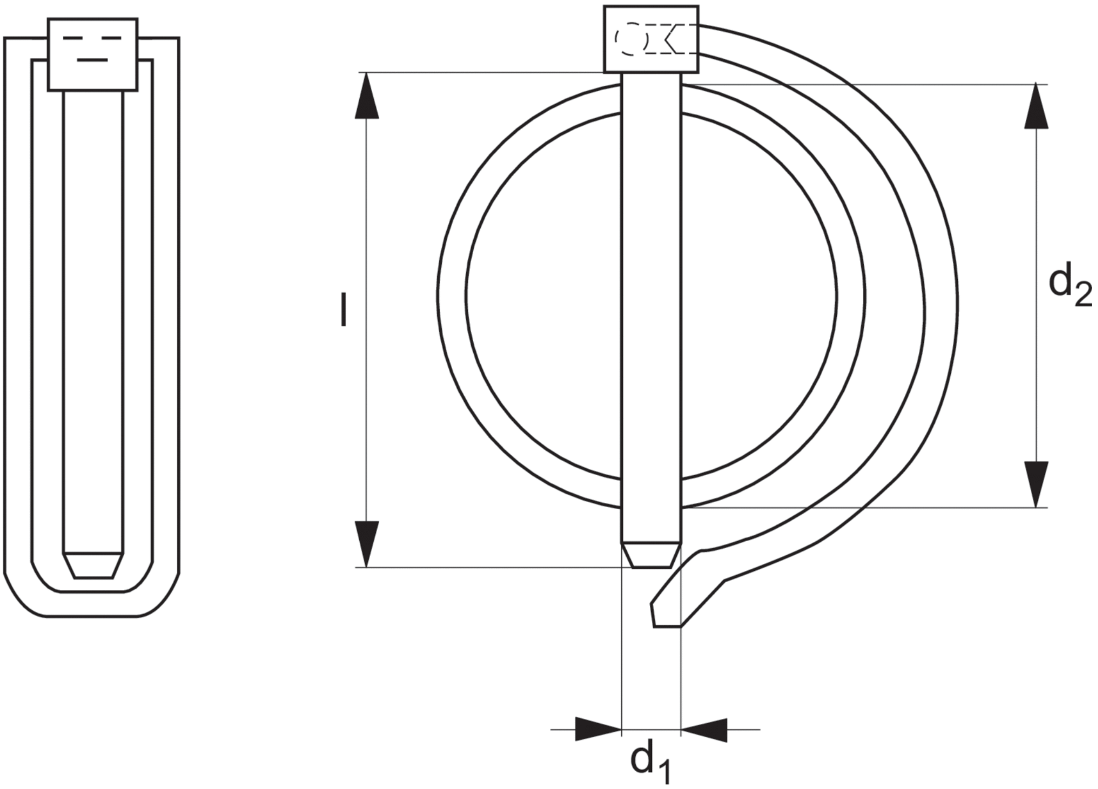
Order No.	Trade size	Material	$l_{1\ nom.}$	l_2	d_1
33276.W0128	4	Steel	128	32	1,8
33276.W0192	4	Steel	192	32	1,8
33276.W0256	4	Steel	256	32	1,8
33276.W0320	4	Steel	320	32	1,8
33276.W0448	4	Steel	448	32	1,8



Material
Mild steel, generally silver zinc plated.

Technical Notes
To DIN 11023. With spring steel "keep".
For pin d_1 = 4,5 & 6 there is no flat on the pin.

Order No.	d_1	l_1	d_2 max.	d_3	d_4	l_2
33300.W0004	4,5	42	25	3,5	41	37
33300.W0006	6,0	42	32	3,5	41	37
33300.W0007	7,0	42	32	3,5	41	37
33300.W0008	8,0	42	32	3,5	41	37
33300.W0009	9,0	42	32	3,5	41	37
33300.W0010	10,0	42	32	3,5	41	37
33300.W0011	11,0	42	32	3,5	41	37



Material
Mild steel, silver or yellow zinc plated.

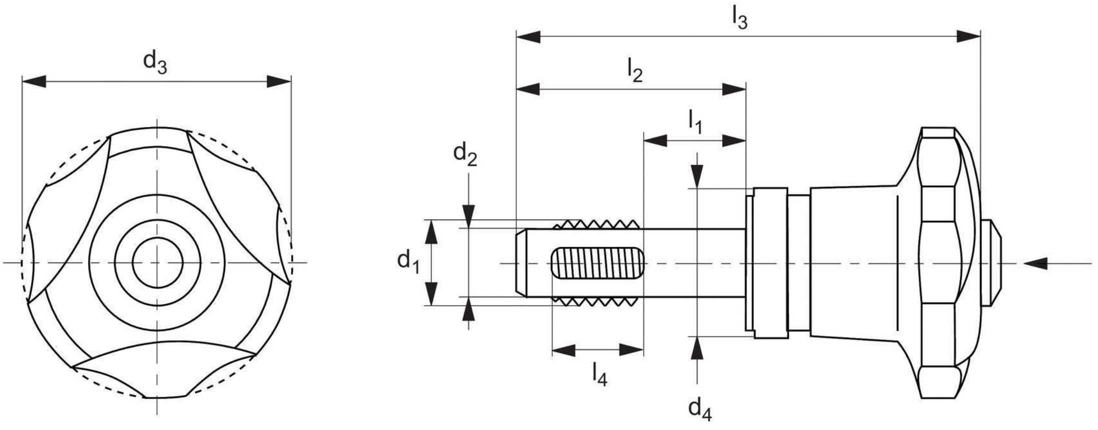
Technical Notes
With spring steel "keep".

Order No.	d_1	l	d_2 max.
33320.W0041	4,5	32	28
33320.W0042	4,5	40	36
33320.W0061	6,0	32	28
33320.W0062	6,0	40	36
33320.W0063	6,0	45	40
33320.W0080	8,0	40	36
33320.W0081	8,0	45	40
33320.W0082	8,0	50	45
33320.W0083	8,0	60	50
33320.W0101	10,0	40	36
33320.W0102	10,0	50	45
33320.W0103	10,0	60	55
33320.W0111	11,0	45	40
33320.W0112	11,0	55	50

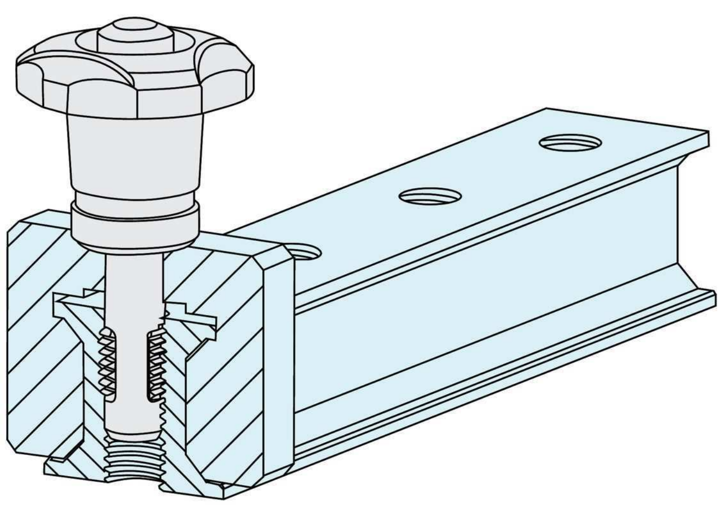
Threaded Lock Pins

self-locking

33331



Order No.	Type	d_1	l_1	d_2 -0,07	d_3	d_4	l_2	l_3	l_4	Locating thread	Min temp	Max temp	Torque to max Nm.	Shearing resistance two-shear min. kN.	g
33331.W0102	Steel	M 8	10	6,62	40	21,6	23,8	58,4	8	M 8	-30	80	5	12,7	40
33331.W0104	Steel	M 8	20	6,62	40	21,6	33,8	68,4	8	M 8	-30	80	5	12,7	42
33331.W0106	Steel	M 8	30	6,62	40	21,6	43,8	78,4	8	M 8	-30	80	5	12,7	45
33331.W0202	Steel	M10	10	8,35	40	21,6	26,0	60,6	10	M10	-30	80	5	20,6	44
33331.W0204	Steel	M10	20	8,35	40	21,6	36,0	70,6	10	M10	-30	80	5	20,6	48
33331.W0206	Steel	M10	30	8,35	40	21,6	46,0	80,6	10	M10	-30	80	5	20,6	52
33331.W0303	Steel	M12	15	10,07	40	21,6	34,0	68,6	12	M12	-30	80	5	30,4	53
33331.W0306	Steel	M12	30	10,07	40	21,6	49,0	83,6	12	M12	-30	80	5	30,4	62
33331.W0310	Steel	M12	50	10,07	40	21,6	69,0	103,6	12	M12	-30	80	5	30,4	74
33331.W0503	Steel	M16	15	13,80	40	21,6	34,0	68,6	12	M16	-30	80	5	62,9	70
33331.W0506	Steel	M16	30	13,80	40	21,6	49,0	83,6	12	M16	-30	80	5	62,9	87
33331.W0510	Steel	M16	50	13,80	40	21,6	69,0	103,6	12	M16	-30	80	5	62,9	109
33331.W1102	Stainless Steel	M 8	10	6,62	40	21,6	23,8	58,4	8	M 8	-30	80	5	16,7	40
33331.W1104	Stainless Steel	M 8	20	6,62	40	21,6	33,8	68,4	8	M 8	-30	80	5	16,7	42
33331.W1106	Stainless Steel	M 8	30	6,62	40	21,6	43,8	78,4	8	M 8	-30	80	5	16,7	45
33331.W1202	Stainless Steel	M10	10	8,35	40	21,6	26,0	60,6	10	M10	-30	80	5	27,1	44
33331.W1204	Stainless Steel	M10	20	8,35	40	21,6	36,0	70,6	10	M10	-30	80	5	27,1	48
33331.W1206	Stainless Steel	M10	30	8,35	40	21,6	46,0	80,6	10	M10	-30	80	5	27,1	52
33331.W1303	Stainless Steel	M12	15	10,07	40	21,6	34,0	68,6	12	M12	-30	80	5	40,0	53
33331.W1306	Stainless Steel	M12	30	10,07	40	21,6	49,0	83,6	12	M12	-30	80	5	40,0	62
33331.W1310	Stainless Steel	M12	50	10,07	40	21,6	69,0	103,6	12	M12	-30	80	5	40,0	74
33331.W1503	Stainless Steel	M16	15	13,80	40	21,6	34,0	68,6	12	M16	-30	80	5	82,7	70
33331.W1506	Stainless Steel	M16	30	13,80	40	21,6	49,0	83,6	12	M16	-30	80	5	82,7	87
33331.W1510	Stainless Steel	M16	50	13,80	40	21,6	69,0	103,6	12	M16	-30	80	5	82,7	109



Material

Pin: Free cutting steel, manganese phosphated or stainless steel 1.4305 (AISI 303).
Handle: Thermoplastic PA 6, black similar to RAL 9005
Press button: Aluminium, orange, anodised.
Threaded element: stainless steel 1.4542 (AISI 630), precipitation-hardened.
Spring: stainless steel.

Technical Notes

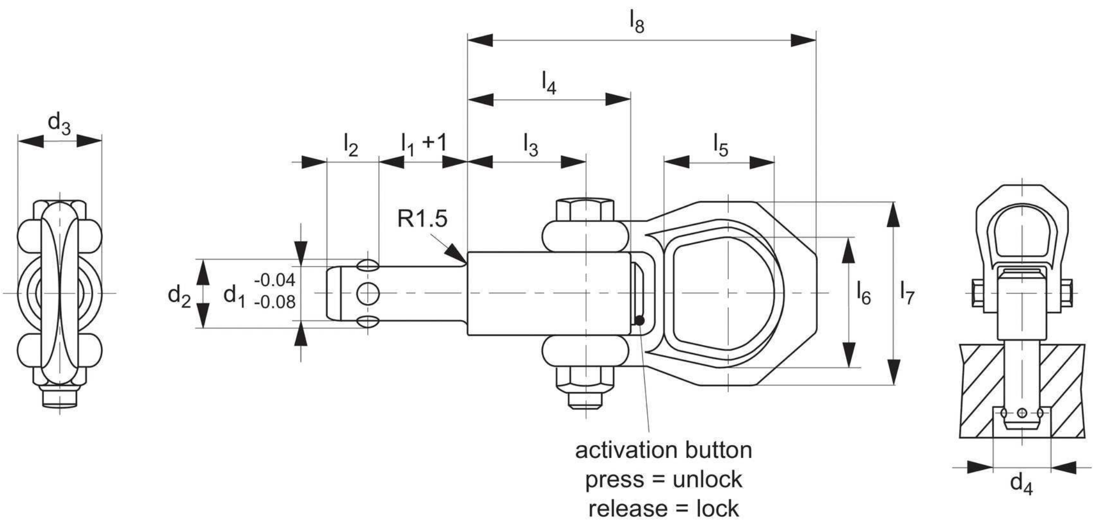
Pressing = unlocking.
Releasing = locking.
To suit metric course threads. The threaded lock pin can be quickly inserted into a threaded hole, and further tightened up to indicated max. torque reducing both assembly and disassembly times.

Tips

For suitable lanyards see part no. 33268. Lanyards can be used to prevent accidental loss of pin from application.

Quick Lift Pins - Self Locking

33400



Order No.	d_1 -0,04 -0,08	l_1	d_2	d_3	d_4 min.	l_2	l_3	l_4	l_5	g
33400.W0601	8,0	10	9,35	21,5	9,85	8,75	25,7	36,0	27,0	218
33400.W0602	8,0	15	9,35	21,5	9,85	8,75	25,7	36,0	27,0	220
33400.W0604	8,0	25	9,35	21,5	9,85	8,75	25,7	36,0	27,0	223
33400.W0606	8,0	35	9,35	21,5	9,85	8,75	25,7	36,0	27,0	226
33400.W0611	8,3	10	9,65	21,5	10,05	8,75	25,7	36,0	27,0	218
33400.W0612	8,3	15	9,65	21,5	10,05	8,75	25,7	36,0	27,0	219
33400.W0614	8,3	25	9,65	21,5	10,05	8,75	25,7	36,0	27,0	223
33400.W0616	8,3	35	9,65	21,5	10,05	8,75	25,7	36,0	27,0	228
33400.W0621	10,0	15	11,70	21,5	12,20	10,20	25,7	36,0	27,0	226
33400.W0623	10,0	25	11,70	21,5	12,20	10,20	25,7	36,0	27,0	238
33400.W0625	10,0	35	11,70	21,5	12,20	10,20	25,7	36,0	27,0	244
33400.W0627	10,0	50	11,70	21,5	12,20	10,20	25,7	36,0	27,0	252
33400.W0631	12,0	15	14,20	21,5	14,70	11,00	25,7	36,0	27,0	238
33400.W0633	12,0	25	14,20	21,5	14,70	11,00	25,7	36,0	27,0	243
33400.W0635	12,0	35	14,20	21,5	14,70	11,00	25,7	36,0	27,0	251
33400.W0637	12,0	50	14,20	21,5	14,70	11,00	25,7	36,0	27,0	268
33400.W0651	13,8	25	16,20	21,5	16,70	13,00	25,7	36,0	27,0	251
33400.W0653	13,8	50	16,20	21,5	16,70	13,00	25,7	36,0	27,0	279
33400.W0655	13,8	75	16,20	21,5	16,70	13,00	25,7	36,0	27,0	309
33400.W0641	16,0	25	18,60	25,0	19,20	15,10	31,0	44,5	27,0	312
33400.W0643	16,0	50	18,60	25,0	19,20	15,10	31,0	44,5	27,0	353
33400.W0645	16,0	75	18,60	25,0	19,20	15,10	31,0	44,5	27,0	388
33400.W0673	20,0	50	24,50	30,0	25,00	19,70	36,5	52,0	32,6	607
33400.W0675	20,0	75	24,50	30,0	25,00	19,70	36,5	52,0	32,6	666

Order No.	l_6	l_7	l_8	x min.	x max.	Location hole tol. H11	F_1* kN.	F_2* kN.	F_3* kN.
33400.W0601	30	49	87,5	1,5	5	8,0	1,5	1,2	0,5
33400.W0602	30	49	87,5	1,5	10	8,0	1,5	1,2	0,5
33400.W0604	30	49	87,5	1,5	15	8,0	1,5	1,2	0,5
33400.W0606	30	49	87,5	1,5	15	8,0	1,5	1,2	0,5
33400.W0611	30	49	87,5	1,5	5	8,3	1,5	1,2	0,5
33400.W0612	30	49	87,5	1,5	10	8,3	1,5	1,2	0,5
33400.W0614	30	49	87,5	1,5	15	8,3	1,5	1,2	0,5
33400.W0616	30	49	87,5	1,5	15	8,3	1,5	1,2	0,5
33400.W0621	30	49	87,5	1,5	10	10,0	2,7	2,4	2,1
33400.W0623	30	49	87,5	1,5	10	10,0	2,7	2,4	2,1
33400.W0625	30	49	87,5	1,5	10	10,0	2,7	2,4	2,1
33400.W0627	30	49	87,5	1,5	10	10,0	2,7	2,4	2,1
33400.W0631	30	49	87,5	1,5	10	12,0	3,5	3,2	2,8
33400.W0633	30	49	87,5	1,5	15	12,0	3,5	3,2	2,8
33400.W0635	30	49	87,5	1,5	15	12,0	3,5	3,2	2,8
33400.W0637	30	49	87,5	1,5	15	12,0	3,5	3,2	2,8
33400.W0651	30	49	87,5	1,5	15	13,8	3,8	3,5	2,8
33400.W0653	30	49	87,5	1,5	35	13,8	3,8	3,5	2,8
33400.W0655	30	49	87,5	1,5	35	13,8	3,8	3,5	2,8
33400.W0641	30	49	92,8	1,5	15	16,0	4,8	4,5	4,1

Material

Pin, Body & Shackle: heat treated steel, tempered, manganese phosphated.
Actuation Button: aluminium, red anodised.
Spring: stainless steel.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Lifts forces up to 4.8kN (with a 5 fold in-built safety factor).
Temperature range up to +250°C.
Easy installation with plain drilled hole to H11 tolerance.

Tips

The design of the safety shackle prevents accidental locking/unlocking. Safety shackle is adjustable and can be used to lift components at 90°, 45° or 180°.

Important Notes

* are values calculated on a 5-fold safety against breakage.
When machining receiving hole in aluminium we recommend use of hardened bush or collar in receiving hole, see our part no. 33440.
Supplied with TUV test certificate of manufacturing process. Parts not individually tested.

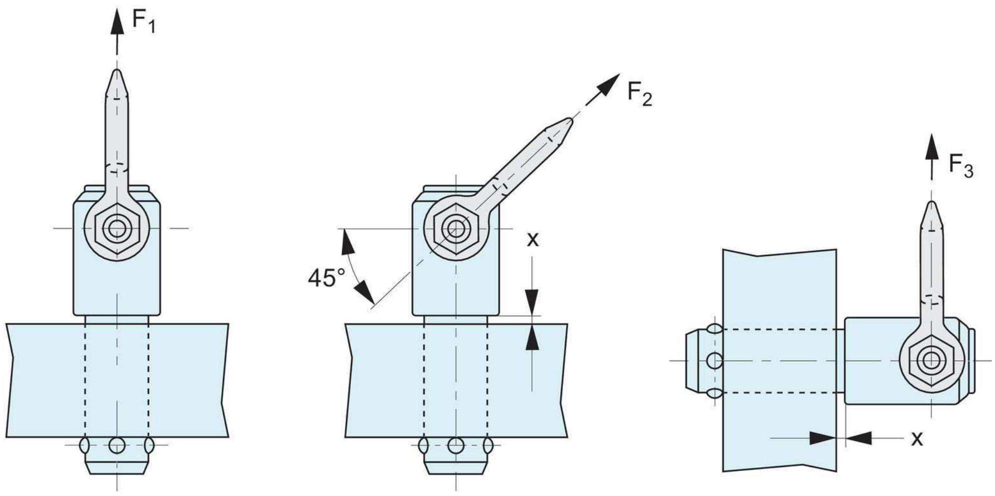
TUV CERTIFIED

HIGH LIFTING FORCE

Quick Lift Pins - Self Locking

33400

Order No.	l_6	l_7	l_8	x min.	x max.	Location hole tol. H11	F_1* kN.	F_2* kN.	F_3* kN.
33400.W0643	30	49	92,8	1,5	35	16,0	4,8	4,5	4,1
33400.W0645	30	49	92,8	1,5	40	16,0	4,8	4,5	4,1
33400.W0673	36	56	114	1,5	25	20,0	10,0	8,5	6,5
33400.W0675	36	56	114	1,5	25	20,0	10,0	8,5	6,5



Material
Pin, Body & Shackle: heat treated steel, tempered, manganese phosphated.
Actuation Button: aluminium, red anodised.
Spring: stainless steel.

Technical Notes
Pressing = unlocking.
Releasing = locking.
Lifts forces up to 4.8kN (with a 5 fold in-built safety factor).
Temperature range up to +250°C.
Easy installation with plain drilled hole to H11 tolerance.

Tips
The design of the safety shackle prevents accidental locking/unlocking. Safety shackle is adjustable and can be used to lift components at 90°, 45° or 180°.

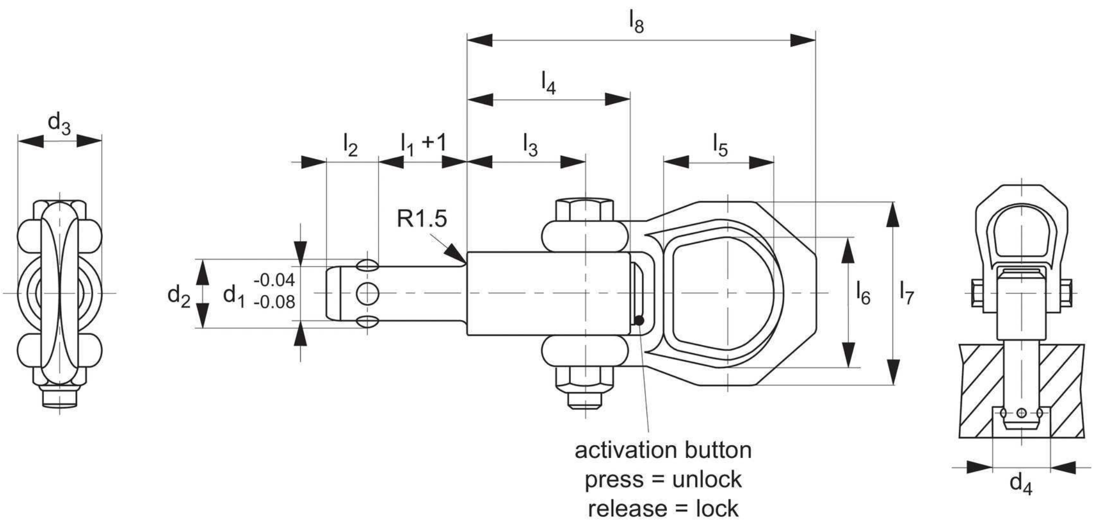
Important Notes
* are values calculated on a 5-fold safety against breakage.
When machining receiving hole in aluminium we recommend use of hardened bush or collar in receiving hole, see our part no. 33440.
Supplied with TUV test certificate of manufacturing process. Parts not individually tested.

TUV CERTIFIED

HIGH LIFTING FORCE

Quick Lift Pins - Self Locking

stainless steel



Order No.	d_1	l_1	d_2	d_3	d_4 min.	l_2	l_3	l_4	l_5	g
33420.W0701	8,0	10	9,35	21,5	9,85	8,75	25,7	36,0	27	221
33420.W0702	8,0	15	9,35	21,5	9,85	8,75	25,7	36,0	27	222
33420.W0704	8,0	25	9,35	21,5	9,85	8,75	25,7	36,0	27	225
33420.W0706	8,0	35	9,35	21,5	9,85	8,75	25,7	36,0	27	229
33420.W0711	8,3	10	9,65	21,5	10,05	8,75	25,7	36,0	27	222
33420.W0712	8,3	15	9,65	21,5	10,05	8,75	25,7	36,0	27	223
33420.W0714	8,3	25	9,65	21,5	10,05	8,75	25,7	36,0	27	225
33420.W0716	8,3	35	9,65	21,5	10,05	8,75	25,7	36,0	27	231
33420.W0721	10,0	15	11,70	21,5	12,20	10,20	25,7	36,0	27	233
33420.W0723	10,0	25	11,70	21,5	12,20	10,20	25,7	36,0	27	243
33420.W0725	10,0	35	11,70	21,5	12,20	10,20	25,7	36,0	27	250
33420.W0727	10,0	50	11,70	21,5	12,20	10,20	25,7	36,0	27	257
33420.W0731	12,0	15	14,20	21,5	14,70	11,00	25,7	36,0	27	246
33420.W0733	12,0	25	14,20	21,5	14,70	11,00	25,7	36,0	27	255
33420.W0735	12,0	35	14,20	21,5	14,70	11,00	25,7	36,0	27	265
33420.W0737	12,0	50	14,20	21,5	14,70	11,00	25,7	36,0	27	273
33420.W0751	13,8	25	16,20	21,5	16,70	13,00	25,7	36,0	27	255
33420.W0753	13,8	50	16,20	21,5	16,70	13,00	25,7	36,0	27	283
33420.W0755	13,8	75	16,20	21,5	16,70	13,00	25,7	36,0	27	311
33420.W0741	16,0	25	18,60	25,0	19,20	15,10	31,0	44,5	27	313
33420.W0743	16,0	50	18,60	25,0	19,20	15,10	31,0	44,5	27	367
33420.W0745	16,0	75	18,60	25,0	19,20	15,10	31,0	44,5	27	403
33420.W0773	20,0	50	24,50	30,0	25,00	19,70	36,5	52,0	32,6	607
33420.W0775	20,0	75	24,50	30,0	25,00	19,70	36,5	52,0	32,6	666

Order No.	l_6	l_7	l_8	x min.	x max.	Location hole tol. H11	F_1* kN.	F_2* kN.	F_3* kN.
33420.W0701	30	49	87,5	1,5	5	8,0	1,5	1,2	0,5
33420.W0702	30	49	87,5	1,5	10	8,0	1,5	1,2	0,5
33420.W0704	30	49	87,5	1,5	15	8,0	1,5	1,2	0,5
33420.W0706	30	49	87,5	1,5	15	8,0	1,5	1,2	0,5
33420.W0711	30	49	87,5	1,5	5	8,3	1,5	1,2	0,5
33420.W0712	30	49	87,5	1,5	10	8,3	1,5	1,2	0,5
33420.W0714	30	49	87,5	1,5	15	8,3	1,5	1,2	0,5
33420.W0716	30	49	87,5	1,5	15	8,3	1,5	1,2	0,5
33420.W0721	30	49	87,5	1,5	10	10,0	2,7	2,4	2,1
33420.W0723	30	49	87,5	1,5	10	10,0	2,7	2,4	2,1
33420.W0725	30	49	87,5	1,5	10	10,0	2,7	2,4	2,1
33420.W0727	30	49	87,5	1,5	10	10,0	2,7	2,4	2,1
33420.W0731	30	49	87,5	1,5	10	12,0	3,5	3,2	2,8
33420.W0733	30	49	87,5	1,5	15	12,0	3,5	3,2	2,8
33420.W0735	30	49	87,5	1,5	15	12,0	3,5	3,2	2,8
33420.W0737	30	49	87,5	1,5	15	12,0	3,5	3,2	2,8
33420.W0751	30	49	87,5	1,5	15	13,8	3,8	3,5	2,8
33420.W0753	30	49	87,5	1,5	35	13,8	3,8	3,5	2,8
33420.W0755	30	49	87,5	1,5	35	13,8	3,8	3,5	2,8
33420.W0741	30	49	92,8	1,5	15	16,0	4,8	4,5	4,1
33420.W0743	30	49	92,8	1,5	35	16,0	4,8	4,5	4,1

Material

Pin & Body: stainless steel 1.4542 (AISI 630), precipitation hardened.
Shackle: stainless steel 1.4571.
Actuation Button: aluminium, red anodised.
Spring: stainless steel.

Technical Notes

Pressing = unlocking.
Releasing = locking.
Lifts forces up to 4.8kN (with a 5 fold in-built safety factor).
Temperature range up to +250°C.
Easy installation with plain drilled hole to H11 tolerance.
Corrosion and weather resistant, therefore suitable for outdoor applications.

Tips

The design of the safety shackle prevents accidental locking/unlocking. Safety shackle is adjustable and can be used to lift components at 90°, 45° or 180°.

Important Notes

* are values calculated on a 5-fold safety against breakage.
When machining receiving hole in aluminium we recommend use of hardened bush or collar in receiving hole, see our part no. 33440.
Supplied with TUV test certificate of manufacturing process. Parts not individually tested.

TUV CERTIFIED

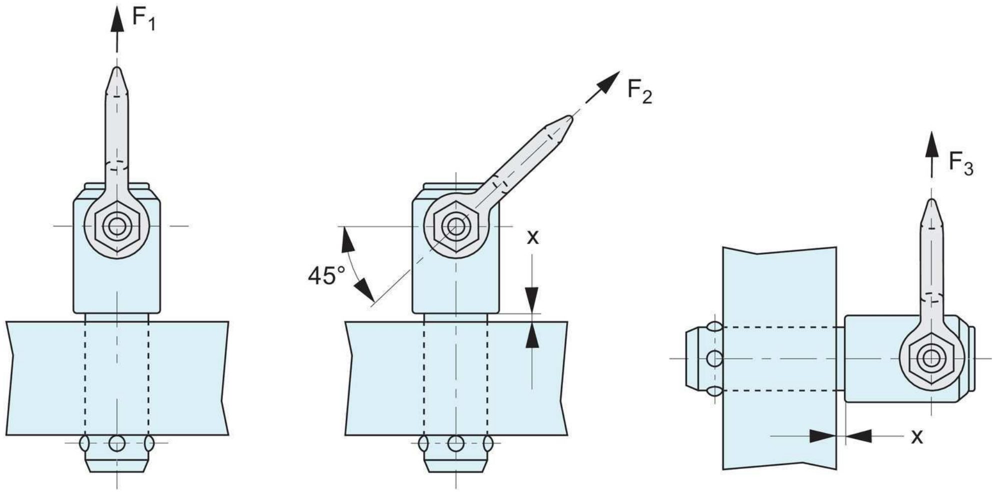
HIGH LIFTING FORCE

Quick Lift Pins - Self Locking

stainless steel

33420

Order No.	l_6	l_7	l_8	x min.	x max.	Location hole tol. H11	F_1* kN.	F_2* kN.	F_3* kN.
33420.W0745	30	49	92,8	1,5	40	16,0	4,8	4,5	4,1
33420.W0773	36	56	114,0	1,5	25	20,0	10,0	8,5	6,5
33420.W0775	36	56	114,0	1,5	30	20,0	10,0	8,5	6,5



Material

Pin & Body: stainless steel 1.4542 (AISI 630), precipitation hardened.
Shackle: stainless steel 1.4571.
Actuation Button: aluminium, red anodised.
Spring: stainless steel.

Technical Notes

Pressing = unlocking.
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Lifts forces up to 4.8kN (with a 5 fold in-built safety factor).
Temperature range up to +250°C.
Easy installation with plain drilled hole to H11 tolerance.
Corrosion and weather resistant, therefore suitable for outdoor applications.

Tips

The design of the safety shackle prevents accidental locking/unlocking. Safety shackle is adjustable and can be used to lift components at 90°, 45° or 180°.

Important Notes

* are values calculated on a 5-fold safety against breakage.
When machining receiving hole in aluminium we recommend use of hardened bush or collar in receiving hole, see our part no. 33440.
Supplied with TUV test certificate of manufacturing process. Parts not individually tested.

TUV CERTIFIED

HIGH LIFTING FORCE

Wixroyd Quick Lifting Pins

product overview

Danger!

Self-locking quick lift pins are designed to lift and hold point loads not people.

Self-locking quick lift pins are not suited for rotating loads.

Dirt and debris etc can affect the performance of the pins.

Using damaged self-locking pins can be very dangerous. Before each use carefully inspect the pins (damage, deformities, signs of stress, corrosion, check unlocking and locking function, loss of balls etc. Check full movement of shackle. Withdraw any defective pins from service immediately.

To release the balls, press button A. To lock the balls, release button A.

The load figures F_1, F_2 and F_3 apply only to lifting applications used with a steel retainer, and an "x" min of 1.5mm.

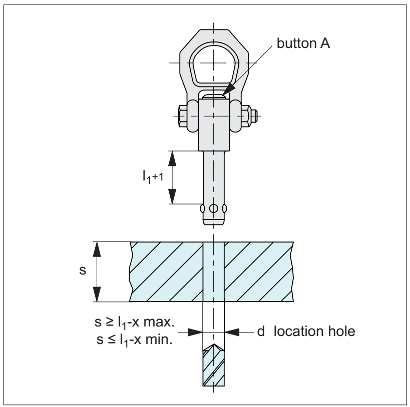
Inspect before and after every use. For maintenance – take the out of service after 12 months for inspection by qualified personnel.

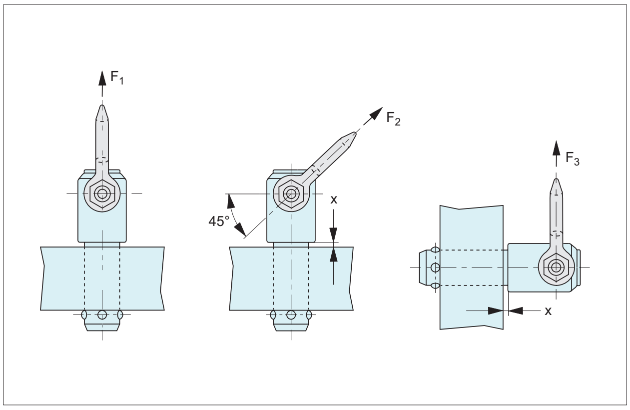
Operating Instructions 33400 and 33420

Note: The full shaft must be engaged. Longer shaft lengths can be supplied on request or a bolt and washer/nut combination can be used.

- Ensure all lifting pins are CE marked.
- Ensure they are handled by qualified personnel.
- Refer to the operating instructions particularly with regards to product selection, any possibility of the load swivelling, the effect of lifting angles on the load capacity (see relevant tables), etc.
- Never allow any personnel underneath a suspended load.
- Always heed the load rating of the lifting pin.
- Always perform a visual inspection of the lifting pins prior to use. Checking for any damage to thread and/or swivelling system. Check for wear or corrosion, signs of stress or bending.
- Ensure a yearly full service inspection is performed.
- Always ensure the full bottom face of the lifting pin shoulder is in contact with a smooth, square surface.
- Ensure full and unrestricted movement of the lifting pin in all directions.
- Before each lift ensure the correct orientation of the shackle in the lift direction.
- Avoid using our standard steel lifting pins in corrosive environments eg. sandy, chemical, acid, moisture etc. In this case consider using our stainless steel lifting pins (33420).

Notes

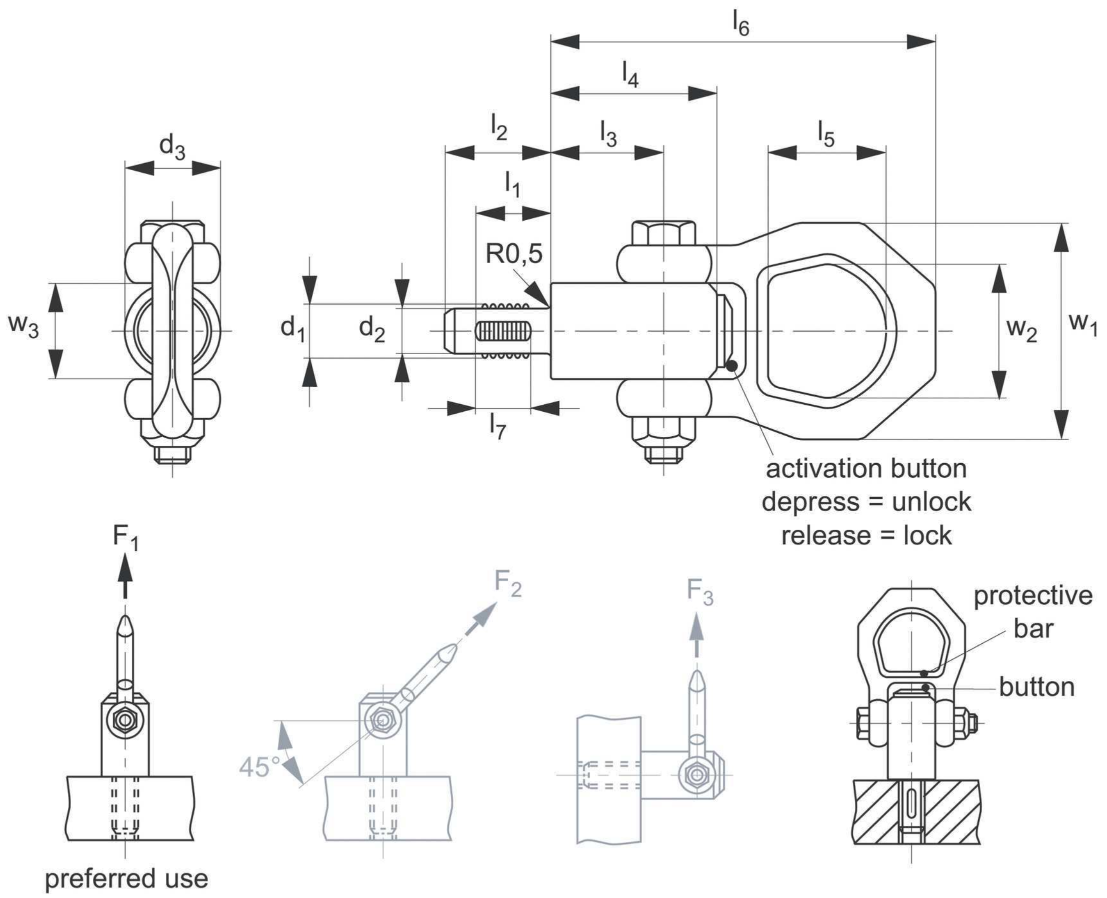




Quick Lift Pins - Threaded

metric

33430



Order No.	Type	d_1	d_2 -0,07	d_3	l_1	l_2	l_3	l_4	l_5	g
33430.W0008	Steel	M 8	6,6	21,5	12	17,8	25,7	36	27,0	228
33430.W0010	Steel	M10	8,4	21,5	14	20,0	25,7	36	27,0	271
33430.W0012	Steel	M12	10,1	21,5	17	24,0	25,7	36	27,0	234
33430.W0014	Steel	M14	11,8	21,5	17	24,0	25,7	36	27,0	280
33430.W0016	Steel	M16	13,8	21,5	17	24,0	25,7	36	27,0	244
33430.W0020	Steel	M20	17,3	30,0	22	30,0	36,5	52	32,6	518
33430.W0024	Steel	M24	20,7	36,0	27	30,6	42,0	60	50,6	1187
33430.W0027	Steel	M27	23,7	45,0	31	40,0	42,0	60	50,6	1420
33430.W0030	Steel	M30	26,1	45,0	35	45,0	42,0	60	50,6	1468
33430.W1008	Stainless Steel	M 8	6,6	21,5	12	17,8	25,7	36	27,0	228
33430.W1010	Stainless Steel	M10	8,4	21,5	14	20,0	25,7	36	27,0	229
33430.W1012	Stainless Steel	M12	10,1	21,5	17	24,0	25,7	36	27,0	237
33430.W1016	Stainless Steel	M16	13,8	21,5	17	24,0	25,7	36	27,0	247
33430.W1020	Stainless Steel	M20	17,3	30,0	22	30,0	36,5	52	32,6	519
33430.W1024	Stainless Steel	M24	20,7	36,0	27	30,6	42,0	60	50,6	1219

Order No.	l_6	l_7	w_1	w_2	w_3	F_1* kN.	F_2* kN.	F_3* kN.	Locating Thread
33430.W0008	87,5	8	49	30,0	21,5	2,1	0,9	0,8	M 8
33430.W0010	87,5	10	49	30,0	21,5	3,9	1,5	1,5	M10
33430.W0012	87,5	12	49	30,0	21,5	6,2	2,5	2,3	M12
33430.W0014	87,5	12	49	30,0	21,5	7,8	4,2	2,9	M14
33430.W0016	87,5	12	49	30,0	21,5	8,4	4,5	4,2	M16
33430.W0020	114,0	17	56	36,0	30,0	16,6	7,7	5,8	M20
33430.W0024	152,0	22	82	49,8	36,0	23,0	11,1	8,6	M24
33430.W0027	152,0	26	82	49,8	36,0	33,8	15,7	13,7	M27
33430.W0030	152,0	30	82	49,8	36,0	42,3	21,5	15,5	M30
33430.W1008	87,5	8	49	30,0	21,5	2,1	0,9	0,8	M 8
33430.W1010	87,5	10	49	30,0	21,5	3,9	1,5	1,5	M10
33430.W1012	87,5	12	49	30,0	21,5	6,2	2,5	2,3	M12
33430.W1016	87,5	12	49	30,0	21,5	8,4	4,5	4,2	M15
33430.W1020	114,0	17	56	36,0	30,0	16,6	7,7	5,8	M20
33430.W1024	152,0	22	82	49,8	36,0	23,0	11,1	8,6	M24

Material

Steel:
Pin: heat-treated steel, tempered, manganese phosphated.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: steel, heat-treated, tempered, manganese phosphated.
Press button: aluminium, orange anodised.
Spring: stainless steel.

Stainless steel:
Pin: stainless steel 1.4542, (AISI 630) precipitation hardened.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: stainless steel 1.45471.
Press button: aluminium, orange anodised.
Spring: stainless steel.

Technical Notes

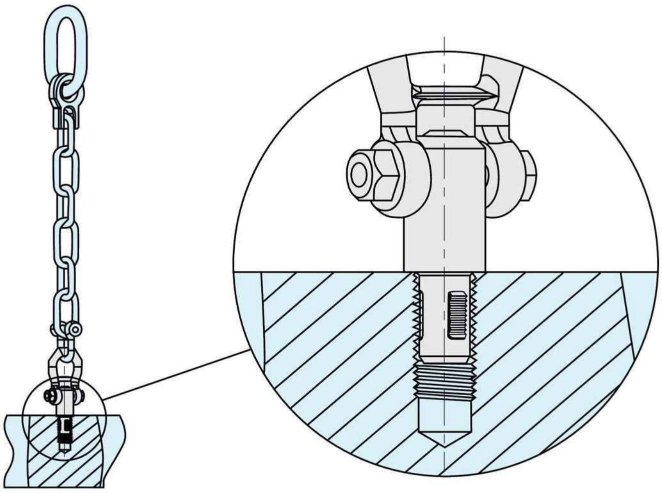
To suit metric coarse threads, tolerance g6. CE marked. Both types are corrosion protected. The stainless steel pin is resistant to corrosion and weathering, so suitable for external use.
The instruction manual and CE Declaration of Conformity are included.
F_1* and F_3* values are inscribed on the body for reference. F values are calculated on 5 x safety factor.
Depress button: to unlock.
Release button: to lock.
Max temp. 250ºC.

Tips

The pin is ideally used for single point straight up lifts. The bottom face of the pin must be in full contact with the part to be lifted. The pin can also be used with forces F_2 and F_3 after ensuring that the shackle direction is aligned to the direction of the pull. The preferred part for these types of lifts is part 33425, which has a double swivel function.
Before use: read instruction manual, and data sheets follow standard safe lifting procedures.

Important Notes

The threaded pin must be completely screwed into the thread and tightened to specified tightening torque and bear completely on the bearing surface. Quick and easy to use. The shackle pivots. The protective bar prevents unintentional unlocking by a hook or similar.
Use recommended mainly for direct upwards lift (F_1) **as the shackle should be aligned to the direction of lift. Other pins (33425) have a swivel bearing to align shackle. Rotation of loads must be prevented.**



Material

Steel:

Pin: heat-treated steel, tempered, manganese phosphated.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: steel, heat-treated, tempered, manganese phosphated.
Press button: aluminium, orange anodised.
Spring: stainless steel.

Stainless steel:

Pin: stainless steel 1.4542, (AISI 630) precipitation hardened.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: stainless steel 1.45471.
Press button: aluminium, orange anodised.
Spring: stainless steel.

Technical Notes

To suit metric coarse threads, tolerance g6. CE marked. Both types are corrosion protected. The stainless steel pin is resistant to corrosion and weathering, so suitable for external use.
The instruction manual and CE Declaration of Conformity are included.
F_1* and F_3* values are inscribed on the body for reference. F values are calculated on 5 x safety factor.
Depress button: to unlock.
Release button: to lock.
Max temp. 250ºC.

Tips

The pin is ideally used for single point straight up lifts. The bottom face of the pin must be in full contact with the part to be lifted. The pin can also be used with forces F_2 and F_3 after ensuring that the shackle direction is aligned to the direction of the pull. The preferred part for these types of lifts is part 33425, which has a double swivel function.
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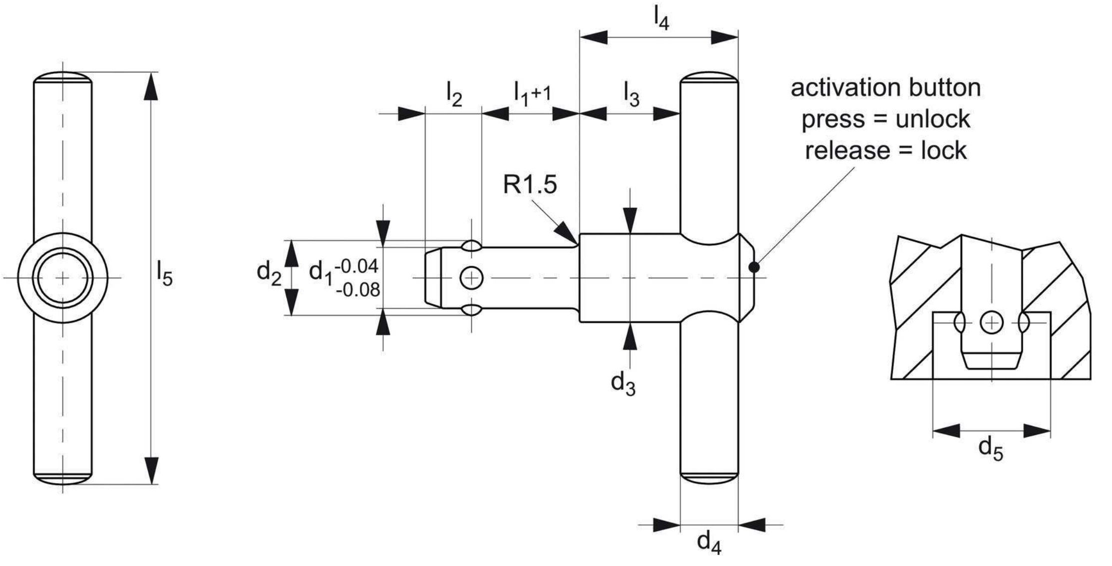
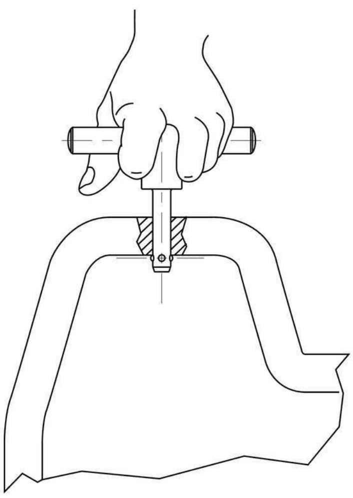
The threaded pin must be completely screwed into the thread and tightened to specified tightening torque and bear completely on the bearing surface. Quick and easy to use. The shackle pivots. The protective bar prevents unintentional unlocking by a hook or similar.
Use recommended mainly for direct upwards lift (F_1) **as the shackle should be aligned to the direction of lift. Other pins (33425) have a swivel bearing to align shackle. Rotation of loads must be prevented.**

Lifting Pins-Self-Locking

with t-handle - stainless steel



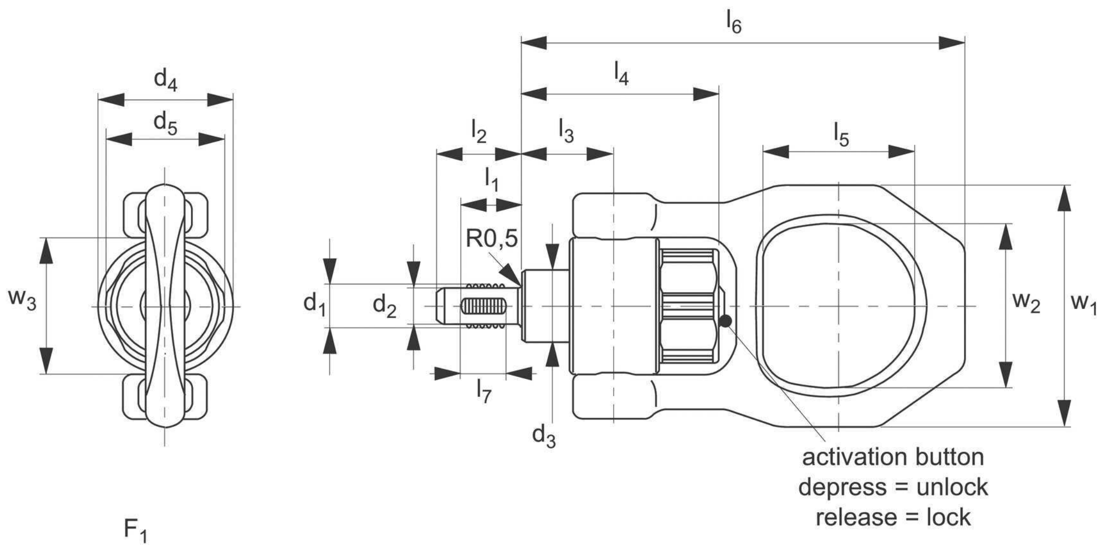
Order No.	d_1 -0,04 -0,08	l_1 +1	d_2	d_3	d_4	d_5 min.	l_2	l_3	l_4	l_5	Carrying force N	Location hole tol. H11	g
33424.W0005	8,0	35	9,35	21,5	14	9,85	8,75	18,7	36,0	100	500	8,0	141
33424.W0010	8,3	35	9,65	21,5	14	10,05	8,75	18,7	36,0	100	500	8,3	142
33424.W0015	10,0	50	11,70	21,5	14	12,20	10,20	18,7	36,5	100	500	10,0	159
33424.W0020	12,0	50	14,20	21,5	14	14,70	11,00	18,7	36,5	100	500	12,0	177

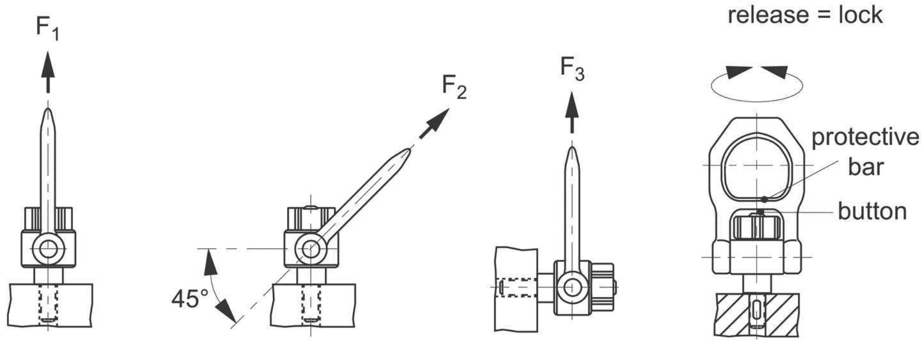


Material
Pin: Stainless steel 1.4542, (AISI 630) precipitation hardened.
Handle: Aluminium, blue anodised
Spring: Stainless Steel

Technical Notes
Pressing= Unlocking.
Releasing= Locking.
Easy installation with plain drilled hole to H11 tolerance
Temperature resistance up to 250° C

Tips
The t-handled grip can be used to move or transport workpieces via hand, e.g. part finished components, work holding systems, speakers and other containers. Corrosion and weathering resistant, thus also suitable for outdoor application.





Order No.	Type	d_1	d_2 -0,07	d_3	d_4	d_5	l_1	l_2	l_3	l_4	l_5	g
33425.W0010	Steel	M10	8,4	20	38	33,5	14	20,0	25,7	54,9	42,5	581
33425.W0012	Steel	M12	10,1	20	38	33,5	17	24,0	25,7	54,9	42,5	585
33425.W0016	Steel	M16	13,8	20	38	33,5	17	24,0	25,7	54,9	42,5	597
33425.W0020	Steel	M20	17,3	35	56	50,0	22	30,0	36,5	73,7	55,6	1789
33425.W0024	Steel	M24	20,7	35	56	50,0	27	36,0	42,0	79,2	55,6	1864
33425.W1010	Stainless Steel	M10	8,4	20	38	33,5	14	20,0	25,7	54,9	42,5	581
33425.W1012	Stainless Steel	M12	10,1	20	38	33,5	17	24,0	25,7	54,9	42,5	585
33425.W1016	Stainless Steel	M16	13,8	20	38	33,5	17	24,0	25,7	54,9	42,5	597
33425.W1020	Stainless Steel	M20	17,3	35	56	50,0	22	30,0	36,5	73,7	55,6	1789
33425.W1024	Stainless Steel	M24	20,7	35	56	50,0	27	36,0	42,0	79,2	55,6	1864

Order No.	l_6	l_7	w_1	w_2	w_3	F_1* kN.	F_2* kN.	F_3* kN.	Tightening torque to max. Nm.	Locating Thread
33425.W0010	123,7	10	68	46	38	3,9	1,5	1,5	2	M10
33425.W0012	123,7	12	68	46	38	6,2	2,5	2,3	2	M12
33425.W0016	123,7	12	68	46	38	8,4	4,5	4,2	2	M16
33425.W0020	167,5	17	102	70	59	16,6	7,7	5,0	3	M20
33425.W0024	173,0	22	102	70	59	18,5	11,1	8,6	3	M24
33425.W1010	123,7	10	68	46	38	3,9	1,5	1,5	2	M10
33425.W1012	123,7	12	68	46	38	6,2	2,5	2,3	2	M12
33425.W1016	123,7	12	68	46	38	8,4	4,5	4,2	2	M16
33425.W1020	167,5	17	102	70	59	16,6	7,7	5,0	3	M20
33425.W1024	173,0	22	102	70	59	18,0	11,1	8,6	3	M24

Material

Steel
Pin: heat-treated steel, tempered, manganese phosphated.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: steel, heat-treated, tempered, manganese phosphated.
Press button: aluminium, orange anodised.
Spring: stainless steel.

Stainless steel
Pin: stainless steel 1.4542, (AISI 630) precipitation hardened.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: stainless steel 1.45471.
Press button: aluminium, orange anodised.
Spring: stainless Steel.

Technical Notes

To suit metric coarse threads, tolerance g6. CE marked. Both types are corrosion protected. The stainless steel pin is resistant to corrosion and weathering, so suitable for external use.
The instruction manual and CE Declaration of Conformity are included.
F_1* and F_3* values are inscribed on the body for reference. F values are calculated on 5 x safety factor.
Depress button: to unlock.
Release button: to lock.
Max temp. 250ºC.

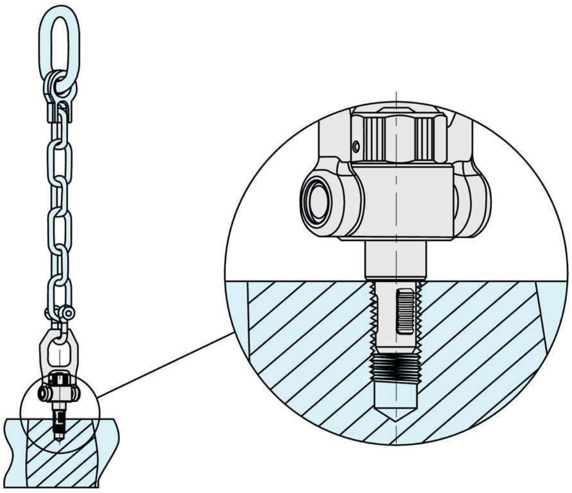
Tips

Heavy duty lifting pin, quick and easy to use with pivoting shackle and protective bar to prevent unintentional unlocking. The threaded lifting pin is inserted into a threaded hole, so no time is wasted screwing in and out alternative lifting rings. The rotatable shackle will always align with the tensile direction of pull without the pin rotating. This prevents the load-handling device from being turned out of the thread and the component can be lifted safely.
Before use: read instruction manual, and data sheets follow standard safe lifting procedures.

Quick Lift Pins - Threaded

double swivel - metric

33425



Material

Steel

Pin: heat-treated steel, tempered, manganese phosphated.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: steel, heat-treated, tempered, manganese phosphated.
Press button: aluminium, orange anodised.
Spring: stainless steel.

Stainless steel

Pin: stainless steel 1.4542, (AISI 630) precipitation hardened.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: stainless steel 1.45471.
Press button: aluminium, orange anodised.
Spring: stainless Steel.

Technical Notes

To suit metric coarse threads, tolerance g6. CE marked. Both types are corrosion protected. The stainless steel pin is resistant to corrosion and weathering, so suitable for external use.
The instruction manual and CE Declaration of Conformity are included.
F_1* and F_3* values are inscribed on the body for reference. F values are calculated on 5 x safety factor.
Depress button: to unlock.
Release button: to lock.
Max temp. 250ºC.

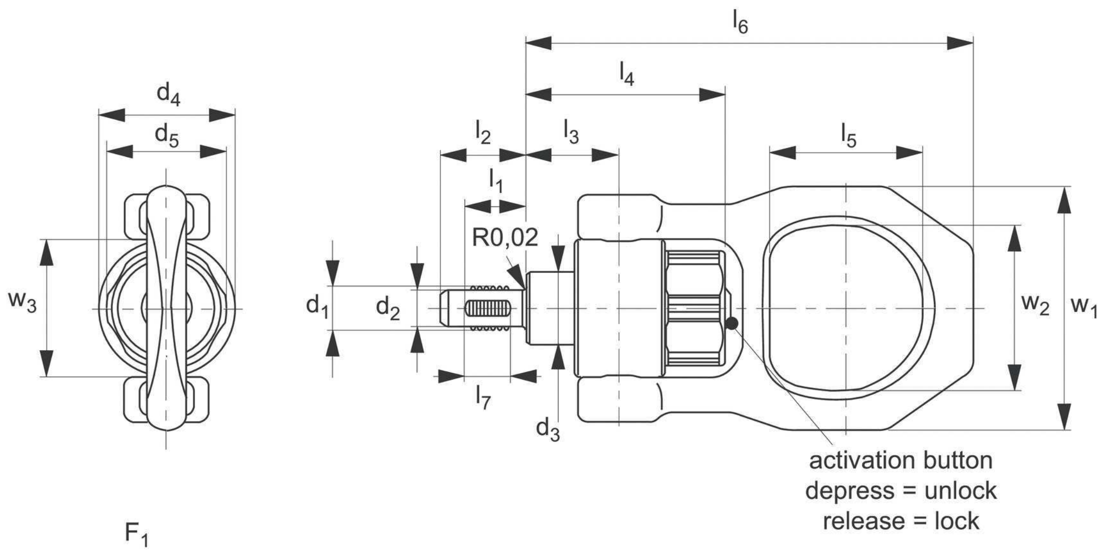
Tips

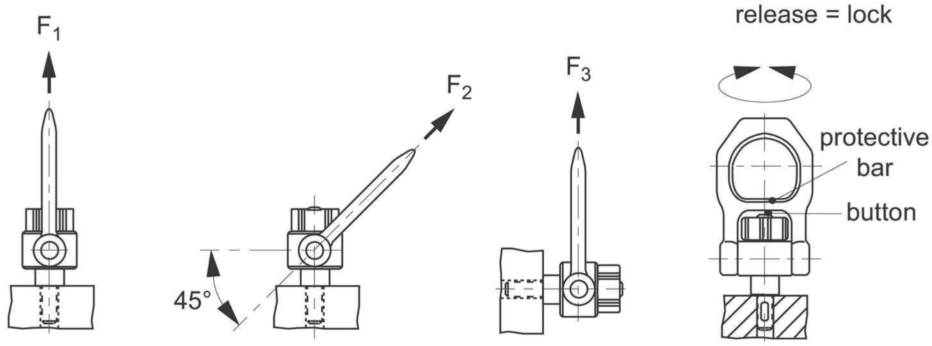
Heavy duty lifting pin, quick and easy to use with pivoting shackle and protective bar to prevent unintentional unlocking. The threaded lifting pin is inserted into a threaded hole, so no time is wasted screwing in and out alternative lifting rings. The rotatable shackle will always align with the tensile direction of pull without the pin rotating. This prevents the load-handling device from being turned out of the thread and the component can be lifted safely.
Before use: read instruction manual, and data sheets follow standard safe lifting procedures.

Quick Lift Pins - Threaded

double swivel - inch

3B425





Order No.	Type	d_1	d_2 +0,0028 "	d_3	d_4	d_5	l_1	l_2	l_3	lbs
3B425.W0012	Steel	1/2"-13	0,416	0,787	1496	1,319	0,669	0,945	1,012	1,29
3B425.W0020	Steel	3/4"-10	0,640	1,378	2323	1,969	0,866	1,181	1,437	3,93
3B425.W0024	Steel	1"-8	0,863	1,378	2323	1,969	1,063	1,417	1,654	4,13
3B425.W1012	Stainless Steel	1/2"-13	0,416	0,790	1496	1,320	0,669	0,945	1,012	1,29
3B425.W1020	Stainless Steel	3/4"-10	0,640	1,378	2323	1,969	0,866	1,181	1,437	3,93
3B425.W1024	Stainless Steel	1"-8	0,863	1,378	2323	1,969	1,063	1,417	1,654	4,13

Order No.	l_6	l_7	w_1	w_2	w_3	F_1* lbf.	F_2* lbf.	F_3* lbf.	Locating Thread	Tightening torque to max. Nm.
3B425.W0012	4,870	0,472	2,677	1,811	1,496	1528	764	607	1/2"-13	1,48
3B425.W0020	6,594	0,669	4,016	2,756	2,323	3619	1731	1124	3/4"-10	2,21
3B425.W0024	6,811	0,866	4,016	2,756	2,323	4159	3147	2225	1"-8	2,21
3B425.W1012	4,870	0,472	2,677	1,811	1,496	1528	764	607	1/2"-13	1,48
3B425.W1020	6,594	0,669	4,016	2,756	2,323	3619	1731	1124	3/4"-10	2,21
3B425.W1024	6,811	0,866	4,016	2,756	2,323	4046	3147	2225	1"-8	2,21

Material

Steel:
Pin: heat-treated steel, tempered, manganese phosphated.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: steel, heat-treated, tempered, manganese phosphated.
Press button: aluminium, orange anodised.
Spring: stainless steel.

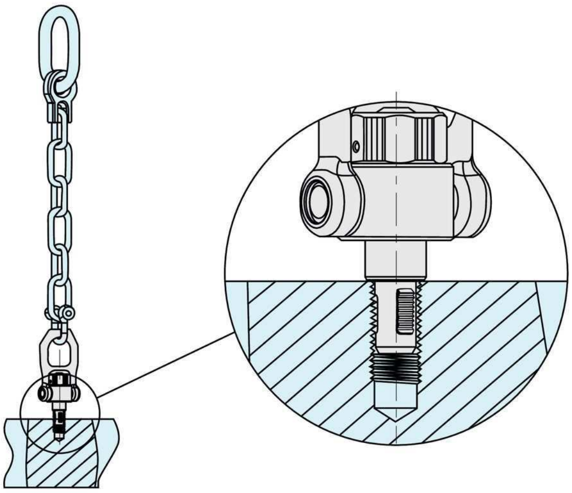
Stainless steel:
Pin: stainless steel 1.4542, (AISI 630) precipitation hardened.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: stainless steel 1.45471.
Press button: aluminium, orange anodised.
Spring: stainless steel.

Technical Notes

To suit inch coarse threads, tolerance g6. CE marked. Both types are corrosion protected. The stainless steel pin is resistant to corrosion and weathering, so suitable for external use.
The instruction manual and CE Declaration of Conformity are included.
F_1* and F_3* values are inscribed on the body for reference. F values are calculated on 5 x safety factor.
Depress button: to unlock.
Release button: to lock.
Max temp. 482ºF 250ºC.

Tips

Heavy duty lifting pin, quick and easy to use with pivoting, rotatable shackle and protective bar to prevent unintentional unlocking. The threaded lifting pin is inserted into a threaded hole, so no time is wasted screwing in and out alternative lifting rings. The rotatable shackle will always align with the tensile direction of pull without the pin rotating. This prevents the load-handling device from being turned out of the thread and the component can be lifted safely.
Before use: read instruction manual, and data sheets follow standard safe lifting procedures.
Dimensions in inches.



Material

Steel:
Pin: heat-treated steel, tempered, manganese phosphated.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: steel, heat-treated, tempered, manganese phosphated.
Press button: aluminium, orange anodised.
Spring: stainless steel.

Stainless steel:
Pin: stainless steel 1.4542, (AISI 630) precipitation hardened.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: stainless steel 1.45471.
Press button: aluminium, orange anodised.
Spring: stainless steel.

Technical Notes

To suit inch coarse threads, tolerance g6. CE marked. Both types are corrosion protected. The stainless steel pin is resistant to corrosion and weathering, so suitable for external use.
The instruction manual and CE Declaration of Conformity are included.
F_1* and F_3* values are inscribed on the body for reference. F values are calculated on 5 x safety factor.
Depress button: to unlock.
Release button: to lock.
Max temp. 482ºF 250ºC.

Tips

Heavy duty lifting pin, quick and easy to use with pivoting, rotatable shackle and protective bar to prevent unintentional unlocking.
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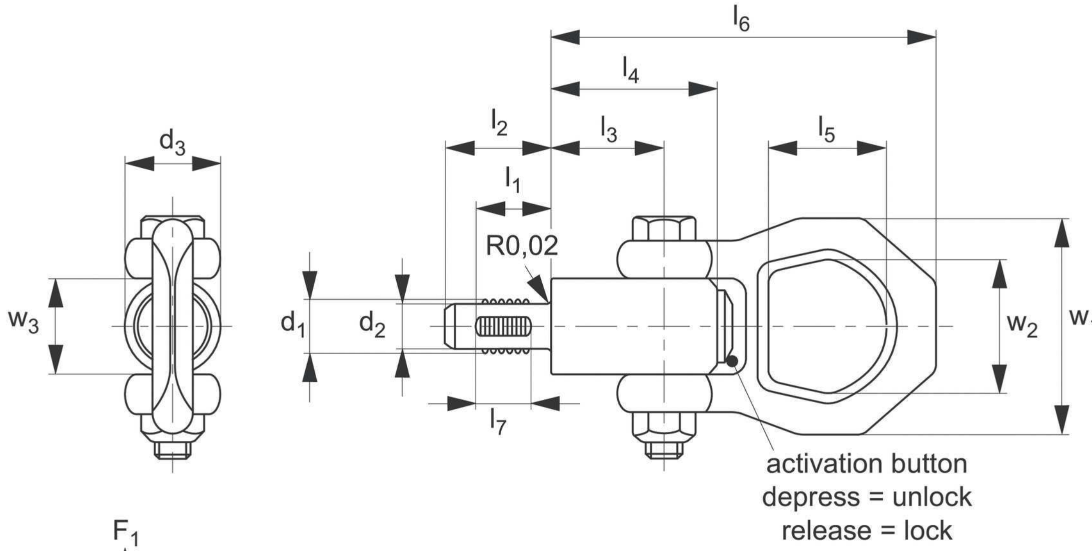
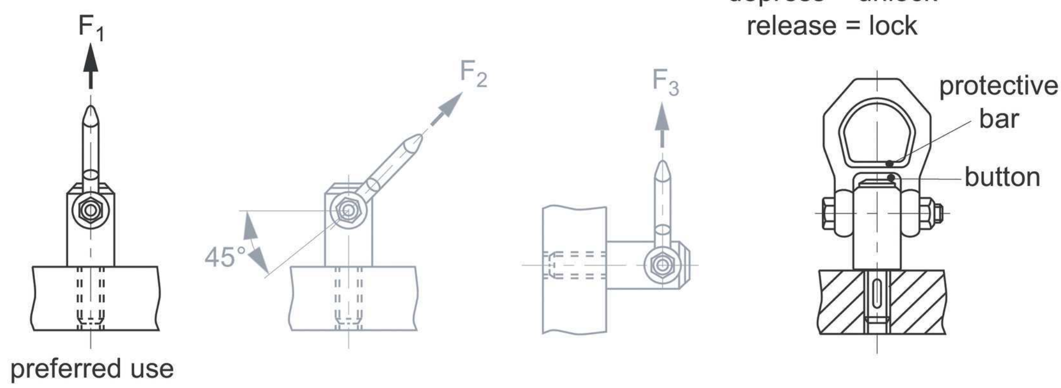
Before use: read instruction manual, and data sheets follow standard safe lifting procedures.
Dimensions in inches.





Order No.	Type	d_1	l_1	d_2 -0,0028"	d_3	l_2	l_3	l_4	lbs
3B430.W0012	Steel	1/2"-13	0,67	0,42	0,85	0,95	1,01	1,42	0,5
3B430.W0020	Steel	3/4"-10	0,87	0,64	1,18	1,18	1,44	2,05	1,1
3B430.W0024	Steel	1"-8	1,06	0,86	1,42	1,42	1,65	2,36	2,6
3B430.W1012	Stainless Steel	1/2"-13	0,67	0,42	0,85	0,95	1,01	1,42	0,5
3B430.W1020	Stainless Steel	3/4"-10	0,87	0,64	1,18	1,18	1,44	2,05	1,1
3B430.W1024	Stainless Steel	1"-8	1,06	0,86	1,42	1,42	1,65	2,36	2,7

Order No.	l_5	l_6	l_7	w_1	w_2	w_3	F_1* lbf	F_2* lbf	F_3* lbf	Locating Thread
3B430.W0012	1,06	3,45	0,47	1,93	1,18	0,85	1528	764	607	1/2"-13
3B430.W0020	1,28	4,49	0,67	2,21	1,42	1,18	3619	1731	1281	3/4"-10
3B430.W0024	1,99	5,98	0,87	3,23	1,96	1,42	6766	3147	2225	1"-8
3B430.W1012	1,06	3,45	0,47	1,93	1,18	0,85	1528	764	607	1/2"-13
3B430.W1020	1,28	4,49	0,67	2,21	1,42	1,18	3619	1731	1281	3/4"-10
3B430.W1024	1,99	5,98	0,87	3,23	1,96	1,42	6766	3147	2225	1"-8

Material

Steel:
Pin: heat-treated steel, tempered, manganese phosphated.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: steel, heat-treated, tempered, manganese phosphated.
Press button: aluminium, orange anodised.
Spring: stainless steel.

Stainless steel:
Pin: stainless steel 1.4542, (AISI 630) precipitation hardened.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: stainless steel 1.45471.
Press button: aluminium, orange anodised.
Spring: stainless steel.

Technical Notes

To suit inch coarse threads, tolerance g6. CE marked. Both types are corrosion protected. The stainless steel pin is resistant to corrosion and weathering, so suitable for external use.
The instruction manual and CE Declaration of Conformity are included.
F_1* and F_3* values are inscribed on the body for reference. F values are calculated on 5 x safety factor.
Depress button: to unlock.
Release button: to lock.
Max temp. 482ºF 250ºC.

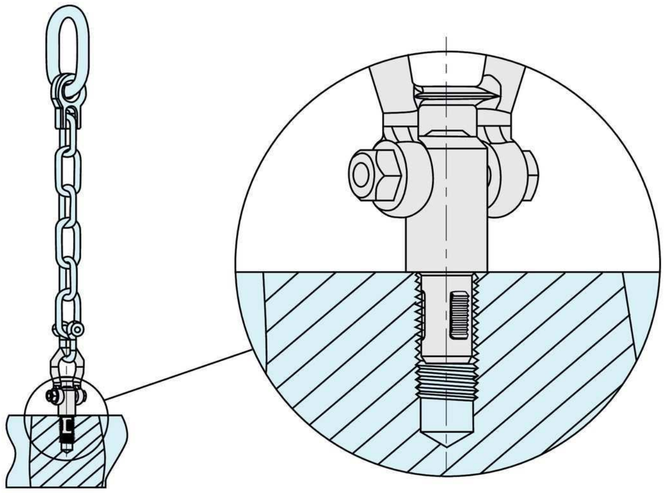
Tips

The pin is ideally used for single point straight up lifts. The bottom face of the pin must be in full contact with the part to be lifted.
The pin can also be used with forces F_2 and F_3 after ensuring that the shackle direction is aligned to the direction of the pull. The preferred part for these types of lifts is part 33425, which has a double swivel function.
Before use: read instruction manual, and data sheets follow standard safe lifting procedures.

Important Notes

The threaded pin must be completely screwed into the thread and tightened to specified tightening torque and bear completely on the bearing surface.
Quick and easy to use. The shackle pivots. The protective bar prevents unintentional unlocking by a hook or similar.
Use recommended mainly for direct upwards lift (F_1) **as the shackle should be aligned to the direction of lift. Other pins (33425) have a swivel bearing to align shackle. Rotation of loads must be prevented.**
Dimensions in inches

3B430



Material

Steel:
Pin: heat-treated steel, tempered, manganese phosphated.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: steel, heat-treated, tempered, manganese phosphated.
Press button: aluminium, orange anodised.
Spring: stainless steel.

Stainless steel:
Pin: stainless steel 1.4542, (AISI 630) precipitation hardened.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: stainless steel 1.45471.
Press button: aluminium, orange anodised.
Spring: stainless steel.

Technical Notes

To suit inch coarse threads, tolerance g6. CE marked. Both types are corrosion protected. The stainless steel pin is resistant to corrosion and weathering, so suitable for external use.
The instruction manual and CE Declaration of Conformity are included.
F_1* and F_3* values are inscribed on the body for reference. F values are calculated on 5 x safety factor.
Depress button: to unlock.
Release button: to lock.
Max temp. 482ºF 250ºC.

Tips

The pin is ideally used for single point straight up lifts. The bottom face of the pin must be in full contact with the part to be lifted.
The pin can also be used with forces F_2 and F_3 after ensuring that the shackle direction is aligned to the direction of the pull. The preferred part for these types of lifts is part 33425, which has a double swivel function.
Before use: read instruction manual, and data sheets follow standard safe lifting procedures.

Important Notes

The threaded pin must be completely screwed into the thread and tightened to specified tightening torque and bear completely on the bearing surface.
Quick and easy to use. The shackle pivots. The protective bar prevents unintentional unlocking by a hook or similar.
Use recommended mainly for direct upwards lift (F_1) **as the shackle should be aligned to the direction of lift. Other pins (33425) have a swivel bearing to align shackle. Rotation of loads must be prevented.**
Dimensions in inches

Wixroyd Threaded Quick Lifting Pins

product overview

Danger!

Threaded quick lift pins are designed to lift and hold point loads not people.

Threaded quick lift pins are not suited for rotating loads.

Dirt and debris etc can affect the performance of the pins.

Using damaged threaded pins can be very dangerous. Before each use carefully inspect the pins (damage, deformities, signs of stress, corrosion, check unlocking and locking function, loss of thread elements etc. Check full movement of shackle. Withdraw any defective pins from service immediately.

Threaded lifting pins must be screwed in fully with the shoulder in full contact with the load face.

To release the threaded elements, press button A. To lock, release button A.

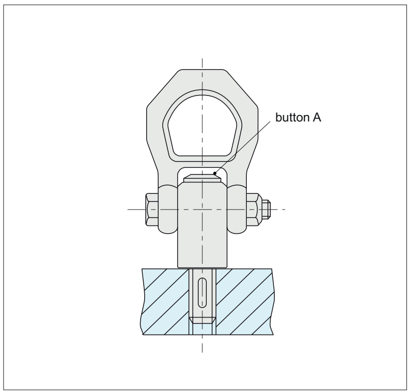
The load figures F_1, F_2 and F_3 apply only to lifting applications used with a steel component.

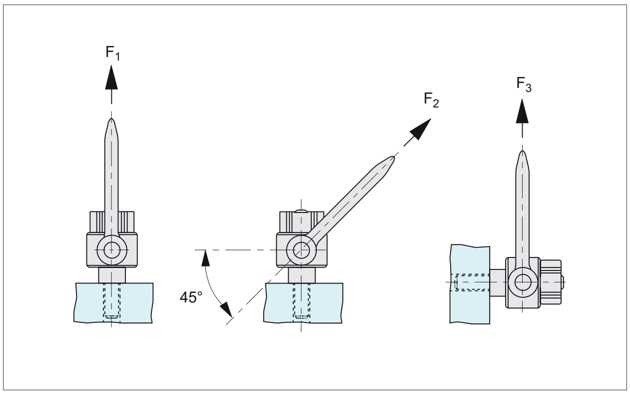
Inspect before and after every use. For maintenance – take the out of service after 12 months for inspection by qualified personnel.

Operating Instructions 33425, 33430 (metric), 3B425 & 3B430 (inch).

- Ensure all lifting pins are CE marked.
- Ensure they are handled by qualified personnel.
- Refer to the operating instructions particularly with regards to product selection, any possibility of the load swivelling, the effect of lifting angles on the load capacity (see relevant tables), etc.
- Never allow any personnel underneath a suspended load.
- Always heed the load rating of the lifting pin.
- Always perform a visual inspection of the lifting pins prior to use. Checking for any damage to thread and/or swivelling system. Check for wear or corrosion, signs of stress or bending.
- Ensure a yearly full service inspection is performed.
- Always ensure the full bottom face of the lifting pin shoulder is in contact with a smooth, square surface.
- Ensure full and unrestricted movement of the lifting pin in all directions.
- Before each lift ensure the correct orientation of the shackle in the lift direction.
- Avoid using our standard steel lifting pins in corrosive environments eg. sandy, chemical, acid, moisture etc. In this case consider using our stainless steel lifting pins.

Notes

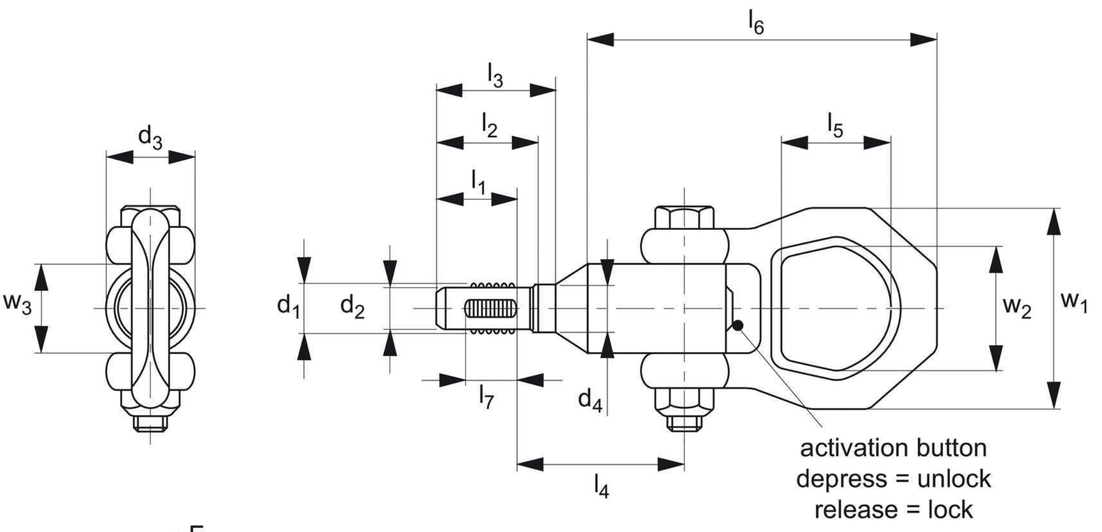


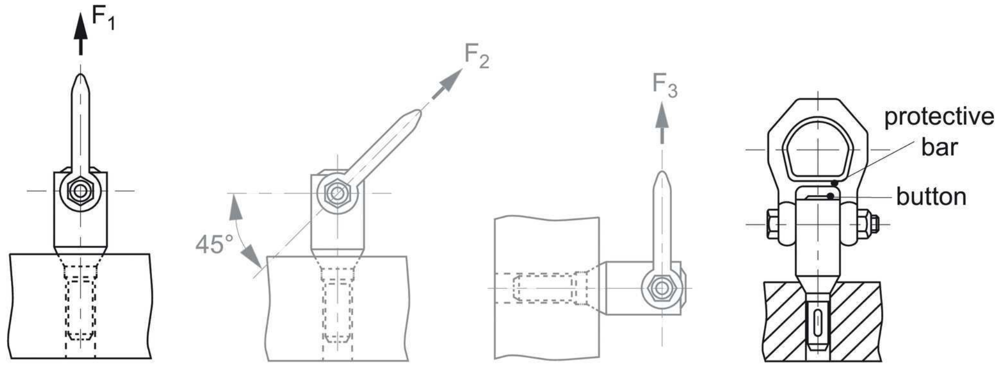


Quick Lift Pins - Threaded

with centering - metric

33435





Order No.	Type	d_1	d_2 -0,07	d_3	d_4	l_1	l_2	l_3	l_4	g
33435.W2010	Steel	M10	8,4	21,5	10,2	16,0	20,0	22,9	36,4	234
33435.W2012	Steel	M12	10,1	21,5	12,7	19,0	24,0	28,1	39,1	249
33435.W2016	Steel	M16	13,8	21,5	16,7	19,0	25,0	30,5	42,3	271
33435.W2020	Steel	M20	17,8	30,0	20,7	25,0	31,8	39,1	53,7	554
33435.W2024	Steel	M24	20,7	36,0	24,7	31,0	38,9	47,3	61,4	1234
33435.W3010	Stainless Steel	M10	8,4	21,5	10,2	16,0	20,0	22,9	36,4	235
33435.W3012	Stainless Steel	M12	10,1	21,5	12,7	19,0	24,0	28,1	39,1	248
33435.W3016	Stainless Steel	M16	13,8	21,5	16,7	19,0	25,0	30,5	42,3	269
33435.W3020	Stainless Steel	M20	17,8	30,0	20,7	25,0	31,8	39,1	53,7	555
33435.W3024	Stainless Steel	M24	20,7	36,0	24,7	31,0	38,9	47,3	61,4	1264

Order No.	l_5	l_6	l_7	w_1	w_2	w_3	F_1* kN.	F_2* kN.	F_3* kN.	Locating thread
33435.W2010	27,0	83,6	10	49	30,0	21,5	3,9	1,5	1,5	M10
33435.W2012	27,0	84,3	12	49	30,0	21,5	6,2	2,5	2,3	M12
33435.W2016	27,0	88,5	12	49	30,0	21,5	8,4	4,5	4,2	M16
33435.W2020	32,6	109,2	17	56	36,0	30,0	16,6	7,7	5,8	M20
33435.W2024	50,6	145,4	22	82	49,8	36,0	23,0	11,1	8,6	M24
33435.W3010	27,0	83,6	10	49	30,0	21,5	3,9	1,5	1,5	M10
33435.W3012	27,0	84,3	12	49	30,0	21,5	6,2	2,5	2,3	M12
33435.W3016	27,0	88,5	12	49	30,0	21,5	8,4	4,5	4,2	M16
33435.W3020	32,6	109,2	17	56	36,0	30,0	10,0	7,7	5,8	M20
33435.W3024	50,6	145,4	22	82	49,8	36,0	23,0	11,1	8,6	M24

Material

Steel:
Pin: heat-treated steel, tempered, manganese phosphated.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: steel, heat-treated, tempered, manganese phosphated.
Press button: aluminium, orange anodised.
Spring: stainless steel.

Stainless steel:
Pin: stainless steel 1.4542, (AISI 630) precipitation hardened.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: stainless steel 1.45471.
Press button: aluminium, orange anodised.
Spring: stainless steel.

Technical Notes

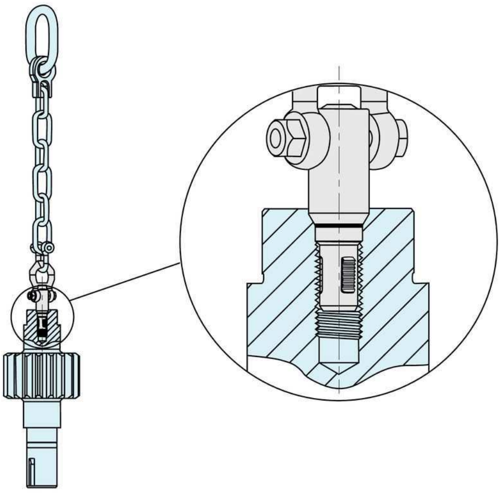
To suit metric coarse threads, tolerance g6. CE marked. Both types are corrosion protected. The stainless steel pin is resistant to corrosion and weathering, so suitable for external use.
The instruction manual and CE Declaration of Conformity are included.
F_1* and F_3* values are inscribed on the body for reference. F values are calculated on 5 x safety factor.
Depress button: to unlock.
Release button: to lock.
Max temp. 250ºC.

Tips

For holes with counterbore to DIN 332. The pin is ideally used for single point straight up lifts. The bottom face of the pin must be in full contact with the part to be lifted. The pin can also be used with forces F_2 and F_3 after ensuring that the shackle direction is aligned to the direction of the pull. The preferred part for these types of lifts is part 33425, which has a double swivel function.
Before use: read instruction manual, and data sheets follow standard safe lifting procedures.

Important Notes

The threaded pin must be completely screwed into the thread and tightened to specified tightening torque and bear completely on the bearing surface. Quick and easy to use. The shackle pivots. The protective bar prevents unintentional unlocking by a hook or similar.
Use recommended mainly for direct upwards lift (F_1) **as the shackle should be aligned to the direction of lift. Other pins (33425) have a swivel bearing to align shackle. Rotation of loads must be prevented.**



Material

Steel:
Pin: heat-treated steel, tempered, manganese phosphated.
Threaded element: stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: steel, heat-treated, tempered, manganese phosphated.
Press button: aluminium, orange anodised.
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The instruction manual and CE Declaration of Conformity are included.
F_1* and F_3* values are inscribed on the body for reference. F values are calculated on 5 x safety factor.
Depress button: to unlock.
Release button: to lock.
Max temp. 250ºC.

Tips

For holes with counterbore to DIN 332. The pin is ideally used for single point straight up lifts. The bottom face of the pin must be in full contact with the part to be lifted. The pin can also be used with forces F_2 and F_3 after ensuring that the shackle direction is aligned to the direction of the pull. The preferred part for these types of lifts is part 33425, which has a double swivel function.
Before use: read instruction manual, and data sheets follow standard safe lifting procedures.

Important Notes

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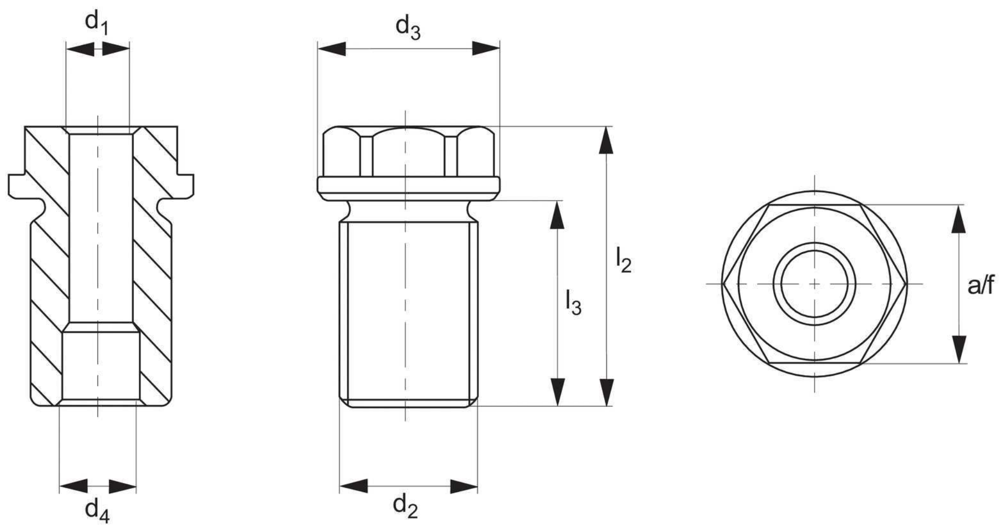
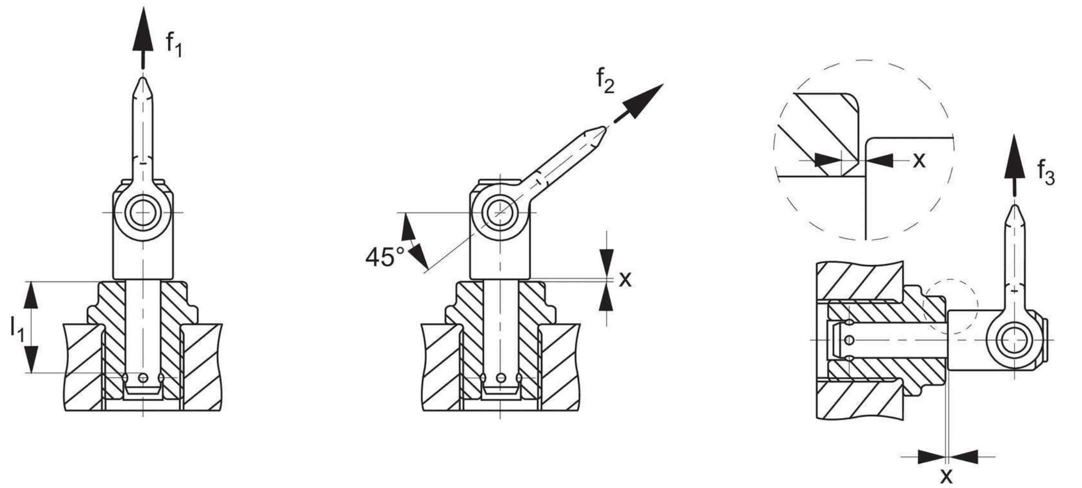




Material

Body: stainless steel 1.4542 (AISI 630), precipitation hardened.

Technical Notes

Locating bushes are used for quick and safe locating of lifting pins 33400 and 33420.
Provides easy and safe assembly, and can be incorporated into a variety of materials. Can be used in thin-walled parts and in blind holes.

Important Notes

Lifting forces f_1 to f_3, have a 5 fold in-built safety factor.
Due to the radius on the underside of the lifting face, please ensure $x_{min.}$ is $x_{max.}$ to avoid stress on pin when used as angle lift. See product table for details.

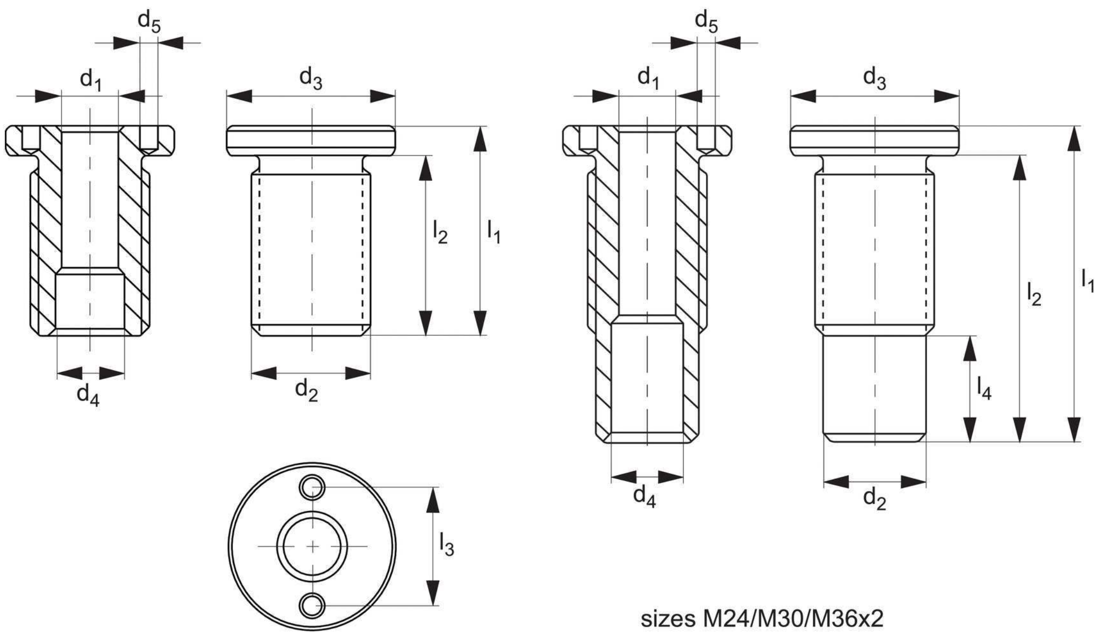
STAINLESS STEEL 630

Order No.	d_1 H11	For nom. pin length l_1	d_2	d_3 -0,2	d_4 +0,3	l_2	l_3	a/f	x*	f_1* kN.	f_2* kN.	f_3* kN.	Start torque max. Nm.	For lifting pin 33400/33420	g
33440.W0900	8	10	M16x1,5	24	9,8	27,5	20	19	1,5	1,5	1,2	0,5	90	.W0601/.W0701	32
33440.W0902	8	15	M16x1,5	24	9,8	27,5	20	19	1,5	1,5	1,2	0,5	90	.W0602/.W0702	33
33440.W0904	8	25	M16	24	9,8	37,5	25	19	1,5	1,5	1,2	0,5	75	.W0604/.W0704	46
33440.W0906	8	35	M16	24	9,8	47,5	35	19	1,5	1,5	1,2	0,5	75	.W0606/.W0706	55
33440.W0910	10	15	M20x1,5	28	12,2	35,5	24	24	1,0	2,7	2,4	2,1	145	.W0621/.W0721	70
33440.W0912	10	25	M20x1,5	28	12,2	35,5	24	24	1,0	2,7	2,4	2,1	145	.W0623/.W0723	73
33440.W0914	10	35	M20	28	12,2	46,0	29	24	1,0	2,7	2,4	2,1	130	.W0625/.W0725	93
33440.W0916	10	50	M20	28	12,2	65,0	49	24	1,0	2,7	2,4	2,1	130	.W0627/.W0727	117
33440.W0920	12	15	M24x1,5	32	14,7	35,5	24	27	1,0	3,5	3,2	2,8	220	.W0631/.W0731	94
33440.W0922	12	25	M24x1,5	32	14,7	36,5	24	27	1,0	3,5	3,2	2,8	220	.W0633/.W0733	102
33440.W0924	12	35	M24	32	14,7	48,5	36	27	1,0	3,5	3,2	2,8	200	.W0635/.W0735	119
33440.W0926	12	50	M24	32	14,7	72,5	60	27	1,0	3,5	3,2	2,8	200	.W0637/.W0737	164
33440.W0930	16	25	M30x2,0	39	19,2	44,0	29	30	1,0	4,8	4,5	4,1	440	.W0641/.W0741	163
33440.W0934	16	50	M30	39	19,2	66,0	44	30	1,0	4,8	4,5	4,1	400	.W0643/.W0743	236
33440.W0936	16	75	M30	39	19,2	96,0	74	30	1,0	4,8	4,5	4,1	400	.W0645/.W0745	323
33440.W0954	20	50	M36x2,0	43	26,0	70,0	55	36	1,5	10,0	8,5	6,5	440	.W0673/.W0773	366
33440.W0956	20	75	M36x2,0	43	26,0	95,0	80	36	1,5	10,0	8,5	6,5	440	.W0673/.W0775	503

Locating Bushes, Plain

for quick lift pins no.'s 33400 and 33420

33442



Order No.	For nom. pin dia d_1	For nom. pin length	d_{1H11}	d_2	$d_{3-0,2}$	$d_{4+0,3}$	$d_{5+0,1}$	l_1	g
33442.W1900	8	10	8	M16 x 1,5	24	9,8	3,1	25	33
33442.W1902	8	15	8	M16 x 1,5	24	9,8	3,1	25	33
33442.W1904	8	25	8	M16	24	9,8	3,1	35	33
33442.W1906	8	35	8	M16	24	9,8	3,1	45	33
33442.W1910	10	15	10	M20 x 1,5	28	12,2	5,1	30	70
33442.W1912	10	25	10	M20 x 1,5	28	12,2	5,1	35	70
33442.W1914	10	35	10	M20	28	12,2	5,1	45	70
33442.W1916	10	50	10	M20	28	12,2	5,1	60	70
33442.W1920	12	15	12	M24 x 1,5	32	14,7	5,1	32	94
33442.W1922	12	25	12	M24 x 1,5	32	14,7	5,1	40	94
33442.W1924	12	35	12	M24	32	14,7	5,1	50	94
33442.W1926	12	50	12	M24	32	14,7	5,1	65	94
33442.W1930	16	25	16	M30 x 2	39	19,2	5,1	45	163
33442.W1934	16	50	16	M30	39	19,2	5,1	65	163
33442.W1936	16	75	16	M30	39	19,2	5,1	90	163
33442.W1954	20	50	20	M36 x 2	43	26,0	5,1	70	340
33442.W1956	20	75	20	M36 x 2	43	26,0	5,1	95	340
33442.W9095	Inst. tool for 33442.W1900 to .W1906	-	-	-	-	-	-	-	-
33442.W9096	Inst. tool for 33442.W1910 to .W1916	-	-	-	-	-	-	-	-
33442.W9097	Inst. tool for 33442.W1920 to .W1926	-	-	-	-	-	-	-	-
33442.W9098	Inst. tool for 33442.W1930 to .W1956	-	-	-	-	-	-	-	-
94000.W0061	Inst. tool for 33442.W1900 to .W1906	-	-	-	-	-	-	-	-
94000.W0063	Inst. tool for 33442.W1910 to .W1956	-	-	-	-	-	-	-	-

Order No.	l_2	l_3	l_4	Tightening torque max.	x mm	F_1 kN	F_2 kN	F_3kN	For lifting pin 33400	For lifting pin 33420
33442.W1900	20	16	-	75	1,5	1,5	1,2	0,5	33400.W0601	33420.W0701
33442.W1902	20	16	-	75	1,5	1,5	1,2	0,5	33400.W0602	33420.W0702
33442.W1904	30	16	-	75	1,5	1,5	1,2	0,5	33400.W0604	33420.W0704
33442.W1906	40	16	-	75	1,5	1,5	1,2	0,5	33400.W0606	33420.W0706
33442.W1910	24	20	-	100	1,5	2,7	2,4	2,1	33400.W0621	33420.W0721
33442.W1912	29	20	-	100	1,5	2,7	2,4	2,1	33400.W0623	33420.W0723
33442.W1914	39	20	-	100	1,5	2,7	2,4	2,1	33400.W0625	33420.W0725
33442.W1916	54	20	-	100	1,5	2,7	2,4	2,1	33400.W0627	33420.W0727
33442.W1920	26	22	-	150	1,5	3,5	3,2	2,8	33400.W0631	33420.W0731
33442.W1922	34	22	-	150	1,5	3,5	3,2	2,8	33400.W0633	33420.W0733
33442.W1924	44	22	3,8	150	1,5	3,5	3,2	2,8	33400.W0635	33420.W0735
33442.W1926	59	22	18,8	150	1,5	3,5	3,2	2,8	33400.W0637	33420.W0737
33442.W1930	39	30	-	200	1,5	4,8	4,5	4,1	33400.W0641	33420.W0741
33442.W1934	59	30	6,0	200	1,5	4,8	4,5	4,1	33400.W0643	33420.W0743
33442.W1936	84	30	31,0	200	1,5	4,8	4,5	4,1	33400.W0645	33420.W0745

Material

Stainless steel 1.4542, (AISI 630) precipitation hardened.

Technical Notes

Suitable for applications which require installation flush to the surface.
These are used for quick and safe locating of lifting pins.
Corrosion and abrasion resistant.
Reference 'l' indicates nominal length lifitng pin grip length to suit the bush.
See lifting pin ranges 33400 & 33420.

Locating Bushes, Plain

for quick lift pins no.'s 33400 and 33420

33442

Order No.	l_2	l_3	l_4	Tightening torque max.	x mm	F_1 kN	F_2 kN	F_3 kN	For lifting pin 33400	For lifting pin 33420
33442.W1954	63	30	3,5	200	1,5	10,0	8,5	6,5	33400.W0673	33420.W0773
33442.W1956	88	30	28,5	200	1,5	10,0	8,5	6,5	33400.W0675	33420.W0775
33442.W9095	-	-	-	-	-	-	-	-	-	-
33442.W9096	-	-	-	-	-	-	-	-	-	-
33442.W9097	-	-	-	-	-	-	-	-	-	-
33442.W9098	-	-	-	-	-	-	-	-	-	-
94000.W0061	-	-	-	-	-	-	-	-	-	-
94000.W0063	-	-	-	-	-	-	-	-	-	-

Material

Stainless steel 1.4542, (AISI 630) precipitation hardened.

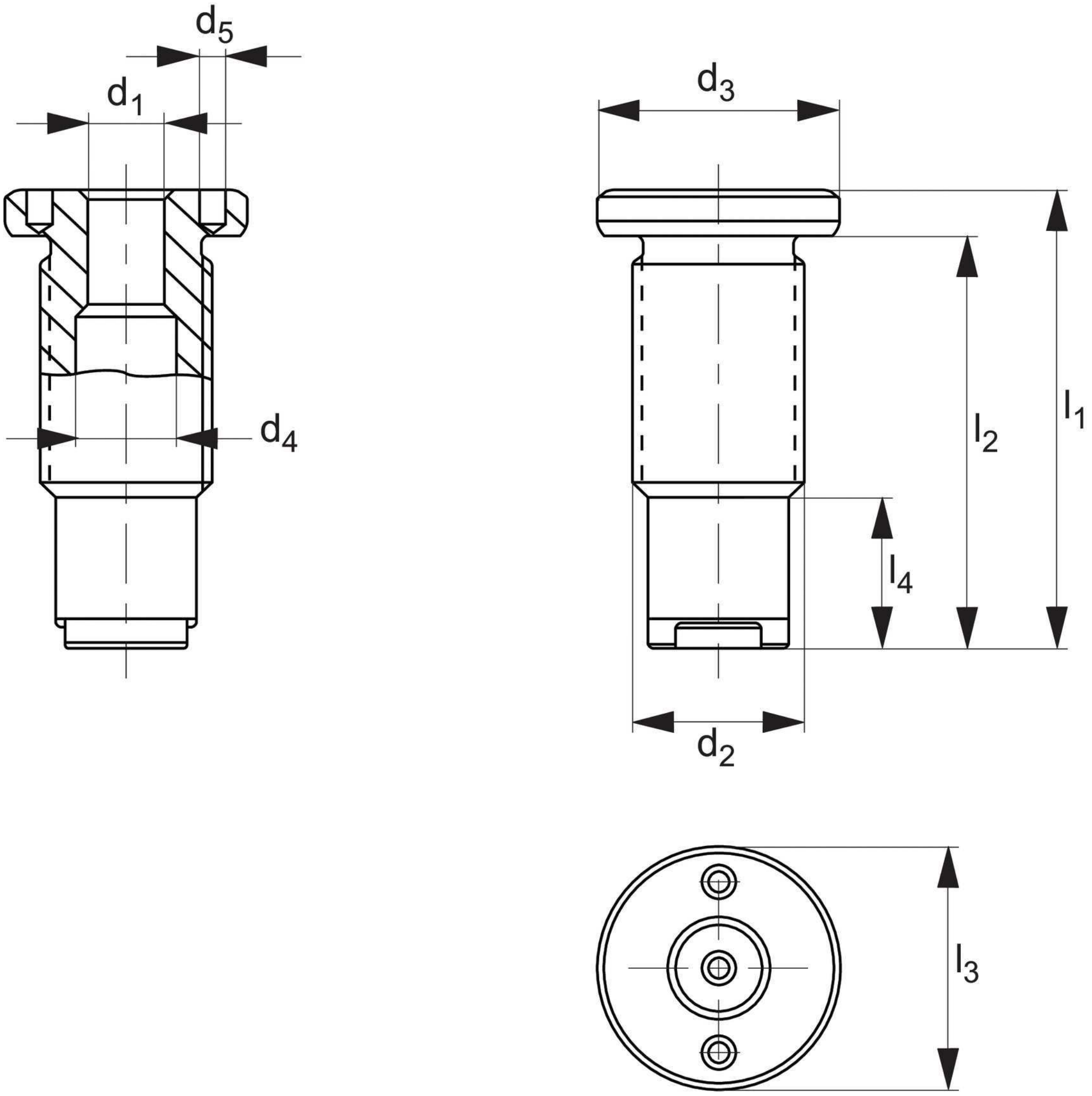
Technical Notes

Suitable for applications which require installation flush to the surface.
These are used for quick and safe locating of lifting pins.
Corrosion and abrasion resistant.
Reference 'l' indicates nominal length lifitng pin grip length to suit the bush.
See lifting pin ranges 33400 & 33420.

Locating Bushes with seal - for Quick Lift Pins

stainless steel hardened

33444



Material

Body: stainless steel 1.4542 (AISI 630), precipitation hardened.
O-Ring: NBR rubber.
Spring: stainless steel.

Technical Notes

Ideal for outdoor use as seal prevents ingress of liquid or dirt.
Locating bushes are used for quick and safe locating of lifting pins 33400 and 33420.
Provides easy and safe assembly, and can be incorporated into a variety of materials. Can be used in thin-walled parts and in blind holes.

Tips

Installaton using:
33442 Instal tool for bushing

Important Notes

Lifting forces f_{1*}, f_{2*}, f_{3*} have a 5 fold in-built safety factor.

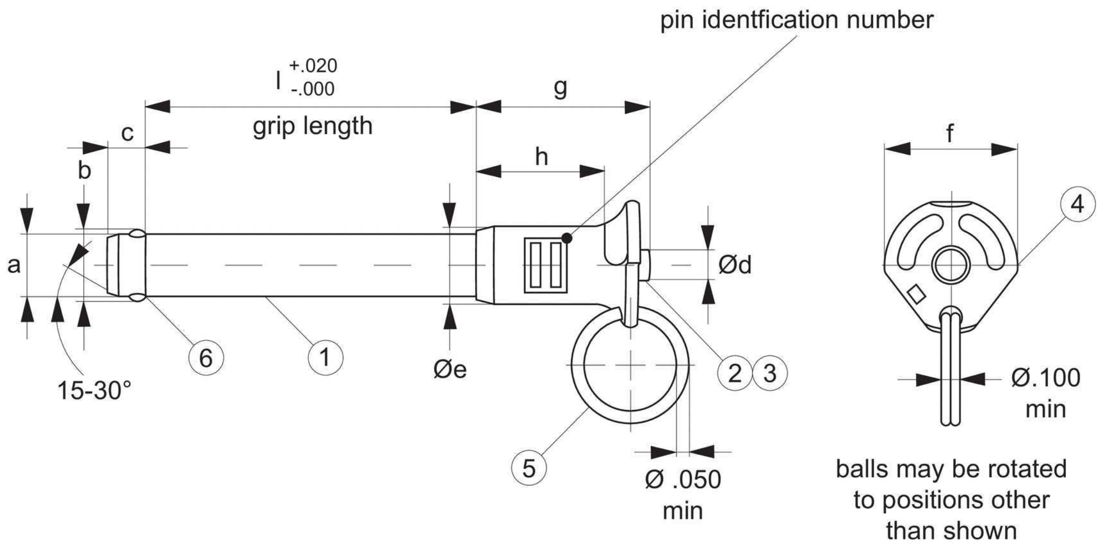
STAINLESS STEEL 630

Order No.	d_1	d_2	d_3	f_{1*} kN	f_{2*} kN	f_{3*} kN	d_4	d_5	l_1	l_2	l_3	l_4	Tightening torque max, Nm	For lifting pin 33400/33420	g
33444.W1960	8	M16X1,5	24	1,5	1,2	0,5	9,9	3,1	37,5	32,5	16	12,5	75	.W0601/.W0701	40
33444.W1961	10	M20X1,5	28	2,7	2,4	2,1	12,3	5,1	51,0	45,0	20	21,0	100	.W0621/.W0721	82
33444.W1962	12	M24X1,5	32	3,5	0,2	2,8	14,4	5,1	53,0	47,0	22	21,0	150	.W0631/.W0731	125
33444.W1963	16	M30X2,0	39	4,8	4,5	4,1	19,3	5,1	78,0	72,0	30	33,0	200	.W0641/.W0741	252

Aviation Pip-Pin - Standard B Handle

single acting - quick release pins

33600



all dimensions imperial

Order No.	Nom. dia. Ø	Grip l	b	c	Ø d max.	Ø e max.	g
33600.A005	3/16	0,5	0,220	0,26	0,31	0,44	17
33600.A006	3/16	0,6	0,220	0,26	0,31	0,44	17
33600.A007	3/16	0,7	0,220	0,26	0,31	0,44	17
33600.A008	3/16	0,8	0,220	0,26	0,31	0,44	18
33600.A010	3/16	1,0	0,220	0,26	0,31	0,44	18
33600.A011	3/16	1,1	0,220	0,26	0,31	0,44	19
33600.A013	3/16	1,3	0,220	0,26	0,31	0,44	19
33600.A015	3/16	1,5	0,220	0,26	0,31	0,44	20
33600.A018	3/16	1,8	0,220	0,26	0,31	0,44	21
33600.A020	3/16	2,0	0,220	0,26	0,31	0,44	22
33600.B007	1/4	0,7	0,289	0,29	0,31	0,44	20
33600.B008	1/4	0,8	0,289	0,29	0,31	0,44	20
33600.B010	1/4	1,0	0,289	0,29	0,31	0,44	22
33600.B011	1/4	1,1	0,289	0,29	0,31	0,44	22
33600.B012	1/4	1,2	0,289	0,29	0,31	0,44	24
33600.B014	1/4	1,4	0,289	0,29	0,31	0,44	24
33600.B018	1/4	1,8	0,289	0,29	0,31	0,44	26
33600.B019	1/4	1,9	0,289	0,29	0,31	0,44	27
33600.B020	1/4	2,0	0,289	0,29	0,31	0,44	27
33600.B023	1/4	2,3	0,289	0,29	0,31	0,44	29
33600.B025	1/4	2,5	0,289	0,29	0,31	0,44	32
33600.B028	1/4	2,8	0,289	0,29	0,31	0,44	32
33600.B029	1/4	2,9	0,289	0,29	0,31	0,44	33
33600.B064	1/4	6,4	0,289	0,29	0,31	0,44	59
33600.C008	5/16	0,8	0,375	0,33	0,31	0,49	25
33600.C010	5/16	1,0	0,375	0,33	0,31	0,49	28
33600.C012	5/16	1,2	0,375	0,33	0,31	0,49	29
33600.C014	5/16	1,4	0,375	0,33	0,31	0,49	31
33600.C016	5/16	1,6	0,375	0,33	0,31	0,49	33
33600.C017	5/16	1,7	0,375	0,33	0,31	0,49	34
33600.C019	5/16	1,9	0,375	0,33	0,31	0,49	33
33600.C020	5/16	2,0	0,375	0,33	0,31	0,49	36
33600.C022	5/16	2,2	0,375	0,33	0,31	0,49	38
33600.C023	5/16	2,3	0,375	0,33	0,31	0,49	39
33600.C025	5/16	2,5	0,375	0,33	0,31	0,49	43
33600.C029	5/16	2,9	0,375	0,33	0,31	0,49	46
33600.C030	5/16	3,0	0,375	0,33	0,31	0,49	47
33600.C036	5/16	3,6	0,375	0,33	0,31	0,49	53
33600.C049	5/16	4,9	0,375	0,33	0,31	0,49	65
33600.C062	5/16	6,2	0,375	0,33	0,31	0,49	73
33600.C067	5/16	6,7	0,375	0,33	0,31	0,49	85

Order No.	Øf max.	g max.	h min.	Shear resistance double min. lbs.	Location hole Ø max.	MS Part No.
33600.A005	0,800	0,83	0,48	5,150	0,1940	MS17984C305
33600.A006	0,800	0,83	0,48	5,150	0,1940	MS17984C306
33600.A007	0,800	0,83	0,48	5,150	0,1940	MS17984C307
33600.A008	0,800	0,83	0,48	5,150	0,1940	MS17984C308

Material

Shank (part 1) & Spindle (part 2):
CRES 17-4PH (AMS 5643), heat treated per MIL-H-6875, condition H900, min. 40 HRC, passivated per AMS2700
Spring (part 3, not shown):
CRES 302 (ASTM-A-313), heat treated per MIL-H-6875, passivated per AMS2700
Handle (part 4):
A380 (QQ-A-591), anodized (black) per MIL-A-8625
Attaching ring (part 5):
CRES 302 (ASTM-A-313), passivated per AMS2700
Ball (locking element, part 6):
CRES CL440C (AMS5630), heat treated per MIL-H-6875, passivated per AMS2700

Technical Notes

Wixroyd Aviation Pip-Pins manufactured to Aviation Norm NASM 17984 (former norm: MS 17984) and tested to NAS 1332. Manufacture certified & assessed to EN9100D by EASE (European Aerospace Supplier Evaluation).
Temp. range -22°F to 302°F

Pressing = unlocking.
Releasing = locking.
Pip-Pins are used for frequently repeated operations such as quick fastening, locking, adjusting, changing and securing.
All dimensions shown are imperial.

Tips

We can manufacture specials (both metric & imperial) to your drawing, and are certified to produce to NASM standards.
Wixroyd Aviation Pip-Pins can be produced within the following dimensions:
+ diameter: from 3/16" to 1"
+ grip length: from 0.3" to 9.9"
Quick production time on small batches.

Referral

For non-aviation pip-pin equivalents please refer to our product range 33060 to 33230.

AVIATION CERTIFIED NASM STD. NAS TESTED

Aviation Pip-Pin - Standard B Handle

single acting - quick release pins

33600

Order No.	Øf max.	g max.	h min.	Shear resistance double min. lbs.	Location hole Ø max.	MS Part No.
33600.A010	0,800	0,83	0,48	5,150	0,1940	MS17984C310
33600.A011	0,800	0,83	0,48	5,150	0,1940	MS17984C311
33600.A013	0,800	0,83	0,48	5,150	0,1940	MS17984C313
33600.A015	0,800	0,83	0,48	5,150	0,1940	MS17984C315
33600.A018	0,800	0,83	0,48	5,150	0,1940	MS17984C318
33600.A020	0,800	0,83	0,48	5,150	0,1940	MS17984C320
33600.B007	0,800	0,89	0,48	9,200	0,2540	MS17984C407
33600.B008	0,800	0,89	0,48	9,200	0,2540	MS17984C408
33600.B010	0,800	0,89	0,48	9,200	0,2540	MS17984C410
33600.B011	0,800	0,89	0,48	9,200	0,2540	MS17984C411
33600.B012	0,800	0,89	0,48	9,200	0,2540	MS17984C412
33600.B014	0,800	0,89	0,48	9,200	0,2540	MS17984C414
33600.B018	0,800	0,89	0,48	9,200	0,2540	MS17984C418
33600.B019	0,800	0,89	0,48	9,200	0,2540	MS17984C419
33600.B020	0,800	0,89	0,48	9,200	0,2540	MS17984C410
33600.B023	0,800	0,89	0,48	9,200	0,2540	MS17984C423
33600.B025	0,800	0,89	0,48	9,200	0,2540	MS17984C425
33600.B028	0,800	0,89	0,48	9,200	0,2540	MS17984C428
33600.B029	0,800	0,89	0,48	9,200	0,2540	MS17984C429
33600.B064	0,800	0,89	0,48	9,200	0,2540	MS17984C464
33600.C008	1,135	0,93	0,48	14,400	0,3165	MS17984C508
33600.C010	1,135	0,93	0,48	14,400	0,3165	MS17984C510
33600.C012	1,135	0,93	0,48	14,400	0,3165	MS17984C512
33600.C014	1,135	0,93	0,48	14,400	0,3165	MS17984C514
33600.C016	1,135	0,93	0,48	14,400	0,3165	MS17984C516
33600.C017	1,135	0,93	0,48	14,400	0,3165	MS17984C517
33600.C019	1,135	0,93	0,48	14,400	0,3165	MS17984C519
33600.C020	1,135	0,93	0,48	14,400	0,3165	MS17984C520
33600.C022	1,135	0,93	0,48	14,400	0,3165	MS17984C522
33600.C023	1,135	0,93	0,48	14,400	0,3165	MS17984C523
33600.C025	1,135	0,93	0,48	14,400	0,3165	MS17984C525
33600.C029	1,135	0,93	0,48	14,400	0,3165	MS17984C529
33600.C030	1,135	0,93	0,48	14,400	0,3165	MS17984C530
33600.C036	1,135	0,93	0,48	14,400	0,3165	MS17984C536
33600.C049	1,135	0,93	0,48	14,400	0,3165	MS17984C549
33600.C062	1,135	0,93	0,48	14,400	0,3165	MS17984C562
33600.C067	1,135	0,93	0,48	14,400	0,3165	MS17984C567

Material

Shank (part 1) & Spindle (part 2):
CRES 17-4PH (AMS 5643), heat treated per MIL-H-6875, condition H900, min. 40 HRC, passivated per AMS2700
Spring (part 3, not shown):
CRES 302 (ASTM-A-313), heat treated per MIL-H-6875, passivated per AMS2700
Handle (part 4):
A380 (QQ-A-591), anodized (black) per MIL-A-8625
Attaching ring (part 5):
CRES 302 (ASTM-A-313), passivated per AMS2700
Ball (locking element, part 6):
CRES CL440C (AMS5630), heat treated per MIL-H-6875, passivated per AMS2700

Technical Notes

Wixroyd Aviation Pip-Pins manufactured to Aviation Norm NASM 17984 (former norm: MS 17984) and tested to NAS 1332. Manufacture certified & assessed to EN9100D by EASE (European Aerospace Supplier Evaluation).
Temp. range -22°F to 302°F

Pressing = unlocking.
Releasing = locking.
Pip-Pins are used for frequently repeated operations such as quick fastening, locking, adjusting, changing and securing.
All dimensions shown are imperial.

Tips

We can manufacture specials (both metric & imperial) to your drawing, and are certified to produce to NASM standards.
Wixroyd Aviation Pip-Pins can be produced within the following dimensions:
+ diameter: from 3/16" to 1"
+ grip length: from 0.3" to 9.9"
Quick production time on small batches.

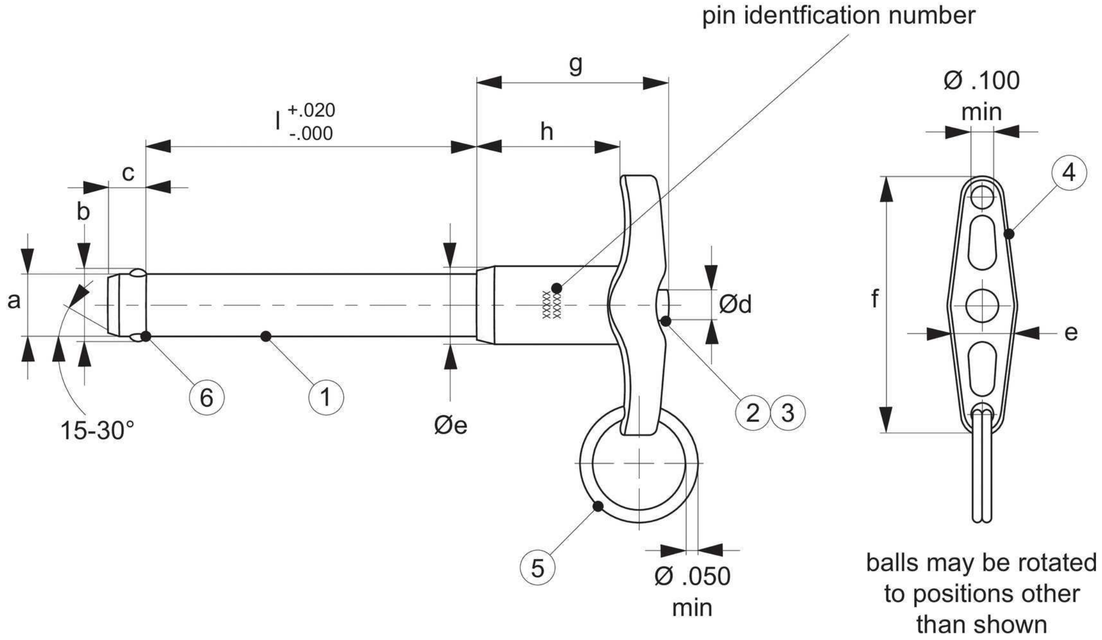
Referral

For non-aviation pip-pin equivalents please refer to our product range 33060 to 33230.

Aviation Pip-Pin - Standard T-Handle

single acting - quick release pins - according to NASM 17985

33610



Order No.	Nom. dia. Ø "	Grip l "	b	c	Ø d max.	Ø e max.	g
33610.A003	3/16	0,3	,220	,260	,310	0,500	24
33610.A005	3/16	0,5	,220	,260	,310	0,500	24
33610.A008	3/16	0,8	,220	,260	,310	0,500	25
33610.A012	3/16	1,2	,220	,260	,310	0,500	26
33610.A013	3/16	1,3	,220	,260	,310	0,500	27
33610.A014	3/16	1,4	,220	,260	,310	0,500	27
33610.A026	3/16	2,6	,220	,260	,310	0,500	33
33610.B005	1/4	0,5	,289	,290	,310	0,500	26
33610.B009	1/4	0,9	,289	,290	,310	0,500	27
33610.B011	1/4	1,1	,289	,290	,310	0,500	28
33610.B012	1/4	1,2	,289	,290	,310	0,500	30
33610.B013	1/4	1,3	,289	,290	,310	0,500	30
33610.B015	1/4	1,5	,289	,290	,310	0,500	32
33610.B016	1/4	1,6	,289	,290	,310	0,500	33
33610.B021	1/4	2,1	,289	,290	,310	0,500	36
33610.B026	1/4	2,6	,289	,290	,310	0,500	40
33610.B028	1/4	2,8	,289	,290	,310	0,500	41
33610.B040	1/4	4,0	,289	,290	,310	0,500	49
33610.C003	5/16	0,3	,375	,330	,310	0,500	27
33610.C006	5/16	0,6	,375	,330	,310	0,500	30
33610.C010	5/16	1,0	,375	,330	,310	0,500	34
33610.C013	5/16	1,3	,375	,330	,310	0,500	36
33610.C015	5/16	1,5	,375	,330	,310	0,500	39
33610.C016	5/16	1,6	,375	,330	,310	0,500	39
33610.C018	5/16	1,8	,375	,330	,310	0,500	41
33610.C020	5/16	2,0	,375	,330	,310	0,500	43
33610.C023	5/16	2,3	,375	,330	,310	0,500	45
33610.C029	5/16	2,9	,375	,330	,310	0,500	52
33610.C030	5/16	3,0	,375	,330	,310	0,500	53
33610.C033	5/16	3,3	,375	,330	,310	0,500	56
33610.C040	5/16	4,0	,375	,330	,310	0,500	62
33610.C050	5/16	5,0	,375	,330	,310	0,500	75
33610.C064	5/16	6,4	,375	,330	,310	0,500	89
33610.C070	5/16	7,0	,375	,330	,310	0,500	93
33610.D005	3/8	0,5	,440	,365	,390	0,625	43
33610.D010	3/8	1,0	,440	,365	,390	0,625	48
33610.D012	3/8	1,2	,440	,365	,390	0,625	55
33610.D015	3/8	1,5	,440	,365	,390	0,625	57
33610.D016	3/8	1,6	,440	,365	,390	0,625	58
33610.D020	3/8	2,0	,440	,365	,390	0,625	60
33610.D024	3/8	2,4	,440	,365	,390	0,625	69
33610.D025	3/8	2,5	,440	,365	,390	0,625	72
33610.D026	3/8	2,6	,440	,365	,390	0,625	72
33610.D028	3/8	2,8	,440	,365	,390	0,625	72
33610.D031	3/8	3,1	,440	,365	,390	0,625	80
33610.D032	3/8	3,2	,440	,365	,390	0,625	80

Material

Shank (part 1) & spindle (part 2):
CRES 17-4PH (AMS 5643), heat treated per MIL-H-6875, condition H900, min. 40 HRC, passivated per AMS2700.
Spring (part 3, not shown):
CRES 302 (ASTM-A-313), heat treated per MIL-H-6875, passivated per AMS2700.
Handle (part 4):
A380 (QQ-A-591), anodized (black) per MIL-A-8625.
Attaching ring (part 5):
CRES 302 (ASTM-A-313), passivated per AMS2700.
Ball (locking element, part 6):
CRES CL440C (AMS5630), heat treated per MIL-H-6875, passivated per AMS2700.

Technical Notes

Wixroyd Aviation Pip-pins manufactured to Aviation Norm NASM 17985 (former norm: MS 17985) and tested to NAS 1332. Manufacture certified & assessed to EN9100D by EASE (European Aerospace Supplier Evaluation).
Temp. range -22°F to 302°F

Pressing = unlocking.
Releasing = locking.
Pip-pins are used for frequently repeated operations such as quick fastening, locking, adjusting, changing and securing.
All dimensions shown are imperial.

Tips

We can manufacture specials (both metric & imperial) to your drawing, and are certified to produce to NASM standards.
Wixroyd Aviation Pip-Pins can be produced within the following dimensions:
+ diameter: from 3/16" to 1"
+ grip length: from 0.3" to 9.9"
Quick production time on small batches.

Referral

For non-aviation pip-pin equivalents please refer to our product range 33060 to 33230.

NASM STD. NAS TESTED AVIATION CERTIFIED

Aviation Pip-Pin - Standard T-Handle

single acting - quick release pins - according to NASM 17985

33610

Order No.	Nom. dia. Ø "	Grip l "	b	c	Ø d max.	Ø e max.	g
33610.D035	3/8	3,5	,440	,365	,390	0,625	85
33610.D040	3/8	4,0	,440	,365	,390	0,625	91
33610.D045	3/8	4,5	,440	,365	,390	0,625	100
33610.E012	7/16	1,2	,509	,380	,390	0,625	60
33610.E018	7/16	1,8	,509	,380	,390	0,625	69
33610.E023	7/16	2,3	,509	,380	,390	0,625	82
33610.E024	7/16	2,4	,509	,380	,390	0,625	80
33610.E026	7/16	2,6	,509	,380	,390	0,625	90
33610.E029	7/16	2,9	,509	,380	,390	0,625	93
33610.E040	7/16	4,0	,509	,380	,390	0,625	113
33610.E042	7/16	4,2	,509	,380	,390	0,625	117
33610.E055	7/16	5,5	,509	,380	,390	0,625	145
33610.E072	1/2	7,2	,594	,460	,390	0,625	176
33610.F010	1/2	1,0	,594	,460	,565	0,800	82
33610.F012	1/2	1,2	,594	,460	,565	0,800	87
33610.F014	1/2	1,4	,594	,460	,565	0,800	94
33610.F015	1/2	1,5	,594	,460	,565	0,800	94
33610.F019	1/2	1,9	,594	,460	,565	0,800	106
33610.F020	1/2	2,0	,594	,460	,565	0,800	108
33610.F024	1/2	2,4	,594	,460	,565	0,800	117
33610.F029	1/2	2,9	,594	,460	,565	0,800	130
33610.F031	1/2	3,1	,594	,460	,565	0,800	135
33610.F036	1/2	3,6	,594	,460	,565	0,800	147
33610.F037	1/2	3,7	,594	,460	,565	0,800	146
33610.F040	1/2	4,0	,594	,460	,565	0,800	156
33610.F047	1/2	4,7	,594	,460	,565	0,800	177
33610.F048	1/2	4,8	,594	,460	,565	0,800	179
33610.F064	1/2	6,4	,594	,460	,565	0,800	218
33610.G017	9/16	1,7	,666	,510	,565	0,800	120
33610.G032	9/16	3,2	,666	,510	,565	0,800	160
33610.G036	9/16	3,6	,666	,510	,565	0,800	176
33610.G040	9/16	4,0	,666	,510	,565	0,800	190
33610.G061	9/16	6,1	,666	,510	,565	0,800	252

Order No.	Øf max.	g max.	h min.	Shear resistance double min. lbs.	Location hole Ø max.	MS Part No.
33610.A003	1,815	1,27	0,800	5,150	0,1940	MS17985C303
33610.A005	1,815	1,27	0,800	5,150	0,1940	MS17985C305
33610.A008	1,815	1,27	0,800	5,150	0,1940	MS17985C308
33610.A012	1,815	1,27	0,800	5,150	0,1940	MS17985C312
33610.A013	1,815	1,27	0,800	5,150	0,1940	MS17985C313
33610.A014	1,815	1,27	0,800	5,150	0,1940	MS17985C314
33610.A026	1,815	1,27	0,800	5,150	0,1940	MS17985C326
33610.B005	1,815	1,27	0,800	9,200	0,2540	MS17985C405
33610.B009	1,815	1,27	0,800	9,200	0,2540	MS17985C409
33610.B011	1,815	1,27	0,800	9,200	0,2540	MS17985C411
33610.B012	1,815	1,27	0,800	9,200	0,2540	MS17985C412
33610.B013	1,815	1,27	0,800	9,200	0,2540	MS17985C413
33610.B015	1,815	1,27	0,800	9,200	0,2540	MS17985C415
33610.B016	1,815	1,27	0,800	9,200	0,2540	MS17985C416
33610.B021	1,815	1,27	0,800	9,200	0,2540	MS17985C421
33610.B026	1,815	1,27	0,800	9,200	0,2540	MS17985C426
33610.B028	1,815	1,27	0,800	9,200	0,2540	MS17985C428
33610.B040	1,815	1,27	0,800	9,200	0,2540	MS17985C440
33610.C003	1,815	1,27	0,800	14,400	0,3165	MS17985C503
33610.C006	1,815	1,27	0,800	14,400	0,3165	MS17985C506
33610.C010	1,815	1,27	0,800	14,400	0,3165	MS17985C510
33610.C013	1,815	1,27	0,800	14,400	0,3165	MS17985C513
33610.C015	1,815	1,27	0,800	14,400	0,3165	MS17985C515
33610.C016	1,815	1,27	0,800	14,400	0,3165	MS17985C516
33610.C018	1,815	1,27	0,800	14,400	0,3165	MS17985C518
33610.C020	1,815	1,27	0,800	14,400	0,3165	MS17985C520
33610.C023	1,815	1,27	0,800	14,400	0,3165	MS17985C523
33610.C029	1,815	1,27	0,800	14,400	0,3165	MS17985C529
33610.C030	1,815	1,27	0,800	14,400	0,3165	MS17985C530
33610.C033	1,815	1,27	0,800	14,400	0,3165	MS17985C533
33610.C040	1,815	1,27	0,800	14,400	0,3165	MS17985C540
33610.C050	1,815	1,27	0,800	14,400	0,3165	MS17985C550
33610.C064	1,815	1,27	0,800	14,400	0,3165	MS17985C564
33610.C070	1,815	1,27	0,800	14,400	0,3165	MS17985C570
33610.D005	2,065	1,45	0,850	20,700	0,3790	MS17985C605

Material

Shank (part 1) & spindle (part 2):
CRES 17-4PH (AMS 5643), heat treated per MIL-H-6875, condition H900, min. 40 HRC, passivated per AMS2700.
Spring (part 3, not shown):
CRES 302 (ASTM-A-313), heat treated per MIL-H-6875, passivated per AMS2700.
Handle (part 4):
A380 (QQ-A-591), anodized (black) per MIL-A-8625.
Attaching ring (part 5):
CRES 302 (ASTM-A-313), passivated per AMS2700.
Ball (locking element, part 6):
CRES CL440C (AMS5630), heat treated per MIL-H-6875, passivated per AMS2700.

Technical Notes

Wixroyd Aviation Pip-pins manufactured to Aviation Norm NASM 17985 (former norm: MS 17985) and tested to NAS 1332. Manufacture certified & assessed to EN9100D by EASE (European Aerospace Supplier Evaluation).
Temp. range -22°F to 302°F

Pressing = unlocking.
Releasing = locking.
Pip-pins are used for frequently repeated operations such as quick fastening, locking, adjusting, changing and securing.
All dimensions shown are imperial.

Tips

We can manufacture specials (both metric & imperial) to your drawing, and are certified to produce to NASM standards.
Wixroyd Aviation Pip-Pins can be produced within the following dimensions:
+ diameter: from 3/16" to 1"
+ grip length: from 0.3" to 9.9"
Quick production time on small batches.

Referral

For non-aviation pip-pin equivalents please refer to our product range 33060 to 33230.

NASM STD. NAS TESTED AVIATION CERTIFIED

Aviation Pip-Pin - Standard T-Handle

single acting - quick release pins - according to NASM 17985

Order No.	Øf max.	g max.	h min.	Shear resistance double min. lbs.	Location hole Ø max.	MS Part No.
33610.D010	2,065	1,45	0,850	20,700	0,3790	MS17985C610
33610.D012	2,065	1,45	0,850	20,700	0,3790	MS17985C612
33610.D015	2,065	1,45	0,850	20,700	0,3790	MS17985C615
33610.D016	2,065	1,45	0,850	20,700	0,3790	MS17985C616
33610.D020	2,065	1,45	0,850	20,700	0,3790	MS17985C620
33610.D024	2,065	1,45	0,850	20,700	0,3790	MS17985C624
33610.D025	2,065	1,45	0,850	20,700	0,3790	MS17985C625
33610.D026	2,065	1,45	0,850	20,700	0,3790	MS17985C626
33610.D028	2,065	1,45	0,850	20,700	0,3790	MS17985C628
33610.D031	2,065	1,45	0,850	20,700	0,3790	MS17985C631
33610.D032	2,065	1,45	0,850	20,700	0,3790	MS17985C632
33610.D035	2,065	1,45	0,850	20,700	0,3790	MS17985C635
33610.D040	2,065	1,45	0,850	20,700	0,3790	MS17985C640
33610.D045	2,065	1,45	0,850	20,700	0,3790	MS17985C645
33610.E012	2,065	1,47	0,850	28,500	0,4425	MS17985C712
33610.E018	2,065	1,47	0,850	28,500	0,4425	MS17985C718
33610.E023	2,065	1,47	0,850	28,500	0,4425	MS17985C723
33610.E024	2,065	1,47	0,850	28,500	0,4425	MS17985C724
33610.E026	2,065	1,47	0,850	28,500	0,4425	MS17985C726
33610.E029	2,065	1,47	0,850	28,500	0,4425	MS17985C729
33610.E040	2,065	1,47	0,850	28,500	0,4425	MS17985C740
33610.E042	2,065	1,47	0,850	28,500	0,4425	MS17985C742
33610.E055	2,065	1,47	0,850	28,500	0,4425	MS17985C755
33610.E072	2,345	1,60	0,850	36,900	0,5050	MS17985C772
33610.F010	2,345	1,60	0,885	36,900	0,5050	MS17985C810
33610.F012	2,345	1,60	0,885	36,900	0,5050	MS17985C812
33610.F014	2,345	1,60	0,885	36,900	0,5050	MS17985C814
33610.F015	2,345	1,60	0,885	36,900	0,5050	MS17985C815
33610.F019	2,345	1,60	0,885	36,900	0,5050	MS17985C819
33610.F020	2,345	1,60	0,885	36,900	0,5050	MS17985C820
33610.F024	2,345	1,60	0,885	36,900	0,5050	MS17985C824
33610.F029	2,345	1,60	0,885	36,900	0,5050	MS17985C829
33610.F031	2,345	1,60	0,885	36,900	0,5050	MS17985C831
33610.F036	2,345	1,60	0,885	36,900	0,5050	MS17985C836
33610.F037	2,345	1,60	0,885	36,900	0,5050	MS17985C837
33610.F040	2,345	1,60	0,885	36,900	0,5050	MS17985C840
33610.F047	2,345	1,60	0,885	36,900	0,5050	MS17985C847
33610.F048	2,345	1,60	0,885	36,900	0,5050	MS17985C848
33610.F064	2,345	1,60	0,885	36,900	0,5050	MS17985C864
33610.G017	2,345	1,60	0,885	46,700	0,5675	MS17985C917
33610.G032	2,345	1,60	0,885	46,700	0,5675	MS17985C932
33610.G036	2,345	1,60	0,885	46,700	0,5675	MS17985C936
33610.G040	2,345	1,60	0,885	46,700	0,5675	MS17985C940
33610.G061	2,345	1,60	0,885	46,700	0,5675	MS17985C961

33610

Material

Shank (part 1) & spindle (part 2): CRES 17-4PH (AMS 5643), heat treated per MIL-H-6875, condition H900, min. 40 HRC, passivated per AMS2700.
Spring (part 3, not shown): CRES 302 (ASTM-A-313), heat treated per MIL-H-6875, passivated per AMS2700.
Handle (part 4): A380 (QQ-A-591), anodized (black) per MIL-A-8625.
Attaching ring (part 5): CRES 302 (ASTM-A-313), passivated per AMS2700.
Ball (locking element, part 6): CRES CL440C (AMS5630), heat treated per MIL-H-6875, passivated per AMS2700.

Technical Notes

Wixroyd Aviation Pip-pins manufactured to Aviation Norm NASM 17985 (former norm: MS 17985) and tested to NAS 1332. Manufacture certified & assessed to EN9100D by EASE (European Aerospace Supplier Evaluation).
Temp. range -22°F to 302°F

Pressing = unlocking.
Releasing = locking.
Pip-pins are used for frequently repeated operations such as quick fastening, locking, adjusting, changing and securing.
All dimensions shown are imperial.

Tips

We can manufacture specials (both metric & imperial) to your drawing, and are certified to produce to NASM standards.
Wixroyd Aviation Pip-Pins can be produced within the following dimensions:
+ diameter: from 3/16" to 1"
+ grip length: from 0.3" to 9.9"
Quick production time on small batches.

Referral

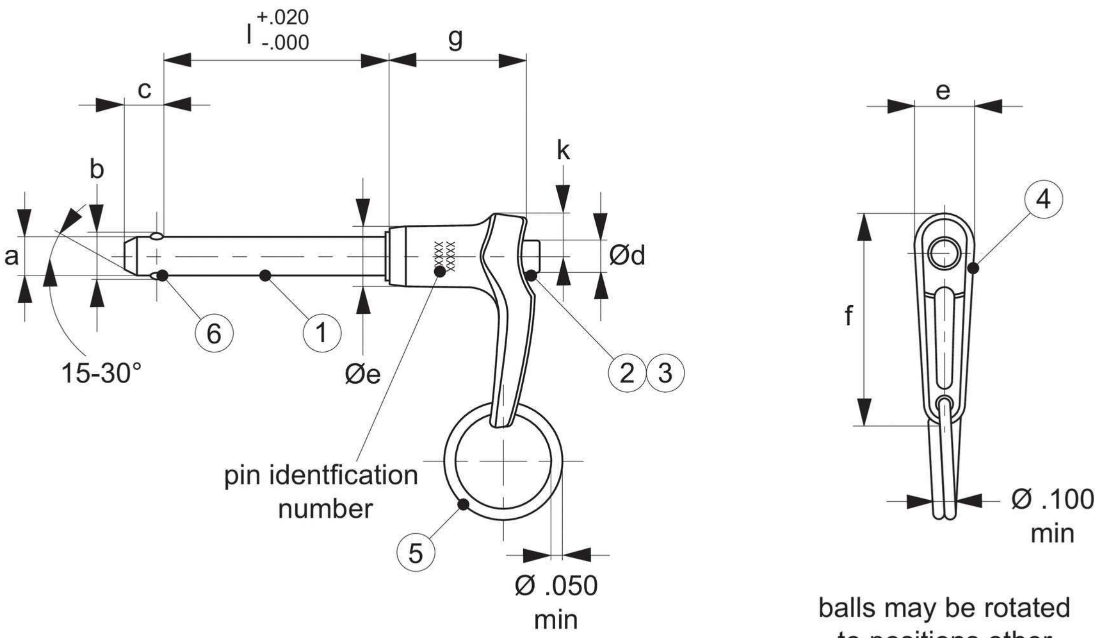
For non-aviation pip-pin equivalents please refer to our product range 33060 to 33230.

NASM STD. NAS TESTED AVIATION CERTIFIED

Aviation Pip-Pin, Standard LA Handle

single acting, quick release pins - according to NASM 17986

33620



all dimensions imperial

balls may be rotated to positions other than shown

Order No.	Nom. dia. Ø	Grip l	b	c	Ø d max.	Ø e max.	g
33620.A005	3/16	0,5	,594	,460	,565	0,500	23
33620.A008	3/16	0,8	,594	,460	,565	0,500	26
33620.A010	3/16	1,0	,594	,460	,565	0,500	26
33620.A013	3/16	1,3	,594	,460	,565	0,500	28
33620.A014	3/16	1,4	,594	,460	,565	0,500	28
33620.A017	3/16	1,7	,594	,460	,565	0,500	27
33620.B012	1/4	1,2	,594	,460	,565	0,500	32
33620.B015	1/4	1,5	,594	,460	,565	0,500	33
33620.B017	1/4	1,7	,594	,460	,565	0,500	34
33620.B016	1/4	1,6	,594	,460	,565	0,500	33
33620.B021	1/4	2,1	,594	,460	,565	0,500	36
33620.C004	5/16	0,4	,594	,460	,565	0,500	29
33620.C006	5/16	0,6	,594	,460	,565	0,500	30
33620.C010	5/16	1,0	,594	,460	,565	0,500	34
33620.C013	5/16	1,3	,594	,460	,565	0,500	37
33620.C016	5/16	1,6	,594	,460	,565	0,500	40
33620.C018	5/16	1,8	,594	,460	,565	0,500	43
33620.C020	5/16	2,0	,594	,460	,565	0,500	41
33620.C023	5/16	2,3	,594	,460	,565	0,500	46
33620.C029	5/16	2,9	,594	,460	,565	0,500	54
33620.C030	5/16	3,0	,594	,460	,565	0,500	53
33620.C033	5/16	3,3	,594	,460	,565	0,500	57
33620.C036	5/16	3,6	,594	,460	,565	0,500	60
33620.C040	5/16	4,0	,594	,460	,565	0,500	64
33620.D010	3/8	1,0	,594	,460	,565	0,625	49
33620.D015	3/8	1,5	,594	,460	,565	0,625	59
33620.D020	3/8	2,0	,594	,460	,565	0,625	65
33620.D024	3/8	2,4	,594	,460	,565	0,625	71
33620.D026	3/8	2,6	,594	,460	,565	0,625	73
33620.D030	3/8	3,0	,594	,460	,565	0,625	72
33620.D060	3/8	6,0	,594	,460	,565	0,625	122
33620.E012	7/16	1,2	,594	,460	,565	0,625	61
33620.E035	7/16	3,5	,594	,460	,565	0,625	
33620.E040	7/16	4,0	,594	,460	,565	0,625	115
33620.E055	7/16	5,5	,594	,460	,565	0,625	146
33620.F010	1/2	1,0	,594	,460	,565	0,800	83
33620.F015	1/2	1,5	,594	,460	,565	0,800	95
33620.F019	1/2	1,9	,594	,460	,565	0,800	103
33620.F034	1/2	3,4	,594	,460	,565	0,800	143
33620.F042	1/2	4,2	,594	,460	,565	0,800	160
33620.F045	1/2	4,5	,594	,460	,565	0,800	172
33620.G017	9/16	1,7	,594	,460	,565	0,800	116
33620.G025	9/16	2,5	,594	,460	,565	0,800	140
33620.G040	9/16	4,0	,594	,460	,565	0,800	189
33620.G050	9/16	5,0	,594	,460	,565	0,800	

Material

Shank (part 1) & spindle (part 2): CRES 17-4PH (AMS 5643), heat treated per MIL-H-6875, condition H900, min. 40 HRC, passivated per AMS2700.
Spring (part 3, not shown): CRES 302 (ASTM-A-313), heat treated per MIL-H-6875, passivated per AMS2700.
Handle (part 4): A380 (QQ-A-591), anodized (black) per MIL-A-8625.
Attaching ring (part 5): CRES 302 (ASTM-A-313), passivated per AMS2700.
Ball (locking element, part 6): CRES CL440C (AMS5630), heat treated per MIL-H-6875, passivated per AMS2700.

Technical Notes

Wixroyd Aviation Pip-pins manufactured to Aviation Norm NASM 17986 (former norm: MS 17986) and tested to NAS 1332. Manufacture certified & assessed to EN9100D by EASE (European Aerospace Supplier Evaluation).
Temp. range -22°F to 302°F

Pressing = unlocking.
Releasing = locking.
Pip-pins are used for frequently repeated operations such as quick fastening, locking, adjusting, changing and securing.
All dimensions shown are imperial.

Tips

We can manufacture specials (both metric & imperial) to your drawing, and are certified to produce to NASM standards.
Wixroyd Aviation Pip-Pins can be produced within the following dimensions:
+ diameter: from 3/16" to 1"
+ grip length: from 0.3" to 9.9"
Quick production time on small batches.

Referral

For non-aviation pip-pin equivalents please refer to our product range 33060 to 33230.

NASM STD. NAS TESTED AVIATION CERTIFIED

Aviation Pip-Pin, Standard LA Handle

single acting, quick release pins - according to NASM 17986

33620

Order No.	Nom. dia. Ø	Grip l	b	c	Ø d max.	Ø e max.	g
33620.G060	9/16	6,0	,594	,460	,565	0,800	249
33620.G075	9/16	7,5	,594	,460	,565	0,800	298

Order No.	Øf max.	g max.	h min.	k max.	Shear resistance double min. lbs.	Location hole Ø max.	MS Part No.
33620.A005	1,80	1,27	0,76	0,34	5,150	0,1940	MS17986C305
33620.A008	1,80	1,27	0,76	0,34	5,150	0,1940	MS17986C308
33620.A010	1,80	1,27	0,76	0,34	5,150	0,1940	MS17986C310
33620.A013	1,80	1,27	0,76	0,34	5,150	0,1940	MS17986C313
33620.A014	1,80	1,27	0,76	0,34	5,150	0,1940	MS17986C314
33620.A017	1,80	1,27	0,76	0,34	5,150	0,1940	MS17986C317
33620.B012	1,80	1,27	0,76	0,34	9,200	0,2540	MS17986C412
33620.B015	1,80	1,27	0,76	0,34	9,200	0,2540	MS17986C415
33620.B017	1,80	1,27	0,76	0,34	9,200	0,2540	MS17986C417
33620.B016	1,80	1,27	0,76	0,34	9,200	0,2540	MS17986C416
33620.B021	1,80	1,27	0,76	0,34	9,200	0,2540	MS17986C421
33620.C004	1,80	1,27	0,76	0,34	14400	0,3165	MS17986C504
33620.C006	1,80	1,27	0,76	0,34	14400	0,3165	MS17986C506
33620.C010	1,80	1,27	0,76	0,34	14400	0,3165	MS17986C510
33620.C013	1,80	1,27	0,76	0,34	14400	0,3165	MS17986C513
33620.C016	1,80	1,27	0,76	0,34	14400	0,3165	MS17986C516
33620.C018	1,80	1,27	0,76	0,34	14400	0,3165	MS17986C518
33620.C020	1,80	1,27	0,76	0,34	14400	0,3165	MS17986C520
33620.C023	1,80	1,27	0,76	0,34	14400	0,3165	MS17986C523
33620.C029	1,80	1,27	0,76	0,34	14400	0,3165	MS17986C529
33620.C030	1,80	1,27	0,76	0,34	14400	0,3165	MS17986C530
33620.C033	1,80	1,27	0,76	0,34	14400	0,3165	MS17986C533
33620.C036	1,80	1,27	0,76	0,34	14400	0,3165	MS17986C536
33620.C040	1,80	1,27	0,76	0,34	14400	0,3165	MS17986C540
33620.D010	2,03	1,45	0,85	0,39	20700	0,3790	MS17986C610
33620.D015	2,03	1,45	0,85	0,39	20700	0,3790	MS17986C615
33620.D020	2,03	1,45	0,85	0,39	20700	0,3790	MS17986C620
33620.D024	2,03	1,45	0,85	0,39	20700	0,3790	MS17986C624
33620.D026	2,03	1,45	0,85	0,39	20700	0,3790	MS17986C626
33620.D030	2,03	1,45	0,85	0,39	20700	0,3790	MS17986C630
33620.D060	2,03	1,45	0,85	0,39	20700	0,3790	MS17986C660
33620.E012	2,03	1,47	0,85	0,39	28500	0,4425	MS17986C712
33620.E035	2,03	1,47	0,85	0,39	28500	0,4425	MS17986C735
33620.E040	2,03	1,47	0,85	0,39	28500	0,4425	MS17986C740
33620.E055	2,03	1,47	0,85	0,39	28500	0,4425	MS17986C755
33620.F010	2,36	1,60	0,85	0,50	36900	0,5050	MS17986C810
33620.F015	2,36	1,60	0,85	0,50	36900	0,5050	MS17986C815
33620.F019	2,36	1,60	0,85	0,50	36900	0,5050	MS17986C819
33620.F034	2,36	1,60	0,85	0,50	36900	0,5050	MS17986C834
33620.F042	2,36	1,60	0,85	0,50	36900	0,5050	MS17986C842
33620.F045	2,36	1,60	0,85	0,50	36900	0,5050	MS17986C845
33620.G017	2,36	1,60	0,85	0,50	46700	0,5675	MS17986C917
33620.G025	2,36	1,60	0,85	0,50	46700	0,5675	MS17986C925
33620.G040	2,36	1,60	0,85	0,50	46700	0,5675	MS17986C940
33620.G050	2,36	1,60	0,85	0,50	46700	0,5675	MS17986C950
33620.G060	2,36	1,60	0,85	0,50	46700	0,5675	MS17986C960
33620.G075	2,36	1,60	0,85	0,50	46700	0,5675	MS17986C975

Material

Shank (part 1) & spindle (part 2):
CRES 17-4PH (AMS 5643), heat treated per MIL-H-6875, condition H900, min. 40 HRC, passivated per AMS2700.
Spring (part 3, not shown):
CRES 302 (ASTM-A-313), heat treated per MIL-H-6875, passivated per AMS2700.
Handle (part 4):
A380 (QQ-A-591), anodized (black) per MIL-A-8625.
Attaching ring (part 5):
CRES 302 (ASTM-A-313), passivated per AMS2700.
Ball (locking element, part 6):
CRES CL440C (AMS5630), heat treated per MIL-H-6875, passivated per AMS2700.

Technical Notes

Wixroyd Aviation Pip-pins manufactured to Aviation Norm NASM 17986 (former norm: MS 17986) and tested to NAS 1332. Manufacture certified & assessed to EN9100D by EASE (European Aerospace Supplier Evaluation).
Temp. range -22°F to 302°F

Pressing = unlocking.
Releasing = locking.
Pip-pins are used for frequently repeated operations such as quick fastening, locking, adjusting, changing and securing.
All dimensions shown are imperial.

Tips

We can manufacture specials (both metric & imperial) to your drawing, and are certified to produce to NASM standards.
Wixroyd Aviation Pip-Pins can be produced within the following dimensions:
+ diameter: from 3/16" to 1"
+ grip length: from 0.3" to 9.9"
Quick production time on small batches.

Referral

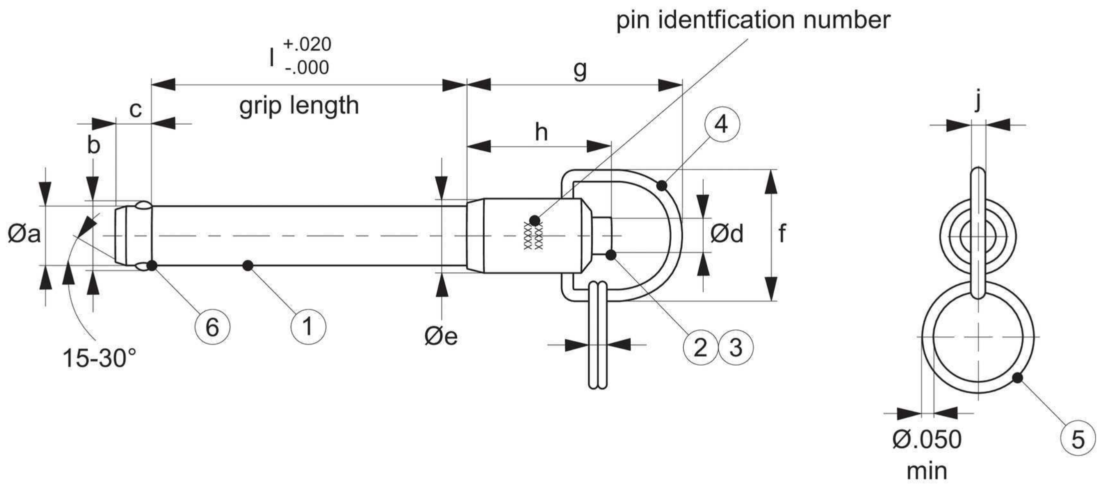
For non-aviation pip-pin equivalents please refer to our product range 33060 to 33230.

NASM STD. NAS TESTED AVIATION CERTIFIED

Aviation Pip-Pin, Standard R Handle

single acting, quick release pins - according to NASM 17987

33630



all dimensions imperial

balls may be rotated to positions other than shown

Order No.	Nom. dia. Ø	Grip l	b	c	Ø d max.	Ø e max.	g
33630.A008	3/16	0,8	,594	,460	,565	0,53	24
33630.A009	3/16	0,9	,594	,460	,565	0,53	24
33630.A010	3/16	1,0	,594	,460	,565	0,53	24
33630.A011	3/16	1,1	,594	,460	,565	0,53	25
33630.A012	3/16	1,2	,594	,460	,565	0,53	25
33630.A015	3/16	1,5	,594	,460	,565	0,53	26
33630.A016	3/16	1,6	,594	,460	,565	0,53	26
33630.A017	3/16	1,7	,594	,460	,565	0,53	27
33630.A025	3/16	2,5	,594	,460	,565	0,53	30
33630.A031	3/16	3,1	,594	,460	,565	0,53	33
33630.A043	5/16	4,3	,594	,460	,565	0,53	
33630.B004	1/4	0,4	,594	,460	,565	0,53	24
33630.B005	1/4	0,5	,594	,460	,565	0,53	24
33630.B006	1/4	0,6	,594	,460	,565	0,53	25
33630.B007	1/4	0,7	,594	,460	,565	0,53	26
33630.B008	1/4	0,8	,594	,460	,565	0,53	27
33630.B009	1/4	0,9	,594	,460	,565	0,53	27
33630.B010	1/4	1,0	,594	,460	,565	0,53	27
33630.B011	1/4	1,1	,594	,460	,565	0,53	28
33630.B012	1/4	1,2	,594	,460	,565	0,53	29
33630.B014	1/4	1,4	,594	,460	,565	0,53	30
33630.B015	1/4	1,5	,594	,460	,565	0,53	31
33630.B017	1/4	1,7	,594	,460	,565	0,53	32
33630.B018	1/4	1,8	,594	,460	,565	0,53	32
33630.B019	1/4	1,9	,594	,460	,565	0,53	33
33630.B020	1/4	2,0	,594	,460	,565	0,53	34
33630.B021	1/4	2,1	,594	,460	,565	0,53	34
33630.B022	1/4	2,2	,594	,460	,565	0,53	36
33630.B025	1/4	2,5	,594	,460	,565	0,53	37
33630.B029	1/4	2,9	,594	,460	,565	0,53	40
33630.B030	1/4	3,0	,594	,460	,565	0,53	39
33630.B040	1/4	4,0	,594	,460	,565	0,53	47
33630.B047	1/4	4,7	,594	,460	,565	0,53	50
33630.C006	5/16	0,6	,594	,460	,565	0,59	30
33630.C007	5/16	0,7	,594	,460	,565	0,59	31
33630.C008	5/16	0,8	,594	,460	,565	0,59	33
33630.C009	5/16	0,9	,594	,460	,565	0,59	34
33630.C011	5/16	1,1	,594	,460	,565	0,59	35
33630.C012	5/16	1,2	,594	,460	,565	0,59	36
33630.C013	5/16	1,3	,594	,460	,565	0,59	38
33630.C015	5/16	1,5	,594	,460	,565	0,59	39
33630.C016	5/16	1,6	,594	,460	,565	0,59	39
33630.C018	5/16	1,8	,594	,460	,565	0,59	42
33630.C019	5/16	1,9	,594	,460	,565	0,59	43
33630.C020	5/16	2,0	,594	,460	,565	0,59	43
33630.C023	5/16	2,3	,594	,460	,565	0,59	46
33630.C026	5/16	2,6	,594	,460	,565	0,59	48
33630.C033	5/16	3,3	,594	,460	,565	0,59	56

Material

Shank (part 1) & spindle (part 2):
CRES 17-4PH (AMS 5643), heat treated per MIL-H-6875, condition H900, min. 40 HRC, passivated per AMS2700.
Spring (part 3, not shown):
CRES 302 (ASTM-A-313), heat treated per MIL-H-6875, passivated per AMS2700.
Handle (part 4):
CRES 302 (ASTM-A-313), passivated per AMS2700.
Attaching ring (part 5):
CRES 302 (ASTM-A-313), passivated per AMS2700.
Ball (locking element, part 6):
CRES CL440C (AMS5630), heat treated per MIL-H-6875, passivated per AMS2700.

Technical Notes

Wixroyd Aviation Pip-pins manufactured to Aviation Norm NASM 17987 (former norm: MS 17987) and tested to NAS 1332. Manufacture certified & assessed to EN9100D by EASE (European Aerospace Supplier Evaluation).
Temp. range -22°F to 302°F

Pressing = unlocking.
Releasing = locking.
Pip-pins are used for frequently repeated operations such as quick fastening, locking, adjusting, changing and securing.
All dimensions shown are imperial.

Tips

We can manufacture specials (both metric & imperial) to your drawing, and are certified to produce to NASM standards.
Wixroyd Aviation Pip-Pins can be produced within the following dimensions:
+ diameter: from 3/16" to 1"
+ grip length: from 0.3" to 9.9"
Quick production time on small batches.

Referral

For non-aviation pip-pin

Aviation Pip-Pin, Standard R Handle

single acting, quick release pins - according to NASM 17987

33630

Order No.	Nom. dia. Ø	Grip l	b	c	Ø d max.	Ø e max.	g
33630.C035	5/16	3,5	,594	,460	,565	0,59	59
33630.C060	5/16	6,0	,594	,460	,565	0,59	85
33630.C067	5/16	6,7	,594	,460	,565	0,59	92
33630.D008	3/8	0,8	,594	,460	,565	0,65	49
33630.D009	3/8	0,9	,594	,460	,565	0,65	50
33630.D010	3/8	1,0	,594	,460	,565	0,65	52
33630.D011	3/8	1,1	,594	,460	,565	0,65	53
33630.D012	3/8	1,2	,594	,460	,565	0,65	54
33630.D013	3/8	1,3	,594	,460	,565	0,65	55
33630.D014	3/8	1,4	,594	,460	,565	0,65	55
33630.D015	3/8	1,5	,594	,460	,565	0,65	58
33630.D016	3/8	1,6	,594	,460	,565	0,65	61
33630.D018	3/8	1,8	,594	,460	,565	0,65	62
33630.D026	3/8	2,6	,594	,460	,565	0,65	73
33630.D030	3/8	3,0	,594	,460	,565	0,65	80
33630.D031	3/8	3,1	,594	,460	,565	0,65	82
33630.D043	3/8	4,3	,594	,460	,565	0,65	97
33630.E008	7/16	0,8	,594	,460	,565	0,71	56
33630.E012	7/16	1,2	,594	,460	,565	0,71	65
33630.E014	7/16	1,4	,594	,460	,565	0,71	68
33630.E015	7/16	1,5	,594	,460	,565	0,71	
33630.E019	7/16	1,9	,594	,460	,565	0,71	77
33630.E020	7/16	2,0	,594	,460	,565	0,71	81
33630.E022	7/16	2,2	,594	,460	,565	0,71	81
33630.E024	7/16	2,4	,594	,460	,565	0,71	88
33630.E026	7/16	2,6	,594	,460	,565	0,71	88
33630.F011	1/2	1,1	,594	,460	,565	0,80	88
33630.F012	1/2	1,2	,594	,460	,565	0,80	91
33630.F013	1/2	1,3	,594	,460	,565	0,80	93
33630.F014	1/2	1,4	,594	,460	,565	0,80	96
33630.F015	1/2	1,5	,594	,460	,565	0,80	98
33630.F020	1/2	2,0	,594	,460	,565	0,80	109
33630.F023	1/2	2,3	,594	,460	,565	0,80	117
33630.F033	1/2	3,3	,594	,460	,565	0,80	141
33630.F039	1/2	3,9	,594	,460	,565	0,80	160
33630.F045	1/2	4,5	,594	,460	,565	0,80	160
33630.F050	1/2	5,0	,594	,460	,565	0,80	187
33630.F053	1/2	5,3	,594	,460	,565	0,80	186
33630.F065	1/2	6,5	,594	,460	,565	0,80	215
33630.F080	1/2	8,0	,594	,460	,565	0,80	260
33630.F080	1/2	8,0	,594	,460	,565	0,80	260
33630.G013	9/16	1,3	,594	,460	,565	0,84	120
33630.G025	9/16	2,5	,594	,460	,565	0,84	150
33630.G030	9/16	3,0	,594	,460	,565	0,84	166
33630.G037	9/16	3,7	,594	,460	,565	0,84	183
33630.G055	9/16	5,5	,594	,460	,565	0,84	245

Order No.	Øf max.	g max.	h min.	Shear resistance double min. lbs.	Location hole Ø max.	MS Part No.
33630.A008	1,45	0,73	0,08	5,150	0,1940	MS17987C308
33630.A009	1,45	0,73	0,08	5,150	0,1940	MS17987C309
33630.A010	1,45	0,73	0,08	5,150	0,1940	MS17987C310
33630.A011	1,45	0,73	0,08	5,150	0,1940	MS17987C311
33630.A012	1,45	0,73	0,08	5,150	0,1940	MS17987C312
33630.A015	1,45	0,73	0,08	5,150	0,1940	MS17987C315
33630.A016	1,45	0,73	0,08	5,150	0,1940	MS17987C316
33630.A017	1,45	0,73	0,08	5,150	0,1940	MS17987C317
33630.A025	1,45	0,73	0,08	5,150	0,1940	MS17987C325
33630.A031	1,45	0,73	0,08	5,150	0,1940	MS17987C331
33630.A043	1,45	0,73	0,08	5,150	0,1940	MS17987C343
33630.B004	1,50	0,78	0,08	9,200	0,2540	MS17987C404
33630.B005	1,50	0,78	0,08	9,200	0,2540	MS17987C405
33630.B006	1,50	0,78	0,08	9,200	0,2540	MS17987C406
33630.B007	1,50	0,78	0,08	9,200	0,2540	MS17987C407
33630.B008	1,50	0,78	0,08	9,200	0,2540	MS17987C408
33630.B009	1,50	0,78	0,08	9,200	0,2540	MS17987C409
33630.B010	1,50	0,78	0,08	9,200	0,2540	MS17987C410
33630.B011	1,50	0,78	0,08	9,200	0,2540	MS17987C411
33630.B012	1,50	0,78	0,08	9,200	0,2540	MS17987C412
33630.B014	1,50	0,78	0,08	9,200	0,2540	MS17987C414
33630.B015	1,50	0,78	0,08	9,200	0,2540	MS17987C415
33630.B017	1,50	0,78	0,08	9,200	0,2540	MS17987C417

Material

Shank (part 1) & spindle (part 2):
CRES 17-4PH (AMS 5643), heat treated per MIL-H-6875, condition H900, min. 40 HRC, passivated per AMS2700.
Spring (part 3, not shown):
CRES 302 (ASTM-A-313), heat treated per MIL-H-6875, passivated per AMS2700.
Handle (part 4):
CRES 302 (ASTM-A-313), passivated per AMS2700.
Attaching ring (part 5):
CRES 302 (ASTM-A-313), passivated per AMS2700.
Ball (locking element, part 6):
CRES CL440C (AMS5630), heat treated per MIL-H-6875, passivated per AMS2700.

Technical Notes

Wixroyd Aviation Pip-pins manufactured to Aviation Norm NASM 17987 (former norm: MS 17987) and tested to NAS 1332. Manufacture certified & assessed to EN9100D by EASE (European Aerospace Supplier Evaluation).
Temp. range -22°F to 302°F

Pressing = unlocking.
Releasing = locking.
Pip-pins are used for frequently repeated operations such as quick fastening, locking, adjusting, changing and securing.
All dimensions shown are imperial.

Tips

We can manufacture specials (both metric & imperial) to your drawing, and are certified to produce to NASM standards.
Wixroyd Aviation Pip-Pins can be produced within the following dimensions:
+ diameter: from 3/16" to 1"
+ grip length: from 0.3" to 9.9"
Quick production time on small batches.

Referral

For non-aviation pip-pin

Aviation Pip-Pin, Standard R Handle

single acting, quick release pins - according to NASM 17987

33630

Order No.	Øf max.	g max.	h min.	Shear resistance double min. lbs.	Location hole Ø max.	MS Part No.
33630.B018	1,50	0,78	0,08	9,200	0,2540	MS17987C418
33630.B019	1,50	0,78	0,08	9,200	0,2540	MS17987C419
33630.B020	1,50	0,78	0,08	9,200	0,2540	MS17987C420
33630.B021	1,50	0,78	0,08	9,200	0,2540	MS17987C421
33630.B022	1,50	0,78	0,08	9,200	0,2540	MS17987C422
33630.B025	1,50	0,78	0,08	9,200	0,2540	MS17987C425
33630.B029	1,50	0,78	0,08	9,200	0,2540	MS17987C429
33630.B030	1,50	0,78	0,08	9,200	0,2540	MS17987C430
33630.B040	1,50	0,78	0,08	9,200	0,2540	MS17987C440
33630.B047	1,50	0,78	0,08	9,200	0,2540	MS17987C447
33630.C006	1,65	0,83	0,08	14400	0,3165	MS17987C506
33630.C007	1,65	0,83	0,08	14400	0,3165	MS17987C507
33630.C008	1,65	0,83	0,08	14400	0,3165	MS17987C508
33630.C009	1,65	0,83	0,08	14400	0,3165	MS17987C509
33630.C011	1,65	0,83	0,08	14400	0,3165	MS17987C511
33630.C012	1,65	0,83	0,08	14400	0,3165	MS17987C512
33630.C013	1,65	0,83	0,08	14400	0,3165	MS17987C513
33630.C015	1,65	0,83	0,08	14400	0,3165	MS17987C515
33630.C016	1,65	0,83	0,08	14400	0,3165	MS17987C516
33630.C018	1,65	0,83	0,08	14400	0,3165	MS17987C518
33630.C019	1,65	0,83	0,08	14400	0,3165	MS17987C519
33630.C020	1,65	0,83	0,08	14400	0,3165	MS17987C520
33630.C023	1,65	0,83	0,08	14400	0,3165	MS17987C523
33630.C026	1,65	0,83	0,08	14400	0,3165	MS17987C526
33630.C033	1,65	0,83	0,08	14400	0,3165	MS17987C533
33630.C035	1,65	0,83	0,08	14400	0,3165	MS17987C535
33630.C060	1,65	0,83	0,08	14400	0,3165	MS17987C560
33630.C067	1,65	0,83	0,08	14400	0,3165	MS17987C567
33630.D008	1,65	0,94	0,08	20700	0,3790	MS17987C608
33630.D009	1,65	0,94	0,08	20700	0,3790	MS17987C609
33630.D010	1,65	0,94	0,08	20700	0,3790	MS17987C610
33630.D011	1,65	0,94	0,08	20700	0,3790	MS17987C611
33630.D012	1,65	0,94	0,08	20700	0,3790	MS17987C612
33630.D013	1,65	0,94	0,08	20700	0,3790	MS17987C613
33630.D014	1,65	0,94	0,08	20700	0,3790	MS17987C614
33630.D015	1,65	0,94	0,08	20700	0,3790	MS17987C615
33630.D016	1,65	0,94	0,08	20700	0,3790	MS17987C616
33630.D018	1,65	0,94	0,08	20700	0,3790	MS17987C618
33630.D026	1,65	0,94	0,08	20700	0,3790	MS17987C626
33630.D030	1,65	0,94	0,08	20700	0,3790	MS17987C630
33630.D031	1,65	0,94	0,08	20700	0,3790	MS17987C631
33630.D043	1,65	0,94	0,08	20700	0,3790	MS17987C643
33630.E008	1,85	0,98	0,08	28500	0,4425	MS17987C708
33630.E012	1,85	0,98	0,08	28500	0,4425	MS17987C712
33630.E014	1,85	0,98	0,08	28500	0,4425	MS17987C714
33630.E015	1,85	0,98	0,08	28500	0,4425	MS17987C715
33630.E019	1,85	0,98	0,08	28500	0,4425	MS17987C719
33630.E020	1,85	0,98	0,08	28500	0,4425	MS17987C720
33630.E022	1,85	0,98	0,08	28500	0,4425	MS17987C722
33630.E024	1,85	0,98	0,08	28500	0,4425	MS17987C724
33630.E026	1,85	0,98	0,08	28500	0,4425	MS17987C726
33630.F011	1,85	1,14	0,08	36900	0,5050	MS17987C811
33630.F012	1,85	1,14	0,08	36900	0,5050	MS17987C812
33630.F013	1,85	1,14	0,08	36900	0,5050	MS17987C813
33630.F014	1,85	1,14	0,08	36900	0,5050	MS17987C814
33630.F015	1,85	1,14	0,08	36900	0,5050	MS17987C815
33630.F020	1,85	1,14	0,08	36900	0,5050	MS17987C820
33630.F023	1,85	1,14	0,08	36900	0,5050	MS17987C823
33630.F033	1,85	1,14	0,08	36900	0,5050	MS17987C833
33630.F039	1,85	1,14	0,08	33900	0,5050	MS17987C839
33630.F045	1,85	1,14	0,08	36900	0,5050	MS17987C845
33630.F050	1,85	1,14	0,08	36900	0,5050	MS17987C850
33630.F053	1,85	1,14	0,08	36900	0,5050	MS17987C853
33630.F065	1,85	1,14	0,08	36900	0,5050	MS17987C865
33630.F080	1,85	1,14	0,08	36900	0,5050	MS17987C880
33630.F080	1,85	1,14	0,08	36900	0,5050	MS17987C880
33630.G013	2,03	1,14	0,08	46700	0,5675	MS17987C913
33630.G025	2,03	1,14	0,08	46700	0,5675	MS17987C925
33630.G030	2,03	1,14	0,08	46700	0,5675	MS17987C930
33630.G037	2,03	1,14	0,08	46700	0,5675	MS17987C937
33630.G055	2,03	1,14	0,08	46700	0,5675	MS17987C955

Material

Shank (part 1) & spindle (part 2):
CRES 17-4PH (AMS 5643), heat treated per MIL-H-6875, condition H900, min. 40 HRC, passivated per AMS2700.
Spring (part 3, not shown):
CRES 302 (ASTM-A-313), heat treated per MIL-H-6875, passivated per AMS2700.
Handle (part 4):
CRES 302 (ASTM-A-313), passivated per AMS2700.
Attaching ring (part 5):
CRES 302 (ASTM-A-313), passivated per AMS2700.
Ball (locking element, part 6):
CRES CL440C (AMS5630), heat treated per MIL-H-6875, passivated per AMS2700.

Technical Notes

Wixroyd Aviation Pip-pins manufactured to Aviation Norm NASM 17987 (former norm: MS 17987) and tested to NAS 1332. Manufacture certified & assessed to EN9100D by EASE (European Aerospace Supplier Evaluation).
Temp. range -22°F to 302°F

Pressing = unlocking.
Releasing = locking.
Pip-pins are used for frequently repeated operations such as quick fastening, locking, adjusting, changing and securing.
All dimensions shown are imperial.

Tips

We can manufacture specials (both metric & imperial) to your drawing, and are certified to produce to NASM standards.
Wixroyd Aviation Pip-Pins can be produced within the following dimensions:
+ diameter: from 3/16" to 1"
+ grip length: from 0.3" to 9.9"
Quick production time on small batches.

Referral

For non-aviation pip-pin

33630

Material

Shank (part 1) & spindle (part 2):
CRES 17-4PH (AMS 5643), heat treated per MIL-H-6875, condition H900, min. 40 HRC, passivated per AMS2700.
Spring (part 3, not shown):
CRES 302 (ASTM-A-313), heat treated per MIL-H-6875, passivated per AMS2700.
Handle (part 4):
CRES 302 (ASTM-A-313), passivated per AMS2700.
Attaching ring (part 5):
CRES 302 (ASTM-A-313), passivated per AMS2700.
Ball (locking element, part 6):
CRES CL440C (AMS5630), heat treated per MIL-H-6875, passivated per AMS2700.

Technical Notes

Wixroyd Aviation Pip-pins manufactured to Aviation Norm NASM 17987 (former norm: MS 17987) and tested to NAS 1332. Manufacture certified & assessed to EN9100D by EASE (European Aerospace Supplier Evaluation).
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Tips

We can manufacture specials (both metric & imperial) to your drawing, and are certified to produce to NASM standards.
Wixroyd Aviation Pip-Pins can be produced within the following dimensions:
+ diameter: from 3/16" to 1"
+ grip length: from 0.3" to 9.9"
Quick production time on small batches.

Referral

For non-aviation pip-pin

Wixroyd Flight Pin Range - Certified to aviation standards

With many years experience producing an extensive range of standard Pip-pins (also know as quick release pins or ball lock pins) we are now able to offer of Aviation Standard approved Pip-pins, manufactured according to NASM norms (formerly MS norms) and tested to NAS 1332 standards.

Expanding range

33600 - Single acting Pip-pin, standard B handle

33610 - Single acting Pip-pin, standard TA handle

33620 - Single acting Pip-pin, standard LA handle

33630 - Single acting Pip-pin, standard R handle

Wide range of Aviation applications

- Interior panel attachment
- Baby bassinet pin
- Curtain track attachment
- Curtain track support pins
- TV monitor attachment
- Folding table assembly (e.g. First Class Cabins)

Aviation approved

The Wixroyd Aviation Pip-pin range is produced according to NASM norms, and tested to NAS standards. Our manufacturing processes have been assessed and certified by EASE (European Aerospace Supplier Evaluation) to EN9100D.

All our Aviation Pip-pins are individually marked to enable identification of their production lot number.

In-stock and available?

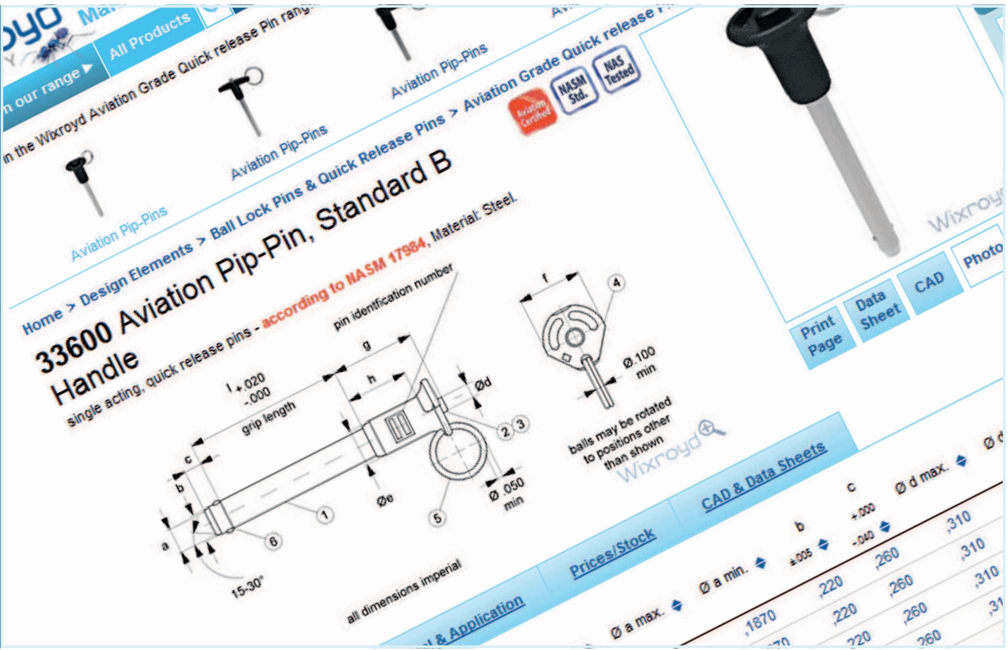
Yes! The product sizes shown on the following pages, with a cross reference to the NASM part code for ease of identification, are all available from stock for delivery within 5 days.

Special designs

We have extensive knowledge and experience in designing, producing and assembling bespoke design pip-pins and ball lock pins in both imperial and metric sizes. We produce under a fully certified manufacturing process, both to our own high standard or to meet Aviation standards.

Please contact our technical team to discuss your requirements (tel. 0845 26 66 577) or email a drawing to info@wixroyd.com

see our website for our full range:
wixroyd.com



ov-aviapin-a - Updated - 10-01-2017

Wixroyd Flight Pin Range - Certified to aviation standards

Your normal experience may be that imperial Aviation Standard Pip-pins are hard to obtain; price prohibitive, and delivery times far too long. The range of Wixroyd Aviation Pip-pins, in a variety of imperial dimensions, has been designed to solve these problems - we hold a wide, and ever increasing range of sizes ex-stock for immediate delivery - no more 6-8 week lead time!

With many years experience producing an extensive range of standard Pip-pins (also know as quick release pins or ball lock pins) we are now able to offer of Aviation Standard approved Pip-pins, manufactured according to NASM norms (formerly MS norms) and tested to NAS 1332 standards.

Wide range of Aviation applications

- Interior panel attachment
- Baby bassinet pin
- Curtain track attachment
- Curtain track support pins
- TV monitor attachment
- Folding table assembly (e.g. First Class Cabins)

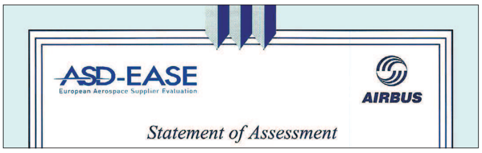
In-stock and available?

Yes! The product sizes shown on the following pages, with a cross reference to the NASM part code for ease of identification, are all available from stock for delivery within 5 days.

Materials

Our Aviation Pip-pins are manufactured to NASM norms, and we follow the material specification of these norms, which means you can feel safe in purchasing a part which is to specification - both in materials and strength.

Aviation approved



The new Wixroyd Aviation Pip-pin range is produced according to NASM norms, and tested to NAS standards. Our manufacturing processes have been assessed and certified by EASE (European Aerospace Supplier Evaluation) to EN9100D.

Identifying production batches

All our Aviation Pip-pins are individually marked to enable identification of their production lot number. Marking allows identification of:

- NASM Standard Number
- Material Grade
- Pin/shank diameter
- Grip length
- Company identification
- Production lot number.

Special designs

We have extensive knowledge and experience in designing, producing and assembling bespoke design pip-pins and ball lock pins in both imperial and metric sizes. We produce under a fully certified manufacturing process, both to our own high stardard or to meet Aviation standards.

We can customise to meet your needs:

- Changes in grip/handle type
- Material variations
- Changes of functional dimensions; pin diameter, pin grip length

Please contact our technical team to discuss your requirements (tel. 0845 26 66 577) or email a drawing to info@wixroyd.com

Expanding range

Single acting Pip-pin, standard B handle

Single acting Pip-pin, standard TA handle

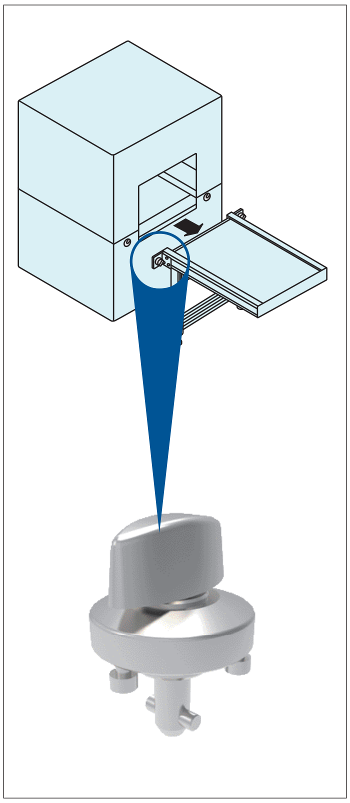
Single acting Pip-pin, standard LA handle

Single acting Pip-pin, standard R handle

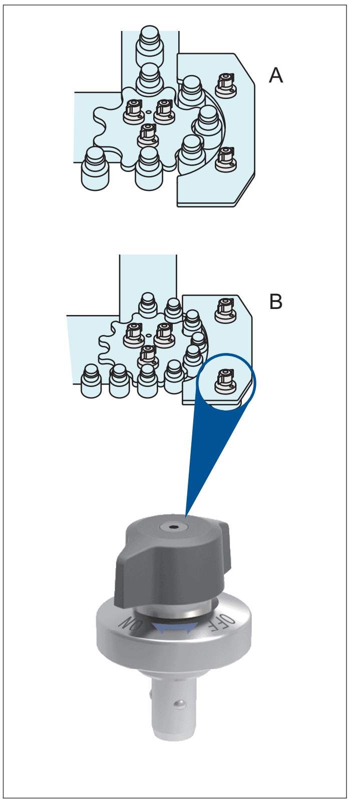
33910 -33956

One-Touch Fasteners for Frequent Set-Ups

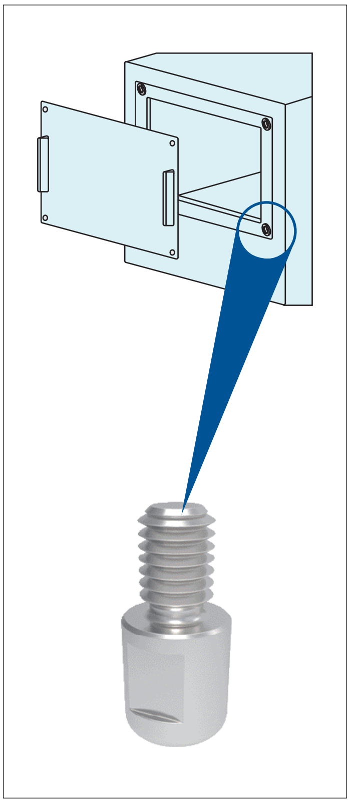
One-touch fasteners - alternatives to screws



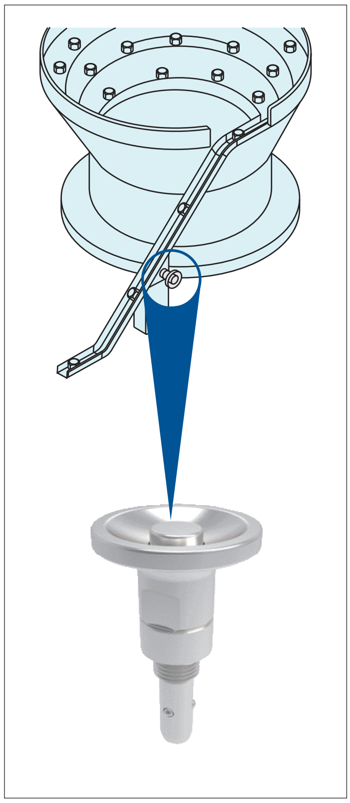
Installation and removal of conveyor sub assemblies



Changes of star wheels and guide plates



Installation and removal of panels or covers

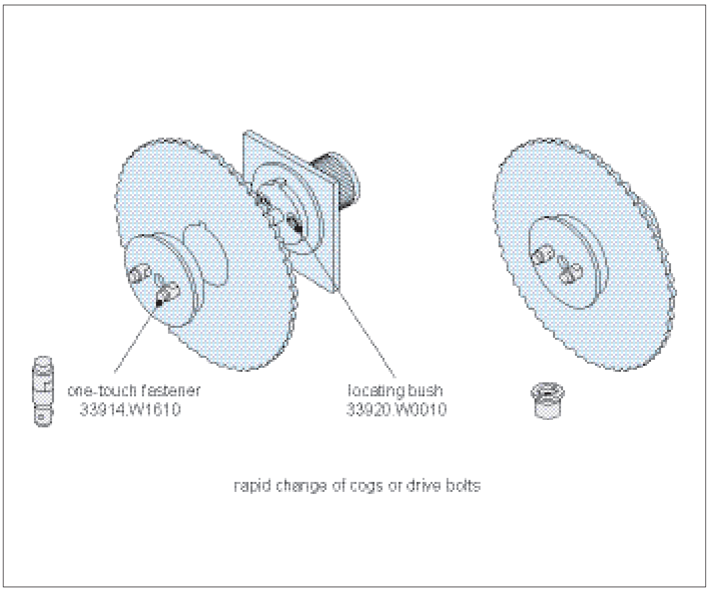


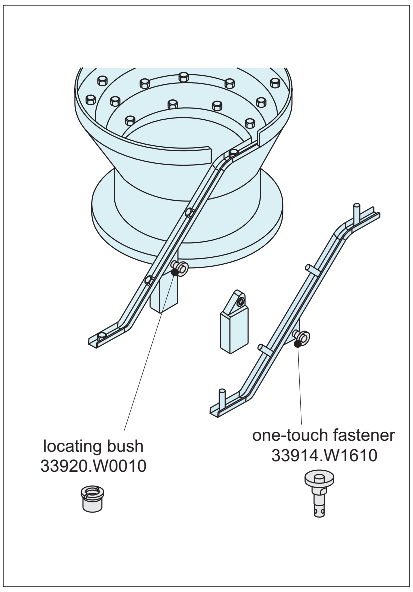
Change of shooters or production guides

Easy! Secure! For quick changeover with no tools!

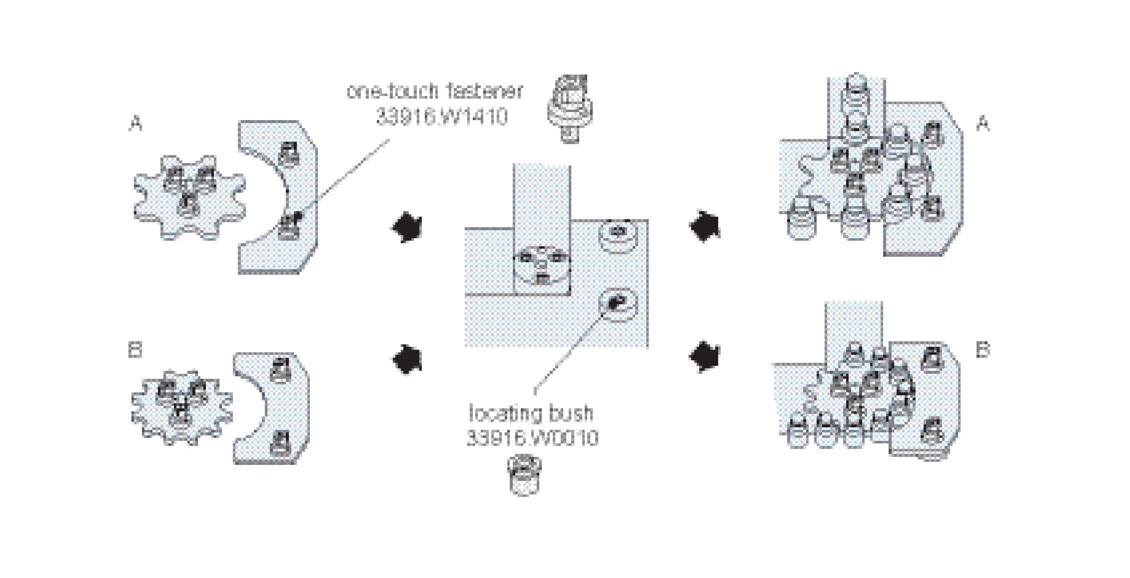
ov-33910-33956-a - Updated - 10-01-2017

One-touch change over

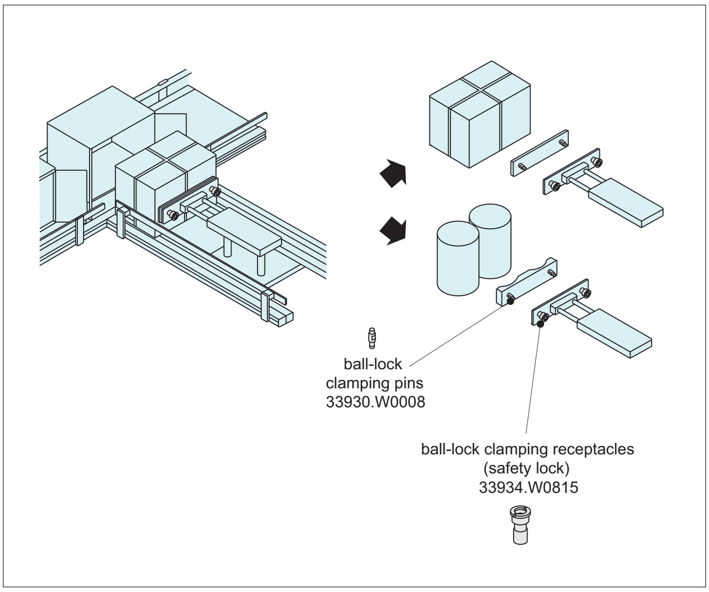


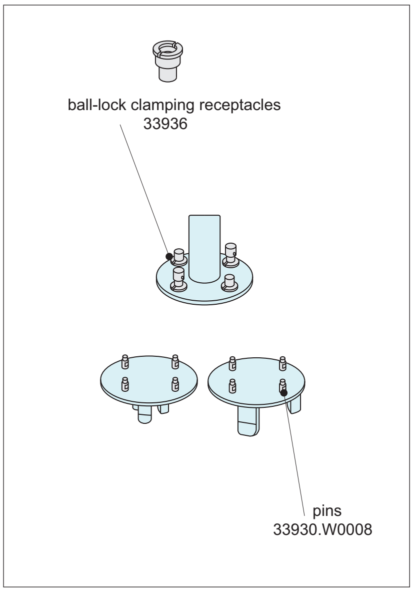


Installation and removal of rotary blades and changes of shooters



Changes of star wheels and guide plates

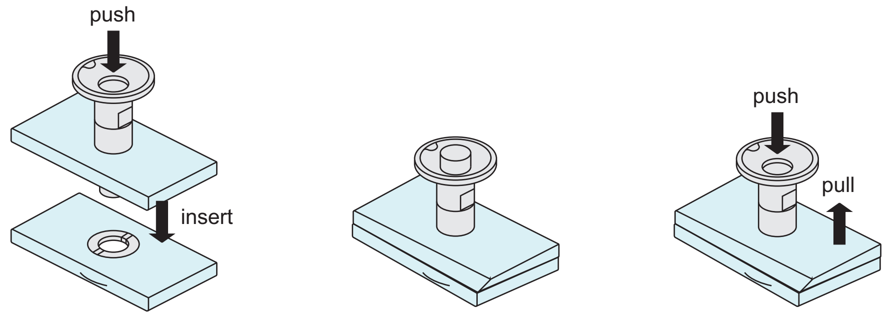




Changes of pusher and changes of chuck handling machines

ov-33910-33956-b - Updated - 10-01-2017

Operating instructions

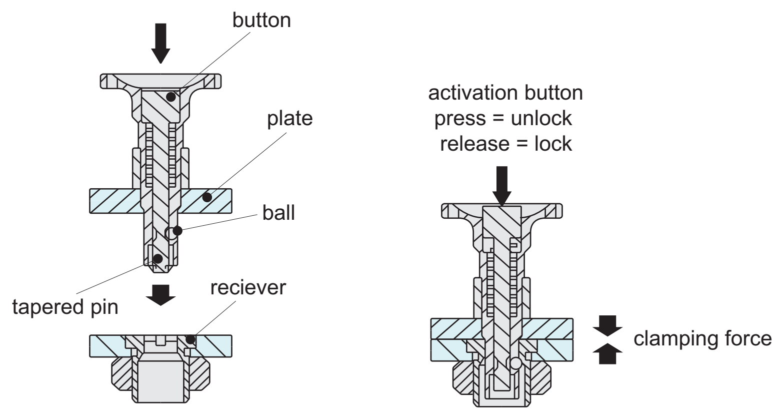


depress button, align pin and insert

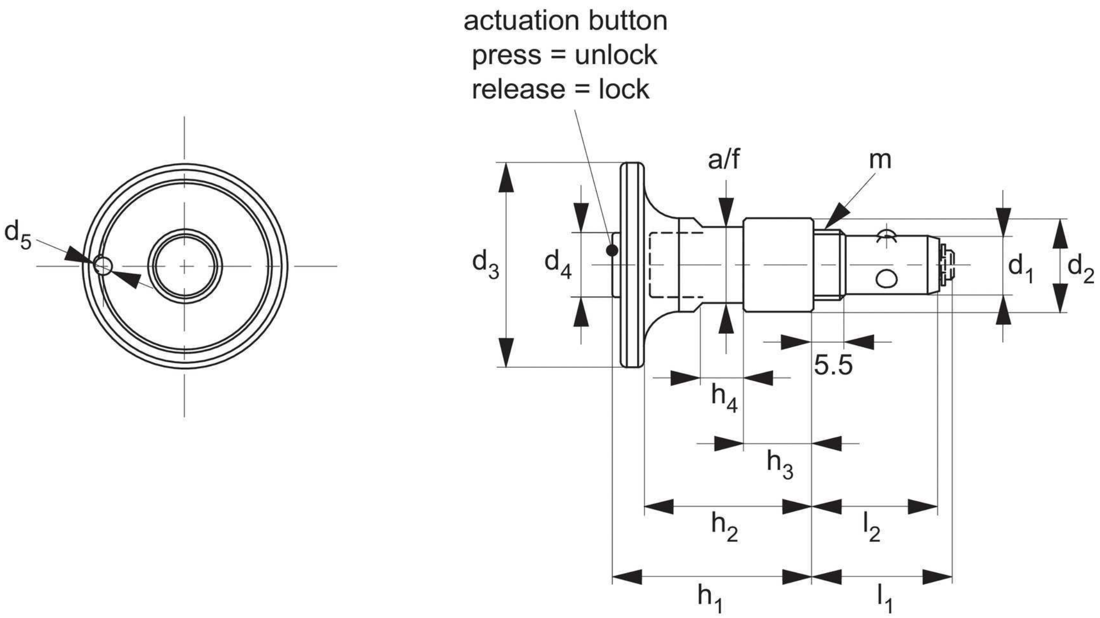
when the button is released, clamping is complete

depress button to release, and pull out

Operating principle

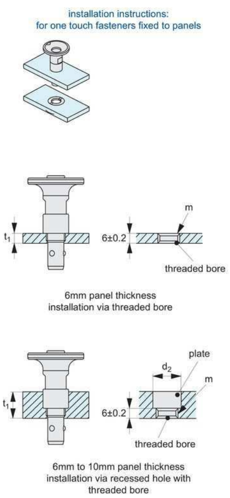


during clamping the tapered pin pushes out the ball bearing, into the recessed holes of the reciever, securely clamping the two surfaces together



Order No.	For single panel thickness	d_1 -0,05 -0,10	d_2	d_3	d_4	d_5	l_1	l_2	g
33910.W1006	6-10	6	12	25	8	-	21,0	19,0	30
33910.W1610	6-16	10	16	35	11	3	23,5	21,5	30

Order No.	h_1	h_2	h_3	h_4	m	a/f	Clamping force N	Shear strength N	Tensile strength N
33910.W1006	22,0	18	6	5,5	M 8x1,25	10	30	3000	500
33910.W1610	34,5	29	12	7,0	M12x1,50	13	50	9000	1500



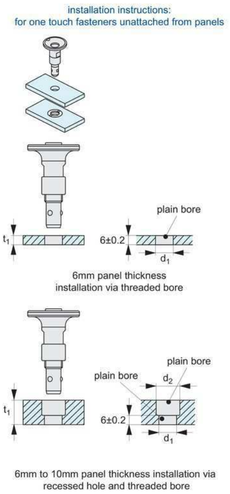
Material
Body & button: steel, nickel plated.
Ball: stainless steel.
Coil ring: stainless steel.
O-Ring: fluororubber.

Technical Notes
One-touch fasteners are the ideal solution for applications requiring rapid and re-curring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time waste in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.
Temperature resistant to 180°C.

Tips
Secure one-touch fasteners to your assembly with lanyards and retaining cables, see part no. 33250.

Important Notes
Suitable for panels/enclosures of 6 to 10mm thickness. For locating bushes see part no. 33920.
Recessed button handle means button is not exposed to accidental activation for added security.

Actuation:
push button: unlock (to pass pin through panels)
release button: lock to securely fasten.



Material
Body & button: steel, nickel plated.
Ball: stainless steel.
Coil ring: stainless steel.
O-Ring: fluororubber.

Technical Notes
One-touch fasteners are the ideal solution for applications requiring rapid and re-curring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts.
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Temperature resistant to 180°C.

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Secure one-touch fasteners to your assembly with lanyards and retaining cables, see part no. 33250.

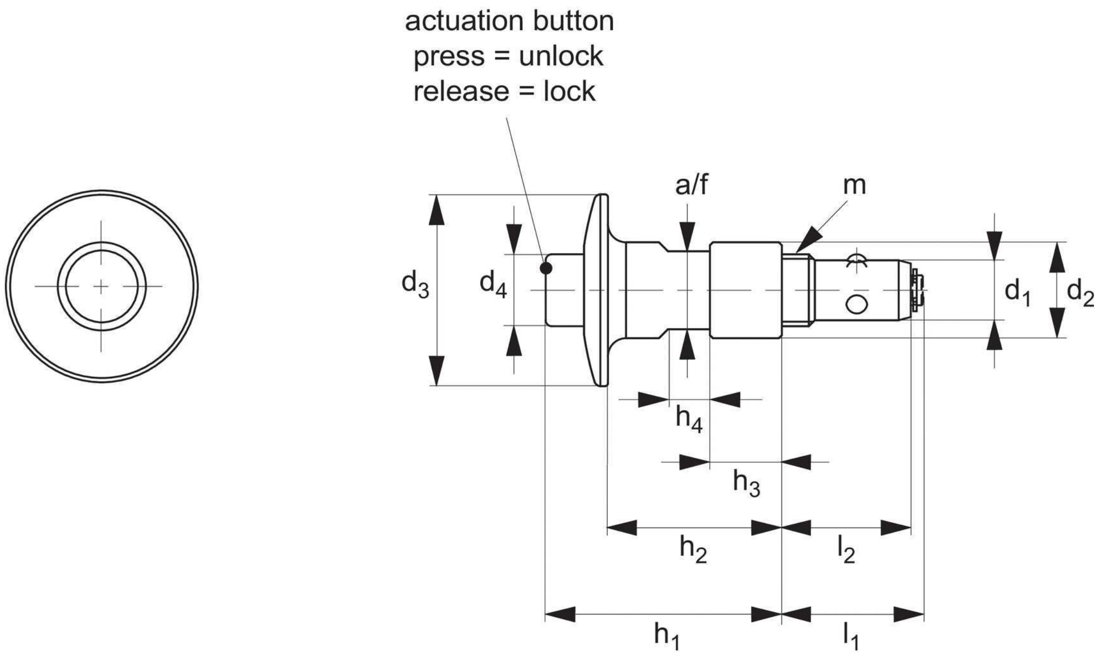
Important Notes
Suitable for panels/enclosures of 6 to 10mm thickness. For locating bushes see part no. 33920.
Recessed button handle means button is not exposed to accidental activation for added security.

Actuation:
push button: unlock (to pass pin through panels)
release button: lock to securely fasten.

One-Touch Fastener - Ball Locking

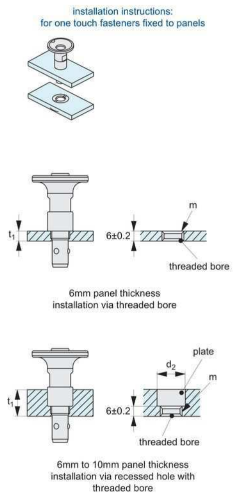
push button lock - button handle - stainless steel

33912



Order No.	For single panel thickness	d1 -0,05 -0,10	d2	d3	d4	l1	l2	g
33912.W1006	6-10	6	12	23	8	21,0	19,0	30
33912.W1610	6-16	10	16	32	12	23,5	21,5	75

Order No.	h1	h2	h3	h4	m	a/f	Clamping force N	Shear strength N	Tensile strength N
33912.W1006	26,0	18	6	5,5	M 8x1,25	10	30	3000	500
33912.W1610	39,4	29	12	7,0	M12x1,50	13	50	9000	1500



Material

Body: stainless steel.
Button: stainless steel, nickel plated.
Ball & coil ring: stainless steel.
O-Ring: fluororubber.

Technical Notes

One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts.
One-touch fasteners provide a quick, simple and secure change over solution - no time waste in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.
Temperature resistant to 180°C.

Important Notes

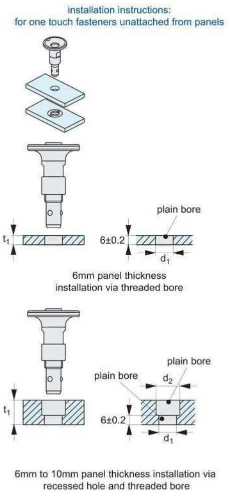
Suitable for panels/enclosures of 6 to 10mm thickness.
For locating bushes see part no. 33920.

Actuation:
push button: unlock (to pass pin through panels)
release button: lock to securely fasten.

One-Touch Fastener - Ball Locking

push button lock - button handle - stainless steel

33912



Material

Body: stainless steel.
Button: stainless steel, nickel plated.
Ball & coil ring: stainless steel.
O-Ring: fluororubber.

Technical Notes

One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time waste in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.
Temperature resistant to 180°C.

Important Notes

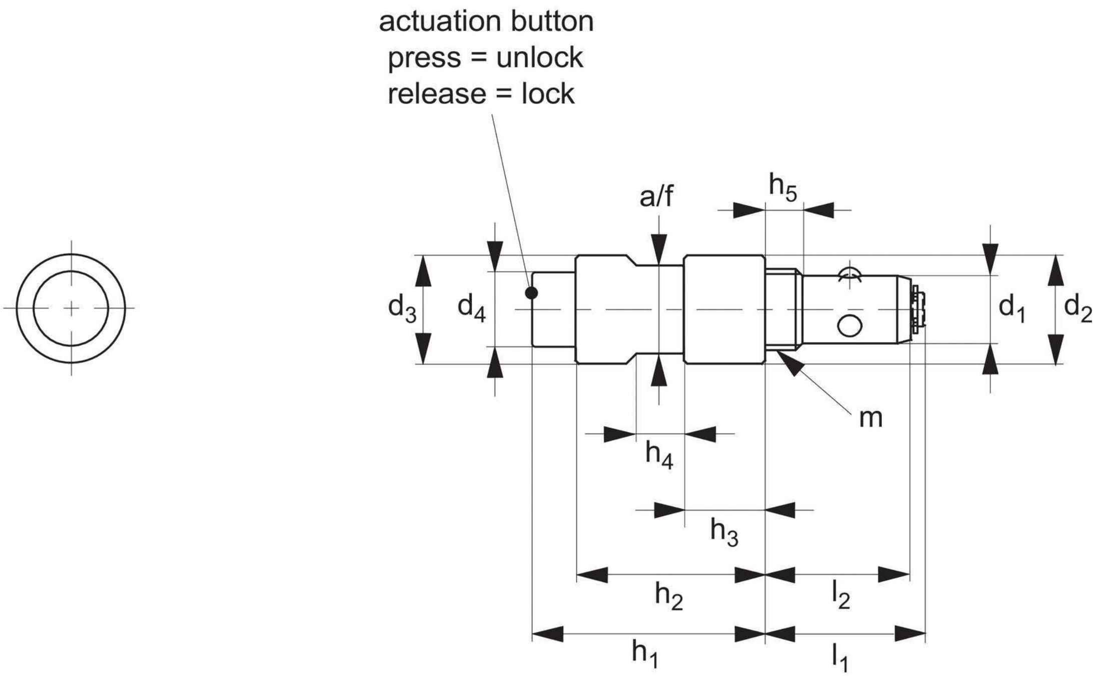
Suitable for panels/enclosures of 6 to 10mm thickness.
For locating bushes see part no. 33920.

Actuation:
push button: unlock (to pass pin through panels)
release button: lock to securely fasten.

One-Touch Fastener - Ball Locking

push button lock - straight - steel

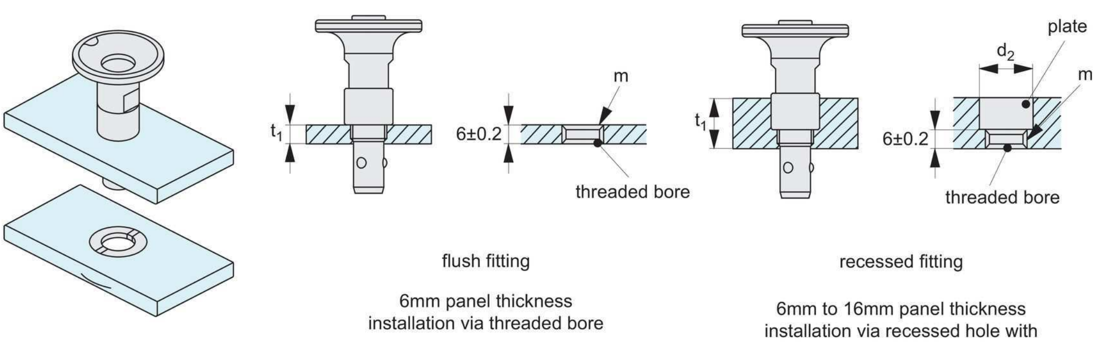
33914



Order No.	For single panel thickness	d_1 -0,05 -0,10	d_2	d_3	d_4	l_1	l_2	h_1	g
33914.W1006	6-10	6	12	12	8	21,0	19,0	22,0	30
33914.W1610	6-16	10	16	16	11	23,5	21,5	34,4	50

Order No.	h_2	h_3	h_4	h_5	m	a/f	Clamping force N	Shear strength N	Tensile strength N
33914.W1610	28,0	12	7,0	5,5	M12x1,5	13	50	9000	1500
33914.W1006	17,5	6	5,5	5,5	M8x1,25	10	30	3000	500

installation instructions: for one touch fasteners fixed to panels



flush fitting

6mm panel thickness
installation via threaded bore

recessed fitting

6mm to 16mm panel thickness
installation via recessed hole with threaded bore

Material

Body & button: steel, nickel plated.
Ball & coil ring: stainless steel.
Snap Ring: stainless steel.

Technical Notes

One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts.
One-touch fasteners provide a quick, simple and secure change over solution - no time wasted in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.
Temperature resistant to 180°C.

Important Notes

Suitable for panels/enclosures of 6 to 16mm thickness.
For locating bushes see part no. 33920.

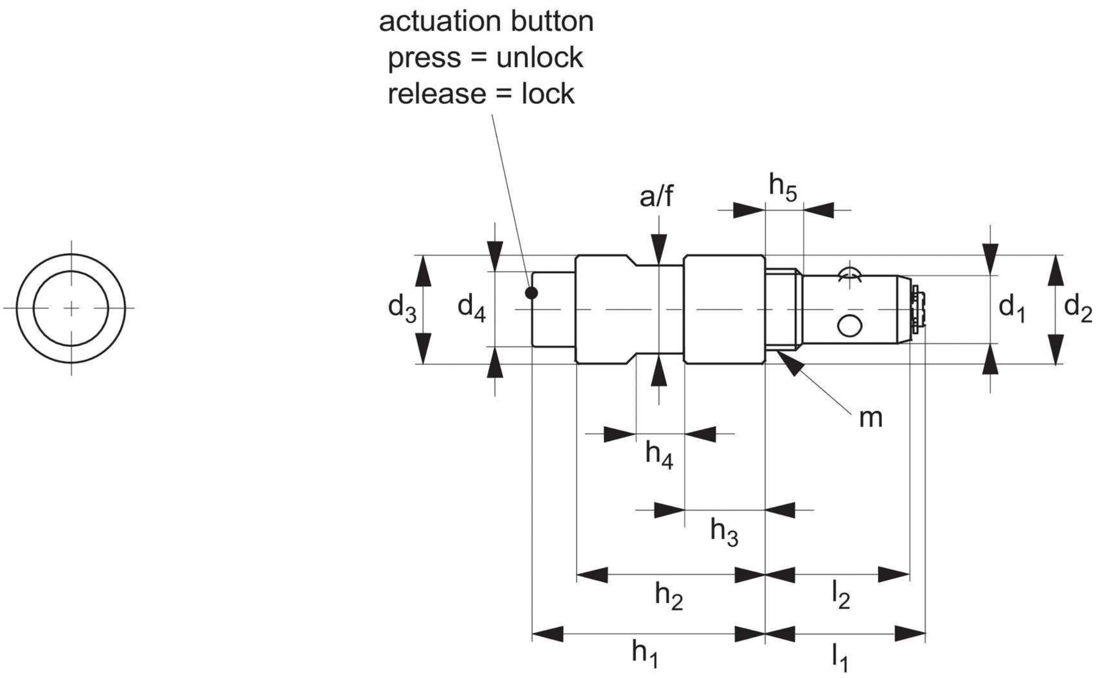
Actuation:
push button: unlock (to pass pin through panels)
release button: lock to securely fasten.

Note: One-touch fastener 33914 is not suitable for installation unattached from panel.

One-Touch Fastener - Ball Locking

push button lock - straight - stainless steel

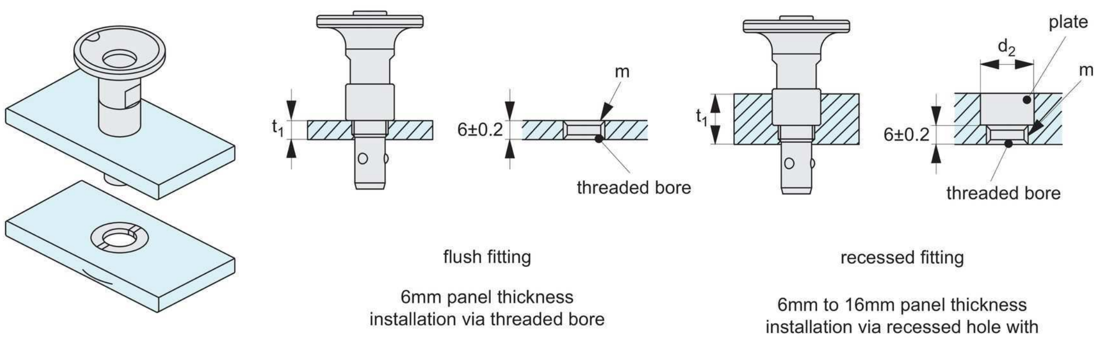
33915



Order No.	For single panel thickness	d_1 -0,05 -0,10	d_2	d_3	d_4	l_1	l_2	h_1	g
33915.W1006	6-10	6	12	25	8	21,0	19,0	22,0	30
33915.W1610	6-16	10	16	35	11	23,5	21,5	34,4	50

Order No.	h_2	h_3	h_4	h_5	m	a/f	Clamping force N	Shear strength N	Tensile strength N
33915.W1610	28,0	12	7,0	5,5	M12x1,5	13	50	9000	1500
33915.W1006	17,5	6	5,5	5,5	M 8x1,25	10	30	3000	500

installation instructions: for one touch fasteners fixed to panels



flush fitting

6mm panel thickness
installation via threaded bore

recessed fitting

6mm to 16mm panel thickness
installation via recessed hole with threaded bore

Material

Body & button: stainless steel
Ball & coil ring: stainless steel.
Snap Ring: stainless steel.

Technical Notes

One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts.
One-touch fasteners provide a quick, simple and secure change over solution - no time wasted in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.
Temperature resistant to 180°C.

Important Notes

Suitable for panels/enclosures of 6 to 16mm thickness.
For locating bushes see part no. 33920.

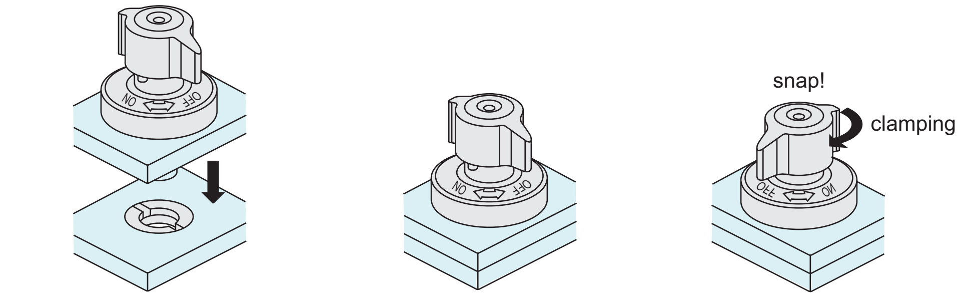
Actuation:
push button: unlock (to pass pin through panels)
release button: lock to securely fasten.

Note: One-touch fastener 33915 is not suitable for installation unattached from panel.

One-Touch Fastener - Ball Locking

quarter turn - installation instructions

Operating instructions

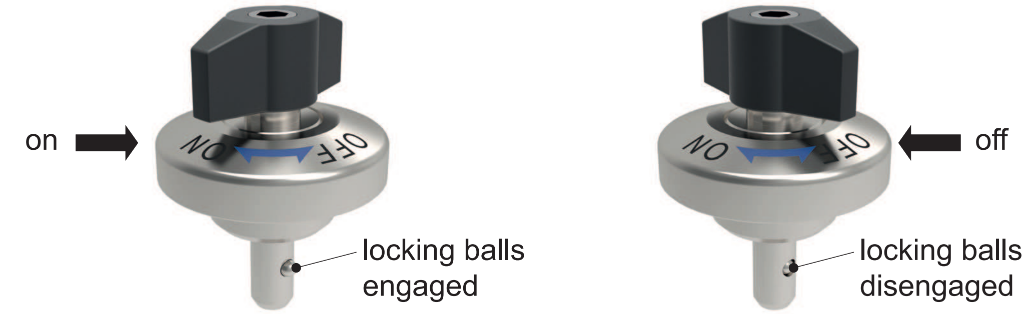


ensure that the knob is positioned at the "OFF" mark

align pin and receiver

turn the knob to the "ON" mark to clamp

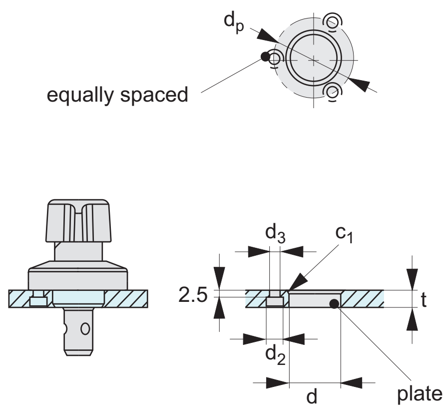
Easy status identification



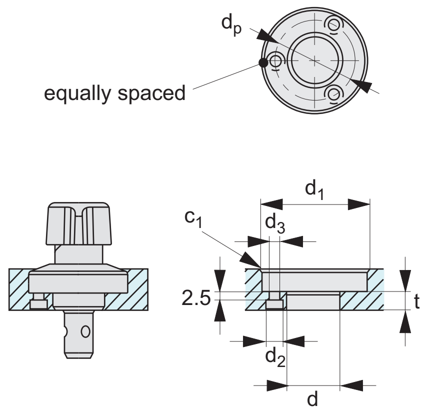
At ON position

At OFF position

Installation dimensions for 33916-33918



Installation for 6mm panels



Installation for 6mm to 20mm panels

33916/17/18	Single panel thickness t±0,2	d_6 +0,1 +0,0	d_7	d_8	d_9	d_5	c_1
.W1006	6	14	-	4,4	2,4	21	
W1006	6 to 10	14	26	4,4	2,4	21	
W1410	6	18	-	6,5	3,4	28	
W1410	6 to 14	18	35	6,5	3,4	28	
W2010	12	18	-	6,5	3,4	28	
W2010	12 to 20	18	35	6,5	3,4	28	

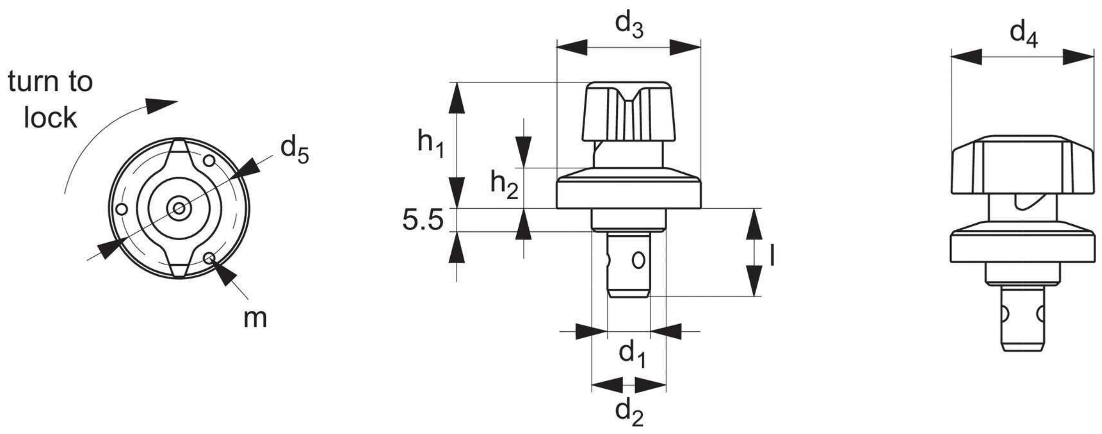
Note: if two fasteners used, allow spacing tolerance of ± 0,1mm

ov-33916-a - Updated - 10-01-2017

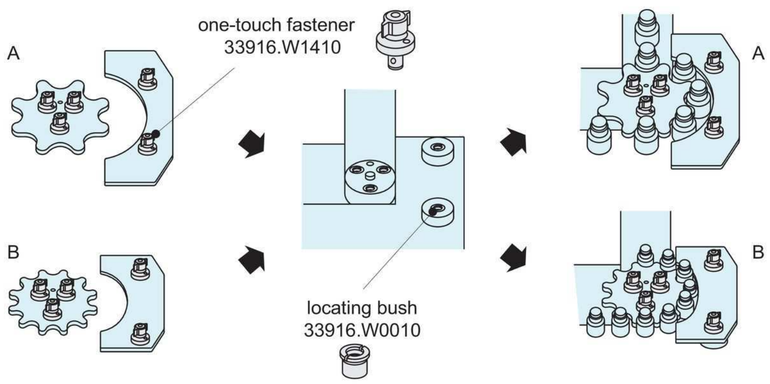
One-Touch Fastener - Ball Locking

quarter turn lock - t-handle grip - plastic

33916



Order No.	For single panel thickness	d_1 -0,05 -0,10	d_2 h9	d_3	d_4	d_5	h_1	h_2	l	m	Clamping force N	g
33916.W1006	6-10	6	14	25	25	21	24,5	6,5	19,5	M 2x0,4	30	40
33916.W1410	6-14	10	18	34	34	28	31,0	10,0	21,5	M 3x0,5	50	95
33916.W2010	12-20	10	18	34	34	28	31,0	10,0	27,5	M 3x0,5	50	100



quick change of star wheels and guide plates on bottling lines

Material

Body & Shank:steel, nickel plated.
Knob: plastic, black.
Ball & Spring: Titanium G5.

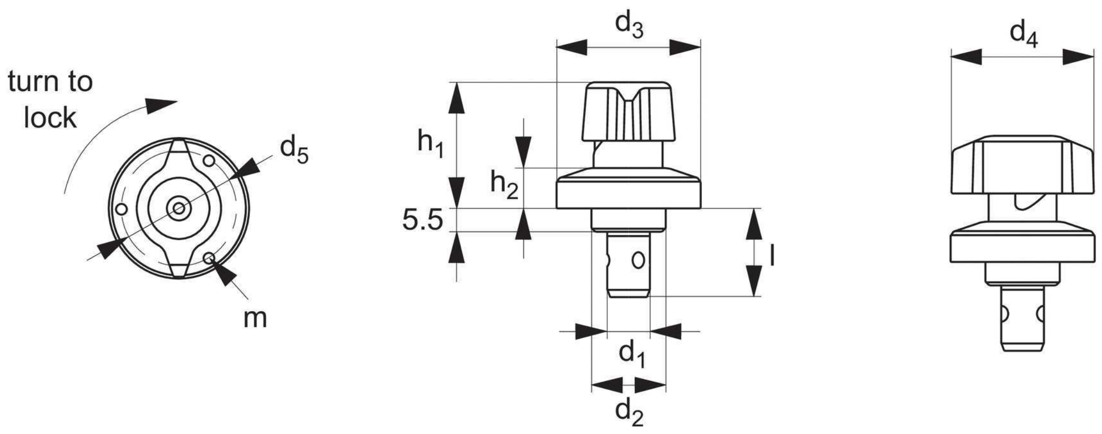
Technical Notes

One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time wasted in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.

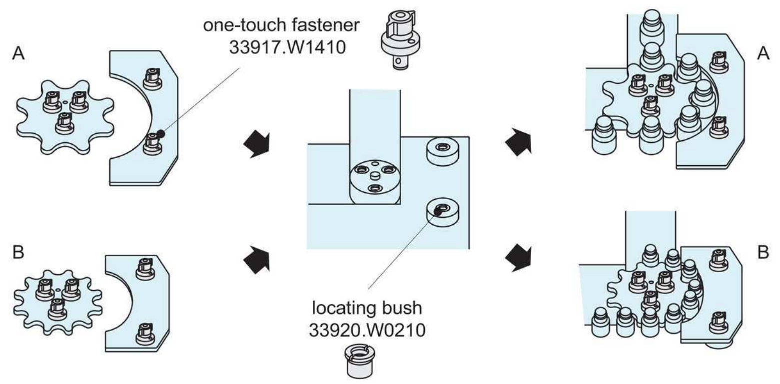
Important Notes

Suitable for panels/enclosures of 6 to 20mm thickness.
For locating bushes see part no. 33920.
Quarter turn handle, easy-to-read on/off position of the one-touch fastener for increased security.
Temperature resistant to 180°C.

Actuation:
-Turn handle to off position: locking balls retract and are held in retracted position via notched catch.
-Pass fastener through panel.
-Turn handle 45º to on position: locking balls engage with locating bush, panels are securely fastened.



Order No.	For single panel thickness	d_1 -0,05 -0,10	d_2 h9	d_3	d_4	d_5	h_1	h_2	l	m	Clamping force N	g
33917.W1006	6-10	6	14	25	25	21	24,5	6,5	19,5	M 2x0,4	30	40
33917.W1410	6-14	10	18	34	34	28	31,0	10,0	21,5	M 3x0,5	50	95
33917.W2010	12-20	10	18	34	34	28	31,0	10,0	27,5	M 3x0,5	50	100



quick change of star wheels and guide plates on bottling lines

Material

Body & shank: steel, nickel plated.
Knob: stainless steel.
Ball & spring: stainless steel.

Technical Notes

One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time wasted in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.

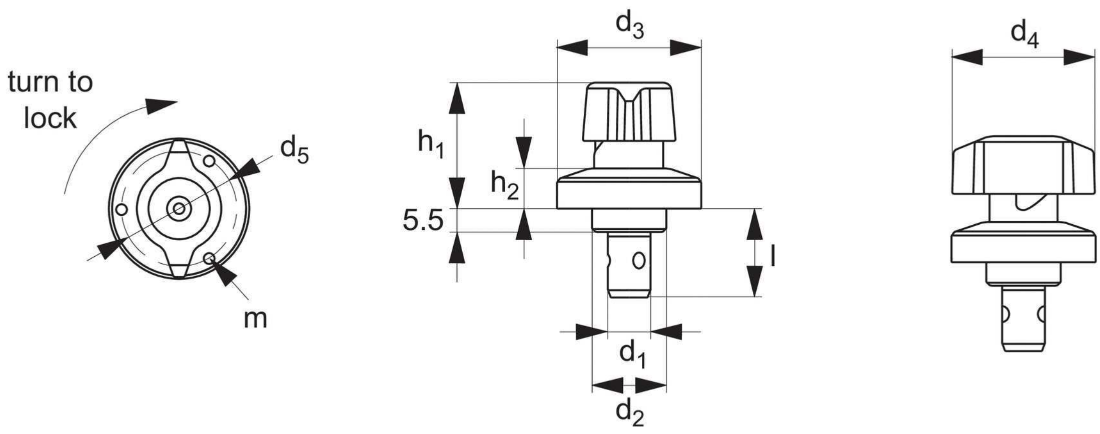
Important Notes

Suitable for panels/enclosures of 6 to 20mm thickness.
For locating bushes see part no. 33920.
Quarter turn handle, easy-to-read on/off position of the one-touch fastener for increased security.
Temperature resistant to 180°C.

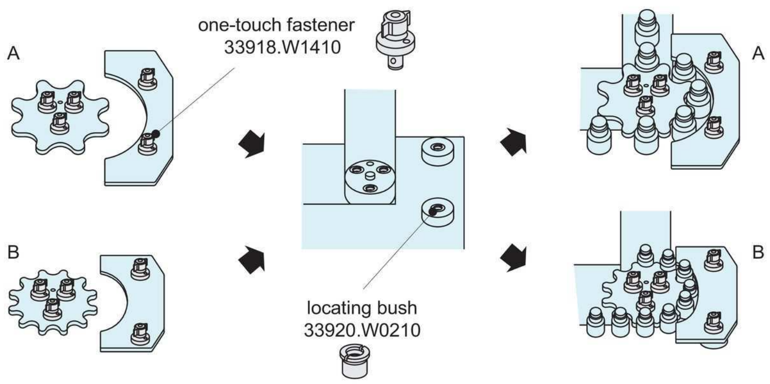
Actuation:
-Turn handle to off position: locking balls retract and are held in retracted position via notched catch.
-Pass fastener through panel.
-Turn handle 45º to on position: locking balls engage with locating bush, panels are securely fastened.

One-Touch Fastener - Ball Locking
quarter turn lock - t-handle grip - stainless steel

33918



Order No.	For single panel thickness	d_1 -0,05 -0,10	d_2 h9	d_3	d_4	d_5	h_1	h_2	l	m	Clamping force N	g
33918.W1006	6-10	6	14	25	25	21	24,5	6,5	19,5	M 2x0,4	30	40
33918.W1410	6-14	10	18	34	34	28	31,0	10,0	21,5	M 3x0,5	50	95
33918.W2010	12-20	10	18	34	34	28	31,0	10,0	27,5	M 3x0,5	50	100



quick change of star wheels and guide plates on bottling lines

Material
Body & shank: stainless steel.
Knob: stainless steel.
Ball & spring: stainless steel.

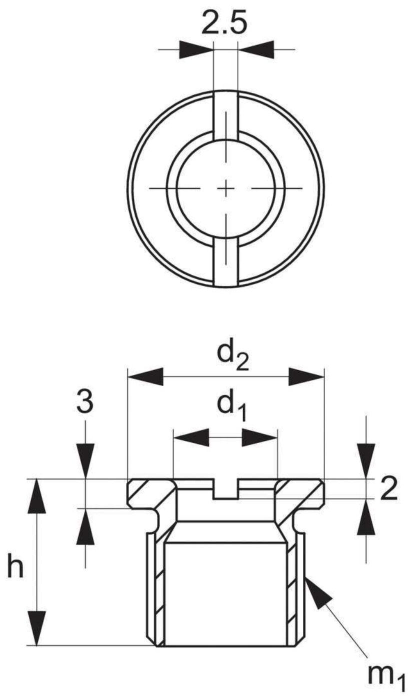
Technical Notes
One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time wasted in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.

Important Notes
Suitable for panels/enclosures of 6 to 20mm thickness.
For locating bushes see part no. 33920.
Quarter turn handle, easy-to-read on/off position of the one-touch fastener for increased security.
Temperature resistant to 180°C.

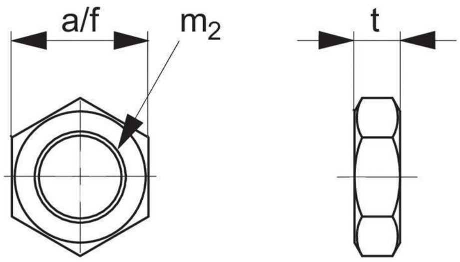
Actuation:
-Turn handle to off position: locking balls retract and are held in retracted position via notched catch.
-Pass fastener through panel.
-Turn handle 45º to on position: locking balls engage with locating bush, panels are securely fastened.

Locating Bushes

for one-touch fasteners 33910 to 33918



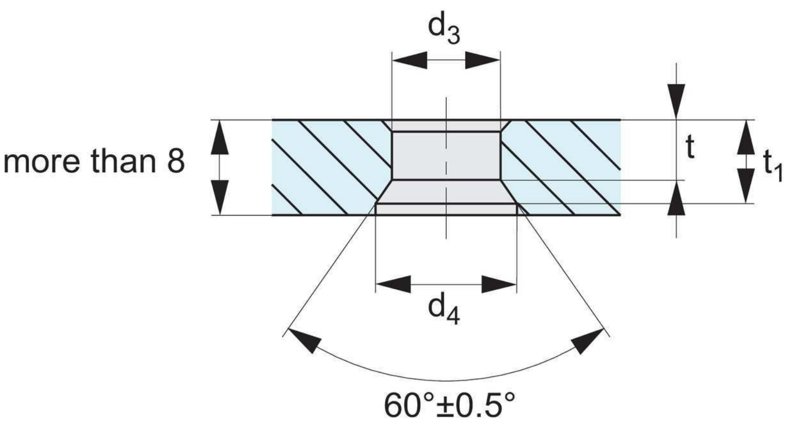
locating bush



lock nut

Order No.	Type	Material	d_1 +0,4 +0,2	d_2 h9	h	t	a/f	m_1	m_2	For panel thickness	g
33920.W0006	Bush	Steel	6	16	15	-	-	M12x1,5	-	>6	9
33920.W0010	Bush	Steel	10	20	17	-	-	M16x1,5	-	>6	13
33920.W0206	Bush	S/S	6	16	15	-	-	M12x1,5	-	>6	9
33920.W0210	Bush	S/S	10	20	17	-	-	M16x1,5	-	>6	13
33920.W0900	Tool	Steel	-	-	-	-	-	-	-	-	-
33920.W5012	Nut	S/S	-	-	-	6	19	-	M12x1,5	-	-
33920.W5016	Nut	S/S	-	-	-	8	24	-	M16x1,5	-	-

installation in receiver panel - without locating bush



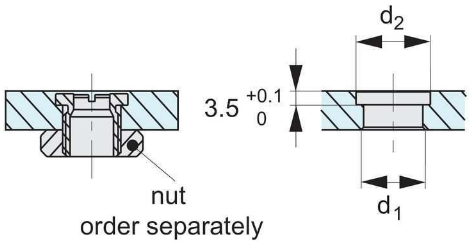
Material
Body: steel or stainless steel SUS303.
Nut: stainless steel SUS303.

Technical Notes
Used in conjunction with one-touch fasteners 33910 to 33918, locating bushes 33920 provide secure fastening of panels and covers. Locating bushes are of particular use in soft metals, such as aluminium where receiving surfaces may wear. One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts.

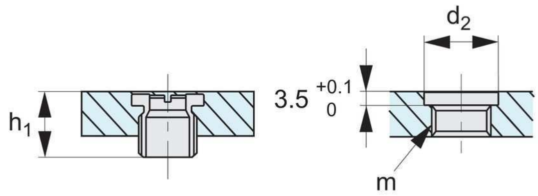
Tips
While we recommend the use of locating bushes as receivers for our one-touch fasteners, it is also possible to mount one-touch fasteners without them, see specifications opposite.

Important Notes
Suitable for panels/enclosures of 6 to 20mm thickness.
For one-touch fasteners see part no. 33910 to 33918. For installation instructions see technical page.
Temperature resistant to 180°C.

installation in receiver panel - with locating bush



installation via plain bore and locking nut



installation via threaded bore

Material
Body: steel or stainless steel SUS303.
Nut: stainless steel SUS303.

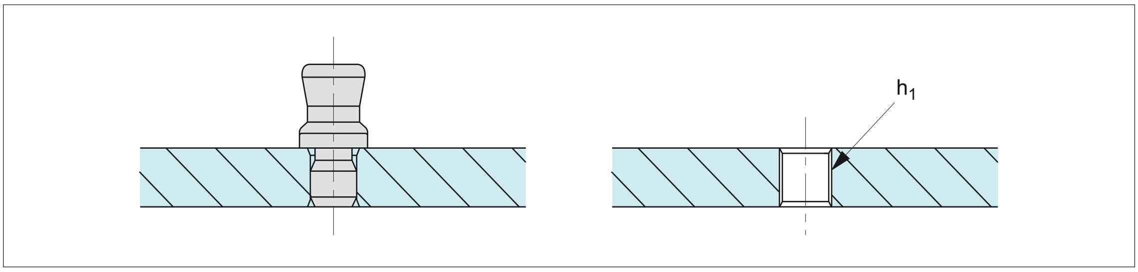
Technical Notes
Used in conjunction with one-touch fasteners 33910 to 33918, locating bushes 33920 provide secure fastening of panels and covers. Locating bushes are of particular use in soft metals, such as aluminium where receiving surfaces may wear. One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts.

Tips
While we recommend the use of locating bushes as receivers for our one-touch fasteners, it is also possible to mount one-touch fasteners without them, see specifications opposite.

Important Notes
Suitable for panels/enclosures of 6 to 20mm thickness.
For one-touch fasteners see part no. 33910 to 33918. For installation instructions see technical page.
Temperature resistant to 180°C.

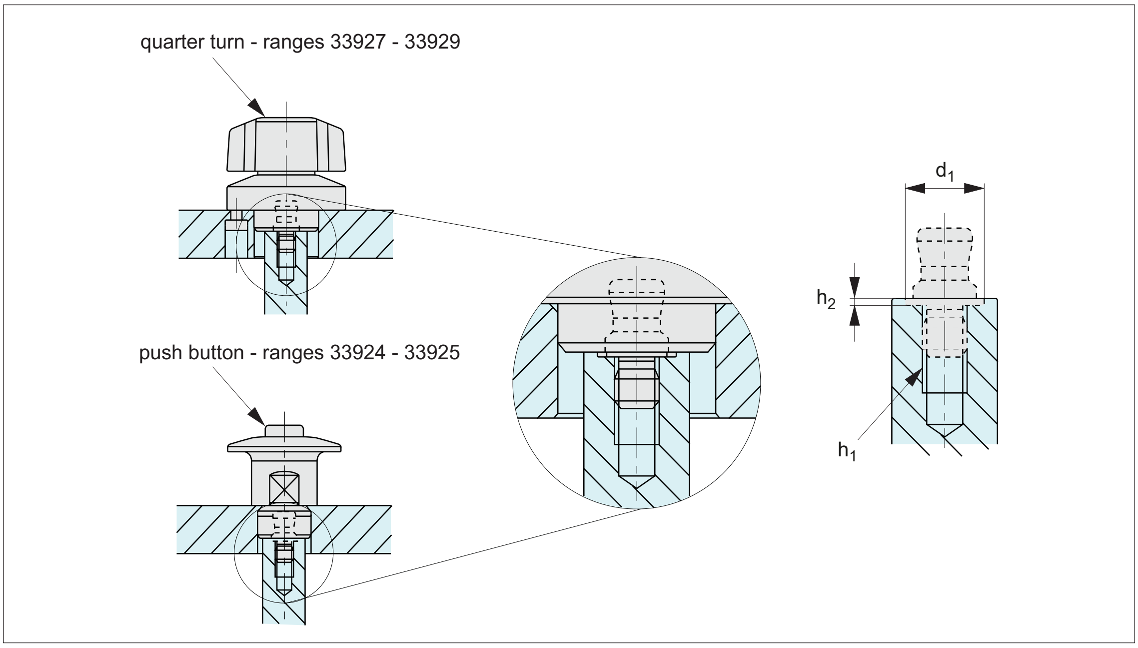
Installation Dimensions

Standard mount



Recessed mount

Prepare a tapped hole according to the thread of the pin. Ensure a counter bore is machined to depth h_2 to complete pin installation.

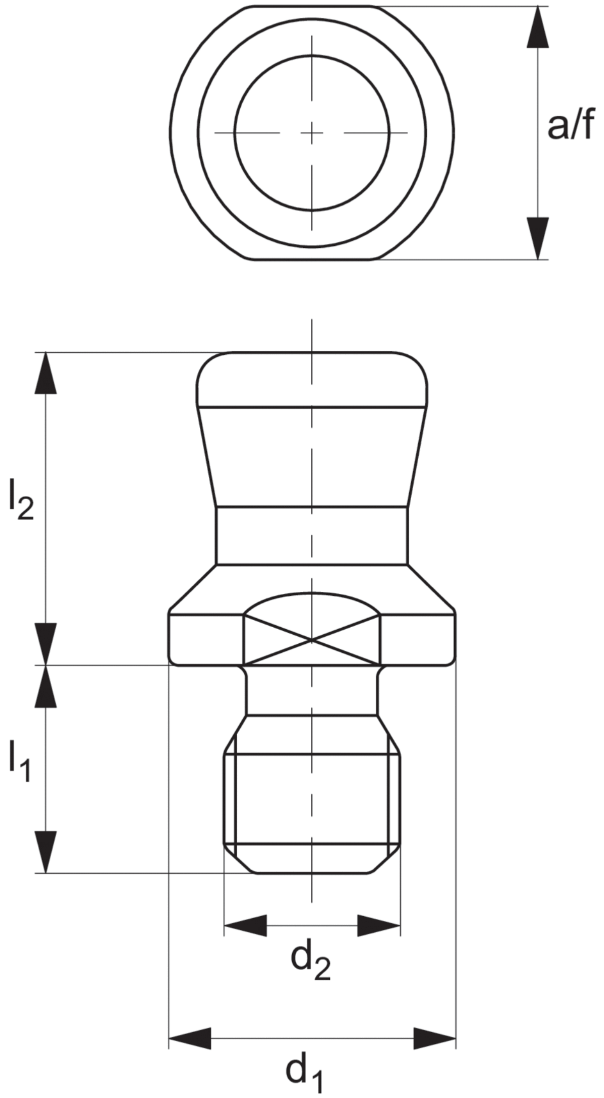


	Mounting type	h_1	h_2 +0,1	d_3
33923.W0006	Standard	M4x0,7	-	-
33923.W0006	Recessed	M4x0,7	0,5	7
33923.W0008	Standard	M5x0,8	-	-
33923.W0008	Recessed	M5x0,8	0,5	9

One-Touch Fastener - Ball Clamping

pin - for one touch fasteners 33924 to 33929

33923



Order No.	d_1 -0.05 -0.10	d_2	l_1	l_2	a/f	g
33923.W0006	6	M 4x0,7	5,8	7,6	5	2
33923.W0008	8	M 5x0,8	5,8	8,7	7	3

Material

Body: stainless steel, SUS630

Technical Notes

One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and dive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time wasted in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.

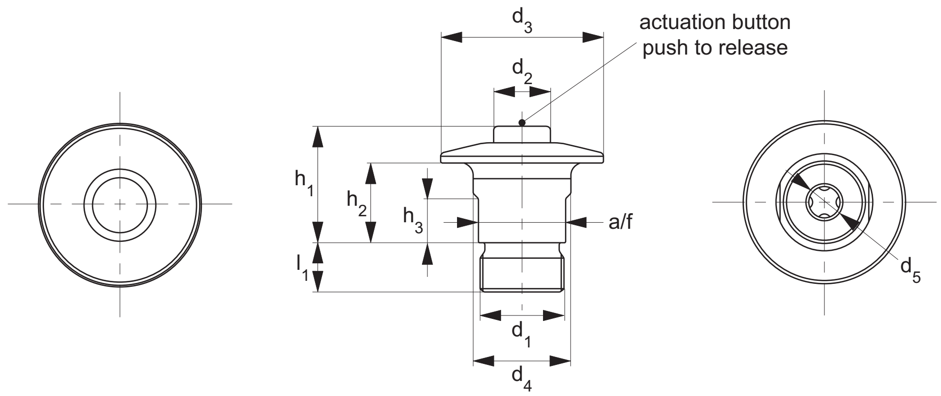
Important Notes

Pin 33923 for use in conjunction with one-touch fasteners, ball clamping;
33924 through 33929. Pins for installation in material to minimum depth 6,0mm or greater.
Recess of 0,5mm +0,1 is recommended to ensure full surface contact and achieve maximum strength of pin.

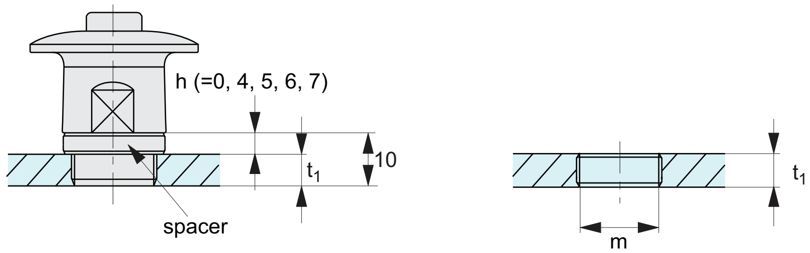
One-Touch Fastener - Ball Clamping

push button lock - button handle - stainless

33924



Order No.	For single panel thickness	For Pin Ø	d_1	d_2	d_3	d_4	d_5 $^{+0.4}_{+0.2}$	h_1	h_2	h_3	l_1	a/f	Clamping force N	Shear strength N	Tensile strength N	g
33924.W1006	3-10	6	M16x1,0	11	32	19	6	23	15,5	8,5	9,5	17	6	1100	250	65



flush fitting
3-10mm panel thickness
installation via hole with
threaded bore

	Fitting	Single panel thickness mm	t_1 $\pm 0,2$	m
33924.W1006	Flush	3 to 10	3 to 10	M16x1,0

Material

Body: stainless steel SUS303
Ball: stainless steel SUS440
Spring: stainless steel SUS304
O-Ring: fluororubber

Technical Notes

One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and dive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time wasted in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery. Temperature resistant to 180°C.

Tips

Used in conjunction with pin 33923.
For highly accurate locating, use locating pins 36340 & 36341

Important Notes

Suitable for panel/enclosures of 3 to 10mm thickness.
Used in conjunction with pin 33923.
Tensile strength stated is for locked position/state of fastener.

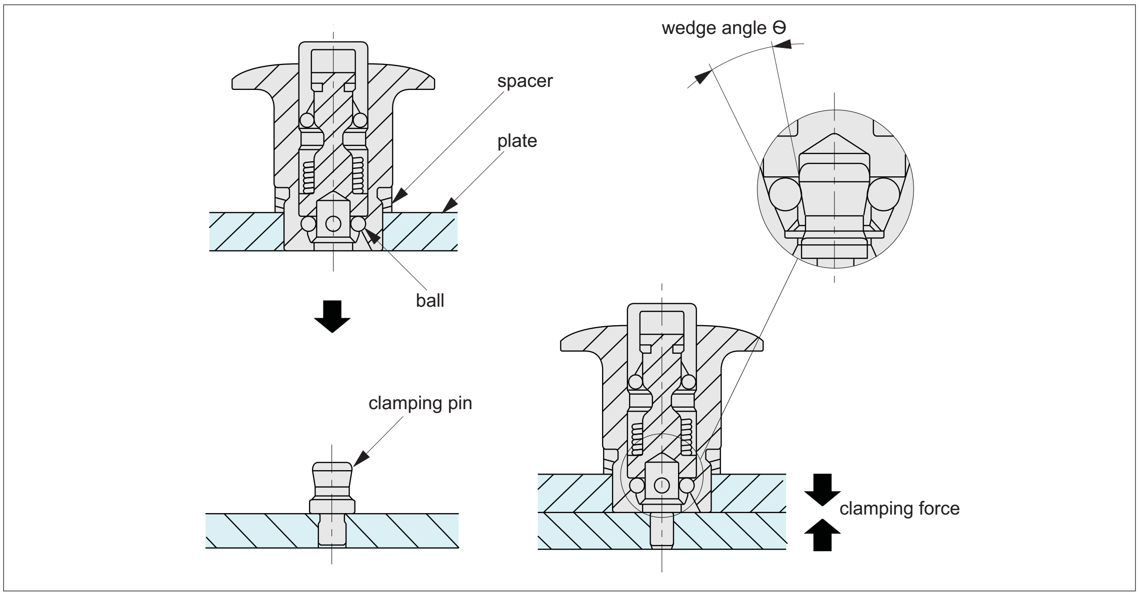
Actuation:
-Engage clamp over pin, no need to push button, a positive "click" is heard.
-Securing balls are locked and panel fastened.
-To release; while pushing down on release button, lift panel from pin-panel is released.

One-Touch Fastener - Ball Clamping

overview

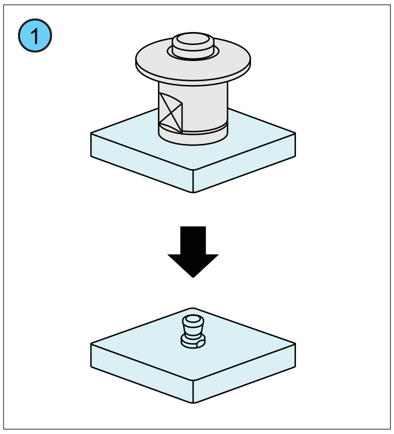
Operating Principle

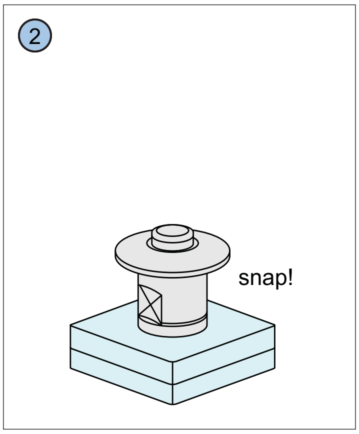
Four ball bearings clamp onto the clamping pin (33923), the wedge shape of the pin draws the panels together during clamping.

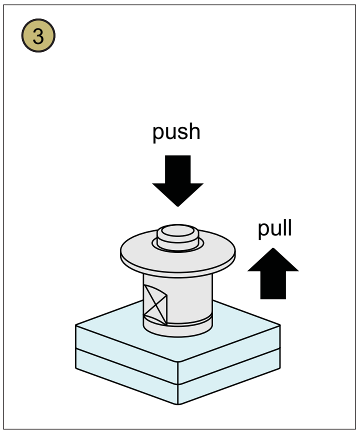


Operating Instructions

1. Engage clamp over pin, no need to push button, a positive "click" is heard.
2. Securing balls are locked and panel fastened.
3. To release; while pushing down on release button, lift panel from pin - panel is released.

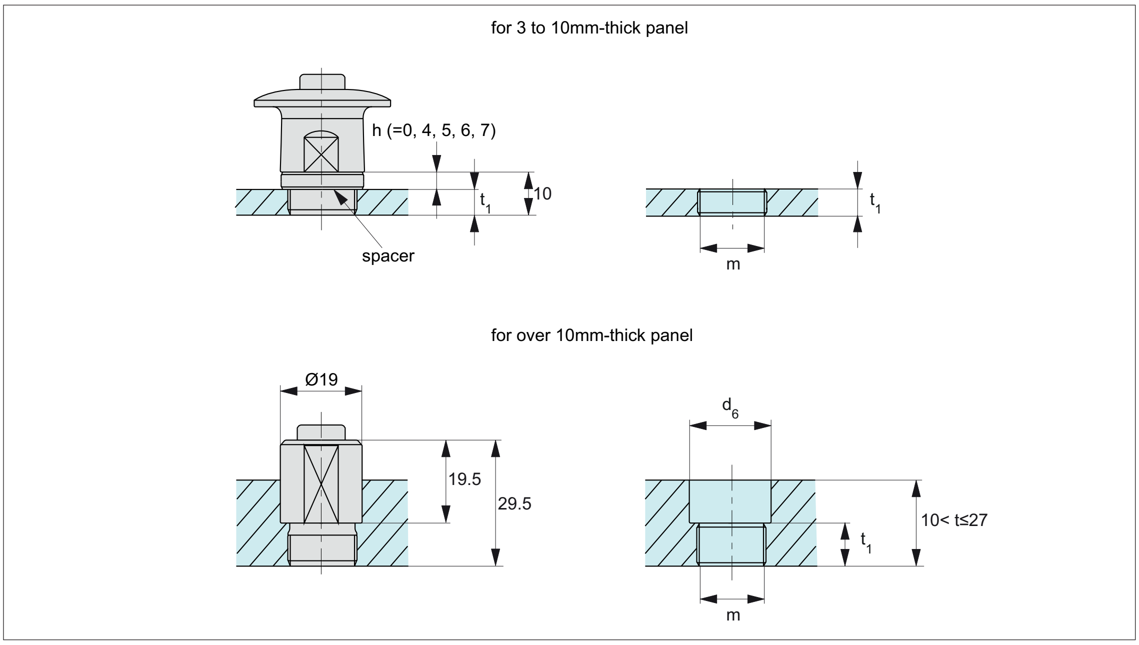






POSITIONING ELEMENTS

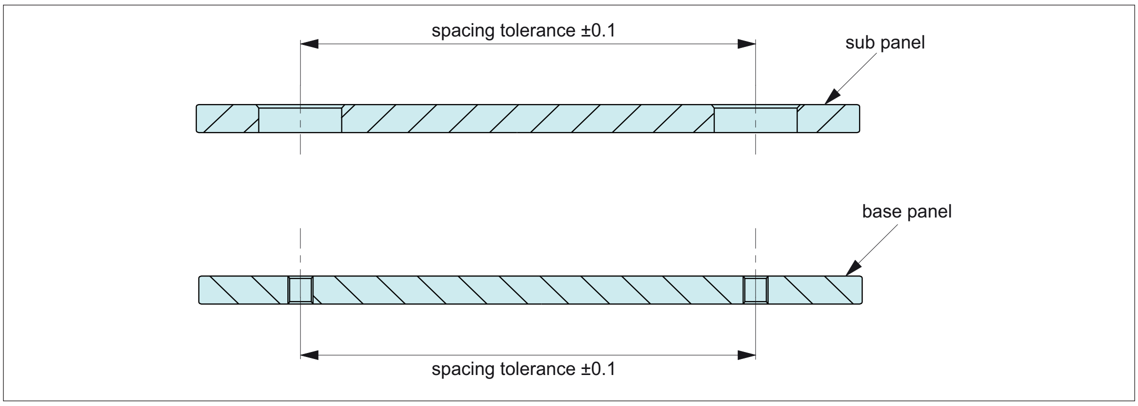
Installation Dimensions



Installation Best Practice

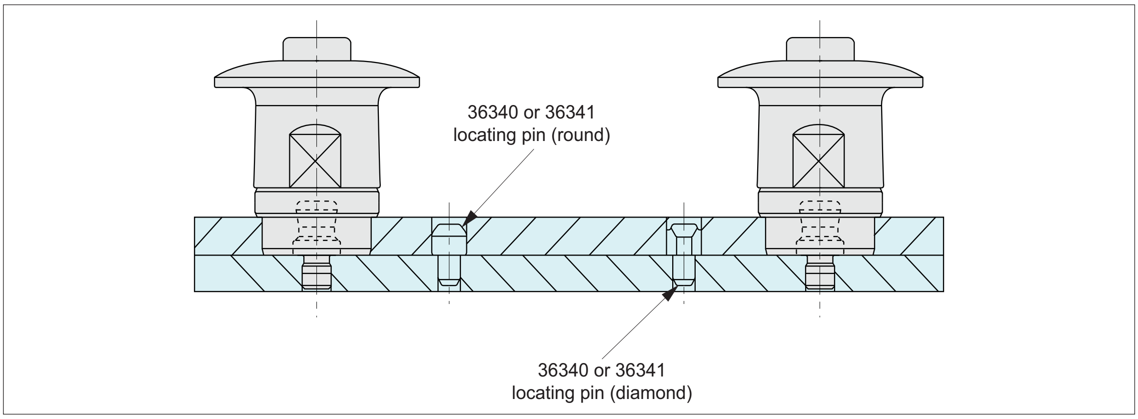
Panel tolerances

Spacing tolerance on both the sub panel and the base panel should be ±0.1.

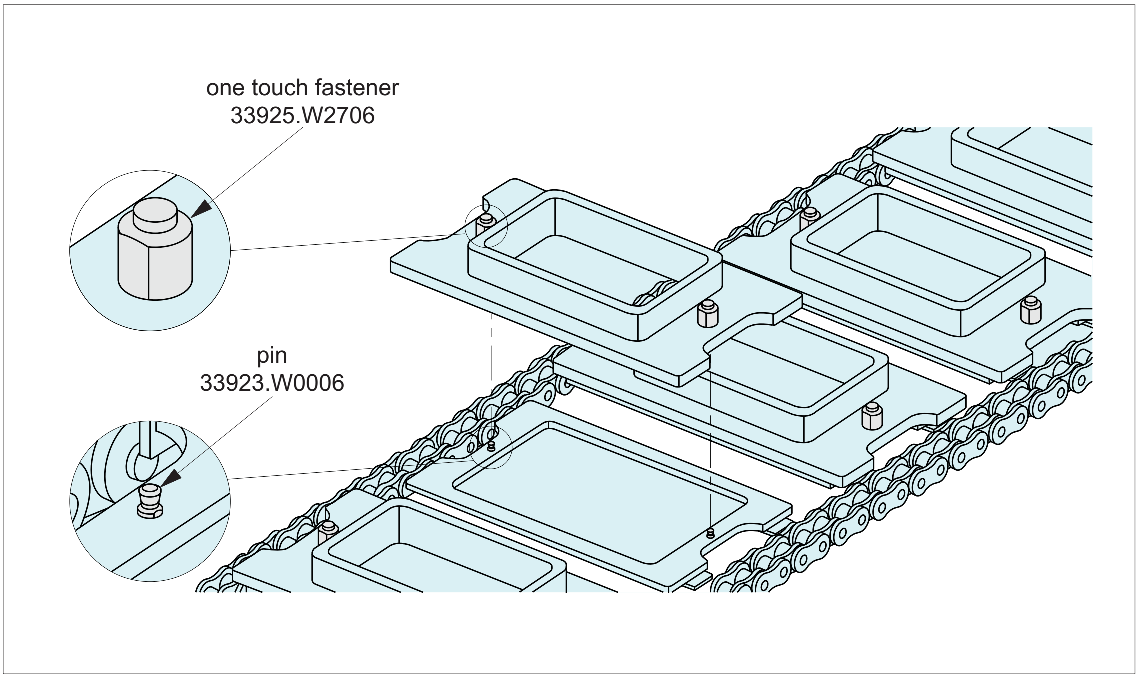


Repeatability

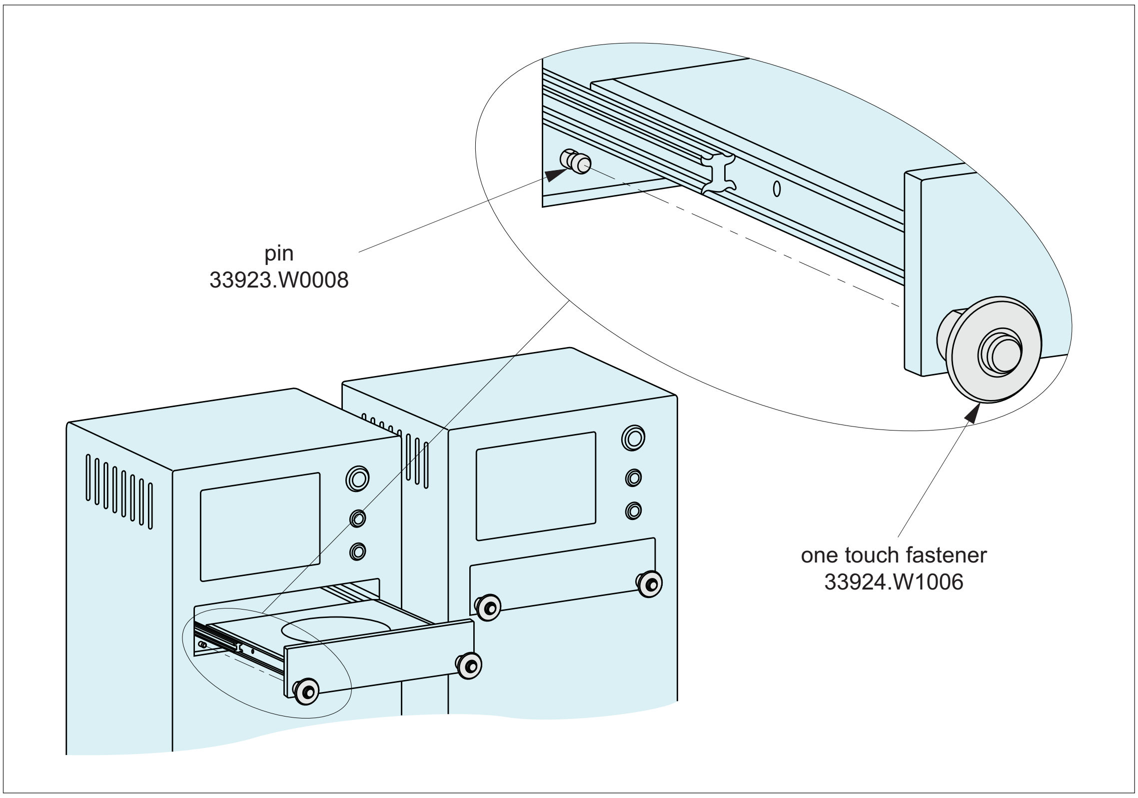
For highly accurate locating, use locating pins 36340 or 36341. Repeatability of ±0.25 is achievable.



One Touch Fastener Applications



Changes of trays and containers on conveyers



Securing sliding elements such as drawers

One-Touch Fastener - Ball Clamping

push button lock - straight body - stainless

Material

Body: stainless steel SUS303
Ball: stainless steel SUS440
Spring: stainless steel SUS304
O-Ring: fluororubber

Technical Notes

One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and dive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time wasted in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery. Temperature resistant to 180°C.

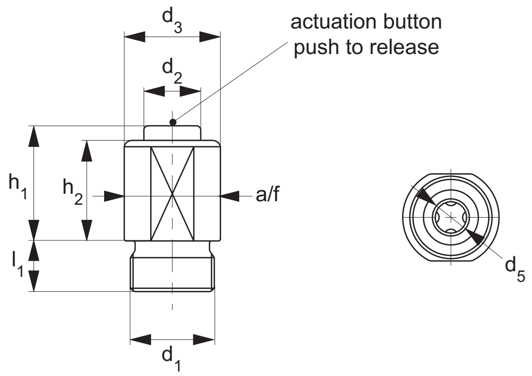
Tips

Used in conjunction with pin 33923. For highly accurate locating, use locating pins 36340 & 36341

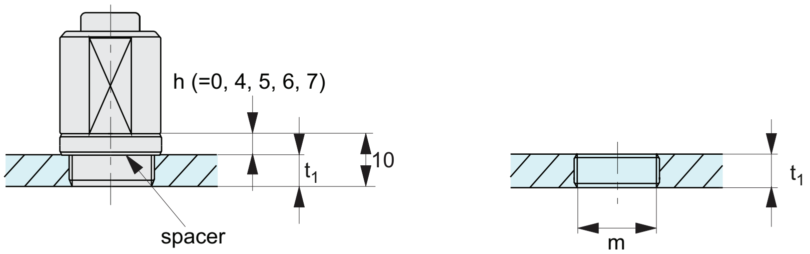
Important Notes

Suitable for panel/enclosures of 3 to 27mm thickness. Used in conjunction with pin 33923. Tensile strength stated is for locked position/state of fastener.

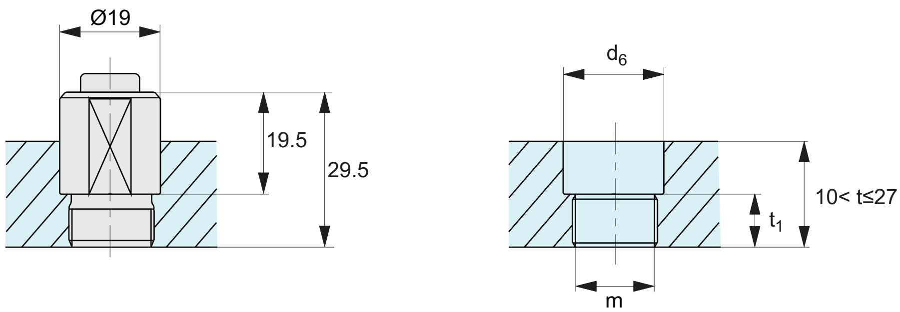
Actuation:
-To lock; engage clamp over pin, no need to push button, a positive "click" is heard.
-Securing balls are locked and panel fastened.
-To release; while pushing down on release button, lift panel from pin-panel is released.



Order No.	For single panel thickness	For Pin Ø	d_1	d_2	d_3	d_5 $^{+0.4}_{+0.2}$	h_1	h_2	l_1	a/f	Clamping force N	Shear strength N	Tensile strength N	g
33925.W2706	3-27	6	M16x1,0	11	19	6	23	19,5	9,5	17	6	1100	250	50



flush fitting
3-10mm panel thickness
installation via hole with
threaded bore



10-27mm panel thickness
installation via recessed hole
with threaded bore

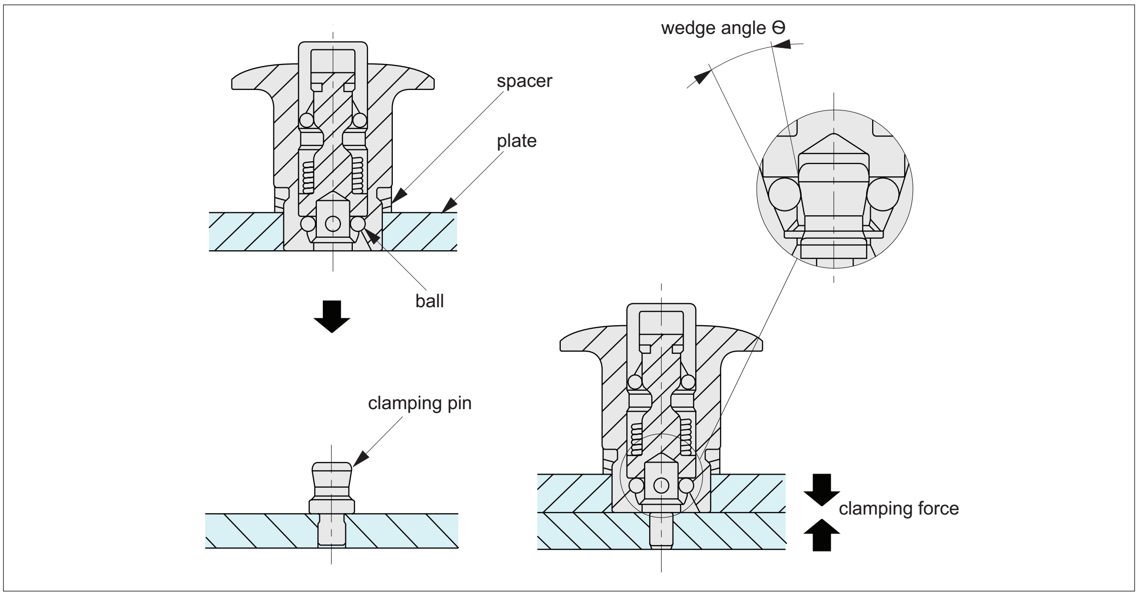
	Fitting	Single panel thickness mm	t_1 $^{+0,2}$	m	d_6
33925.W2706	Flush	3 to 10	3 to 10	M16x1,0	-
33925.W2706	Recessed	10 to 27	10	M16x1,0	20

One-Touch Fastener - Ball Clamping

overview

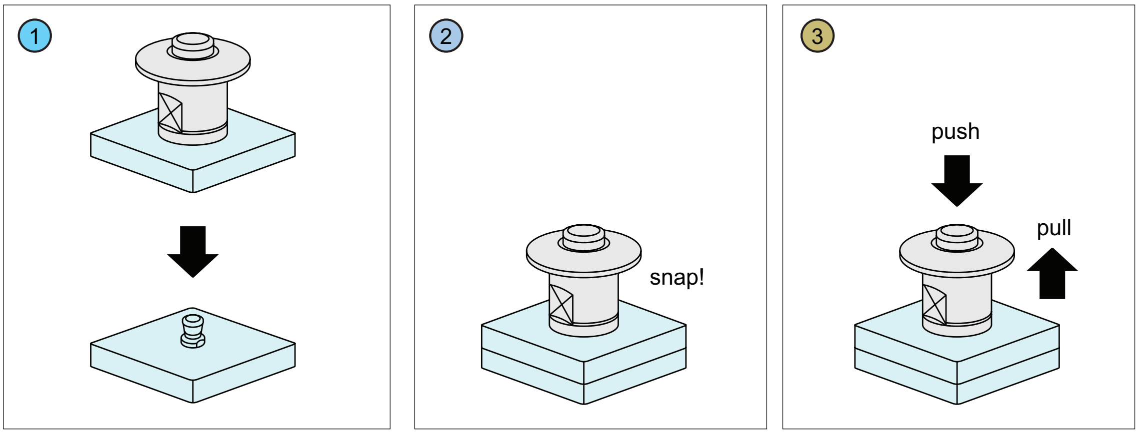
Operating Principle

Four ball bearings clamp onto the clamping pin (33923), the wedge shape of the pin draws the panels together during clamping.



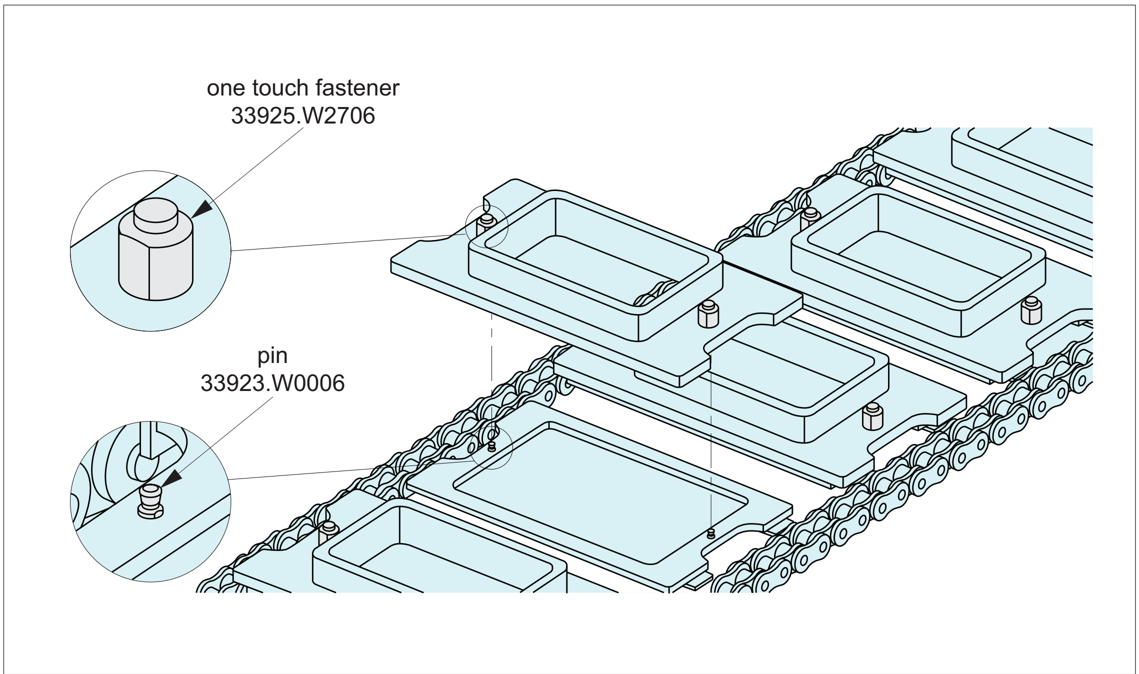
Operating Instructions

1. Engage clamp over pin, no need to push button, a positive "click" is heard.
2. Securing balls are locked and panel fastened.
3. To release; while pushing down on release button, lift panel from pin - panel is released.

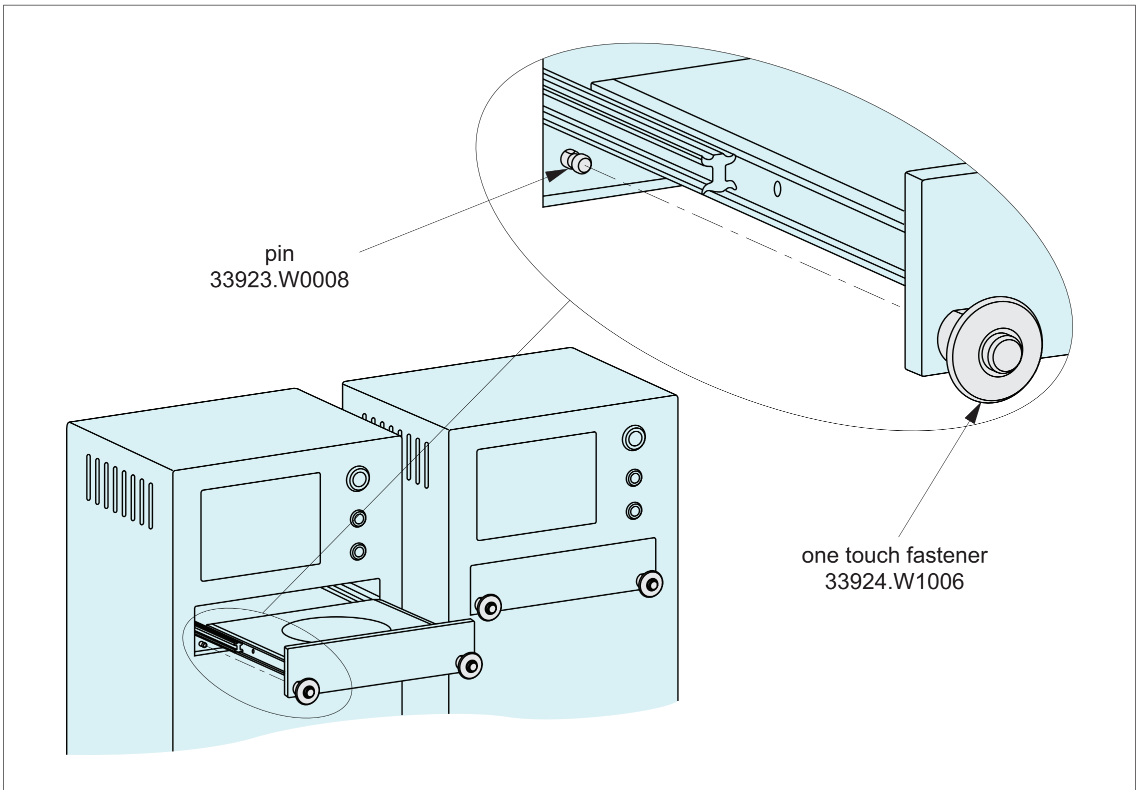


Wixroyd 0845 26 66 577 info@wixroyd.com

One Touch Fastener Applications



Changes of trays and containers on conveyers

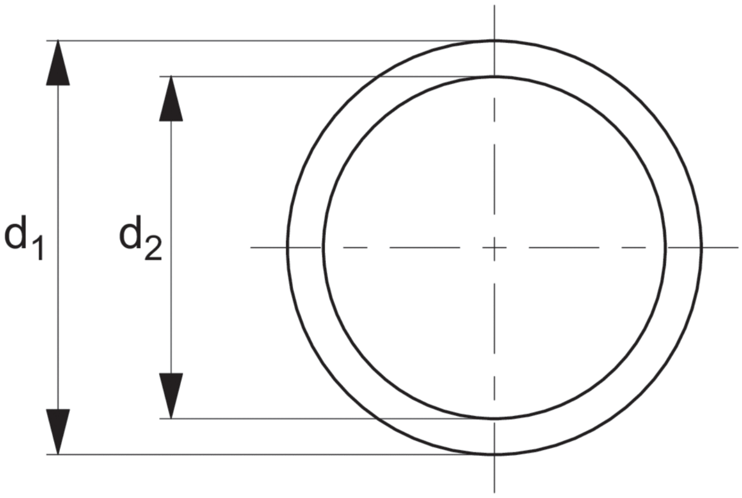


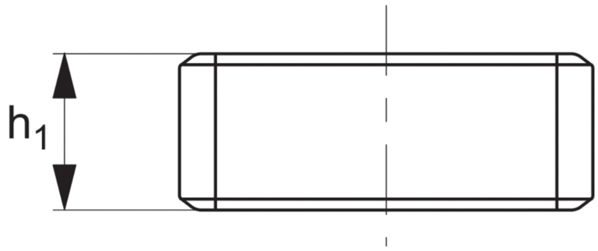
Securing sliding elements such as drawers

One-Touch Fastener - Ball Clamping

spacer- for one-touch fastener 33924 & 33925

33926





Material
Stainless steel SUS303

Technical Notes
For use with one-touch fasteners 33924 and 33925. Spacer adapts thread length of one-touch fastener to different thread reaches on mounting panels of different thickness.

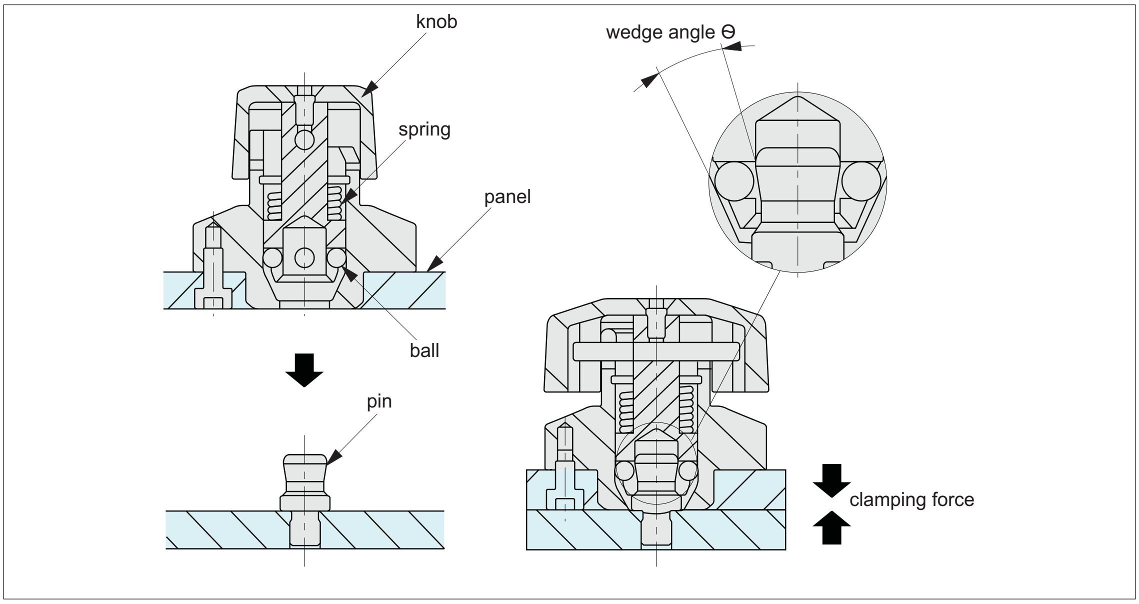
Order No.	For panel thickness	d_1	d_2 +0.2 +0.01	h_1 +0.05	g
33926.W1604	6	19	16	4	2,5
33926.W1605	5	19	16	5	3,0
33926.W1606	4	19	16	6	3,5
33926.W1607	3	19	16	7	4,0

One-Touch Fastener - Ball Clamping

quarter turn - overview

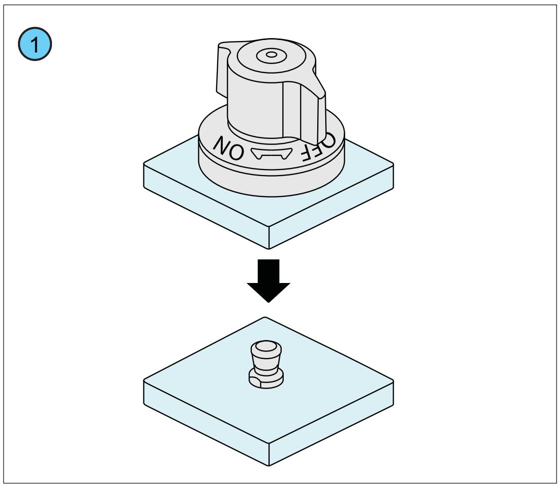
Operating Principle

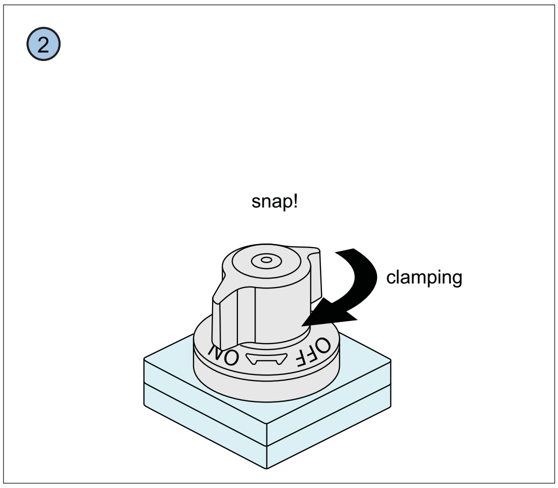
Four ball bearings clamp onto the clamping pin, the wedge shape of the pin (33929) draws the panels together during clamping.



Operating Instructions

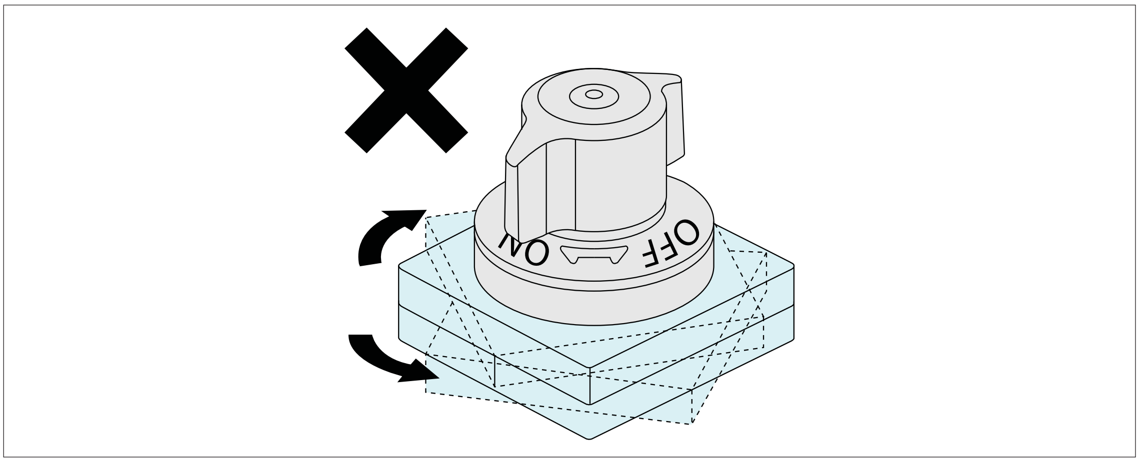
1. Turn handle to off position to retract the clamping balls. Engage panel and clamp over clamping pin. Turn handle on to position to clamp.
2. To unclamp, reverse steps above.





Warning

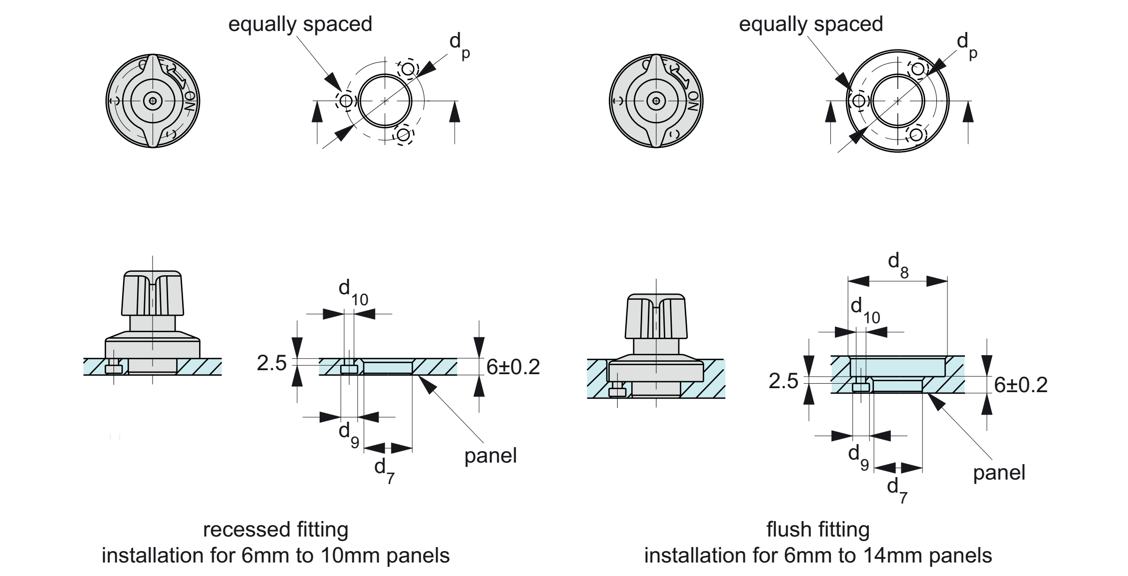
Rotation of either sub panel or base panel can result in one touch fastener unclamping. When either panel is at risk of rotating ensure a stop is in place.



One-Touch Fastener - Ball Clamping

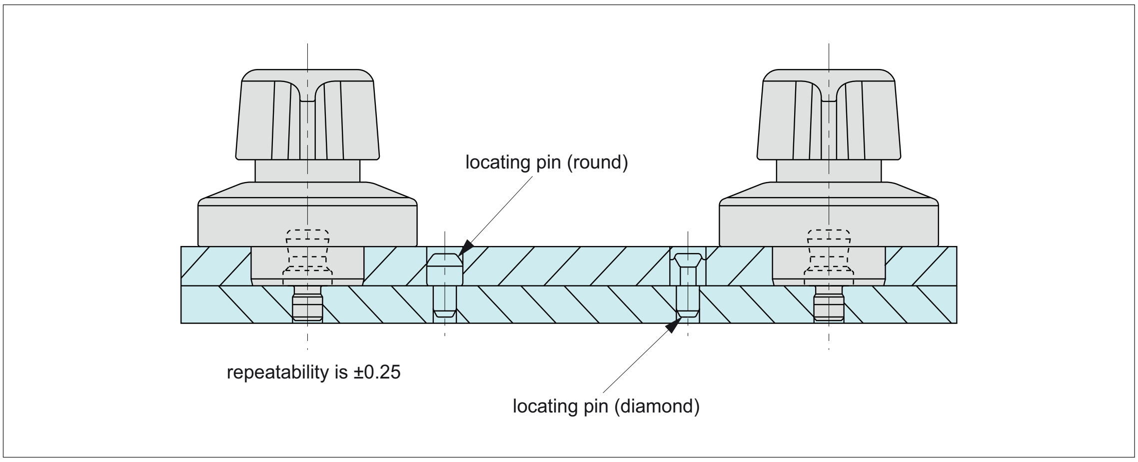
quarter turn - installation

Installation Dimensions



Repeatability

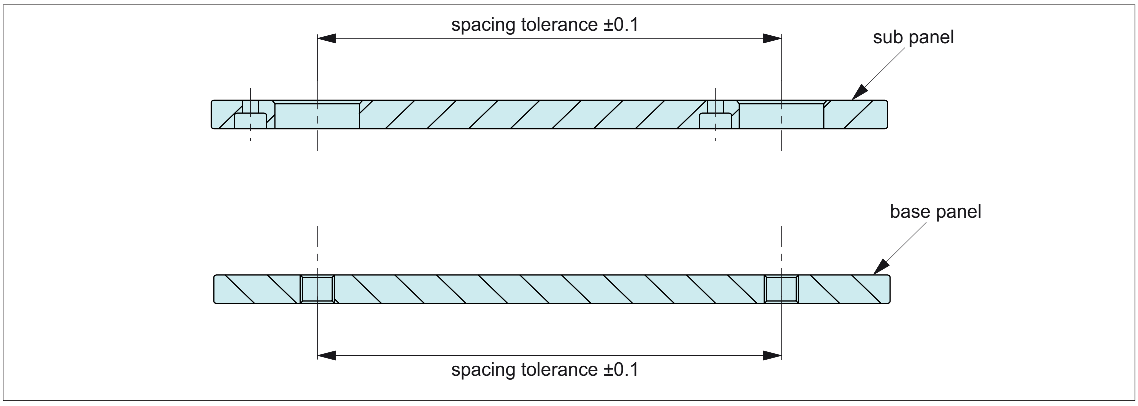
For highly accurate locating, use locating components 36340 or 36341. Repeatability of ±0.25 is achievable.



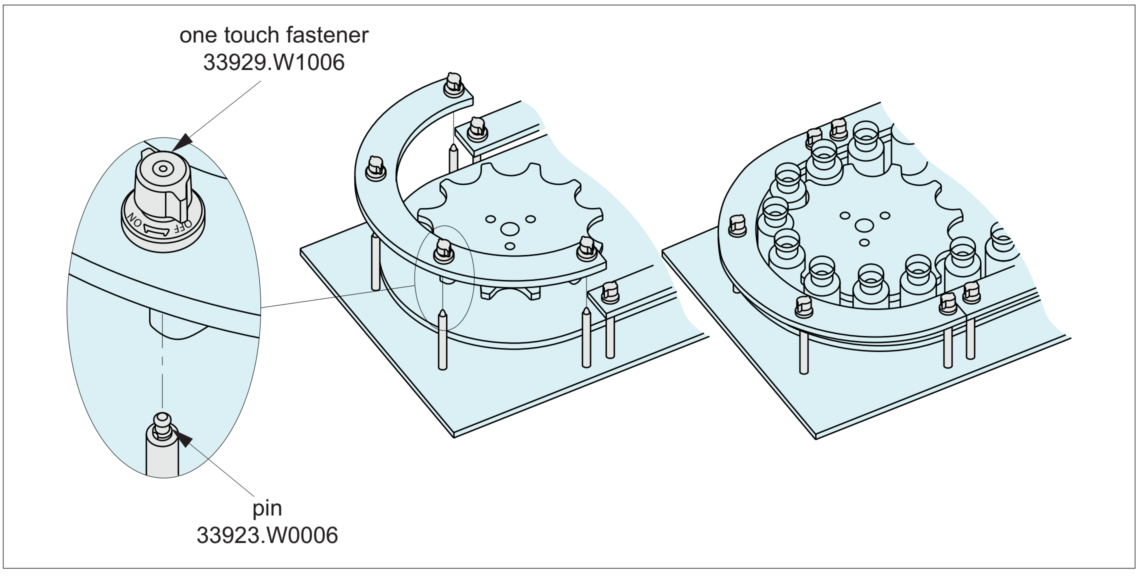
Installation Best Practice

Machining accuracy

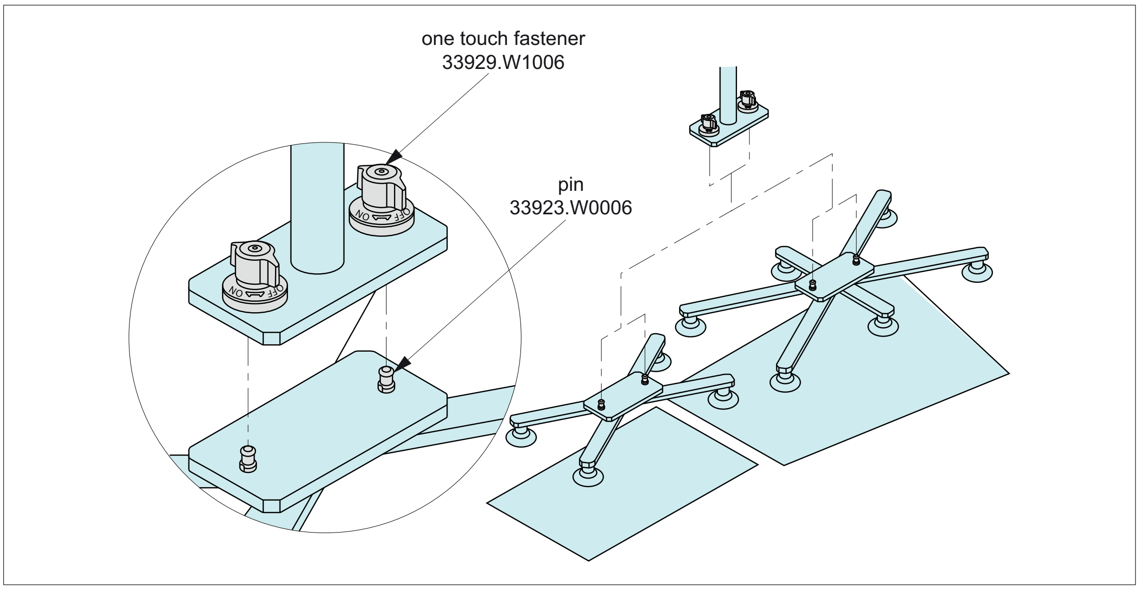
Spacing tolerance on both the sub plate and the base plate should be ±0.1.



Applications



Changes of guides around star wheels



Changes of suction grippers for wafer handling

One-Touch Fastener - Ball Clamping

quarter turn lock - t-handle grip - steel

Material

Body & Shank: Steel, nickel plated.
Knob: Polyamide, black.
Ball & Spring: Stainless steel.

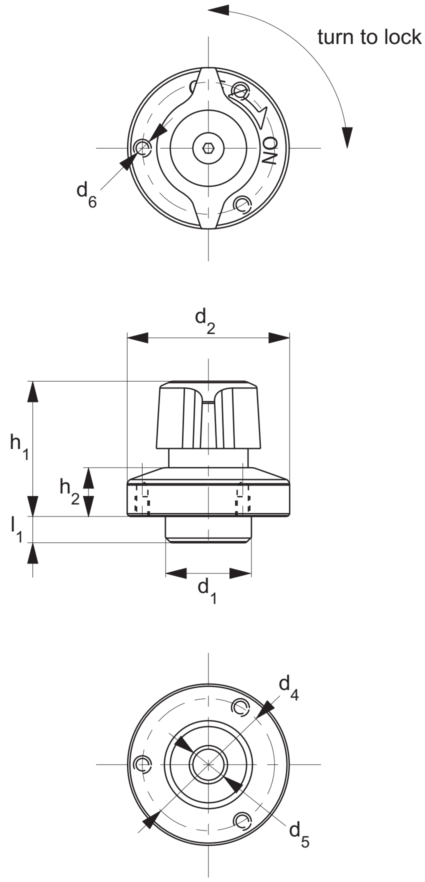
Technical Notes

One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time wasted in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.

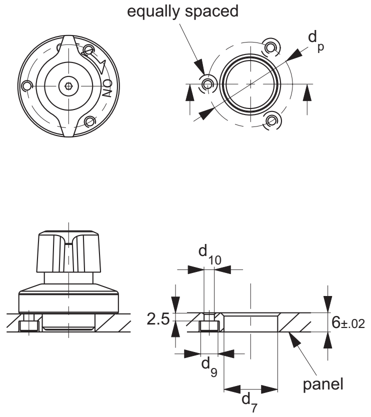
Tips

Used in conjunction with pin 33923. For highly accurate locating, use locating pins 36340 & 36341.

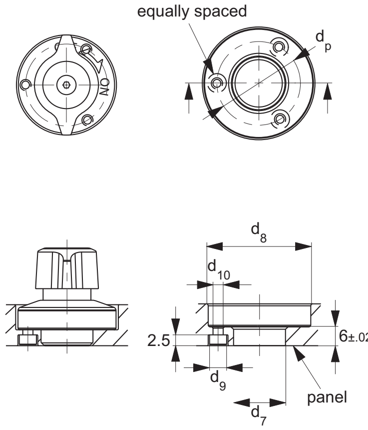
Actuation
-Turn handle to off position, clamping balls are retracted. Engage panel and clamp over clamping pin. Turn handle on to position to clamp.
-To unclamp, reverse steps above.



Order No.	For single panel thickness	For pin Ø	d_1 h9	d_2	d_3	d_4	d_5 +0.4 +0.2	d_6	h_1	h_2	l_1	Clamping force N	Shear strength N	Tensile strength N	g
33927.W1006	6-10	6	14	25	25	21	6	M2x 0,4	23	6,5	5,5	7	1100	250	35
33927.W1408	6-14	8	18	34	34	28	8	M3x 0,5	28	10	5,5	9	1800	400	85



recessed fitting
installation for 6mm to 10mm panels



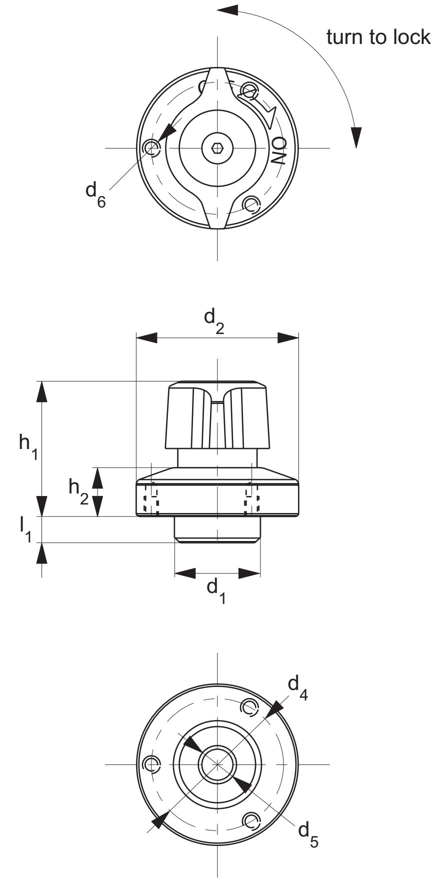
flush fitting
installation for 6mm to 14mm panels

	Fitting	Single panel thickness mm	d_7	d_8	d_9	d_{10}	d_p
33927.W1006	Flush	6	14	-	4,4	2,4	21
33927.W1006	Recessed	6 to 10	14	26	4,4	2,4	21
33927.W1408	Flush	6	18	-	6,5	3,4	28
33927.W1408	Recessed	6 to 10	18	35	6,5	3,4	28

Wixroyd 0845 26 66 577 info@wixroyd.com

One-Touch Fastener - Ball Clamping

quarter turn lock- t-handle-steel



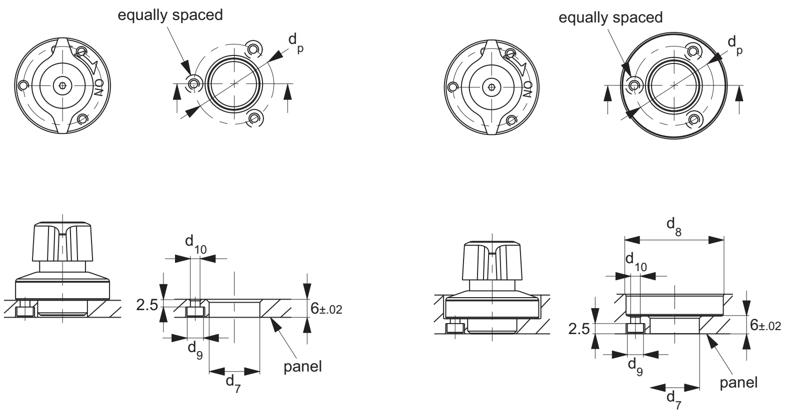
Material
Body & shank: Steel, nickel plated.
Knob: Stainless steel.
Ball & spring: Stainless steel.

Technical Notes
One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time wasted in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.

Tips
Used in conjunction with pin 33923. For highly accurate locating, use locating pins 36340 & 36341.

Actuation
-Turn handle to off position, clamping balls are retracted.
- Engage panel and clamp over clamping pin. Turn handle on to position to clamp.
-To unclamp, reverse steps above.

Order No.	For single panel thickness	For pin Ø	d_1 h9	d_2	d_3	d_4	d_5 +0.4 +0.2	d_6	h_1	h_2	l_1	Clamping force N	Shear strength N	Tensile strength N	g
33928.W1006	6-10	6	14	25	25	21	6	M2x 0,4	23	6,5	5,5	7	1100	250	35
33928.W1408	6-14	8	18	34	34	28	8	M3x 0,5	28	10	5,5	9	1800	400	85



recessed fitting
installation for 6mm to 10mm panels

flush fitting
installation for 6mm to 14mm panels

	Fitting	Single panel thickness mm	d_7	d_8	d_9	d_{10}	d_p
33928.W1006	Flush	6	14	-	4,4	2,4	21
33928.W1006	Recessed	6 to 10	14	26	4,4	2,4	21
33928.W1408	Flush	6	18	-	6,5	3,4	28
33928.W1408	Recessed	6 to 10	18	35	6,5	3,4	28

One-Touch Fastener - Ball Clamping

quarter turn lock - t-handle - stainless steel

Material

Body & shank: Stainless steel.
Knob: Stainless steel.
Ball & spring: Stainless steel.

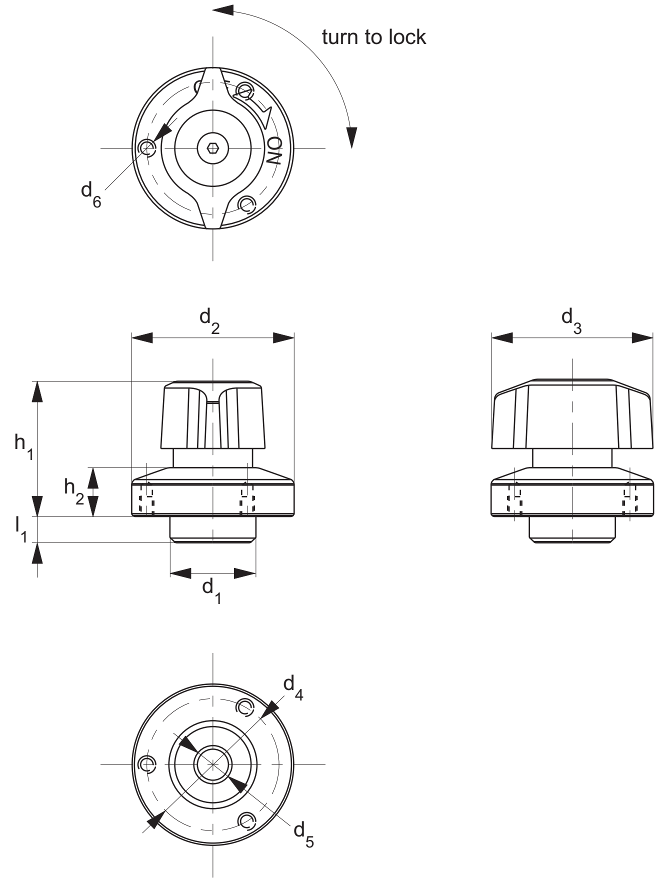
Technical Notes

One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time wasted in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.

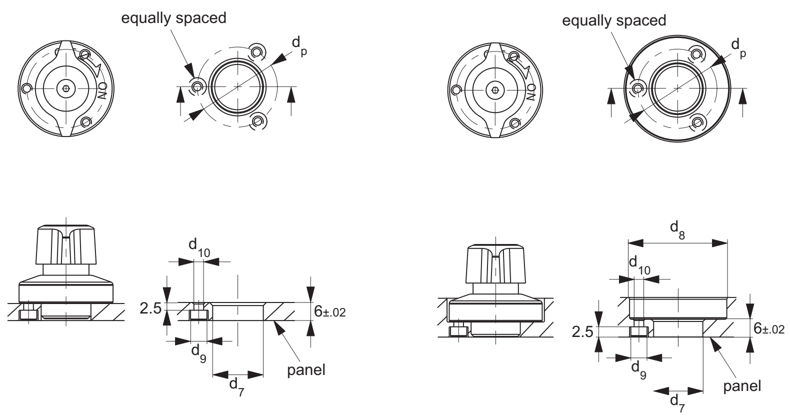
Tips

Used in conjunction with pin 33923. For highly accurate locating, use locating pins 36340 & 36341.

Actuation
-Turn handle to off position, clamping balls are retracted.
-Engage panel and clamp over clamping pin. Turn handle on to position to clamp.
-To unclamp, reverse steps above.



Order No.	For single panel thickness	For pin Ø	d_1 h9	d_2	d_3	d_4	d_5 +0.4 +0.2	d_6	h_1	h_2	l_1	Clamping force N	Shear strength N	Tensile strength N	g
33929.W1006	6-10	6	14	25	25	21	6	M2x 0,4	23	6,5	5,5	7	1100	250	35
33929.W1408	6-14	8	18	34	34	28	8	M3x 0,5	28	10	5,5	9	1800	400	85



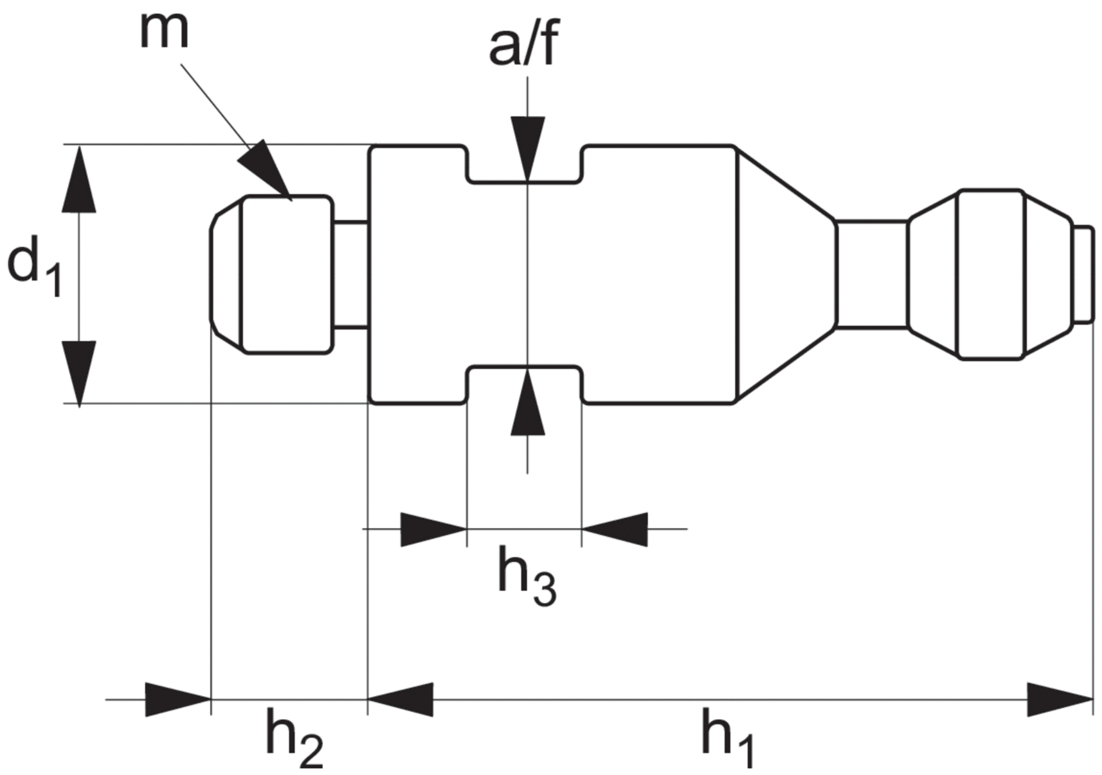
recessed fitting
installation for 6mm to 10mm panels

flush fitting
installation for 6mm to 14mm panels

	Fitting	Single panel thickness mm	d_7	d_8	d_9	d_{10}	d_p
33929.W1006	Flush	6	14	-	4,4	2,4	21
33929.W1006	Recessed	6 to 10	14	26	4,4	2,4	21
33929.W1408	Flush	6	18	-	6,5	3,4	28
33929.W1408	Recessed	6 to 10	18	35	6,5	3,4	28

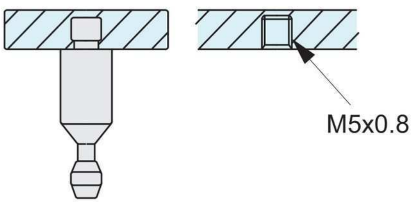
One-Touch Fastener - Ball Clamping
pin

33930

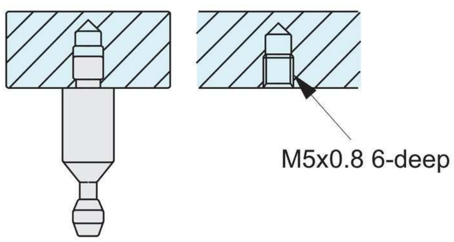


Order No.	d_1 -0,2 -0,4	a/f	h_1	h_2	h_3	m	g
33930.W0008	Ø8	6	23	5	4	M 5x0,8	7

installation dimensions



for installation in 6mm-thick plates



for installation in plates of thickness over 6mm, use screw-in method

Material
Body: steel, nickel plated.

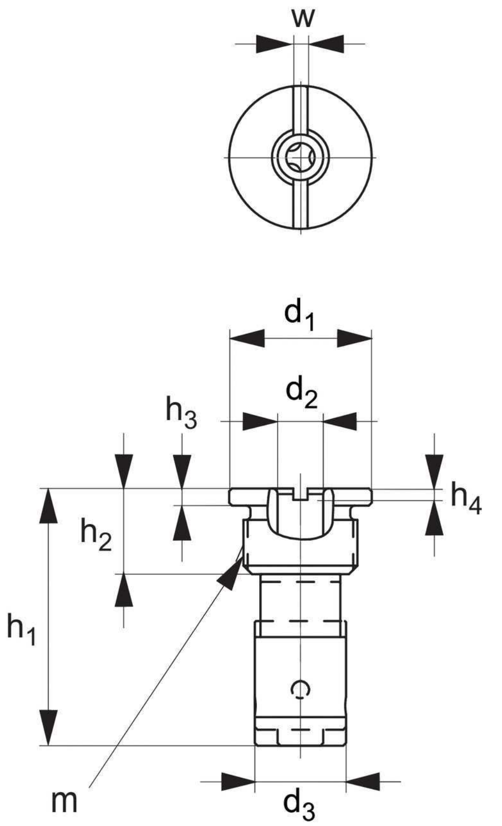
Technical Notes
One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and dive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time waste in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.

Important Notes
Pin 33930 is for use inconjunction with one-touch fasteners, ball clamping; 33934 and 33936. Suitable for panels/enclosues of 6 to 20 mm thickness. Requires an M 6 thread, 6mm deep for installation into blind hole. See technical pages for further information.

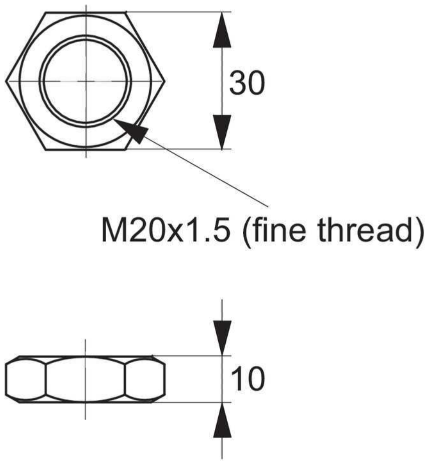
One-Touch Fastener - Ball Clamping

locating bush and receiver - safety release

33934

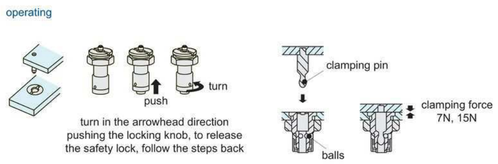


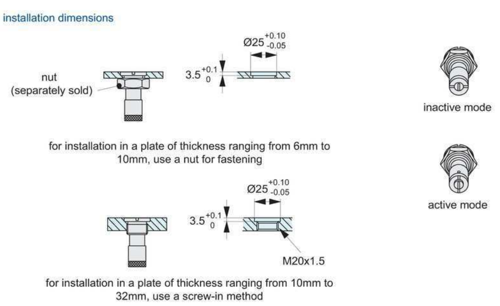
receiver



lock nut

Order No.	Type	d_1 h9	d_2 +0,10 +0,50	d_3	h_1	h_2	h_3	h_4	m	w	Clamping force N	Shear strength N	Tensile strength N	g
33934.W0807	Receiver	Ø26	Ø8	Ø16	45	15	3	2	M20x1,5	2,5	7	1800	1800	65
33934.W0815	Receiver	Ø26	Ø8	Ø16	45	15	3	2	M20x1,5	2,5	17	1800	1800	65
33920.W5020	Nut	-	-	-	-	-	-	-	M20x1,5	-	-	-		-





Material

Body: steel, nickel plated.
Balls: stainless steel.

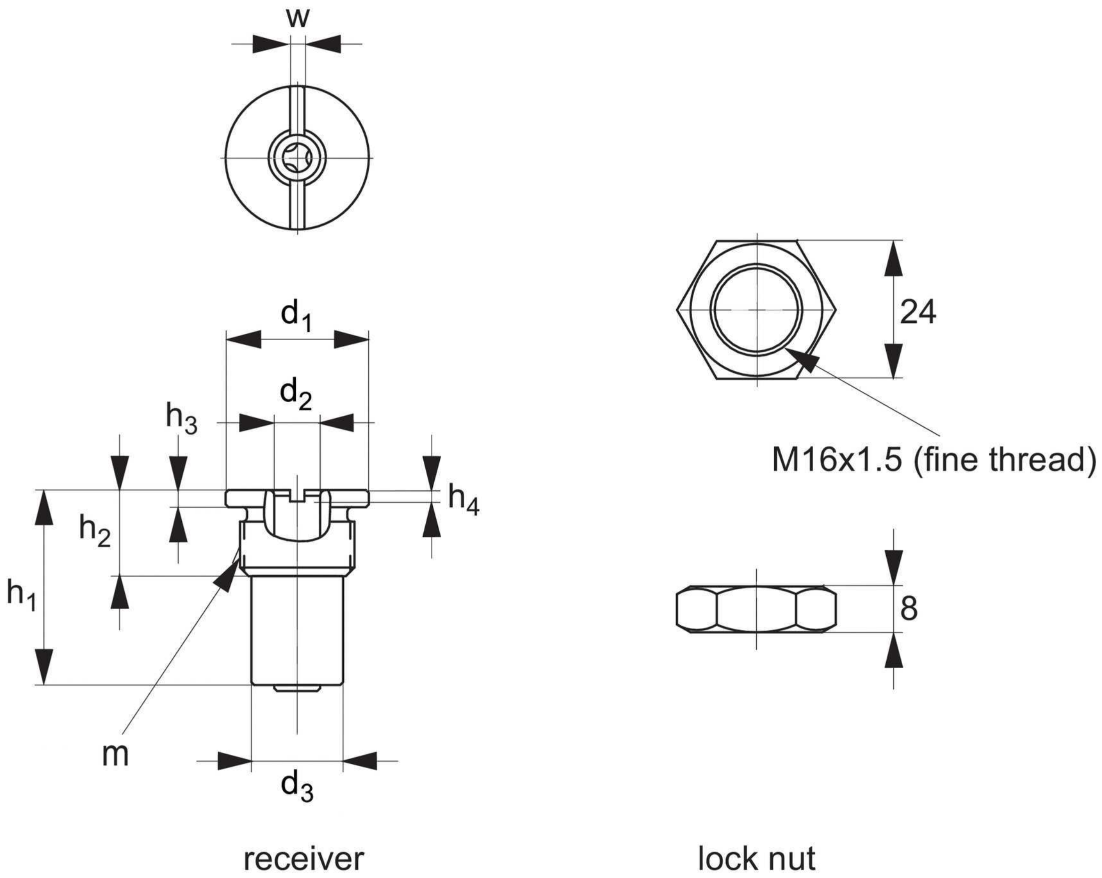
Technical Notes

One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time waste in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.
Temperature resistant to 180°C.

Important Notes

Suitable for panels/enclosues of 6 to 32 mm thicknes. Used inconjunction with pin 33930. Offers a safety release fature to prevent accidental release in of pin/assembly.
* Tensile strength stated is for locked position/state of the fastener.

Actuation:
Engage pin into receiver, a positive "click" is heard, securing balls are engaged. Panels are securely fastened.
To release, pull safety release housing on under side of receiver, balls are retracted and panel is released.



Order No.	Type	d_1 h9	d_2 +0,10 +0,05	d_3	h_1	h_2	h_3	m	w	Clamping force N	Shear strength N	Tensile strength N	g
33936.W0807	Receiver	Ø20	Ø8	Ø14	29	15	3	M16x1,5	2,5	7	1800	1800	30
33936.W0815	Receiver	Ø20	Ø8	Ø14	29	15	3	M16x1,5	2,5	15	1800	1800	30
33920.W5016	Nut	-	-	-	-	-	-	M16x1,5	-	-	-	-	-

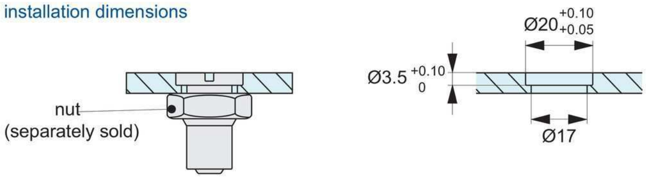
Material
Body: steel, nickel plated.
Balls & spring: stainless steel.

Technical Notes
One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and dive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time waste in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery. Temperature resistant to 180°C.

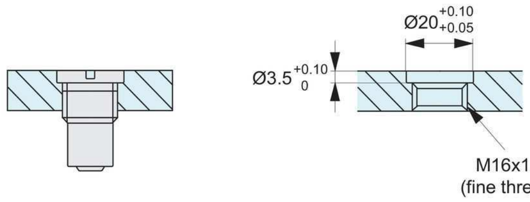
Important Notes
Suitable for panels/enclosures of 6 to 32 mm thickness. Used inconjunction with pin 33930. Mechanical release only (no safety release).
* Tensile strength stated is for locked position/state of the fastener.

Actuation:
Engage pin into receiver, a positive "click" is heard, securing balls are engaged. Panels are securely fastened.
To release, simply pull panels apart with sufficient force to overcome securing balls, panel is released.

installation dimensions



for installation in a plate of thickness ranging from 6mm to10mm, use a nut for fastening



for installation in a plate of thickness over 10mm, use a screw-in method

33940

One-Touch Fastener - Cam Locking

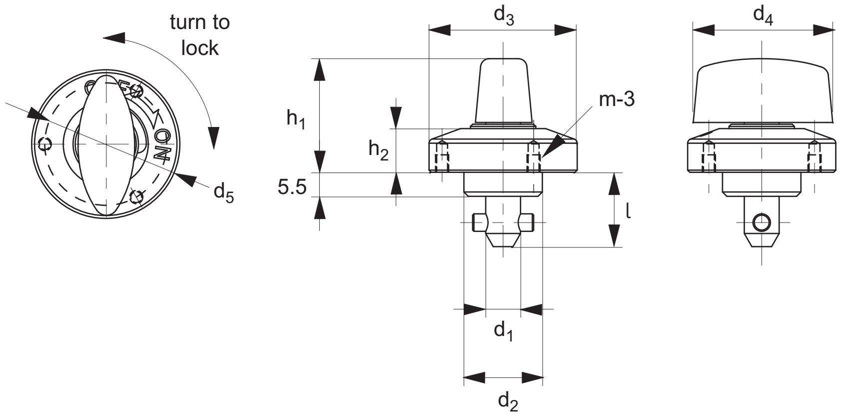
quarter turn - t-handle grip - steel

Material
Body: steel, nickel plated.
Pin: stainless steel.
Knob: polyamide, black.
Spring: steel.

Technical Notes
One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and dive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time waste in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.
Temperature resistant to 180°C.

Important Notes
Suitable for panels/encloses of 6 to 20 mm thickness. For locating bushes see part no. 33948 and 33949.

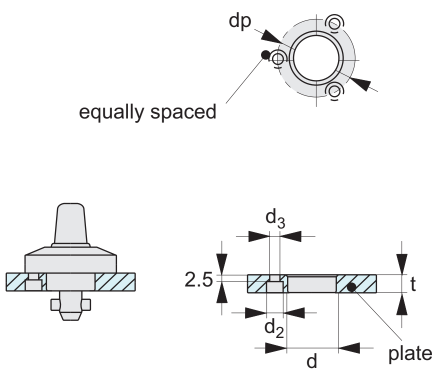
Actuation:
turn handle to off position: present cover panel to frame and align to locating bush.
turn handle 45° to on position: locking pin follows cam, tightening fastener and securely fastening panel.



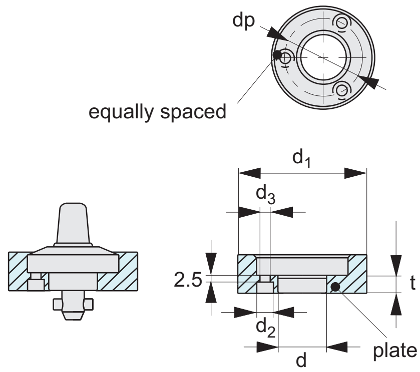
Order No.	For single panel thickness	d_1 $^{-0,04}_{-0,08}$	d_2 h9	d_3	d_4	d_5	g
33940.W1005	6-10	5	14	25	20	21	35
33940.W1408	6-14	8	18	34	32	28	105
33940.W2008	12-20	8	18	34	32	28	110

Order No.	h_1	h_2	l	m	Clamping force N	Shear strength N	Tensile strength N
33940.W1005	19	6,5	15,5	M 2x0,4	60	1800	1200
33940.W1408	26	-	17,0	M 3x0,5	90	3200	2600
33940.W2008	26	-	23,0	M 3x0,5	90	3200	2600

installation dimensions - fixed to panel



installation for 6mm panels

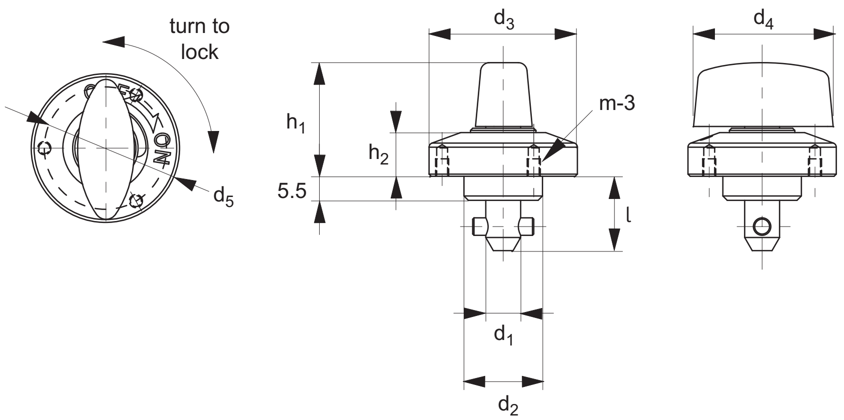


installation for 6mm to 20mm panels

	Single panel thickness (mm)	d (+0,10/+0,05)	d_1	t (±0,2)	d_2	d_3	d_p
33940.W1005	6	14	-	6	4,4	2,4	21
33940.W1005	6 to10	14	26	6	4,4	2,4	21
33940.W1408	6	18	-	6	6,5	3,4	28
33940.W1408	6 to14	18	35	6	6,5	3,4	28
33940.W2008	12	18	-	12	6,5	3,4	28
33940.W2008	12 to 20	18	35	12	6,5	3,4	28

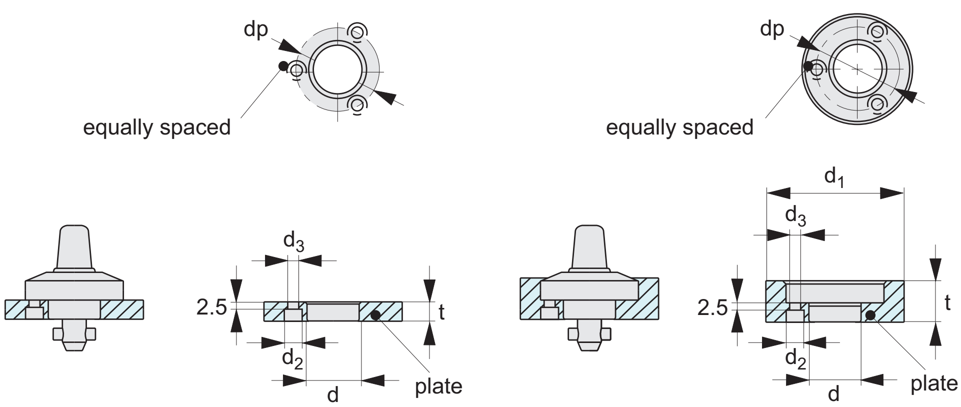
One-Touch Fastener - Cam Locking
quarter turn - t-handle grip - stainless

33942



Order No.	For single panel thickness	d_1 -0,04 -0,08	d_2 h9	d_3	d_4	d_5	h_1	h_2	l	m	Clamping force N	Shear strength N	Tensile strength N	g
33942.W1005	6-10	5	14	25	20	21	19,0	6,5	15,5	M 2x0,4	60	1800	1200	40
33942.W1408	6-14	8	18	34	32	28	25,5	10,0	17,0	M 3x0,5	90	3200	2600	130
33942.W2008	12-20	8	18	34	32	28	25,5	10,0	23,0	M 3x0,5	90	3200	2600	135

installation dimensions - fixed to panel



installation for 6mm panels

installation for 6mm to 20mm panels

	Single panel thickness (mm)	d (+0,10/+0,05)	d_1	t (±0,2)	d_2	d_3	d_p
33942.W1005	6	14	-	6	4,4	2,4	21
33942.W1005	6 to10	14	26	6	4,4	2,4	21
33942.W1408	6	18	-	6	6,5	3,4	28
33942.W1408	6 to14	18	35	6	6,5	3,4	28
33942.W2008	12	18	-	12	6,5	3,4	28
33942.W2008	12 to 20	18	35	12	6,5	3,4	28

Material

Body: steel, nickel plated.
Pin & Knob: stainless steel.
Spring: steel.

Technical Notes

One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time waste in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.
Temperature resistant to 200°C.

Important Notes

Suitable for panels/encloses of 6 to 20 mm thickness. For locating bushes see part no. 33948 and 33949.

Actuation:
-Turn handle to off position: present cover panel to frame and align to locating bush.
-Turn handle 45° to on position: locking pin follows cam, tightening fastener and securely fastening panel.

33943

One-Touch Fastener - CAM Locking Stainless

quarter turn - t-handle grip -stainless

Material

Body: Stainless steel SUS304
Pin: Stainless steel SUS304
Knob: Stainless steel SUS304
Spring: Stainless steel SUS304

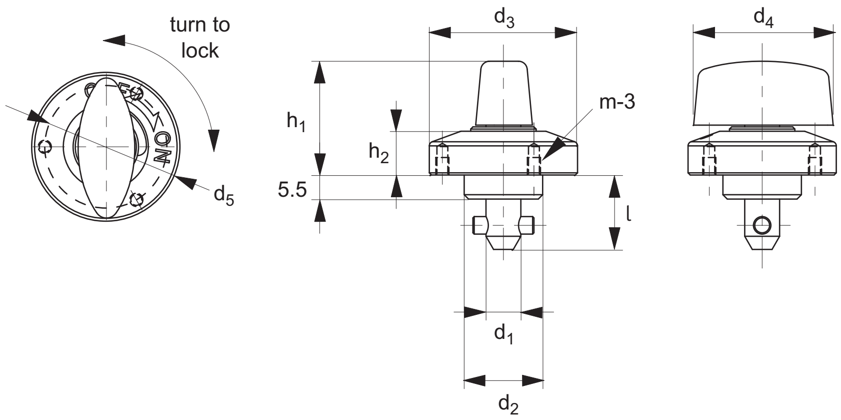
Technical Notes

One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and dive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time waste in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.

Important Notes

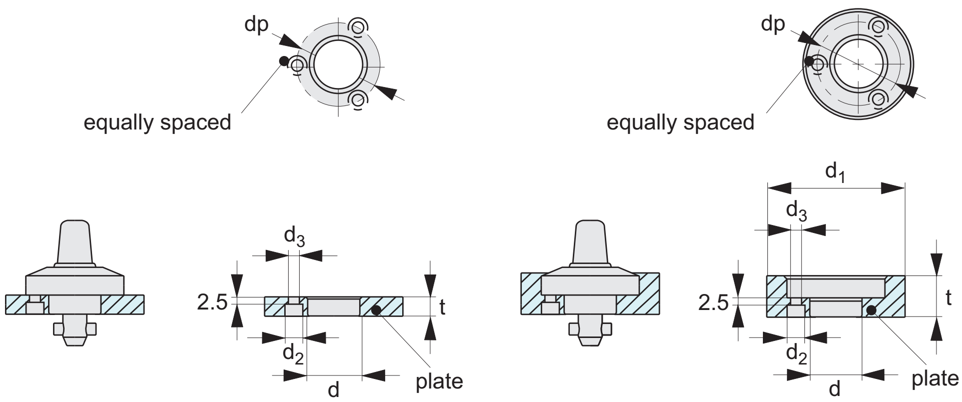
Suitable for panels/encloses of 6 to 20 mm thickness. For locating bushes see part no. 33948 and 33949.

Actuation:
-Turn handle to off position: present cover panel to frame and align to locating bush.
-Turn handle 45º to on position: locking pin follows cam, tightening fastener and securely fastening panel.



Order No.	For single panel thickness	d_1 (-0,04 / -0,08)	d_2 (h9)	d_3	d_4	d_5	h_1	h_2	l	m	Clamping force N	Shear strength N	Tensile strength N	g
33943.W1005	6-10	5	14	25	20	21	19	6,5	15,5	M2x0,4	60	1800	1200	35
33943.W1408	6-14	8	18	34	32	28	26	-	17,0	M3x0,5	90	3200	2600	105
33943.W2008	12-20	8	18	34	32	28	26	-	23,0	M3x0,5	90	3200	2600	110

installation dimensions - fixed to panel



installation for 6mm panels

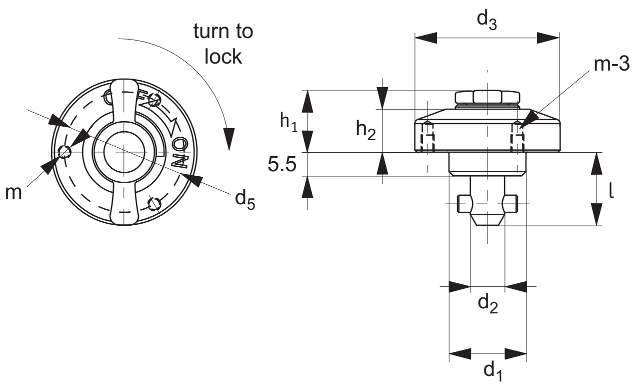
installation for 6mm to 20mm panels

	Single panel thickness (mm)	d (+0,10/+0,05)	d_1	t (±0,2)	d_2	d_3	d_p
33943.W1005	6	14	-	6	4,4	2,4	21
33943.W1005	6 to10	14	26	6	4,4	2,4	21
33943.W1408	6	18	-	6	6,5	3,4	28
33943.W1408	6 to14	18	35	6	6,5	3,4	28
33943.W2008	12	18	-	12	6,5	3,4	28
33943.W2008	12 to 20	18	35	12	6,5	3,4	28

One-Touch Fastener - Cam Locking

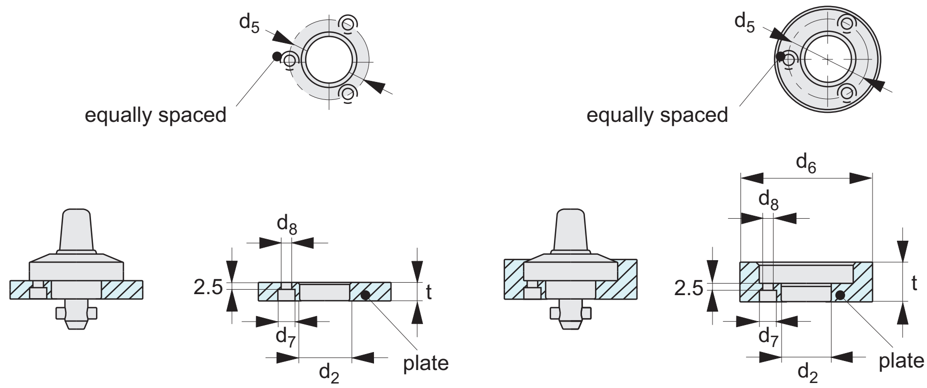
quarter turn - low height - t-handle grip - steel

33944



Order No.	For single panel thickness	d_1 -0,04 -0,08	d_2 h9	d_3	d_4	d_5	h_1	h_2	l	m	Clamping force N	Shear strength N	Tensile strength N	g
33944.W1005	6-10	5	14	25	25	21	11,5	6,5	15,5	M2x0,4	60	1800	1200	35
33944.W1408	6-14	8	18	34	34	28	14,0	10,0	17,0	M3x0,5	90	3200	2600	80
33944.W2008	12-20	8	18	34	34	28	14,0	10,0	23,0	M3x0,5	90	3200	2600	85

installation dimensions - fixed to panel



installation for 6mm panels

installation for 6mm to 20mm panels

	Single panel thickness mm	d +0,10/+0,05	d_1	t ±0,2	d_2	d_3	d_p
33944.W1005	6	14	-	6	4,4	2,4	21
33944.W1005	6 to10	14	26	6	4,4	2,4	21
33944.W1408	6	18	-	6	6,5	3,4	28
33944.W1408	6 to14	18	35	6	6,5	3,4	28
33944.W2008	12	18	-	12	6,5	3,4	28
33944.W2008	12 to 20	18	35	12	6,5	3,4	28

Material

Body: steel, nickel plated.
Pin: stainless steel.
Knob: stainless steel
Spring: steel.

Technical Notes

One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and dive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time wasted in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.
Temperature resistant to 200°C.

Important Notes

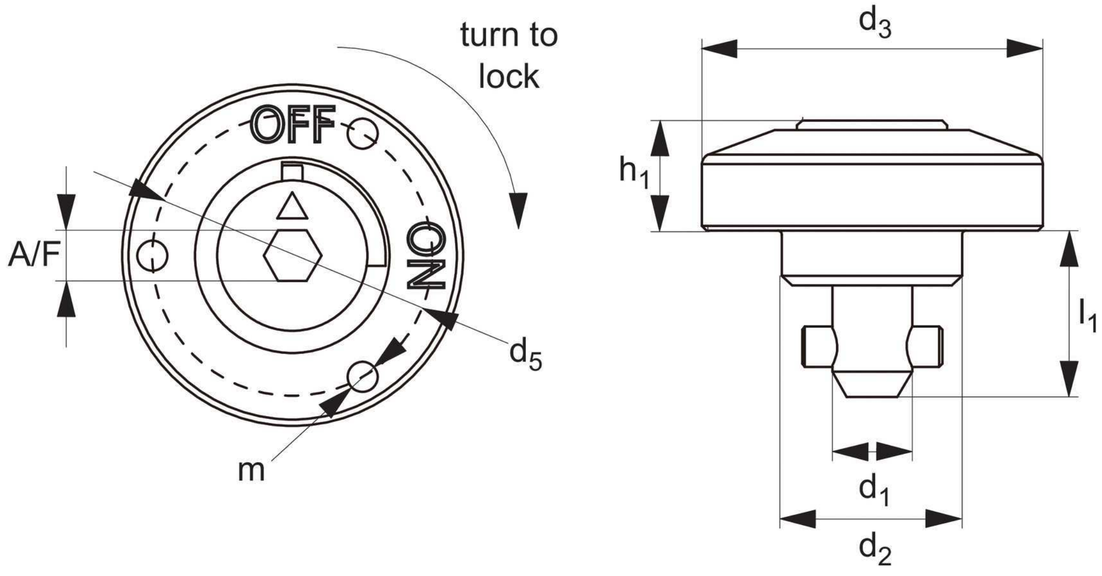
Suitable for panels/encloses of 6 to 20 mm thickness. For locating bushes see part no. 33948 and 33949.

Actuation:
-Turn handle to off position: present cover panel to frame and align to locating bush.
-Turn handle 45º to on position: locking pin follows cam, tightening fastener and securely fastening panel.

One-Touch Fastener - Cam Locking

quarter turn - low height - hex key - steel

33945



Order No.	For single panel thickness	d_1 -0,04 0,08	d_2 tol. h9	d_3	m	l_1	h_1	A/F	Clamping force N	Shear strength N	Tensile strength N	g
33945.W1005	6 - 10	5	14	25	M 2x0,4	15,5	8	4	60	1800	1200	30
33945.W1408	6 - 14	8	18	34	M 3x0,5	17,0	11	5	90	3200	2600	105
33945.W2008	12 - 20	8	18	34	M 3x0,5	23,0	11	5	90	3200	2600	110

Material
Body: stainless steel SUS303.
Shank: steel, nickel plated.
Pin: stainless SUS 304.

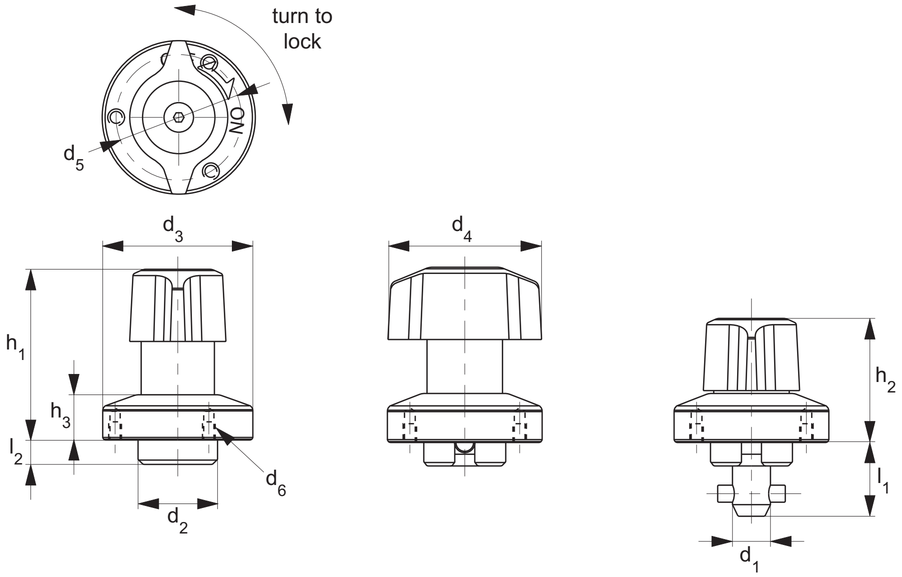
Technical Notes
One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and dive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time wasted in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.
Temperature resistant to 200°C.

Important Notes
Suitable for panels/enclosures of 6 to 20 mm thicknes. For locating bushes see part no. 33948 and 33949.

Actuation:
-Use suitable hex key to turn lock to off positon. Present cover panel to frame and align to locking bush.
-With the hex key, now turn the lock back 45° to the on position; locking pin follows, tightening fastener and fasterning panel.

One-Touch Fastener- Cam Locking - Retract

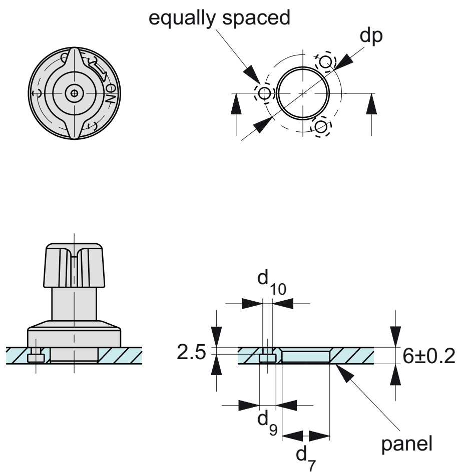
quarter turn - t-handle grip - plastic



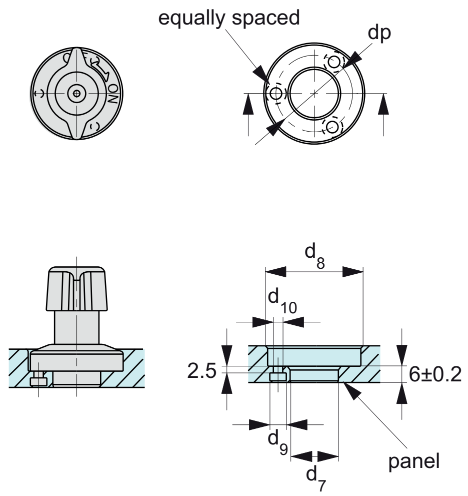
OFF position
retracted

ON position
extruded

Order No.	Single panel thickness	d_1 $_{-0.9}^{-0.04}$	d_2	d_3	d_4	d_5	d_6	l_1	l_2	h_1	h_2	h_3	Clamping force N	Shear strength N	Tensile strength N	g
33946.W1005	6-10	5	14	25	25	21	M2x 0,4	15,5	5,5	30	20	6,5	60	1800	1200	40
33946.W1408	6-14	8	8	18	34	28	M3x 0,5	17	5,5	38	36,5	10	90	3200	400	100



flush fitting



recessed fitting

	Fitting	Single panel thickness mm	d_7	d_8	d_9	d_{10}	d_p
33946.W1005	Flush	6	14	-	4,4	2,4	21
33946.W1005	Recessed	6 to 10	14	26	4,4	2,4	21
33946.W1408	Flush	6	18	-	6,5	3,4	28
33946.W1408	Recessed	6 to 10	18	35	6,5	3,4	28

Material

Body: steel, nickel plated.
Shank: steel, nickel plated.
Pin: stainless steel, SUS304.
Knob: polyamide, black.
Spring: stainless steel.

Technical Notes

One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and dive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time waste in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.
Temperature resistant to 130°C.

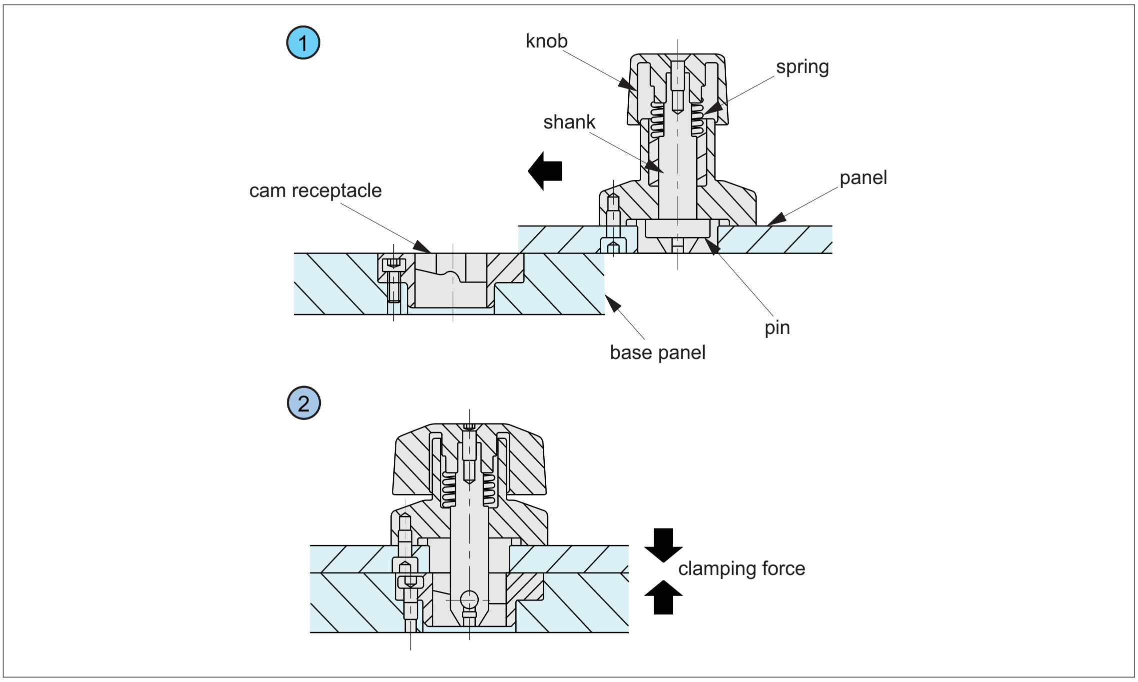
Important Notes

One-touch fastener offers full retraction of clamping shank when part is unlocked, this offer's the benefit of enabling panels to be slid into position - especially useful with larger or oversized panels, and enables its use on sliding or linear rail applications to provide positive location and clamping of parts.

Actuation:
-Turn handle to off position, and ensure the shank is fully retracted.
-Place or slide the over in place and position over the locating bush.
-Turn handle to on position for clamping, an audible click is heard when fully clamped.
-To release, turn handle back to off position, the shank is fully retracted into clamp body assisted by the return spring.

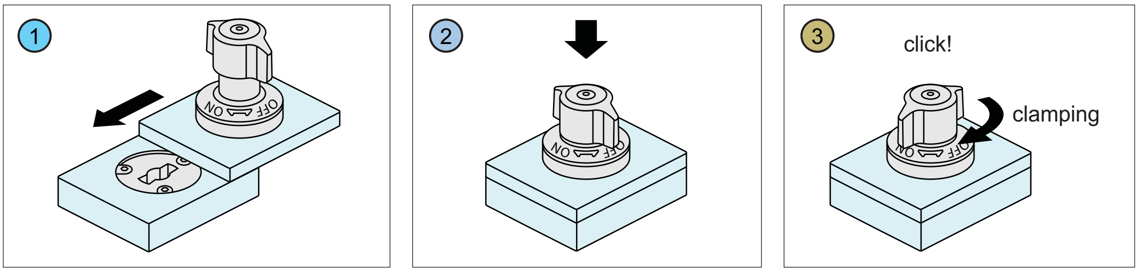
Operating Principle

1. The shank retracts at the unclamping position to enable operations without interference with the base panel.
2. When the pin contacts along the cam surface in the cam receptacle, the spring gets compressed to press down the panel.

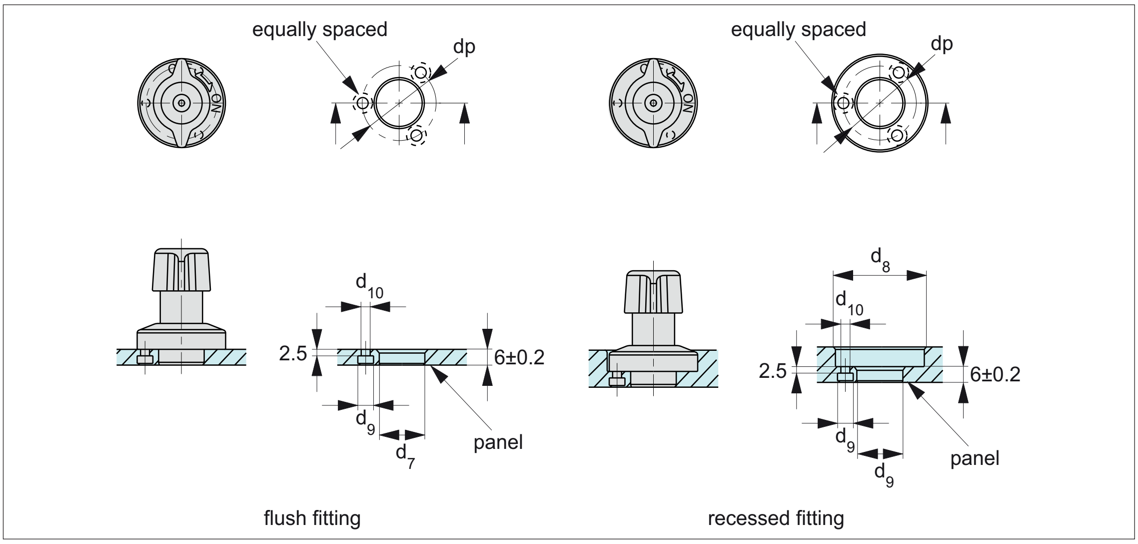


Operating Instructions

1. Ensure that the knob is positioned at the "OFF" mark and the pin is retracted.
2. Locate the cam receptacle directly under the fastener. Insert retracted pin by pressing the knob down.
3. Turn the knob to the "ON" mark for clamping. The knob clicks when clamped. Turning the knob to the "OFF" position, the pin returns automatically to the unclamping position.



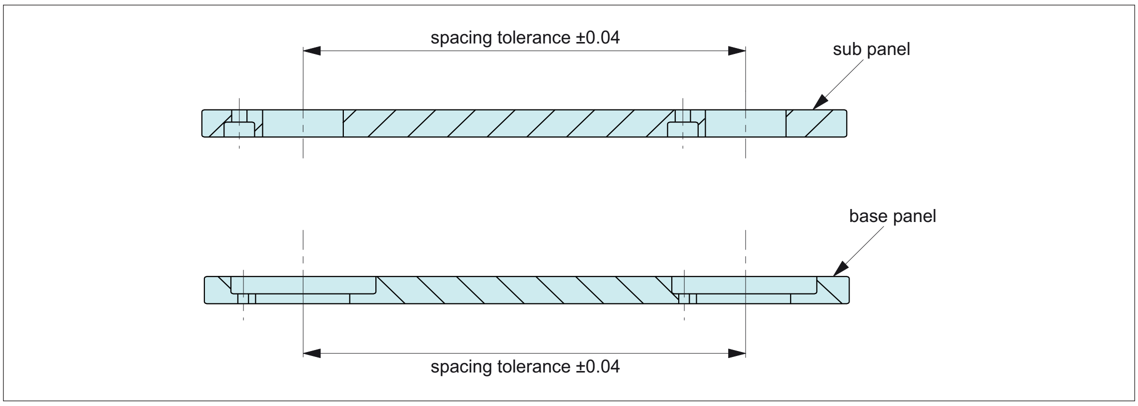
Installation Dimensions



Installation Best Practice

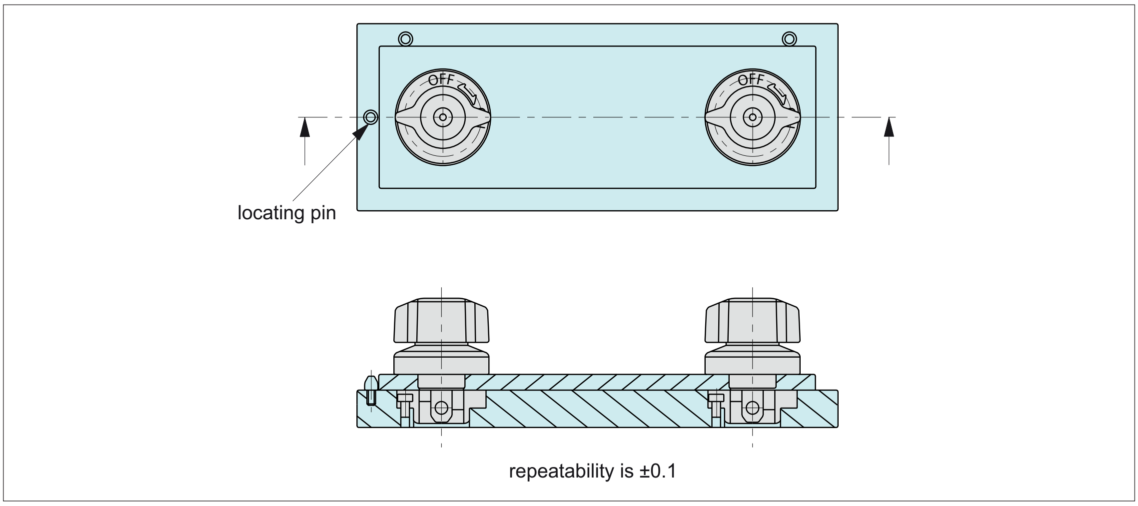
Machining accuracy

Spacing tolerance on both the sub panel and the base panel should be ±0.04.



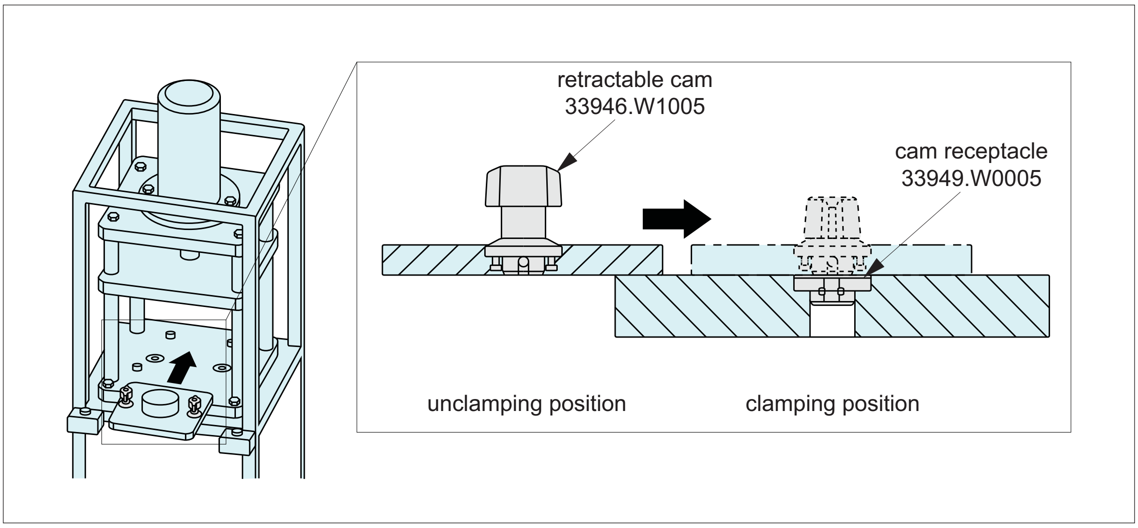
Repeatability

For highly accurate locating, use locating pins 36340 or 36341. Repeatability of ±0.1 is achievable.

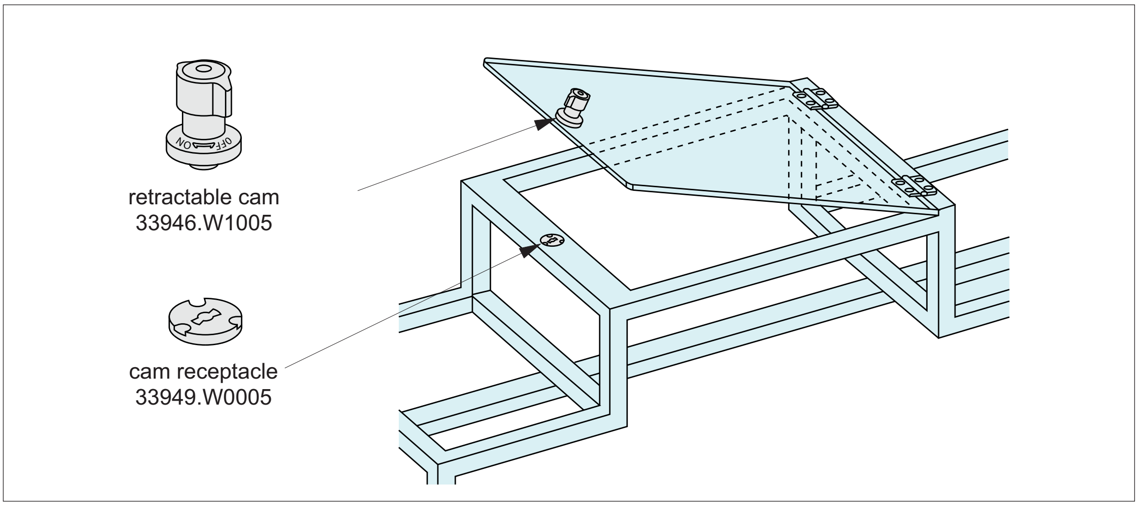


Applications

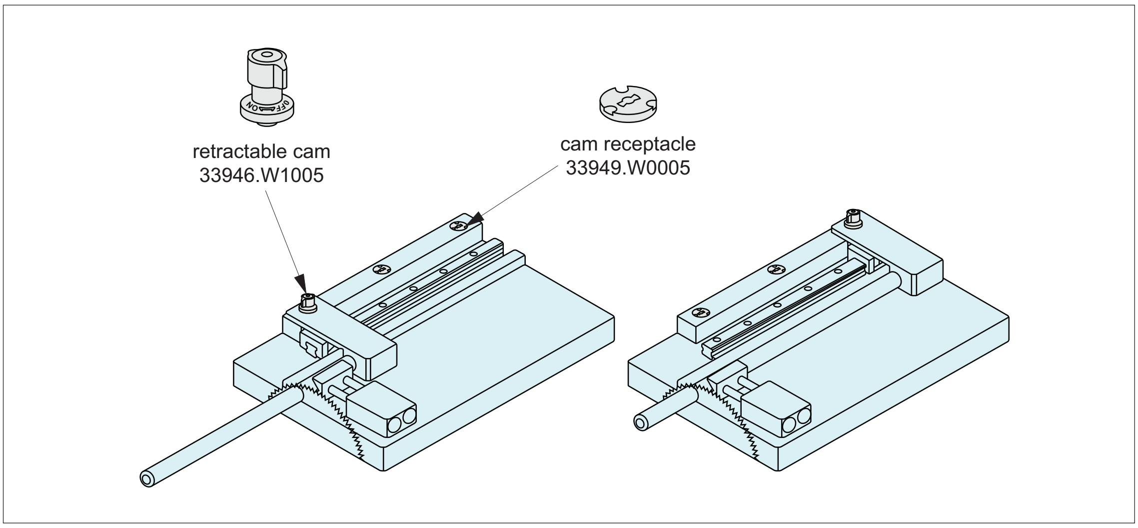
Changes of fixture plates



Lock for doors



Adjustment of workpiece guides



One-Touch Fastener- Cam Locking - Retract

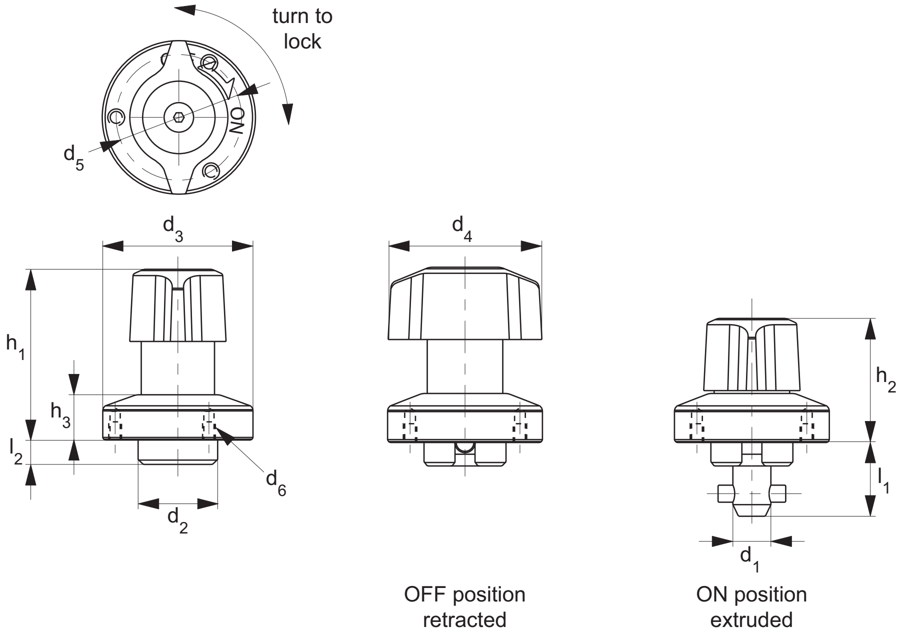
quarter turn - t-handle grip - steel

Material
Body: steel, nickel plated.
Shank: steel, nickel plated.
Pin: stainless steel, SUS304.
Knob: stainless steel, SUS304.
Spring: stainless steel.

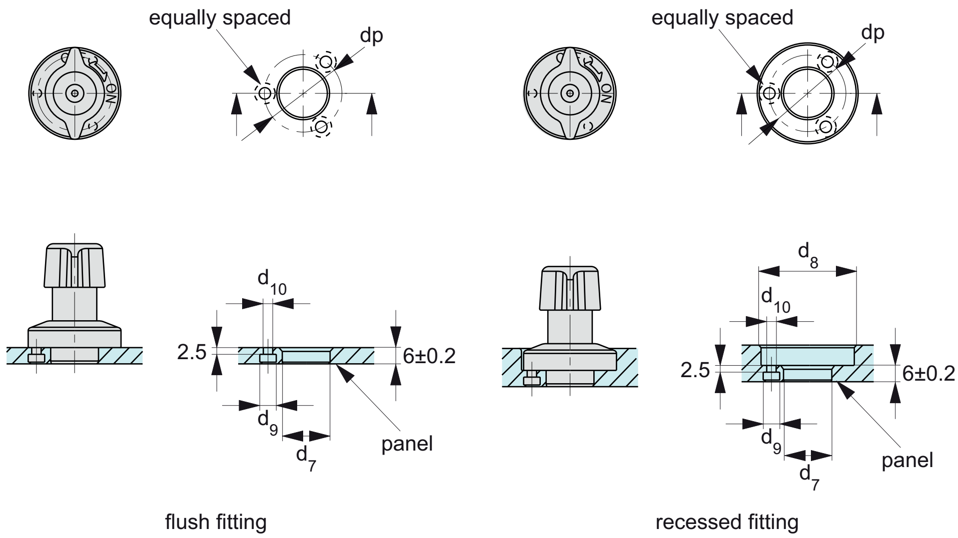
Technical Notes
One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and dive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time waste in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.
Temperature resistant to 200°C.

Important Notes
One-touch fastener offers full retraction of clamping shank when part is unlocked, this offer's the benefit of enabling
panels to be slid into position - especially useful with larger or oversized panels, and enables its use on sliding or linear rail applications to provide positive location and clamping of parts.

Actuation:
-Turn handle to off position, and ensure the shank is fully retracted.
-Place or slide the over in place and position over the locating bush.
-Turn handle to on position for clamping, an audible click is heard when fully clamped.
-To release, turn handle back to off position, the shank is fully retracted into clamp body assisted by the return spring.

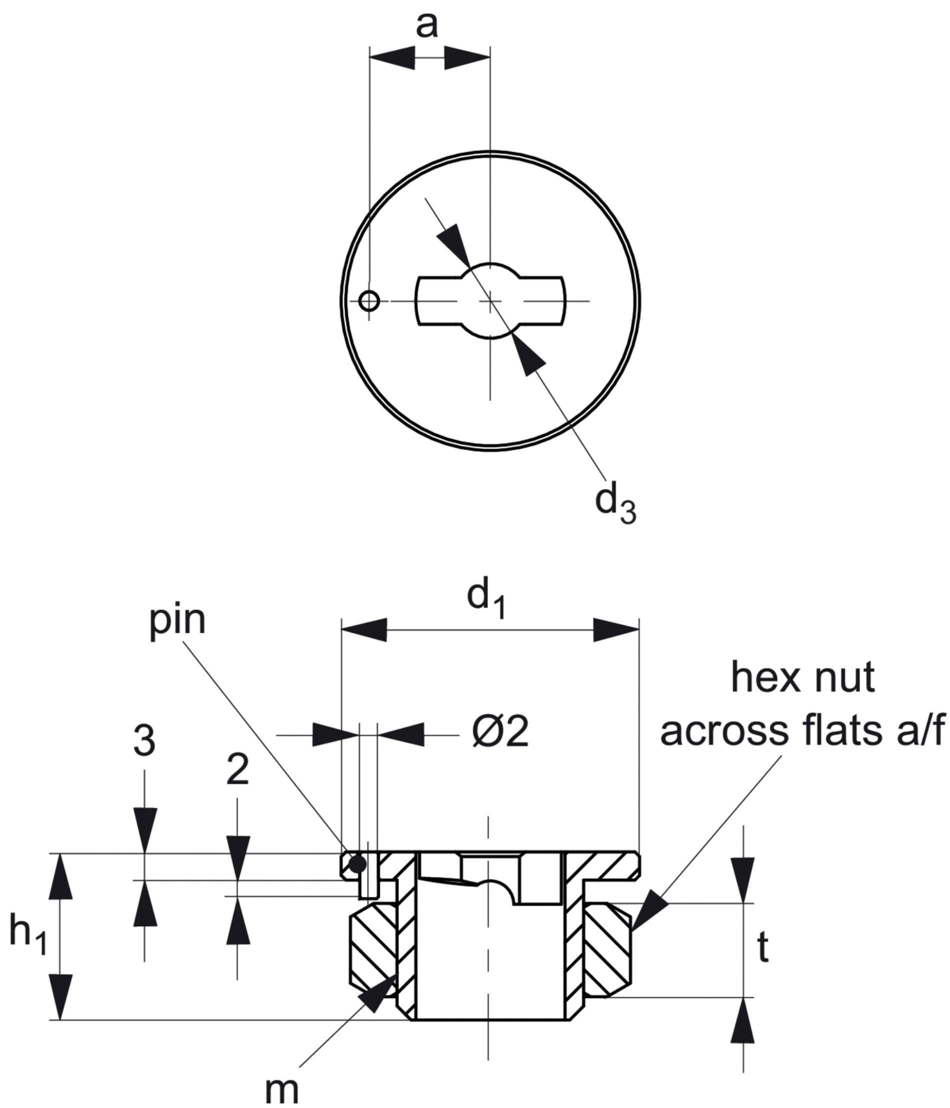


Order No.	Single panel thickness	d_1 -0.04 -0.9	d_2	d_3	d_4	d_5	d_6	l_1	l_2	h_1	h_2	h_3	Clamping force N	Shear strength N	Tensile strength N	g
33947.W1005	6-10	5	14	25	25	21	M2x 0,4	15,5	5,5	30	20	6,5	60	1800	1200	40
33947.W1408	6-14	8	8	18	34	28	M3x 0,5	17	5,5	38	36,5	10	90	3200	400	100



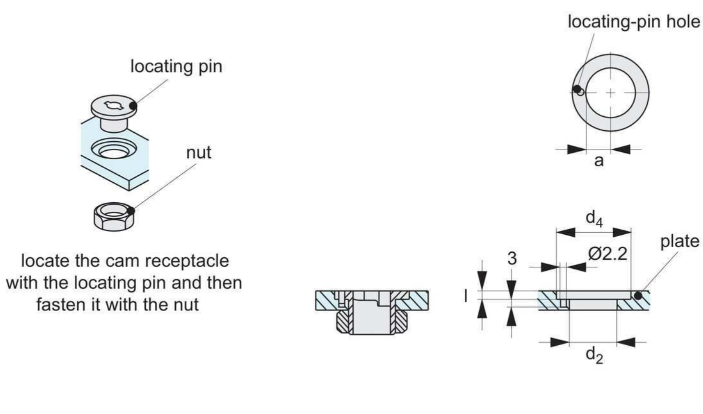
	Fitting	Single panel thickness mm	d_7	d_8	d_9	d_{10}	d_p
33947.W1005	Flush	6	14	-	4,4	2,4	21
33947.W1005	Recessed	6 to 10	14	26	4,4	2,4	21
33947.W1408	Flush	6	18	-	6,5	3,4	28
33947.W1408	Recessed	6 to 10	18	35	6,5	3,4	28

33948



Order No.	Material	For single panel thickness	d_1 -0,04 -0,08	h_1	d_3 +0,08 +0,04	a ±0,1	m	t	A/F	d_2	d_4 +0,10 +0,05	l_1	g
33948.W0005	Steel	6-10	25	16	5	10,5	M14x1,5	8	22	15	25	3,5	40
33948.W0008	Steel	6-12	32	18	8	13,0	M20x1,5	10	30	21	32	3,5	55
33948.W0105	Stainless Steel	6-10	25	16	5	10,5	M14x1,5	8	22	15	25	3,5	40
33948.W0108	Stainless Steel	6-12	32	18	8	13,0	M20x1,5	10	30	21	32	3,5	55

installation dimensions - locating bush



installation for locating bush 33948

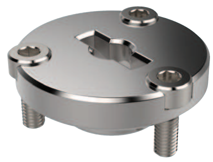
Material
Body: steel, nickel plated or stainless steel.
Nut: stainless steel.

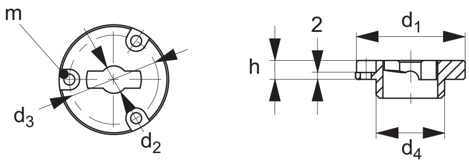
Technical Notes
Used in conjunction with one-touch fasteners 33940 to 33946, locating bushes 33948 provide secure fastening of panels and covers. Locating bushes are of particular use in soft metals, such as aluminium where receiving surfaces may wear. One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts. Temperature resistant to 200°C.

Important Notes
Suitable for panels/enclosures of 6 to 12 mm thickness. For one-touch fasteners see part nos. 33940 to 33946. For installation instructions see technical page.

One-Touch Fastener - Cam Locking

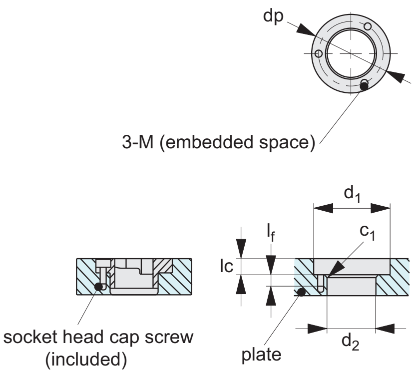
flush fit locating bush - for 33940, 33942 and 33944





Order No.	For single panel thickness	d_1	d_2	d_3	d_4 -0,04 -0,08	h	g
33949.W0005	>10	25	5	21	14	4,5	20
33949.W0008	>12	32	8	26	20	5,5	35

installation dimensions - for locating bush



installation for locating bush 33949

	Single panel thickness mm	d_1	d_2 (+0,10 / +0,05)	lc (+0,10 / 0)	m	lf	dp
33949.W0005	6 to 10	25	15	5	M 2x0,4	4	21
33949.W0008	6 to 12	32	21	6	M 3x0,5	5	26

33949

Material

Body: steel, nickel plated.

Technical Notes

Used in conjunction with one-touch fasteners 33940 to 33946, locating bushes 3394820 provide secure fastening of panels and covers. Locating bushes are of particular use in soft metals, such as aluminium where receiving surfaces may wear. One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and dive belts.
Temperature resistant to 200°C.

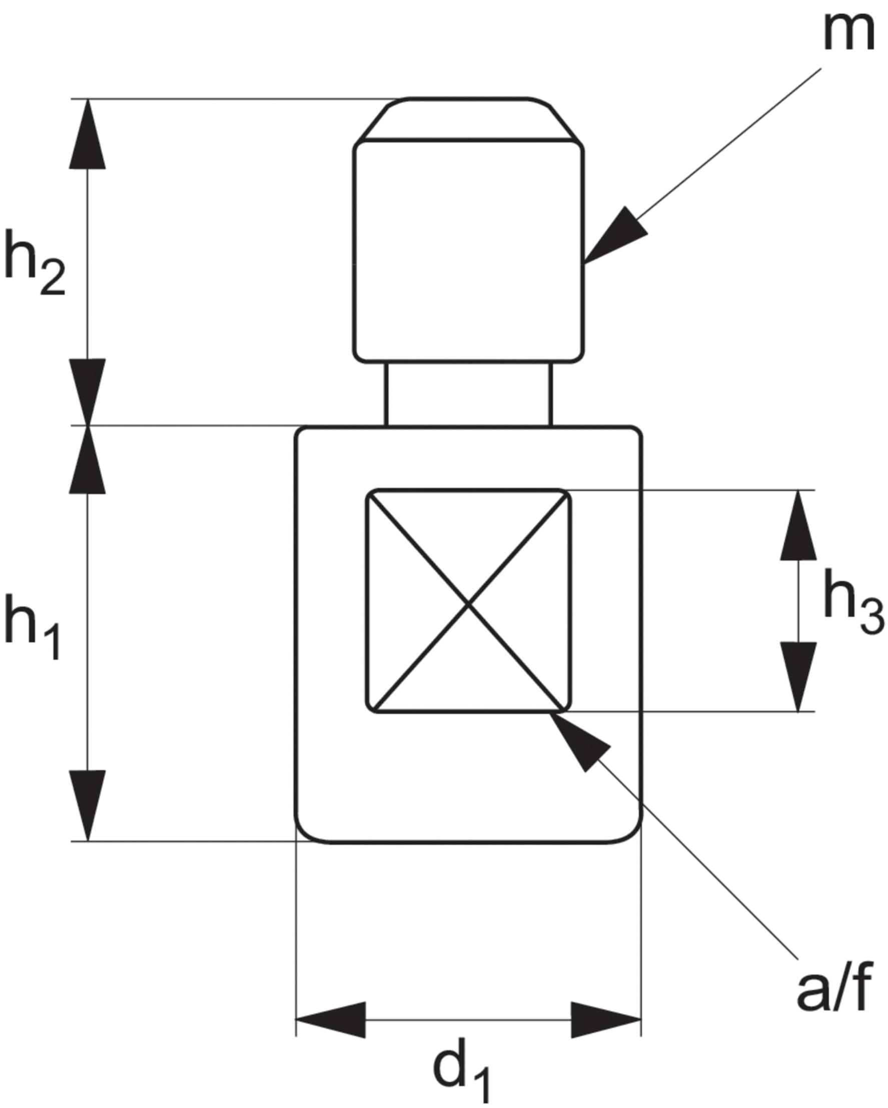
Important Notes

Suitable for panels/encloses of 6 to 20 mm thickness.
For one-touch fasteners see part nos. 33940 to 33946.
For installation instructions see technical page.

One-Touch Fastener - Magnetic Hold

pin

33950



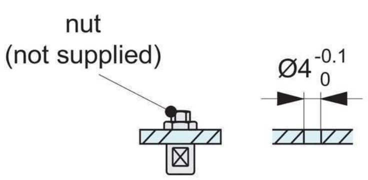
Material
Body: steel, nickel plated.

Technical Notes
Used in conjunction with magnetic one-touch fasteners 33956, provides secure fastening of panels and covers. One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts. **Note: pin itself is not magnetic, it is for use with locating bush part no. 33956, which contains magnet.**

Important Notes
Suitable for panels/enclosures of 2 to 6 20 mm thickness.
For installation instructions see technical page.

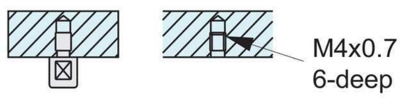
Order No.	For single panel thickness	d_1 -0,02 -0,04	h_1	h_2	h_3	m	A/F	Shear strength N	g
33950.W0006	2 to 6	Ø6	7	5,8	4	M 4x0,7	5	900	2

installation dimensions for magnetic hold clamping pin



for installation in a plate of thickness ranging from 2mm to 6mm, use a nut for fastening

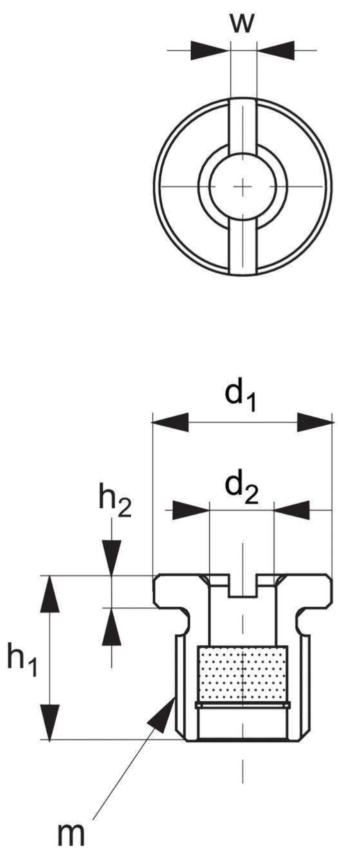
for installation in a plate of thickness over 6mm, use a screw-in method



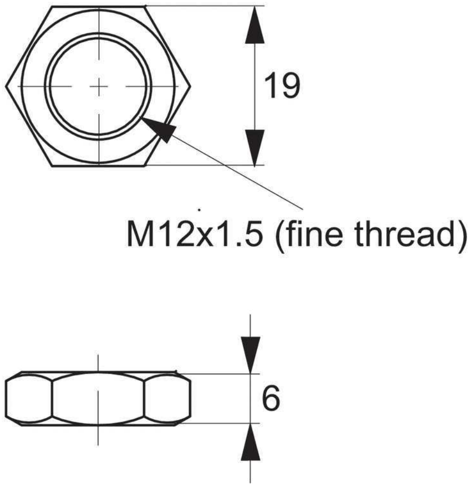
for use of 2pcs of more, the spacing tolerance should be ±0.1

One-Touch Fastener - Magnetic Hold

locating bush for 33950



locating bush

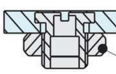


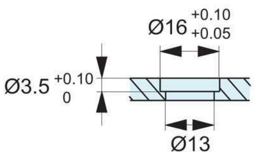
lock nut

Order No.	Type	For single panel thickness	d_1 tol. h9	d_2 +0,10 +0,05	h_1	h_2	m	w	Clamping force N	g
33956.W0076	Bush	2 to 6mm	Ø16	Ø6	15	3	M12x1,5	2,5	7	12
33920.W5012	Nut	2 to 6mm	-	-	-	-	M12x1,5	-	-	-

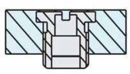
installation dimensions for magnetic hold locating bush

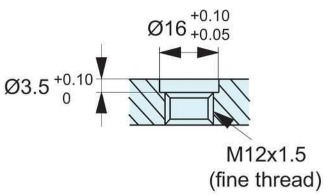
for installation in a plate of thickness ranging from 6mm to 10mm, use a nut for fastening





for installation in a plate of thickness over 10mm, use a screw-in method





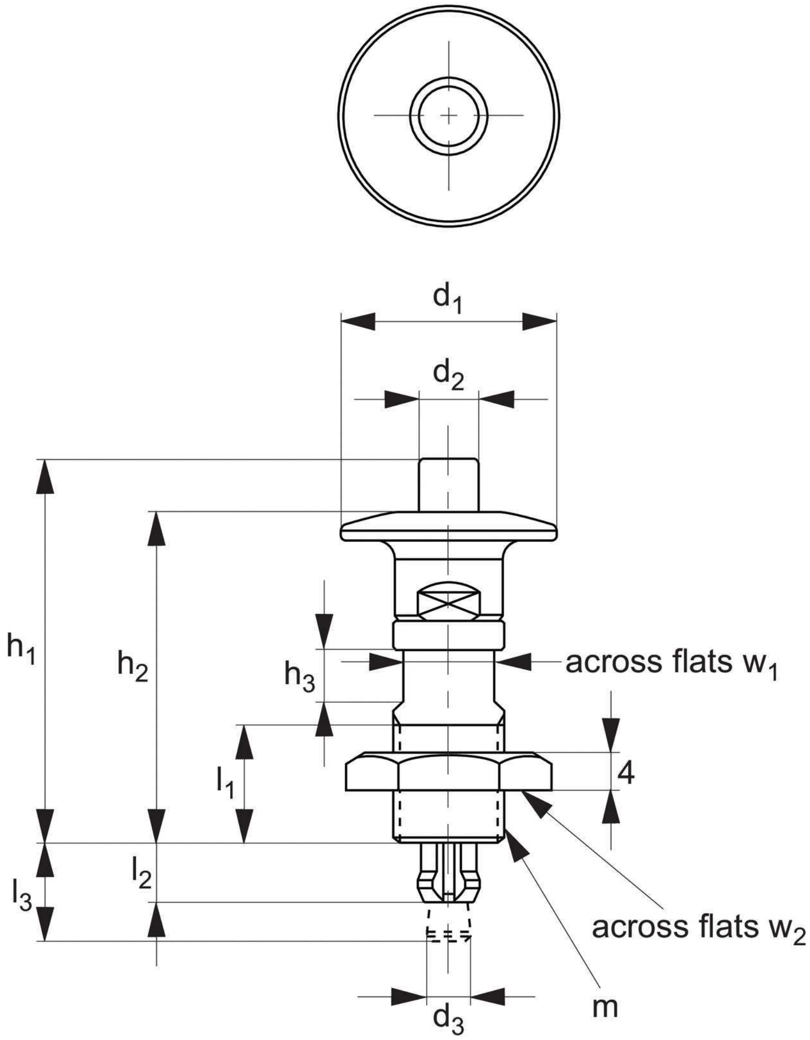
for use of 2pcs or more, the spacing tollerance should be ±0.1

Material
Body: stainless steel.
Magnet: neodymium.

Technical Notes
One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and dive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time waste in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.

Important Notes
Suitable for panels/enclosues of 2 to 6 mm thicknes. For pin see part no. 33950. Part contains Neodymium magnets which inconjunction with one-touch pin no. 33950 creates a magnetic clamping force of 7 N.

Actuation:
Engage pin into receiver, magnetic effect will take hold. Panels are securely fastened.
To release, simply pull panels apart with sufficient force to overcome magnetic holding force, panel is released.

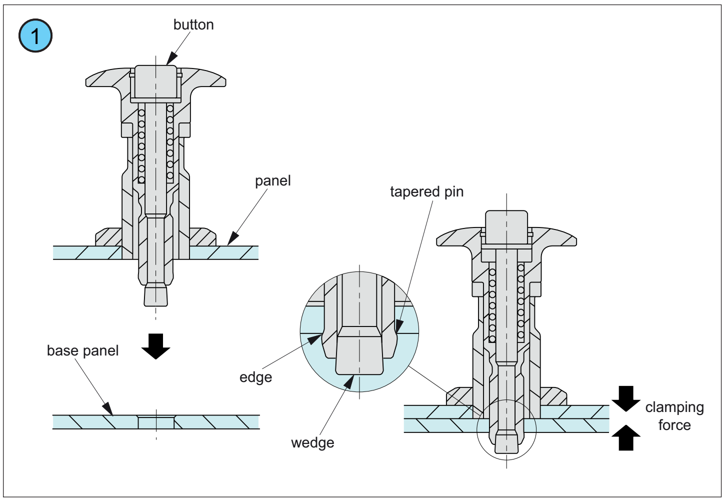


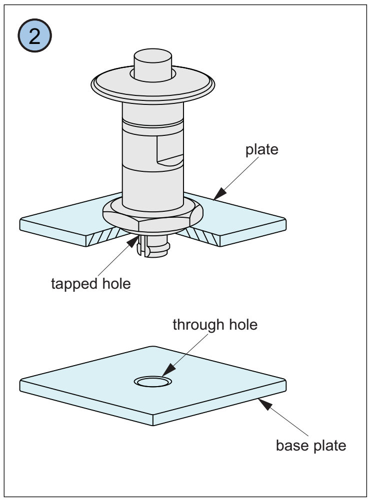
Material
Stainless steel.

Order No.	d	d_1	d_2	h	l	h_1	l_1	l_2	h_2	g
33960.W6123	6,5	23	6,5	40	12,5	32	6,5	10,5	5,5	41
33960.W6126	6,5	23	6,5	37	12,5	29	6,5	13,5	5,5	40
33960.W8123	8,5	32	10	51	16,5	41,5	6,5	11	7	88
33960.W8126	8,5	32	10	48	16,5	38,5	9,5	14	7	88

Operating Principle

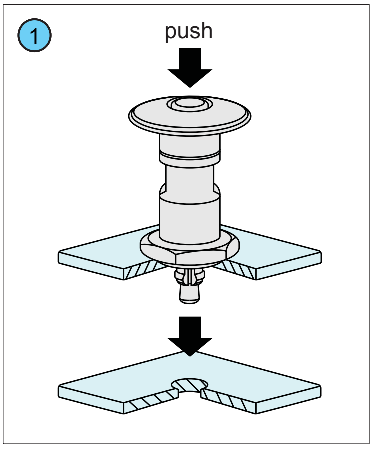
1. The tapered pin expanded by the wedge pushes out against the edge of the hole on the base panel, and the two panels are clamped.
2. Just a tapped hole and a through hole are required.

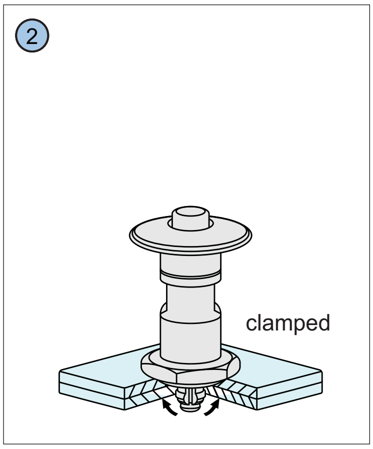


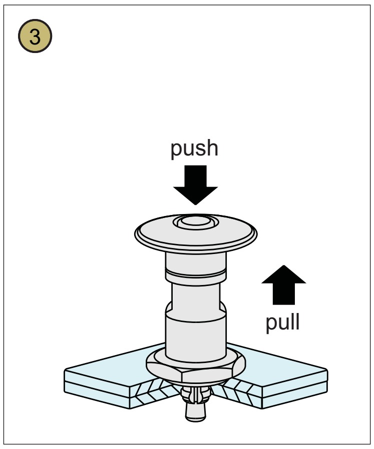


Operating Instructions

1. While depressing the actuation button, align the pin to receiving hole.
2. Once pin is aligned and seated in the receiving hole, release button. Pin will retract, forcing clamping wedges to spread and pull the two panels together to securely fasten.
3. To release, reverse steps described above.

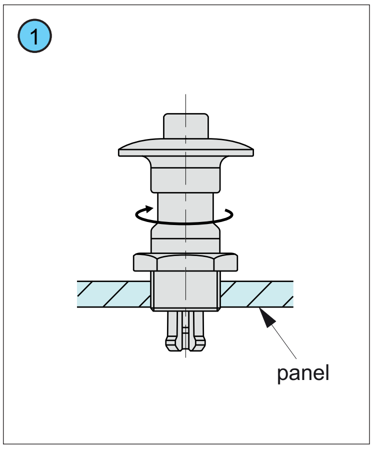


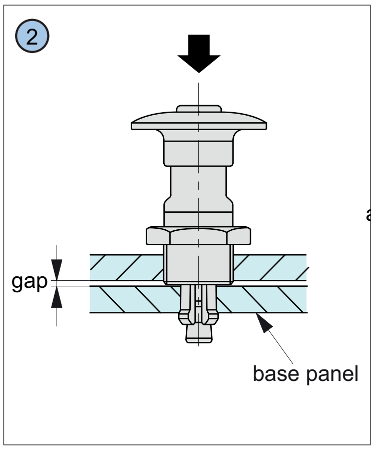


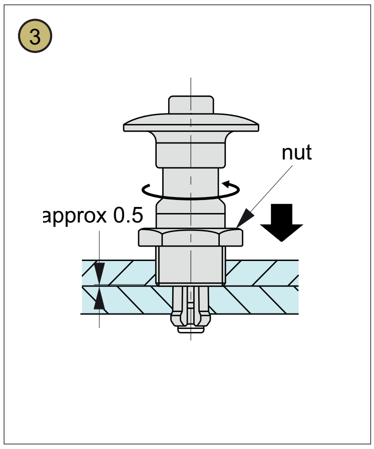


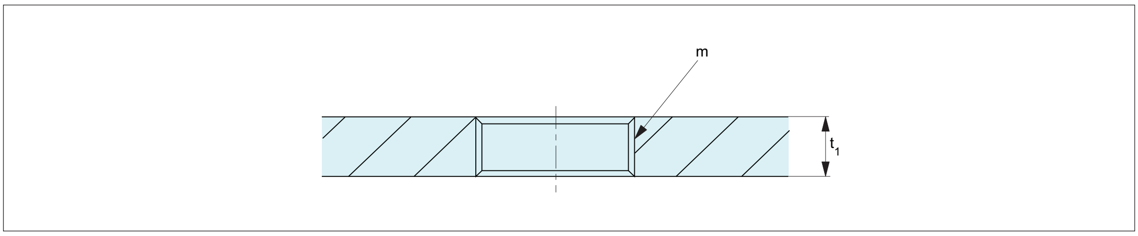
Installation Dimensions

1. Screw hole holding clamp into the panel until the end of threaded part comes out of the panel.
2. Insert the clamp pushing the button.
3. Adjust the clamp until the both panels get contracted and then lock the clamp with the nut.

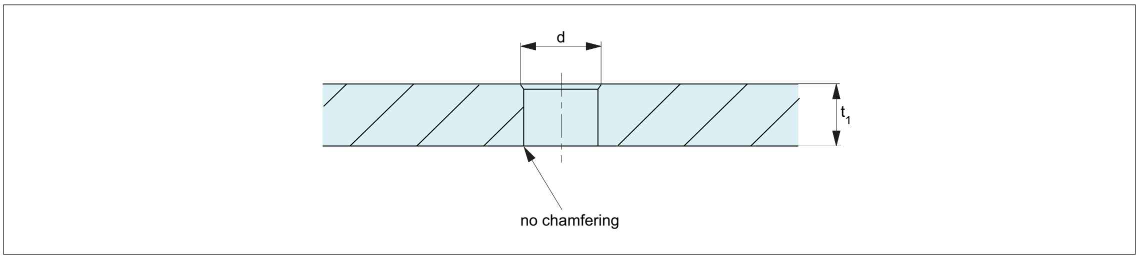








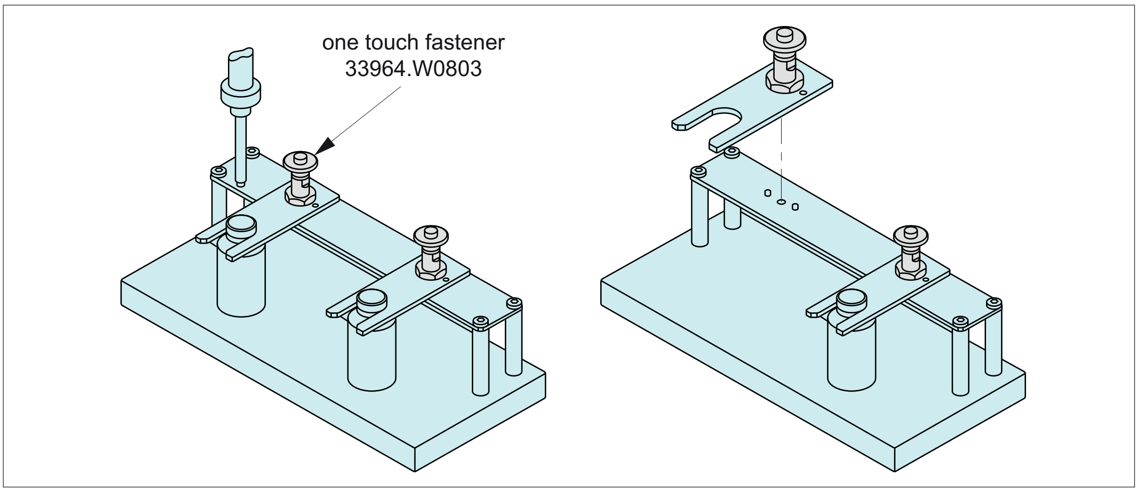
Mounting hole on panel



Mounting hole on base panel

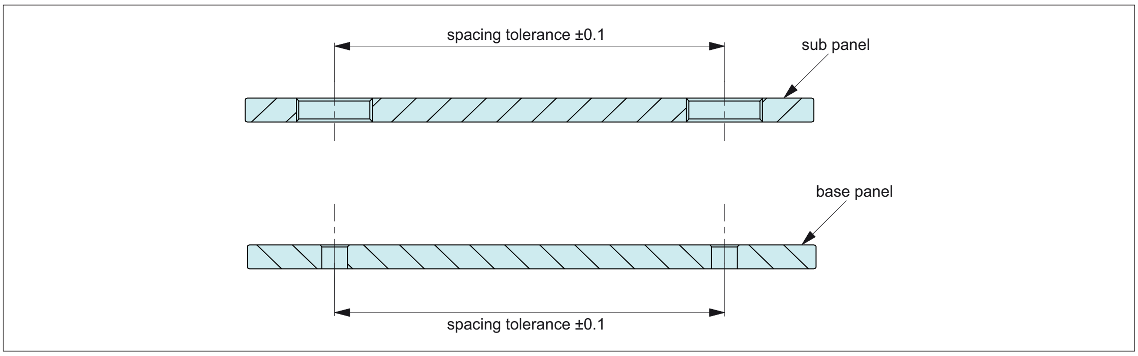
Use hard metals such as stainless steels for the base panel.

Applications



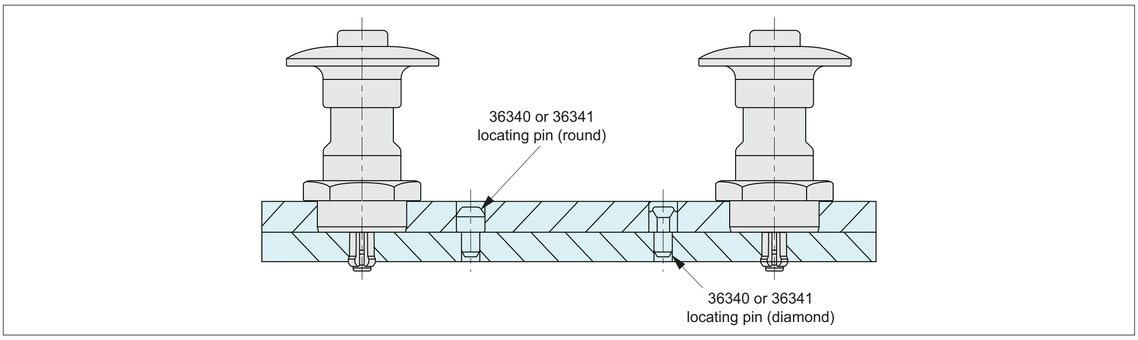
Changes of holder panel

Installation Best Practice



Machining accuracy

Spacing tolerance on both the sub panel and the base panel should be ±0.1.

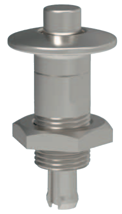


Repeatability

For highly accurate locating, use locating pins 36340 or 36341. Repeatability of ±0.25 is achievable.

One-Touch Fastener - Pull Clamping

push button lock - button handle - stainless steel



Material

Body: stainless steel SUS 303.
Spacer: stainless steel SUS 303.
Spring: stainless steel SUS 303.

Technical Notes

One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time waste in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.

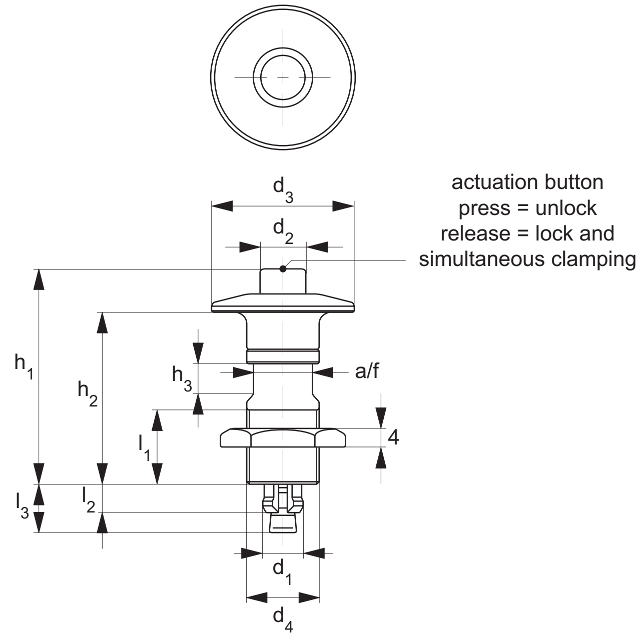
Tips

For highly accurate locating, use locating pins 36340 and 36341.

Important Notes

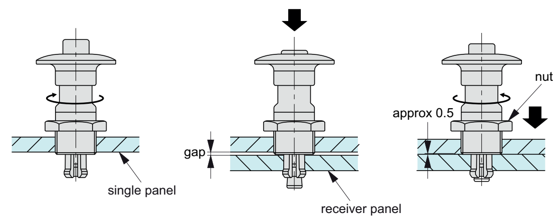
Suitable for panels/enclosures of 3 to 12 mm.
Unique locking and simultaneous clamping.

Actuation:
-While depressing the actuation button, align pin to receiving hole in frame.
-Once pin is aligned seated in the receiving hole, release button.
-Pin will retract, forcing clamping wedges to spread and pull the two panels together to securely fasten.
-To release, reverse steps described above.

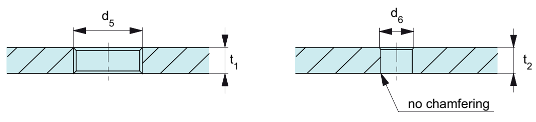


Order No.	Single panel thickness mm	Receiver panel thickness	d_1	d_2	d_3	d_4	a/f	g
33964.W0803	3-8	3	6,5	8	23	M12x1	10	40
33964.W0806	3-8	6	6.5	8	23	M12x1	10	40
33964.W1203	3-12	3	8,5	10	32	M16x1	13	80
33964.W1206	3-12	6	8,5	10	32	M16x1	13	80

Order No.	h_1	h_2	h_3	l_1	l_2	l_3	Clamping Force N	Shear strength N	Tensile strength N
33964.W0803	37	29,0	5,5	12,5	6,5	10,5	3	200	150
33964.W0806	34	26,0	5,5	12,5	9,5	13,5	3	400	300
33964.W1203	48	38,5	7,0	16,5	6,5	11,0	6	200	150
33964.W1206	45	35,5	7,0	16,5	9,5	14,0	6	400	300



1. screw hole holding clamp into the panel until the end of threaded part comes out of the panel
2. insert the clamp pushing the button
3. adjust the clamp until both panels get contacted, then lock the clamp with the nut



mounting hold on single panel

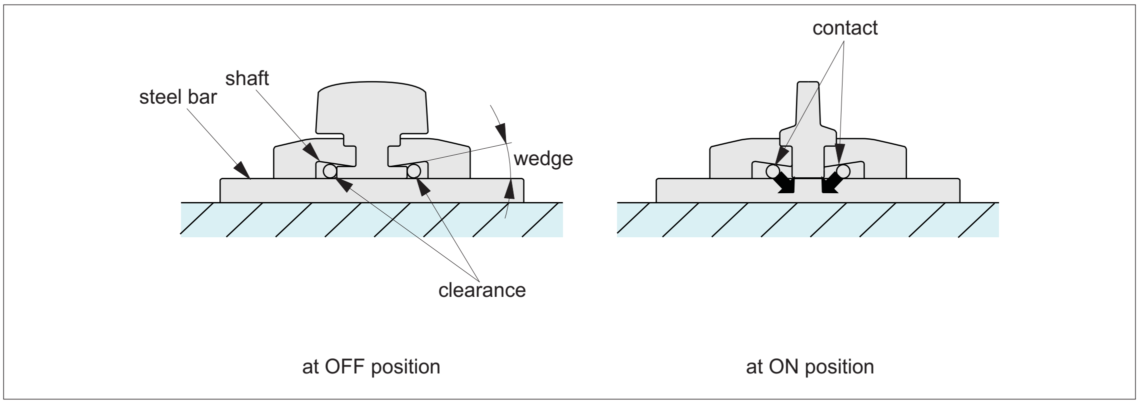
mounting hold on receiver panel

	Single panel thickness mm	Receiver panel thickness mm	t_1	d_5	d_6	t_2
33964.W0803	3 to 8	3	3 to 8	M12x1,0	6,5	3
33964.W0806	3 to 8	6	3 to 8	M12x1,0	6,5	6
33964.W1203	3 to 12	3	3 to 12	M16x1,0	8,5	3
33964.W1206	3 to 12	6	3 to 12	M16x1,0	6,5	6

Operating Principle

You can slide the steel bar when the knob is at the "OFF" position since there is clearance between the steel bar and the shafts.

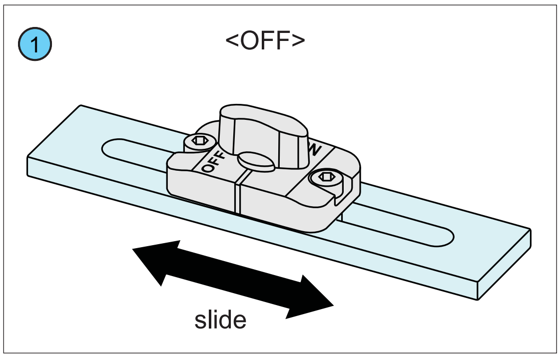
The steel bar is locked when the knob is at the "ON" position since the shafts are pushed by the wedge.

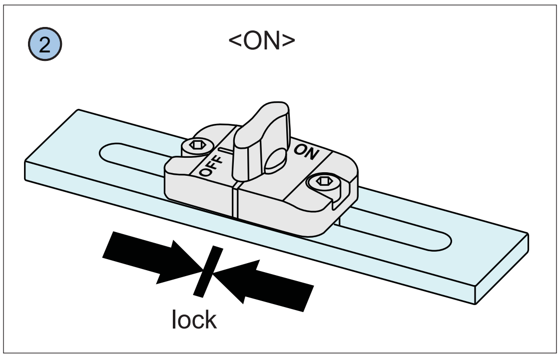


Operating Instructions

1. The steel bar can slide to the right and left at the "OFF" position.
2. The steel bar is locked at the "ON" position.

   Note: The knob clicks at the "ON" and "OFF" positions, and this gives the operator confirmation it has locked/unlocked securely.

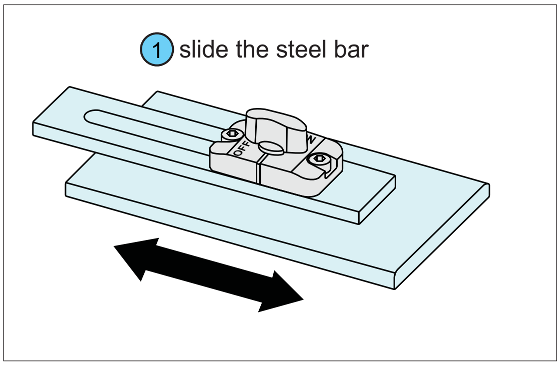


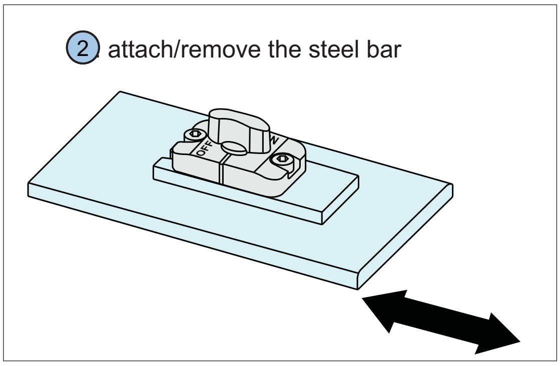


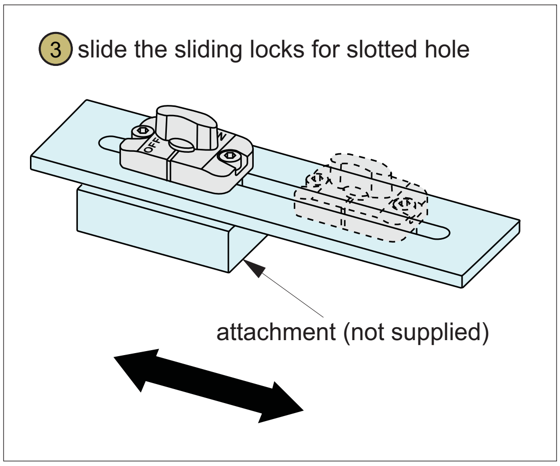
How to use

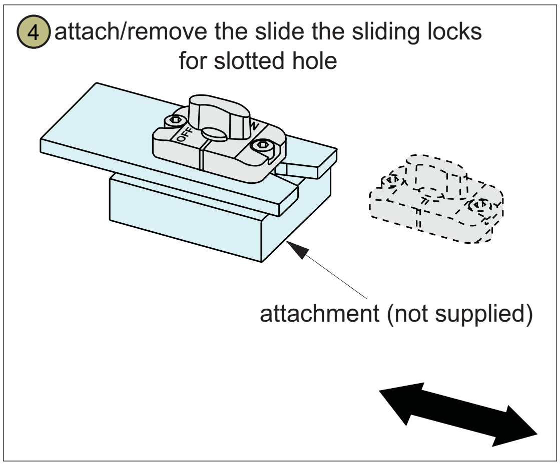
Please refer to notes for safe use (last page of guide).

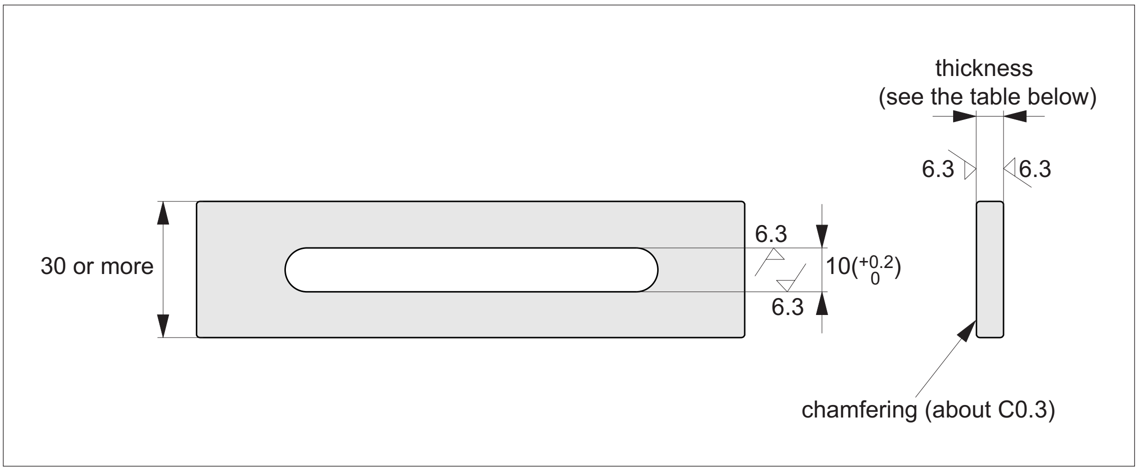
1. Slide the steel bar.
2. Attach/remove the steel bar.
3. Slide the sliding locks for slotted hole.
4. Attach/remove the sliding locks for slotted hole.









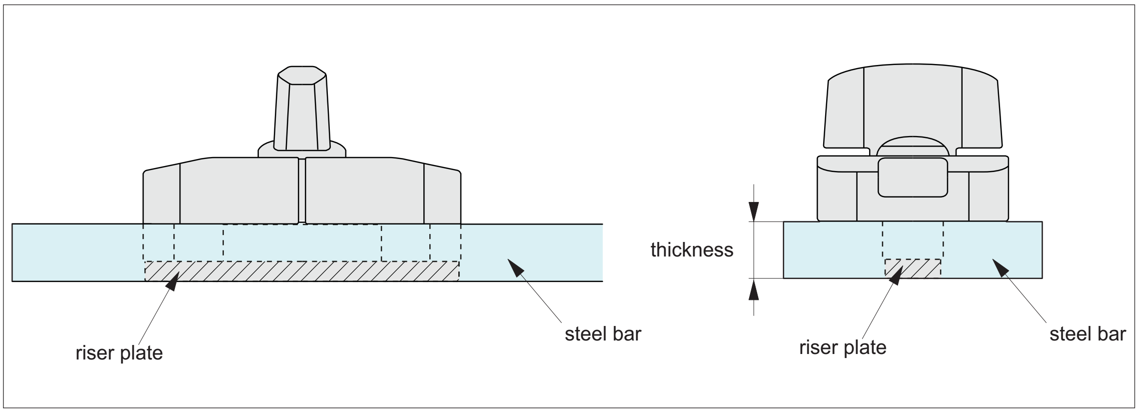


How to use steel bar materials

Usable Materials: Flat bar (JIS h14 grade) made of SS400, S45C or SUS304 etc.

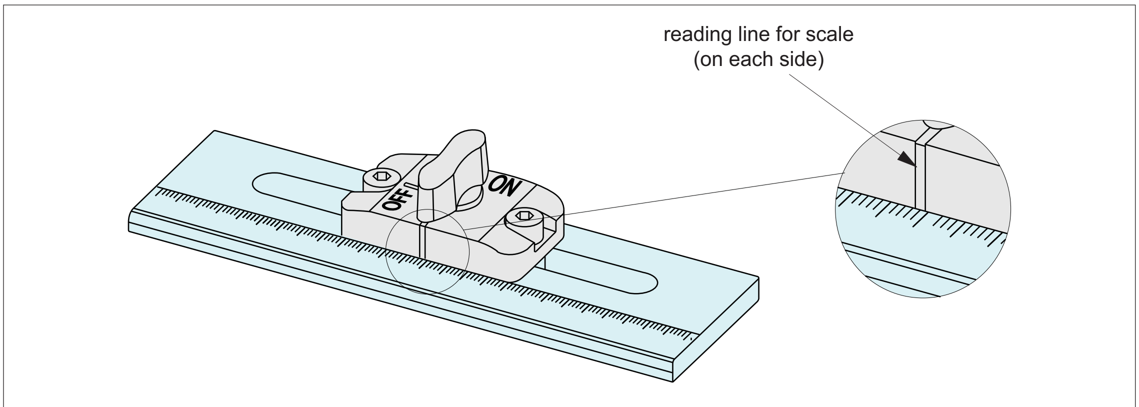
Machining of slotted hole: Recommended tolerance of the slotted hole to prevent chattering is shown left.

For more accurate sliding, machine the slotted hole to fit the dimension of 10mm (-0.05 to 0) on the bottom of sliding locks. Remove the burr around the slotted hole to ensure locking.



How to use riser plate

Can be used for various steel thicknesses by attaching the riser plates (ordered separately, see 33971).



How to use scale plate

You can read the scale with the line on the body of the sliding lock.

Scale plate is separately available.

See ranges 33975, 33976 and 33977.

Notes

- Ensure that the knob is at the "OFF" position when mounting. Mounting of sliding locks the at "ON" position may cause damage.
- The displacement will increase with excess shock or vibration. Do not use this product vertically in environments where excess vibration is present.
- The displacement can increase with adhesion or contamination by oil or foreign substances.
- If the steel plate slips or chatters by the load applied to the steel plate, prepare guides or supports as needed. (See figure 1 and 2 below)
- Excess displacement or misalignment may be caused if there is a clearance between the steel bar and the base when the sliding locks at the "ON" position. (See figure 3 below) Ensure that the steel plate and the base are not bent or warped.

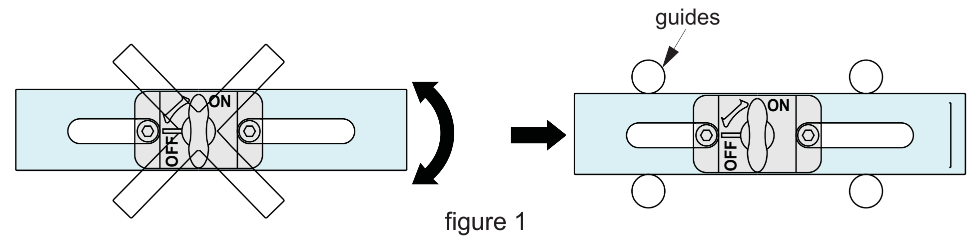


figure 1

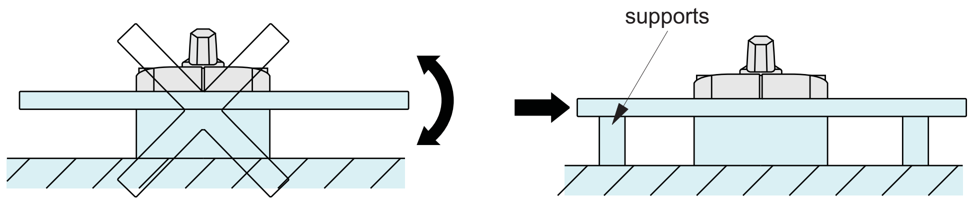


figure 2

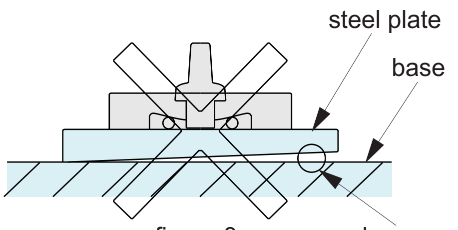
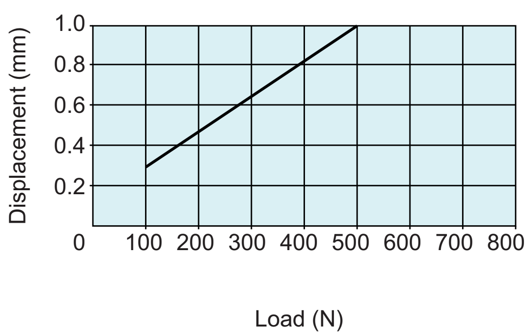


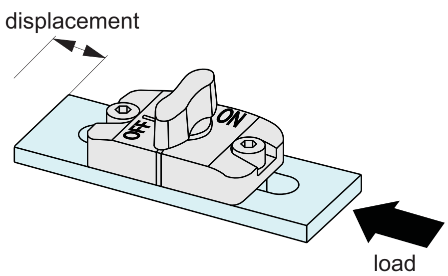
figure 3

Performance curve

The displacement of steel bar by axial load (static load from single direction)

Note: The data is for a flat bar made of SUS304 stainless steel, SS400 steel and S45C steel. Using an aluminum flat bar the surface will be scratched or dent by applied load.





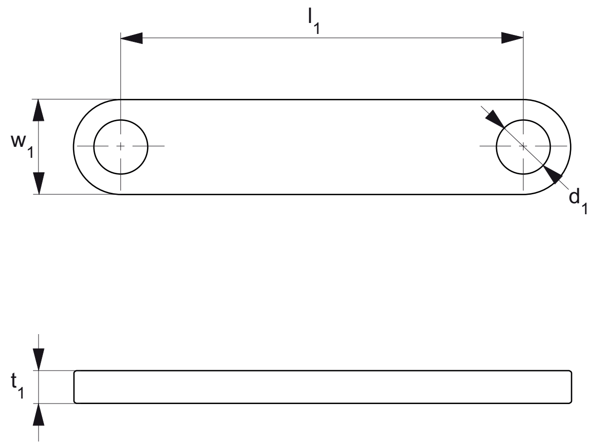
Riser Plates for Sliding Locks

Material

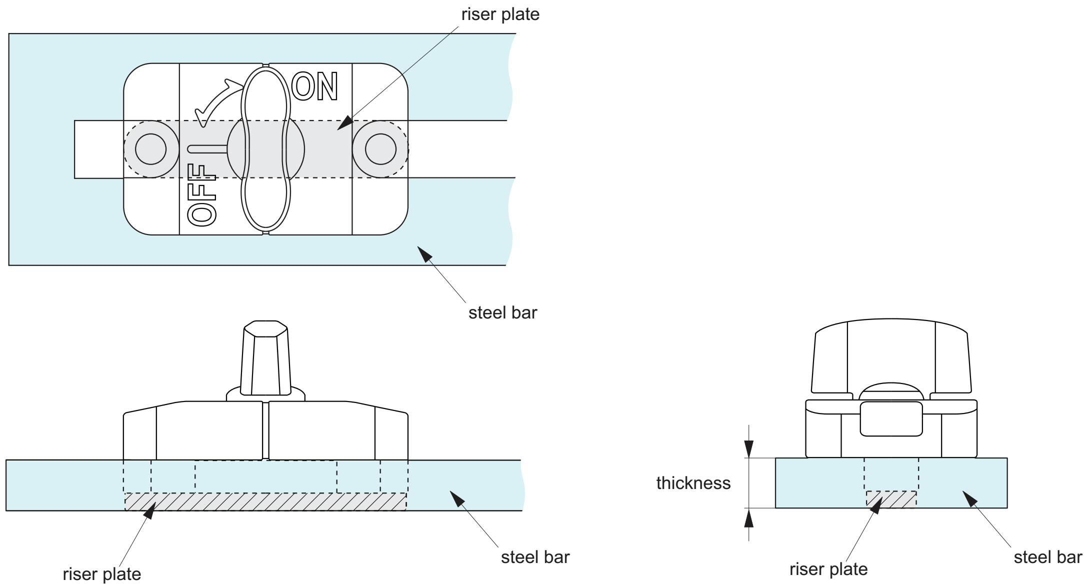
Body: 304 stainless steel.

Technical Notes

For use with sliding clamp 33970, addition of riser plate to clamp enables clamps use for sliding bars of varying thickness.



Order No.	d_1	l_1	w_1	t_1	g
33971.W0002	5,5	40	9,5	2	6
33971.W0003	5,5	40	9,5	3	10



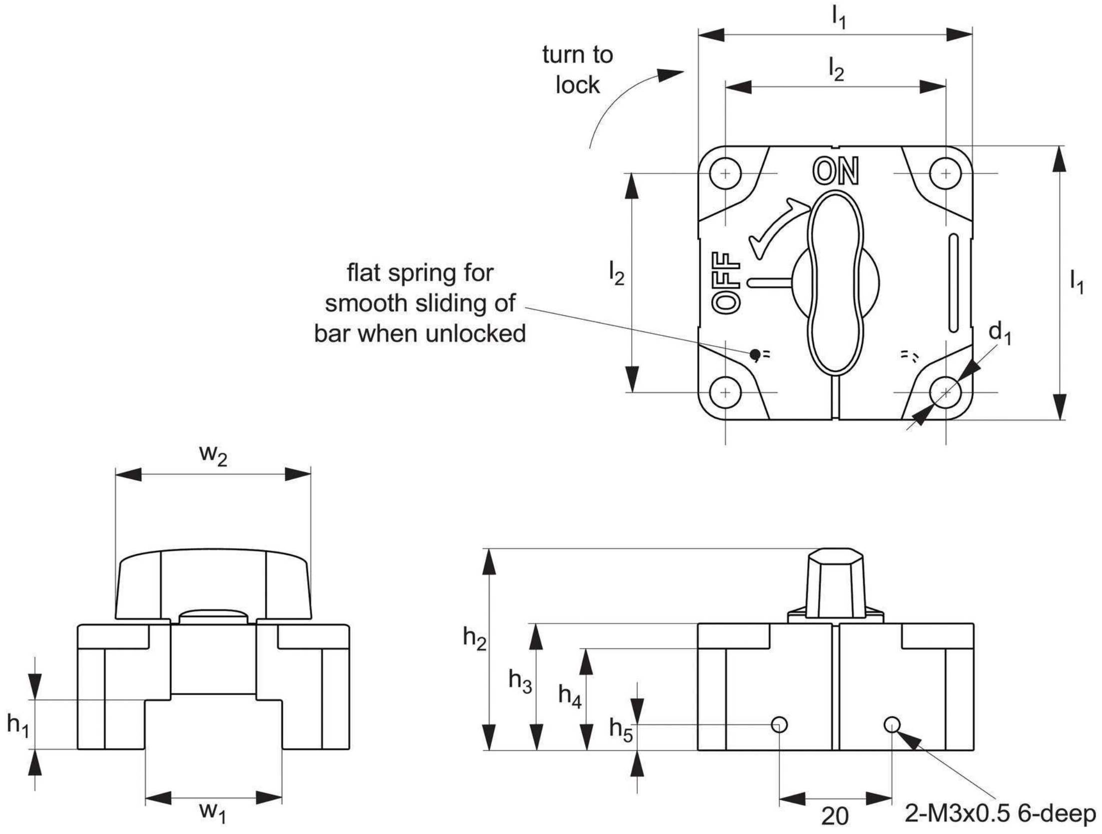
Sliding bar thickness	Sliding clamp	Sliding clamp h_1 =	Riser plate	Riser plate thickness t_1 =	Total thickness achieved $(h_1 + t_1)$
3	33970.Wxxx3	3	not req'd	-	3
5	33970.Wxxx3	3	33971.W0002	2	5
6	33970.Wxxx6	6	not req'd	-	6
8	33970.Wxxx6	6	33971.W0002	2	8
9	33970.Wxxx6	6	33971.W0003	3	9

Wixroyd 0845 26 66 577 info@wixroyd.com

Sliding Clamps - for Solid Sliding Bar

quarter turn lock - t-handle grip - zinc

33972



Order No.	For bar width x height	Handle	w_1 +0,05, 0	h_1 +0,02, 0	l_1	h_2	h_3	h_4	h_5	l_2	w_2	d_1	g
33972.W0122	12x12	Plastic, orange	12	12	40	36	22	18,5	6,0	32	28	4,5	130
33972.W0166	16x16	Plastic, orange	16	16	40	40	26	22,5	8,0	32	28	4,5	150
33972.W0250	25x 9	Plastic, orange	25	9	50	37	23	18,5	4,5	40	35	5,5	220
33972.W0252	25x12	Plastic, orange	25	12	50	40	26	21,5	6,0	40	35	5,5	240
33972.W0322	32x12	Plastic, orange	32	12	50	40	26	21,5	6,0	40	35	5,5	220
33972.W0326	32x16	Plastic, orange	32	16	50	44	30	25,5	8,0	40	35	5,5	240
33972.W1122	12x12	Plastic, black	12	12	40	36	22	18,5	6,0	32	28	4,5	130
33972.W1166	16x16	Plastic, black	16	16	40	40	26	22,5	8,0	32	28	4,5	150
33972.W1250	25x 9	Plastic, black	25	9	50	37	23	18,5	4,5	40	35	5,5	220
33972.W1252	25x12	Plastic, black	25	12	50	40	26	21,5	6,0	40	35	5,5	240
33972.W1322	32x12	Plastic, black	32	12	50	40	26	21,5	6,0	40	35	5,5	220
33972.W1326	32x16	Plastic, black	32	16	50	44	30	25,5	8,0	40	35	5,5	240
33972.W2122	12x12	Stainless	12	12	40	36	22	18,5	6,0	32	28	4,5	145
33972.W2166	16x16	Stainless	16	16	40	40	26	22,5	8,0	32	28	4,5	165
33972.W2250	25x 9	Stainless	25	9	50	37	23	18,5	4,5	40	35	5,5	245
33972.W2252	25x12	Stainless	25	12	50	40	26	21,5	6,0	40	35	5,5	265
33972.W2322	32x12	Stainless	32	12	50	40	26	21,5	6,0	40	35	5,5	245
33972.W2326	32x16	Stainless	32	16	50	44	30	25,5	8,0	40	35	5,5	265

Material

Body: die-cast zinc, chrome plated.
Grip: polyamide plastic (black or orange), or stainless steel SUS304.
Clamping shaft/wedge: stainless steel.
Flat spring: phosphor bronze.

Technical Notes

Sliding clamps are ideal for the quick positioning, locking, releasing and re-positioning of sliding bars in many applications. When additionally used with a scale plate (see part no. 33975, 33976 and 33977), the reading line on the sliding clamp enables quick, easy and accurate alignment.

The sliding clamp is mounted, for greater stability, in a fixed position in an assembly. With the clamp set to its off position the sliding bar (not supplied) can be moved left or right, with two spring loaded ball plungers provide for free movement of bar.
Once in its desired position the sliding bar can be locked in place, through a 90 degree turn of the sliding clamp's handle which engages the clamp's clamping shaft/wedge.

Please see technical diagram below for recommended machining details for your sliding bar (not supplied). Riser plates can be used to provide clearance between sliding bar and mounting surface to improve free running of sliding bar, see part no. 33974.

Temperature resistance up to 90°C. Max. static load up to 800N - please refer to performance graph below.

Important Notes

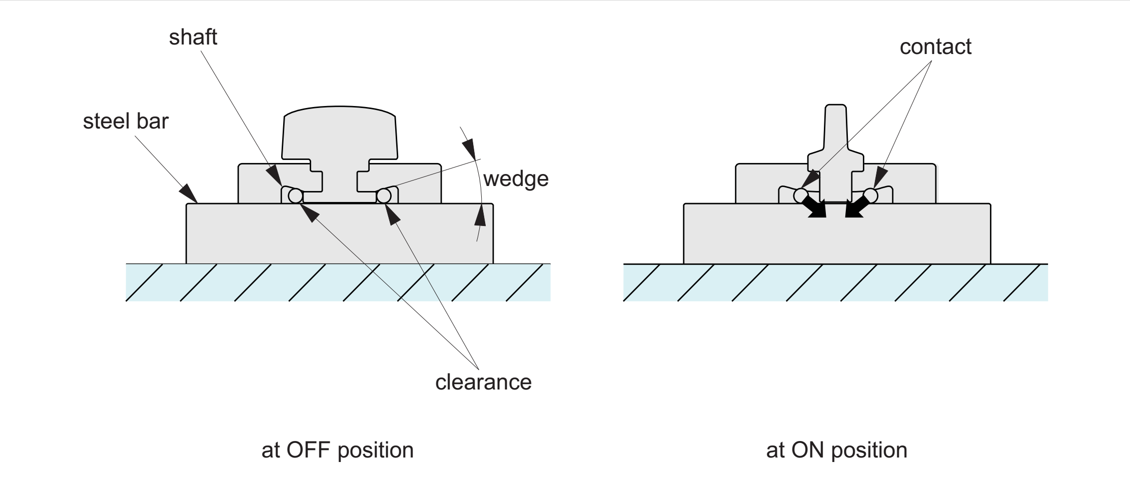
Sliding clamps are suited only to straight linear movement of sliding bar (not supplied), and do not tolerate any other applied loads.

Displacement of sliding bar, through repetitive use, will increase if excessive shock or vibration is present. Do not use sliding clamp in vertical applications where vibration is present.
Displacement will also increase with adhesion or immersion of oil or other foreign substances.
Ensure sliding bar is not bent nor warped as this may cause the sliding bar to slip even when sliding clamp is in its on position.

Operating Principle

You can slide the steel bar when the knob is at the "OFF" position since there is clearance between the steel bar and the shafts.

The steel bar is locked when the knob is at the "ON" position since the shafts are pushed by the wedge.

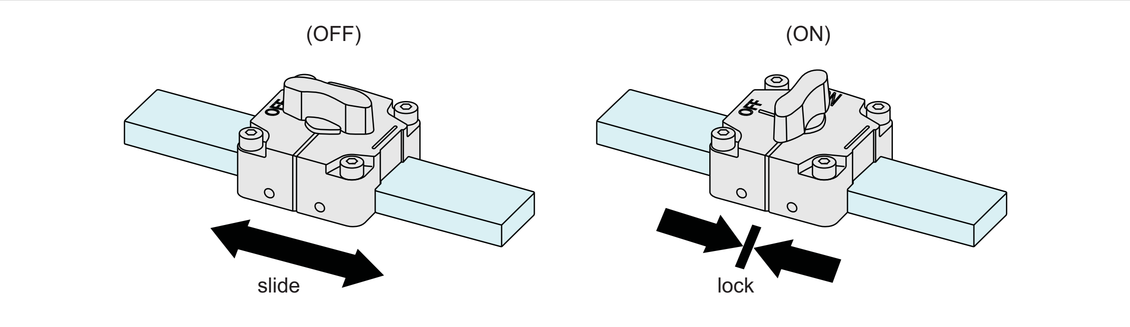


Operating Instructions

The steel bar can slide to right and left at the "OFF" position.

The steel bar is locked at the "ON" position.

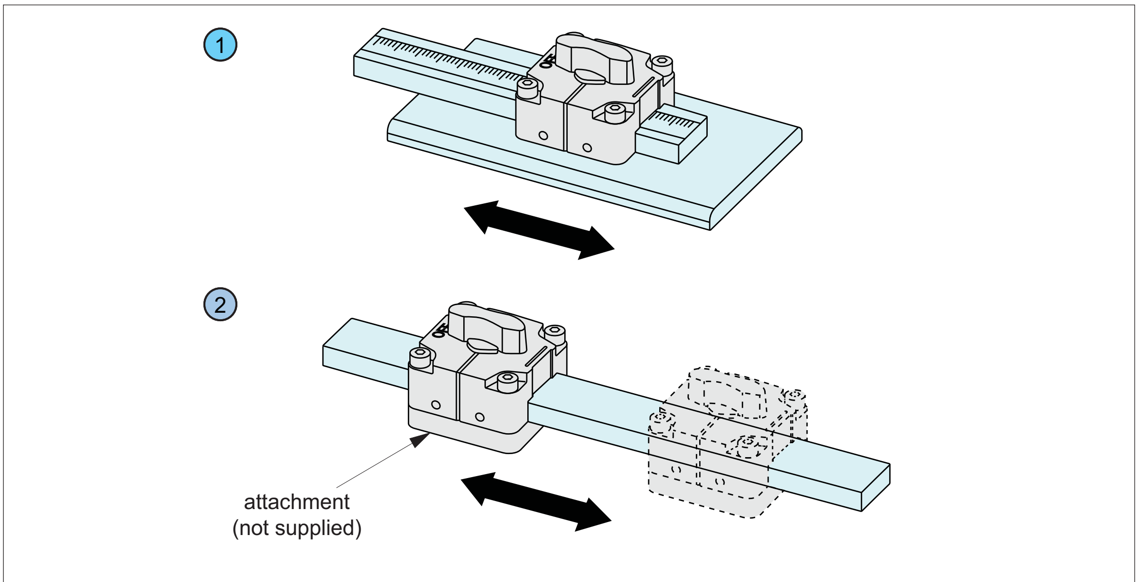
Note: The knob clicks at the "ON" and "OFF" positions, and this enables the operators to lock/unlock securely.



How to use

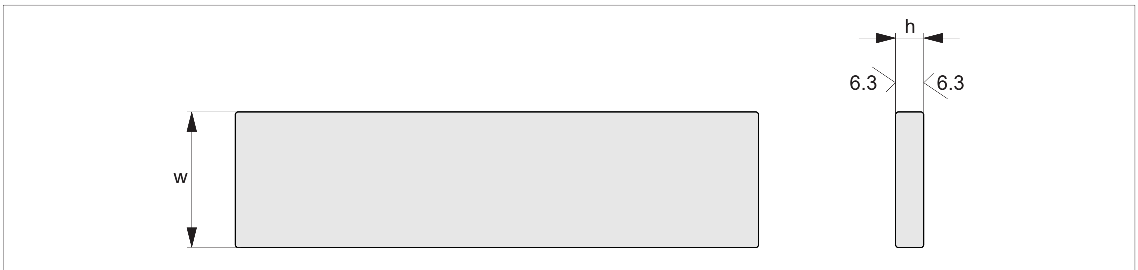
Please refer to notes for safe use (see last page of guide).

1. Slide the steel bar.
2. Slide the sliding locks for square bar.

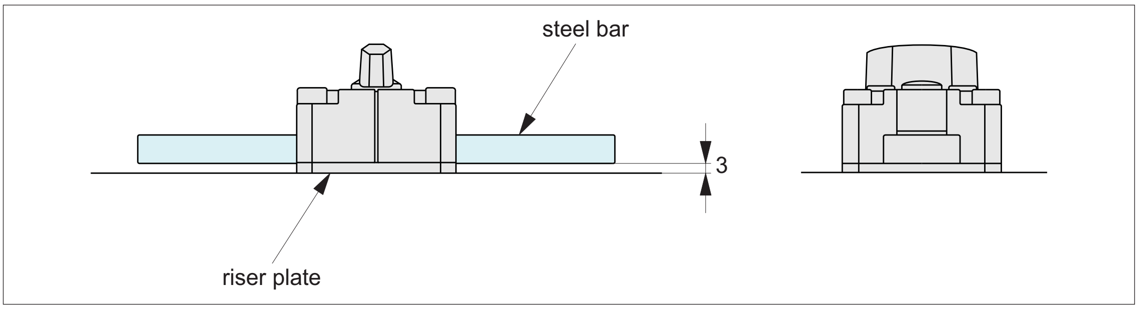


How to use steel bar materials

Usable Materials: Flat bar (JIS h14 grade) made of SS400, S45C or SUS304 etc.

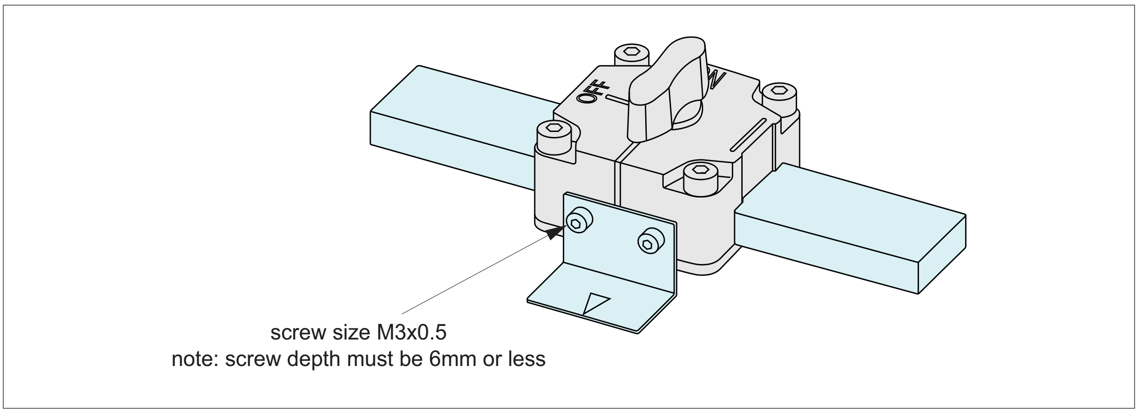


How to use riser plate



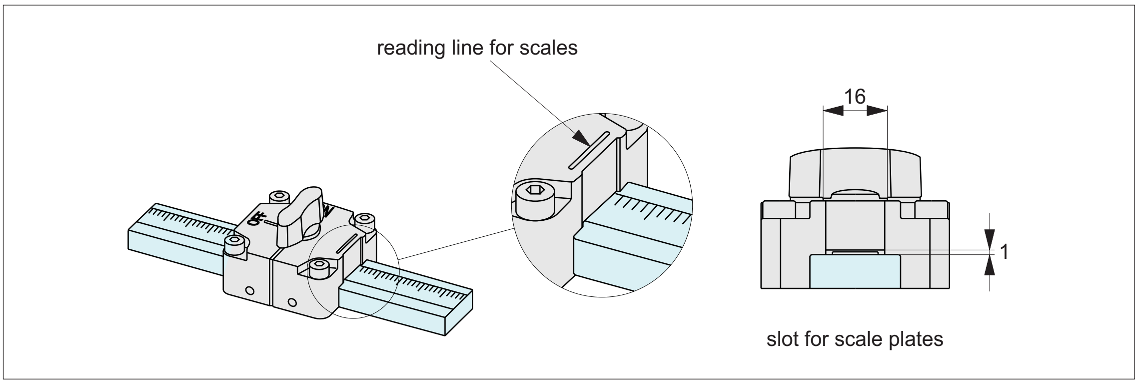
Riser plates (to be ordered separately) can lift the steel bar to create a clearance between the steel bar and the base.

How to use tapped holes on side surface



Can be used with attachments such as pointer plates and brackets.

How to use scale plate



Scale plate can be put on the steel bar.

Note: Fit scale plate inside the slot in the figure below. Putting scale plate outside the slot cause interference between scale plate and sliding lock.

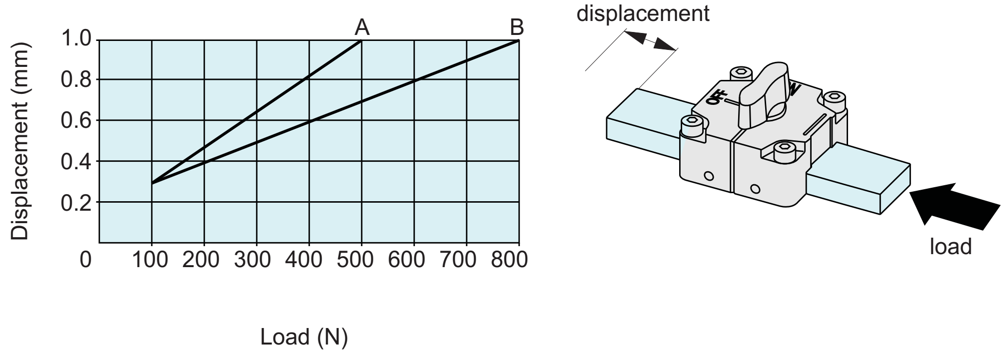
Scale plate is separately available.

See ranges 33975, 33976 and 33977.

Performance curve

Displacement of steel bar by axial load (static load from single direction)

A: For bar width x heights; 12x12mm and 16x16mm.
B: For bar width x heights; 25x9, 25x12, 32x12, 32x16.
Note: This data is for a flat bar bade of SUS304 stainless steel, SS400 steel and S45C steel. Using an aluminum flat bar, the surface will be scratched or dented by applied load.



Notes

- Ensure that the knob is at the “OFF” position when mounting. Mounting of sliding locks at the “ON” position may cause damage.
- The displacement will increase with excess shock or vibration. Do not use this product vertically in environments where excess vibration is present.
- The displacement can increase with adhesion or contamination by oil or foreign substances.
- If the steel plate slips or chatters by the load applied to the steel plate, prepare guides or supports as needed. (See figure 1 and 2 below)
- Excess displacement or misalignment may be caused if there is a clearance between the steel bar and the base when the sliding locks at “ON” position. (See figure 3 below) Ensure that the steel plate and the base are not bent or warped.

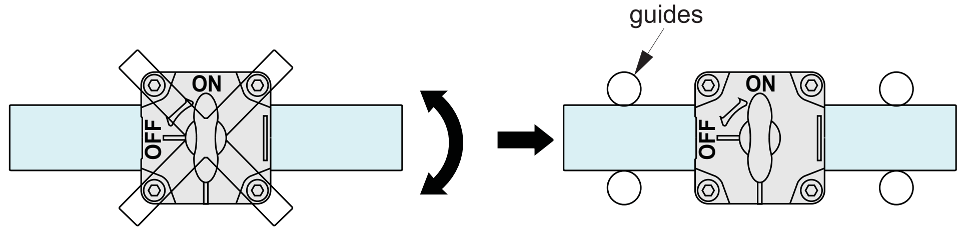


figure 1

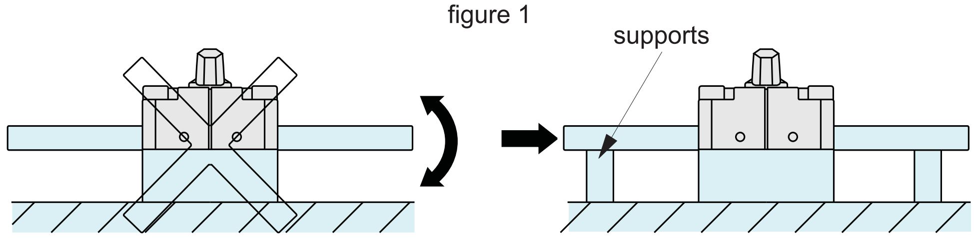


figure 2

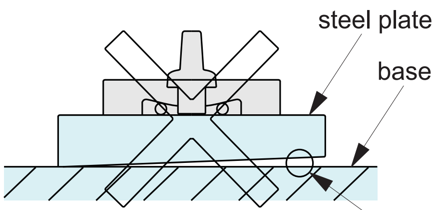
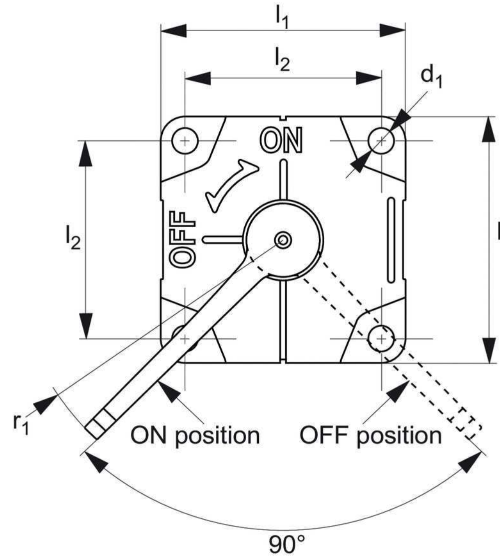


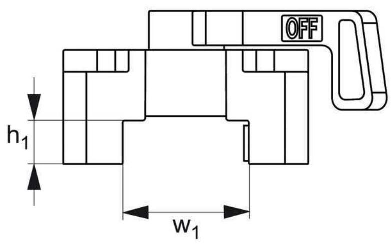
figure 3

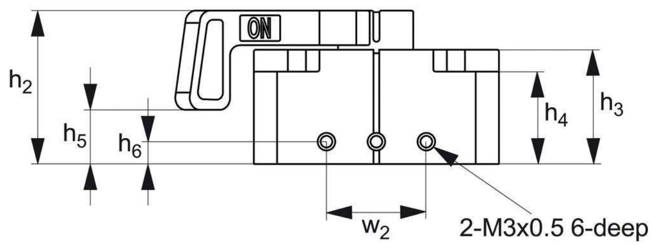
Sliding Clamps - for Solid Sliding Bar

quarter turn lock - lever handle grip - zinc

33973



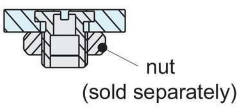


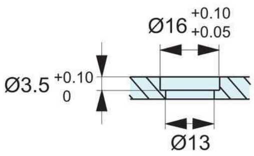


Order No.	For bar width x height	Handle	d_1	h_1 +0,020	h_2	h_3	h_4	h_5	h_6	l_1	l_2	w_1 +0,050	w_2	r_1	Max. static load N	g
33973.W2122	12x12	Stainless	4,5	12	29	22	18,5	11	6,0	40	32	12	20	46,0	500	150
33973.W2166	16x16	Stainless	4,5	16	33	26	22,5	15	8,0	40	32	16	20	46,0	500	160
33973.W2250	25x 9	Stainless	5,5	9	31	23	18,5	11	4,5	50	40	25	20	55,5	800	250
33973.W2252	25x12	Stainless	5,5	12	34	26	21,5	14	6,0	50	40	25	20	55,5	800	250
33973.W2322	32x12	Stainless	5,5	12	34	26	21,5	14	6,0	50	40	32	20	55,5	800	320
33973.W2326	32x16	Stainless	5,5	16	38	30	25,5	18	8,0	50	40	32	20	55,5	800	270

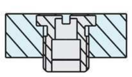
installation dimensions for magnetic hold locating bush

for installation in a plate of thickness ranging from 6mm to 10mm, use a nut for fastening

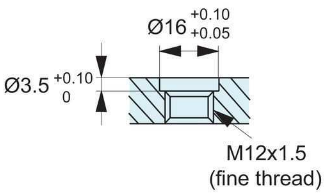




for installation in a plate of thickness over 10mm, use a screw-in method



for use of 2pcs or more, the spacing tollerance should be ±0.1



Material

Body: die-cast zinc, chrome plated.
Handle: stainless steel SUS304.
Clamping shaft/wedge: stainless steel.
Flat spring: phosphor bronze.

Technical Notes

Sliding clamps are ideal for the quick positioning, locking, releasing and re-positioning of sliding bars in many applications. When additionally used with a scale plate (see part no. 33975, 33976 and 33977), the reading line on the sliding clamp enables quick, easy and accurate alignment.

The sliding clamp is mounted, for greater stability, in a fixed position in an assembly. With the clamp set to its off position the sliding bar (not supplied) can be moved left or right, with two spring loaded ball plungers provide for free movement of bar.
Once in its desired position the sliding bar can be locked in place, through a 90 degree turn of the sliding clamp's handle which engages the clamp's clamping shaft/wedge.

Please see technical diagram below for recommended machining details for your sliding bar (not supplied). Riser plates can be used to provide clearance between sliding bar and mounting surface to improve free running of sliding bar, see part no. 33974.

Temperature resistance upto 90°C. Max. static load upto 800N - please refer to performance graph below.

Important Notes

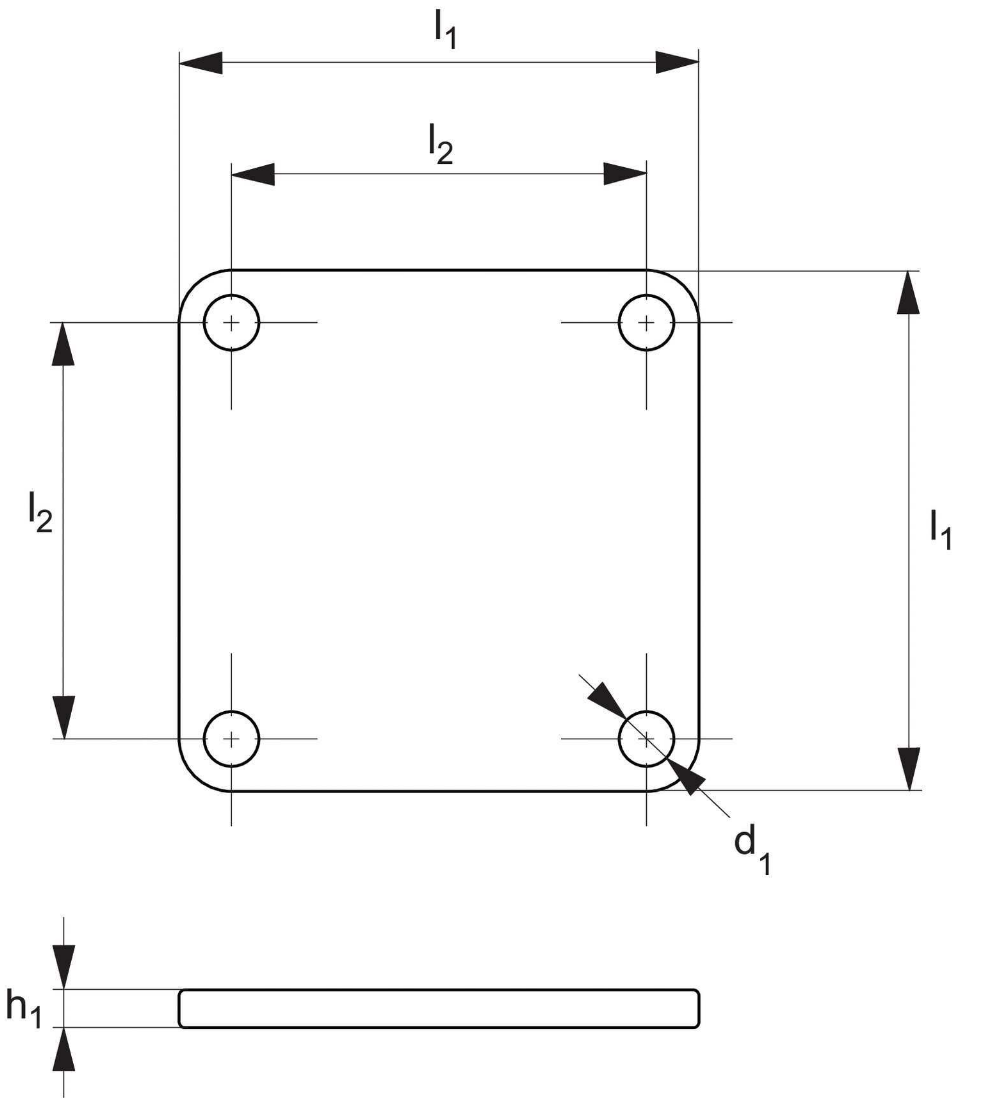
Sliding clamps are suited only to straight linear movement of sliding bar (not supplied), and do not tolerate any other applied loads.

Displacement of sliding bar, through repetitive use, will increase if excessive shock or vibration is present. Do not use sliding clamp in vertical applications where vibration is present.
Displacement will also increase with adhesion or immersion of oil or other foreign substances.
Ensure sliding bar is not bent nor warped as this may cause the sliding bar to slip even when sliding clamp is in its on position.

Riser Plates for Sliding Clamps

for 33972 and 33973

33974



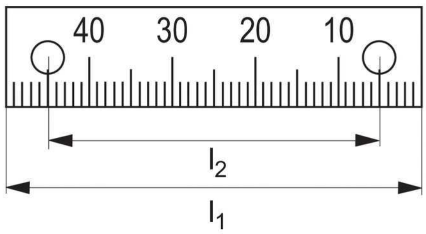
Material
Body: stainless steel, SUS 304

Technical Notes
To be used with sliding clamps part no. 33972 and 33973

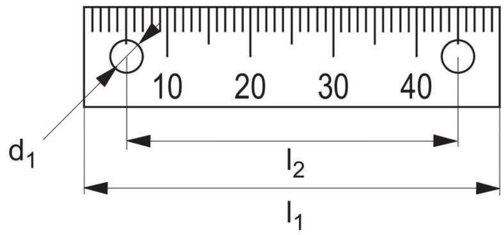
Order No.	d_1	l_1	l_2	h_1	g
33974.W4032	4,5	40	32	3	35
33974.W5040	5,5	50	40	3	55

Scale Plates - Single Scale

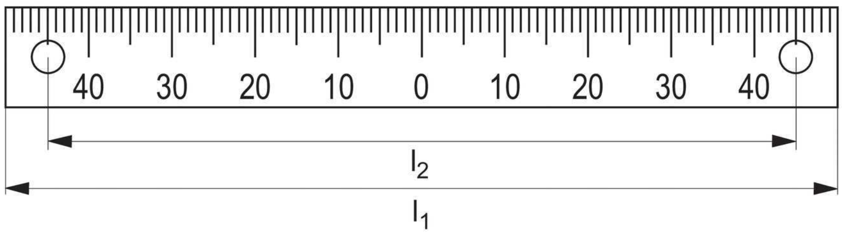
for sliding clamps 33970, 33972, 33973



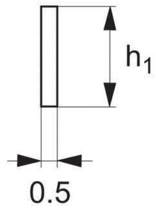
“0” point on right, scale reading right to left, positioned below values

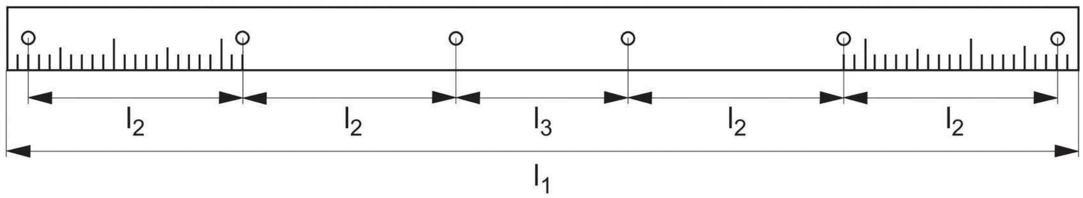


“0” point on left, scale reading left to right, positioned above values

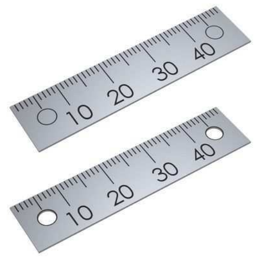


“0” point on centre, scale reading from centre, positioned above values





mounting hole spacing for 500mm-long scale plates



Material

Aluminium, with etched graduation/markings.

Technical Notes

For use with sliding clamps 33970, 33972 and 33973. Markings are for indicative purpses, and are not intended for precise measurement.

Adhesive mounting type: ensure receiving surface is clean and dirt free (features outline of screw hole location, not drilled).

Srew mounting type: holes drilled to 3,5mm dia.

When selecting scale plate consider;
- direction scale reads (left to right, right to left or from centre).
- position of scale relative to number valves (above, below or both).

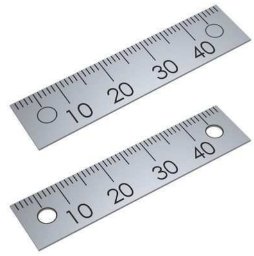
Order No.	Mounting type	Number of mounting holes	Direction of measurement	Scale position	d_1(marke d) drilled	l_1	l_2	l_3	h_1	g
33975.W1005	Adhesive	2	Left	Top	(3,5)	50	40	-	12	0,8
33975.W1010	Adhesive	2	Left	Top	(3,5)	100	90	-	12	1,6
33975.W1015	Adhesive	3	Left	Top	(3,5)	150	70	-	12	2,4
33975.W1020	Adhesive	3	Left	Top	(3,5)	200	95	-	12	3,2
33975.W1030	Adhesive	2	Right	Top	(3,5)	50	40	-	12	0,8
33975.W1035	Adhesive	2	Right	Top	(3,5)	100	90	-	12	1,6
33975.W1040	Adhesive	3	Right	Top	(3,5)	150	70	-	12	2,4
33975.W1045	Adhesive	3	Right	Top	(3,5)	200	95	-	12	3,2
33975.W1055	Adhesive	2	Centre	Top	(3,5)	100	90	-	12	1,6
33975.W1060	Adhesive	3	Centre	Top	(3,5)	200	95	-	12	3,2
33975.W2005	Adhesive	2	Left	Bottom	(3,5)	50	40	-	12	0,8
33975.W2010	Adhesive	2	Left	Bottom	(3,5)	100	90	-	12	1,6
33975.W2015	Adhesive	3	Left	Bottom	(3,5)	150	70	-	12	2,4
33975.W2020	Adhesive	3	Left	Bottom	(3,5)	200	95	-	12	3,2
33975.W2030	Adhesive	2	Right	Bottom	(3,5)	50	40	-	12	0,8
33975.W2035	Adhesive	2	Right	Bottom	(3,5)	100	90	-	12	1,6
33975.W2040	Adhesive	3	Right	Bottom	(3,5)	150	70	-	12	2,4
33975.W2045	Adhesive	3	Right	Bottom	(3,5)	200	95	-	12	3,2
33975.W2055	Adhesive	2	Centre	Bottom	(3,5)	100	90	-	12	1,6
33975.W2060	Adhesive	3	Centre	Bottom	(3,5)	200	95	-	12	3,2
33975.W5005	Screw Mount	2	Left	Top	3,5	50	40	-	12	0,8
33975.W5010	Screw Mount	2	Left	Top	3,5	100	90	-	12	1,6
33975.W5015	Screw Mount	3	Left	Top	3,5	150	70	-	12	2,4
33975.W5020	Screw Mount	3	Left	Top	3,5	200	95	-	12	3,2
33975.W5025	Screw Mount	6	Left	Top	3,5	500	100	90	12	8,0
33975.W5030	Screw Mount	2	Right	Top	3,5	50	40	-	12	0,8
33975.W5035	Screw Mount	2	Right	Top	3,5	100	90	-	12	1,6
33975.W5040	Screw Mount	3	Right	Top	3,5	150	70	-	12	2,4

Scale Plates - Single Scale

for sliding clamps 33970, 33972, 33973

33975

Order No.	Mounting type	Number of mounting holes	Direction of measurement	Scale position	d_1(marke d) drilled	l_1	l_2	l_3	h_1	g
33975.W5045	Screw Mount	3	Right	Top	3,5	200	95	-	12	3,2
33975.W5050	Screw Mount	6	Right	Top	3,5	500	100	90	12	8,0
33975.W5055	Screw Mount	2	Centre	Top	3,5	100	90	-	12	1,6
33975.W5060	Screw Mount	3	Centre	Top	3,5	200	95	-	12	3,2
33975.W5065	Screw Mount	6	Centre	Top	3,5	500	100	90	12	8,0
33975.W6005	Screw Mount	2	Left	Bottom	3,5	50	40	-	12	0,8
33975.W6010	Screw Mount	2	Left	Bottom	3,5	100	90	-	12	1,6
33975.W6015	Screw Mount	3	Left	Bottom	3,5	150	70	-	12	2,4
33975.W6020	Screw Mount	3	Left	Bottom	3,5	200	95	-	12	3,2
33975.W6025	Screw Mount	6	Left	Bottom	3,5	500	100	90	12	8,0
33975.W6030	Screw Mount	2	Right	Bottom	3,5	50	40	-	12	0,8
33975.W6035	Screw Mount	2	Right	Bottom	3,5	100	90	-	12	1,6
33975.W6040	Screw Mount	3	Right	Bottom	3,5	150	70	-	12	2,4
33975.W6045	Screw Mount	3	Right	Bottom	3,5	200	95	-	12	3,2
33975.W6050	Screw Mount	6	Right	Bottom	3,5	500	100	90	12	8,0
33975.W6055	Screw Mount	2	Centre	Bottom	3,5	100	90	-	12	1,6
33975.W6060	Screw Mount	3	Centre	Bottom	3,5	200	95		12	3,2
33975.W6065	Screw Mount	6	Centre	Bottom	3,5	500	100	90	12	8,0



Material
Aluminium, with etched graduation/markings.

Technical Notes
For use with sliding clamps 33970, 33972 and 33973. Markings are for indicative purpses, and are not intended for precise measurement.

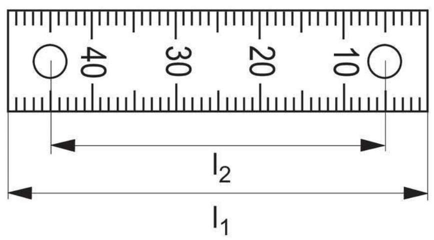
Adhesive mounting type: ensure receiving surface is clean and dirt free (features outline of screw hole location, not drilled).

Srew mounting type: holes drilled to 3,5mm dia.

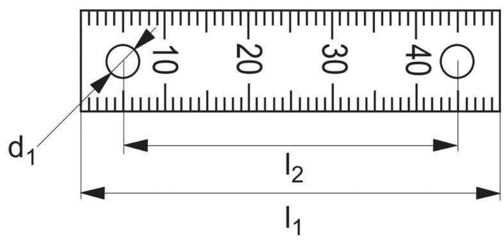
When selecting scale plate consider;
- direction scale reads (left to right, right to left or from centre).
- position of scale relative to number valves (above, below or both).

Scale Plates - Double Scale

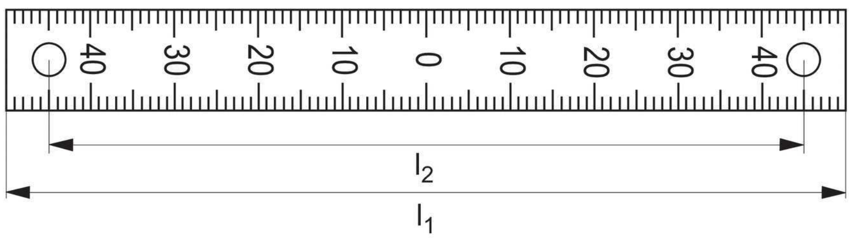
for sliding clamps 33970, 33972, 33973



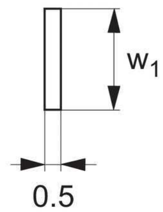
"0" point on right, scale reading right to left, positioned above and below values

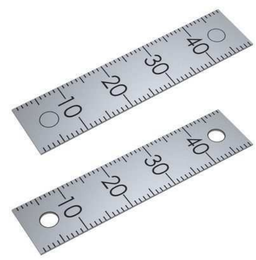


"0" point on left, scale reading left to right, positioned above and below values



"0" point on centre, scale reading from centre, positioned above and below values





Material
Aluminium, with etched graduation/markings.

Technical Notes
For use with sliding clamps 33970, 33972 and 33973. Markings are for indicative purposes, and are not intended for precise measurement.

Adhesive mounting type: ensure receiving surface is clean and dirt free (features outline of screw hole location, not drilled).

Screw mounting type: holes drilled to 3,5mm dia.

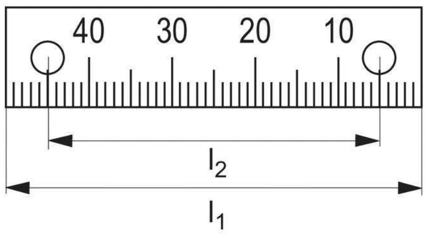
When selecting scale plate consider;
- direction scale reads (left to right, right to left or from centre).
- position of scale relative to number valves (above, below or both).

Order No.	Mounting type	Number of mounting holes	Location of "0" point	d_1	l_1	l_2	w_1	g
33976.W1005	Adhesive	2	Left	-	50	40	15	1
33976.W1010	Adhesive	2	Left	-	100	90	15	2
33976.W1015	Adhesive	2	Right	-	50	40	15	1
33976.W1020	Adhesive	2	Right	-	100	90	15	2
33976.W1025	Adhesive	2	Centre	-	100	90	15	2
33976.W5005	Screw Mount	2	Left	3,5	50	40	15	1
33976.W5010	Screw Mount	2	Left	3,5	100	90	15	2
33976.W5015	Screw Mount	2	Right	3,5	50	40	15	1
33976.W5020	Screw Mount	2	Right	3,5	100	90	15	2
33976.W5025	Screw Mount	2	Centre	3,5	100	90	15	2

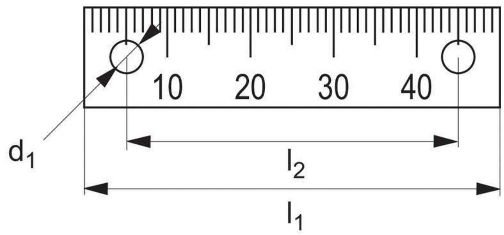
Scale Plates - Single Scale

stainless steel

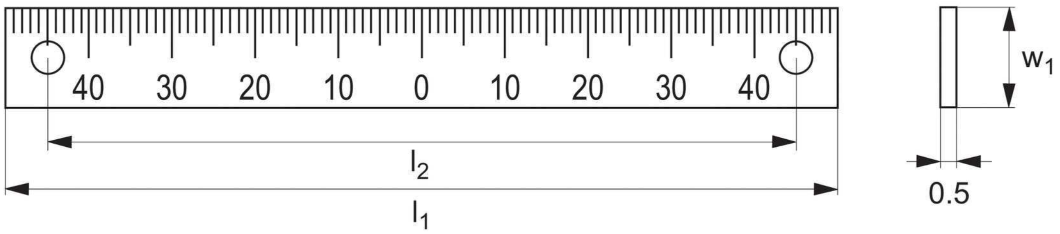
33977



“0” point on right, scale reading right to left, positioned below values

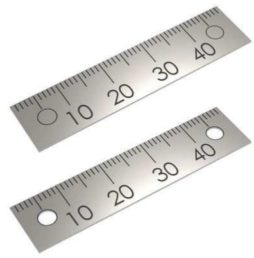


“0” point on left, scale reading left to right, positioned above values



“0” point on centre, scale reading from centre, positioned above values

Order No.	Mounting type	Numbe r of mo unting holes	Location of "0" point	Markings location	d_1	l_1	l_2	w_1	g
33977.W1005	Adhesive	2	Top	-	50	40	12	2,4	Left
33977.W1010	Adhesive	2	Top	-	100	90	12	4,7	Left
33977.W1015	Adhesive	2	Top	-	50	40	12	2,4	Right
33977.W1020	Adhesive	2	Top	-	100	90	12	4,7	Right
33977.W1025	Adhesive	2	Top	-	100	90	12	4,7	Centre
33977.W5005	Screw-Mount	2	Top	3,5	50	40	12	2,4	Left
33977.W5010	Screw-Mount	2	Top	3,5	100	90	12	4,7	Left
33977.W5015	Screw-Mount	2	Top	3,5	50	40	12	2,4	Right
33977.W5020	Screw-Mount	2	Top	3,5	100	90	12	4,7	Right
33977.W5025	Screw-Mount	2	Top	3,5	100	90	12	4,7	Centre



Material

Stainless steel, with etched graduation/markings.

Technical Notes

For use with sliding clamps 33970, 33972 and 33973. Markings are for indicative purposes, and are not intended for precise measurement.

Adhesive mounting type: ensure receiving surface is clean and dirt free (features outline of screw hole location, not drilled).

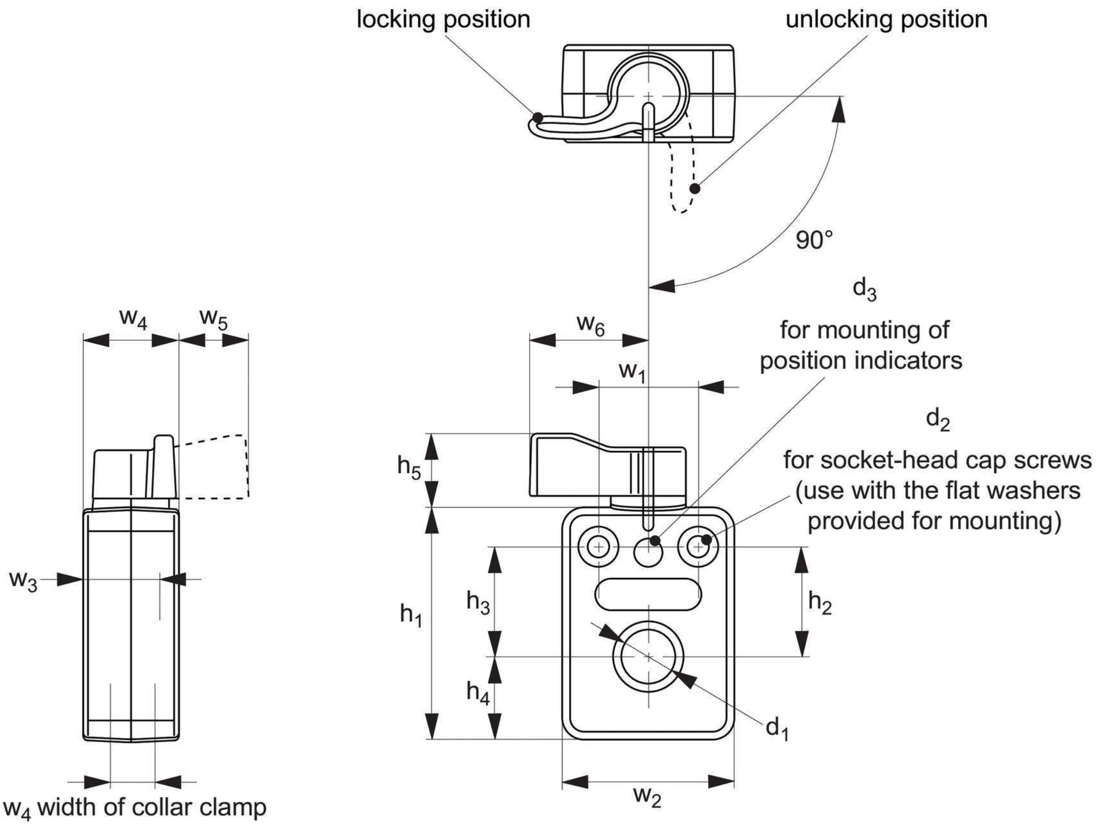
Screw mounting type: holes drilled to 3,5mm dia.

When selecting scale plate consider;
- direction scale reads (left to right, right to left or from centre).
- position of scale relative to number valves (above, below or both).

Sliding Clamps - for Solid Round Bar

quarter turn lock- l-handle grip - polyamide

33980



Material

Housing: Polyamide (glass-fibre reinforced)
Boss: Polyamide (glass-fibre reinforced)
Base: Polyamide (glass-fibre reinforced)
Insert: Stainless steel

Technical Notes

It has teeth inside and it engages at every 7.2° (=360°/ 50).
33981 pulls the spindle by the inner spring with 70N force to prevent chattering of the spindle. Note: The spindle should be fully inserted into the knob for 25mm.

Order No.	Handle	d_1 for shaft dia. h_7	d_2	d_3	h_1	h_2	h_3	h_4	g
33980.W1308	Orange	8	M 4	6	48,5	23,5	22	17	50
33980.W1310	Orange	10	M 4	6	48,5	23,5	22	17	50
33980.W1312	Orange	12	M 4	6	48,5	23,5	22	17	50
33980.W1314	Orange	14	M 4	6	48,5	23,5	22	17	50
33980.W1512	Orange	12	M 5	6	69,0	17,0	30	26	100
33980.W1515	Orange	15	M 5	6	69,0	17,0	30	26	100
33980.W1516	Orange	16	M 5	6	69,0	17,0	30	26	100
33980.W1520	Orange	20	M 5	6	69,0	17,0	30	26	100
33980.W2308	Black	8	M 4	6	48,5	23,5	22	17	50
33980.W2310	Black	10	M 4	6	48,5	23,5	22	17	50
33980.W2312	Black	12	M 4	6	48,5	23,5	22	17	21
33980.W2314	Black	14	M 4	6	48,5	23,5	22	17	21
33980.W2512	Black	12	M 5	6	69,0	17,0	30	26	100
33980.W2515	Black	15	M 5	6	69,0	17,0	30	26	100
33980.W2516	Black	16	M 5	6	69,0	17,0	30	26	100
33980.W2520	Black	20	M 5	6	69,0	17,0	30	26	34

Order No.	h_5	w_1	w_2	w_3	w_4	w_5	w_6	Max. allowable holding torque Nm	Max. allowable sliding torque Nm
33980.W1308	15,5	21	36	14,0	20	15	25	3	400
33980.W1310	15,5	21	36	14,0	20	15	25	3	400
33980.W1312	15,5	21	36	14,0	20	15	25	4	400
33980.W1314	15,5	21	36	14,0	20	15	25	4	400
33980.W1512	15,5	34	51	12,5	20	15	25	5	500
33980.W1515	15,5	34	51	12,5	20	15	25	5	500
33980.W1516	15,5	34	51	12,5	20	15	25	6	500
33980.W1520	15,5	34	51	12,5	20	15	25	6	500
33980.W2308	15,5	21	36	14,0	20	15	25	3	400
33980.W2310	15,5	21	36	14,0	20	15	25	3	400
33980.W2312	15,5	21	36	14,0	20	15	25	4	400
33980.W2314	15,5	21	36	14,0	20	15	25	4	400
33980.W2512	15,5	34	51	12,5	20	15	25	5	500
33980.W2515	15,5	34	51	12,5	20	15	25	5	500
33980.W2516	15,5	34	51	12,5	20	15	25	6	500

Sliding Clamps - for Solid Round Bar

quarter turn lock- l-handle grip - polyamide

33980

Order No.	h_5	w_1	w_2	w_3	w_4	w_5	w_6	Max. allowable holding torque Nm	Max. allowable sliding torque Nm
33980.W2520	15,5	34	51	12,5	20	15	25	6	500

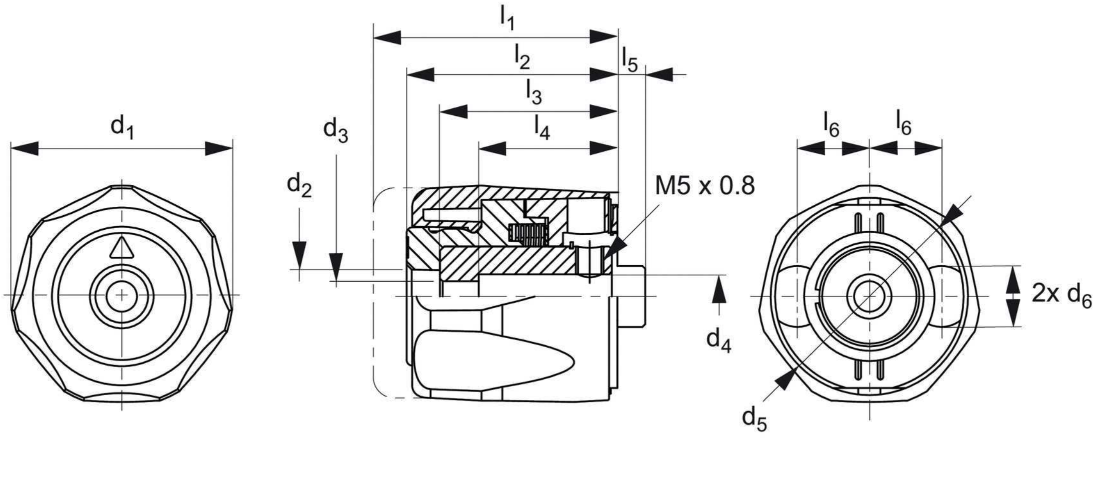
Material

Housing: Polyamide (glass-fibre reinforced)
Boss: Polyamide (glass-fibre reinforced)
Base: Polyamide (glass-fibre reinforced)
Insert: Stainless steel

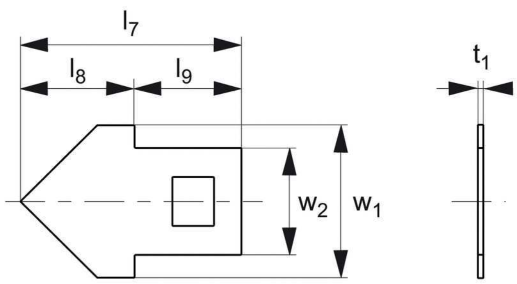
Technical Notes

It has teeth inside and it engages at every 7.2° (=360°/ 50).
33981 pulls the spindle by the inner spring with 70N force to prevent chattering of the spindle. Note: The spindle should be fully inserted into the knob for 25mm.

33981



one-touch locking knob



pointer plate

Material
Housing: polyamide (glass fibre reinforced) black, orange.
Boss: Polyamide (glass fibre reinforced) blue.
Base: Polyamide (glass fibre reinforced) red.
Insert & Pointer plate: Stainless steel A2.

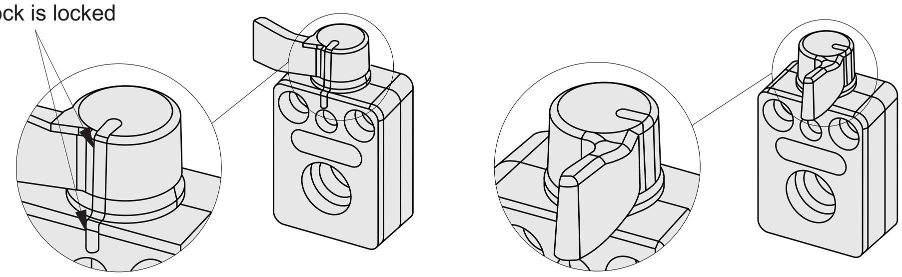
Order No.	d_1	g
33981.W0040	-	21
33981.W4008	8	95
33981.W4010	10	90
33981.W4108	8	95
33981.W4110	10	90

One-Touch Fastener - Spindle Locks

overview

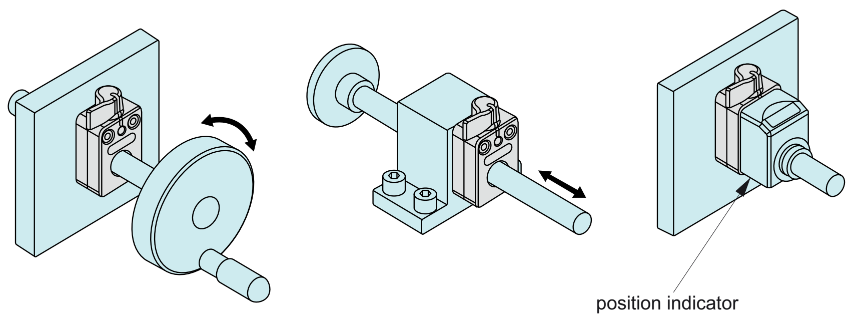
Operating Principle

- One-touch spindle locks enable quick and secure locking of shafts with one click of the knob.
- When one-touch spindle lock is operated, the knob clicks and the shaft is locked with a steady force. This provides reliable locking of shafts.
- The knob position and the indication line clearly indicate lock/unlock position.



Operating Instructions

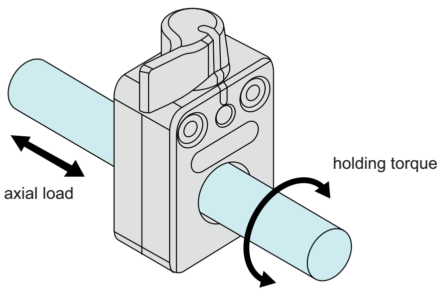
Note: To mount position indicators to one-touch spindle locks, use the rubber cushion supplied with position indicators.



Load Ratings

One-touch spindle locks can fix both revolving and sliding shafts.

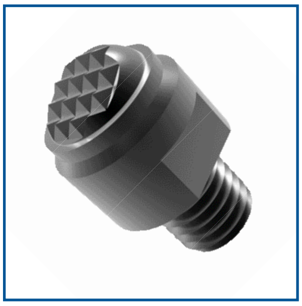
For shaft Ø h_7	d_2	Max. holding torque Nm	Max. axial load N
8	M4	3	400
10	M4	3	400
12	M4	4	400
14	M4	4	400
12	M5	5	500
15	M5	5	500
16	M5	6	500
20	M5	6	500



Notes

- This product cannot be used as bearings or guides for shafts.
- Shafts may slip in environments where shocks or vibrations are present.
- The allowable holding torque and the allowable sliding load may decrease with adhesion of particles or immersion in oil.

Wixroyd

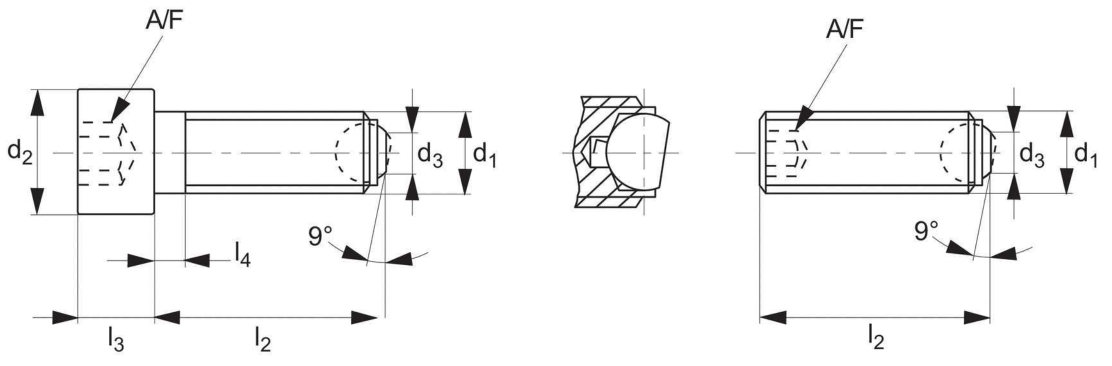


Thrust Screws & Self-Aligning Pads

Thrust Screws - Steel

ball ended - flat - metal - secured

34000



with head

without head

Order No. Plain	Order No. Ribbed	Type	d_1	l_2	d_2	d_3	l_3	l_4	Ball Ø	A/F	Max Static load kN	g
34000.W0082	34000.W0192	With Head	M 8	20	13	4,5	8	3,5	5,5	6	9	13,0
34000.W0062	-	With Head	M 6	20	10	3,2	6	3,0	4,0	5	6	6,1
34000.W0064	-	With Head	M 6	30	10	3,2	6	3,0	4,0	5	6	7,7
34000.W0066	-	With Head	M 6	40	10	3,2	6	16,0	4,0	5	6	10,0
34000.W0084	34000.W0194	With Head	M 8	35	13	4,5	8	3,5	5,5	6	9	17,0
34000.W0086	34000.W0196	With Head	M 8	50	13	4,5	8	22,0	5,5	6	9	23,0
34000.W0102	34000.W0202	With Head	M10	25	16	6,0	10	4,5	7,0	8	12	24,0
34000.W0104	34000.W0204	With Head	M10	40	16	6,0	10	4,5	7,0	8	12	31,0
34000.W0106	34000.W0206	With Head	M10	60	16	6,0	10	28,0	7,0	8	12	44,0
34000.W0122	34000.W0222	With Head	M12	30	18	7,2	12	5,0	8,5	10	18	38,0
34000.W0124	34000.W0224	With Head	M12	50	18	7,2	12	5,0	8,5	10	18	52,0
34000.W0126	34000.W0226	With Head	M12	80	18	7,2	12	44,0	8,5	10	18	80,0
34000.W0162	34000.W0262	With Head	M16	40	24	10,7	16	6,0	12,0	14	36	92,0
34000.W0164	34000.W0264	With Head	M16	60	24	10,7	16	6,0	12,0	14	36	118,0
34000.W0166	34000.W0266	With Head	M16	80	24	10,7	16	36,0	12,0	14	36	153,0
34000.W0172	34000.W0272	With Head	M20	50	30	13,5	20	7,5	15,0	17	60	181,0
34000.W0174	34000.W0274	With Head	M20	80	30	13,5	20	28,0	15,0	17	60	255,0
34000.W0176	34000.W0276	With Head	M20	100	30	13,5	20	48,0	15,0	17	60	304,0
34000.W0182	34000.W0282	With Head	M24	60	36	15,8	24	9,0	18,0	19	80	325,0
34000.W0184	34000.W0284	With Head	M24	90	36	15,8	24	30,0	18,0	19	80	430,0
34000.W0186	34000.W0286	With Head	M24	120	36	15,8	24	60,0	18,0	19	80	535,0
34000.W0584	34000.W0694	W/o Head	M 8	20	-	4,5	-	-	5,5	4	9	5,1
34000.W0563	-	W/o Head	M 6	12	-	3,2	-	-	4,0	3	6	1,6
34000.W0564	-	W/o Head	M 6	16	-	3,2	-	-	4,0	3	6	2,3
34000.W0565	-	W/o Head	M 6	20	-	3,2	-	-	4,0	3	6	2,9
34000.W0566	-	W/o Head	M 6	25	-	3,2	-	-	4,0	3	6	3,8
34000.W0583	34000.W0693	W/o Head	M 8	16	-	4,5	-	-	5,5	4	9	3,7
34000.W0585	34000.W0695	W/o Head	M 8	25	-	4,5	-	-	5,5	4	9	6,5
34000.W0586	34000.W0696	W/o Head	M 8	30	-	4,5	-	-	5,5	4	9	8,1
34000.W0604	34000.W0704	W/o Head	M10	25	-	6,0	-	-	7,0	5	12	10,0
34000.W0603	34000.W0703	W/o Head	M10	20	-	6,0	-	-	7,0	5	12	7,6
34000.W0606	34000.W0706	W/o Head	M10	35	-	6,0	-	-	7,0	5	12	15,0
34000.W0608	34000.W0708	W/o Head	M10	40	-	6,0	-	-	7,0	5	12	17,0
34000.W0622	34000.W0722	W/o Head	M12	20	-	7,2	-	-	8,5	6	18	11,0
34000.W0624	34000.W0724	W/o Head	M12	30	-	7,2	-	-	8,5	6	18	18,0
34000.W0626	34000.W0726	W/o Head	M12	40	-	7,2	-	-	8,5	6	18	24,0
34000.W0628	34000.W0728	W/o Head	M12	50	-	7,2	-	-	8,5	6	18	32,0
34000.W0661	34000.W0761	Headless	M16	20	-	10,7	-	-	12,0	8	36	22,0
34000.W0662	34000.W0762	Headless	M16	25	-	10,7	-	-	12,0	8	36	28,0
34000.W0664	34000.W0764	W/o Head	M16	35	-	10,7	-	-	12,0	8	36	38,0
34000.W0666	34000.W0766	W/o Head	M16	50	-	10,7	-	-	12,0	8	36	60,0
34000.W0672	34000.W0772	W/o Head	M20	30	-	13,5	-	-	15,0	10	60	52,0
34000.W0674	34000.W0774	W/o Head	M20	40	-	13,5	-	-	15,0	10	60	70,0
34000.W0675	34000.W0775	W/o Head	M20	50	-	13,5	-	-	15,0	10	60	90,0
34000.W0676	34000.W0776	W/o Head	M20	60	-	13,5	-	-	15,0	10	60	111,0
34000.W0682	34000.W0782	W/o Head	M24	35	-	15,8	-	-	18,0	12	80	86,0
34000.W0684	34000.W0784	W/o Head	M24	50	-	15,8	-	-	18,0	12	80	125,0
34000.W0686	34000.W0786	W/o Head	M24	80	-	15,8	-	-	18,0	12	80	216,0

Material

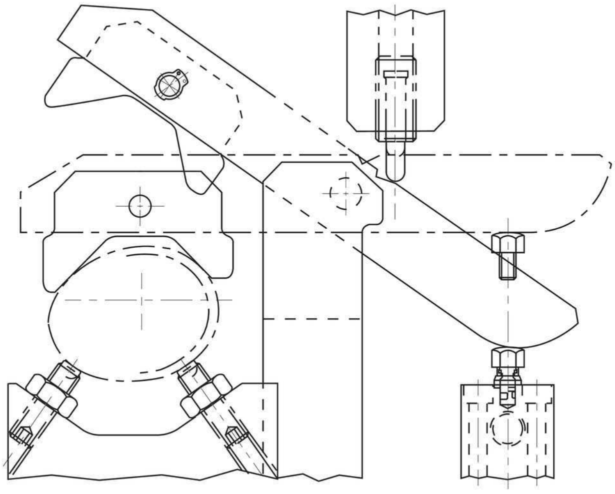
Body: heat treated steel, 1200 +/-100 N/mm².
Ball: ball bearing steel, hardened.

Technical Notes

For clamping, tightening or supporting of surfaces that are not exactly parallel.
Special finish in stainless steel possible, price and delivery on request.

Tips

Ball secured against rotation so the flat face ball cannot flip over - see technical diagram.



Material
Body: heat treated steel, 1200 +/-100 N/mm².
Ball: ball bearing steel, hardened.

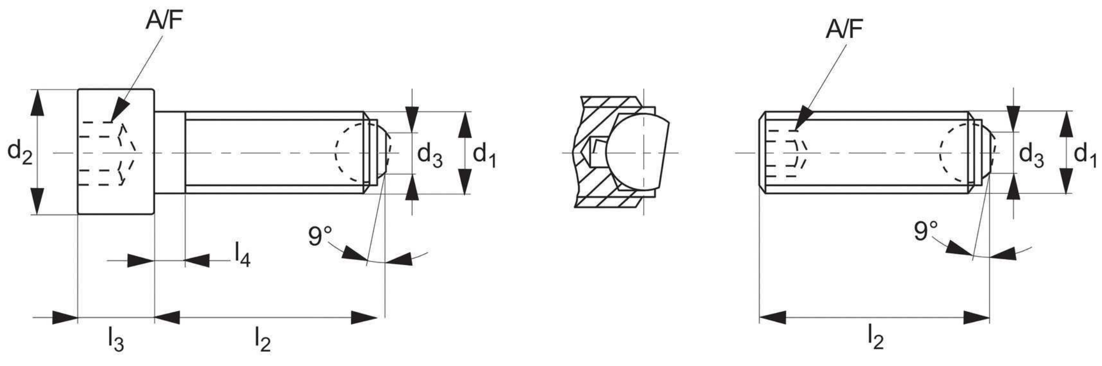
Technical Notes
For clamping, tightening or supporting of surfaces that are not exactly parallel.
Special finish in stainless steel possible, price and delivery on request.

Tips
Ball secured against rotation so the flat face ball cannot flip over - see technical diagram.

Thrust Screws - Stainless

ball ended - flat - metal - secured

34002



with head   without head

Order No.	Type	d_1	l_2	d_2	d_3	l_3	l_4	Ball Ø	A/F	g
34002.W0302	With Head	M 6	20	10	3,2	6	3,0	4,0	5	6,1
34002.W0304	With Head	M 6	30	10	3,2	6	3,0	4,0	5	7,7
34002.W0306	With Head	M 6	40	10	3,2	6	16,0	4,0	5	10,0
34002.W0312	With Head	M 8	20	13	4,5	8	3,5	5,5	6	13,0
34002.W0314	With Head	M 8	35	13	4,5	8	3,5	5,5	6	17,0
34002.W0316	With Head	M 8	50	13	4,5	8	22,0	5,5	6	23,0
34002.W0322	With Head	M10	25	16	6,0	10	4,5	7,0	8	24,0
34002.W0324	With Head	M10	40	16	6,0	10	4,5	7,0	8	31,0
34002.W0326	With Head	M10	60	16	6,0	10	28,0	7,0	8	44,0
34002.W0332	With Head	M12	30	18	7,2	12	5,0	8,5	10	48,0
34002.W0334	With Head	M12	50	18	7,2	12	5,0	8,5	10	52,0
34002.W0336	With Head	M12	80	18	7,2	12	44,0	8,5	10	80,0
34002.W0342	With Head	M16	40	24	10,7	16	6,0	12,0	14	92,0
34002.W0344	With Head	M16	60	24	10,7	16	6,0	12,0	14	118,0
34002.W0346	With Head	M16	80	24	10,7	16	36,0	12,0	14	153,0
34002.W0803	W/o Head	M 6	12	-	3,2	-	-	4,0	3	1,6
34002.W0804	W/o Head	M 6	16	-	3,2	-	-	4,0	3	2,3
34002.W0805	W/o Head	M 6	20	-	3,2	-	-	4,0	3	2,9
34002.W0806	W/o Head	M 6	25	-	3,2	-	-	4,0	3	3,8
34002.W0813	W/o Head	M 8	16	-	4,5	-	-	5,5	4	3,7
34002.W0814	W/o Head	M 8	20	-	4,5	-	-	5,5	4	5,1
34002.W0815	W/o Head	M 8	25	-	4,5	-	-	5,5	4	6,5
34002.W0816	W/o Head	M 8	30	-	4,5	-	-	5,5	4	8,1
34002.W0823	W/o Head	M10	20	-	6,0	-	-	7,0	5	7,6
34002.W0824	W/o Head	M10	25	-	6,0	-	-	7,0	5	10,0
34002.W0826	W/o Head	M10	35	-	6,0	-	-	7,0	5	15,0
34002.W0828	W/o Head	M10	40	-	6,0	-	-	7,0	5	17,0
34002.W0832	W/o Head	M12	20	-	7,2	-	-	8,5	6	11,0
34002.W0834	W/o Head	M12	30	-	7,2	-	-	8,5	6	18,0
34002.W0836	W/o Head	M12	40	-	7,2	-	-	8,5	6	24,0
34002.W0838	W/o Head	M12	50	-	7,2	-	-	8,5	6	32,0
34002.W0841	W/o Head	M16	20	-	10,7	-	-	12,0	8	22,0
34002.W0842	W/o Head	M16	25	-	10,7	-	-	12,0	8	29,0
34002.W0844	W/o Head	M16	35	-	10,7	-	-	12,0	8	38,0
34002.W0846	W/o Head	M16	50	-	10,7	-	-	12,0	8	60,0

Material

Screw: stainless steel 1.4305 (AISI 303). Heat-treated steel, 1200±100 N/mm².
Ball: stainless steel, hardened

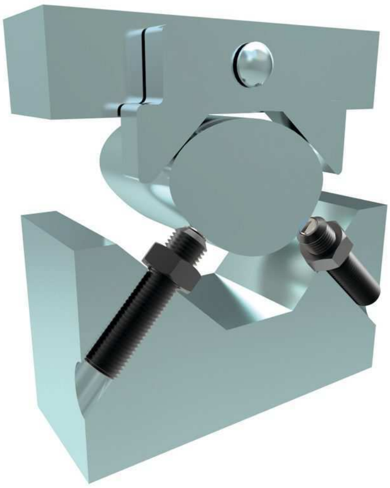
Technical Notes

For clamping, tightening or supporting of surfaces that are not exactly parallel. Load transmission maximized due to moveable ball.
Note: thread runout l_4.

Tips

Ball secured against rotation so the flat face ball cannot flip over - see technical diagram

STAINLESS STEEL 303



Material

Screw: stainless steel 1.4305 (AISI 303). Heat-treated steel, 1200±100 N/mm^2.
Ball: stainless steel, hardened

Technical Notes

For clamping, tightening or supporting of surfaces that are not exactly parallel. Load transmission maximized due to moveable ball. Note: thread runout l_4.

Tips

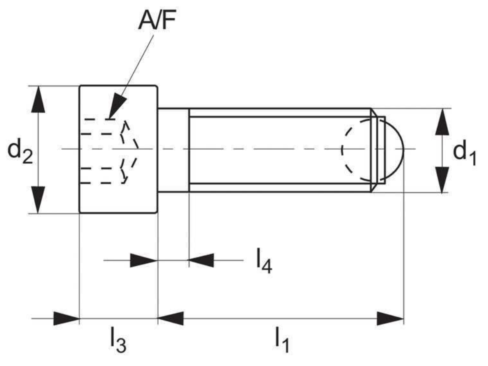
Ball secured against rotation so the flat face ball cannot flip over - see technical diagram

STAINLESS STEEL 303

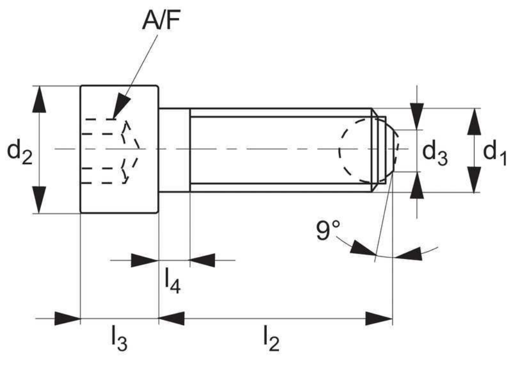
Thrust Screws - Headed

ball ended - metal

34020



round ball



flat ball

Order No. Steel 12,9	**Order No. Stainless**	Ball face type	d_1	l_1	l_2	d_2	d_3	l_3	l_4	Ball Ø	A/F	Max. Static load kN*	g
34020.W0062	34020.W0752	Round	M 6	20,8	-	10	-	6	3,0	4,0	5	9	6,2
34020.W0064	34020.W0754	Round	M 6	30,8	-	10	-	6	3,0	4,0	5	9	8,0
34020.W0066	34020.W0756	Round	M 6	40,8	-	10	-	6	16,0	4,0	5	9	10,0
34020.W0082	34020.W0762	Round	M 8	21,2	-	13	-	8	3,5	5,5	6	15	13,0
34020.W0084	34020.W0764	Round	M 8	36,2	-	13	-	8	3,5	5,5	6	15	17,0
34020.W0086	34020.W0766	Round	M 8	51,2	-	13	-	8	22,0	5,5	6	15	24,0
34020.W0102	34020.W0772	Round	M10	26,7	-	16	-	10	4,5	7,0	8	20	24,0
34020.W0104	34020.W0774	Round	M10	41,7	-	16	-	10	4,5	7,0	8	20	31,0
34020.W0106	34020.W0776	Round	M10	61,7	-	16	-	10	28,0	7,0	8	20	44,0
34020.W0122	34020.W0782	Round	M12	32,0	-	18	-	12	5,0	8,5	10	30	38,0
34020.W0124	34020.W0784	Round	M12	52,0	-	18	-	12	5,0	8,5	10	30	52,0
34020.W0126	34020.W0786	Round	M12	82,0	-	18	-	12	44,0	8,5	10	30	79,0
34020.W0162	34020.W0792	Round	M16	43,3	-	24	-	16	6,0	12,0	14	60	94,0
34020.W0164	34020.W0794	Round	M16	63,3	-	24	-	16	6,0	12,0	14	60	119,0
34020.W0166	34020.W0796	Round	M16	83,3	-	24	-	16	36,0	12,0	14	60	156,0
34020.W0202	-	Round	M20	54,2	-	30	-	20	7,5	15,0	17	90	183,0
34020.W0204	-	Round	M20	84,2	-	30	-	20	28,0	15,0	17	90	254,0
34020.W0206	-	Round	M20	104,2	-	30	-	20	48,0	15,0	17	90	307,0
34020.W0242	-	Round	M24	64,7	-	36	-	24	9,0	18,0	19	120	331,0
34020.W0244	-	Round	M24	94,7	-	36	-	24	30,0	18,0	19	120	430,0
34020.W0246	-	Round	M24	124,7	-	36	-	24	60,0	18,0	19	120	537,0
34020.W0562	34020.W0832	Flat, Plain	M 6	-	20,0	10	3,2	6	3,0	4,0	5	9	6,1
34020.W0564	34020.W0834	Flat, Plain	M 6	-	30,0	10	3,2	6	3,0	4,0	5	9	7,6
34020.W0566	34020.W0836	Flat, Plain	M 6	-	40,0	10	3,2	6	16,0	4,0	5	9	10,0
34020.W0582	34020.W0842	Flat, Plain	M 8	-	20,0	13	4,5	8	3,5	5,5	6	15	13,0
34020.W0584	34020.W0844	Flat, Plain	M 8	-	35,0	13	4,5	8	3,5	5,5	6	15	17,0
34020.W0586	34020.W0846	Flat, Plain	M 8	-	50,0	13	4,5	8	22,0	5,5	6	15	23,0
34020.W0602	34020.W0852	Flat, Plain	M10	-	25,0	16	6,0	10	4,5	7,0	8	20	24,0
34020.W0604	34020.W0854	Flat, Plain	M10	-	40,0	16	6,0	10	4,5	7,0	8	20	31,0
34020.W0606	34020.W0856	Flat, Plain	M10	60,0	16	6,0	10	28,0	7,0	8	20	45	44,0
34020.W0622	34020.W0862	Flat, Plain	M12	-	30,0	18	7,2	12	5,0	8,5	10	30	38,0
34020.W0624	34020.W0864	Flat, Plain	M12	-	50,0	18	7,2	12	5,0	8,5	10	30	52,0
34020.W0626	34020.W0866	Flat, Plain	M12	-	80,0	18	7,2	12	44,0	8,5	10	30	79,0
34020.W0662	34020.W0872	Flat, Plain	M16	-	40,0	24	10,7	16	6,0	12,0	14	60	92,0
34020.W0664	34020.W0874	Flat, Plain	M16	-	60,0	24	10,7	16	6,0	12,0	14	60	120,0
34020.W0666	34020.W0876	Flat, Plain	M16	-	80,0	24	10,7	16	36,0	12,0	14	60	155,0
34020.W0702	-	Flat, Plain	M20	-	50,0	30	13,5	20	7,5	15,0	17	90	182,0
34020.W0704	-	Flat, Plain	M20	-	80,0	30	13,5	20	28,0	15,0	17	90	255,0
34020.W0706	-	Flat, Plain	M20	-	100,0	30	13,5	20	48,0	15,0	17	90	305,0
34020.W0742	-	Flat, Plain	M24	-	60,0	36	15,8	24	9,0	18,0	19	120	325,0
34020.W0744	-	Flat, Plain	M24	-	90,0	36	15,8	24	30,0	18,0	19	120	422,0
34020.W0746	-	Flat, Plain	M24	-	120,0	36	15,8	24	60,0	18,0	19	120	534,0
34020.W0904	-	Flat, Ribbed	M10	-	40,0	16	6,0	10	4,5	7,0	8	20	31,0
34020.W0892	-	Flat, Ribbed	M 8	-	20,0	13	4,5	8	3,5	5,5	6	15	12,0
34020.W0894	-	Flat, Ribbed	M 8	-	35,0	13	4,5	8	3,5	5,5	6	15	17,0
34020.W0896	-	Flat, Ribbed	M 8	-	50,0	13	4,5	8	22,0	5,5	6	15	23,0
34020.W0906	-	Flat, Ribbed	M10	-	60,0	16	6,0	10	28,0	7,0	8	20	44,0
34020.W0922	-	Flat, Ribbed	M12	-	30,0	18	7,2	12	5,0	8,5	10	30	39,0
34020.W0924	-	Flat, Ribbed	M12	-	50,0	18	7,2	12	5,0	8,5	10	30	53,0
34020.W0926	-	Flat, Ribbed	M12	-	80,0	18	7,2	12	44,0	8,5	10	30	79,0

Material

Steel type-
Body: heat treated steel, 1200 +/-100 N/mm².
Ball: ball bearing steel, hardened.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Ball: stainless steel, hardened.

Technical Notes

For thrust screws secured against turning - see no. 34000 or 34002.
For clamping, tightening or supporting surfaces that are not exactly parallel.
*** stated load capacity relate to steel version only.**

Tips

Ball not secured against rotation, it is possible for the flat faced ball to flip and expose the spherical face of the ball.

STAINLESS STEEL 303

Thrust Screws - Headed

ball ended - metal

34020

Order No. Steel 12,9	Order No. Stainless	Ball face type	d_1	l_1	l_2	d_2	d_3	l_3	l_4	Ball Ø	A/F	Max. Static load kN*	g
34020.W0962	-	Flat, Ribbed	M16	-	40,0	24	10,7	16	6,0	12,0	14	60	92,0
34020.W0964	-	Flat, Ribbed	M16	-	60,0	24	10,7	16	6,0	12,0	14	60	118,0
34020.W0966	-	Flat, Ribbed	M16	-	80,0	24	10,7	16	36,0	12,0	14	60	155,0
34020.W0972	-	Flat, Ribbed	M20	-	50,0	30	13,5	20	7,5	15,0	17	90	180,0
34020.W0974	-	Flat, Ribbed	M20	-	80,0	30	13,5	20	28,0	15,0	17	90	254,0
34020.W0976	-	Flat, Ribbed	M20	-	100,0	30	13,5	20	48,0	15,0	17	90	303,0
34020.W0982	-	Flat, Ribbed	M24	-	60,0	36	15,8	24	9,0	18,0	19	120	324,0
34020.W0984	-	Flat, Ribbed	M24	-	90,0	36	15,8	24	30,0	18,0	19	120	427,0
34020.W0986	-	Flat, Ribbed	M24	-	120,0	36	15,8	24	60,0	18,0	19	120	536,0

Material

Steel type-
Body: heat treated steel, 1200 +/-100 N/mm².
Ball: ball bearing steel, hardened.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Ball: stainless steel, hardened.

Technical Notes

For thrust screws secured against turning - see no. 34000 or 34002.
For clamping, tightening or supporting surfaces that are not exactly parallel.
*** stated load capacity relate to steel version only.**

Tips

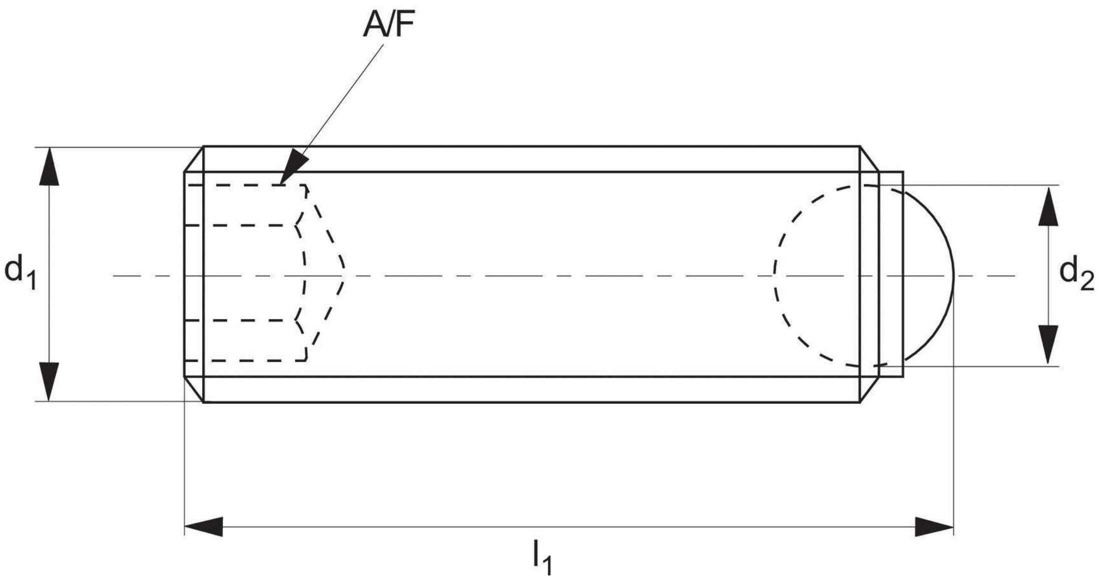
Ball not secured against rotation, it is possible for the flat faced ball to flip and expose the spherical face of the ball.

STAINLESS STEEL 303

Thrust Screws - Ball Ended

headless - round ball - metal

34041



Material

Steel type-
Body: steel, heat-treated, 1200 ±100 N/mm^2.
Ball: ball bearing steel, hardened.
Stainless steel type-
Body: stainless steel (AISI 303, 1.4305).
Ball: stainless steel, hardened.

Technical Notes

For clamping, tightening or supporting of surfaces that are not exactly parallel.
Max. temperature 250°C.

Tips

Ball not secured against rotation.
For other types see following pages.

Important Notes

*Max. static load relates to steel version only.

upto 250°
STAINLESS STEEL 303

Order No.	Material	Ball type	d_1	d_2	l_1	A/F	Max. static load* kN.	g
34041.W0032	Steel	Round	M 3	1,5	5,0	1,5	2,5	0,2
34041.W0033	Steel	Round	M 3	1,5	7,5	1,5	2,5	0,2
34041.W0034	Steel	Round	M 3	1,5	10,0	1,5	2,5	0,3
34041.W0042	Steel	Round	M 4	2,5	6,0	2,0	3,5	0,5
34041.W0043	Steel	Round	M 4	2,5	8,0	2,0	3,5	0,6
34041.W0044	Steel	Round	M 4	2,5	10,0	2,0	3,5	0,8
34041.W0045	Steel	Round	M 4	2,5	12,0	2,0	3,5	0,7
34041.W0046	Steel	Round	M 4	2,5	16,0	2,0	3,5	1,2
34041.W0052	Steel	Round	M 5	3,0	8,0	2,5	4,5	0,8
34041.W0053	Steel	Round	M 5	3,0	10,0	2,5	4,5	1,1
34041.W0054	Steel	Round	M 5	3,0	12,0	2,5	4,5	1,3
34041.W0055	Steel	Round	M 5	3,0	16,0	2,5	4,5	1,5
34041.W0056	Steel	Round	M 5	3,0	20,0	2,5	4,5	2,2
34041.W0058	Steel	Round	M 5	3,0	25,0	2,5	4,5	2,8
34041.W0062	Steel	Round	M 6	4,0	10,8	3,0	9,0	1,5
34041.W0063	Steel	Round	M 6	4,0	12,8	3,8	9,0	1,9
34041.W0064	Steel	Round	M 6	4,0	16,8	3,0	9,0	2,5
34041.W0065	Steel	Round	M 6	4,0	20,8	3,0	9,0	3,3
34041.W0066	Steel	Round	M 6	4,0	25,8	3,0	9,0	4,0
34041.W0081	Steel	Round	M 8	5,5	11,2	4,0	15,0	2,6
34041.W0082	Steel	Round	M 8	5,5	13,2	4,0	15,0	3,0
34041.W0083	Steel	Round	M 8	5,5	17,2	4,0	15,0	4,2
34041.W0084	Steel	Round	M 8	5,5	21,2	4,0	15,0	5,4
34041.W0085	Steel	Round	M 8	5,5	26,2	4,0	15,0	6,9
34041.W0086	Steel	Round	M 8	5,5	31,2	4,0	15,0	8,4
34041.W0101	Steel	Round	M10	7,0	13,7	5,0	20,0	4,8
34041.W0102	Steel	Round	M10	7,0	17,7	5,0	20,0	6,2
34041.W0103	Steel	Round	M10	7,0	21,7	5,0	20,0	8,1
34041.W0104	Steel	Round	M10	7,0	26,7	5,0	20,0	11,0
34041.W0105	Steel	Round	M10	7,0	31,7	5,0	20,0	13,0
34041.W0106	Steel	Round	M10	7,0	36,7	5,0	20,0	15,0
34041.W0108	Steel	Round	M10	7,0	41,7	5,0	20,0	15,0
34041.W0121	Steel	Round	M12	8,5	18,0	6,0	30,0	9,3
34041.W0122	Steel	Round	M12	8,5	22,0	6,0	30,0	11,0
34041.W0123	Steel	Round	M12	8,5	27,0	6,0	30,0	15,0
34041.W0124	Steel	Round	M12	8,5	32,0	6,0	30,0	18,0
34041.W0126	Steel	Round	M12	8,5	42,0	6,0	30,0	25,0
34041.W0128	Steel	Round	M12	8,5	52,0	6,0	30,0	32,5
34041.W0161	Steel	Round	M16	12,0	23,3	8,0	30,0	22,0
34041.W0162	Steel	Round	M16	12,0	28,3	8,0	60,0	27,0
34041.W0164	Steel	Round	M16	12,0	38,3	8,0	60,0	40,0
34041.W0166	Steel	Round	M16	12,0	53,3	8,0	60,0	62,0
34041.W0202	Steel	Round	M20	15,0	34,2	10,0	90,0	52,0
34041.W0204	Steel	Round	M20	15,0	42,2	10,0	90,0	72,0
34041.W0205	Steel	Round	M20	15,0	54,2	10,0	90,0	93,0
34041.W0206	Steel	Round	M20	15,0	64,2	10,0	90,0	115,0
34041.W0242	Steel	Round	M24	18,0	39,7	12,0	120,0	87,0

Thrust Screws - Ball Ended

headless - round ball - metal

34041

Order No.	Material	Ball type	d_1	d_2	l_1	A/F	Max. static load* kN.	g
34041.W0244	Steel	Round	M24	18,0	54,7	12,0	120,0	129,0
34041.W0246	Steel	Round	M24	18,0	84,7	12,0	120,0	222,0
34041.W0747	Stainless	Round	M 3	1,5	5,0	1,5	-	0,2
34041.W0748	Stainless	Round	M 3	1,5	7,5	1,5	-	0,2
34041.W0749	Stainless	Round	M 3	1,5	10,0	1,5	-	0,3
34041.W0750	Stainless	Round	M 4	2,5	6,0	2,0	-	0,5
34041.W0752	Stainless	Round	M 4	2,5	8,0	2,0	-	0,6
34041.W0754	Stainless	Round	M 4	2,5	10,0	2,0	-	0,8
34041.W0756	Stainless	Round	M 4	2,5	12,0	2,0	-	0,7
34041.W0758	Stainless	Round	M 4	2,5	16,0	2,0	-	1,2
34041.W0760	Stainless	Round	M 5	3,0	8,0	2,5	-	0,8
34041.W0761	Stainless	Round	M 5	3,0	10,0	2,5	-	1,1
34041.W0762	Stainless	Round	M 5	3,0	12,0	2,5	-	1,3
34041.W0763	Stainless	Round	M 5	3,0	16,0	2,5	-	1,5
34041.W0764	Stainless	Round	M 5	3,0	20,0	2,5	-	2,2
34041.W0765	Stainless	Round	M 5	3,0	25,0	2,5	-	2,8
34041.W0770	Stainless	Round	M 6	4,0	10,8	3,0	-	1,5
34041.W0772	Stainless	Round	M 6	4,0	12,8	3,0	-	1,9
34041.W0774	Stainless	Round	M 6	4,0	16,8	3,0	-	2,5
34041.W0775	Stainless	Round	M 6	4,0	20,8	3,0	-	3,3
34041.W0776	Stainless	Round	M 6	4,0	25,8	3,0	-	4,0
34041.W0780	Stainless	Round	M 8	5,5	11,2	4,0	-	2,6
34041.W0782	Stainless	Round	M 8	5,5	13,2	4,0	-	3,0
34041.W0783	Stainless	Round	M 8	5,5	17,2	4,0	-	4,2
34041.W0784	Stainless	Round	M 8	5,5	21,2	4,0	-	5,4
34041.W0785	Stainless	Round	M 8	5,5	26,2	4,0	-	6,9
34041.W0786	Stainless	Round	M 8	5,5	31,2	4,0	-	8,4
34041.W0790	Stainless	Round	M10	7,0	13,7	5,0	-	4,8
34041.W0792	Stainless	Round	M10	7,0	17,7	5,0	-	6,2
34041.W0793	Stainless	Round	M10	7,0	21,7	5,0	-	8,1
34041.W0794	Stainless	Round	M10	7,0	26,7	5,0	-	11,0
34041.W0795	Stainless	Round	M10	7,0	31,7	5,0	-	13,0
34041.W0796	Stainless	Round	M10	7,0	36,7	5,0	-	15,0
34041.W0798	Stainless	Round	M10	7,0	41,7	5,0	-	15,0
34041.W0800	Stainless	Round	M12	8,5	18,0	6,0	-	9,3
34041.W0802	Stainless	Round	M12	8,5	22,0	6,0	-	11,0
34041.W0803	Stainless	Round	M12	8,5	27,0	6,0	-	15,0
34041.W0804	Stainless	Round	M12	8,5	32,0	6,0	-	18,0
34041.W0806	Stainless	Round	M12	8,5	42,0	6,0	-	25,0
34041.W0808	Stainless	Round	M12	8,5	52,0	6,0	-	32,5
34041.W0810	Stainless	Round	M16	12,0	23,3	8,0	-	22,0
34041.W0812	Stainless	Round	M16	12,0	28,3	8,0	-	27,0
34041.W0814	Stainless	Round	M16	12,0	38,3	8,0	-	40,0
34041.W0816	Stainless	Round	M16	12,0	53,3	8,0	-	62,0

Material

Steel type-
Body: steel, heat-treated, 1200 ±100 N/mm^2.
Ball: ball bearing steel, hardened.
Stainless steel type-
Body: stainless steel (AISI 303, 1.4305).
Ball: stainless steel, hardened.

Technical Notes

For clamping, tightening or supporting of surfaces that are not exactly parallel.
Max. temperature 250°C.

Tips

Ball not secured against rotation.
For other types see following pages.

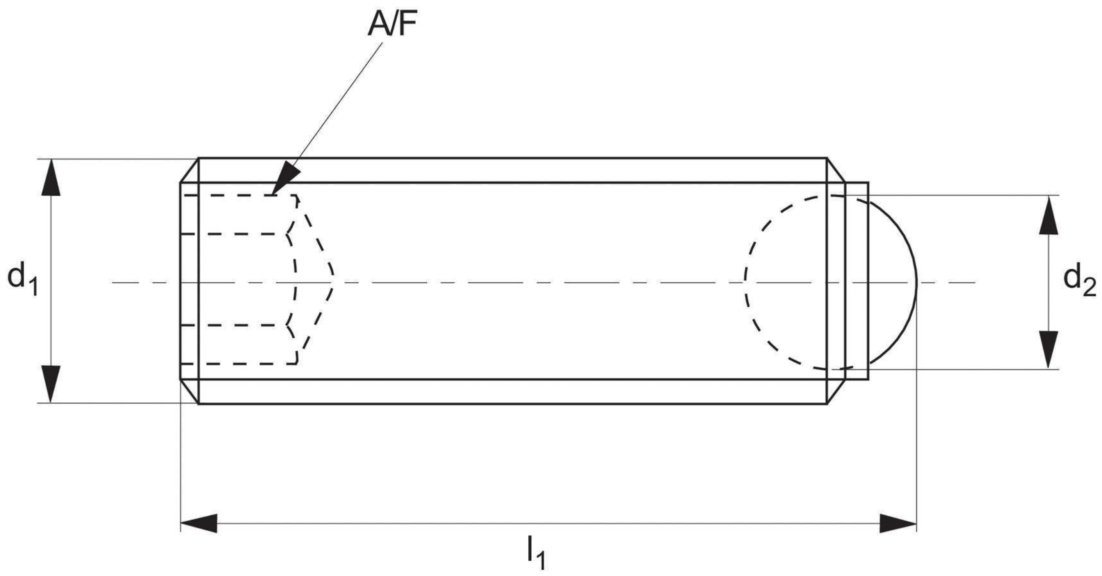
Important Notes

*Max. static load relates to steel version only.

Thrust Screws - Ball Ended

headless - round ball - thermoplastic

34042



Order No.	Material	Ball type	d_1	d_2	l_1	A/F	Max. static load* kN.	g
34042.W0252	Stainless	Round	M 4	2,5	6,0	2,0	0,3	0,2
34042.W0253	Stainless	Round	M 4	2,5	8,0	2,0	0,3	0,4
34042.W0254	Stainless	Round	M 4	2,5	10,0	2,0	0,3	0,7
34042.W0255	Stainless	Round	M 4	2,5	12,0	2,0	0,3	0,9
34042.W0256	Stainless	Round	M 4	2,5	16,0	2,0	0,3	1,1
34042.W0262	Stainless	Round	M 5	3,0	8,0	2,5	0,5	0,8
34042.W0263	Stainless	Round	M 5	3,0	10,0	2,5	0,5	0,8
34042.W0264	Stainless	Round	M 5	3,0	12,0	2,5	0,5	1,2
34042.W0265	Stainless	Round	M 5	3,0	16,0	2,5	0,5	1,4
34042.W0266	Stainless	Round	M 5	3,0	20,0	2,5	0,5	1,9
34042.W0267	Stainless	Round	M 5	3,0	25,0	2,5	0,5	2,5
34042.W0272	Stainless	Round	M 6	4,0	10,8	3,0	0,9	1,1
34042.W0273	Stainless	Round	M 6	4,0	12,8	3,0	0,9	1,4
34042.W0274	Stainless	Round	M 6	4,0	16,8	3,0	0,9	2,1
34042.W0275	Stainless	Round	M 6	4,0	20,8	3,0	0,9	2,8
34042.W0276	Stainless	Round	M 6	4,0	25,8	3,0	0,9	3,8
34042.W0281	Stainless	Round	M 8	5,5	11,2	4,0	1,5	1,9
34042.W0282	Stainless	Round	M 8	5,5	13,2	4,0	1,5	2,4
34042.W0283	Stainless	Round	M 8	5,5	17,2	4,0	1,5	3,6
34042.W0284	Stainless	Round	M 8	5,5	21,2	4,0	1,5	4,6
34042.W0285	Stainless	Round	M 8	5,5	26,2	4,0	1,5	6,3
34042.W0286	Stainless	Round	M 8	5,5	31,2	4,0	1,5	7,8
34042.W0291	Stainless	Round	M10	7,0	13,7	5,0	2,0	3,5
34042.W0292	Stainless	Round	M10	7,0	17,7	5,0	2,0	4,8
34042.W0293	Stainless	Round	M10	7,0	21,7	5,0	2,0	6,8
34042.W0294	Stainless	Round	M10	7,0	26,7	5,0	2,0	9,4
34042.W0295	Stainless	Round	M10	7,0	31,7	5,0	2,0	12,0
34042.W0296	Stainless	Round	M10	7,0	36,7	5,0	2,0	14,0
34042.W0297	Stainless	Round	M10	7,0	41,7	5,0	2,0	17,
34042.W0301	Stainless	Round	M12	8,5	18,0	6,0	3,0	6,8
34042.W0302	Stainless	Round	M12	8,5	22,0	6,0	3,0	9,2
34042.W0303	Stainless	Round	M12	8,5	27,0	6,0	3,0	12,0
34042.W0304	Stainless	Round	M12	8,5	32,0	6,0	3,0	16,0
34042.W0306	Stainless	Round	M12	8,5	42,0	6,0	3,0	23,0
34042.W0308	Stainless	Round	M12	8,5	52,0	6,0	3,0	30,0
34042.W0342	Steel	Round	M 4	2,5	6,0	2,0	0,3	0,2
34042.W0343	Steel	Round	M 4	2,5	8,0	2,0	0,3	0,4
34042.W0344	Steel	Round	M 4	2,5	10,0	2,0	0,3	0,7
34042.W0345	Steel	Round	M 4	2,5	12,0	2,0	0,3	0,9
34042.W0346	Steel	Round	M 4	2,5	16,0	2,0	0,3	1,1
34042.W0352	Steel	Round	M 5	3,0	8,0	2,5	0,5	0,8
34042.W0353	Steel	Round	M 5	3,0	10,0	2,5	0,5	0,8
34042.W0354	Steel	Round	M 5	3,0	12,0	2,5	0,5	1,2
34042.W0355	Steel	Round	M 5	3,0	16,0	2,5	0,5	1,4
34042.W0356	Steel	Round	M 5	3,0	20,0	2,5	0,5	1,9
34042.W0358	Steel	Round	M 5	3,0	25,0	2,5	0,5	2,5
34042.W0362	Steel	Round	M 6	4,0	10,8	3,0	0,9	1,1

Material

Steel type-
Body: steel, heat-treated, 1200 ±100 N/mm^2.
Ball: thermoplastic POM, white.
Stainless steel type-
Body: stainless steel (AISI 303, 1.4305).
Ball: thermoplastic POM, white.

Technical Notes

Ball-ended thrust screws with thermoplastic balls are used for brittle, pressure sensitive parts. For clamping, tightening or supporting surfaces that are not exactly parallel.
Max temperature -30°C to 80°C.

Tips

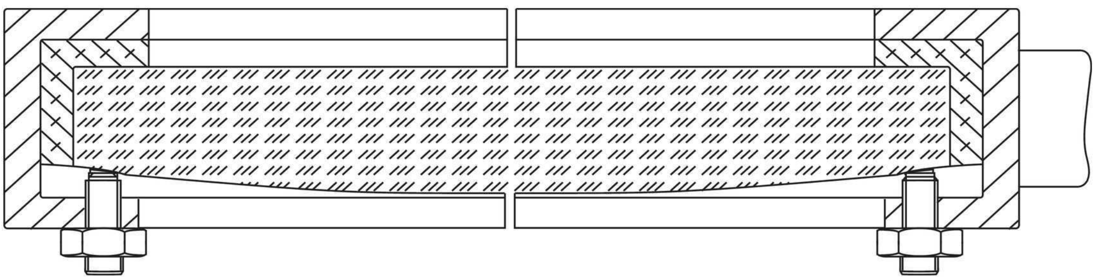
Ball not secured against rotation.
For other types see following pages.

Thrust Screws - Ball Ended

headless - round ball - thermoplastic

34042

Order No.	Material	Ball type	d_1	d_2	l_1	A/F	Max. static load* kN.	g
34042.W0363	Steel	Round	M 6	4,0	12,8	3,0	0,9	1,4
34042.W0364	Steel	Round	M 6	4,0	16,8	3,0	0,9	2,1
34042.W0365	Steel	Round	M 6	4,0	20,8	3,0	0,9	2,7
34042.W0366	Steel	Round	M 6	4,0	25,8	3,0	0,9	3,8
34042.W0381	Steel	Round	M 8	5,5	11,2	4,0	1,5	1,9
34042.W0382	Steel	Round	M 8	5,5	13,2	4,0	1,5	2,4
34042.W0383	Steel	Round	M 8	5,5	17,2	4,0	1,5	3,6
34042.W0384	Steel	Round	M 8	5,5	21,2	4,0	1,5	4,6
34042.W0385	Steel	Round	M 8	5,5	26,2	4,0	1,5	6,3
34042.W0386	Steel	Round	M 8	5,5	31,2	4,0	1,5	7,8
34042.W0401	Steel	Round	M10	7,0	13,7	5,0	2,0	3,5
34042.W0402	Steel	Round	M10	7,0	17,7	5,0	2,0	4,8
34042.W0403	Steel	Round	M10	7,0	21,7	5,0	2,0	6,8
34042.W0404	Steel	Round	M10	7,0	26,7	5,0	2,0	9,4
34042.W0405	Steel	Round	M10	7,0	31,7	5,0	2,0	12,0
34042.W0406	Steel	Round	M10	7,0	36,7	5,0	2,0	14,0
34042.W0408	Steel	Round	M10	7,0	41,7	5,0	2,0	17,0
34042.W0421	Steel	Round	M12	8,5	18,0	6,0	3,0	6,8
34042.W0422	Steel	Round	M12	8,5	22,0	6,0	3,0	9,2
34042.W0423	Steel	Round	M12	8,5	27,0	6,0	3,0	12,0
34042.W0424	Steel	Round	M12	8,5	32,0	6,0	3,0	16,0
34042.W0426	Steel	Round	M12	8,5	42,0	6,0	3,0	23,0
34042.W0428	Steel	Round	M12	8,5	52,0	6,0	3,0	30,0



Material

Steel type-

Body: steel, heat-treated, 1200 ±100 N/mm^2.

Ball: thermoplastic POM, white.

Stainless steel type-

Body: stainless steel (AISI 303, 1.4305).

Ball: thermoplastic POM, white.

Technical Notes

Ball-ended thrust screws with thermoplastic balls are used for brittle, pressure sensitive parts. For clamping, tightening or supporting surfaces that are not exactly parallel.

Max temperature -30°C to 80°C.

Tips

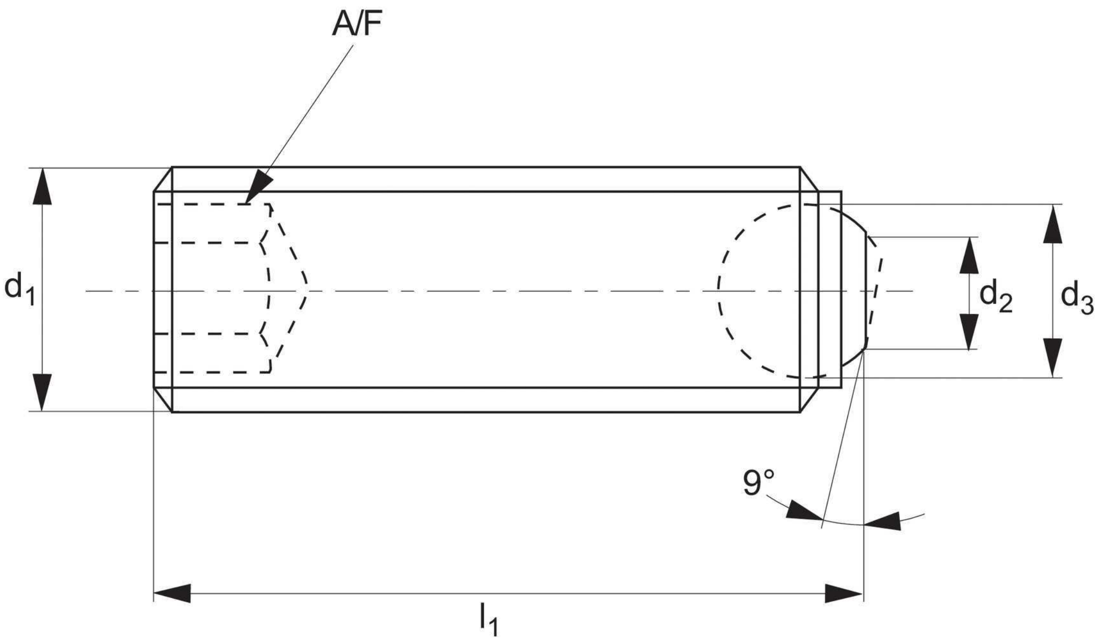
Ball not secured against rotation.

For other types see following pages.

Thrust Screws - Ball Ended

headless - flat-faced ball - metal

34043



Order No.	Material	Ball type	d_1	d_2	d_3	l_1	A/F	Max. static load* kN.	g
34043.W0542	Steel	Flat, Plain	M 4	1,8	2,5	5,6	2	3,5	0,3
34043.W0543	Steel	Flat, Plain	M 4	1,8	2,5	7,6	2	3,5	0,6
34043.W0544	Steel	Flat, Plain	M 4	1,8	2,5	9,6	2	3,5	0,5
34043.W0545	Steel	Flat, Plain	M 4	1,8	2,5	11,6	2	3,5	0,9
34043.W0546	Steel	Flat, Plain	M 4	1,8	2,5	15,6	2	3,5	1,0
34043.W0552	Steel	Flat, Plain	M 5	2,2	3,0	7,5	3	4,5	0,6
34043.W0553	Steel	Flat, Plain	M 5	2,2	3,0	9,5	3	4,5	0,8
34043.W0554	Steel	Flat, Plain	M 5	2,2	3,0	11,5	3	4,5	1,1
34043.W0555	Steel	Flat, Plain	M 5	2,2	3,0	15,5	3	4,5	1,7
34043.W0556	Steel	Flat, Plain	M 5	2,2	3,0	19,5	3	4,5	2,2
34043.W0558	Steel	Flat, Plain	M 5	2,2	3,0	24,5	3	4,5	2,6
34043.W0562	Steel	Flat, Plain	M 6	3,2	4,0	10,0	3	9,0	1,5
34043.W0563	Steel	Flat, Plain	M 6	3,2	4,0	12,0	3	9,0	1,6
34043.W0564	Steel	Flat, Plain	M 6	3,2	4,0	16,0	3	9,0	2,5
34043.W0565	Steel	Flat, Plain	M 6	3,2	4,0	20,0	3	9,0	3,2
34043.W0566	Steel	Flat, Plain	M 6	3,2	4,0	25,0	3	9,0	3,8
34043.W0581	Steel	Flat, Plain	M 8	4,5	5,5	10,0	4	15,0	2,6
34043.W0582	Steel	Flat, Plain	M 8	4,5	5,5	12,0	4	15,0	2,9
34043.W0583	Steel	Flat, Plain	M 8	4,5	5,5	16,0	4	15,0	4,0
34043.W0584	Steel	Flat, Plain	M 8	4,5	5,5	20,0	4	15,0	5,3
34043.W0585	Steel	Flat, Plain	M 8	4,5	5,5	25,0	4	15,0	6,8
34043.W0586	Steel	Flat, Plain	M 8	4,5	5,5	30,0	4	15,0	8,4
34043.W0601	Steel	Flat, Plain	M10	6,0	7,0	12,0	5	20,0	4,7
34043.W0602	Steel	Flat, Plain	M10	6,0	7,0	16,0	5	20,0	6,1
34043.W0603	Steel	Flat, Plain	M10	6,0	7,0	20,0	5	20,0	7,9
34043.W0604	Steel	Flat, Plain	M10	6,0	7,0	25,0	5	20,0	10,0
34043.W0605	Steel	Flat, Plain	M10	6,0	7,0	30,0	5	20,0	13,0
34043.W0606	Steel	Flat, Plain	M10	6,0	7,0	35,0	5	20,0	15,0
34043.W0608	Steel	Flat, Plain	M10	6,0	7,0	40,0	5	20,0	18,0
34043.W0621	Steel	Flat, Plain	M12	7,2	8,5	16,0	6	30,0	9,1
34043.W0622	Steel	Flat, Plain	M12	7,2	8,5	20,0	6	30,0	11,0
34043.W0623	Steel	Flat, Plain	M12	7,2	8,5	25,0	6	30,0	14,0
34043.W0624	Steel	Flat, Plain	M12	7,2	8,5	30,0	6	30,0	18,0
34043.W0626	Steel	Flat, Plain	M12	7,2	8,5	40,0	6	30,0	25,0
34043.W0628	Steel	Flat, Plain	M12	7,2	8,5	50,0	6	30,0	32,0
34043.W0661	Steel	Flat, Plain	M16	10,7	12,0	20,0	8	60,0	21,0
34043.W0662	Steel	Flat, Plain	M16	10,7	12,0	25,0	8	60,0	26,0
34043.W0664	Steel	Flat, Plain	M16	10,7	12,0	35,0	8	60,0	39,0
34043.W0666	Steel	Flat, Plain	M16	10,7	12,0	50,0	8	60,0	60,0
34043.W0702	Steel	Flat, Plain	M20	13,5	15,0	30,0	10	90,0	49,0
34043.W0704	Steel	Flat, Plain	M20	13,5	15,0	40,0	10	90,0	70,0
34043.W0705	Steel	Flat, Plain	M20	13,5	15,0	50,0	10	90,0	90,0
34043.W0706	Steel	Flat, Plain	M20	13,5	15,0	60,0	10	90,0	111,0
34043.W0742	Steel	Flat, Plain	M24	15,8	18,0	35,0	12	120,0	86,0
34043.W0744	Steel	Flat, Plain	M24	15,8	18,0	50,0	12	120,0	128,0

Material

Steel type-
Body: steel, heat-treated, 1200 ±100 N/mm^2.
Ball: ball bearing steel, hardened.
Stainless steel type-
Body: stainless steel (AISI 303, 1.4305).
Ball: stainless steel, hardened.

Technical Notes

For clamping, tightening or supporting surfaces that are not exactly parallel.
Max. temperature 250°C.

Tips

Ball not secured against rotation. It is possible for the flat-faced ball to flip and expose the spherical face of the ball. For other types see following pages.

Important Notes

*Max. static load relates to steel version only.

upto 250°

STAINLESS STEEL 303

Thrust Screws - Ball Ended

headless - flat-faced ball - metal

34043

Order No.	Material	Ball type	d_1	d_2	d_3	l_1	A/F	Max. static load* kN.	g
34043.W0746	Steel	Flat, Plain	M24	15,8	18,0	80,0	12	120,0	219,0
34043.W0827	Stainless	Flat, Plain	M 4	1,8	2,5	5,6	2	-	0,5
34043.W0828	Stainless	Flat, Plain	M 4	1,8	2,5	7,6	2	-	0,6
34043.W0829	Stainless	Flat, Plain	M 4	1,8	2,5	9,6	2	-	0,5
34043.W0830	Stainless	Flat, Plain	M 4	1,8	2,5	11,6	2	-	0,9
34043.W0832	Stainless	Flat, Plain	M 4	1,8	2,5	15,6	2	-	1,0
34043.W0833	Stainless	Flat, Plain	M 5	2,2	3,0	7,5	3	-	0,6
34043.W0834	Stainless	Flat, Plain	M 5	2,2	3,0	9,5	3	-	0,8
34043.W0835	Stainless	Flat, Plain	M 5	2,2	3,0	11,5	3	-	1,1
34043.W0836	Stainless	Flat, Plain	M 5	2,2	3,0	15,5	3	-	1,7
34043.W0837	Stainless	Flat, Plain	M 5	2,2	3,0	19,5	3	-	2,2
34043.W0838	Stainless	Flat, Plain	M 5	2,2	3,0	24,5	3	-	2,6
34043.W0840	Stainless	Flat, Plain	M 6	3,2	4,0	10,0	3	-	1,5
34043.W0842	Stainless	Flat, Plain	M 6	3,2	4,0	12,0	3	-	1,6
34043.W0844	Stainless	Flat, Plain	M 6	3,2	4,0	16,0	3	-	2,5
34043.W0845	Stainless	Flat, Plain	M 6	3,2	4,0	20,0	3	-	3,2
34043.W0846	Stainless	Flat, Plain	M 6	3,2	4,0	25,0	3	-	3,8
34043.W0850	Stainless	Flat, Plain	M 8	4,5	5,5	10,0	4	-	2,6
34043.W0852	Stainless	Flat, Plain	M 8	4,5	5,5	12,0	4	-	2,9
34043.W0853	Stainless	Flat, Plain	M 8	4,5	5,5	16,0	4	-	4,0
34043.W0854	Stainless	Flat, Plain	M 8	4,5	5,5	20,0	4	-	5,3
34043.W0855	Stainless	Flat, Plain	M 8	4,5	5,5	25,0	4	-	6,8
34043.W0856	Stainless	Flat, Plain	M 8	4,5	5,5	30,0	4	-	8,4
34043.W0860	Stainless	Flat, Plain	M10	6,0	7,0	12,0	5	-	4,7
34043.W0862	Stainless	Flat, Plain	M10	6,0	7,0	16,0	5	-	6,1
34043.W0863	Stainless	Flat, Plain	M10	6,0	7,0	20,0	5	-	7,9
34043.W0864	Stainless	Flat, Plain	M10	6,0	7,0	25,0	5	-	10,0
34043.W0865	Stainless	Flat, Plain	M10	6,0	7,0	30,0	5	-	13,0
34043.W0866	Stainless	Flat, Plain	M10	6,0	7,0	35,0	5	-	15,0
34043.W0868	Stainless	Flat, Plain	M10	6,0	7,0	40,0	5	-	18,0
34043.W0870	Stainless	Flat, Plain	M12	7,2	8,5	16,0	6	-	9,1
34043.W0872	Stainless	Flat, Plain	M12	7,2	8,5	20,0	6	-	11,0
34043.W0873	Stainless	Flat, Plain	M12	7,2	8,5	25,0	6	-	14,0
34043.W0874	Stainless	Flat, Plain	M12	7,2	8,5	30,0	6	-	18,0
34043.W0876	Stainless	Flat, Plain	M12	7,2	8,5	40,0	6	-	25,0
34043.W0878	Stainless	Flat, Plain	M12	7,2	8,5	50,0	6	-	32,0
34043.W0880	Stainless	Flat, Plain	M16	10,7	12,0	20,0	8	-	21,0
34043.W0882	Stainless	Flat, Plain	M16	10,7	12,0	25,0	8	-	26,0
34043.W0884	Stainless	Flat, Plain	M16	10,7	12,0	35,0	8	-	39,0
34043.W0886	Stainless	Flat, Plain	M16	10,7	12,0	50,0	8	-	60,0

Material

Steel type-
Body: steel, heat-treated, 1200 ±100 N/mm^2.
Ball: ball bearing steel, hardened.
Stainless steel type-
Body: stainless steel (AISI 303, 1.4305).
Ball: stainless steel, hardened.

Technical Notes

For clamping, tightening or supporting surfaces that are not exactly parallel.
Max. temperature 250°C.

Tips

Ball not secured against rotation. It is possible for the flat-faced ball to flip and expose the spherical face of the ball. For other types see following pages.

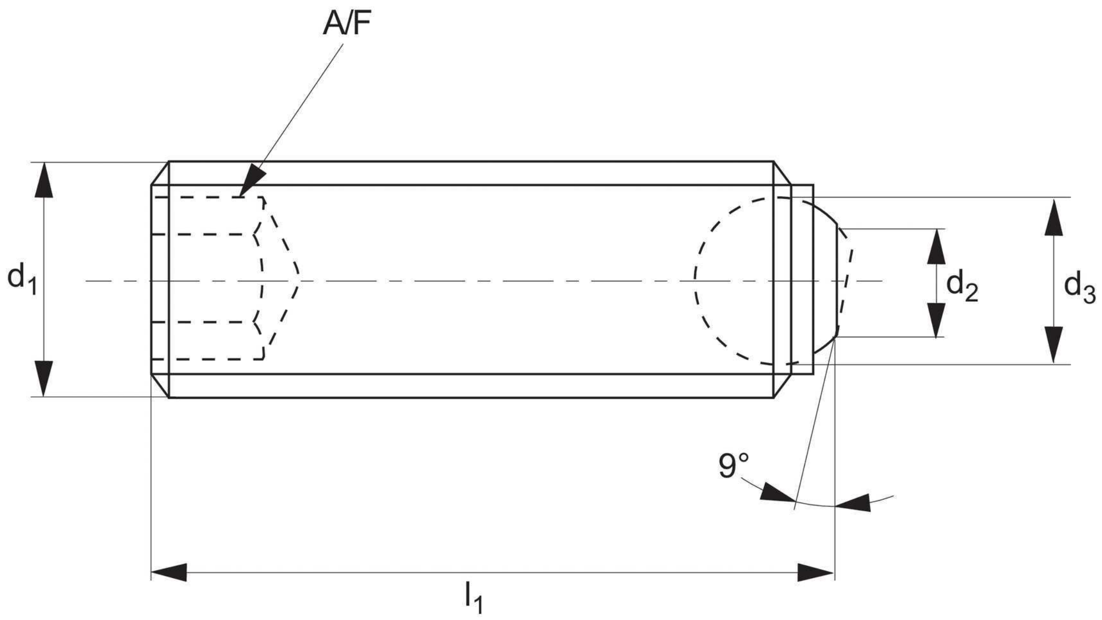
Important Notes

*Max. static load relates to steel version only.

Thrust Screws - Ball Ended

headless - flat faced ball - ribbed - metal

34044



Material
Body: steel, heat-treated, 1200 ±100 N/mm^{2}.
Ball: ball bearing steel, hardened.

Technical Notes
For clamping, tightening or supporting of surfaces that are not exactly parallel.
Max. operating temperature 250°C.

Tips
Ball not secured against rotation. It is possible for the flat faced ball to flip and expose the spherical face of the ball. For other types see following pages.

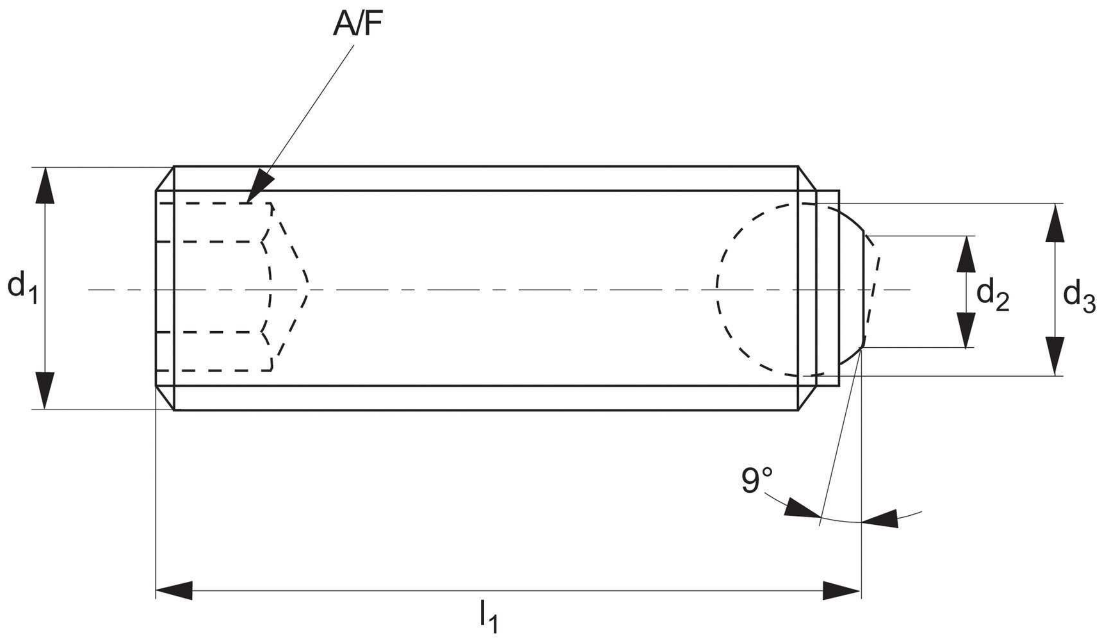
upto 250°

Order No.	Ball type	d_1	d_2	d_3	l_1	A/F	Max. static load kN.	g
34044.W0891	Flat, Ribbed	M 8	4,5	5,5	10	4	15	3
34044.W0892	Flat, Ribbed	M 8	4,5	5,5	12	4	15	3
34044.W0893	Flat, Ribbed	M 8	4,5	5,5	16	4	15	4
34044.W0894	Flat, Ribbed	M 8	4,5	5,5	20	4	15	5
34044.W0895	Flat, Ribbed	M 8	4,5	5,5	25	4	15	7
34044.W0896	Flat, Ribbed	M 8	4,5	5,5	30	4	15	8
34044.W0901	Flat, Ribbed	M10	6,0	7,0	12	5	20	5
34044.W0902	Flat, Ribbed	M10	6,0	7,0	16	5	20	6
34044.W0903	Flat, Ribbed	M10	6,0	7,0	20	5	20	8
34044.W0904	Flat, Ribbed	M10	6,0	7,0	25	5	20	10
34044.W0905	Flat, Ribbed	M10	6,0	7,0	30	5	20	13
34044.W0906	Flat, Ribbed	M10	6,0	7,0	35	5	20	15
34044.W0908	Flat, Ribbed	M10	6,0	7,0	40	5	20	17
34044.W0921	Flat, Ribbed	M12	7,2	8,5	16	6	30	9
34044.W0922	Flat, Ribbed	M12	7,2	8,5	20	6	30	11
34044.W0923	Flat, Ribbed	M12	7,2	8,5	25	6	30	14
34044.W0924	Flat, Ribbed	M12	7,2	8,5	30	6	30	18
34044.W0926	Flat, Ribbed	M12	7,2	8,5	40	6	30	25
34044.W0928	Flat, Ribbed	M12	7,2	8,5	50	6	30	32
34044.W0961	Flat, Ribbed	M16	10,7	12	20	8	60	21
34044.W0962	Flat, Ribbed	M16	10,7	12	25	8	60	26
34044.W0964	Flat, Ribbed	M16	10,7	12	35	8	60	40
34044.W0966	Flat, Ribbed	M16	10,7	12	50	8	60	60
34044.W0972	Flat, Ribbed	M20	13,5	15	30	10	90	50
34044.W0974	Flat, Ribbed	M20	13,5	15	40	10	90	70
34044.W0975	Flat, Ribbed	M20	13,5	15	50	10	90	89
34044.W0976	Flat, Ribbed	M20	13,5	15	60	10	90	111
34044.W0982	Flat, Ribbed	M24	15,8	18	35	12	120	84
34044.W0984	Flat, Ribbed	M24	15,8	18	50	12	120	125
34044.W0986	Flat, Ribbed	M24	15,5	18	80	12	120	219

Thrust Screws - Ball Ended

headless - flat faced ball - thermoplastic

34045



Order No.	Material	Type	d_1	d_2	d_3	l_1	A/F	Max. static load kN.	g
34045.W0452	Steel	Flat, Plain	M 4	1,8	2,5	5,9	2	0,3	0,2
34045.W0453	Steel	Flat, Plain	M 4	1,8	2,5	7,9	2	0,3	0,4
34045.W0454	Steel	Flat, Plain	M 4	1,8	2,5	9,9	2	0,3	0,5
34045.W0455	Steel	Flat, Plain	M 4	1,8	2,5	11,9	2	0,3	0,9
34045.W0456	Steel	Flat, Plain	M 4	1,8	2,5	15,9	2	0,3	0,9
34045.W0462	Steel	Flat, Plain	M 5	2,1	3,0	7,8	3	0,5	0,8
34045.W0463	Steel	Flat, Plain	M 5	2,1	3,0	9,8	3	0,5	0,7
34045.W0464	Steel	Flat, Plain	M 5	2,1	3,0	11,8	3	0,5	1,2
34045.W0465	Steel	Flat, Plain	M 5	2,1	3,0	15,8	3	0,5	1,4
34045.W0466	Steel	Flat, Plain	M 5	2,1	3,0	19,8	3	0,5	2,0
34045.W0467	Steel	Flat, Plain	M 5	2,1	3,0	24,8	3	0,5	2,7
34045.W0472	Steel	Flat, Plain	M 6	3,0	4,0	10,3	3	0,9	1,1
34045.W0473	Steel	Flat, Plain	M 6	3,0	4,0	12,3	3	0,9	1,7
34045.W0474	Steel	Flat, Plain	M 6	3,0	4,0	16,3	3	0,9	2,1
34045.W0475	Steel	Flat, Plain	M 6	3,0	4,0	20,3	3	0,9	2,8
34045.W0476	Steel	Flat, Plain	M 6	3,0	4,0	25,3	3	0,9	3,6
34045.W0482	Steel	Flat, Plain	M 8	4,2	5,5	10,4	4	1,5	1,8
34045.W0483	Steel	Flat, Plain	M 8	4,2	5,5	12,4	4	1,5	2,2
34045.W0484	Steel	Flat, Plain	M 8	4,2	5,5	16,4	4	1,5	3,4
34045.W0485	Steel	Flat, Plain	M 8	4,2	5,5	20,4	4	1,5	4,8
34045.W0486	Steel	Flat, Plain	M 8	4,2	5,5	25,4	4	1,5	6,1
34045.W0487	Steel	Flat, Plain	M 8	4,2	5,5	30,4	4	1,5	7,6
34045.W0492	Stainless	Flat, Plain	M 4	1,8	2,5	5,9	2	0,3	0,2
34045.W0493	Stainless	Flat, Plain	M 4	1,8	2,5	7,9	2	0,3	0,4
34045.W0494	Stainless	Flat, Plain	M 4	1,8	2,5	9,9	2	0,3	0,5
34045.W0495	Stainless	Flat, Plain	M 4	1,8	2,5	11,9	2	0,3	0,9
34045.W0496	Stainless	Flat, Plain	M 4	1,8	2,5	15,9	2	0,3	0,9
34045.W0502	Stainless	Flat, Plain	M 5	2,1	3,0	7,8	3	0,5	0,8
34045.W0503	Stainless	Flat, Plain	M 5	2,1	3,0	9,8	3	0,5	0,7
34045.W0504	Stainless	Flat, Plain	M 5	2,1	3,0	11,8	3	0,5	1,2
34045.W0505	Stainless	Flat, Plain	M 5	2,1	3,0	15,8	3	0,5	1,4
34045.W0506	Stainless	Flat, Plain	M 5	2,1	3,0	19,8	3	0,5	2,0
34045.W0507	Stainless	Flat, Plain	M 5	2,1	3,0	24,8	3	0,5	2,7
34045.W0512	Stainless	Flat, Plain	M 6	3,0	4,0	10,3	3	0,9	1,1
34045.W0513	Stainless	Flat, Plain	M 6	3,0	4,0	12,3	3	0,9	1,7
34045.W0514	Stainless	Flat, Plain	M 6	3,0	4,0	16,3	3	0,9	2,1
34045.W0515	Stainless	Flat, Plain	M 6	3,0	4,0	20,3	3	0,9	2,8
34045.W0516	Stainless	Flat, Plain	M 6	3,0	4,0	25,3	3	0,9	3,6
34045.W0522	Stainless	Flat, Plain	M 8	4,2	5,5	10,4	4	1,5	1,8
34045.W0523	Stainless	Flat, Plain	M 8	4,2	5,5	12,4	4	1,5	2,2
34045.W0524	Stainless	Flat, Plain	M 8	4,2	5,5	16,4	4	1,5	3,4
34045.W0525	Stainless	Flat, Plain	M 8	4,2	5,5	20,4	4	1,5	4,8
34045.W0526	Stainless	Flat, Plain	M 8	4,2	5,5	25,4	4	1,5	6,1
34045.W0527	Stainless	Flat, Plain	M 8	4,2	5,5	30,4	4	1,5	7,6

Material

Steel type-

Body: steel, heat-treated, 1200 ±100 N/mm².

Ball: thermoplastic, red (POM).

Stainless steel type-

Body: stainless steel (AISI 303, 1.4305).

Ball: thermoplastic, red (POM).

Technical Notes

Ball-ended thrust screws with thermoplastic balls are used for brittle, pressure sensitive parts. For clamping, tightening or supporting surfaces that are not exactly parallel.

Tips

Ball not secured against rotation. It is possible for the flat faced ball to flip and expose the spherical pace of the ball.

STAINLESS STEEL 303

Material

Steel type-

Body: steel, heat-treated, 1200 ±100 N/mm².

Ball: thermoplastic, red (POM).

Stainless steel type-

Body: stainless steel (AISI 303, 1.4305).

Ball: thermoplastic, red (POM).

Technical Notes

Ball-ended thrust screws with thermoplastic balls are used for brittle, pressure sensitive parts. For clamping, tightening or supporting surfaces that are not exactly parallel.

Tips

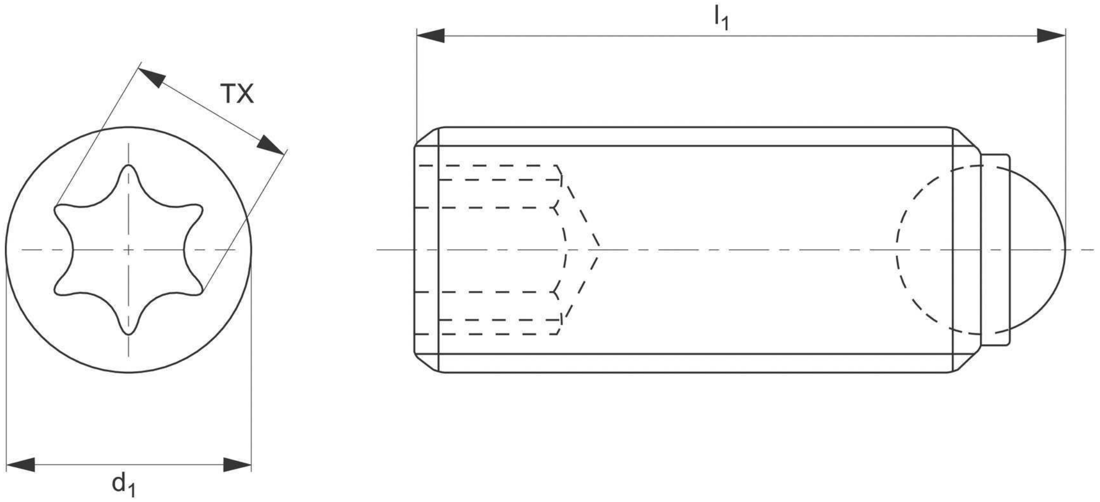
Ball not secured against rotation. It is possible for the flat faced ball to flip and expose the spherical pace of the ball.

STAINLESS STEEL 303

Thrust Screws - Headless -Torx drive

ball ended - round - metal

34047



Order No.	Ball type	Material Type	d_1	l_1	Ball Ø	TX drive	Max. Static load kN*	g
34047.W1042	Round	Steel 12,9	M4	6,0	2,5	8	3,5	0,5
34047.W2042	Round	Stainless	M4	6,0	2,5	8	3,5	0,5
34047.W1044	Round	Steel 12,9	M4	10,0	2,5	8	3,5	0,6
34047.W2044	Round	Stainless	M4	10,0	2,5	8	3,5	0,6
34047.W1052	Round	Steel 12,9	M5	8,0	3,0	10	4,5	0,8
34047.W2052	Round	Stainless	M5	8,0	3,0	10	4,5	0,8
34047.W1054	Round	Steel 12,9	M5	12,0	3,0	10	4,5	1,3
34047.W2054	Round	Stainless	M5	12,0	3,0	10	4,5	1,3
34047.W1062	Round	Steel 12,9	M6	10,8	4,0	15	9,0	1,5
34047.W2062	Round	Stainless	M6	10,8	4,0	15	9,0	1,5
34047.W1064	Round	Steel 12,9	M6	16,8	4,0	15	9,0	1,9
34047.W2064	Round	Stainless	M6	16,8	4,0	15	9,0	1,9

Material

Steel type-
Body: heat treated steel, 1200 +/-100 N/mm².
Ball: ball bearing steel hardened.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Ball: stainless steel, hardened.

Technical Notes

For clamping, tightening or supporting of surfaces that are not exactly parallel.
*** stated load capacity relate to steel version only.**
Torx drive for improved installation.

Tips

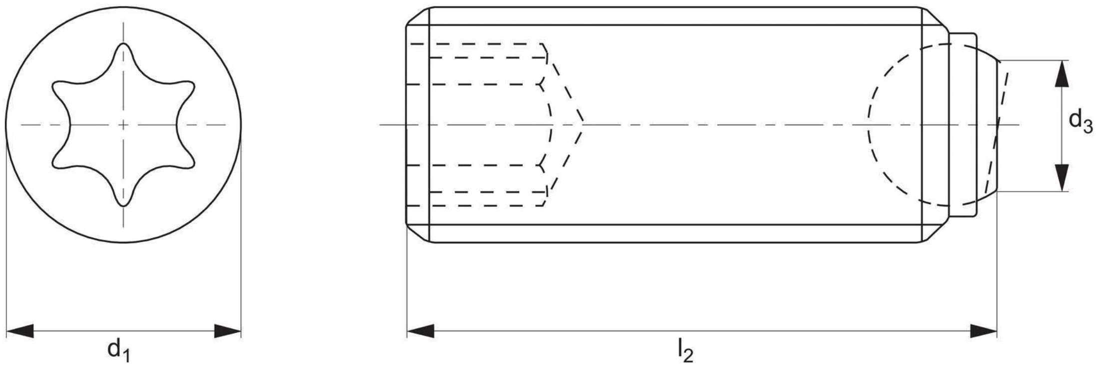
Ball not secured against rotation. For other types see following pages.

STAINLESS STEEL 303

Thrust Screws - Headless -Torx drive

ball ended - flat - metal

34048



Order No. Steel 12,9	Order No. Stainless	Ball type	d_1	l_1	Ball Ø	a/f	Max. Static load kN*	g
34048.W1562	34048.W2562	Flat, plain	M6	1,5	3,2	15	9,0	10,0
34048.W1542	34048.W2542	Flat, plain	M4	0,5	1,8	8	3,5	5,6
34048.W1544	34048.W2544	Flat, plain	M4	0,5	1,8	8	3,5	9,6
34048.W1552	34048.W2552	Flat, plain	M5	0,6	2,2	10	4,5	7,5
34048.W1554	34048.W2554	Flat, plain	M5	1,1	2,2	10	4,5	11,5
34048.W1564	34048.W2564	Flat, plain	M6	2,5	3,2	15	9,0	16,0

Material

Steel type-
Body: heat treated steel, 1200 +/-100 N/mm².
Ball: ball bearing steel hardened.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Ball: stainless steel, hardened.

Technical Notes

For clamping, tightening or supporting of surfaces that are not exactly parallel.
*** stated load capacity relate to steel version only.**
Torx drive for improved installation.

Tips

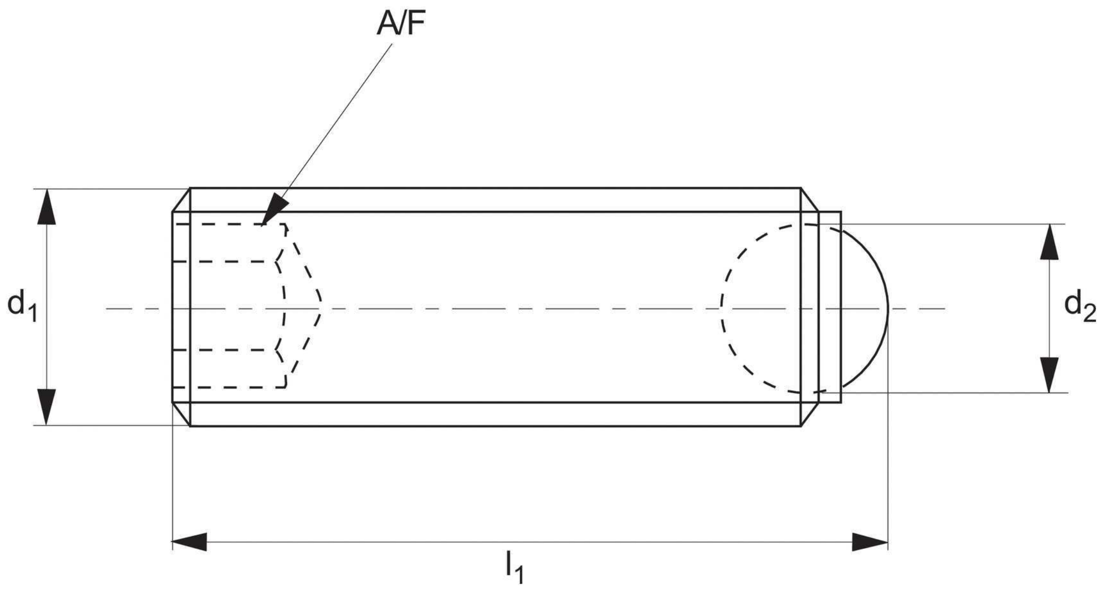
Ball not secured against rotation.
For other types see following pages.

STAINLESS STEEL 303

Thrust Screws - Ball Ended

headless - fine thread - round ball - metal

34051



Order No.	Material	Ball type	d_1	d_2	l_1	A/F	Max. static load* kN.	g
34051.W0030	Steel	Round	M 4x0,35	2,5	6,0	2	3,5	0,4
34051.W0032	Steel	Round	M 4x0,35	2,5	10,0	2	3,5	0,8
34051.W0040	Steel	Round	M 4x0,5	2,5	6,0	2	3,5	0,4
34051.W0042	Steel	Round	M 4x0,5	2,5	6,0	2	3,5	0,4
34051.W0052	Steel	Round	M 5x0,5	3,0	8,0	3	4,5	0,7
34051.W0054	Steel	Round	M 5x0,5	3,0	12,0	3	4,5	1,2
34051.W0062	Steel	Round	M 6x0,5	4,0	10,8	3	9,0	1,3
34051.W0063	Steel	Round	M 6x0,5	4,0	12,8	3	9,0	1,8
34051.W0064	Steel	Round	M 6x0,5	4,0	16,8	3	9,0	2,4
34051.W0065	Steel	Round	M 6x0,5	4,0	20,8	3	9,0	3,0
34051.W0066	Steel	Round	M 6x0,5	4,0	25,8	3	9,0	3,0
34051.W0081	Steel	Round	M 8x1,0	5,5	11,2	4	15,0	2,6
34051.W0084	Steel	Round	M 8x1,0	5,5	21,2	4	15,0	5,4
34051.W0730	Stainless	Round	M 4x0,35	2,5	6,0	2	-	0,4
34051.W0732	Stainless	Round	M 4x0,35	2,5	10,0	2	-	0,8
34051.W0740	Stainless	Round	M 4x0,5	2,5	6,0	2	-	0,4
34051.W0742	Stainless	Round	M 4x0,5	2,5	10,0	2	-	0,8
34051.W0760	Stainless	Round	M 5x0,5	3,0	8,0	3	-	0,7
34051.W0762	Stainless	Round	M 5x0,5	3,0	12,0	3	-	1,2
34051.W0770	Stainless	Round	M 6x0,5	4,0	10,8	3	-	1,3
34051.W0772	Stainless	Round	M 6x0,5	4,0	12,8	3	-	1,8
34051.W0774	Stainless	Round	M 6x0,5	4,0	16,8	3	-	2,4
34051.W0775	Stainless	Round	M 6x0,5	4,0	20,8	3	-	3,0
34051.W0776	Stainless	Round	M 6x0,5	4,0	25,8	3	-	3,0
34051.W0780	Stainless	Round	M 8x1,0	5,5	11,2	4	-	2,6
34051.W0784	Stainless	Round	M 8x1,0	5,5	21,2	4	-	5,4

Material

Steel type-
Body: steel, heat-treated, 1200 ±100 N/mm².
Ball: ball bearing steel, hardened.
Stainless steel type-
Body: stainless steel (AISI 303, 1.4305).
Ball: stainless steel, hardened.

Technical Notes

For clamping, tightening or supporting surfaces that are not exactly parallel.
These ball ended thrust screws have a fine thread, for precise adjustment.

Tips

Ball not secured against rotation.
For other types see following pages.

Important Notes

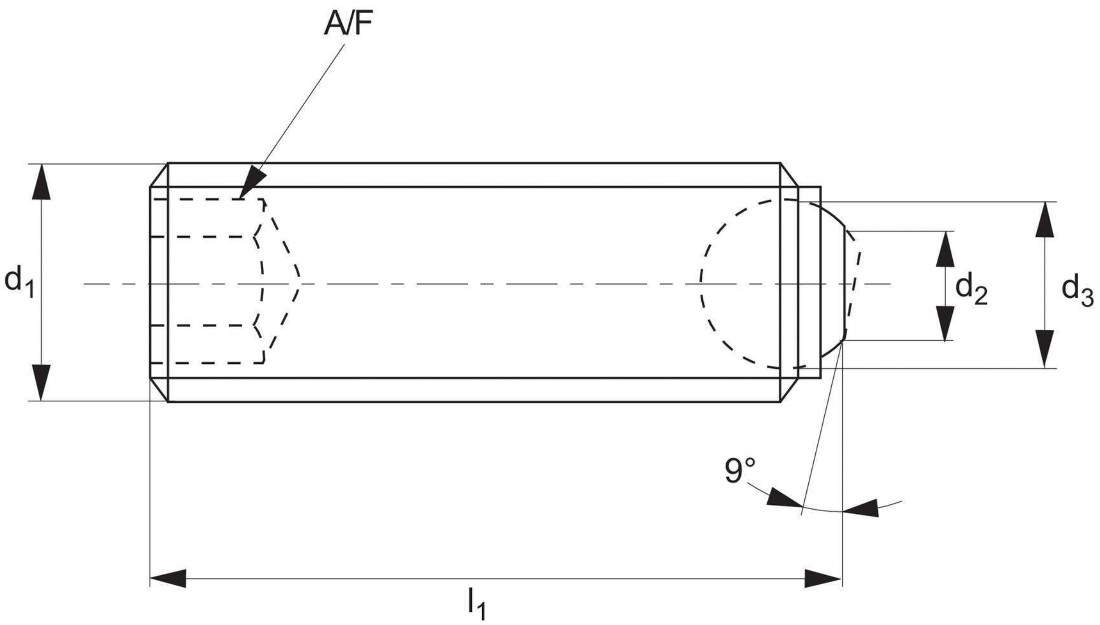
*Max. static load relates to steel version only.

STAINLESS STEEL 303

Thrust Screws - Ball Ended

headless - fine thread - flat faced ball - metal

34053



Order No.	Material	Type	d_1	d_2	d_3	l_2	A/F	Max. static load* kN.	g
34053.W0530	Steel	Flat, Plain	M 4x0,35	1,3	2,5	5,6	2	3,5	0,6
34053.W0532	Steel	Flat, Plain	M 4x0,35	1,3	2,5	9,6	2	3,5	0,8
34053.W0540	Steel	Flat, Plain	M 4x0,5	1,3	2,5	5,6	2	3,5	0,4
34053.W0542	Steel	Flat, Plain	M 4x0,5	1,3	2,5	9,6	2	3,5	0,8
34053.W0552	Steel	Flat, Plain	M 5x0,5	2,2	3,0	7,5	3	4,5	0,7
34053.W0554	Steel	Flat, Plain	M 5x0,5	2,2	3,0	11,5	3	4,5	1,2
34053.W0562	Steel	Flat, Plain	M 6x0,5	3,2	4,0	10,0	3	9,0	1,3
34053.W0563	Steel	Flat, Plain	M 6x0,5	3,2	4,0	12,0	3	9,0	1,8
34053.W0564	Steel	Flat, Plain	M 6x0,5	3,2	4,0	16,0	3	9,0	2,4
34053.W0565	Steel	Flat, Plain	M 6x0,5	3,2	4,0	20,0	3	9,0	3,0
34053.W0566	Steel	Flat, Plain	M 6x0,5	3,2	4,0	25,0	3	9,0	3,0
34053.W0581	Steel	Flat, Plain	M 8x1,0	4,5	5,5	10,0	4	15,0	2,6
34053.W0584	Steel	Flat, Plain	M 8x1,0	4,5	5,5	20,0	4	15,0	5,3
34053.W0830	Stainless	Flat, Plain	M 4x0,35	1,3	2,5	5,6	2	-	0,6
34053.W0832	Stainless	Flat, Plain	M 4x0,35	1,3	2,5	9,6	2	-	0,8
34053.W0838	Stainless	Flat, Plain	M 4x0,5	1,3	2,5	5,6	2	-	0,4
34053.W0839	Stainless	Flat, Plain	M 4x0,5	1,3	2,5	9,6	2	-	0,8
34053.W0833	Stainless	Flat, Plain	M 5x0,5	2,2	3,0	7,5	3	-	0,7
34053.W0835	Stainless	Flat, Plain	M 5x0,5	2,2	3,0	11,5	3	-	1,2
34053.W0840	Stainless	Flat, Plain	M 6x0,5	3,2	4,0	10,0	3	-	1,3
34053.W0842	Stainless	Flat, Plain	M 6x0,5	3,2	4,0	12,0	3	-	1,8
34053.W0844	Stainless	Flat, Plain	M 6x0,5	3,2	4,0	16,0	3	-	2,4
34053.W0845	Stainless	Flat, Plain	M 6x0,5	3,2	4,0	20,0	3	-	3,0
34053.W0846	Stainless	Flat, Plain	M 6x0,5	3,2	4,0	25,0	3	-	3,0
34053.W0850	Stainless	Flat, Plain	M 8x1,0	4,5	5,5	10,0	4	-	2,6
34053.W0854	Stainless	Flat, Plain	M 8x1,0	4,5	5,5	20,0	4	-	5,3

Material

Steel type-
Body: steel, heat-treated, 1200 ±100 N/mm².
Ball: ball bearing steel, hardened.
Stainless steel type-
Body: stainless steel (AISI 303, 1.4305).
Ball: stainless steel, hardened.

Technical Notes

For clamping, tightening or supporting surfaces that are not exactly parallel.
These ball ended thrust screws have a fine thread, for precise adjustment.

Tips

Ball not secured against rotation. It is possible for the flat faced ball to flip and expose the spherical face of the ball. For other types see following pages.

Important Notes

*Max static load relates to steel version only.

STAINLESS STEEL 303

Material

Steel type-
Body: steel, heat-treated, 1200 ±100 N/mm².
Ball: ball bearing steel, hardened.
Stainless steel type-
Body: stainless steel (AISI 303, 1.4305).
Ball: stainless steel, hardened.

Technical Notes

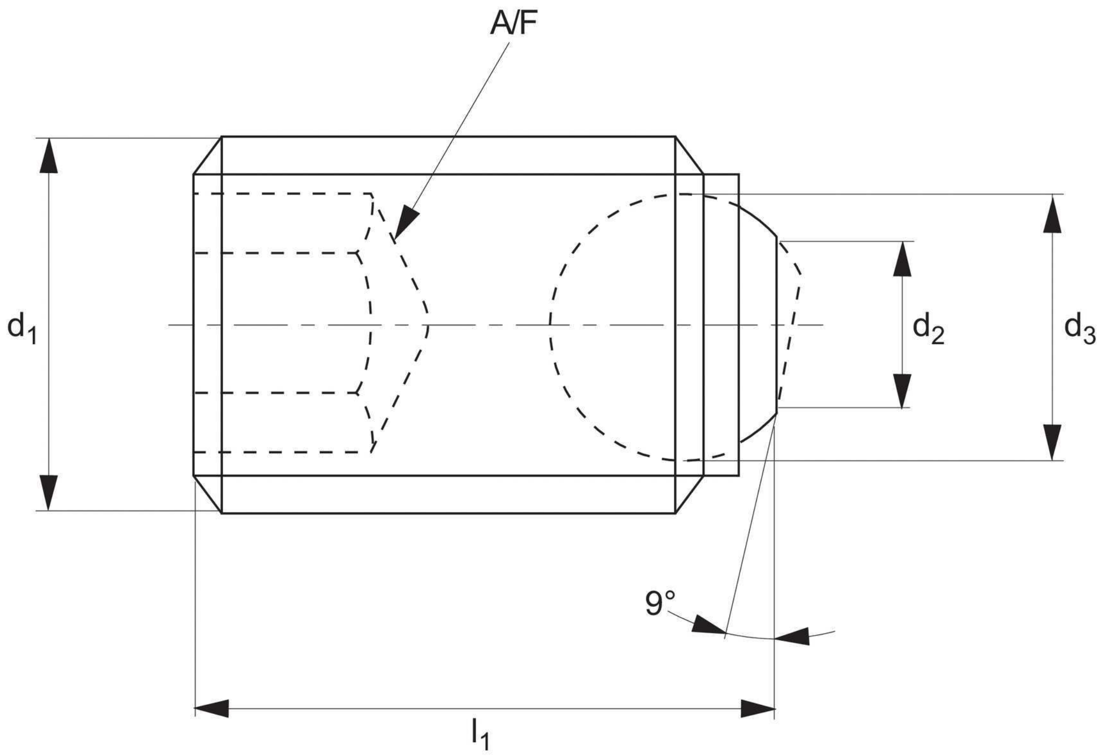
For clamping, tightening or supporting surfaces that are not exactly parallel.
These ball ended thrust screws have a fine thread, for precise adjustment.

Tips

Ball not secured against rotation. It is possible for the flat faced ball to flip and expose the spherical face of the ball. For other types see following pages.

Important Notes

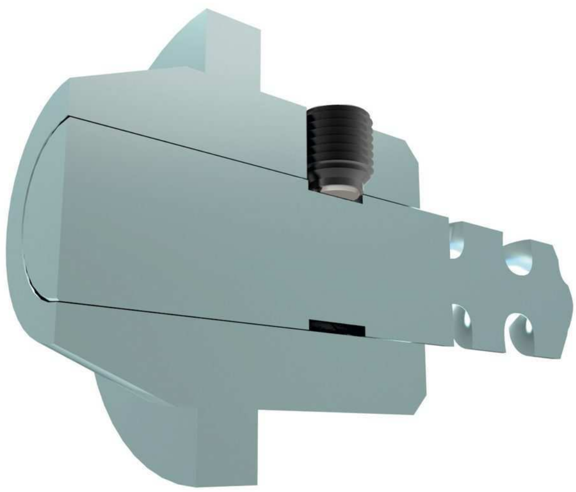
*Max static load relates to steel version only.



Material
Body: steel, heat-treated, 1200 ±100 N/mm².
Ball: ball bearing steel, hardened.

Technical Notes
These short ball ended thrust screws are particularly suited for use with parallel shanks DIN 1835E, in combination with either Whistle Notch or Weldon Tool Holding fixtures.
Maximised load transmission due to movable ball.

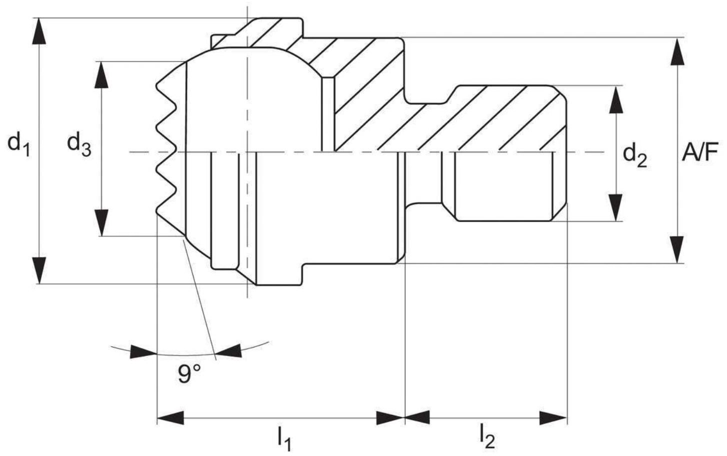
Order No.	Ball type	d_1	d_2	d_3	l_1	A/F	Max. static load kN.	g
34060.W0641	Flat, Plain	M14	7,2	8,5	16	6	30	13
34060.W0660	Flat, Plain	M16	7,2	8,5	16	8	30	16
34060.W0682	Flat, Plain	M18x2	10,7	12,0	20	10	60	25
34060.W0692	Flat, Plain	M20x2	10,7	12,0	20	10	60	32
34060.W0693	Flat, Plain	M20x2	10,7	12,0	25	10	60	42
34060.W0730	Flat, Plain	M24x2	13,5	15,0	25	12	90	59

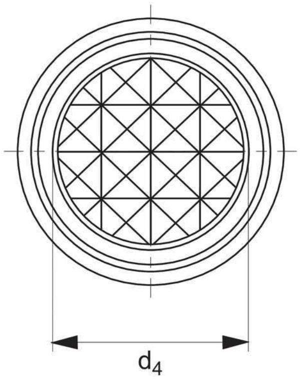


Self-Aligning Pads

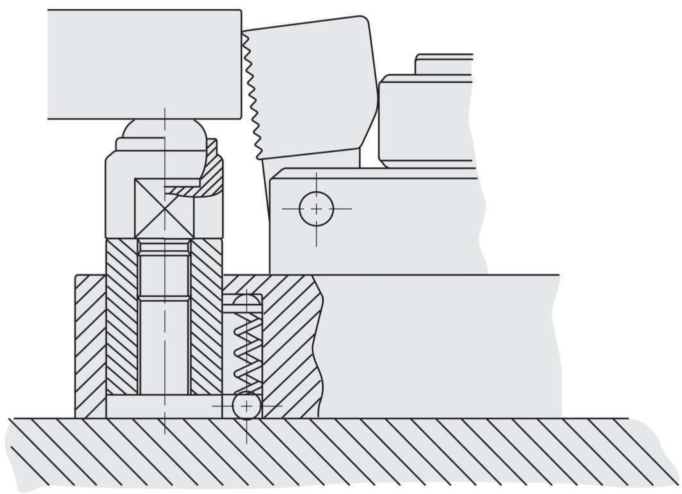
hard metal ball - ribbed

34080





Order No.	d_1	d_2	d_3	d_4	l_1 ±0,2	l_2 -0,5	A/F	Max. static load kN.	Tightening torque max. Nm.	g
34080.W0362	13	M 6	8,3	10	13	8	11	10	10	14,0
34080.W0363	13	M 8	8,3	10	13	8	11	10	25	16,0
34080.W0378	20	M 8	12,8	16	18	10	17	25	25	49,0
34080.W0379	20	M10	12,8	16	18	10	17	25	46	57,0
34080.W0380	20	M12	12,8	16	18	12	17	25	82	54,0
34080.W0381	30	M16	20,0	16	27	16	27	90	206	190,0
34080.W0382	50	M20	34,5	40	35	20	41	165	407	639,0
34080.W0383	50	M24	34,5	40	35	24	41	165	698	673,0



Material
Body: steel, heat-treated, phosphated.
Ball: hard metal, nickel plated.

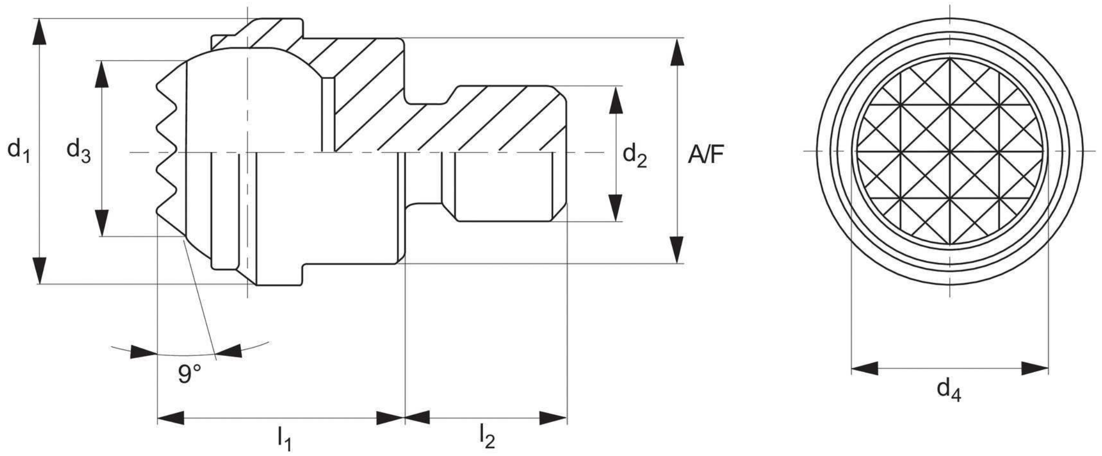
Technical Notes
Ideal as stop, support or thrust pad especially where cast components are being machined. Insert is brazed in position.

Tips
Ball secured against turning.

Self-Aligning Pads

hard metal ball - ribbed - stainless steel

34081



Order No.	d_1	d_2	d_3	d_4	l_1 ±0,2	l_2 -0,5	A/F	Max. static load kN.	Tightening torque max. Nm.	g
34081.W0390	13	M 6	8,3	10	13	8	11	10	10	14,0
34081.W0392	13	M 8	8,3	10	13	8	11	10	25	16,0
34081.W0394	20	M 8	12,8	16	18	10	17	25	25	49,0
34081.W0396	20	M10	12,8	16	18	10	17	25	46	51,0
34081.W0398	20	M12	12,8	16	18	12	17	25	82	54,0
34081.W0399	30	M16	20,0	25	27	16	27	90	206	190,0
34081.W0400	50	M20	34,5	40	35	20	41	165	407	639,0
34081.W0401	50	M24	34,5	40	35	24	41	165	407	673,0

Material
Body: stainless steel (AISI 431, 1.4057), heat treated.
Ball: hard metal, nickel plated.

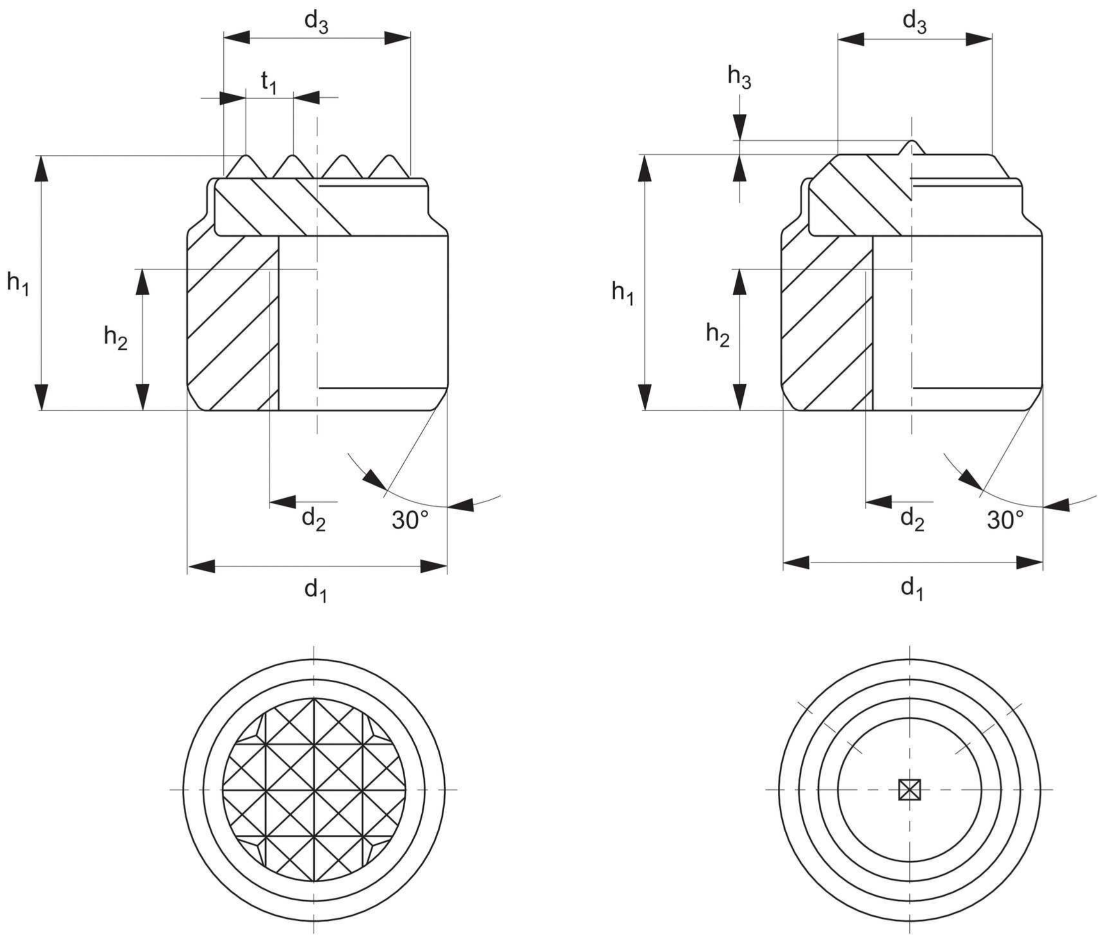
Technical Notes
Ideal as stop, support or thrust pad especially where cast components are being machined. Insert is brazed in position.

Tips
Ball secured against turning.

Rest Pads

with hard metal inserts - ribbed

34082



ribbed face

single point

Material

Body: steel, heat-treated, phosphated.
Insert: steel, heat-treated.

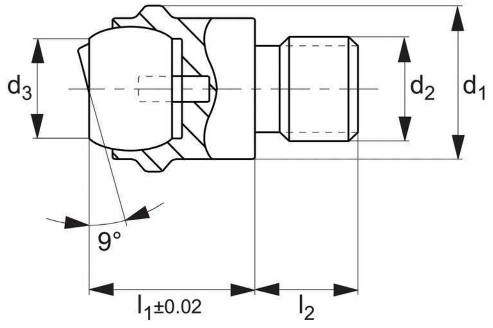
Technical Notes

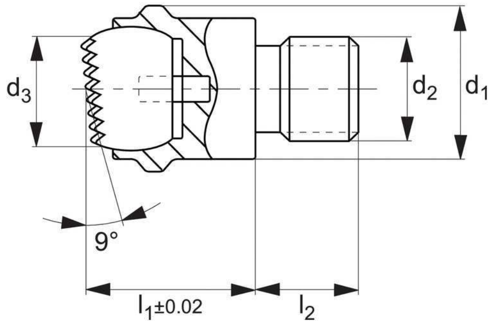
Ideal as stop, support or thrust pad especially where cast components are being machined. Insert is brazed in position.

Order No.	Type	d_1 tol. n6	d_2	d_3 ≈	h_1	h_2 min.	h_3	t_1	Location hole tol. H7	g
34082.W0208	Ribbed Face	10	M 5	7,7	13	6	-	2	10	8
34082.W0211	Ribbed Face	14	M 6	10,6	13	6	-	2	14	15
34082.W0213	Ribbed Face	16	M 6	11,9	13	6	-	3	16	20
34082.W0215	Ribbed Face	20	M 6	16,0	13	6	-	3	20	32
34082.W0217	Ribbed Face	25	M 6	21,0	13	6	-	3	25	51
34082.W0228	Single Point	10	M 5	6,3	13	6	0,8	-	10	8
34082.W0231	Single Point	14	M 6	9,3	13	6	0,8	-	14	16
34082.W0233	Single Point	16	M 6	10,0	13	6	0,8	-	16	21

Self-Aligning Pads

Self-Aligning Pads





Order No. Steel Plain Surface	Order No. S/S Plain Surface	d_1	d_2	d_3	l_1	l_2 -0,5	Ball	WS (mm)	Load capacity for static load max. (kN)	Tightening torque max (Nm)	g
34090.W0012	**34090.W0112**	13	M6	7,2	13	8	10	11	10	13	13
34090.W0013	**34090.W0113**	13	M8	7,2	13	8	10	11	10	14	14
34090.W0018	**34090.W0118**	20	M8	10,5	18	10	16	17	25	25	39
34090.W0019	**34090.W0119**	20	M10	10,5	18	10	16	17	25	46	40
34090.W0020	**34090.W0120**	20	M10	10,5	18	10	16	17	25	46	44
34090.W0030	**34090.W0130**	30	M16	20	27	16	25	27	90	206	153
34090.W0050	**34090.W0150**	50	M20	34,5	35	20	40	41	165	407	491
34090.W0060	**34090.W0160**	50	M24	34,5	35	24	40	41	165	698	526

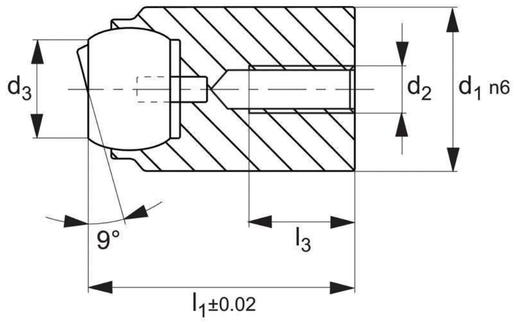
Material
Spring element: thermoplastic PUR.
Ball: Ball-bearing steel, hardened, bright. stainless steel 1.3541, nickel-plated.
Body: Heat-treated steel, tempered, phosphated. stainless steel 1.4057, heat-treated.

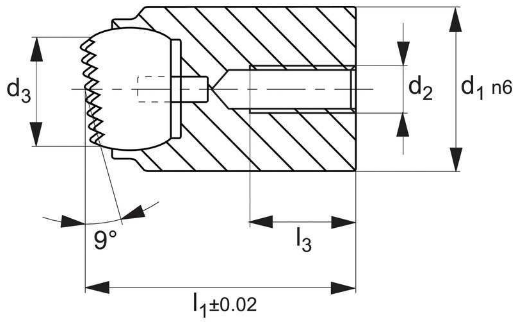
Technical Notes
Ball protected against rotating. loading capacity vaild for steel and stainles steel design.

Self-Aligning Pads

Self-Aligning Pads

34091





Order No. Steel Plain Surface	Order No. S/S Plain Surface	d_1	d_2	d_3	l_1	$l_{3\ max}$	Ball	H7 diametre	Depth min	Load capacity for static load max. (kN)	Tightening torque max (Nm)	g
34091.W0412	**34091.W0452**	12n6	M3	7,2	17	3,2	10	12	12	10	1,3	14
34091.W0418	**34091.W0458**	18n6	M4	10,5	23	4,0	16	18	14	25	2,9	40
34091.W0428	**34091.W0468**	28n6	M5	20,0	34	6,0	25	28	22	90	6,0	150

Material

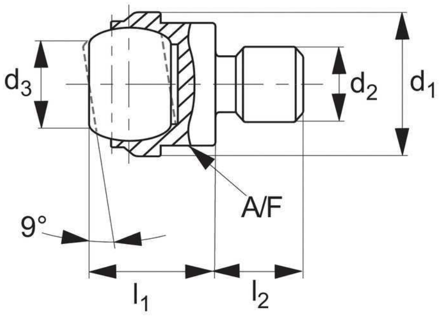
Spring element: thermoplastic PUR.
Ball: Ball-bearing steel, hardened, bright. stainless steel 1.3541, nickel-plated.
Body: Heat-treated steel, tempered, phosphated. stainless steel 1.4057, heat-treated.

Technical Notes

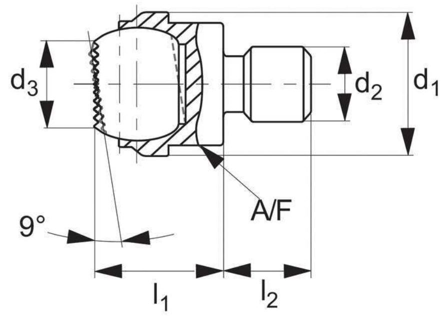
Ball protected against rotating.
loading capacity vaild for steel and stainles steel design.

Self-Aligning Pads
fixed - steel

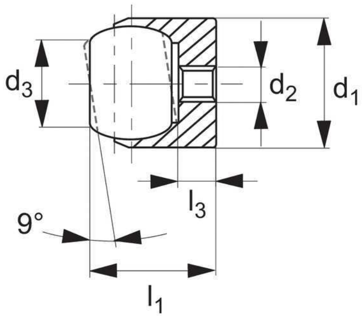
34100



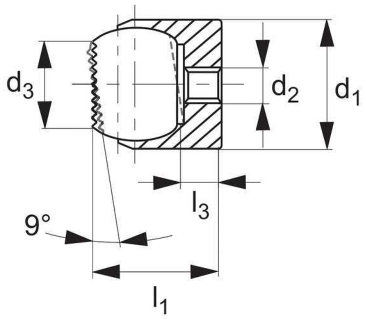
male thread, flat



male thread, serrated



female thread, flat



female thread, serrated

Order No.	Thread and face type	d_1	d_2	d_3	l_1 ±0,02	l_2 -0,5	l_3 max.	Ball Ø	Location hole tol. H7	A/F	Max. static load kN.	Tightening torque max. Nm.	g
34100.W0012	Male, Flat	13	M 6	7,2	13	8	-	10	-	11	10	10	12
34100.W0013	Male, Flat	13	M 8	7,2	13	8	-	10	-	11	10	25	13
34100.W0018	Male, Flat	20	M 8	10,5	18	10	-	16	-	17	25	25	39
34100.W0019	Male, Flat	20	M10	10,5	18	10	-	16	-	17	25	46	41
34100.W0020	Male, Flat	20	M12	10,5	18	12	-	16	-	17	25	82	44
34100.W0030	Male, Flat	30	M16	20,0	27	16	-	25	-	27	90	206	151
34100.W0050	Male, Flat	50	M20	34,5	35	20	-	40	-	41	165	407	489
34100.W0060	Male, Flat	50	M24	34,5	35	24	-	40	-	41	165	698	526
34100.W0312	Male, Serrated	13	M 6	7,2	13	8	-	10	-	11	10	10	12
34100.W0313	Male, Serrated	13	M 8	7,2	13	8	-	10	-	11	10	25	13
34100.W0318	Male, Serrated	20	M 8	10,5	18	10	-	16	-	17	25	25	38
34100.W0319	Male, Serrated	20	M10	10,5	18	10	-	16	-	17	25	46	40
34100.W0320	Male, Serrated	20	M12	10,5	18	12	-	16	-	17	25	82	43
34100.W0330	Male, Serrated	30	M16	20,0	27	16	-	25	-	27	90	206	150
34100.W0350	Male, Serrated	50	M20	34,5	35	20	-	40	-	41	165	407	486
34100.W0360	Male, Serrated	50	M24	34,5	35	24	-	40	-	41	165	698	521
34100.W0412	Female, Flat	12 tol. n_6	M 3	7,2	11	-	3,2	10	Ø12x6min	-	10*	1,3	8
34100.W0418	Female, Flat	18 tol. n_6	M 4	10,5	17	-	4,0	16	Øx18x8min	-	25*	2,9	29
34100.W0428	Female, Flat	28 tol. n_6	M 5	20,0	25	-	5,5	25	Ø28x13min	-	90*	6,0	109
34100.W0712	Female, Serrated	12 tol. n_6	M 3	7,2	11	-	3,2	10	Ø12x6min	-	10*	1,3	8
34100.W0718	Female, Serrated	18 tol. n_6	M 4	10,5	17	-	4,0	16	Ø18x8min	-	25*	2,9	29
34100.W0728	Female, Serrated	28 tol. n_6	M 5	20,0	25	-	5,5	25	Ø28x13min	-	90*	6,0	108

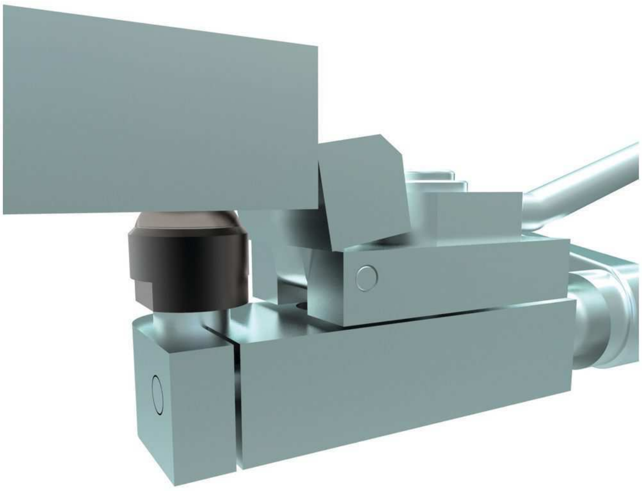
Material
Body: steel, heat-treated, phosphated.
Ball: ball bearing steel, hardened, bright.

Technical Notes
These self-aligning pads serve as stops, supports and thrust elements in jigs and fixtures. They can also be fitted to existing clamping elements.

Tips
Max. load* for female threads (see table) applies only when the minimum location hole depth is adhered to.
Ball secured against turning.

Self-Aligning Pads
fixed - steel

34100



Material
Body: steel, heat-treated, phosphated.
Ball: ball bearing steel, hardened, bright.

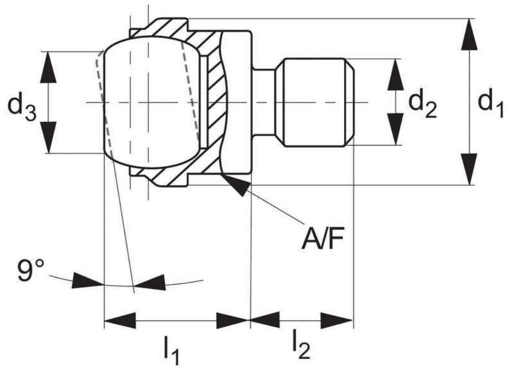
Technical Notes
These self-aligning pads serve as stops, supports and thrust elements in jigs and fixtures. They can also be fitted to existing clamping elements.

Tips
Max. load* for female threads (see table) applies only when the minimum location hole depth is adhered to.
Ball secured against turning.

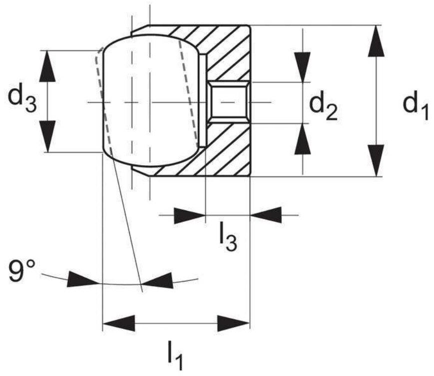
Self-Aligning Pads

fixed - stainless steel

34101



male thread, flat



female thread, flat

Order No.	Thread and face type	d_1	d_2	d_3	l_1 ±0,02	l_2 -0,5	l_3 max.	Ball Ø	Location hole tol. H7	A/F	Max. static load. kN.	Tightening torque max. Nm.	g
34101.W0112	Male, Flat	13	M 6	7,2	13	8	-	10	-	11	10	10,0	12
34101.W0113	Male, Flat	13	M 8	7,2	13	8	-	10	-	11	10	25,0	13
34101.W0118	Male, Flat	20	M 8	10,5	18	10	-	16	-	17	25	25,0	39
34101.W0119	Male, Flat	20	M10	10,5	18	10	-	16	-	17	25	46,0	41
34101.W0120	Male, Flat	20	M12	10,5	18	12	-	16	-	17	25	82,0	44
34101.W0130	Male, Flat	30	M16	20,0	27	16	-	25	-	27	90	206,0	151
34101.W0150	Male, Flat	50	M20	34,5	35	20	-	40	-	41	165	407,0	489
34101.W0160	Male, Flat	50	M24	34,5	35	24	-	40	-	41	165	698,0	526
34101.W0452	Female, Flat	12 tol. n6	M 3	7,2	11	-	3,2	10	Ø12x6min	-	10*	1,3	8
34101.W0458	Female, Flat	18 tol. n6	M 4	10,5	17	-	4,0	16	Ø18x8min	-	25*	2,9	29
34101.W0468	Female, Flat	28 tol. n6	M 5	20,0	25	-	5,5	25	Ø28x13min	-	90*	6,0	109

Material

Body: stainless steel (AISI 431, 1.4057), heat-treated.
Ball: stainless steel (1.3541), nickel plated.

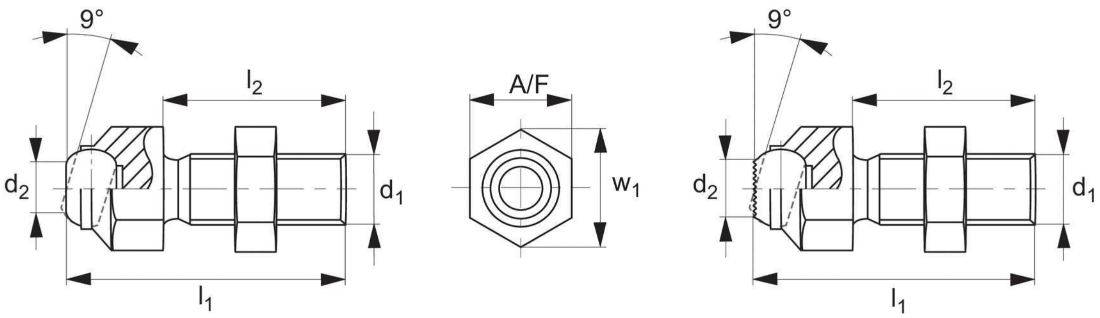
Technical Notes

These self-aligning pads serve as stops, supports and thrust elements in jigs and fixtures. They can also be fitted to existing clamping elements.

Tips

Max. load* for female threads (see table) applies only when the minimum location hole depth is adhered to.
Ball secured against turning.

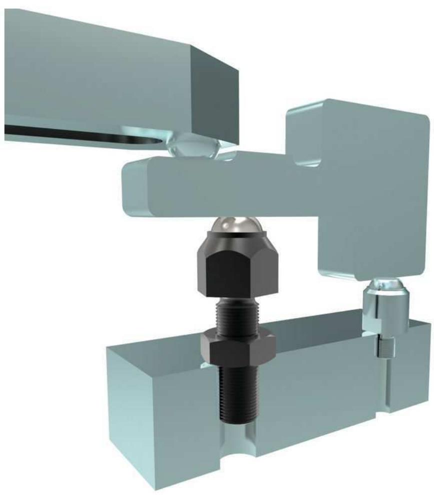
34120



flat face

serrated face

Order No.	Ball type	d_1	d_2	l_1	l_2	w_1	Ball Ø	A/F	Max. static load. kN.	Tightening torque Max. Nm.	g
34120.W0013	Flat, Smooth	M 8	5,8	36,6	25	14,5	8,5	13	8	25	21
34120.W0016	Flat, Smooth	M10	8,6	45,7	30	19,0	12,0	17	8	46	44
34120.W0017	Flat, Smooth	M12	8,6	50,7	35	19,0	12,0	17	15	82	55
34120.W0024	Flat, Smooth	M16	10,5	60,7	40	27,0	16,0	24	25	206	28
34120.W0030	Flat, Smooth	M20	20,0	77,3	50	33,0	25,0	30	90	407	75
34120.W0036	Flat, Smooth	M24	20,0	100,0	70	40,0	25,0	36	90	698	472
34120.W0046	Flat, Smooth	M30x1,5	34,6	100,0	65	51,0	40,0	46	165	1355	772
34120.W0313	Flat, Serrated	M 8	5,8	36,6	25	14,5	8,5	13	8	25	20
34120.W0316	Flat, Serrated	M10	8,6	45,7	30	19,0	12,0	17	8	46	44
34120.W0317	Flat, Serrated	M12	8,6	50,7	35	19,0	12,0	17	15	82	55
34120.W0324	Flat, Serrated	M16	10,5	60,7	40	27,0	16,0	24	25	206	128
34120.W0330	Flat, Serrated	M20	20,0	77,3	50	33,0	25,0	30	90	407	274
34120.W0336	Flat, Serrated	M24	20,0	100,0	70	40,0	25,0	36	90	698	472
34120.W0346	Flat, Serrated	M30x1,5	34,6	100,0	65	51,0	40,0	46	165	1355	772

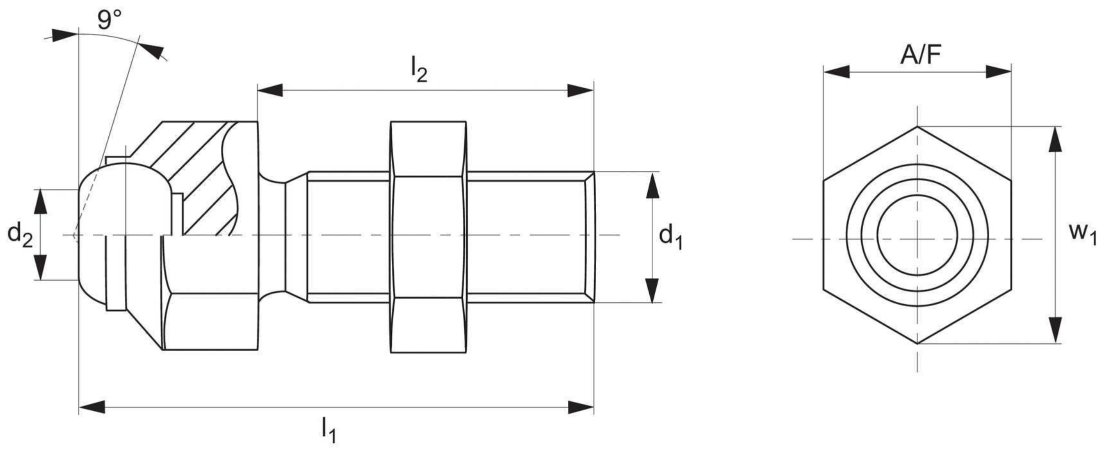


Material
Body: steel, heat-treated, phosphated.
Ball: ball-bearing steel, hardened, bright.

Technical Notes
These self-aligning pads serve as stops, supports and thrust elements in jigs and fixtures. They can also be fitted to existing clamping elements.

Tips
Ball secured against turning.

Self-Aligning Pads
adjustable - stainless steel



flat face

Order No.	Ball type	d_1	d_2	l_1	l_2	w_1	Ball Ø	A/F	Max. static load kN.	Tightening torque max. Nm.	g
34121.W0013	Flat, Smooth	M 8	5,8	36,6	25	14,5	8,5	13	8	25	20
34121.W0016	Flat, Smooth	M10	8,6	45,7	30	19,0	12,0	17	8	46	44
34121.W0017	Flat, Smooth	M12	8,6	50,7	35	19,0	12,0	17	15	82	56
34121.W0024	Flat, Smooth	M16	10,5	60,7	40	27,0	16,0	24	25	206	128
34121.W0030	Flat, Smooth	M20	20,0	77,3	50	33,0	25,0	30	90	407	275
34121.W0036	Flat, Smooth	M24	20,0	100,0	70	40,0	25,0	36	90	698	472
34121.W0046	Flat, Smooth	M30x1,5	34,6	100,0	65	51,0	40,0	46	165	1355	772

Material
Body: stainless steel (AISI 431, 1.4057), heat-treated.
Ball: stainless steel (1.3541), nickel plated.
Nut: stainless steel.

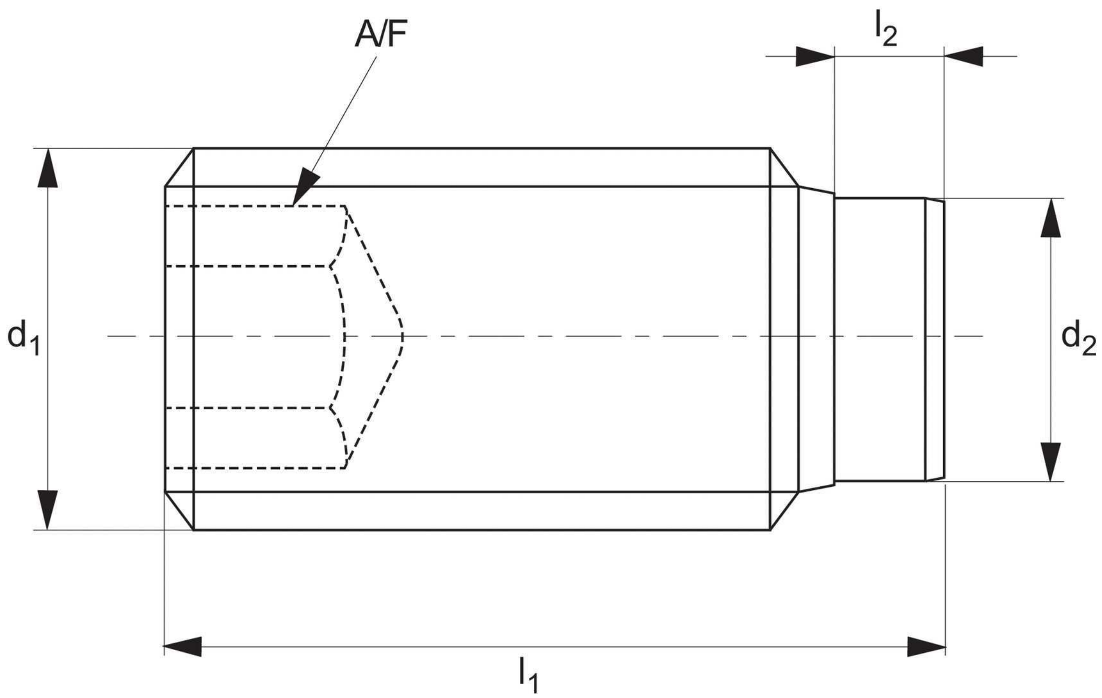
Technical Notes
These self-aligning pads serve as stops, supports and thrust elements in jigs and fixtures. They can also be fitted to existing clamping elements.

Tips
Ball secured against turning.

Thrust Screws - Brass Pad

stainless steel

34140



Order No. Steel	Order No. Stainless	Type	d_1	l_1	l_2	d_2	A/F	g
34140.W0042	34140.W0442	Brass Pad	M 4	6,5	1,2	2,5	2,0	0,3
34140.W0032	34140.W0432	Brass Pad	M 3	5,0	1,0	1,5	1,5	0,2
34140.W0034	34140.W0434	Brass Pad	M 3	7,5	1,0	1,5	1,5	0,3
34140.W0036	34140.W0436	Brass Pad	M 3	10,0	1,0	1,5	1,5	0,5
34140.W0044	34140.W0444	Brass Pad	M 4	10,5	1,2	2,5	2,0	0,8
34140.W0046	34140.W0446	Brass Pad	M 4	16,5	1,2	2,5	2,0	1,2
34140.W0052	34140.W0452	Brass Pad	M 5	8,5	1,3	3,0	2,5	0,9
34140.W0054	34140.W0454	Brass Pad	M 5	12,5	1,3	3,0	2,5	1,4
34140.W0056	34140.W0456	Brass Pad	M 5	20,5	1,3	3,0	2,5	2,1
34140.W0062	34140.W0462	Brass Pad	M 6	11,5	1,9	4,0	3,0	1,7
34140.W0064	34140.W0464	Brass Pad	M 6	17,5	1,9	4,0	3,0	2,7
34140.W0066	34140.W0466	Brass Pad	M 6	26,5	1,9	4,0	3,0	4,2
34140.W0080	-	Brass Pad	M 8	8,0	1,4	5,5	4,0	2,2
34140.W0082	34140.W0482	Brass Pad	M 8	12,0	2,5	5,5	4,0	3,0
34140.W0086	34140.W0486	Brass Pad	M 8	22,0	2,5	5,5	4,0	5,8
34140.W0088	34140.W0488	Brass Pad	M 8	32,0	2,5	5,5	4,0	8,9
34140.W0102	34140.W0502	Brass Pad	M10	14,0	2,7	7,0	5,0	5,6
34140.W0104	34140.W0504	Brass Pad	M10	18,0	2,7	7,0	5,0	6,7
34140.W0106	34140.W0506	Brass Pad	M10	27,0	2,7	7,0	5,0	11,0
34140.W0108	34140.W0508	Brass Pad	M10	37,0	2,7	7,0	5,0	16,0
34140.W0122	34140.W0522	Brass Pad	M12	18,5	3,4	8,5	6,0	10,0
34140.W0124	34140.W0524	Brass Pad	M12	22,5	3,4	8,5	6,0	12,0
34140.W0126	34140.W0526	Brass Pad	M12	32,5	3,4	8,5	6,0	20,0
34140.W0128	34140.W0528	Brass Pad	M12	42,5	3,4	8,5	6,0	29,0

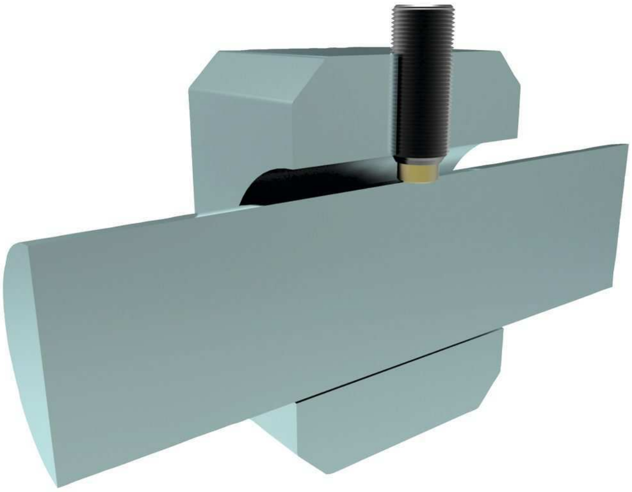
Material

Steel type-
Screw: heat treated steel, 1200 +/-100 N/mm².
Pad: brass.
Stainless steel type-
Screw: stainless steel 1.4305 (AISI 303).
Pad: brass.

Technical Notes

Brass pad pressed in. These thrust screws can be used for gentle clamping or pressing of threaded spindles, axles, shafts or surface treated parts.

STAINLESS STEEL 303



Material

Steel type-
Screw: heat treated steel, 1200 +/-100 N/mm².
Pad: brass.
Stainless steel type-
Screw: stainless steel 1.4305 (AISI 303).
Pad: brass.

Technical Notes

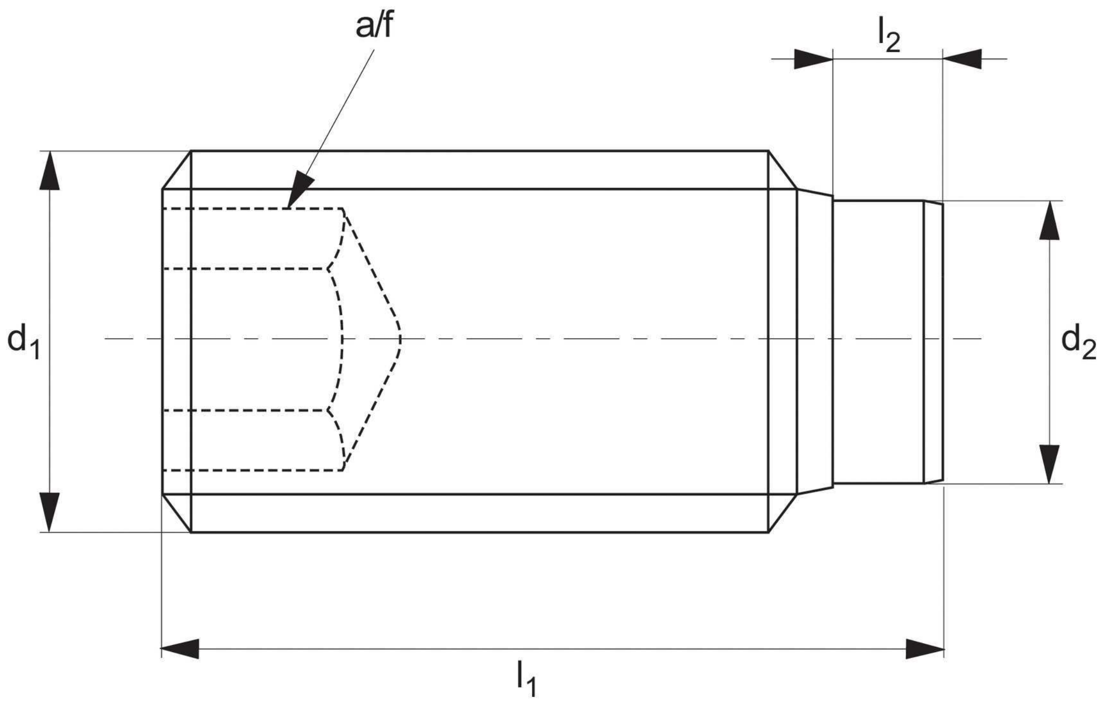
Brass pad pressed in. These thrust screws can be used for gentle clamping or pressing of threaded spindles, axles, shafts or surface treated parts.

STAINLESS STEEL 303

Thrust Screws - Plastic Pad

stainless steel

34160



Order No. Steel	Order No. Stainless	Type	d_1	l_1 ~	l_2 ~	d_2	a/f	g
34160.W0242	34160.W0642	Thermo Pad	M 4	7,0	1,0	2,0	2,0	0,3
34160.W0632	-	Thermo Pad	M 3	3,8	0,8	1,5	1,5	0,2
34160.W0634	-	Thermo Pad	M 3	5,8	0,8	1,5	1,5	0,3
34160.W0636	-	Thermo Pad	M 3	8,8	0,8	1,5	1,5	0,4
34160.W0638	-	Thermo Pad	M 3	10,8	0,8	1,5	1,5	0,5
34160.W0243	34160.W0643	Thermo Pad	M 4	9,0	1,0	2,0	2,0	0,4
34160.W0244	34160.W0644	Thermo Pad	M 4	11,0	1,0	2,0	2,0	0,6
34160.W0245	34160.W0645	Thermo Pad	M 4	13,0	1,0	2,0	2,0	0,7
34160.W0246	34160.W0646	Thermo Pad	M 4	17,0	1,0	2,0	2,0	1,0
34160.W0247	-	Thermo Pad	M 4	21,0	1,0	2,0	2,0	1,3
34160.W0252	34160.W0652	Thermo Pad	M 5	9,0	1,0	3,0	2,5	0,7
34160.W0253	34160.W0653	Thermo Pad	M 5	11,0	1,0	3,0	2,5	0,8
34160.W0254	34160.W0654	Thermo Pad	M 5	13,0	1,0	3,0	2,5	1,0
34160.W0255	34160.W0655	Thermo Pad	M 5	17,0	1,0	3,0	2,5	1,2
34160.W0256	34160.W0656	Thermo Pad	M 5	21,0	1,0	3,0	2,5	2,0
34160.W0257	-	Thermo Pad	M 5	26,0	1,0	3,0	2,5	2,6
34160.W0262	34160.W0662	Thermo Pad	M 6	11,3	1,3	3,5	3,0	1,2
34160.W0263	34160.W0663	Thermo Pad	M 6	13,3	1,3	3,5	3,0	1,5
34160.W0264	34160.W0664	Thermo Pad	M 6	17,3	1,3	3,5	3,0	2,2
34160.W0265	34160.W0665	Thermo Pad	M 6	21,3	1,3	3,5	3,0	2,8
34160.W0266	34160.W0666	Thermo Pad	M 6	26,3	1,3	3,5	3,0	3,8
34160.W0267	34160.W0667	Thermo Pad	M 6	33,3	1,3	3,5	3,0	4,9
34160.W0268	-	Thermo Pad	M 6	41,3	1,3	3,5	3,0	6,3
34160.W0270	-	Thermo Pad	M 6	51,3	1,3	3,5	3,0	7,9
34160.W0282	34160.W0682	Thermo Pad	M 8	13,6	1,6	5,0	4,0	2,6
34160.W0283	34160.W0683	Thermo Pad	M 8	17,6	1,6	5,0	4,0	3,6
34160.W0284	34160.W0684	Thermo Pad	M 8	21,6	1,6	5,0	4,0	5,0
34160.W0285	34160.W0685	Thermo Pad	M 8	26,6	1,6	5,0	4,0	6,4
34160.W0286	34160.W0686	Thermo Pad	M 8	33,6	1,6	5,0	4,0	8,5
34160.W0287	34160.W0687	Thermo Pad	M 8	41,6	1,6	5,0	4,0	11,0
34160.W0288	-	Thermo Pad	M 8	51,6	1,6	5,0	4,0	14,0
34160.W0290	-	Thermo Pad	M 8	64,6	1,6	5,0	4,0	18,0
34160.W0302	34160.W0702	Thermo Pad	M10	17,9	1,9	6,5	5,0	5,2
34160.W0303	34160.W0703	Thermo Pad	M10	21,9	1,9	6,5	5,0	7,1
34160.W0304	34160.W0704	Thermo Pad	M10	26,9	1,9	6,5	5,0	9,9
34160.W0305	34160.W0705	Thermo Pad	M10	33,9	1,9	6,5	5,0	13,0
34160.W0306	34160.W0706	Thermo Pad	M10	41,9	1,9	6,5	5,0	17,0
34160.W0307	34160.W0707	Thermo Pad	M10	51,9	1,9	6,5	5,0	22,0
34160.W0308	-	Thermo Pad	M10	64,9	1,9	6,5	5,0	28,0
34160.W0310	-	Thermo Pad	M10	81,9	1,9	6,5	5,0	36,0
34160.W0322	34160.W0722	Thermo Pad	M12	22,1	2,1	8,0	6,0	9,0
34160.W0323	34160.W0723	Thermo Pad	M12	27,1	2,1	8,0	6,0	10,0
34160.W0324	34160.W0724	Thermo Pad	M12	34,1	2,1	8,0	6,0	19,0

Material

Steel type-
Screw: heat treated steel, 1200 +/-100 N/mm².
Pad: thermoplastic POM, white.

Stainless steel type-
Screw: stainless steel 1.4305 (AISI 303).
Pad: thermoplastic POM, white.

Technical Notes

Thermoplastic bolt pressed in. For gentle clamping or pressing of thread spindles, axles, shafts and surface treated parts.

Thrust Screws - Plastic Pad

stainless steel

Order No. Steel	Order No. Stainless	Type	d_1	l_1 ~	l_2 ~	d_2	a/f	g
34160.W0325	34160.W0725	Thermo Pad	M12	42,1	2,1	8,0	6,0	24,0
34160.W0326	34160.W0726	Thermo Pad	M12	52,1	2,1	8,0	6,0	31,0
34160.W0327	34160.W0727	Thermo Pad	M12	65,1	2,1	8,0	6,0	40,0
34160.W0330	-	Thermo Pad	M12	82,1	2,1	8,0	6,0	51,0
34160.W0332	-	Thermo Pad	M12	102,1	2,1	8,0	6,0	66,0

Material

Steel type-
Screw: heat treated steel, 1200 +/-100 N/mm².
Pad: thermoplastic POM, white.
Stainless steel type-
Screw: stainless steel 1.4305 (AISI 303).
Pad: thermoplastic POM, white.

Technical Notes

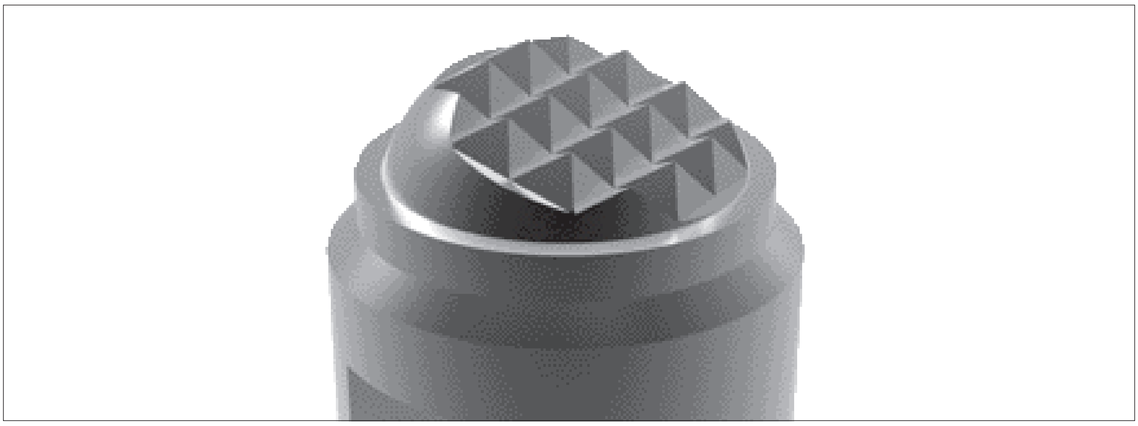
Thermoplastic bolt pressed in. For gentle clamping or pressing of thread spindles, axles, shafts and surface treated parts.

STAINLESS STEEL 303

34000 -34160

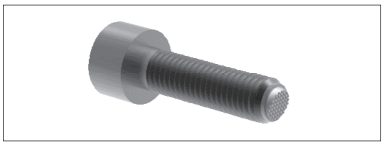
Wixroyd Self Aligning Pads & Thrust Screws

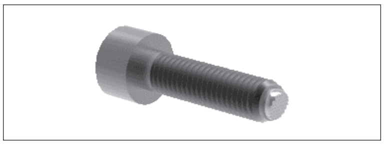
Clamping, supporting and aligning of non-parallel and uneven surfaces is greatly simplified with the use of Wixroyd self aligning pads and thrust screws. Available with ridged faces for improved holding of cast components, or plastic faces for holding of more delicate parts.

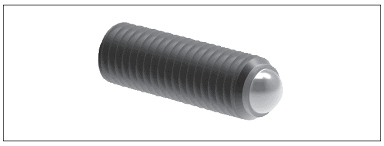


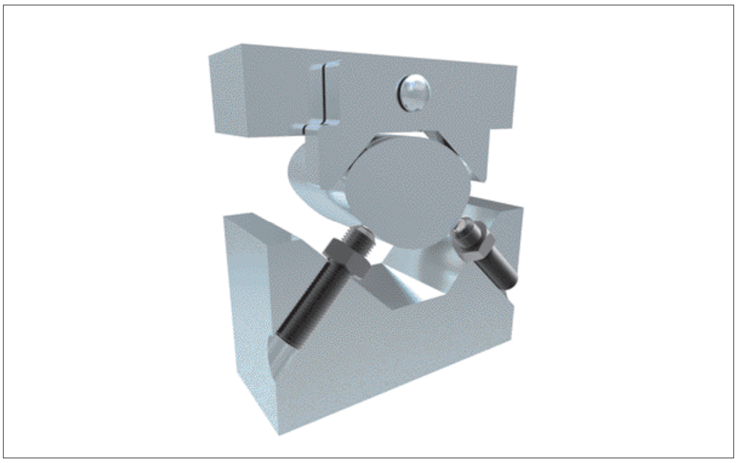
Self aligning thrust screws

34000 to 34060 - Self aligning thrust screws M6 to M24, ideal for clamping or supporting non-parallel surfaces.



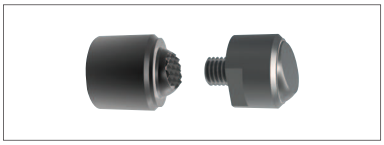


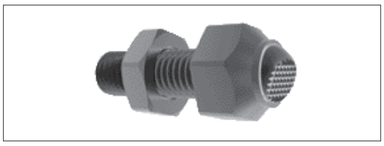


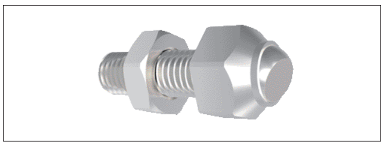


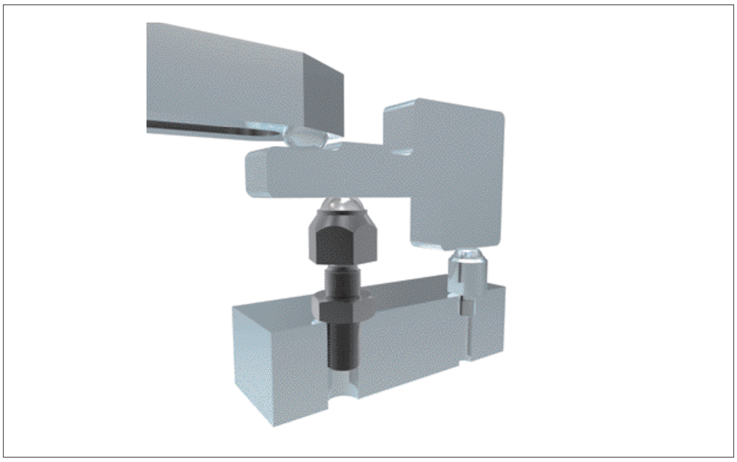
Self aligning pads

34080 to 34121 - Self aligning pads, both male and female mounting, ideal for taking-up part variation in fixtures.



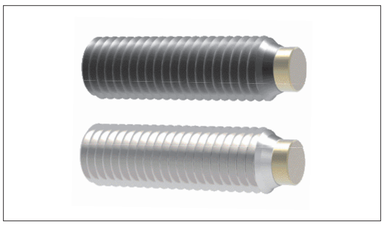


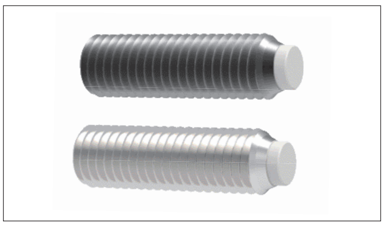


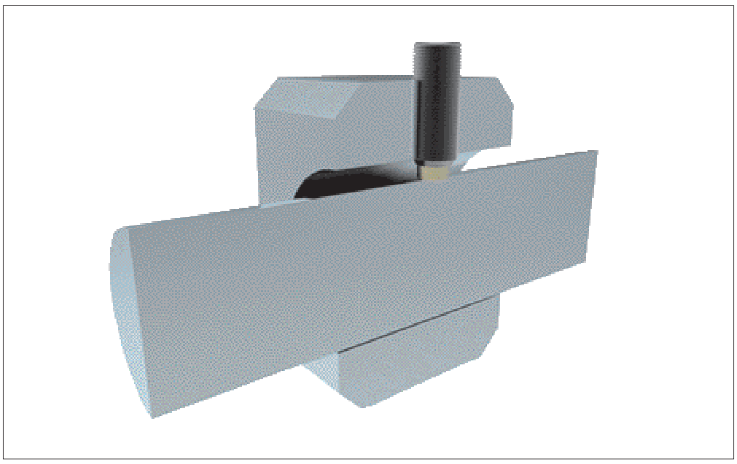


Thrust screws

34140 to 34160 - Thrust screws, with either brass or thermoplastic pads are suitable for gentle clamping and positioning of more delicate parts.

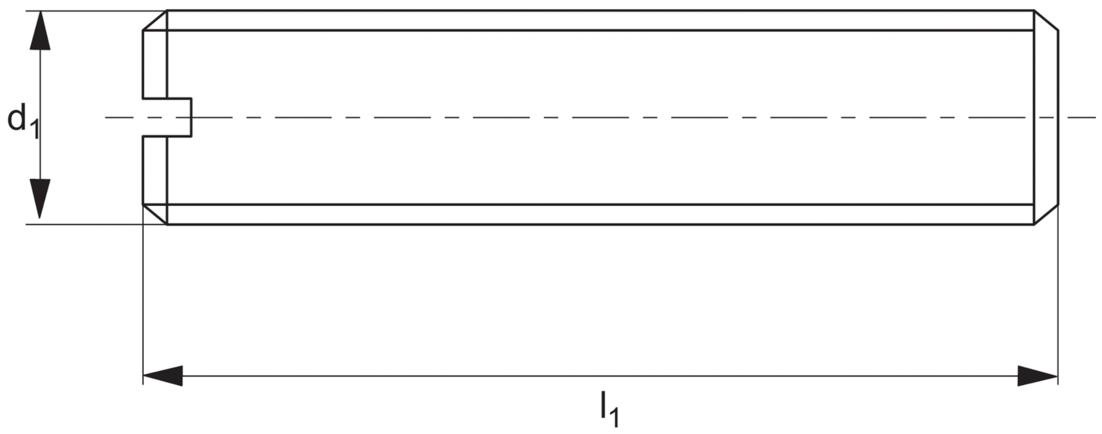






Grub Screws Threaded Rods
with slot end

34300



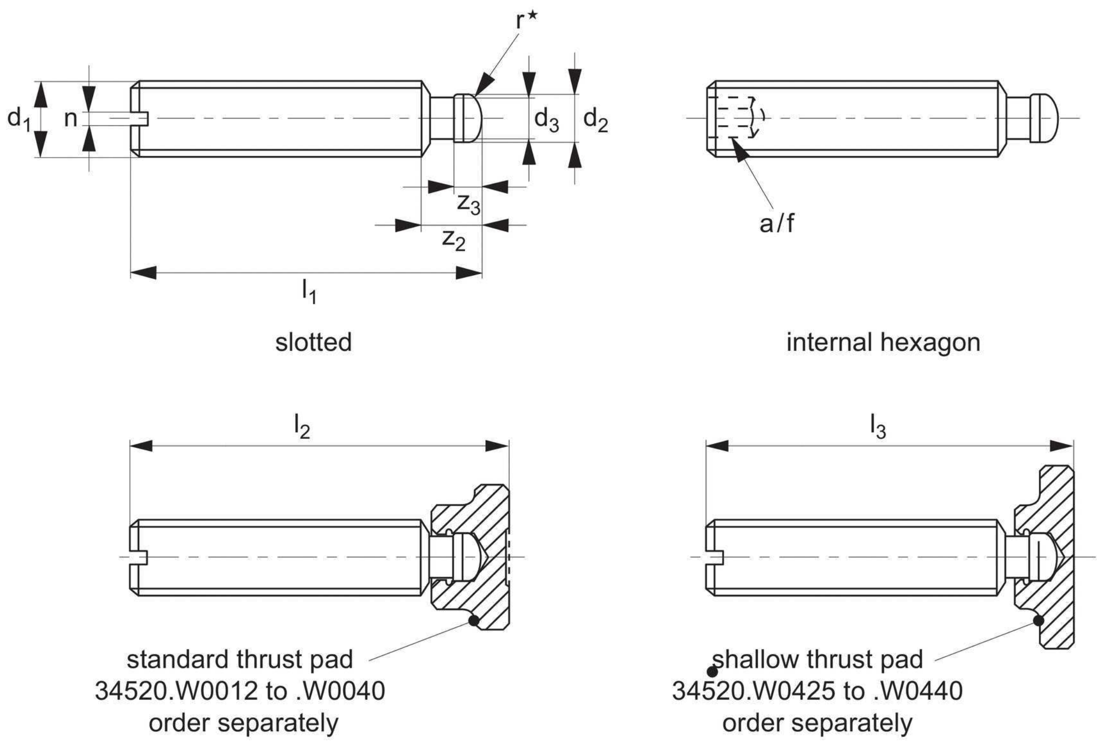
Material
Body: steel to tensile strength 500 N/mm², blackened.

Order No.	d_1	l_1
34300.W0060	M 6	20
34300.W0063	M 6	35
34300.W0064	M 6	40
34300.W0065	M 6	45
34300.W0066	M 6	50
34300.W0088	M 8	70
34300.W0089	M 8	80
34300.W0100	M10	25
34300.W0105	M10	50
34300.W0106	M10	55
34300.W0109	M10	80
34300.W0120	M12	30
34300.W0122	M12	40
34300.W0123	M12	45
34300.W0124	M12	50
34300.W0125	M12	55
34300.W0126	M12	60
34300.W0128	M12	80
34300.W0129	M12	100
34300.W0160	M16	30
34300.W0164	M16	50
34300.W0167	M16	70

Grub Screws

with slot or hex end, and thrust point - form S - DIN 6332

34500



Material

Body: steel to quality 5.8, thrust point hardened, blackened.

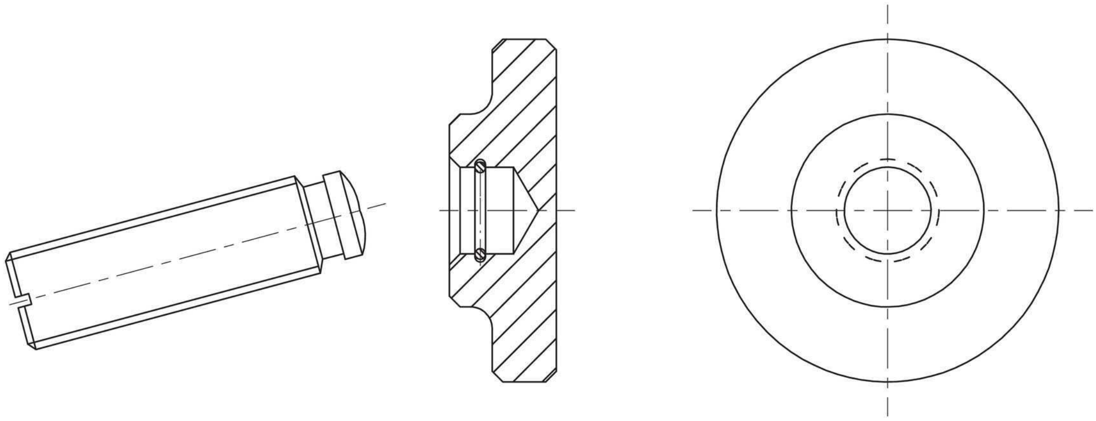
Technical Notes

The grub screws can be used with thrust pads no. 34520 standard or shallow type.
To ease assembly, DIN specification has been amended by addition of radius r*.

Order No.	Type	d_1	l_1	d_2 h11	d_3	z_2	z_3	l_2 ≈	l_3 ≈	n	a/f	g
34500.W0061	Slotted	M 6	30	4,5	4,0	6,0	2,5	32,1	-	1,0	-	4,5
34500.W0062	Slotted	M 6	50	4,5	4,0	6,0	2,5	52,1	-	1,0	-	7,8
34500.W0081	Slotted	M 8	40	6,0	5,4	7,5	3,0	43,0	42,5	1,2	-	11,0
34500.W0082	Slotted	M 8	60	6,0	5,4	7,5	3,0	63,0	62,5	1,2	-	17,0
34500.W0101	Slotted	M10	60	8,0	7,2	9,0	4,5	63,6	62,6	1,6	-	27,0
34500.W0102	Slotted	M10	80	8,0	7,2	9,0	4,5	83,6	82,6	1,6	-	37,0
34500.W0121	Slotted	M12	60	8,0	7,2	10,0	4,5	64,6	62,6	2,0	-	38,0
34500.W0122	Slotted	M12	80	8,0	7,2	10,0	4,5	84,6	82,6	2,0	-	51,0
34500.W0123	Slotted	M12	100	8,0	7,2	10,0	4,5	104,6	102,6	2,0	-	65,0
34500.W0161	Slotted	M16	80	12,0	11,0	12,0	5,0	85,4	82,9	2,5	-	100,0
34500.W0162	Slotted	M16	100	12,0	11,0	12,0	5,0	105,4	102,9	2,5	-	126,0
34500.W0163	Slotted	M16	125	12,0	11,0	12,0	5,0	130,4	127,9	2,5	-	160,0
34500.W0201	Slotted	M20	100	15,5	14,4	14,0	5,5	105,5	-	3,0	-	190,0
34500.W0202	Slotted	M20	125	15,5	14,4	14,0	5,5	130,5	-	3,0	-	240,0
34500.W0203	Slotted	M20	150	15,5	14,4	14,0	5,5	155,5	-	3,0	-	290,0
34500.W0361	Internal Hexagon	M 6	30	4,5	4,0	6,0	2,5	32,1	-	-	3	4,3
34500.W0362	Internal Hexagon	M 6	50	4,5	4,0	6,0	2,5	52,1	-	-	3	7,6
34500.W0381	Internal Hexagon	M 8	40	6,0	5,4	7,5	3,0	43,0	42,5	-	4	11,0
34500.W0382	Internal Hexagon	M 8	60	6,0	5,4	7,5	3,0	63,0	62,5	-	4	17,0
34500.W0401	Internal Hexagon	M10	60	8,0	7,2	9,0	4,5	63,6	62,6	-	5	26,0
34500.W0402	Internal Hexagon	M10	80	8,0	7,2	9,0	4,5	83,6	82,6	-	5	36,0
34500.W0421	Internal Hexagon	M12	60	8,0	7,2	10,0	4,5	64,6	62,6	-	6	36,0
34500.W0422	Internal Hexagon	M12	80	8,0	7,2	10,0	4,5	84,6	82,6	-	6	57,0
34500.W0423	Internal Hexagon	M12	100	8,0	7,2	10,0	4,5	104,6	102,6	-	6	64,0
34500.W0461	Internal Hexagon	M16	80	12,0	11,0	12,0	5,0	85,4	82,9	-	8	91,0
34500.W0462	Internal Hexagon	M16	100	12,0	11,0	12,0	5,0	105,4	102,9	-	8	118,0
34500.W0463	Internal Hexagon	M16	125	12,0	11,0	12,0	5,0	130,4	127,9	-	8	150,0
34500.W0501	Internal Hexagon	M20	100	15,5	14,4	14,0	5,5	105,5	-	-	10	182,0
34500.W0502	Internal Hexagon	M20	125	15,5	14,4	14,0	5,5	130,5	-	-	10	233,0
34500.W0503	Internal Hexagon	M20	150	15,5	14,4	14,0	5,5	155,5	-	-	10	284,0

Grub Screws

with slot or hex end, and thrust point - form S - DIN 6332



Material

Body: steel to quality 5.8, thrust point hardened, blackened.

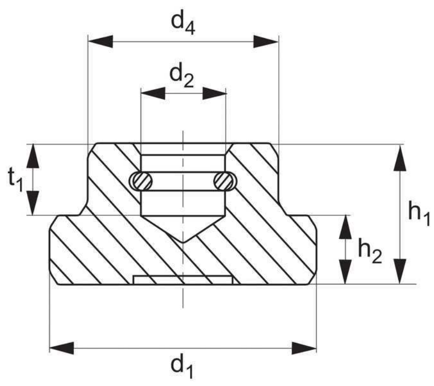
Technical Notes

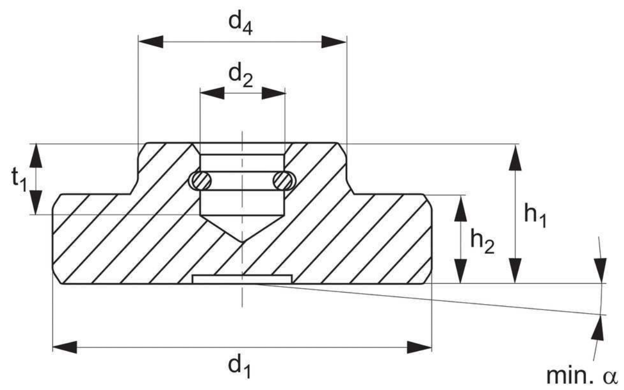
The grub screws can be used with thrust pads no. 34520 standard or shallow type.
To ease assembly, DIN specification has been amended by addition of radius r*.

Thrust Pads

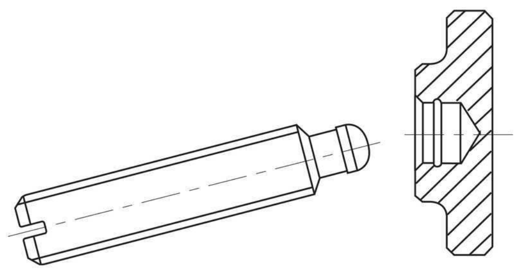
DIN 6311

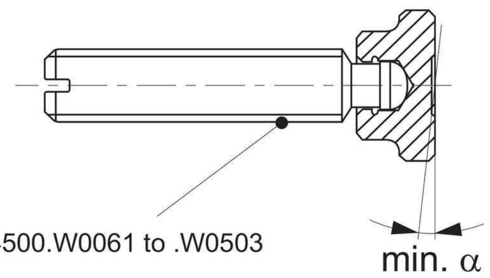
34520





Order No.	Type	d_1	d_2 H12	d_4	h_1	h_2	t_1	For grub screws 34500	min α°	g
34520.W0012	Standard	12	4,6	10	7	2,5	4,0	M 6	7	4,3
34520.W0016	Standard	16	6,1	12	9	4,0	5,0	M 8	4	9,4
34520.W0020	Standard	20	8,1	15	11	5,0	6,0	M10	3	18,0
34520.W0025	Standard	25	8,1	18	13	6,0	7,0	M12	3	30,0
34520.W0032	Standard	32	12,1	22	15	7,0	7,5	M16	5	59,0
34520.W0040	Standard	40	15,6	28	16	9,0	8,0	M20	4	106,0
34520.W0425	Shallow	25	6,1	12	8	4,0	4,5	M 8	4	18,0
34520.W0432	Shallow	32	8,1	18	10	6,0	6,0	M10/M12	3	43,0
34520.W0440	Shallow	40	12,1	22	12	7,0	7,0	M16	5	75,0





Material

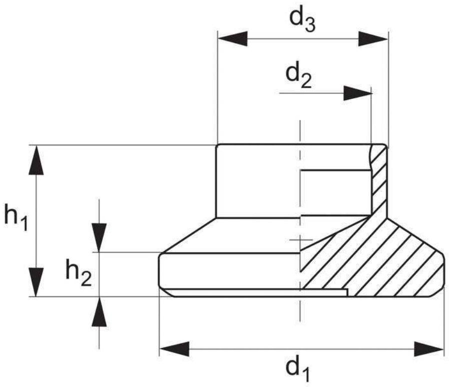
Case-hardened steel, spring retainer inserted.

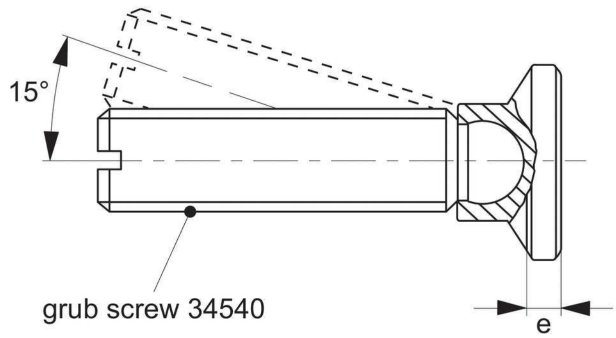
Technical Notes

For use with grub screws part no. 34500.

Thrust Pads
plastic

34530



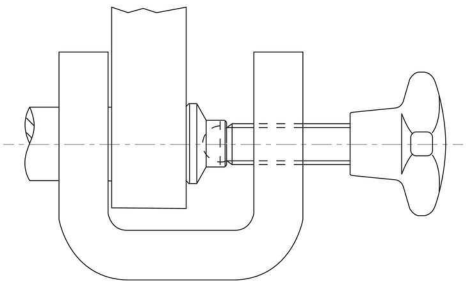


Material
Thermoplastic (POM) black, matte.

Technical Notes
Can be used with grub screw no. 34540.

POM

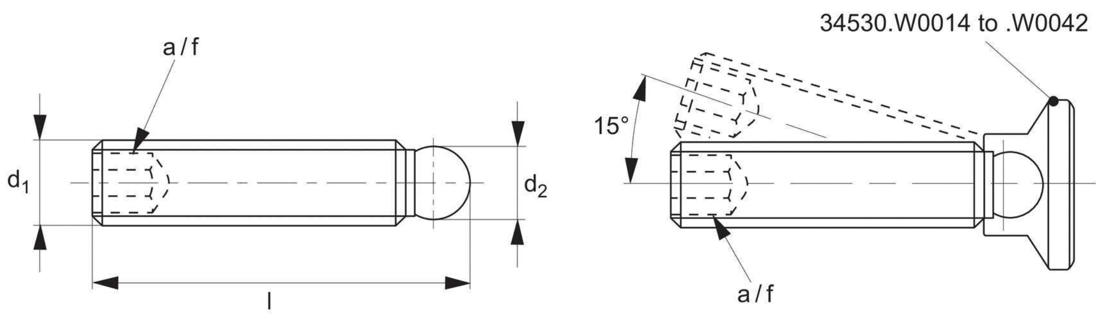
Order No.	d_1	d_2	d_3	e ≈	h_1	h_2	Load capacity for static load Max. kN.	For grub screws 34540	g
34530.W0014	15	4,5	8,6	3,6	7,6	2,5	3,5	M 6	1,0
34530.W0015	15	6,1	8,6	2,5	7,6	2,5	3,5	M 8	1,0
34530.W0017	18	6,1	10,8	4,2	9,2	2,5	3,5	M 8	1,8
34530.W0018	18	7,8	10,8	3,4	9,2	2,5	3,5	M10	2,0
34530.W0019	21	6,1	12,8	5,0	10,0	3,0	3,5	M 8	3,0
34530.W0020	21	7,8	12,8	4,3	10,0	3,0	3,5	M10	2,6
34530.W0021	21	9,4	12,8	3,4	10,0	3,0	3,5	M12	3,0
34530.W0023	25	6,1	13,0	5,5	10,5	3,0	3,5	M 8	4,0
34530.W0024	25	7,8	13,0	4,6	10,5	3,0	3,5	M10	3,6
34530.W0025	25	9,4	13,0	3,6	10,5	3,0	3,5	M12	3,4
34530.W0032	32	6,1	14,0	6,0	11,0	3,0	3,5	M 8	5,0
34530.W0033	32	7,8	14,0	5,0	11,0	3,0	3,5	M10	5,0
34530.W0034	32	9,4	14,0	4,2	11,0	3,0	3,5	M12	5,0
34530.W0040	40	6,1	16,0	8,0	13,0	4,0	3,5	M 8	11,0
34530.W0041	40	7,8	16,0	7,0	13,0	4,0	3,5	M10	10,0
34530.W0042	40	9,4	16,0	6,2	13,0	4,0	3,5	M12	10,0



Grub Screws

with hex end and ball thrust point, stainless steel

34540



Order No. Steel	Order No. Stainless	d_1	l	d_2 +0,05	a/f	g
34540.W0210	34540.W0710	M 6	30	4,47	3	5,1
34540.W0214	34540.W0714	M 6	40	4,47	3	5,9
34540.W0218	34540.W0718	M 6	50	4,47	3	7,6
34540.W0219	34540.W0719	M 8	25	6,10	4	5,8
34540.W0220	34540.W0720	M 8	40	6,10	4	11,0
34540.W0224	34540.W0724	M 8	50	6,10	4	14,0
34540.W0228	34540.W0728	M 8	63	6,10	4	18,0
34540.W0248	34540.W0748	M10	40	7,80	5	16,0
34540.W0250	34540.W0750	M10	50	7,80	5	21,0
34540.W0254	34540.W0754	M10	63	7,80	5	27,0
34540.W0258	34540.W0758	M10	80	7,80	5	36,0
34540.W0316	34540.W0816	M12	40	9,40	6	23,0
34540.W0320	34540.W0820	M12	63	9,40	6	39,0
34540.W0324	34540.W0824	M12	80	9,40	6	51,0
34540.W0328	34540.W0828	M12	100	9,40	6	65,0

Material

Steel type:
free cutting steel, quality 5.8, blackened.

Stainless steel type:
stainless steel1.4305 (AISI 303).

Technical Notes

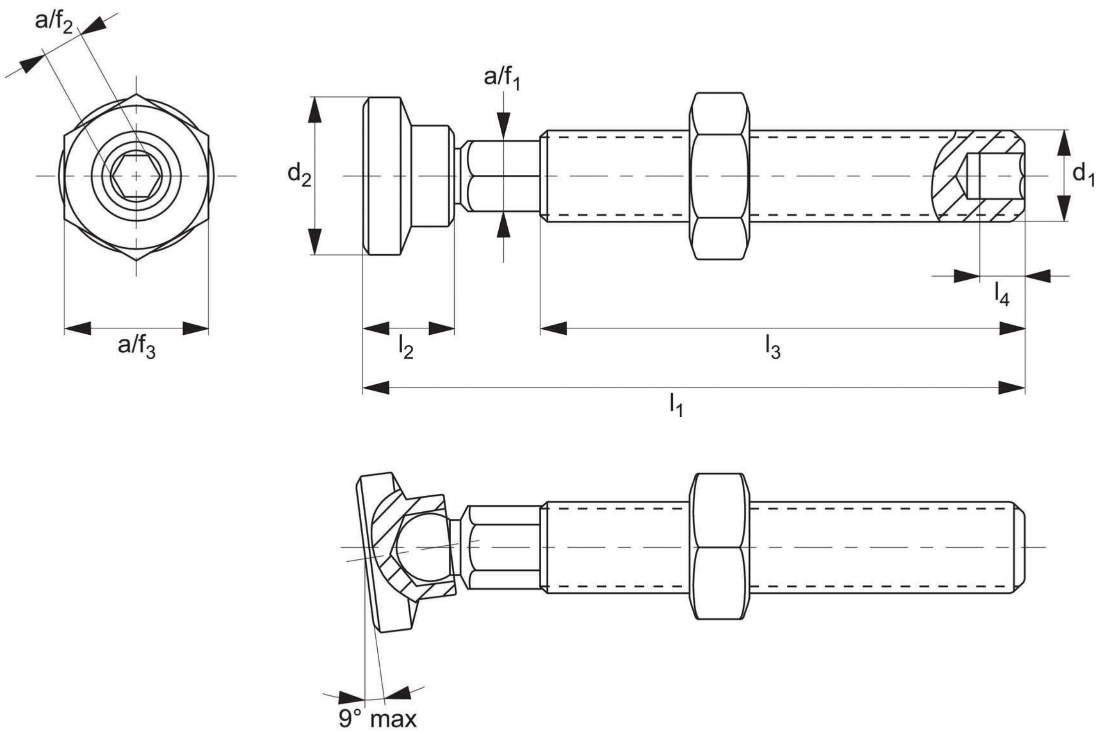
Can be used with thrust pads no. 34530.

STAINLESS STEEL 303

Thrust Pads - Self Levelling

plastic

34544



Order No.	d_1	l_1	d_2	l_2	l_3	l_4	A/F_1	A/F_2	A/F_3	g
34544.W0005	M 5	37,0	8,5	5,0	27,0	2,5	4,0	2,5	8	6
34544.W0006	M 6	44,0	8,5	5,0	31,5	3,0	4,5	3,0	10	9
34544.W0008	M 8	63,3	12,5	8,7	49,0	4,0	6,0	4,0	13	25
34544.W0010	M10	73,3	12,5	8,7	68,9	5,0	8,0	5,0	17	48
34544.W0012	M12	84,4	16,8	12,0	64,3	6,0	9,0	6,0	19	74
34544.W0016	M16	84,4	16,8	12,0	64,0	8,0	11,0	8,0	24	125

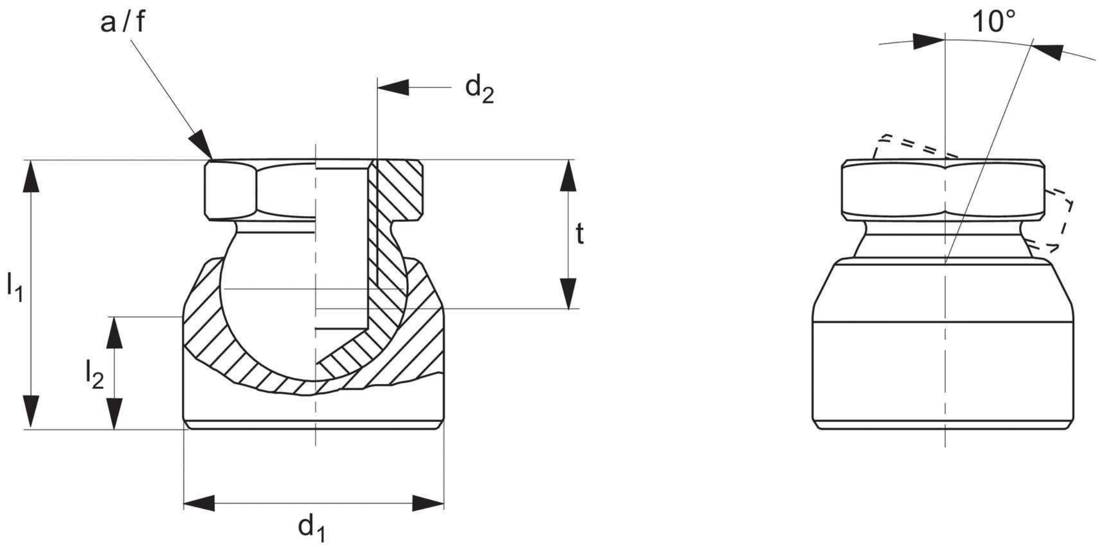
Material

Ball: stainless steel 1.4305
Nut: stainless steel A2
Pad: Plastic (PEEK), blue

Tips

For use on high quality surfaces, design is suitable for non-parallel surfaces.

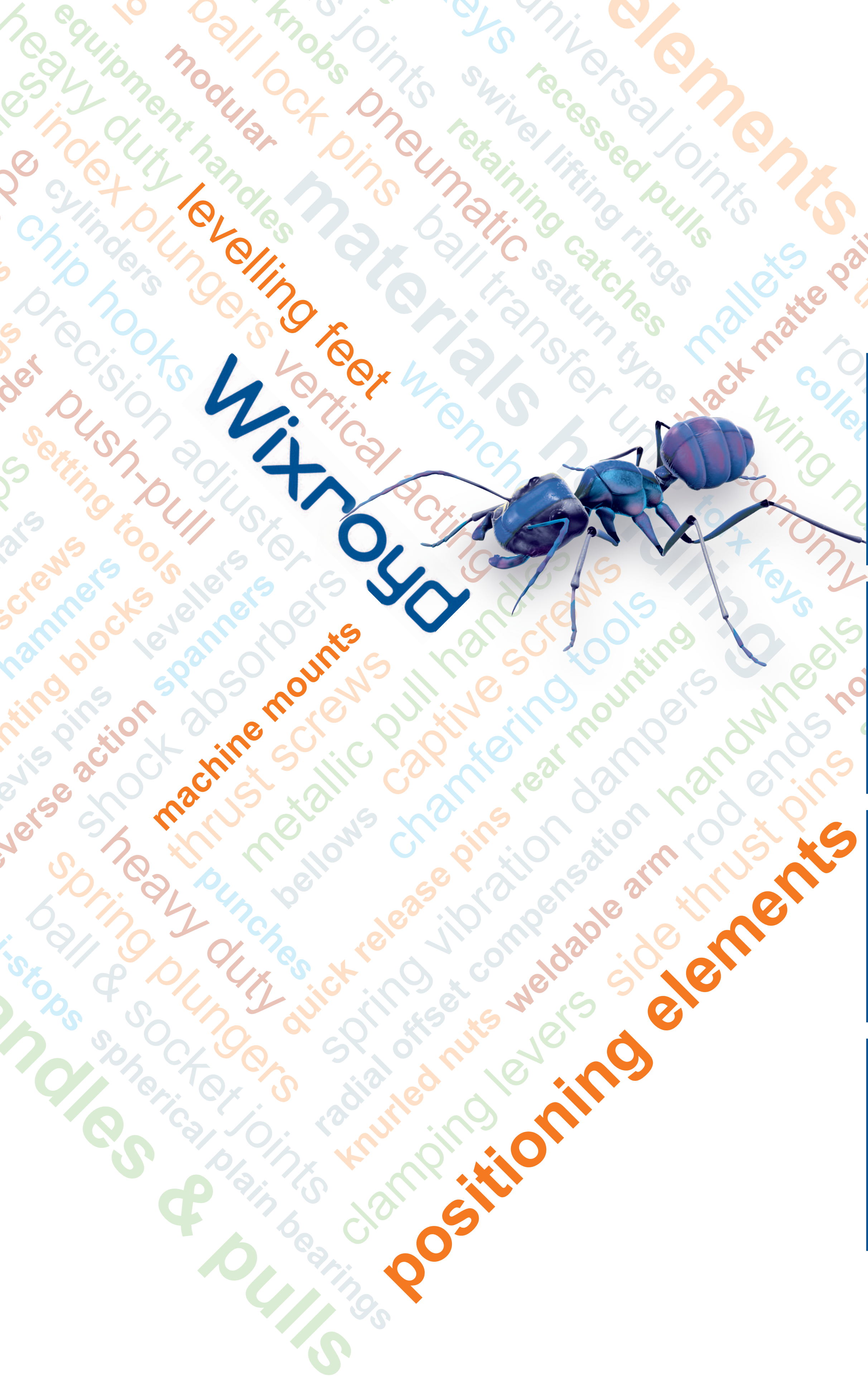
Thrust Pad - Self-levelling

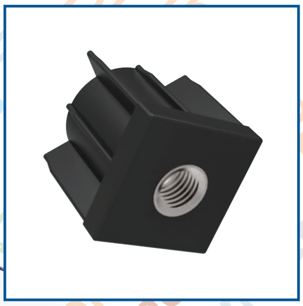


Order No.	d_1	d_2	l_1 ≈	l_2	t min.	a/f	Static load N
34600.W0016	16	M 8	19	7	9	12	5000
34600.W0020	20	M10	22	8	11	15	7500
34600.W0024	24	M12	25	10	12	17	10000
34600.W0030	30	M16	34	13	16	24	15000

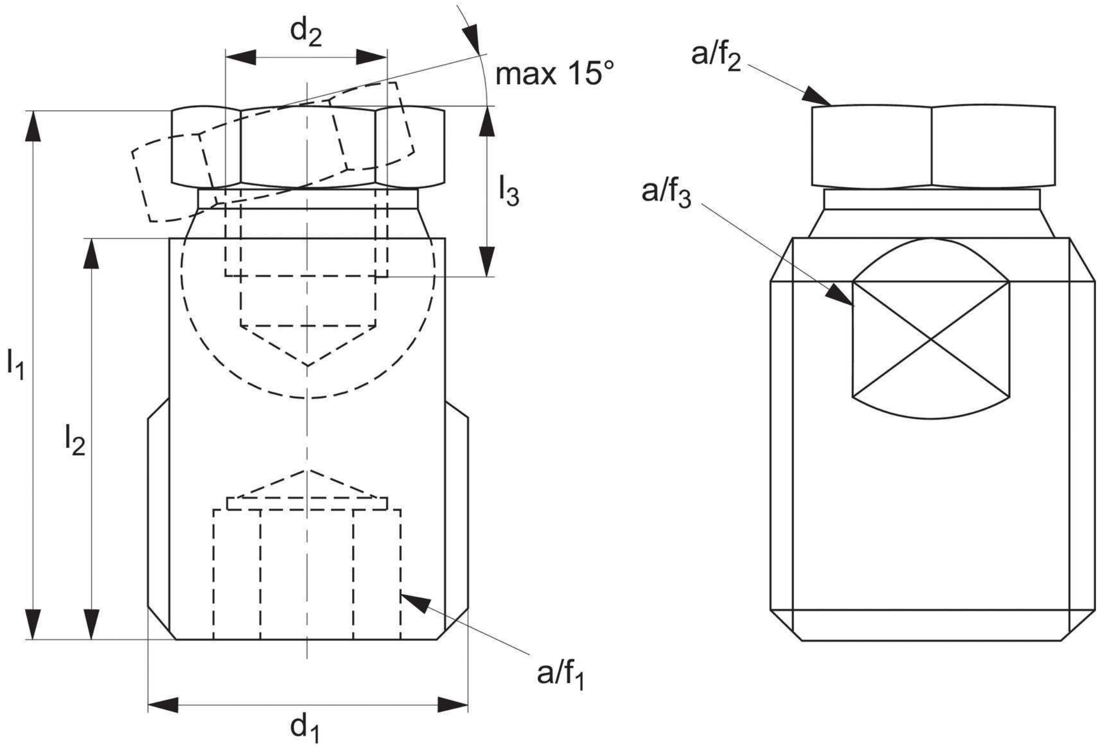
Material
Steel, tensile strength 500N/mm^2, zinc plated, blue passivated.

Important Notes
Pad swivels 10° from vertical in all directions.





Levelling Feet & Machine Mounts



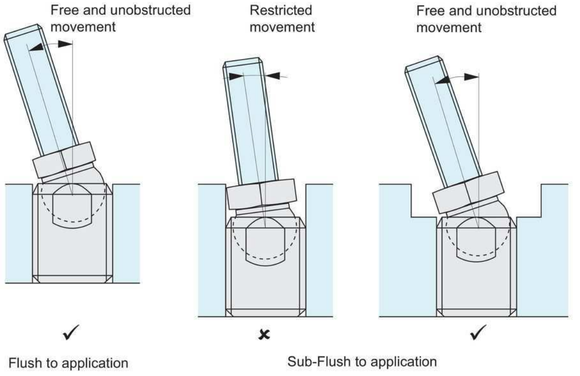
Order No.	Finish	d_1	d_2	l_1 ±0,5	l_2	l_3 min.	a/f_1	a/f_2	a/f_3	Max. static load kN	g
34602.W0006	Steel	M12	M 6	21,2	16	5,0	6	9	10	10	11
34602.W0008	Steel	M16	M 8	26,5	20	7,0	8	12	14	18	24
34602.W0010	Steel	M24	M10	39,9	30	9,0	12	19	20	35	87
34602.W0012	Steel	M24	M12	39,9	30	9,0	12	19	20	35	82
34602.W0016	Steel	M30x2	M16	47,4	36	13,5	12	24	27	45	165
34602.W0206	Stainless	M12	M 6	21,2	16	5,0	6	9	10	8	11
34602.W0208	Stainless	M16	M 8	26,5	20	7,0	8	12	14	14	24
34602.W0210	Stainless	M24	M10	39,9	30	9,0	12	19	20	28	87
34602.W0212	Stainless	M24	M12	39,9	30	9,0	12	19	20	28	82
34602.W0216	Stainless	M30x2	M16	47,4	36	13,5	12	24	27	36	165

Material

steel type:
Body: heat treated steel, tempered, blackened.
Ball: free cutting steel, induction hardened.
Stainless steel type: Body and ball: stainless steel 1.4305 (AISI 1303)

Technical Notes

Can be used as foot or thrust pad.
Compact design for simple levelling by means of the spanner flat at the bushing or preferably by means of a hexagon socket.
Should only be used for static loads



Caution:
When installing our Compact Levelling Fulcrum Screw sub-flush to an application surface, please ensure an appropriate counterbore around the head of the fulcrum foot to enable free and unobstructed movement of the levelling - an insufficient counterbore will result in a clash between surfaces and restrict the angle of movement.

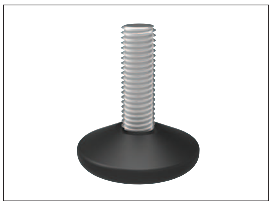
A Range of features to suit your application

Product selection

To ensure you select the most suitable levelling feet for your application consider the following questions:

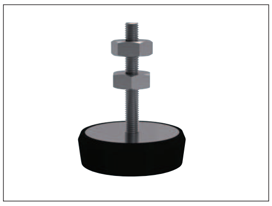
- Tilting or fixed?
- Material required - steel, stainless or plastic?
- Load carrying capacity - light, medium or heavy duty?
  (Review the quoted load capacities in the individual product tables).
- Bolt down feature required?
- Threaded or plastic insert required for mounting?
- Optional extras: hygiene seal, rubber pad, (subject to minimum quantity and selected model).

Key Types



Fixed feet

Articulating levelling feet



Machine mounts

Fulcrum screw

Available features

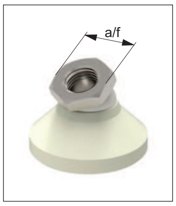
Articulation

Standard nylon base

Anti-slip base

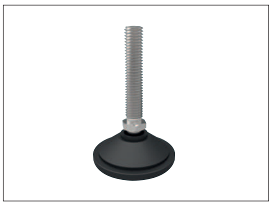
Bolt down base

Hygienic seal



Hex for easy installation

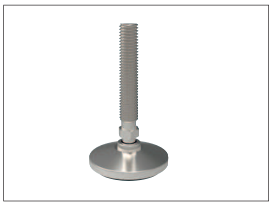
Materials



Steel thread - Nylon base

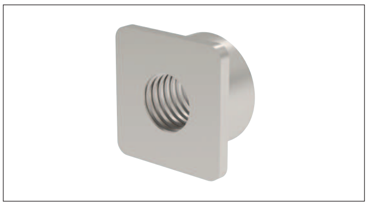
Stainless thread - Nylon base

Steel thread - Steel base



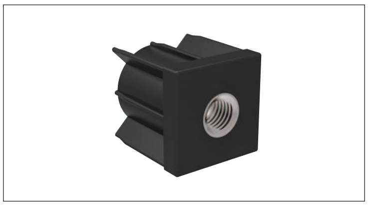
Stainless thread - Stainless base

Mounting inserts



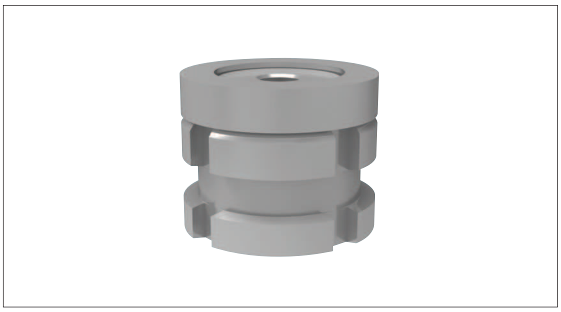
Weldable insert

Hollow section insert



Hollow section bushed insert

Additional technical information



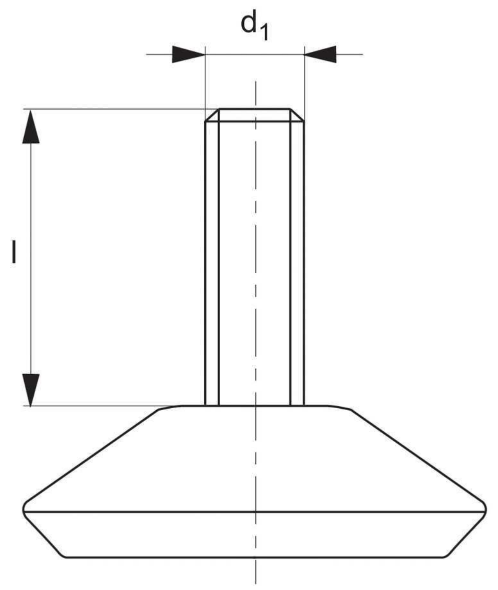
For applications under greater loads and requiring increased precision of adjustment see our range of Precision Height Adjusters.

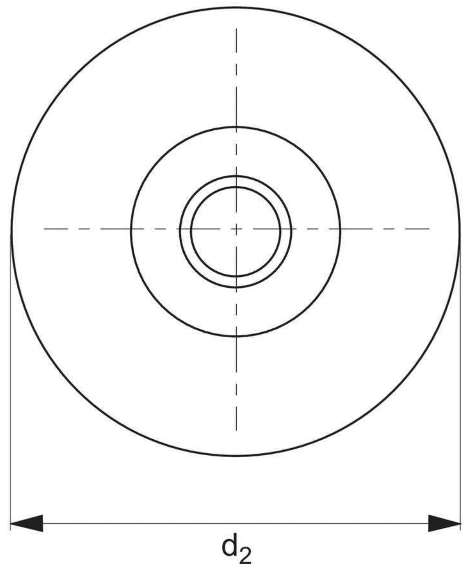
For applications exposed to extreme vibrations see our range of Anti-Vibration Mounts.

Fixed Feet

non-tilt

34610





Material
Thread: steel, zinc plated.
Pad: thermoplastic, black.

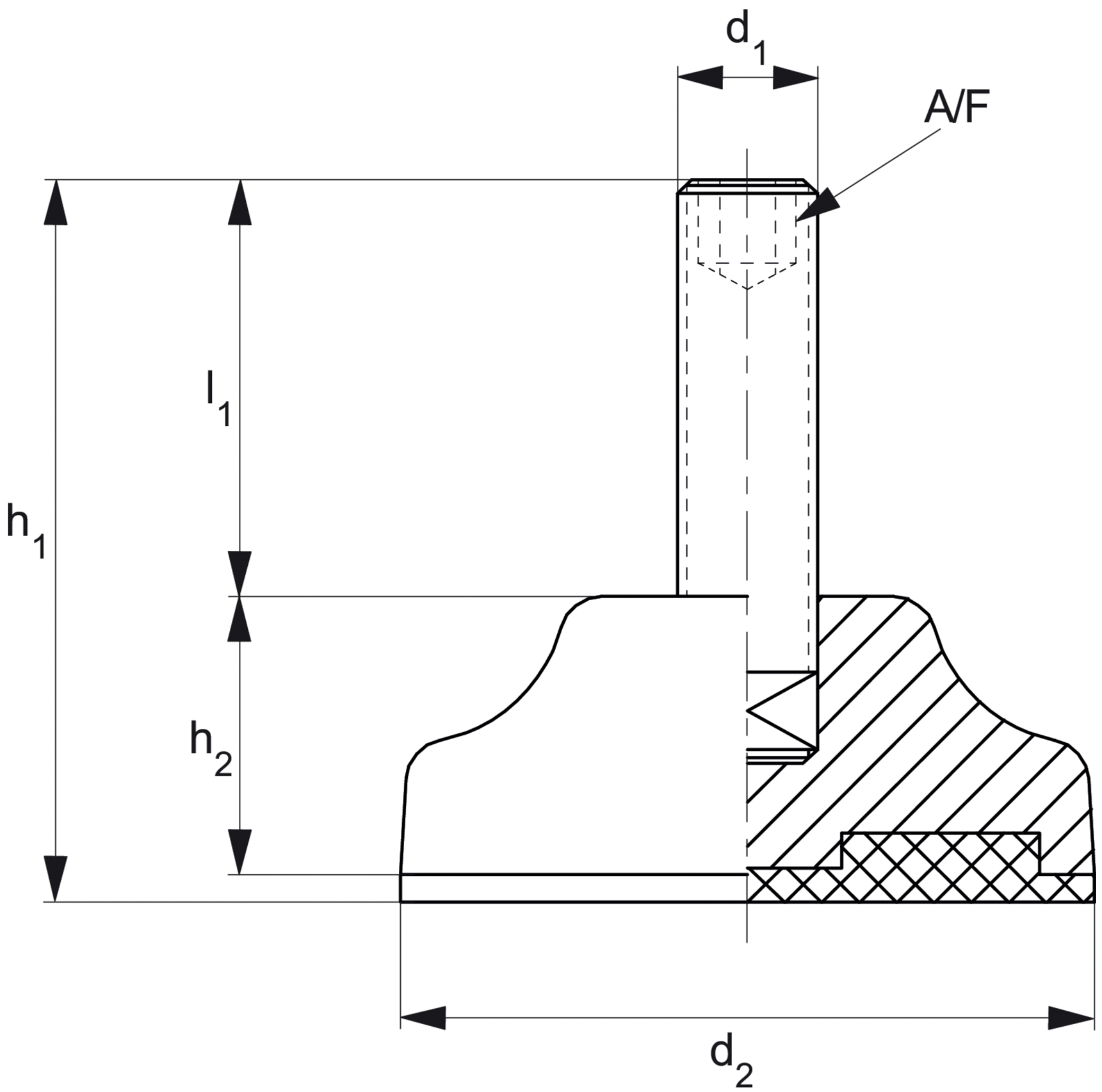
TP

Order No.	d_1	d_2	l
34610.W0030	M 8	30	27
34610.W0032	M 8	30	32
34610.W0041	M 8	40	22
34610.W0042	M 8	40	32
34610.W0044	M10	40	27
34610.W0046	M10	40	32
34610.W0056	M10	50	32
34610.W0066	M10	60	32
34610.W0067	M10	60	45

Fixed Feet

steel with hex socket

34611



Material

Pad: polyamide reinforced by fibre glass with anti-slip pad.
Bolt: steel (C40)

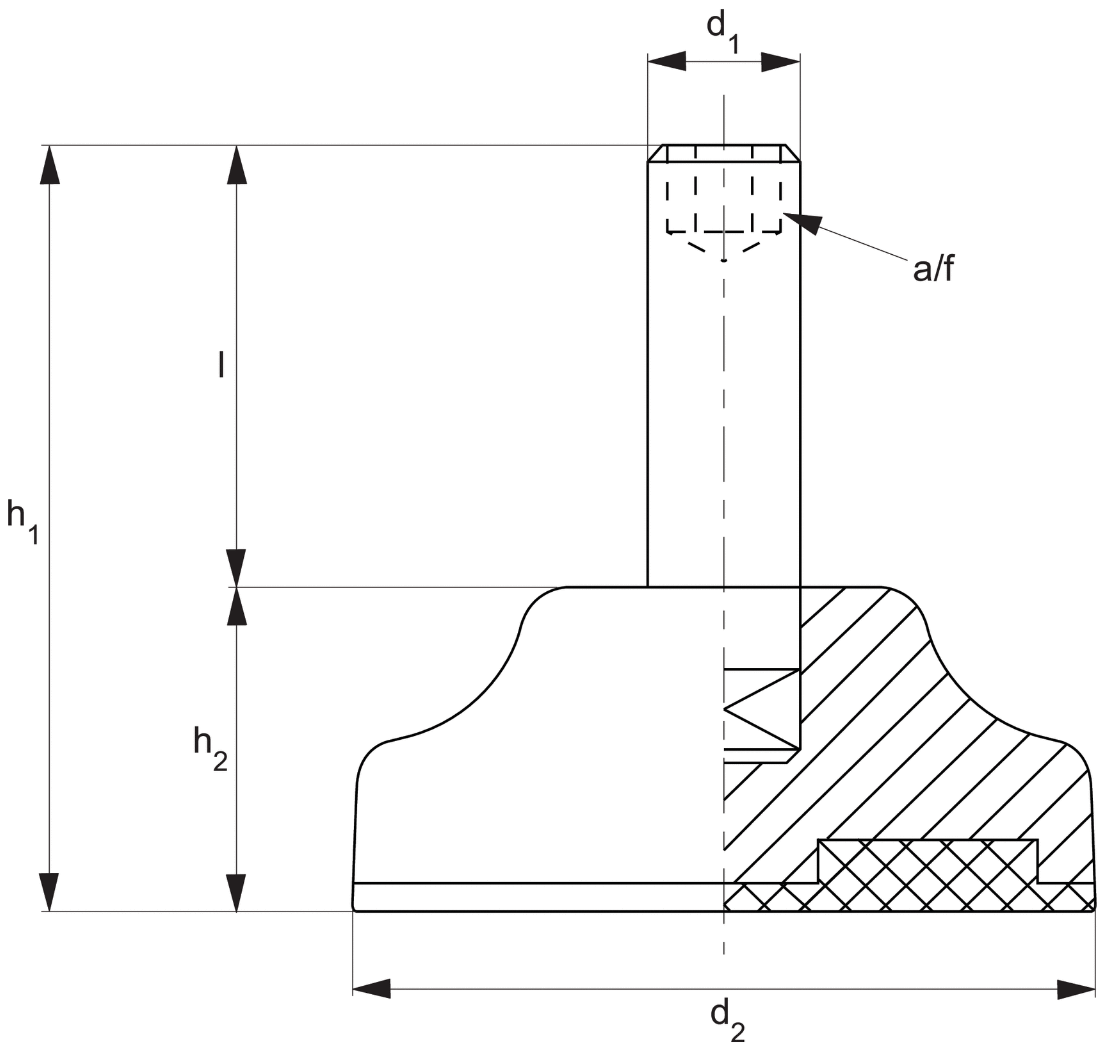
Technical Notes

Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.

Order No.	d_1	d_2	l	h_1	h_2	A/F	Max. load kN
34611.W0800	M 8	40	25	44	19	4	5
34611.W0801	M 8	40	50	69	19	4	5
34611.W0802	M 8	50	25	48	23	4	6
34611.W0803	M 8	50	50	73	23	4	6
34611.W1000	M10	40	25	44	19	5	5
34611.W1001	M10	40	50	69	19	5	5
34611.W1002	M10	50	25	48	23	5	6
34611.W1003	M10	50	50	73	23	5	6

Fixed Feet
stainless with hex socket

34612



Order No.	d_1	d_2	l	h_1	h_2	a/f	Max. load kN
34612.W0800	M 8	40	25	44	19	4	5
34612.W0801	M 8	40	50	69	19	4	5
34612.W0802	M 8	50	25	48	23	4	6
34612.W0803	M 8	50	50	73	23	4	6
34612.W1000	M10	40	25	44	19	5	5
34612.W1001	M10	40	50	69	19	5	5
34612.W1002	M10	50	25	48	23	5	6
34612.W1003	M10	50	50	73	23	5	6

Material
Pad: polyamide reinforced by fibre glass with anti-slip pad.
Bolt: stainless steel AISI 304.

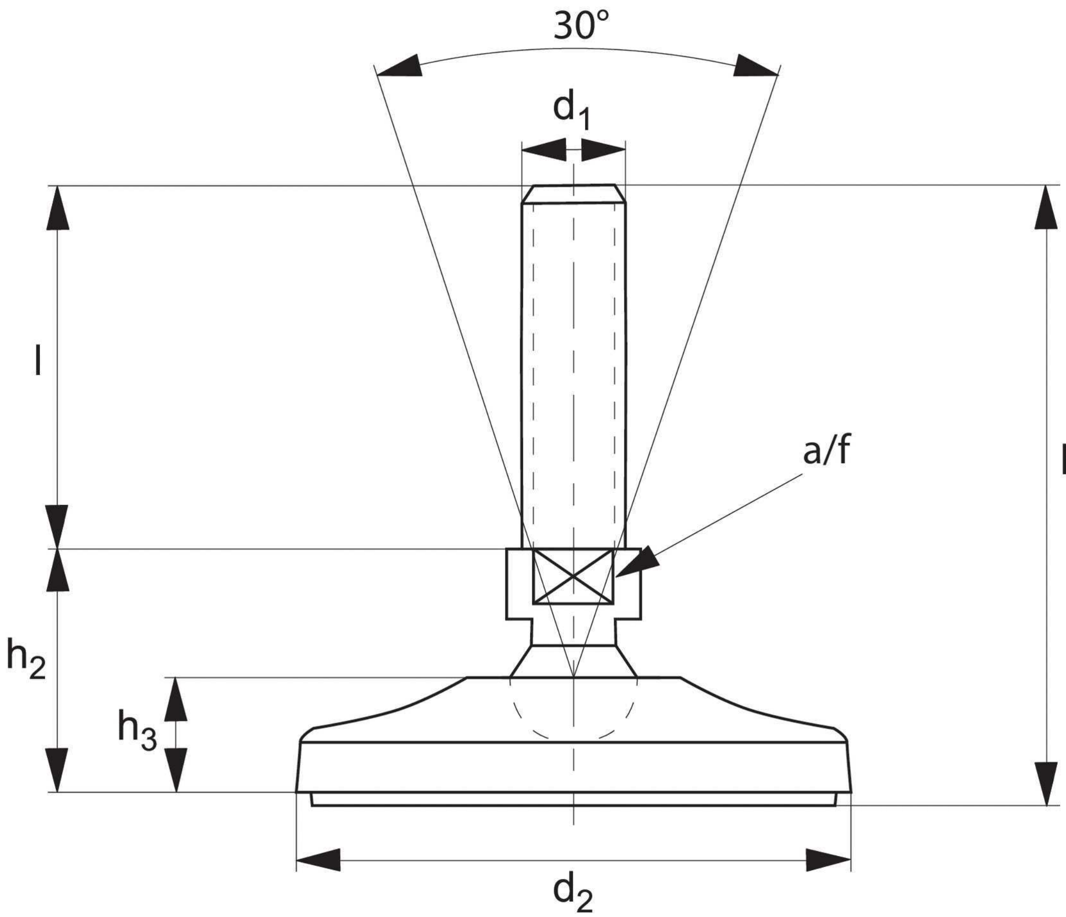
Technical Notes
Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.

STAINLESS STEEL 304

Mini Levelling Feet

stainless steel, articulated

34614



Order No.	d_1	d_2	l	h_1	h_2	h_3	a/f	Max. load kN
34614.W0800	M 8	40	25	53	25	14,5	12	10
34614.W0801	M 8	40	50	78	25	14,5	12	10
34614.W0802	M 8	40	75	103	25	14,5	12	10
34614.W0803	M 8	40	100	128	25	14,5	12	10

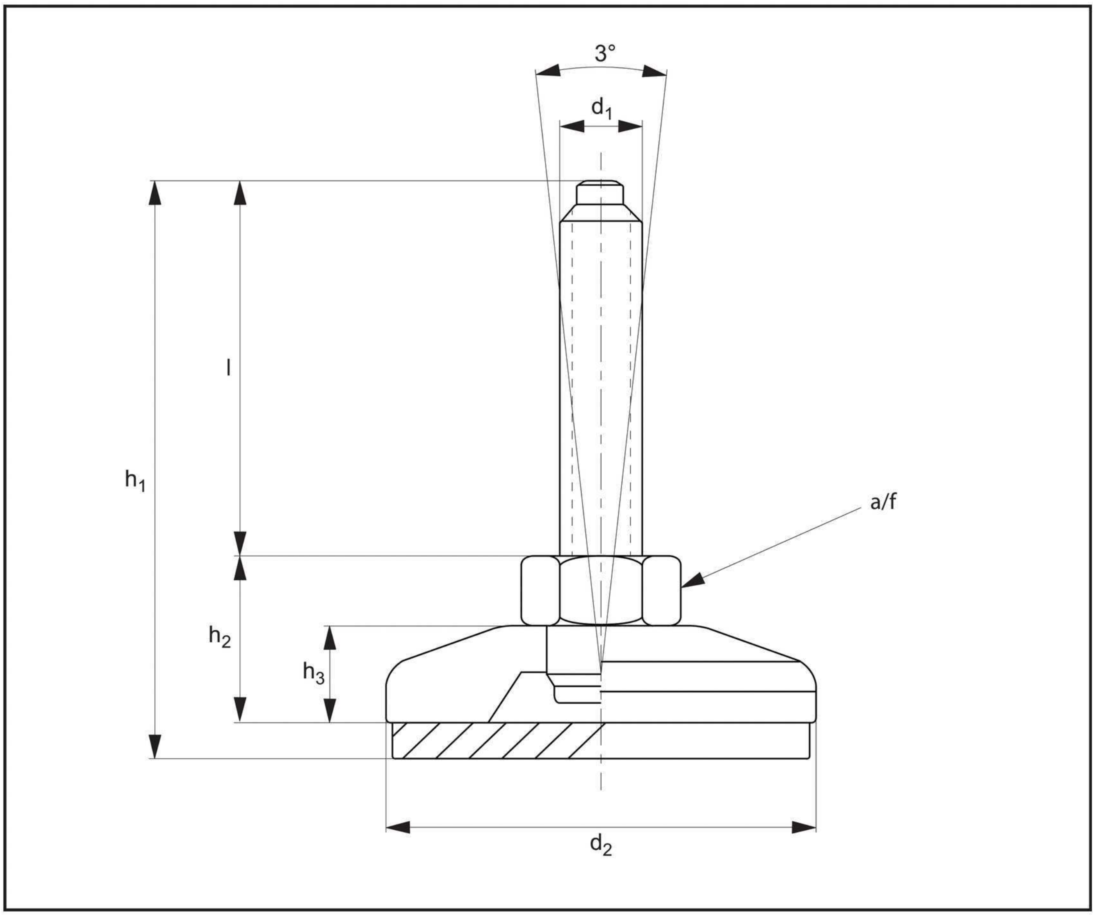
Material
Stainless steel (AISI 304), with rubber pad (70 Shore A).
Stainless steel (AISI 316) version available on request.

Technical Notes
Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.

Mini Levelling Feet

stainless steel, medium load

34615



Material
Stainless steel (AISI 304), with rubber pad (70 Shore A).
Stainless steel (AISI 316) version available on request.

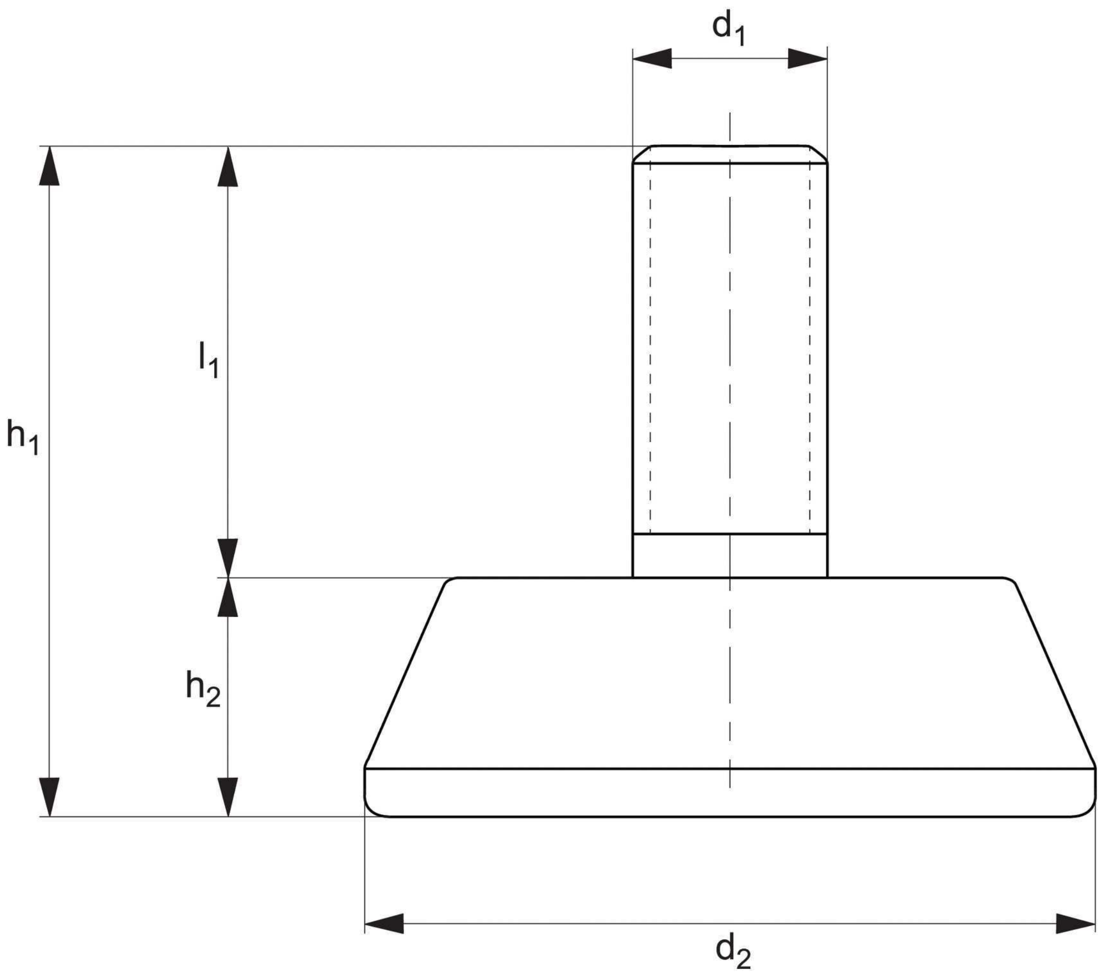
Technical Notes
Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.

Order No.	d_1	d_2	l	h_1	h_2	h_3	a/f	Max. load kN
34615.W0800	M 8	40	25	42	14	8	14	9
34615.W0801	M 8	40	50	67	14	8	14	9
34615.W1000	M10	40	25	42	14	8	14	9
34615.W1001	M10	40	50	67	14	8	14	9
34615.W1002	M10	40	75	92	14	8	14	9
34615.W1200	M12	40	50	67	14	8	14	9
34615.W1201	M12	40	100	117	14	8	14	9

Mini Levelling Feet

steel with plastic base

34616



Material
Galvanised steel stud with plastic base.

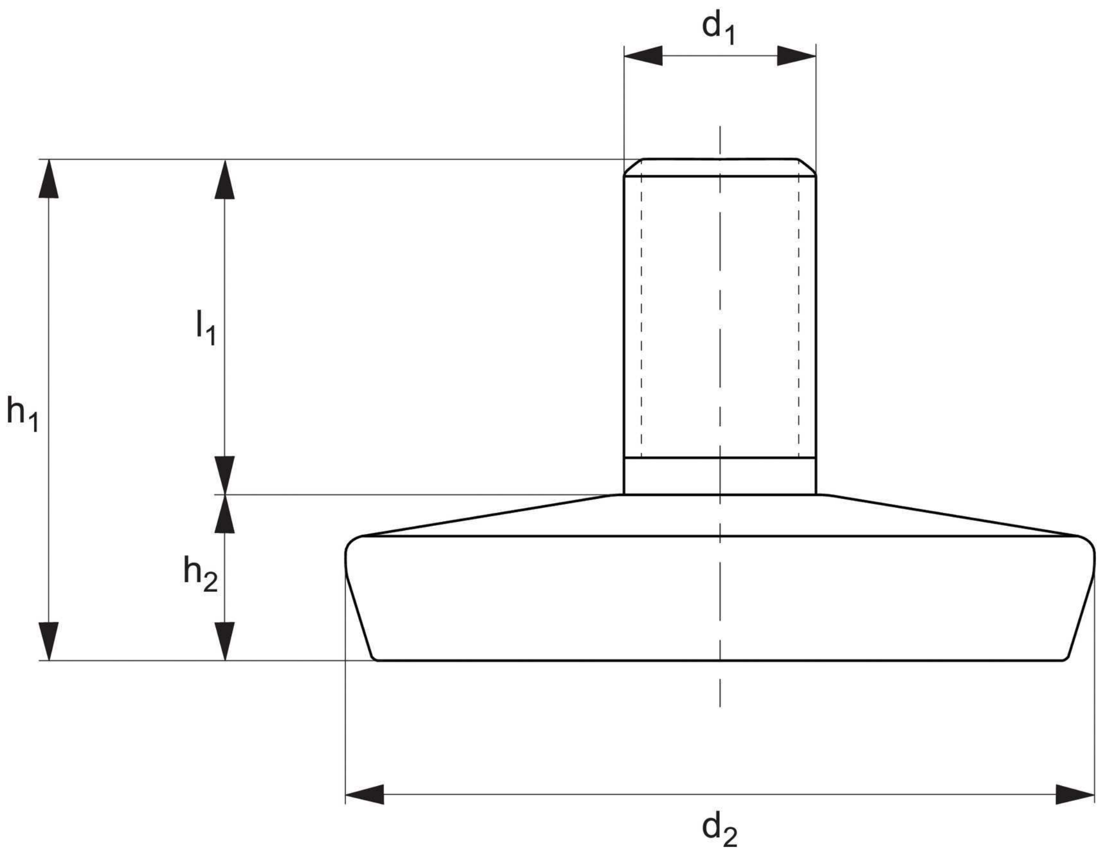
Technical Notes
Load values shown are for static loads calculated at the half of the screw length.
In the presence of vibrations or dynamic loads these values should be reduced.

Order no.	d_1	d_2	l_1	h_1	h_2	Static Load N
34616.W0800	M 8	30	20	31,5	11,5	2000
34616.W0801	M 8	40	25	39,5	14,5	2500
34616.W0802	M 8	40	25	41,0	16,0	1800
34616.W1000	M10	30	20	31,5	11,5	2000
34616.W1001	M10	40	25	39,5	14,5	2500
34616.W1002	M10	50	35	52,0	17,0	3500
34616.W1003	M10	40	25	41,0	16,0	2250
34616.W1200	M12	50	35	52,0	17,0	3500
34616.W1201	M12	60	35	52,0	17,0	4000
34616.W1202	M12	40	25	41,0	16,0	3150

Mini Levelling Feet

steel with plastic base

34618



Material

Galvanised steel stud with plastic base.

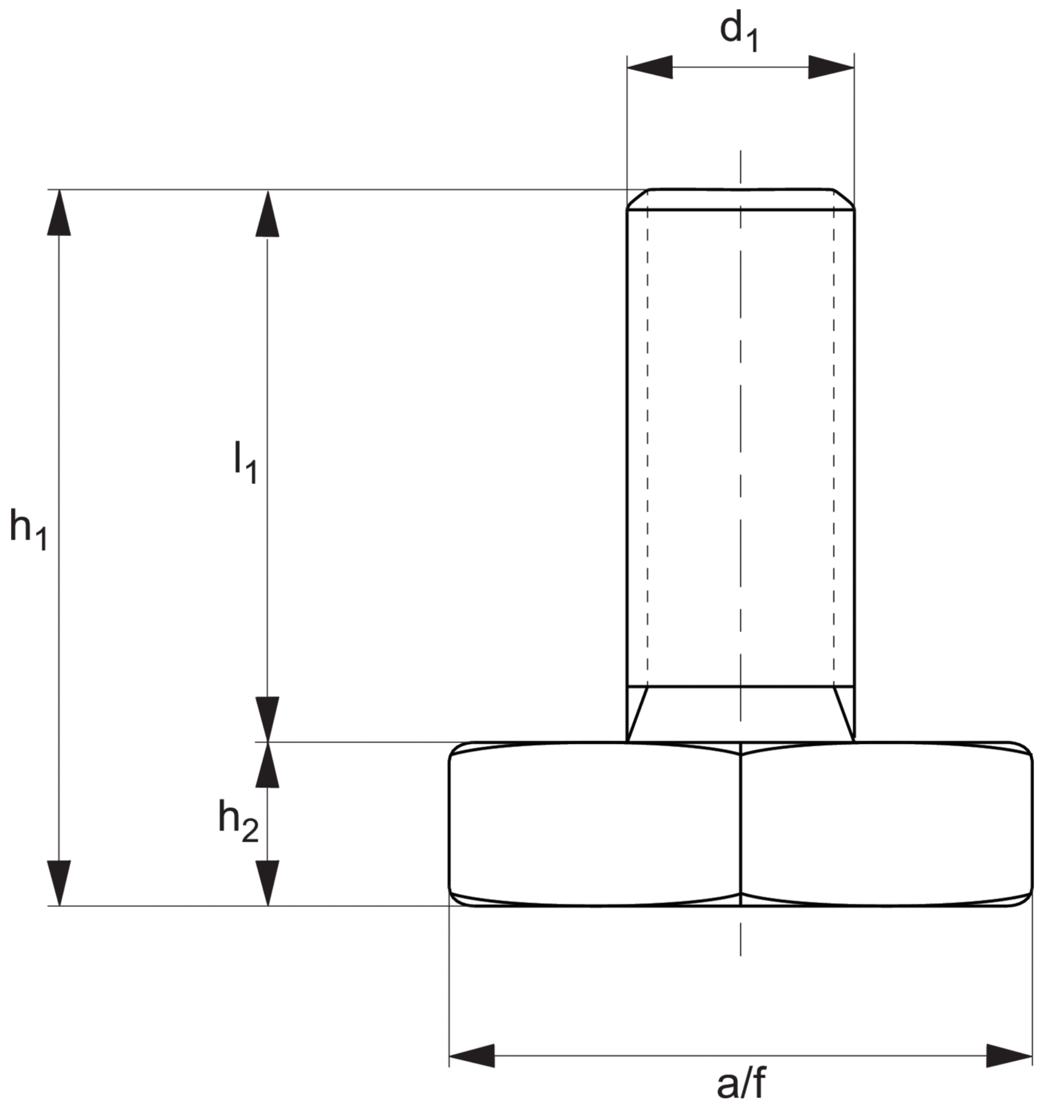
Technical Notes

Load values shown are for static loads calculated at the half of the screw length.
In the presence of vibrations or dynamic loads these values should be reduced.

Order no.	d_1	d_2	l_1	h_1	h_2	Static Load N
34618.W0800	M 8	40	20	30	10	3000
34618.W1000	M10	40	20	30	10	3000

Mini Levelling Feet

steel with hex. plastic base



Material

Galvanised steel stud with hexagon plastic base.

Technical Notes

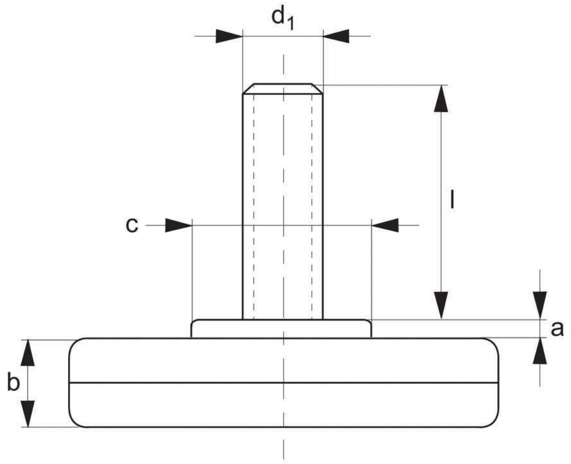
Load values shown are for static loads calculated at the half of the screw length.
In the presence of vibrations or dynamic loads these values should be reduced.

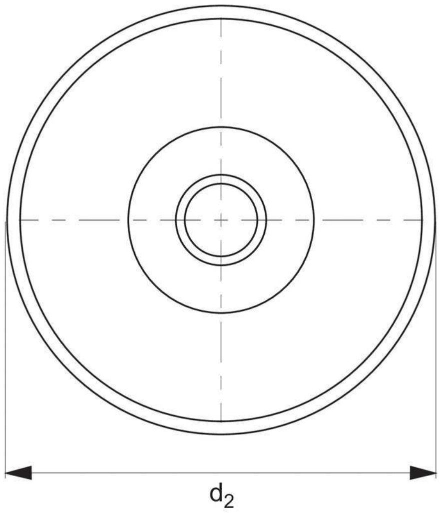
Order no.	d_1	a/f	l_1	h_1	h_2	Static Load N
34619.W0800	M 8	25	25	33	8	2500
34619.W0801	M 8	25	35	43	8	2500
34619.W1000	M10	25	25	33	8	2500
34619.W1001	M10	25	35	43	8	2500

Fixed Feet

non-tilt

34620





Material
Thread: steel, zinc plated.
Pad: thermoplastic, black.

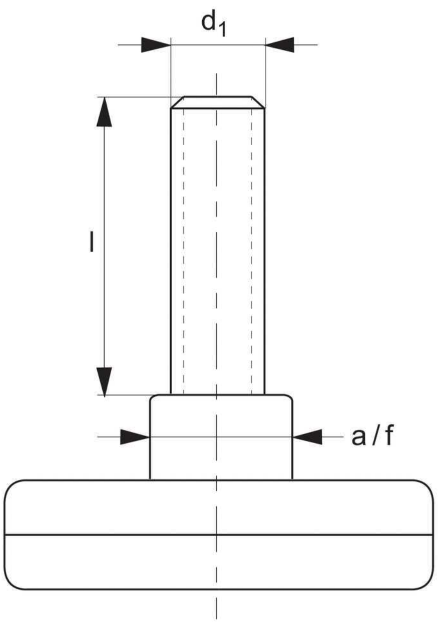
TP

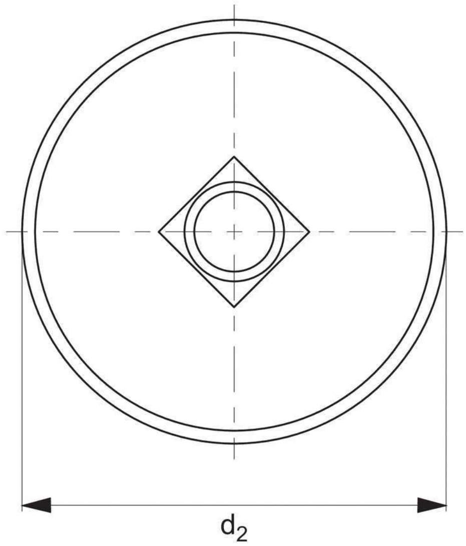
Order No.	d_1	d_2	l	c	b	a
34620.W0020	M 8	25	17	18	8	2
34620.W0021	M 8	25	22	18	8	2
34620.W0022	M 8	25	27	18	8	2
34620.W0031	M 8	30	27	18	8	2
34620.W0042	M 8	40	32	20	9	2
34620.W0045	M10	40	22	20	9	2
34620.W0046	M10	40	32	20	9	2
34620.W0055	M10	50	22	22	10	2
34620.W0056	M10	50	32	22	10	2
34620.W0065	M10	60	37	22	10	2
34620.W0066	M10	60	27	22	10	2
34620.W0084	M10	80	27	26	10	2
34620.W0085	M10	80	22	26	10	2
34620.W0086	M10	80	32	26	10	2
34620.W0087	M10	80	37	26	10	2

Fixed Feet

non-tilt

34630





Material
Thread: steel, zinc plated.
Pad: thermoplastic, black.

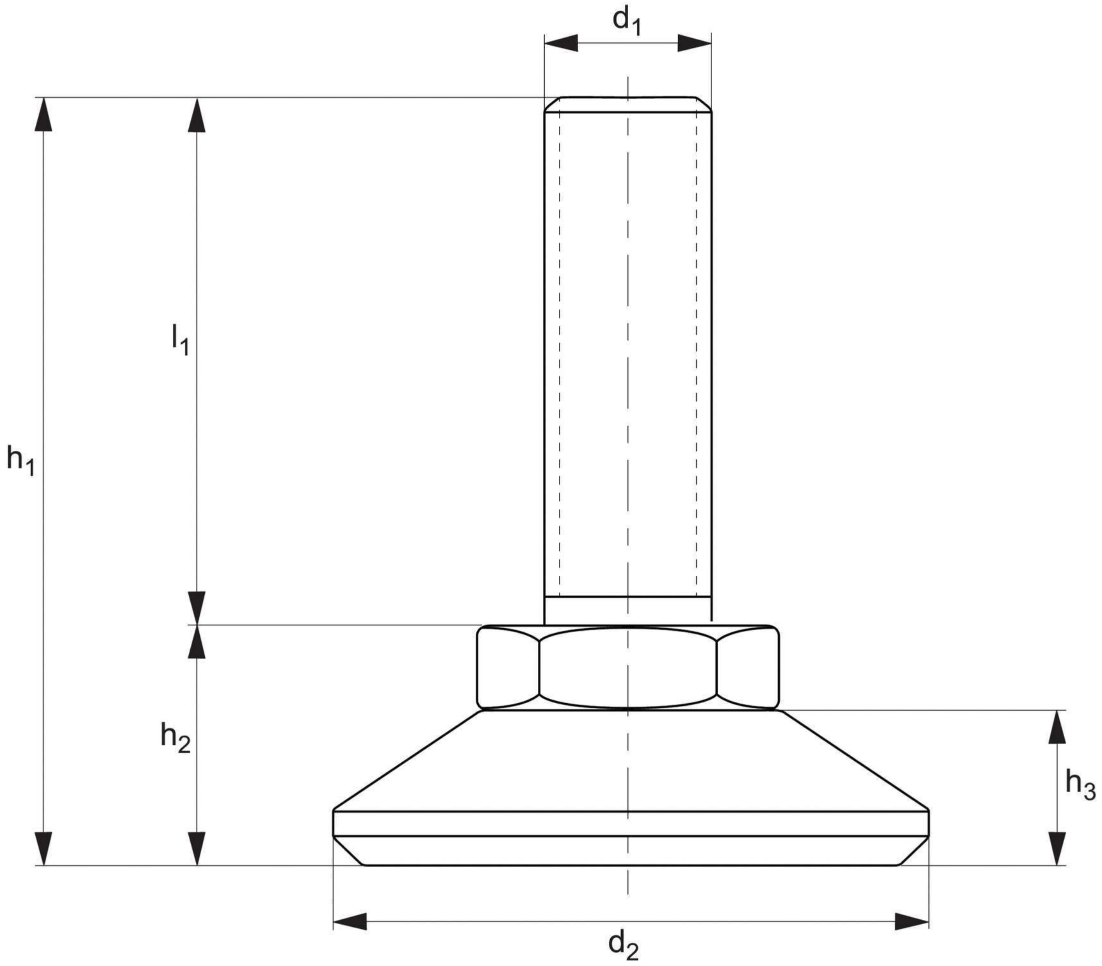
TP

Order No.	d_1	d_2	l	a/f
34630.W0011	M 8	19	22	14
34630.W0013	M 8	19	27	14
34630.W0036	M 8	30	22	17
34630.W0038	M10	30	27	17
34630.W0041	M 8	40	22	17
34630.W0042	M 8	40	32	17
34630.W0045	M10	40	22	17
34630.W0046	M10	40	32	17
34630.W0051	M 8	50	22	17
34630.W0054	M10	50	27	17
34630.W0056	M10	50	32	17
34630.W0062	M 8	60	32	17
34630.W0063	M 8	60	42	17
34630.W0066	M10	60	32	17
34630.W0067	M10	60	45	17

Mini Levelling Feet

steel with plastic base

34631



Order no.	d_1	d_2	l_1	h_1	h_2	h_3	Static Load N
34631.W1003	M10	40	40	58,0	18,0	11,5	3500
34631.W1004	M10	40	60	78,0	18,0	11,5	3500
34631.W1005	M10	50	40	60,0	20,0	13,5	4500
34631.W1006	M10	50	60	80,0	20,0	13,5	4500
34631.W1000	M10	26	10	26,5	16,5	11,5	1500
34631.W1001	M10	26	20	36,5	16,5	11,5	1500
34631.W1002	M10	26	30	46,5	16,5	11,5	1500

Material

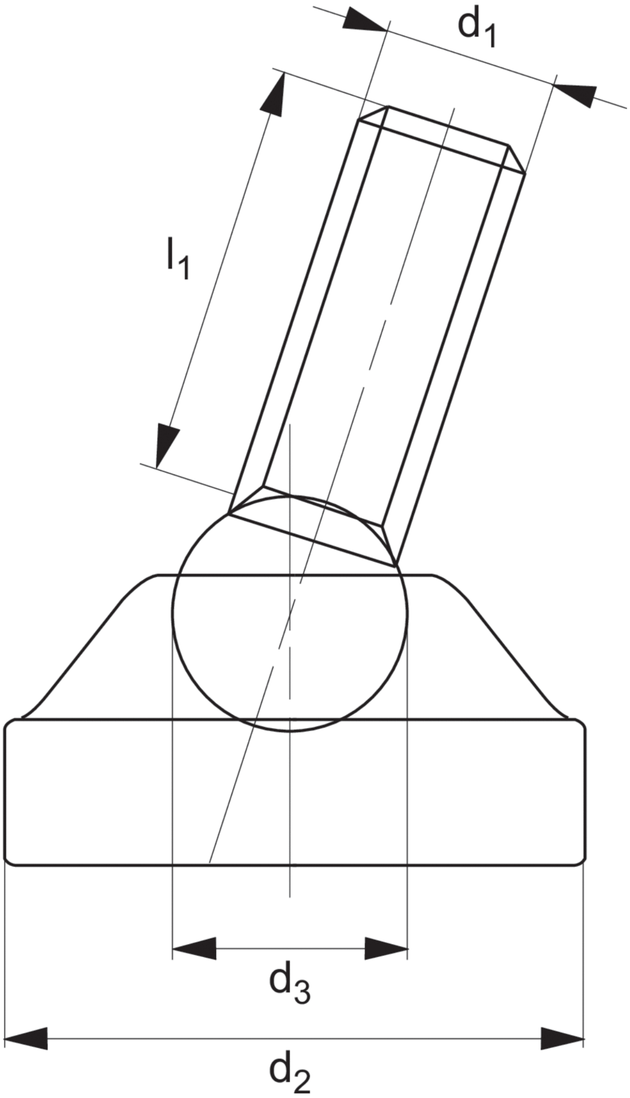
Galvanised steel stud with plastic base.

Technical Notes

Load values shown are for static loads calculated at the half of the screw length.
In the presence of vibrations or dynamic loads these values should be reduced.

Levelling Feet
plastic

34640



Material
Thread: steel, zinc plated.
Pad: thermoplastic, black.

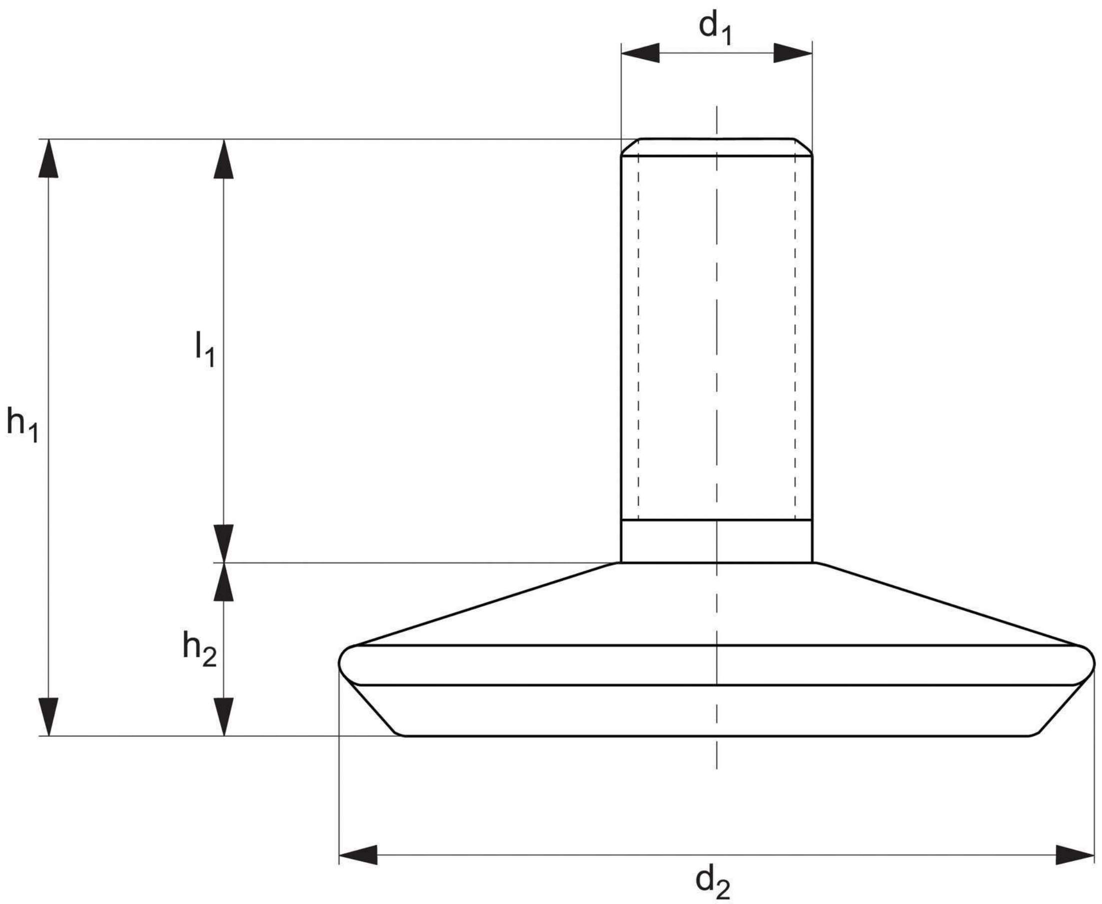
TP

Order No.	d_1	d_2	d_3	l_1
34640.W0018	M 8	24	10	18

Mini Levelling Feet

steel with plastic base

34641



Material
Galvanised steel stud with plastic base, with chromate case.

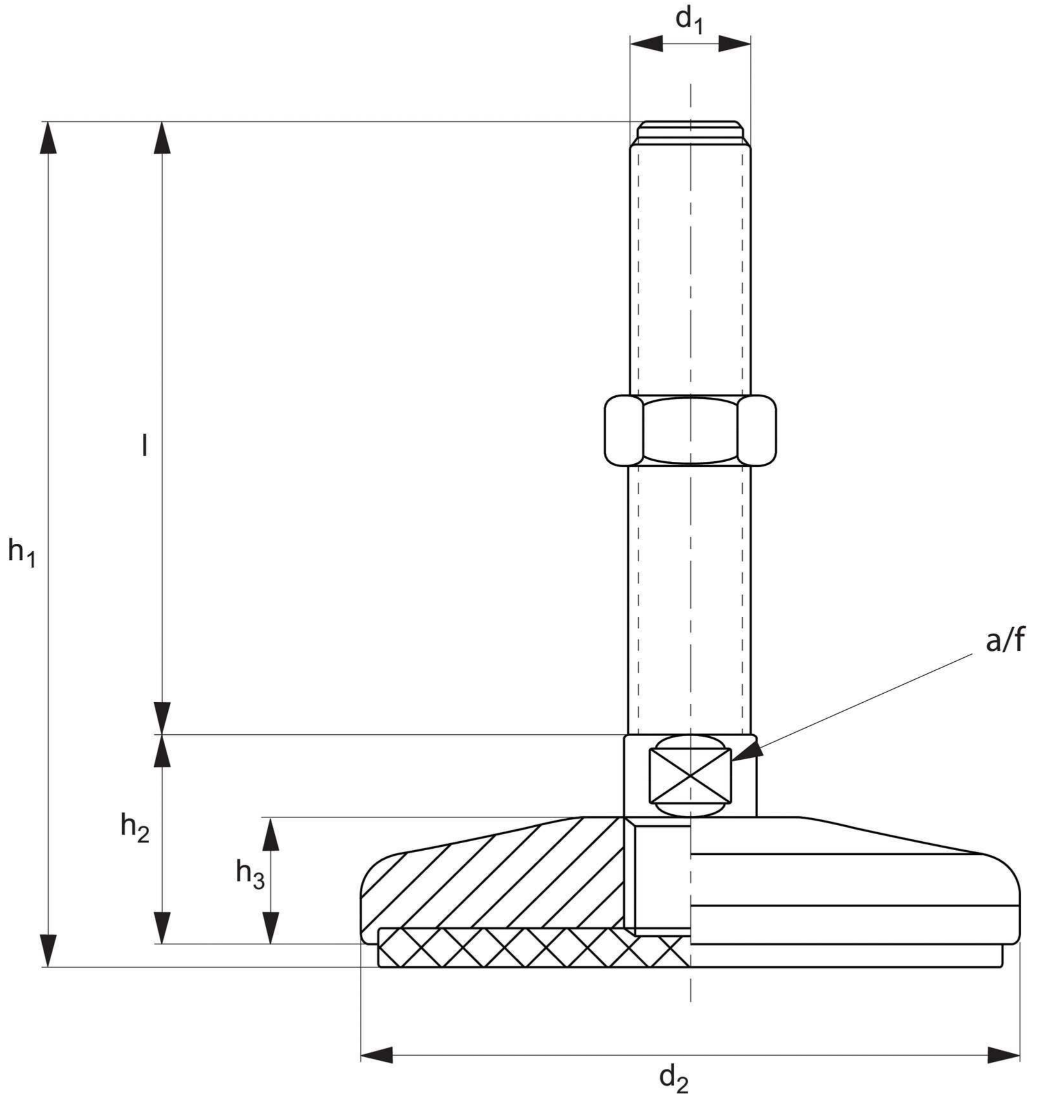
Technical Notes
When vibrations or dynamic loads are present these values should be reduced.

Order no.	d_1	d_2	l	h_1	h_2	Static Load N
34641.W0600	M 6	20	13	20,0	7,0	1000
34641.W0800	M 8	25	20	30,0	10,0	1500
34641.W0801	M 8	30	20	31,5	11,5	2000
34641.W0802	M 8	40	25	38,5	13,5	2800
34641.W1000	M10	25	20	30,0	10,0	1500
34641.W1001	M10	30	20	31,5	11,5	2000
34641.W1002	M10	40	25	38,5	13,5	2800
34641.W1003	M10	50	30	45,5	15,5	3800
34641.W1200	M12	50	30	50,5	15,5	3800

Levelling Feet - Fixed Feet

stainless steel, heavy duty

34650



Material

Stainless steel (AISI 304), with rubber pad (70 Shore A).
Stainless steel (AISI 316) version available on request.

Technical Notes

Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.

STAINLESS STEEL 304

Order No.	d_1	d_2	l	h_1	h_2	h_3	a/f	Max. load kN
34650.W1600	M16	80	100	134,5	31,5	19	17	30
34650.W1601	M16	80	150	184,5	31,5	19	17	30
34650.W1602	M16	80	200	234,5	31,5	19	17	30
34650.W1603	M16	100	100	136,0	33,0	20	20	40
34650.W1604	M16	100	150	186,0	33,0	20	20	40
34650.W1605	M16	100	200	236,0	33,0	20	20	40
34650.W2000	M20	80	100	134,5	31,5	19	20	35
34650.W2001	M20	80	150	184,5	31,5	19	20	35
34650.W2002	M20	80	200	234,5	31,5	19	20	35
34650.W2003	M20	80	225	259,5	31,5	19	20	35
34650.W2004	M20	100	100	136,0	33,0	20	20	45
34650.W2005	M20	100	150	186,0	33,0	20	20	45
34650.W2006	M20	100	200	236,0	33,0	20	20	45
34650.W2007	M20	100	250	286,0	33,0	20	20	45
34650.W2008	M20	120	100	138,0	35,0	22	20	45
34650.W2009	M20	120	150	188,0	35,0	22	20	45
34650.W2100	M20	120	200	238,0	35,0	22	20	45
34650.W2101	M20	120	250	288,0	35,0	22	20	45
34650.W2102	M20	159	100	139,0	36,0	23	20	50
34650.W2103	M20	159	150	189,0	36,0	23	20	50
34650.W2104	M20	159	200	239,0	36,0	23	20	50
34650.W2105	M20	159	250	289,0	36,0	23	20	50
34650.W2400	M24	80	100	136,0	33,0	19	20	40
34650.W2401	M24	80	150	186,0	33,0	19	20	40
34650.W2402	M24	80	200	236,0	33,0	19	20	40
34650.W2403	M24	80	225	261,0	33,0	19	20	40
34650.W2404	M24	100	100	137,0	34,0	20	20	50
34650.W2405	M24	100	150	187,0	34,0	20	20	50

Levelling Feet - Fixed Feet

stainless steel, heavy duty

34650

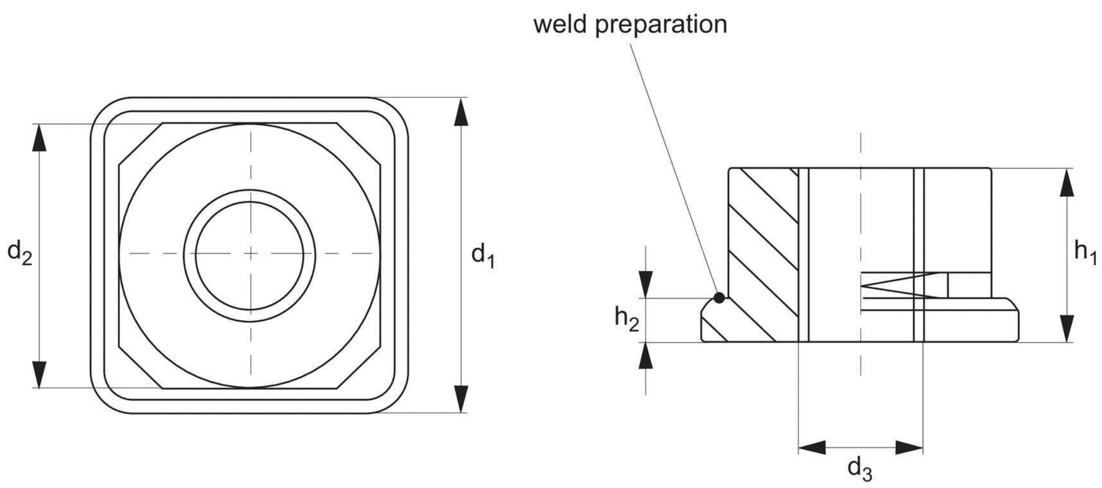
Order No.	d_1	d_2	l	h_1	h_2	h_3	a/f	Max. load kN
34650.W2406	M24	100	200	237,0	34,0	20	20	50
34650.W2407	M24	100	250	287,0	34,0	20	20	50
34650.W2408	M24	120	100	138,0	35,0	22	20	50
34650.W2409	M24	120	150	188,0	35,0	22	20	50
34650.W2500	M24	120	200	238,0	35,0	22	20	50
34650.W2501	M24	120	250	288,0	35,0	22	20	50
34650.W2502	M24	159	100	139,0	36,0	23	20	60
34650.W2503	M24	159	150	189,0	36,0	23	20	60
34650.W2504	M24	159	200	239,0	36,0	23	20	60
34650.W2505	M24	159	250	289,0	36,0	23	20	60
34650.W3000	M30	120	100	139,0	36,0	22	26	60
34650.W3001	M30	120	150	189,0	36,0	22	26	60
34650.W3002	M30	120	200	239,0	36,0	22	26	60
34650.W3003	M30	120	250	289,0	36,0	22	26	60
34650.W3004	M30	159	100	140,0	37,0	23	26	70
34650.W3005	M30	159	150	190,0	37,0	23	26	70
34650.W3006	M30	159	200	240,0	37,0	23	26	70
34650.W3007	M30	159	250	290,0	37,0	23	70	70

Material
Stainless steel (AISI 304), with rubber pad (70 Shore A). Stainless steel (AISI 316) version available on request.

Technical Notes
Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.

Weldable Threaded Insert
stainless steel

34670



Material
Stainless steel AISI 303.

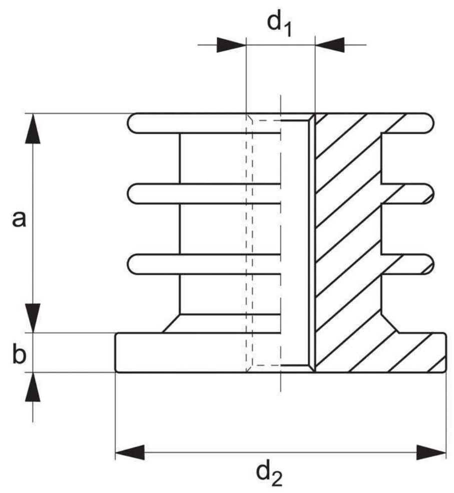
Technical Notes
Ideal for fixing levelling feet to boxed section.

Order No.	Section size	Outerbox d_1 (sq)	Innerbox d_2	d_3	h_1	h_2	Max. load capacity for static load max. Kg
34670.W0030	30x30x2,0	30	26	M12	12	4	1500
34670.W0032	30x30x3,0	30	24	M12	12	4	1500
34670.W0033	30x30x3,0	30	24	M16	16	4	2000
34670.W0040	40x40x2,0	40	36	M16	16	5	2000
34670.W0041	40x40x2,0	40	36	M20	20	5	3000
34670.W0042	40x40x3,0	40	34	M16	16	5	2000
34670.W0043	40x40x3,0	40	34	M20	20	5	3000
34670.W0050	50x50x2,0	50	46	M16	16	6	2000
34670.W0051	50x50x2,0	50	46	M20	20	6	3000
34670.W0053	50x50x3,0	50	44	M16	16	6	2000
34670.W0054	50x50x3,0	50	44	M20	20	6	3000
34670.W0055	50x50x3,0	50	44	M24	24	6	4000

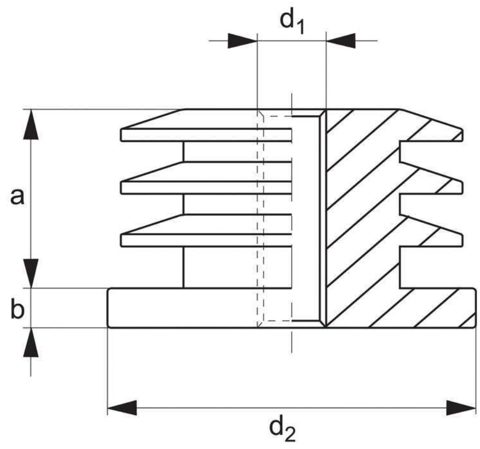
Threaded Plastic Insert

square & round inserts

34681



square



round

Material
Polyamide

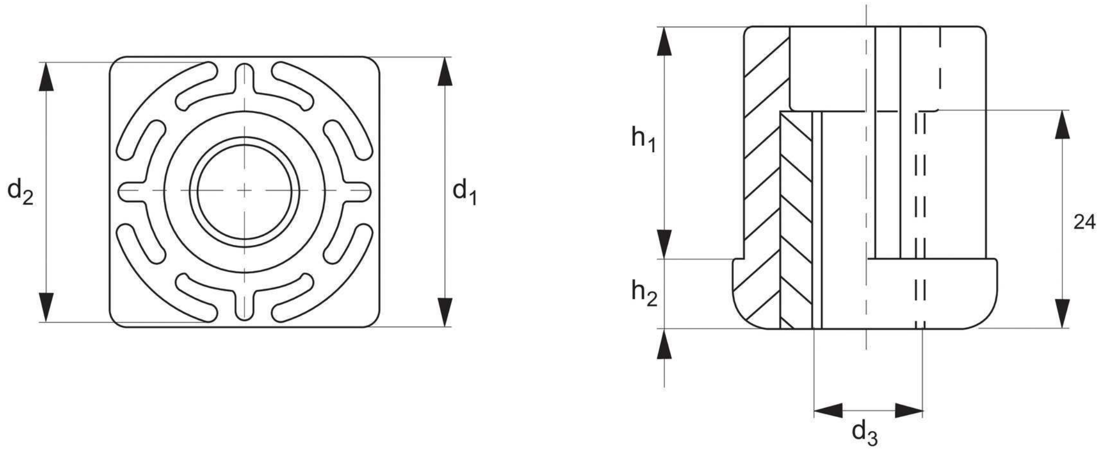
Technical Notes
When vibrations or dynamic loads are present these values should be reduced.

Order no.	Type	d_1	d_2	a	b
34681.W0015	Square	M10	15x15	18	5
34681.W0016	Square	M10	16x16	18	5
34681.W0018	Square	M10	18x18	18	5
34681.W0020	Square	M10	20x20	18	5
34681.W0022	Square	M10	22x22	18	5
34681.W0025	Square	M10	25x25	19	5
34681.W0030	Square	M10	30x30	20	6
34681.W0035	Square	M10	35x35	21	6
34681.W0040	Square	M10	40x40	22	6
34681.W0050	Square	M10	50x50	30	7
34681.W0218	Round	M10	20	18	6
34681.W0222	Round	M10	22	19	6
34681.W0225	Round	M10	25	19	6
34681.W0228	Round	M10	28	19	6
34681.W0230	Round	M10	30	19	6
34681.W0232	Round	M10	32	19	6
34681.W0235	Round	M10	35	20	6
34681.W0240	Round	M10	40	20	6
34681.W0245	Round	M10	45	21	6
34681.W0250	Round	M10	50	21	6

Threaded Plastic Inserts for Hollow Section

with brass bush

34691



Material
Body: polyamide reinforced nylon.
Bush: brass, nickel plated.

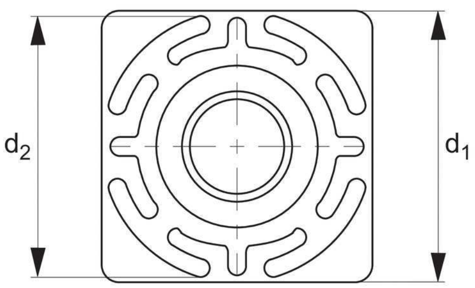
Technical Notes
For use with levelling feet parts.

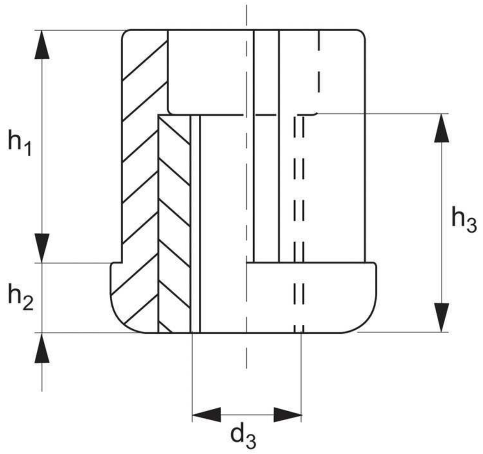
PA

Order No.	Outerbox d_1	Innerbox d_2	d_3	h_1	h_2	Max. Rec. load Kg
34691.W0108	30x30x1,5	27	M 8	35	8	500
34691.W0110	30x30x1,5	27	M10	35	8	500
34691.W0112	30x30x1,5	27	M12	35	8	500
34691.W0116	30x30x1,5	27	M16	35	8	500
34691.W0208	40x40x1,5	37	M 8	35	8	1000
34691.W0210	40x40x1,5	37	M10	35	8	1000
34691.W0212	40x40x1,5	37	M12	35	8	1000
34691.W0216	40x40x1,5	37	M16	35	8	1000
34691.W0220	40x40x1,5	37	M20	35	8	1000
34691.W0308	40x40x2,0	36	M8	35	8	1000
34691.W0310	40x40x2,0	36	M10	35	8	1000
34691.W0312	40x40x2,0	36	M12	35	8	1000
34691.W0316	40x40x2,0	36	M16	35	8	1000
34691.W0320	40x40x2,0	36	M20	35	8	1000
34691.W0416	50x50x1,5	47	M16	45	10	1000
34691.W0420	50x50x1,5	47	M20	45	10	1200
34691.W0424	50x50x1,5	47	M24	45	10	1200
34691.W0516	50x50x2,0	46	M16	45	10	1200
34691.W0520	50x50x2,0	46	M20	45	10	1200
34691.W0524	50x50x2,0	46	M24	45	10	1200

Threaded Plastic Insert for Hollow Section
with stainless steel bush

34692





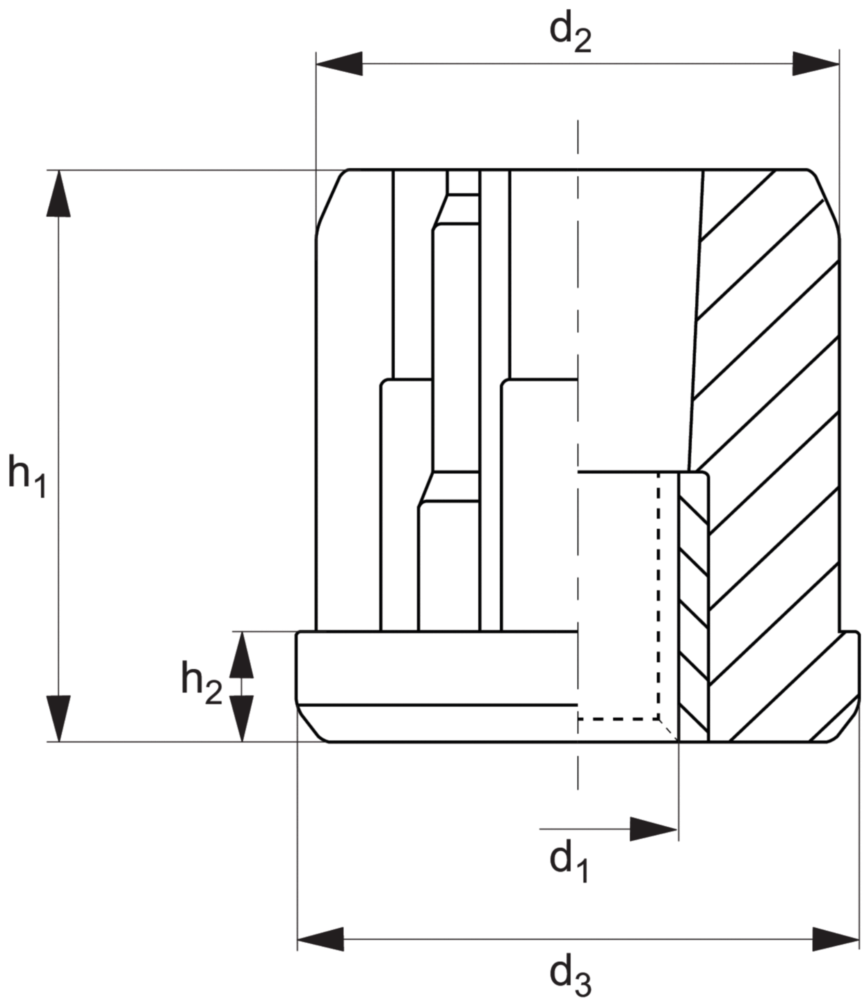
Material
Bush: stainless steel, type AISI 303.
Moulding: polyamide reinforced nylon.

Order No.	Outerbox d_1	Innerbox d_2	d_3	h_1	h_2	h_3	Max. load capacity for static load max. Kg
34692.W0610	30x30x1,5	27	M10	35	8	24	500
34692.W0612	30x30x1,5	27	M12	35	8	24	500
34692.W0616	30x30x1,5	27	M16	35	8	24	500
34692.W0710	40x40x1,5	37	M10	35	8	24	1000
34692.W0712	40x40x1,5	37	M12	35	8	24	1000
34692.W0716	40x40x1,5	37	M16	35	8	24	1000
34692.W0720	40x40x1,5	37	M20	35	8	24	1000
34692.W0810	40x40x2,0	36	M10	35	8	24	1000
34692.W0812	40x40x2,0	36	M12	35	8	24	1000
34692.W0816	40x40x2,0	36	M16	35	8	24	1000
34692.W0820	40x40x2,0	36	M20	35	8	24	1000
34692.W0916	50x50x1,5	47	M16	45	10	24	1200
34692.W0920	50x50x1,5	47	M20	45	10	24	1200
34692.W0924	50x50x1,5	47	M24	45	10	24	1200
34692.W0952	50x50x2,0	46	M16	45	10	24	1200
34692.W0954	50x50x2,0	46	M20	45	10	24	1200
34692.W0956	50x50x2,0	46	M24	45	10	24	1200

Threaded Plastic Insert - Round

with nickel plated brass bush

34693



round

Material
Moulding: polyamide, reinforced with fiber glass.
Insert: nickel-plated brass.

Notes -

Stainless steel inserts available on request.

Order no.	d_1	d_2	d_3	h_1	h_2	Max. static load kN
34693.W0108	M8	28,5	30	35	6	3,2
34693.W0110	M10	28,5	30	35	6	3,2
34693.W0112	M12	28,5	30	35	6	3,2
34693.W0114	M14	28,5	30	35	6	3,2
34693.W0116	M16	28,5	30	35	6	3,2
34693.W0208	M8	35,5	38	43	8	5,5
34693.W0210	M10	35,5	38	43	8	5,5
34693.W0212	M12	35,5	38	43	8	5,5
34693.W0214	M14	35,5	38	43	8	5,5
34693.W0216	M16	35,5	38	43	8	5,5
34693.W0308	M8	39,5	42	42	8	6,5
34693.W0310	M10	39,5	42	42	8	6,5
34693.W0312	M12	39,5	42	42	8	6,5
34693.W0314	M14	39,5	42	42	8	6,5
34693.W0316	M16	39,5	42	42	8	6,5
34693.W0320	M20	39,5	42	42	8	6,5
34693.W0408	M8	45,5	48	49	11	8,0
34693.W0410	M10	45,5	48	49	11	8,0
34693.W0412	M12	45,5	48	49	11	8,0
34693.W0414	M14	45,5	48	49	11	8,0
34693.W0416	M16	45,5	48	49	11	8,0
34693.W0420	M20	45,5	48	49	11	8,0
34693.W0508	M8	47,5	50	49	11	8,5
34693.W0510	M10	47,5	50	49	11	8,5
34693.W0512	M12	47,5	50	49	11	8,5
34693.W0514	M14	47,5	50	49	11	8,5
34693.W0516	M16	47,5	50	49	11	8,5
34693.W0520	M20	47,5	50	49	11	8,5

Threaded Plastic Insert - Round

with nickel plated brass bush

34693

Order no.	d_1	d_2	d_3	h_1	h_2	Max. static load kN
34693.W0614	M14	57,5	60	50	12	10,0
34693.W0616	M16	57,5	60	50	12	10,0
34693.W0620	M20	57,5	60	50	12	10,0
34693.W0624	M24	57,5	60	50	12	10,0
34693.W0714	M14	56,5	60	50	12	10,0
34693.W0716	M16	56,5	60	50	12	10,0
34693.W0720	M20	56,5	60	50	12	10,0
34693.W0724	M24	56,5	60	50	12	10,0
34693.W0814	M14	55,5	60	50	12	10,0
34693.W0816	M16	55,5	60	50	12	10,0
34693.W0820	M20	55,5	60	50	12	10,0
34693.W0824	M24	55,5	60	50	12	10,0

Material
Moulding: polyamide, reinforced with fiber glass.
Insert: nickel-plated brass.

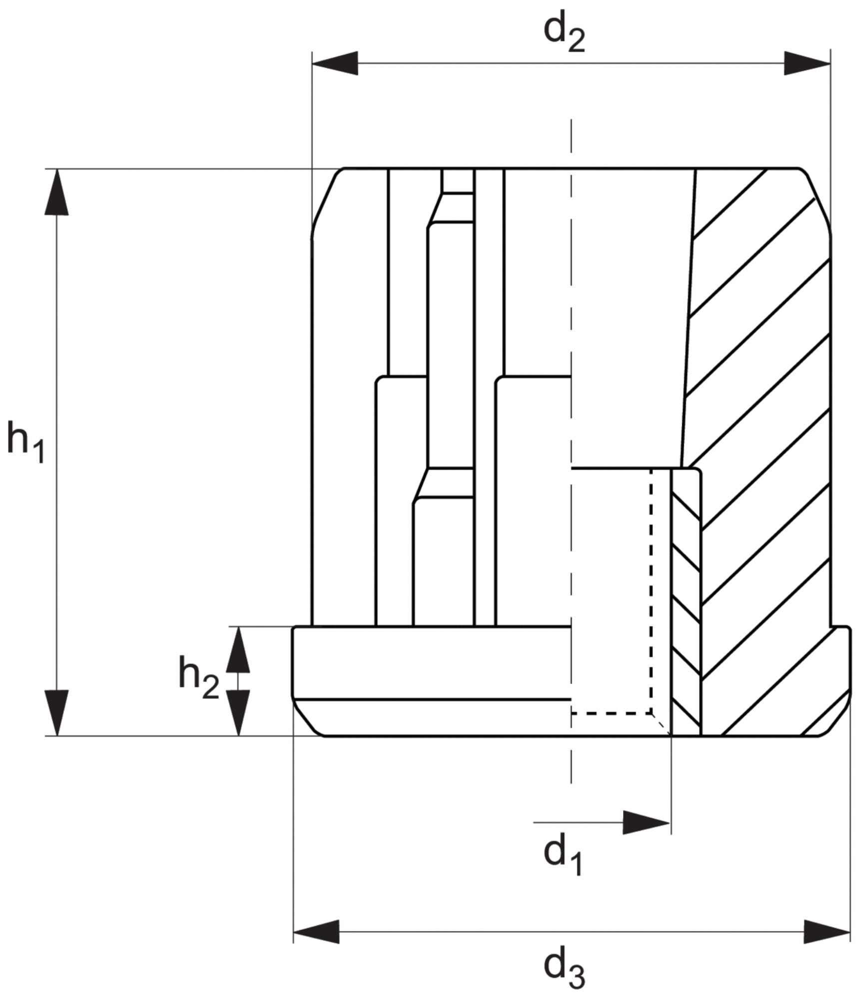
Notes -

Stainless steel inserts available on request.

Threaded Plastic Insert - Square

with nickel plated brass bush

34694



square

Material
Moulding: polyamide, reinforced with fiber glass.
Insert: nickel-plated brass.

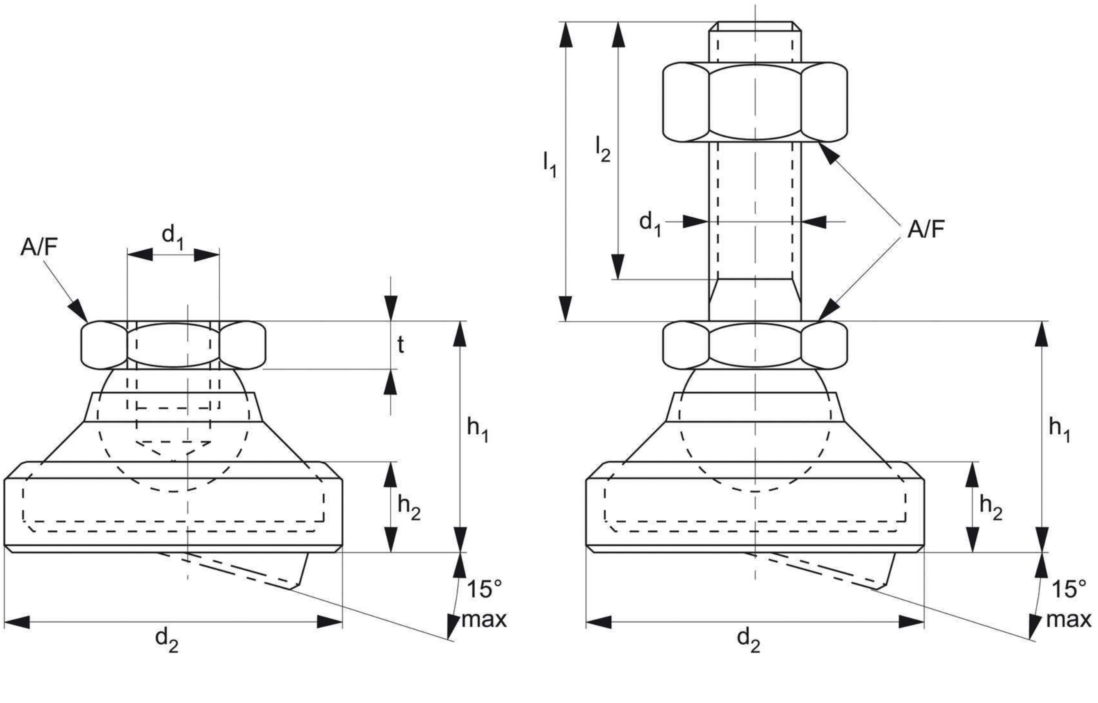
Notes -
Stainless steel inserts available on request.

Order no.	d_1	d_2	d_3	h_1	h_2	Max. static load kN
34694.W0110	M10	27	30x30x1,5	33	6	5,5
34694.W0112	M12	27	30x30x1,5	33	6	5,5
34694.W0114	M14	27	30x30x1,5	33	6	5,5
34694.W0116	M16	27	30x30x1,5	33	6	5,5
34694.W0210	M10	32	35x35x1,5	43	8	7,0
34694.W0212	M12	32	35x35x1,5	43	8	7,0
34694.W0214	M14	32	35x35x1,5	43	8	7,0
34694.W0216	M16	32	35x35x1,5	43	8	7,0
34694.W0310	M10	37	40x40x1,5	43	8	8,0
34694.W0312	M12	37	40x40x1,5	43	8	8,0
34694.W0314	M14	37	40x40x1,5	43	8	8,0
34694.W0316	M16	37	40x40x1,5	43	8	8,0
34694.W0320	M20	37	40x40x1,5	43	8	8,0
34694.W0410	M10	36	40x40x2,0	43	8	8,0
34694.W0412	M12	36	40x40x2,0	43	8	8,0
34694.W0414	M14	36	40x40x2,0	43	8	8,0
34694.W0416	M16	36	40x40x2,0	43	8	8,0
34694.W0420	M20	36	40x40x2,0	43	8	8,0
34694.W0512	M12	47	50x50x1,5	55	10	9,5
34694.W0514	M14	47	50x50x1,5	55	10	9,5
34694.W0516	M16	47	50x50x1,5	55	10	9,5
34694.W0520	M20	47	50x50x1,5	55	10	9,5
34694.W0612	M12	45	50x50x2,0	55	10	9,5
34694.W0614	M14	45	50x50x2,0	55	10	9,5
34694.W0616	M16	45	50x50x2,0	55	10	9,5
34694.W0620	M20	45	50x50x2,0	55	10	9,5

Levelling Feet - Non Slip

pad and bolt - steel or stainless

34700



type 1 type 2

Order No.	Material	Type	d_1	d_2	l_1	l_2	h_1	h_2	t_1	A/F	Max. static load kN.	g
34700.W1006	Steel	Pad	M 6	20	-	-	14	2,5	5,0	10	10	15
34700.W1008	Steel	Pad	M 8	25	-	-	18	4,0	7,0	13	18	33
34700.W1010	Steel	Pad	M10	32	-	-	22	5,0	9,0	17	20	66
34700.W1012	Steel	Pad	M12	40	-	-	26	6,0	11,0	19	35	112
34700.W1016	Steel	Pad	M16	50	-	-	32	7,0	13,5	24	45	220
34700.W1020	Steel	Pad	M20	60	-	-	42	8,0	17,0	30	55	413
34700.W1024	Steel	Pad	M24	60	-	-	45	9,5	19,0	36	65	462
34700.W1410	Steel	Pad and Bolt	M 6	20	60	57,0	14	2,5	-	10	10	29
34700.W1422	Steel	Pad and Bolt	M 8	25	80	76,0	18	4,0	-	13	18	66
34700.W1438	Steel	Pad and Bolt	M10	32	100	95,5	22	5,0	-	17	20	133
34700.W1442	Steel	Pad and Bolt	M10	32	150	145,5	22	5,0	-	17	20	159
34700.W1452	Steel	Pad and Bolt	M12	40	100	94,5	26	6,0	-	19	35	211
34700.W1456	Steel	Pad and Bolt	M12	40	150	144,5	26	6,0	-	19	35	247
34700.W1468	Steel	Pad and Bolt	M16	50	100	94,0	32	7,0	-	24	45	407
34700.W1472	Steel	Pad and Bolt	M16	50	200	194,0	32	7,0	-	24	45	540
34700.W1482	Steel	Pad and Bolt	M20	60	100	92,5	42	8,0	-	30	55	722
34700.W1488	Steel	Pad and Bolt	M20	60	200	192,5	42	8,0	-	30	55	924
34700.W1495	Steel	Pad and Bolt	M24	60	100	91,0	45	9,5	-	36	65	935
34700.W1498	Steel	Pad and Bolt	M24	60	200	191,0	45	9,5	-	36	65	1231
34700.W1206	Stainless Steel	Pad	M 6	20	-	-	14	2,5	5,0	10	8	15
34700.W1208	Stainless Steel	Pad	M 8	25	-	-	18	4,0	7,0	13	14	33
34700.W1210	Stainless Steel	Pad	M10	32	-	-	22	5,0	9,0	17	16	66
34700.W1212	Stainless Steel	Pad	M12	40	-	-	26	6,0	11,0	19	28	112
34700.W1216	Stainless Steel	Pad	M16	50	-	-	32	7,0	13,5	24	36	220
34700.W1220	Stainless Steel	Pad	M20	60	-	-	42	8,0	17,0	30	44	413
34700.W1224	Stainless Steel	Pad	M24	60	-	-	45	9,5	19,0	36	52	462
34700.W1610	Stainless Steel	Pad and Bolt	M 6	20	60	57,0	14	2,5	-	10	8	29
34700.W1622	Stainless Steel	Pad and Bolt	M 8	25	80	76,0	18	4,0	-	13	14	66
34700.W1638	Stainless Steel	Pad and Bolt	M10	32	100	95,5	22	5,0	-	17	16	133
34700.W1642	Stainless Steel	Pad and Bolt	M10	32	150	145,5	22	5,0	-	17	16	159
34700.W1652	Stainless Steel	Pad and Bolt	M12	40	100	94,5	26	6,0	-	19	28	211
34700.W1656	Stainless Steel	Pad and Bolt	M12	40	150	144,5	26	6,0	-	19	28	247
34700.W1668	Stainless Steel	Pad and Bolt	M16	50	100	94,0	32	7,0	-	24	36	407
34700.W1672	Stainless Steel	Pad and Bolt	M16	50	200	194,0	32	7,0	-	24	36	540
34700.W1682	Stainless Steel	Pad and Bolt	M20	60	100	92,5	42	8,0	-	30	44	722
34700.W1688	Stainless Steel	Pad and Bolt	M20	60	200	192,5	42	8,0	-	30	44	924
34700.W1695	Stainless Steel	Pad and Bolt	M24	60	100	91,0	45	9,5	-	36	52	935
34700.W1698	Stainless Steel	Pad and Bolt	M24	60	200	191,0	45	9,5	-	36	52	1231

Material

Steel type

Ball: steel heat-treated, tempered, blackened.
Ball with bolt: heat-treated steel, tempered, blackened.
Lock nut: Steel blackened, ISO 4032/DIN 934 (M10, M12 only).
Pad: heat-treated steel, tempered, blackened.

Stainless type

Pad: stainless steel 1.4305 (AISI 303).
Ball: stainless steel 1.4305 (AISI 303).
Ball with bolt: stainless steel 1.4305 (AISI 303).
Lock nut: Stainless steel A2,ISO 4032/DIN 934 (M10, M12 only).
Cap: Black rubber.

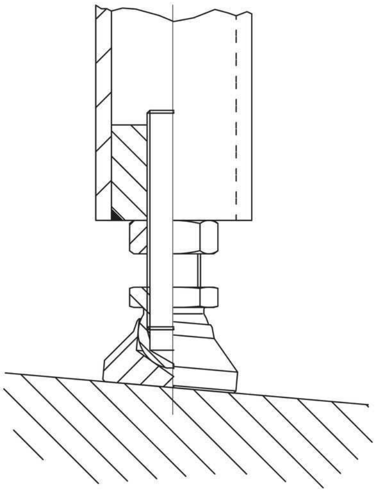
Tips

To be used as feet and thrust pads. Used for levelling up to 15° on surface. Rubber cap prevents reduces slipping.

Also used:
34761 - Levelling Feet - thermoplastic, non slip.

Levelling Feet - Non Slip

pad and bolt - steel or stainless



Material

Steel type

Ball: steel heat-treated, tempered, blackened.
Ball with bolt: heat-treated steel, tempered, blackened.
Lock nut: Steel blackened, ISO 4032/DIN 934 (M10, M12 only).
Pad: heat-treated steel, tempered, blackened.

Stainless type

Pad: stainless steel 1.4305 (AISI 303).
Ball: stainless steel 1.4305 (AISI 303).
Ball with bolt: stainless steel 1.4305 (AISI 303).
Lock nut: Stainless steel A2,ISO 4032/DIN 934 (M10, M12 only).
Cap: Black rubber.

Tips

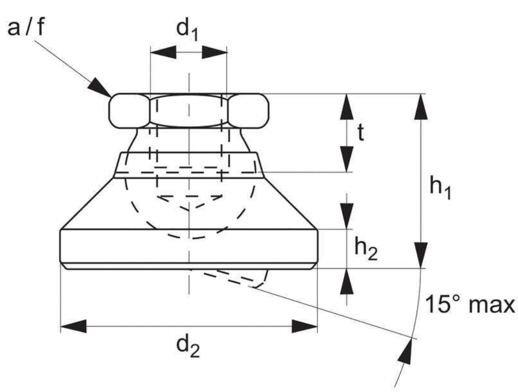
To be used as feet and thrust pads. Used for levelling up to 15° on surface. Rubber cap prevents reduces slipping.

Also used:
34761 - Levelling Feet - thermoplastic, non slip.

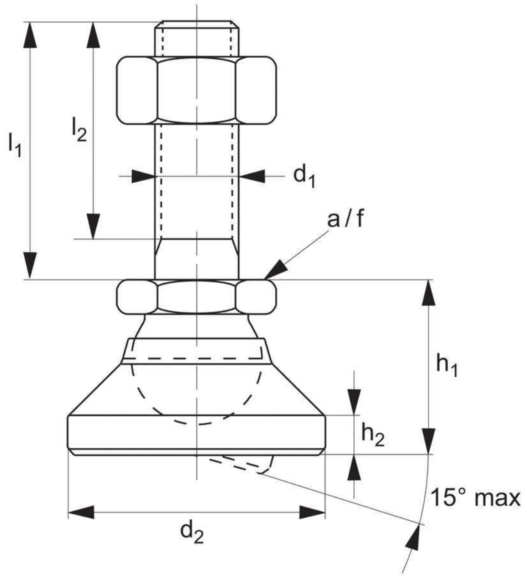
Levelling Feet

pad and bolt steel or stainless

34701



pad



pad and bolt

Order No. Steel	Order No. Stainless	Type	d_1	l_1	d_2	l_2	h_1 ≈	h_2	t	a/f	Max. static load steel kN	Max. static load stainless kN	g
34701.W0006	34701.W0206	Pad	M 6	-	20	-	14	2,5	5,0	10	10	8	15
34701.W0008	34701.W0208	Pad	M 8	-	25	-	18	4,0	7,0	13	18	14	33
34701.W0010	34701.W0210	Pad	M10	-	32	-	22	5,0	9,0	17	20	16	66
34701.W0012	34701.W0212	Pad	M12	-	40	-	26	6,0	11,0	19	35	28	112
34701.W0016	34701.W0216	Pad	M16	-	50	-	32	7,0	13,5	24	45	36	220
34701.W0020	34701.W0220	Pad	M20	-	60	-	42	8,0	17,0	30	55	44	413
34701.W0024	34701.W0224	Pad	M24	-	60	-	45	9,5	19,0	36	65	52	462
34701.W0410	34701.W0610	Pad and Bolt	M 6	60	20	57,0	14	2,5	-	10	10	8	29
34701.W0422	34701.W0622	Pad and Bolt	M 8	80	25	76,0	18	4,0	-	13	18	14	66
34701.W0438	34701.W0638	Pad and Bolt	M10	100	32	95,5	22	5,0	-	17	20	16	133
34701.W0442	34701.W0642	Pad and Bolt	M10	150	32	145,5	22	5,0	-	17	20	16	159
34701.W0452	34701.W0652	Pad and Bolt	M12	100	40	94,5	26	6,0	-	19	35	28	211
34701.W0456	34701.W0656	Pad and Bolt	M12	150	40	144,5	26	6,0	-	19	35	28	247
34701.W0468	34701.W0668	Pad and Bolt	M16	100	50	94,0	32	7,0	-	24	45	36	407
34701.W0472	34701.W0672	Pad and Bolt	M16	200	50	194,0	32	7,0	-	24	45	36	540
34701.W0482	34701.W0682	Pad and Bolt	M20	100	60	92,5	42	8,0	-	30	55	44	722
34701.W0488	34701.W0688	Pad and Bolt	M20	200	60	192,5	42	8,0	-	30	55	44	924
34701.W0495	34701.W0695	Pad and Bolt	M24	100	60	91,0	45	9,5	-	36	65	52	935
34701.W0498	34701.W0698	Pad and Bolt	M24	200	60	191,0	45	9,5	-	36	65	52	1231

Material

Steel type-

Pad: heat-treated, C35Pbk (ETG100) tempered (800-1000 N/mm²), blackened.

Ball: free cutting steel, 11SMnPn30k (1.0718) - ball hardened (550±50HV10), blackened.

Ball with bolt: heat-treated steel, blackened.

Lock nut: Steel blackened, DIN 934/ISO 4032.

Stainless type-

Pad: stainless steel 1.4305 (AISI 303).

Ball: stainless steel 1.4305 (AISI 303).

Ball with bolt: stainless steel 1.4305 (AISI 303).

Lock nut: Stainless steel A2, DIN 934/ISO 4032.

Tips

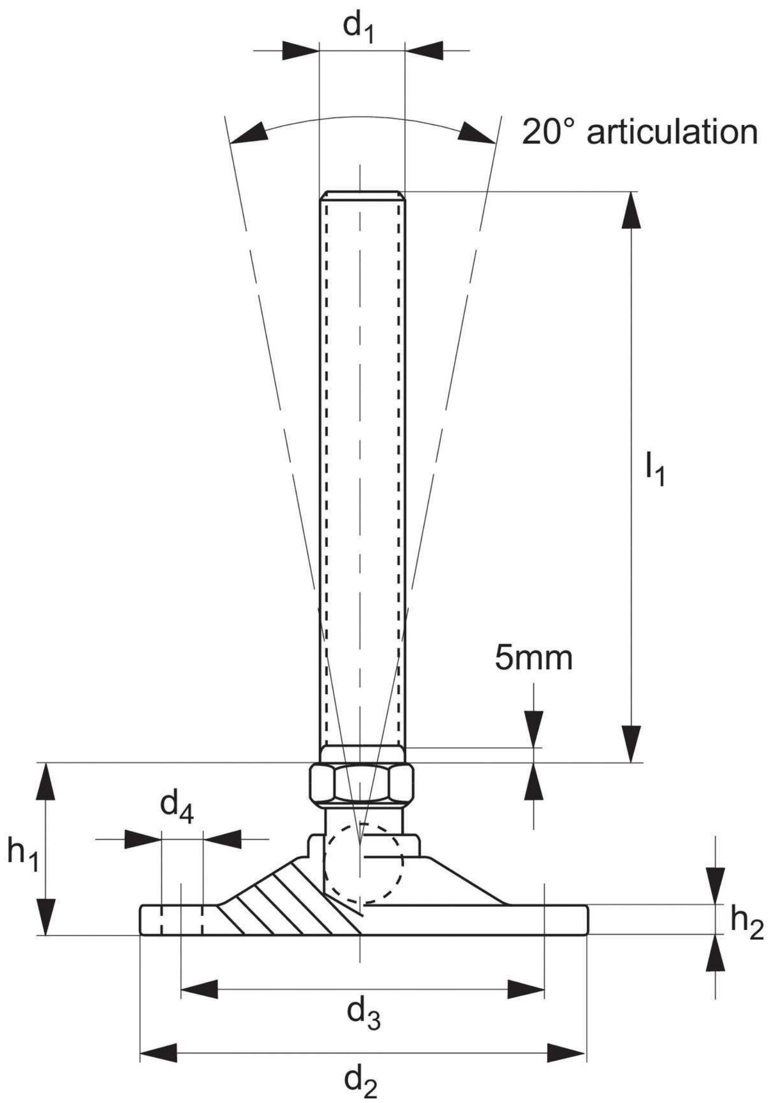
To be used as feet and thrust pads.

STAINLESS STEEL 303

Levelling Feet - Bolt Down

pad and bolt steel

34702



Material
Pad and bolt: mild steel, nickel plated.

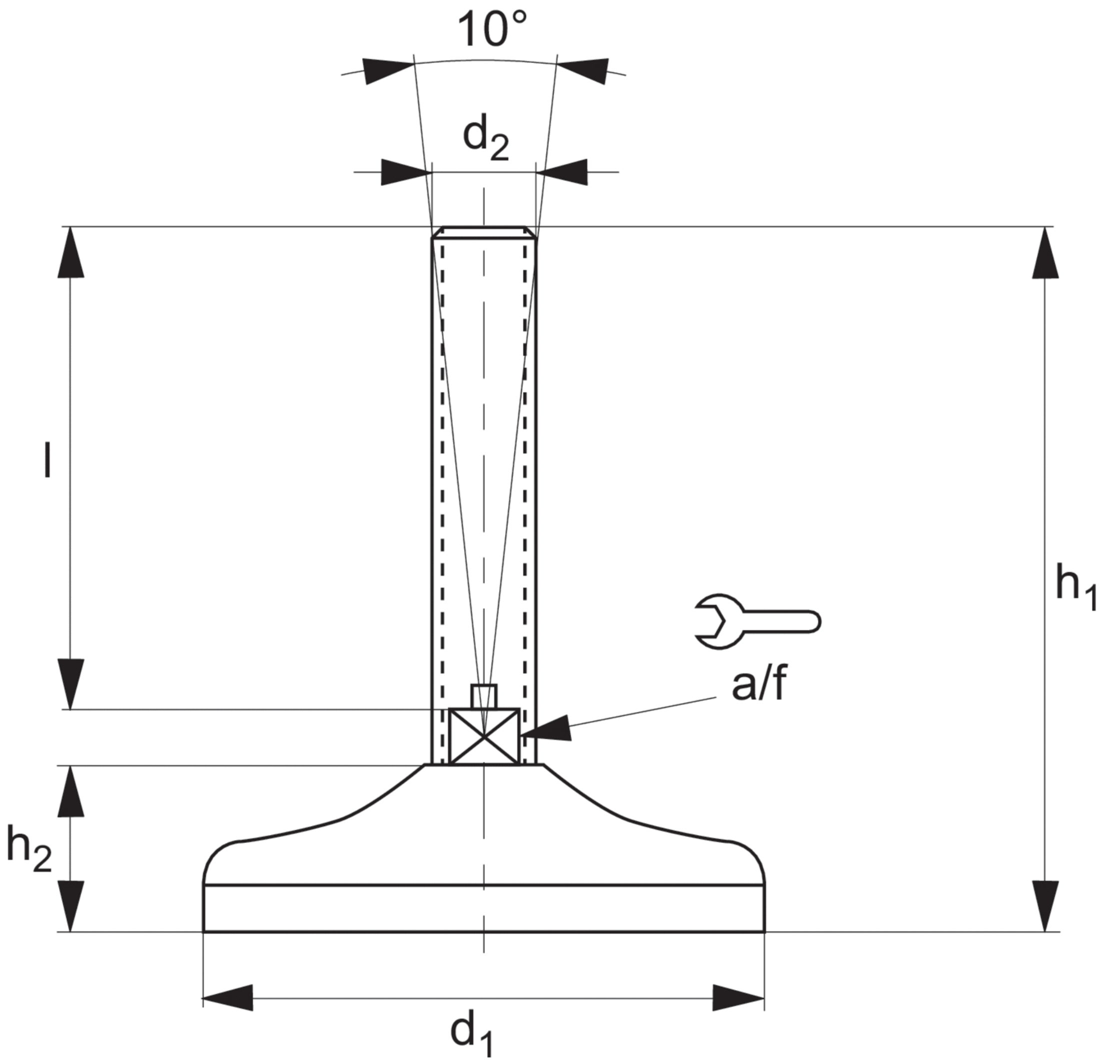
Technical Notes
Bolt has a 20° angle of movement.

Order No.	d_1	l_1	d_2	d_3	d_4	h_1	h_2	Max. static load kN
34702.W0508	M 8	60	50	40	5,5	22	4,0	3,0
34702.W0600	M10	75	50	40	5,5	22	4,0	5,0
34702.W0621	M12	75	60	50	5,5	25	5,0	12,5
34702.W0622	M12	125	60	50	5,5	25	5,0	12,5
34702.W0623	M12	150	60	50	5,5	25	5,0	12,5
34702.W0660	M16	75	80	68	6,5	31	6,0	17,5
34702.W0661	M16	125	80	68	6,5	31	6,0	17,5
34702.W0662	M16	150	80	68	6,5	31	6,0	17,5
34702.W0700	M20	125	100	82	9,0	39	6,5	25,0
34702.W0701	M20	150	100	82	9,0	39	6,5	25,0
34702.W0702	M20	200	100	82	9,0	39	6,5	25,0
34702.W0741	M24	150	120	100	11,0	56	7,5	37,5
34702.W0742	M24	200	120	100	11,0	56	7,5	37,5

Full Steel Levelling Feet

fixed

34703



Material

Galvanized steel (C40), with rubber pad (70 shore A).

Technical Notes

Load values refer to static loads, located at half the screw height.

Order No.	d_1	d_2	l	h_1	h_2	a/f	Max. load Kgf
34703.W1000	50	M10	50	79	19	14	400
34703.W1001	50	M10	100	129	19	14	400
34703.W1200	50	M12	50	79	19	14	400
34703.W1201	50	M12	100	129	19	14	400
34703.W1202	50	M12	150	179	19	14	400
34703.W1400	50	M14	50	79	19	14	400
34703.W1401	50	M14	100	129	19	14	400
34703.W1402	50	M14	150	179	19	14	400
34703.W1600	50	M16	75	104	19	14	400
34703.W1601	50	M16	100	129	19	14	400
34703.W1602	50	M16	150	179	19	14	400
34703.W1002	80	M10	50	85	25	14	1000
34703.W1003	80	M10	100	135	25	14	1000
34703.W1203	80	M12	50	85	25	14	1000
34703.W1204	80	M12	100	135	25	14	1000
34703.W1205	80	M12	150	185	25	14	1000
34703.W1403	80	M14	50	85	25	14	1000
34703.W1404	80	M14	100	135	25	14	1000
34703.W1405	80	M14	150	185	25	14	1000
34703.W1603	80	M16	75	85	25	14	1000
34703.W1604	80	M16	100	135	25	14	1000
34703.W1605	80	M16	150	185	25	14	1000
34703.W2000	80	M20	75	111	25	14	1000
34703.W2001	80	M20	100	136	25	14	1000
34703.W2002	80	M20	150	186	25	14	1000
34703.W2003	80	M20	200	236	25	14	1000
34703.W2400	80	M24	75	111	25	14	1000
34703.W2401	80	M24	100	136	25	14	1000
34703.W2402	80	M24	150	186	25	14	1000
34703.W2403	80	M24	200	236	25	14	1000
34703.W1606	100	M16	75	112,5	28	16	1500

Full Steel Levelling Feet
fixed

34703

Order No.	d_1	d_2	l	h_1	h_2	a/f	Max. load Kgf
34703.W1607	100	M16	100	137,5	28	16	1500
34703.W1608	100	M16	150	187,5	28	16	1500
34703.W1609	100	M16	200	237,5	28	16	1500
34703.W2004	100	M20	75	113,5	28	20	1500
34703.W2005	100	M20	100	138,5	28	20	1500
34703.W2006	100	M20	150	188,5	28	20	1500
34703.W2007	100	M20	200	238,5	28	20	1500
34703.W2008	100	M20	250	288,5	28	20	1500
34703.W2404	100	M24	100	138,5	28	24	1500
34703.W2405	100	M24	150	188,5	28	24	1500
34703.W2406	100	M24	200	238,5	28	24	1500
34703.W2407	100	M24	250	288,5	28	24	1500
34703.W3000	100	M30	100	139,5	28	30	1500
34703.W3001	100	M30	150	189,5	28	30	1500
34703.W3002	100	M30	200	239,5	28	30	1500
34703.W3003	100	M30	250	289,5	28	30	1500
34703.W1610	120	M16	75	116,5	32	16	3000
34703.W1611	120	M16	100	141,5	32	16	3000
34703.W1612	120	M16	150	191,5	32	16	3000
34703.W1613	120	M16	200	241,5	32	16	3000
34703.W2009	120	M20	75	117,5	32	20	3000
34703.W2010	120	M20	100	142,5	32	20	3000
34703.W2011	120	M20	150	192,5	32	20	3000
34703.W2012	120	M20	200	242,5	32	20	3000
34703.W2013	120	M20	250	292,5	32	20	3000
34703.W2408	120	M24	100	142,5	32	24	3000
34703.W2409	120	M24	150	192,5	32	24	3000
34703.W2410	120	M24	200	242,5	32	24	3000
34703.W2411	120	M24	250	292,5	32	24	3000
34703.W3004	120	M30	100	143,5	32	30	3000
34703.W3005	120	M30	150	193,5	32	30	3000
34703.W3006	120	M30	200	243,5	32	30	3000
34703.W3007	120	M30	250	293,5	32	30	3000

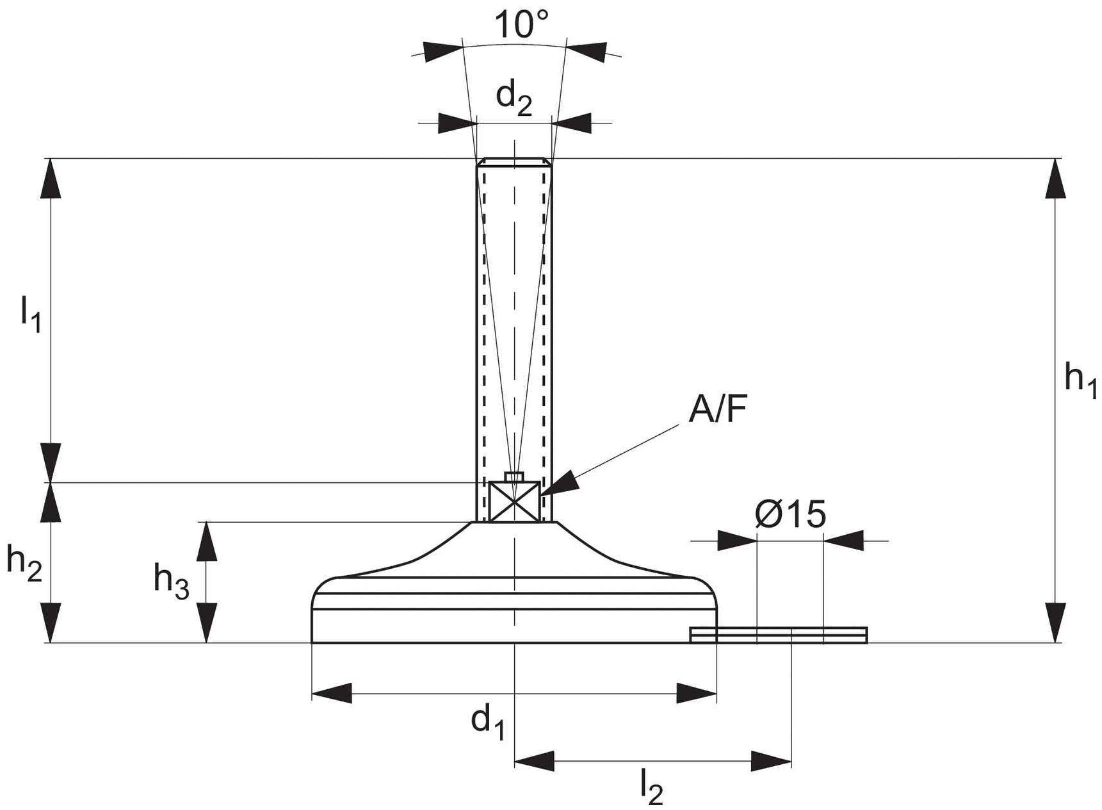
Material
Galvanized steel (C40), with rubber pad (70 shore A).

Technical Notes
Load values refer to static loads, located at half the screw height.

Full Steel Levelling Feet - Bolt Tab

bolt-down

34704



Material

Base material: galvanized steel (C40).
Full Steel base with vulcanized rubber.

Technical Notes

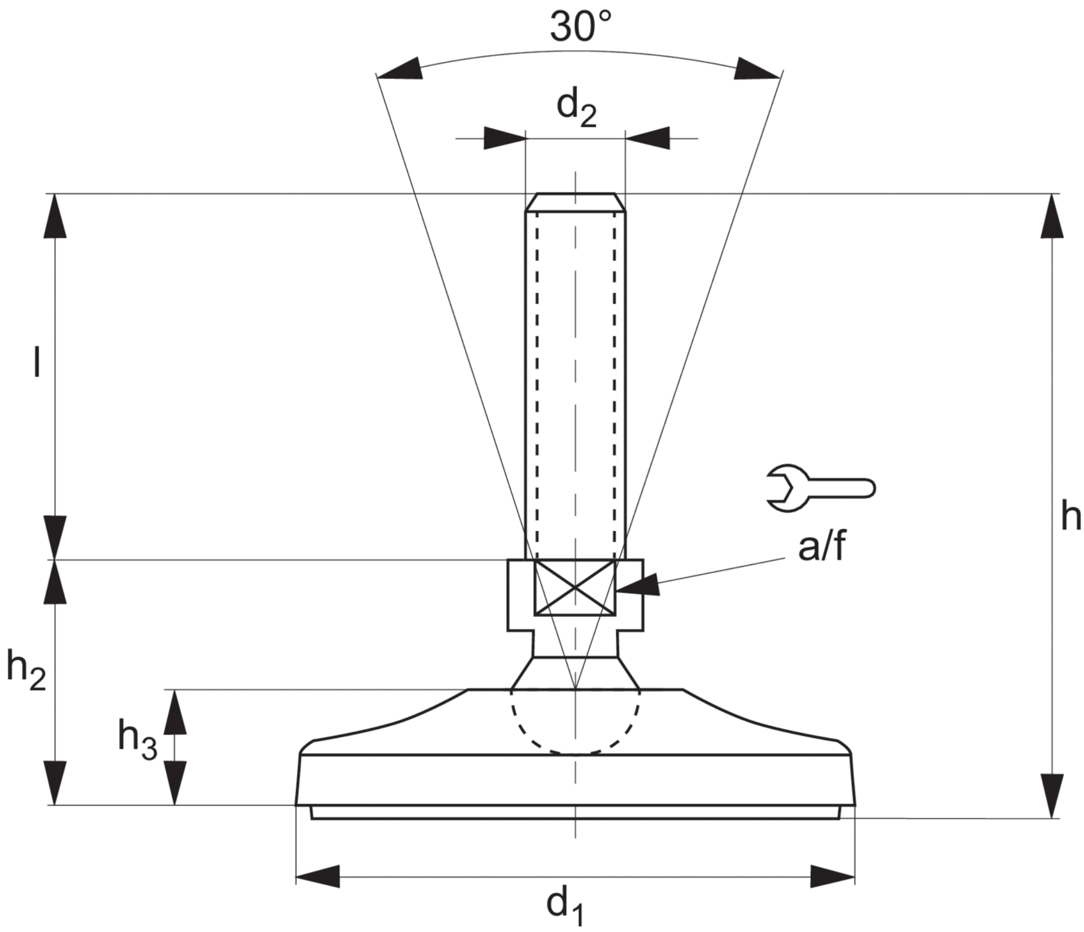
Load values refer to static loads, located at half the screw height. In conditions of vibrations or in presence of dynamic loads these values should be reduced.

Order No.	d_1	d_2	l_1	l_2	h_1	h_2	h_3	A/F	Max. load Kgf	g
34704.W1000	80	M10	50	54	85,0	35,0	25	14	1000	292
34704.W1001	80	M10	100	54	135,0	35,0	25	14	1000	315
34704.W1200	80	M12	50	54	85,0	35,0	25	14	1000	303
34704.W1201	80	M12	100	54	135,0	35,0	25	14	1000	335
34704.W1202	80	M12	150	54	185,0	35,0	25	14	1000	372
34704.W1400	80	M14	50	54	85,0	35,0	25	14	1000	316
34704.W1401	80	M14	100	54	135,0	35,0	25	14	1000	363
34704.W1402	80	M14	150	54	185,0	35,0	25	14	1000	413
34704.W1600	80	M16	75	54	110,0	35,0	25	16	1000	367
34704.W1601	80	M16	100	54	135,0	35,0	25	16	1000	399
34704.W1602	80	M16	150	54	185,0	35,0	25	16	1000	464
34704.W1603	80	M16	200	54	235,0	35,0	25	16	1000	527
34704.W2000	80	M20	75	54	111,0	36,0	25	20	1000	430
34704.W2001	80	M20	100	54	136,0	36,0	25	20	1000	480
34704.W2002	80	M20	150	54	186,0	36,0	25	20	1000	582
34704.W2003	80	M20	200	54	236,0	36,0	25	20	1000	683
34704.W2400	80	M24	75	54	111,0	36,0	25	24	1000	503
34704.W2401	80	M24	100	54	136,0	36,0	25	24	1000	576
34704.W2402	80	M24	150	54	186,0	36,0	25	24	1500	721
34704.W2403	80	M24	200	54	236,0	36,0	25	24	1500	867
34704.W1604	100	M16	75	69	112,5	37,5	28	16	1500	505
34704.W1605	100	M16	100	69	137,5	37,5	28	16	1500	537
34704.W1606	100	M16	150	69	187,5	37,5	28	16	1500	602
34704.W1607	100	M16	200	69	237,5	37,5	28	16	1500	665
34704.W2004	100	M20	75	69	113,5	38,5	28	20	1500	568
34704.W2005	100	M20	100	69	138,5	38,5	28	20	1500	618
34704.W2006	100	M20	150	69	188,5	38,5	28	20	1500	720
34704.W2007	100	M20	200	69	238,5	38,5	28	20	1500	821
34704.W2008	100	M20	250	69	288,5	38,5	28	20	1500	924
34704.W2404	100	M24	100	69	138,5	38,5	28	24	1500	641
34704.W2405	100	M24	150	69	188,5	38,5	28	24	1500	714
34704.W2406	100	M24	200	69	238,5	38,5	28	24	1500	859
34704.W2407	100	M24	250	69	288,5	38,5	28	24	1500	1005
34704.W3000	100	M30	100	69	139,5	39,5	28	30	1500	906
34704.W3001	100	M30	150	69	189,5	39,5	28	30	1500	1139
34704.W3002	100	M30	200	69	239,5	39,5	28	30	1500	1363
34704.W3003	100	M30	250	69	289,5	39,5	28	30	1500	1593

Industrial Levelling Feet - Steel

swivel

34705



Material
Steel (C40), powder coated (RAL 1007), with rubber pad (70 shore A).

Technical Notes
Load values refer to static loads, located at half the screw height.

Order no.	d_1	d_2	l	h_1	h_2	h_3	a/f	Max. load Kgf
34705.W1000	50	M10	25	56	31	19	14	1500
34705.W1001	50	M10	50	81	31	19	14	1500
34705.W1002	50	M10	75	106	31	19	14	1500
34705.W1003	50	M10	100	131	31	19	14	1500
34705.W1004	50	M10	125	156	31	19	14	1500
34705.W1200	50	M12	25	56	31	19	14	1500
34705.W1201	50	M12	50	81	31	19	14	1500
34705.W1202	50	M12	75	106	31	19	14	1500
34705.W1203	50	M12	100	131	31	19	14	1500
34705.W1204	50	M12	125	156	31	19	14	1500
34705.W1400	50	M14	25	56	31	19	14	1500
34705.W1401	50	M14	50	81	31	19	14	1500
34705.W1402	50	M14	75	106	31	19	14	1500
34705.W1403	50	M14	100	131	31	19	14	1500
34705.W1404	50	M14	125	156	31	19	14	1500
34705.W1405	65	M14	50	83	33	20	16	2000
34705.W1406	65	M14	75	108	33	20	16	2000
34705.W1407	65	M14	100	133	33	20	16	2000
34705.W1408	65	M14	125	158	33	20	16	2000
34705.W1409	65	M14	150	183	33	20	16	2000
34705.W1600	65	M16	50	83	33	20	16	2000
34705.W1601	65	M16	75	108	33	20	16	2000
34705.W1602	65	M16	100	133	33	20	16	2000
34705.W1603	65	M16	125	158	33	20	16	2000
34705.W1604	65	M16	150	183	33	20	16	2000
34705.W1605	65	M16	175	208	33	20	16	2000
34705.W1606	80	M16	50	86	36	23	16	3000
34705.W1607	80	M16	75	111	36	23	16	3000
34705.W1608	80	M16	100	136	36	23	16	3000
34705.W1609	80	M16	125	161	36	23	16	3000
34705.W1610	80	M16	150	186	36	23	16	3000
34705.W1611	80	M16	175	211	36	23	16	3000
34705.W1612	80	M16	200	236	36	23	16	3000
34705.W2000	80	M20	75	114	39	23	17	3000
34705.W2001	80	M20	100	139	39	23	17	3000

Industrial Levelling Feet - Steel

swivel

34705

Order no.	d_1	d_2	l	h_1	h_2	h_3	a/f	Max. load Kgf
34705.W2002	80	M20	125	164	39	23	17	3000
34705.W2003	80	M20	150	189	39	23	17	3000
34705.W2004	80	M20	175	214	39	23	17	3000
34705.W2005	80	M20	200	239	39	23	17	3000
34705.W2006	80	M20	225	264	39	23	17	3000
34705.W1613	100	M16	50	96	46	23	20	3500
34705.W1614	100	M16	75	121	46	23	20	3500
34705.W1615	100	M16	100	146	46	23	20	3500
34705.W1616	100	M16	125	171	46	23	20	3500
34705.W1617	100	M16	150	196	46	23	20	3500
34705.W1618	100	M16	175	221	46	23	20	3500
34705.W1619	100	M16	200	246	46	23	20	3500
34705.W2007	100	M20	75	121	46	23	20	4500
34705.W2008	100	M20	100	146	46	23	20	4500
34705.W2009	100	M20	125	171	46	23	20	4500
34705.W2010	100	M20	150	196	46	23	20	4500
34705.W2011	100	M20	175	221	46	23	20	4500
34705.W2012	100	M20	200	246	46	23	20	4500
34705.W2013	100	M20	225	271	46	23	20	4500
34705.W2014	100	M20	250	296	46	23	20	4500
34705.W2400	100	M24	75	122	47	23	20	5500
34705.W2401	100	M24	100	147	47	23	20	5500
34705.W2402	100	M24	125	172	47	23	20	5500
34705.W2403	100	M24	150	202	47	23	20	5500
34705.W2404	100	M24	175	222	47	23	20	5500
34705.W2405	100	M24	200	247	47	23	20	5500
34705.W2406	100	M24	225	272	47	23	20	5500
34705.W2407	100	M24	250	297	47	23	20	5500
34705.W1620	120	M16	50	99	49	26	20	3500
34705.W1621	120	M16	75	104	49	26	20	3500
34705.W1622	120	M16	100	149	49	26	20	3500
34705.W1623	120	M16	125	174	49	26	20	3500
34705.W1624	120	M16	150	199	49	26	20	3500
34705.W1625	120	M16	175	224	49	26	20	3500
34705.W1626	120	M16	200	249	49	26	20	3500
34705.W2015	120	M20	75	124	49	26	20	4500
34705.W2016	120	M20	100	149	49	26	20	4500
34705.W2017	120	M20	125	174	49	26	20	4500
34705.W2018	120	M20	150	199	49	26	20	4500
34705.W2019	120	M20	175	224	49	26	20	4500
34705.W2020	120	M20	200	249	49	26	20	4500
34705.W2021	120	M20	225	274	49	26	20	4500
34705.W2022	120	M20	250	299	49	26	20	4500
34705.W2408	120	M24	75	125	50	26	20	5500
34705.W2409	120	M24	100	150	50	26	20	5500
34705.W2410	120	M24	125	175	50	26	20	5500
34705.W2411	120	M24	150	200	50	26	20	5500
34705.W2412	120	M24	175	225	50	26	20	5500
34705.W2413	120	M24	200	250	50	26	20	5500
34705.W2414	120	M24	225	275	50	26	20	5500
34705.W2415	120	M24	250	300	50	26	20	5500
34705.W3000	120	M30	100	150	50	26	26	6500
34705.W3001	120	M30	125	175	50	26	26	6500
34705.W3002	120	M30	150	200	50	26	26	6500
34705.W3003	120	M30	175	225	50	26	26	6500
34705.W3004	120	M30	200	250	50	26	26	6500
34705.W3005	120	M30	225	275	50	26	26	6500
34705.W3006	120	M30	250	300	50	26	26	6500

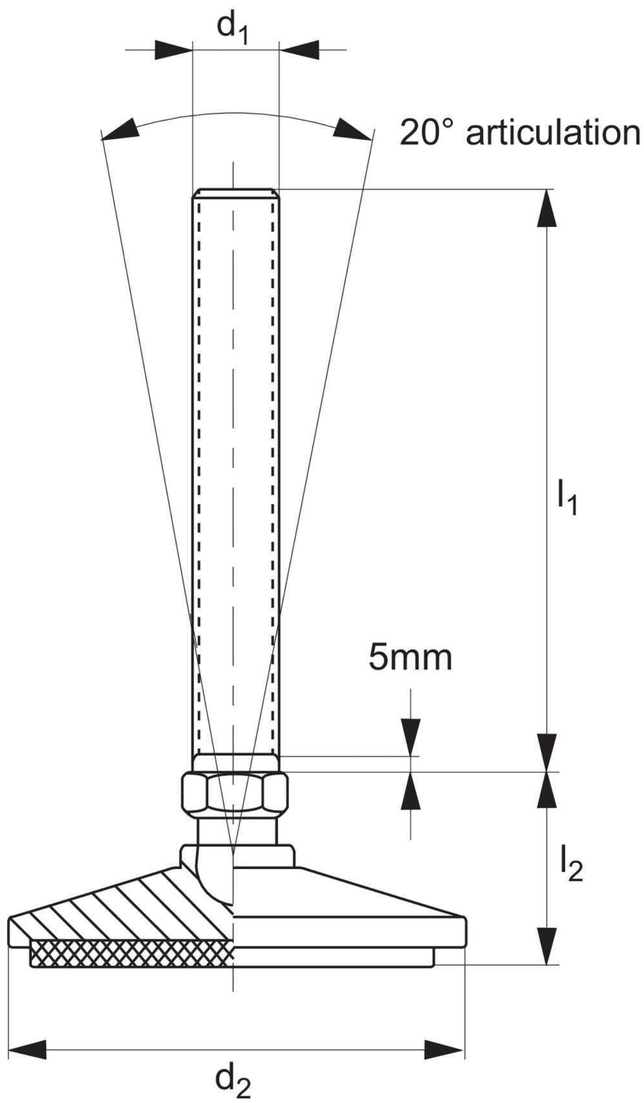
Material

Steel (C40), powder coated (RAL 1007), with rubber pad (70 shore A).

Technical Notes

Load values refer to static loads, located at half the screw height.

34711



Material
Pad and bolt: stainless steel, type AISI 303. With nitril rubber pad.

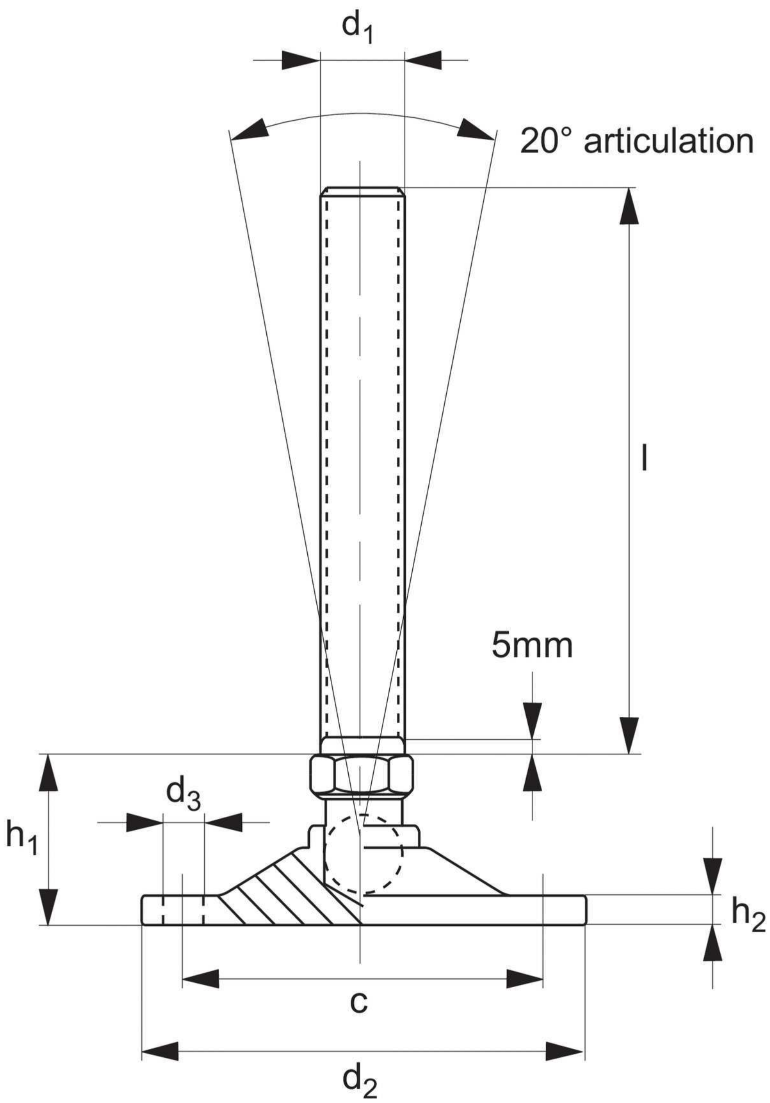
Tips
For use in a wide range of industries including, food processing, pharmaceutical, electronic, medical and machinery shops.

Order No.	d_1	l_1	d_2	l_2	Max. static load kN
34711.W0120	M12	75	55	27	7,5
34711.W0121	M12	125	55	27	7,5
34711.W0122	M12	150	55	27	7,5
34711.W0160	M16	75	65	33	12,5
34711.W0161	M16	125	65	33	12,5
34711.W0162	M16	150	65	33	12,5
34711.W0200	M20	125	75	41	17,5
34711.W0201	M20	150	75	41	17,5
34711.W0202	M20	200	75	41	17,5
34711.W0240	M24	125	100	52	25,0
34711.W0241	M24	150	100	52	25,0
34711.W0242	M24	200	100	52	25,0

Levelling Feet - Bolt Down, Medium Duty

pad and bolt stainless steel

34712



Material
Pad and bolt: stainless steel, AISI 303.

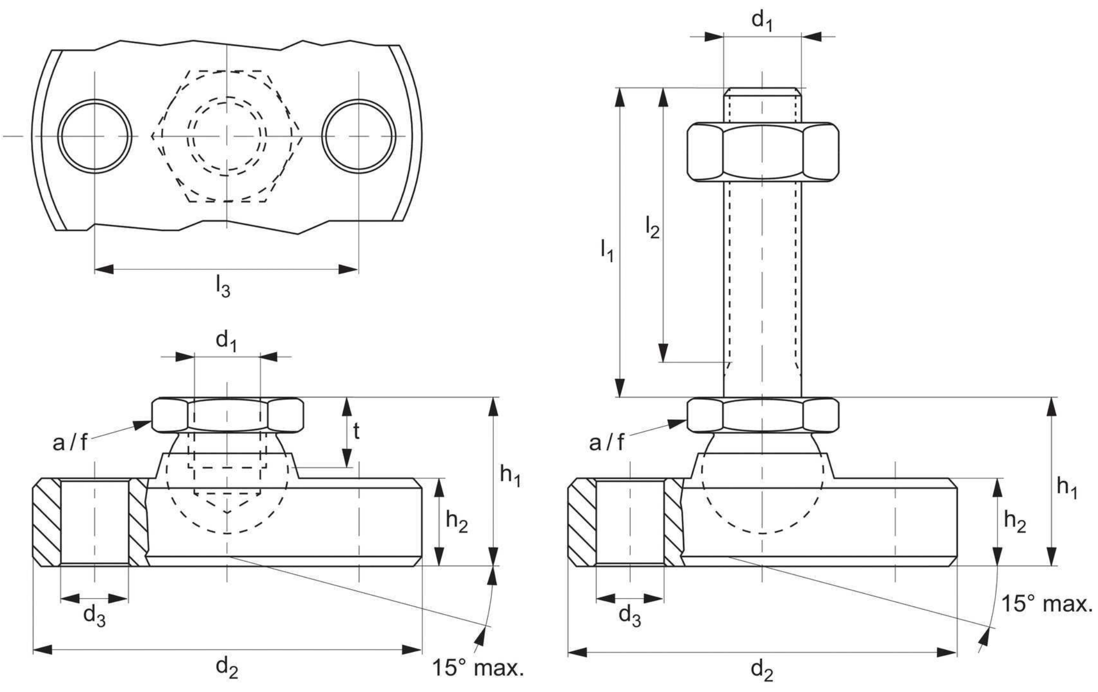
Technical Notes
Bolt has a 20° angle of movement.

Order No.	d_1	l	d_2	c	d_3	h_1	h_2	Max. static load kN
34712.W0508	M 8	60	50	40	5,5	22	4,0	3,0
34712.W0600	M10	75	50	40	5,5	22	5,0	5,0
34712.W0620	M12	75	50	40	5,5	25	4,0	7,5
34712.W0621	M12	75	60	50	5,5	25	5,0	12,5
34712.W0622	M12	125	60	50	5,5	25	5,0	12,5
34712.W0623	M12	150	60	50	5,5	25	5,0	12,5
34712.W0660	M16	75	80	68	6,5	31	6,0	17,5
34712.W0661	M16	125	80	68	6,5	31	6,0	17,5
34712.W0662	M16	150	80	68	6,5	31	6,0	17,5
34712.W0700	M20	125	100	82	9,0	39	6,5	25,0
34712.W0701	M20	150	100	82	9,0	39	6,5	25,0
34712.W0702	M20	200	100	82	9,0	39	6,5	25,0
34712.W0703	M24	150	120	100	11,0	56	7,5	37,5
34712.W0704	M24	200	120	100	11,0	56	7,5	37,5

Levelling Feet - Bolt Down, Heavy Duty

pad and bolt stainless steel

34713



Pad

Pad and bolt

Order No.	Finish	d_1	l_1	d_2 -0,5	d_3	l_2	l_3	h_1 ≈	h_2	t	a/f	Max. static load kN	g
34713.W0706	Pad	M 6	-	45	6,6	-	32	14	6,5	5,0	10	8	79
34713.W0708	Pad	M 8	-	50	6,6	-	38	18	8,5	7,0	13	14	130
34713.W0710	Pad	M10	-	60	9,0	-	44	22	11,5	9,0	17	16	250
34713.W0712	Pad	M12	-	65	9,0	-	48	26	12,5	11,0	19	28	326
34713.W0716	Pad	M16	-	70	9,0	-	54	32	13,5	13,5	24	36	427
34713.W0720	Pad	M20	-	80	9,0	-	64	42	16,5	17,0	30	44	718
34713.W0724	Pad	M24	-	100	11,0	-	78	45	20,5	19,0	36	52	1304
34713.W0810	Pad and Bolt	M 6	60	45	6,6	57,0	32	14	6,5	-	10	8	93
34713.W0822	Pad and Bolt	M 8	80	50	6,6	76,0	38	18	8,5	-	13	14	163
34713.W0838	Pad and Bolt	M10	100	60	9,0	95,5	44	22	11,5	-	17	16	318
34713.W0842	Pad and Bolt	M10	150	60	9,0	145,5	44	22	11,5	-	17	16	341
34713.W0852	Pad and Bolt	M12	100	65	9,0	94,5	48	26	12,5	-	19	28	423
34713.W0856	Pad and Bolt	M12	150	65	9,0	144,5	48	26	12,5	-	19	28	459
34713.W0868	Pad and Bolt	M16	100	70	9,0	94,0	54	32	13,5	-	24	36	615
34713.W0872	Pad and Bolt	M16	200	70	9,0	194,0	54	32	13,5	-	24	36	746
34713.W0882	Pad and Bolt	M20	100	80	9,0	92,5	64	42	16,5	-	30	44	1029
34713.W0888	Pad and Bolt	M20	200	80	9,0	192,5	64	42	16,5	-	30	44	1231
34713.W0895	Pad and Bolt	M24	100	100	11,0	91,0	78	45	20,5	-	36	52	1775
34713.W0898	Pad and Bolt	M24	200	100	11,0	191,0	78	45	20,5	-	36	52	2075

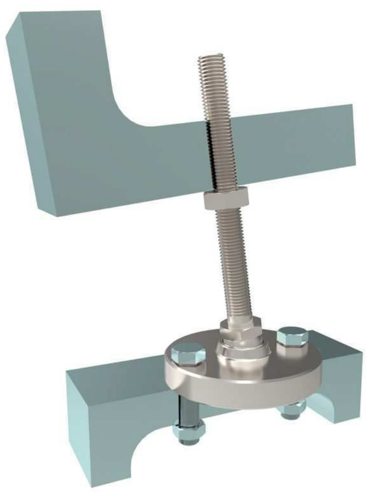
Material

Pad and bolt: stainless steel 1.4305, AISI 303.
Lock nut: Stainless steel A2, DIN 934 and ISO 4032.

Technical Notes

To be used as foot and thrust pad. Including two mounting holes in pad.

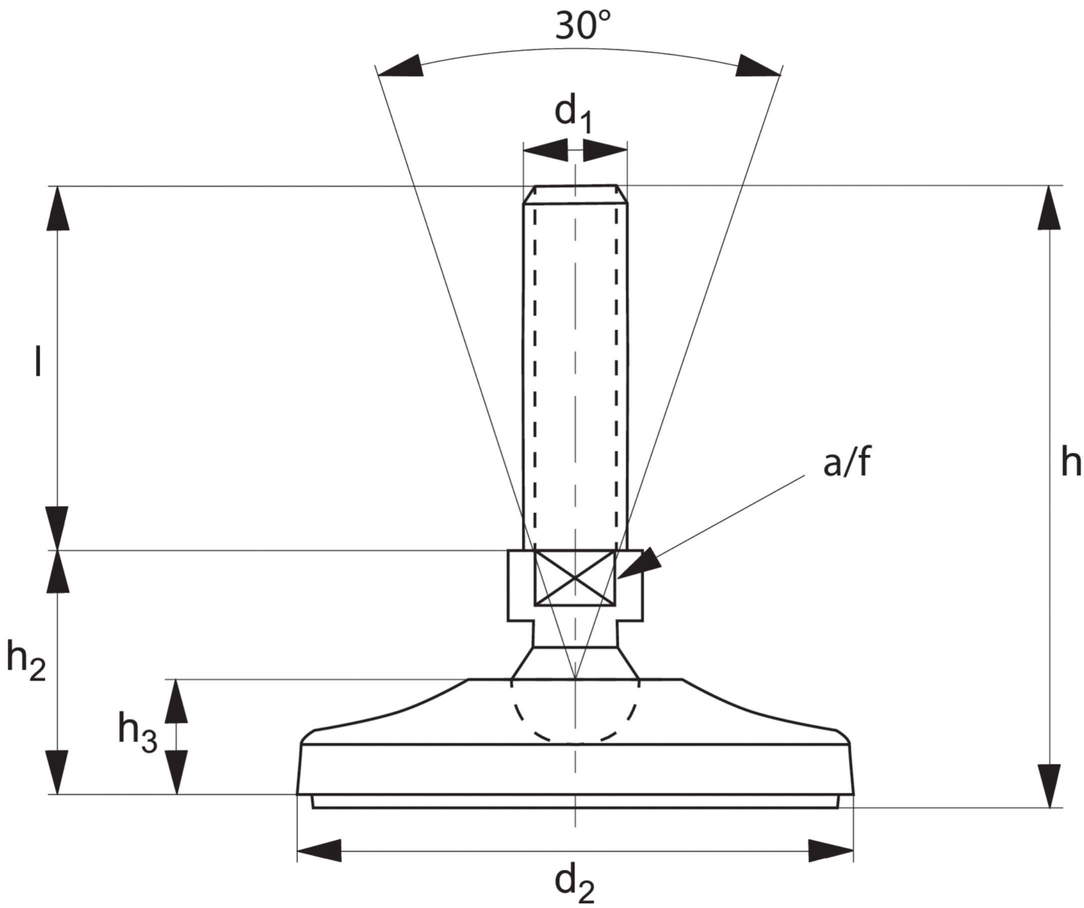
STAINLESS STEEL 303



Levelling Feet

stainless steel swivel

34714



Material

Stainless steel (AISI 304), with rubber pad (70 Shore A). Stainless steel (AISI 316) version available on request.

Technical Notes

Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.

STAINLESS STEEL 304

Order No.	d_1	d_2	l	h_1	h_2	h_3	a/f	Max. load kN
34714.W1000	M10	50	25	56	28	16,0	14	15
34714.W1001	M10	50	50	81	28	16,0	14	15
34714.W1002	M10	50	75	106	28	16,0	14	15
34714.W1003	M10	50	100	131	28	16,0	14	15
34714.W1004	M10	50	125	156	28	16,0	14	15
34714.W1200	M12	50	25	56	28	16,0	14	15
34714.W1201	M12	50	50	81	28	16,0	14	15
34714.W1202	M12	50	75	106	28	16,0	14	15
34714.W1203	M12	50	100	131	28	16,0	14	15
34714.W1204	M12	50	125	156	28	16,0	14	15
34714.W1400	M14	65	50	83	30	17,0	14	20
34714.W1401	M14	65	75	108	30	17,0	14	20
34714.W1402	M14	65	100	133	30	17,0	14	20
34714.W1403	M14	65	125	158	30	17,0	14	20
34714.W1404	M14	65	150	183	30	17,0	14	20
34714.W1600	M16	100	50	96	43	20,0	20	35
34714.W1601	M16	100	75	121	43	20,0	20	35
34714.W1602	M16	100	100	146	43	20,0	20	35
34714.W1603	M16	100	125	171	43	20,0	20	35
34714.W1604	M16	100	150	196	43	20,0	20	35
34714.W1605	M16	100	175	221	43	20,0	20	35
34714.W1606	M16	100	200	246	43	20,0	20	35
34714.W2000	M20	100	75	121	43	20,0	20	45
34714.W2001	M20	100	100	146	43	20,0	20	45
34714.W2002	M20	100	125	171	43	20,0	20	45
34714.W2003	M20	100	150	196	43	20,0	20	45
34714.W2004	M20	100	175	221	43	20,0	20	45
34714.W2005	M20	100	200	246	43	20,0	20	45
34714.W2006	M20	100	225	271	43	20,0	20	45
34714.W2007	M20	100	250	296	43	20,0	20	45
34714.W2400	M24	100	75	122	44	20,0	20	55
34714.W2401	M24	100	100	147	44	20,0	20	55
34714.W2402	M24	100	125	172	44	20,0	20	55
34714.W2403	M24	100	150	202	44	20,0	20	55
34714.W2404	M24	100	175	222	44	20,0	20	55
34714.W2405	M24	100	200	247	44	20,0	20	55

Levelling Feet

stainless steel swivel

34714

Order No.	d_1	d_2	l	h_1	h_2	h_3	a/f	Max. load kN
34714.W2406	M24	100	225	272	44	20,0	20	55
34714.W2407	M24	100	250	297	44	20,0	20	55
34714.W3000	M30	120	100	150	47	23,0	26	65
34714.W3001	M30	120	125	175	47	23,0	26	65
34714.W3002	M30	120	150	200	47	23,0	26	65
34714.W3003	M30	120	175	225	47	23,0	26	65
34714.W3004	M30	120	200	250	47	23,0	26	65
34714.W3005	M30	120	225	275	47	23,0	26	65
34714.W3006	M30	120	250	300	47	23,0	26	65

Material

Stainless steel (AISI 304), with rubber pad (70 Shore A).
Stainless steel (AISI 316) version available on request.

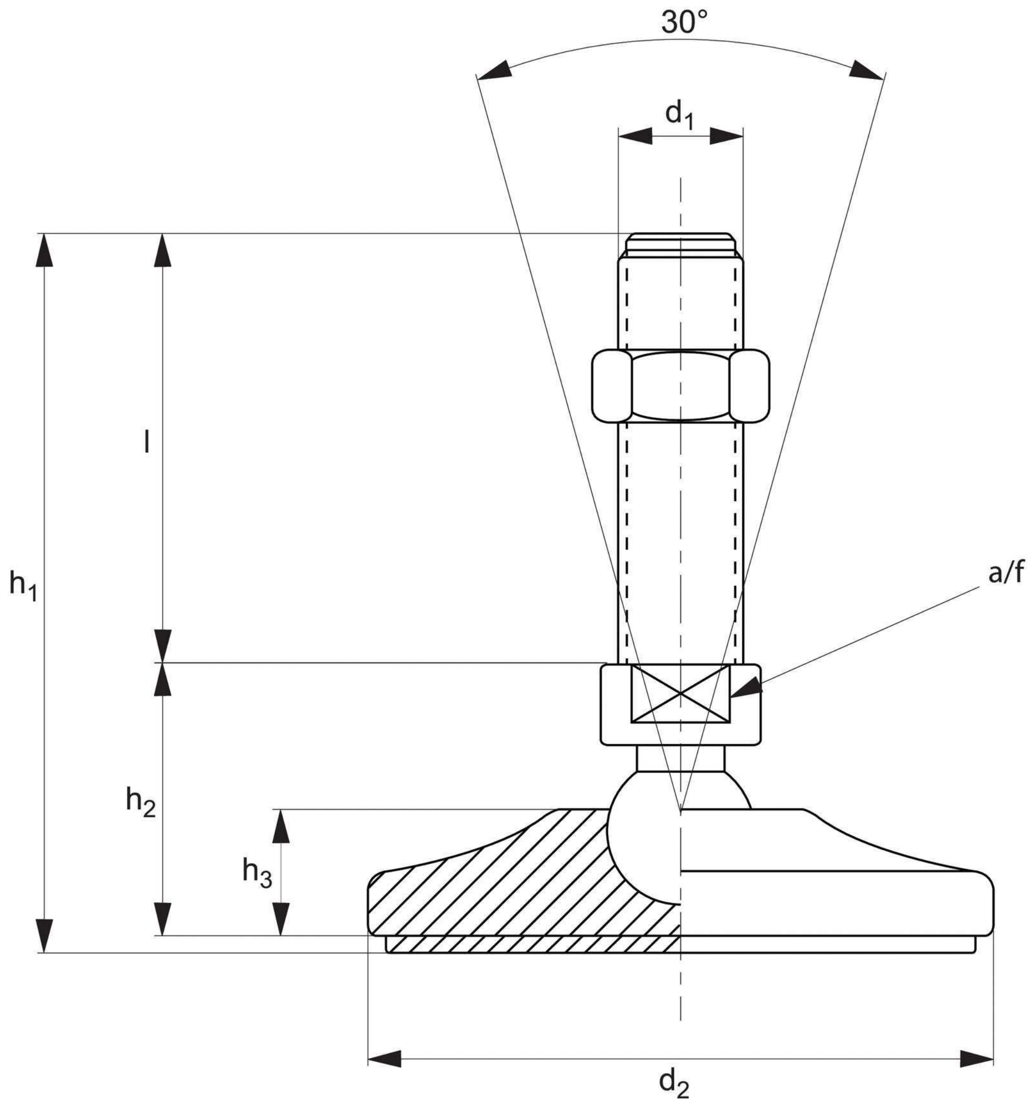
Technical Notes

Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.

STAINLESS STEEL 304

Levelling Feet

stainless steel, heavy duty

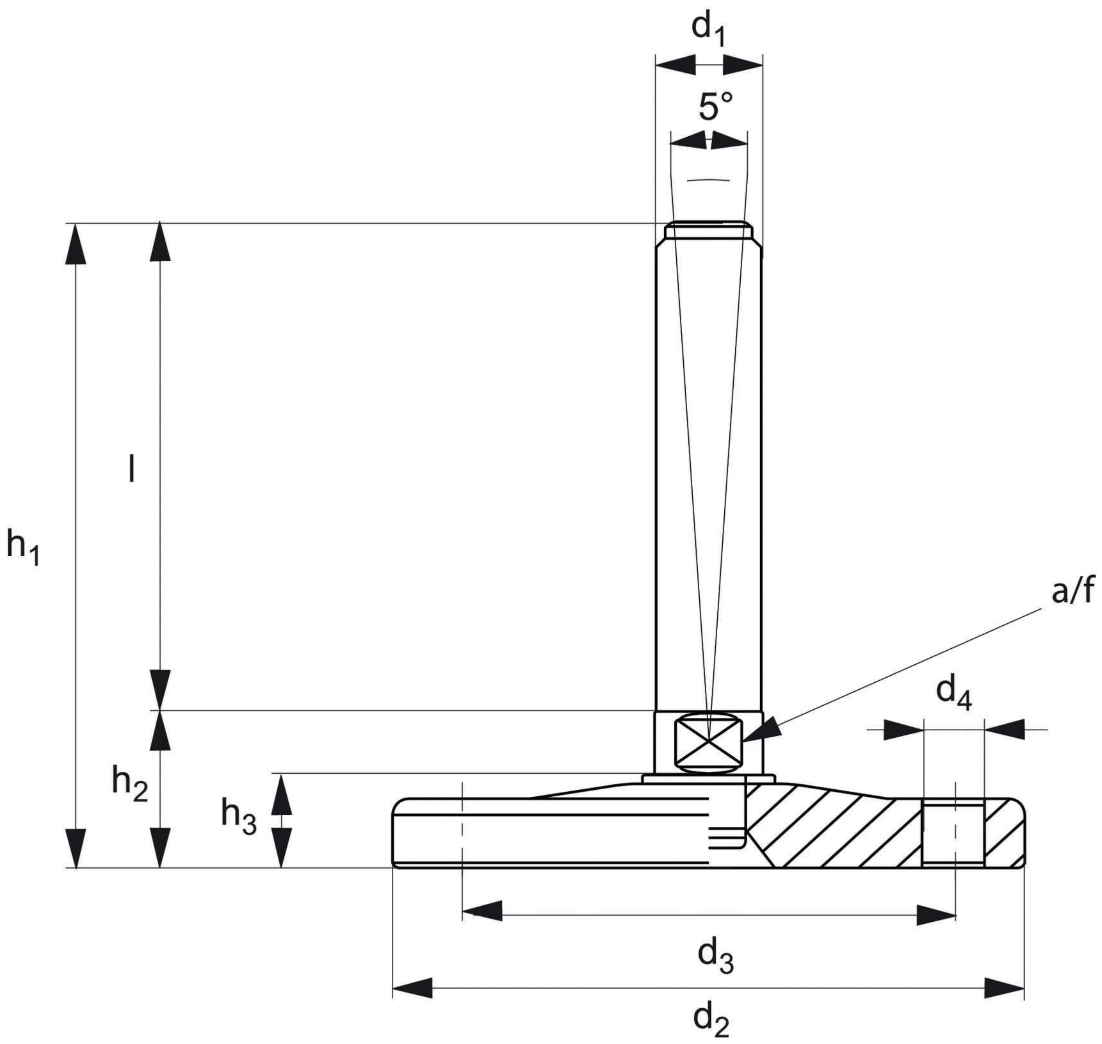


Material
Stainless steel (AISI 304), with rubber pad (70 Shore A).
Stainless steel (AISI 316) version available on request.

Technical Notes
Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.

STAINLESS STEEL 304

Order No.	d_1	d_2	l	h_1	h_2	h_3	a/f	Max. load kN
34716.W2000	M20	160	75	127	49	26	20	50
34716.W2001	M20	160	100	152	49	26	20	50
34716.W2002	M20	160	125	177	49	26	20	50
34716.W2003	M20	160	150	202	49	26	20	50
34716.W2004	M20	160	175	227	49	26	20	50
34716.W2005	M20	160	200	252	49	26	20	50
34716.W2400	M24	160	75	127	49	26	20	60
34716.W2401	M24	160	100	152	49	26	20	60
34716.W2402	M24	160	125	177	49	26	20	60
34716.W2403	M24	160	150	202	49	26	20	60
34716.W2404	M24	160	175	227	49	26	20	60
34716.W2405	M24	160	200	252	49	26	20	60
34716.W3000	M30	160	100	152	49	26	26	70
34716.W3001	M30	160	125	177	49	26	26	70
34716.W3002	M30	160	150	202	49	26	26	70
34716.W3003	M30	160	175	227	49	26	26	70
34716.W3004	M30	160	200	252	49	26	26	70
34716.W3005	M30	160	225	277	49	26	26	70
34716.W3006	M30	160	250	302	49	26	26	70
34716.W3600	M36	160	150	204	51	26	32	80
34716.W3601	M36	160	200	254	51	26	32	80



Material

Stainless steel (AISI 304).
Stainless steel (AISI 316) version available on request.

Technical Notes

Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.

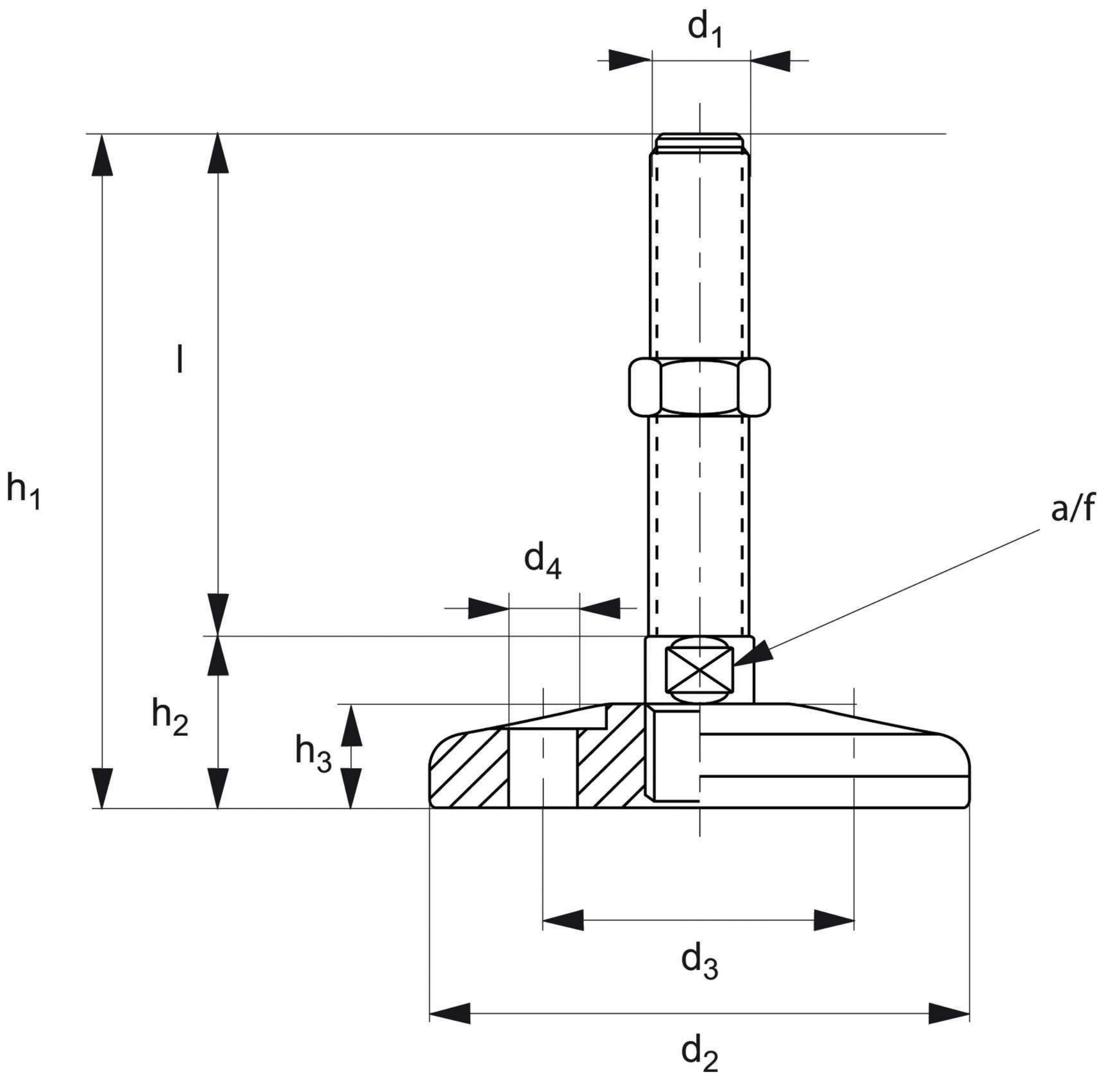
STAINLESS STEEL 304

Order No.	d_1	d_2	d_3	d_4	l	h_1	h_2	h_3	a/f	Max. load kN
34717.W1400	M14	80	62	10,5	50	70	20	11,5	14	20
34717.W1401	M14	80	62	10,5	100	120	20	11,5	14	20
34717.W1402	M14	80	62	10,5	150	170	20	11,5	14	20
34717.W1600	M16	120	62	12,5	75	104	29	16,5	17	40
34717.W1601	M16	120	62	12,5	100	129	29	16,5	17	40
34717.W1602	M16	120	62	12,5	150	179	29	16,5	17	40
34717.W2000	M20	120	62	12,5	75	104	29	16,5	17	40
34717.W2001	M20	120	62	12,5	125	154	29	16,5	17	40
34717.W2002	M20	120	62	12,5	175	204	29	16,5	17	40
34717.W2400	M24	120	62	12,5	100	130	30	16,5	20	45
34717.W2401	M24	120	62	12,5	150	180	30	16,5	20	45
34717.W2402	M24	120	62	12,5	200	230	30	16,5	20	45
34717.W3000	M30	120	62	12,5	125	155	30	16,5	26	45
34717.W3001	M30	120	62	12,5	175	205	30	16,5	26	45
34717.W3002	M30	120	62	12,5	225	255	30	16,5	26	45
34717.W2003	M20	150	62	12,5	75	104	29	16,5	17	50
34717.W2004	M20	150	62	12,5	125	154	29	16,5	17	50
34717.W2005	M20	150	62	12,5	175	204	29	16,5	17	50
34717.W2403	M24	150	62	12,5	100	130	30	16,5	20	55
34717.W2404	M24	150	62	12,5	150	180	30	16,5	20	55
34717.W2405	M24	150	62	12,5	200	230	30	16,5	20	55

Levelling Feet - Bolt Down

stainless steel, heavy duty

34718



Material
Stainless steel (AISI 304).
Stainless steel (AISI 316) version available on request.

Technical Notes
Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.

STAINLESS STEEL 304

Order No.	d_1	d_2	d_3	d_4	l	h_1	h_2	h_3	a/f	Max. load kN
34718.W1600	M16	100	74	12,5	100	133	33	20	20	35
34718.W1601	M16	100	74	12,5	150	183	33	20	20	35
34718.W1602	M16	100	74	12,5	200	233	33	20	20	35
34718.W2000	M20	100	74	12,5	100	133	33	20	20	40
34718.W2001	M20	100	74	12,5	150	183	33	20	20	40
34718.W2002	M20	100	74	12,5	200	233	33	20	20	40
34718.W2003	M20	100	74	12,5	250	283	33	20	20	40
34718.W2400	M24	100	74	12,5	100	134	34	20	20	45
34718.W2401	M24	100	74	12,5	150	184	34	20	20	45
34718.W2402	M24	100	74	12,5	200	234	34	20	20	45
34718.W2403	M24	100	74	12,5	250	284	34	20	20	45
34718.W2004	M20	120	74	12,5	100	135	35	22	20	45
34718.W2005	M20	120	74	12,5	150	185	35	22	20	45
34718.W2006	M20	120	74	12,5	200	235	35	22	20	45
34718.W2007	M20	120	74	12,5	250	285	35	22	20	45
34718.W2404	M24	120	74	12,5	100	136	36	22	20	50
34718.W2405	M24	120	74	12,5	150	186	36	22	20	50
34718.W2406	M24	120	74	12,5	200	231	36	22	20	50
34718.W2407	M24	120	74	12,5	250	281	36	22	20	50
34718.W3000	M30	120	74	12,5	100	136	36	22	26	60
34718.W3001	M30	120	74	12,5	150	186	36	22	26	60
34718.W3002	M30	120	74	12,5	200	236	36	22	26	60
34718.W3003	M30	120	74	12,5	250	286	36	22	26	60
34718.W2008	M20	159	74	12,5	100	136	36	23	20	50
34718.W2009	M20	159	74	12,5	150	186	36	23	20	50
34718.W2010	M20	159	74	12,5	200	236	36	23	20	50
34718.W2011	M20	159	74	12,5	250	286	36	23	20	50
34718.W2408	M24	159	74	12,5	100	137	37	23	20	60
34718.W2409	M24	159	74	12,5	150	187	37	23	20	60

Levelling Feet - Bolt Down

stainless steel, heavy duty

34718

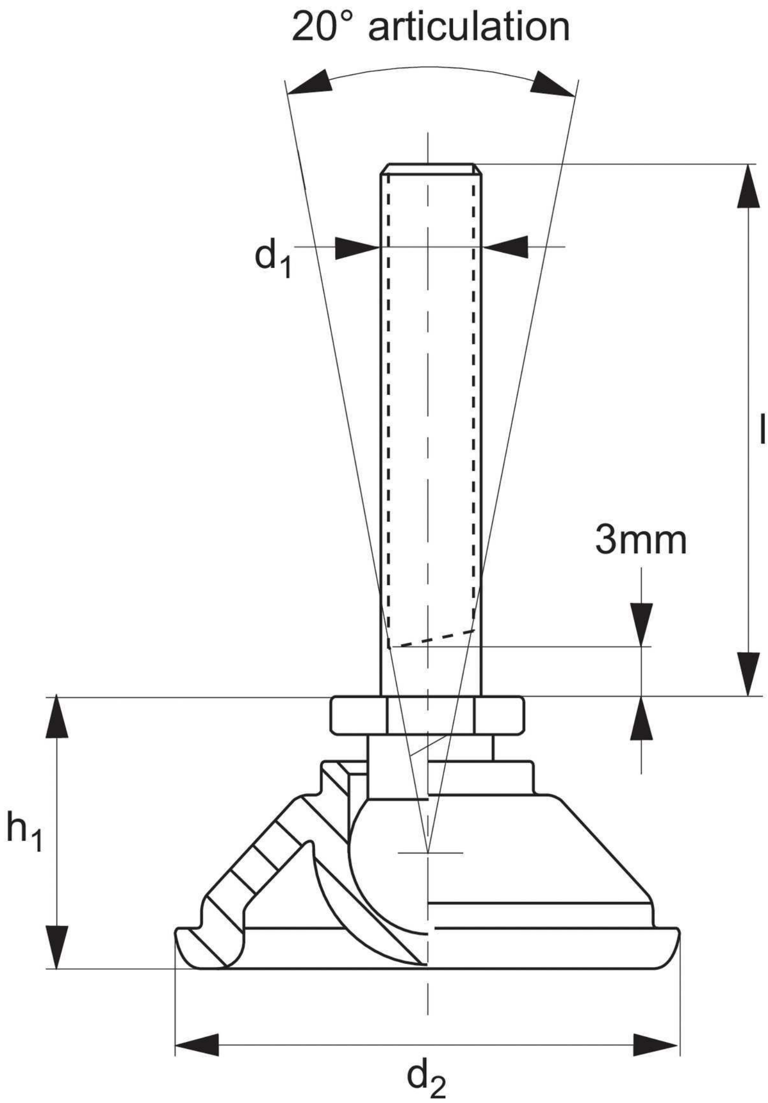
Order No.	d_1	d_2	d_3	d_4	l	h_1	h_2	h_3	a/f	Max. load kN
34718.W2410	M24	159	74	12,5	200	237	37	23	20	60
34718.W2411	M24	159	74	12,5	250	287	37	23	20	60
34718.W3004	M30	159	74	12,5	100	137	37	23	26	70
34718.W3005	M30	159	74	12,5	150	187	37	23	26	70
34718.W3006	M30	159	74	12,5	200	237	37	23	26	70
34718.W3007	M30	159	74	12,5	250	287	37	23	26	70

Material
Stainless steel (AISI 304).
Stainless steel (AISI 316) version available on request.

Technical Notes
Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.

Levelling Feet
pad plastic, bolt steel

34721



Material
Pad: polyamide reinforced nylon.
Bolt: mild steel, plated.

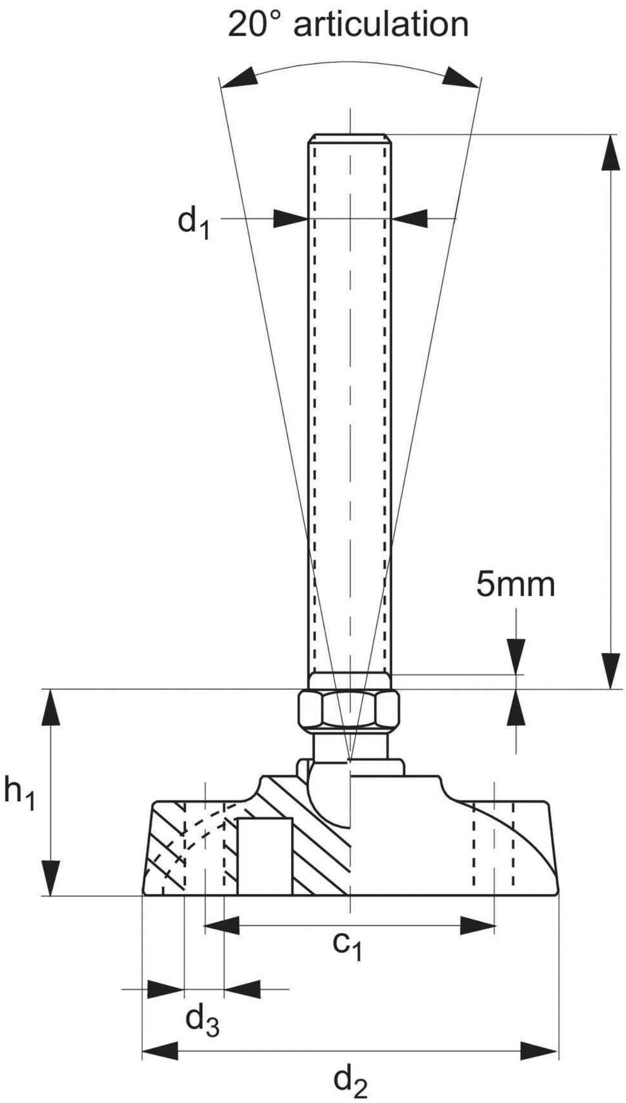
PA

Order No.	d_1	l	d_2	h_1	Max. static load kN
34721.W0060	M 6	20	40	21	3,0
34721.W0061	M 6	20	50	23	3,0
34721.W0062	M 6	40	40	21	3,0
34721.W0063	M 6	40	50	23	3,0
34721.W0080	M 8	25	40	21	4,5
34721.W0081	M 8	25	50	23	4,5
34721.W0082	M 8	40	40	21	4,5
34721.W0083	M 8	40	50	23	4,5
34721.W0084	M 8	60	40	21	4,5
34721.W0085	M 8	60	50	23	4,5
34721.W0100	M10	38	40	21	5,0
34721.W0101	M10	38	50	23	5,0
34721.W0102	M10	60	40	21	5,0
34721.W0103	M10	60	50	23	5,0
34721.W0104	M10	75	40	21	5,0
34721.W0105	M10	75	50	23	5,0
34721.W0120	M12	50	40	23	6,0
34721.W0121	M12	50	50	25	6,0
34721.W0122	M12	75	40	23	6,0
34721.W0123	M12	75	50	25	6,0
34721.W0124	M12	100	40	23	6,0
34721.W0125	M12	100	50	25	6,0
34721.W0126	M12	125	40	23	6,0
34721.W0127	M12	125	50	25	6,0

Levelling Feet - Bolt Down

pad plastic, bolt steel

34722



Material

Pad: polyamide reinforced nylon.
Bolt: mild steel, electrolyses nickel plated.

Technical Notes

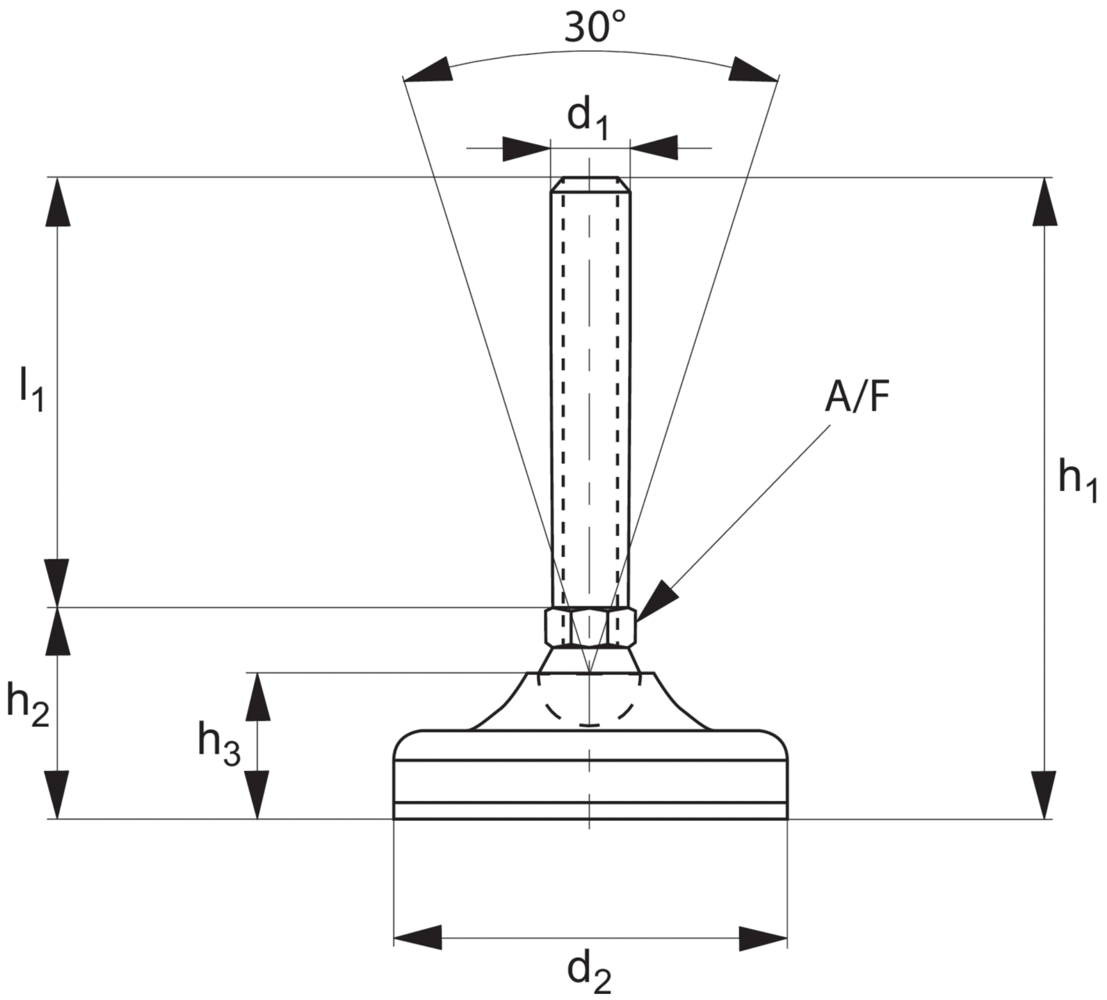
Supplied with plastic mounting hole plugs, these prevent material and waste entering the mounting holes, thus simplifying cleaning and maintenance.

PA

Order No.	Thread size d_1	l	d_2	d_3	c_1	h_1	Max. static load kN
34722.W0620	M12	75	100	10,5	70	42	10
34722.W0621	M12	125	100	10,5	70	42	10
34722.W0661	M16	125	100	10,5	70	45	20
34722.W0662	M16	150	100	10,5	70	45	20
34722.W0663	M16	200	100	10,5	70	45	20
34722.W0700	M20	125	100	10,5	70	49	20
34722.W0701	M20	150	100	10,5	70	49	20
34722.W0720	M24	125	100	10,5	70	53	20
34722.W0721	M24	150	100	10,5	70	53	20
34722.W0722	M24	200	100	10,5	70	53	20
34722.W0723	M24	250	100	10,5	70	53	20

Levelling Feet
plastic pad, bolt steel

34723



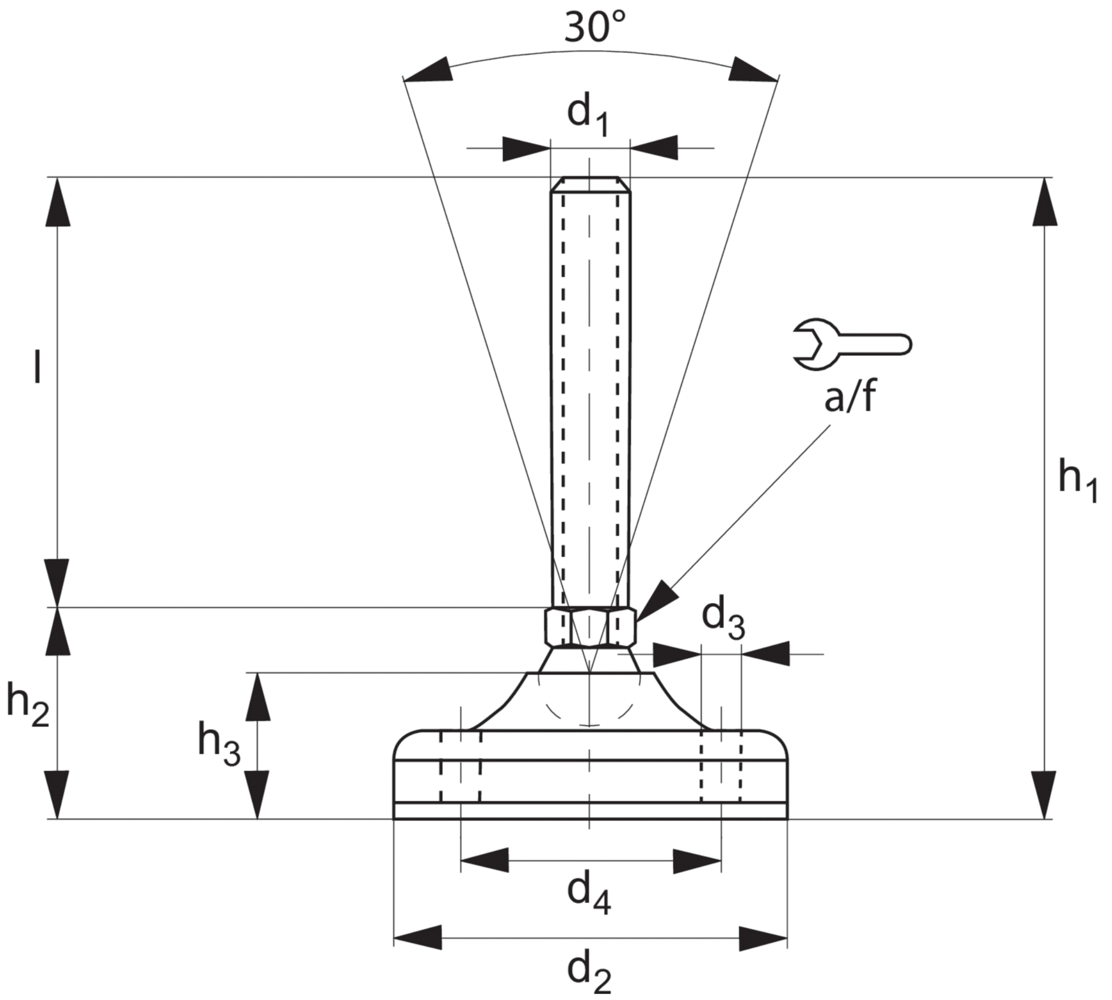
Material
Pad: polyamide reinforced by fibre glass with anti-slip pad.
Bolt: galvanized steel (C40)

Technical Notes
Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.

PA

Order No.	d_1	d_2	l_1	h_1	h_2	h_3	A/F	Max. load kN
34723.W0801	M 8	40	25	55	30	19,5	12	10
34723.W0802	M 8	40	50	80	30	19,5	12	10
34723.W0803	M 8	40	75	105	30	19,5	12	10
34723.W0804	M 8	40	100	130	30	19,5	12	10
34723.W1000	M10	65	50	86	36	26,0	14	11
34723.W1001	M10	65	75	111	36	26,0	14	11
34723.W1002	M10	65	100	136	36	26,0	14	11
34723.W1003	M10	65	125	161	36	26,0	14	11
34723.W1200	M12	65	50	86	36	26,0	14	11
34723.W1201	M12	65	75	111	36	26,0	14	11
34723.W1202	M12	65	100	136	36	26,0	14	11
34723.W1203	M12	65	125	161	36	26,0	14	11
34723.W1400	M14	65	50	86	36	26,0	14	15
34723.W1401	M14	65	75	111	36	26,0	14	15
34723.W1402	M14	65	100	136	36	26,0	14	15
34723.W1403	M14	65	125	161	36	26,0	14	15
34723.W1404	M14	65	150	186	36	26,0	14	15
34723.W1405	M14	65	175	211	36	26,0	14	15
34723.W1600	M16	65	50	86	36	26,0	16	15
34723.W1601	M16	65	75	111	36	26,0	16	15
34723.W1602	M16	65	100	136	36	26,0	16	15
34723.W1603	M16	65	125	161	36	26,0	16	15
34723.W1604	M16	65	150	186	36	26,0	16@	15
34723.W1605	M16	65	175	211	36	26,0	16@	15
34723.W1606	M16	65	200	236	36	26,0	16@	15
34723.W2000	M20	65	75	115	40	26,0	17	15
34723.W2001	M20	65	100	140	40	26,0	17	15
34723.W2002	M20	65	125	165	40	26,0	17	15
34723.W2003	M20	65	150	190	40	26,0	17	15
34723.W2004	M20	65	175	215	40	26,0	17	15
34723.W2005	M20	65	200	240	40	26,0	17	15

34724



Material
Pad: polyamide reinforced by fibre glass with anti-slip pad.
Bolt: steel (C40)

Technical Notes
Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.

PA

Order No.	d_1	d_2	d_3	d_4	l	h_1	h_2	h_3	A/F	Max. load kN
34724.W1000	M10	83	8,5	55	50	91	41	30	14	15
34724.W1001	M10	83	8,5	55	75	116	41	30	14	15
34724.W1002	M10	83	8,5	55	100	141	41	30	14	15
34724.W1003	M10	83	8,5	55	125	166	41	30	14	15
34724.W1200	M12	83	8,5	55	50	91	41	30	14	15
34724.W1201	M12	83	8,5	55	75	116	41	30	14	15
34724.W1202	M12	83	8,5	55	100	141	41	30	14	15
34724.W1203	M12	83	8,5	55	125	161	41	30	14	15
34724.W1400	M14	83	8,5	55	50	91	41	30	14	20
34724.W1401	M14	83	8,5	55	75	116	41	30	14	20
34724.W1402	M14	83	8,5	55	100	141	41	30	14	20
34724.W1403	M14	83	8,5	55	125	166	41	30	14	20
34724.W1404	M14	83	8,5	55	150	191	41	30	14	20
34724.W1405	M14	83	8,5	55	175	216	41	30	14	20
34724.W1600	M16	83	8,5	55	50	91	41	30	16	20
34724.W1601	M16	83	8,5	55	75	116	41	30	16	20
34724.W1602	M16	83	8,5	55	100	141	41	30	16	20
34724.W1603	M16	83	8,5	55	125	166	41	30	16	20
34724.W1604	M16	83	8,5	55	150	191	41	30	16	20
34724.W1605	M16	83	8,5	55	175	216	41	30	16	20
34724.W1606	M16	83	8,5	55	200	241	41	30	16	20
34724.W1607	M16	103	12,5	73	50	104	54	35@	20	25
34724.W1608	M16	103	12,5	73	75	129	54	35@	20	25
34724.W1609	M16	103	12,5	73	100	154	54	35@	20	25
34724.W1700	M16	103	12,5	73	125	179	54	35@	20	25
34724.W1701	M16	103	12,5	73	150	204	54	35@	20	25
34724.W1702	M16	103	12,5	73	175	229	54	35	20	25
34724.W1703	M16	103	12,5	73	200	254	54	35@	20	25
34724.W1704	M16	103	12,5	73	225	279	54	35@	20	25
34724.W2000	M20	83	8,5	55	75	119	44	30@	17	20
34724.W2001	M20	83	8,5	55	100	144	44	30	17	20
34724.W2002	M20	83	8,5	55	125	169	44	30	17	20

Levelling Feet

plastic pad, bolt steel

34724

Order No.	d_1	d_2	d_3	d_4	l	h_1	h_2	h_3	A/F	Max. load kN
34724.W2003	M20	83	8,5	55	150	194	44	30	17	20
34724.W2004	M20	83	8,5	55	175	219	44	30	17	20
34724.W2005	M20	83	8,5	55	200	244	44	30	17	20
34724.W2006	M20	83	8,5	55	225	269	44	30	17	20
34724.W2007	M20	103	12,5	73	75	129	54	35	20	25
34724.W2008	M20	103	12,5	73	100	154	54	35	20	25
34724.W2009	M20	103	12,5	73	125	179	54	35	20	25
34724.W2010	M20	103	12,5	73	150	204	54	35	20	25
34724.W2011	M20	103	12,5	73	175	229	54	35	20	25
34724.W2012	M20	103	12,5	73	200	254	54	35	20	25
34724.W2013	M20	103	12,5	73	225	279	54	35	20	25
34724.W2014	M20	103	12,5	73	250	304	54	35	20	25
34724.W2400	M24	103	12,5	73	75	129	54	35	20	25
34724.W2401	M24	103	12,5	73	100	154	54	35	20	25
34724.W2402	M24	103	12,5	73	125	179	54	35	20	25
34724.W2403	M24	103	12,5	73	150	204	54	35	20	25
34724.W2404	M24	103	12,5	73	175	229	54	35	20	25
34724.W2405	M24	103	12,5	73	200	254	54	35	20	25
34724.W2406	M24	103	12,5	73	225	279	54	35	20	25
34724.W2407	M24	103	12,5	73	250	304	54	35	20	25

Material

Pad: polyamide reinforced by fibre glass with anti-slip pad.
Bolt: steel (C40)

Technical Notes

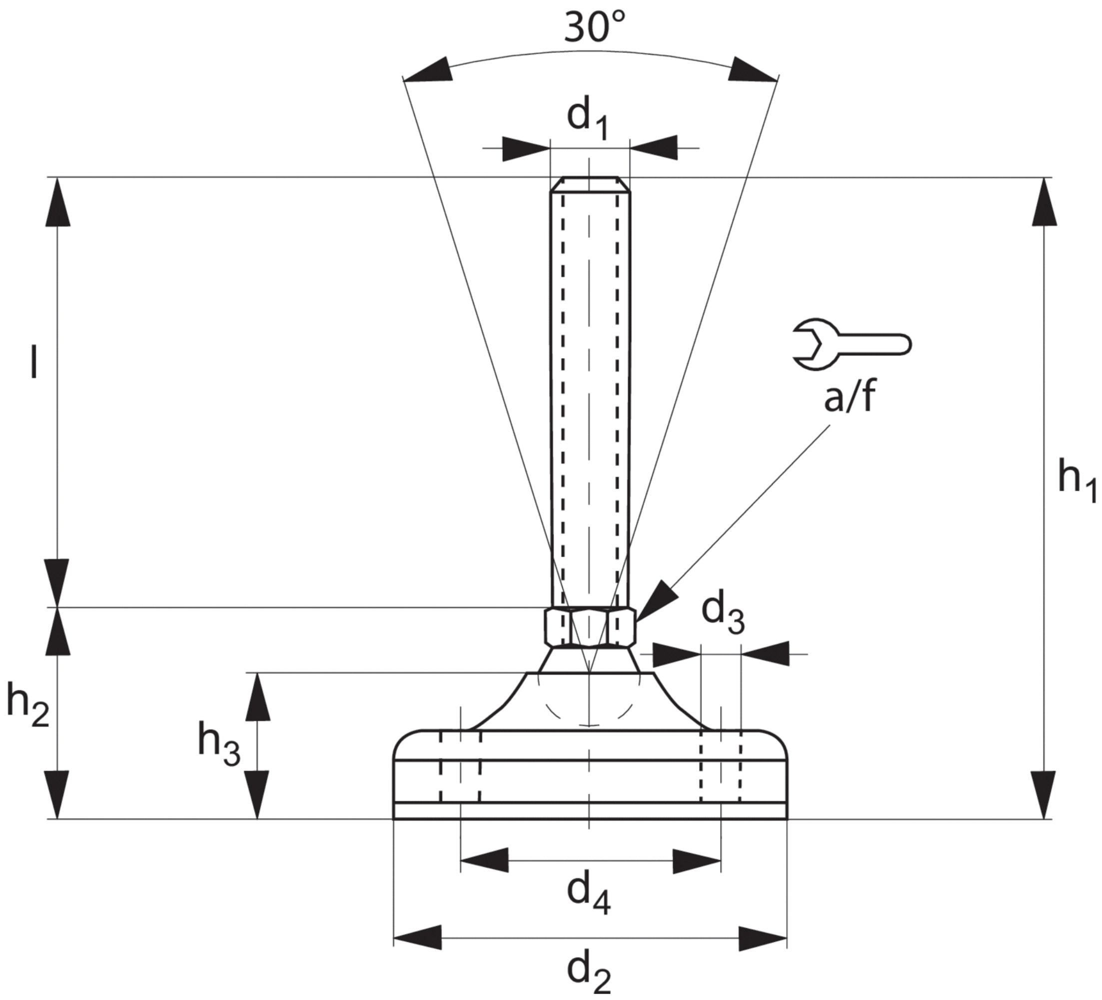
Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.

PA

Levelling Feet - Heavy Duty

bolt down option, bolt steel

34726



Material

Pad: polyamide reinforced by fibre glass with anti-slip pad.
Bolt: steel (C40)

Technical Notes

Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.

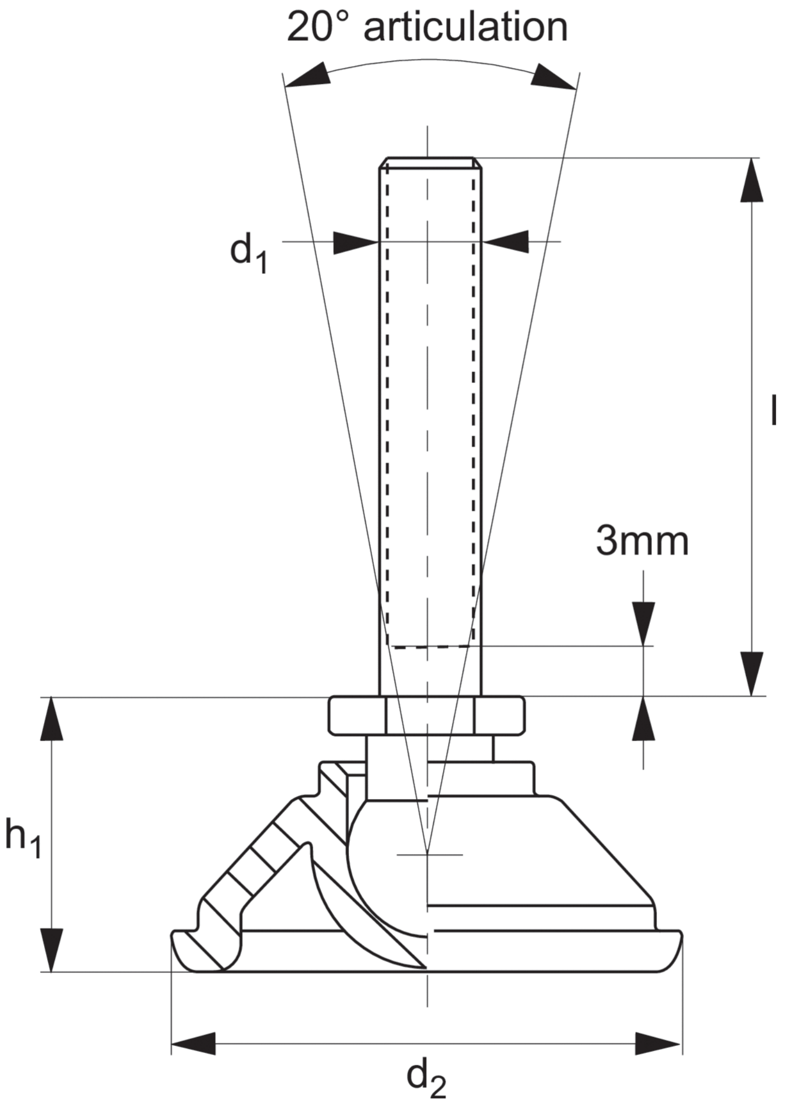
PA

Order No.	d_1	d_2	d_3	d_4	l	h_1	h_2	h_3	a/f	Max. load kN
34726.W1600	M16	123	12,5	73	50	110	60	40	20	35
34726.W1601	M16	123	12,5	73	75	135	60	40@	20	35
34726.W1602	M16	123	12,5	73	100	160	60	40	20	35
34726.W1603	M16	123	12,5	73	125	185	60	40@	20	35
34726.W1604	M16	123	12,5	73	150	210	60	40	20	35
34726.W1605	M16	123	12,5	73	175	235	60	40	20	35
34726.W1606	M16	123	12,5	73	200	260	60	40	20	35
34726.W1607	M16	123	12,5	73	225	288	60	40	20	35
34726.W2000	M20	123	12,5	73	75	135	60	40	20	35
34726.W2001	M20	123	12,5	73	100	160	60	40	20	35
34726.W2002	M20	123	12,5	73	125	185	60	40	20	35
34726.W2003	M20	123	12,5	73	150	210	60	40	20	35
34726.W2004	M20	123	12,5	73	175	235	60	40	20	35
34726.W2005	M20	123	12,5	73	200	260	60	40	20	35
34726.W2006	M20	123	12,5	73	225	285	60	40	20	35
34726.W2007	M20	123	12,5	73	250	310	60	40	20	35
34726.W2400	M24	123	12,5	73	75	135	60	40	20	35
34726.W2401	M24	123	12,5	73	100	160	60	40	20	35
34726.W2402	M24	123	12,5	73	125	185	60	40	20	35
34726.W2403	M24	123	12,5	73	150	210	60	40	20	35
34726.W2404	M24	123	12,5	73	175	235	60	40	20	35
34726.W2405	M24	123	12,5	73	200	260	60	40	20	35
34726.W2406	M24	123	12,5	73	225	285	60	40	20	35
34726.W2407	M24	123	12,5	73	250	310	60	40	20	35
34726.W3000	M30	123	12,5	73	100	161	60	40	20	35
34726.W3001	M30	123	12,5	73	125	186	60	40	20	35
34726.W3002	M30	123	12,5	73	150	211	60	40	20	35
34726.W3003	M30	123	12,5	73	175	236	60	40	20	35
34726.W3004	M30	123	12,5	73	200	261	60	40	20	35
34726.W3005	M30	123	12,5	73	225	286	60	40	20	35
34726.W3006	M30	123	12,5	73	250	311	60	40	20	35

Levelling Feet

pad plastic, bolt stainless steel

34741

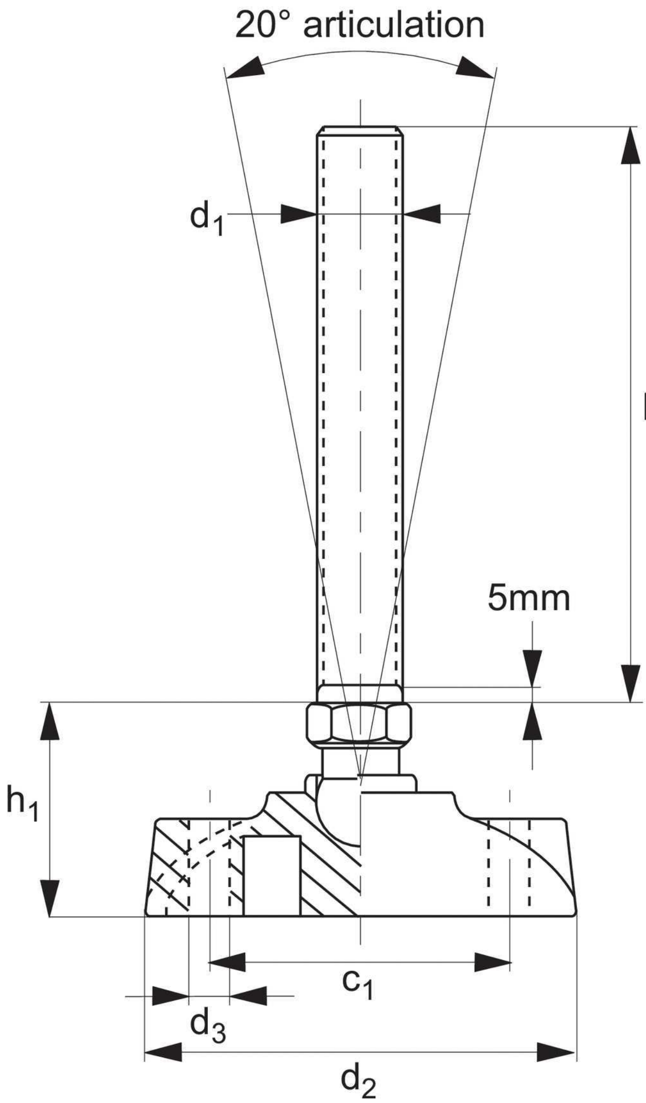


Material
Pad: polyamide reinforced nylon.
Bolt: stainless steel, AISI 303.

Order No.	d_1	l	d_2	h_1	Max. static load max. kN
34741.W0060	M 6	20	40	21	3,0
34741.W0061	M 6	20	50	23	3,0
34741.W0062	M 6	40	40	21	3,0
34741.W0063	M 6	40	50	23	3,0
34741.W0080	M 8	25	40	21	4,5
34741.W0081	M 8	25	50	23	4,5
34741.W0082	M 8	40	40	21	4,5
34741.W0083	M 8	40	50	23	4,5
34741.W0084	M 8	60	40	21	4,5
34741.W0085	M 8	60	50	23	4,5
34741.W0100	M10	38	40	21	5,0
34741.W0101	M10	38	50	23	5,0
34741.W0102	M10	60	40	21	5,0
34741.W0103	M10	60	50	23	5,0
34741.W0104	M10	75	40	21	5,0
34741.W0105	M10	75	50	23	5,0
34741.W0120	M12	50	40	23	6,0
34741.W0121	M12	50	50	25	6,0
34741.W0122	M12	75	40	23	6,0
34741.W0123	M12	75	50	25	6,0
34741.W0124	M12	100	40	23	6,0
34741.W0125	M12	100	50	25	6,0
34741.W0126	M12	125	40	23	6,0
34741.W0127	M12	125	50	25	6,0
34741.W0128	M12	160	50	25	6,0

Levelling Feet - Bolt Down

pad plastic, bolt stainless steel



Material

Pad: polyamide reinforced nylon.
Bolt: stainless steel AISI 303.

Technical Notes

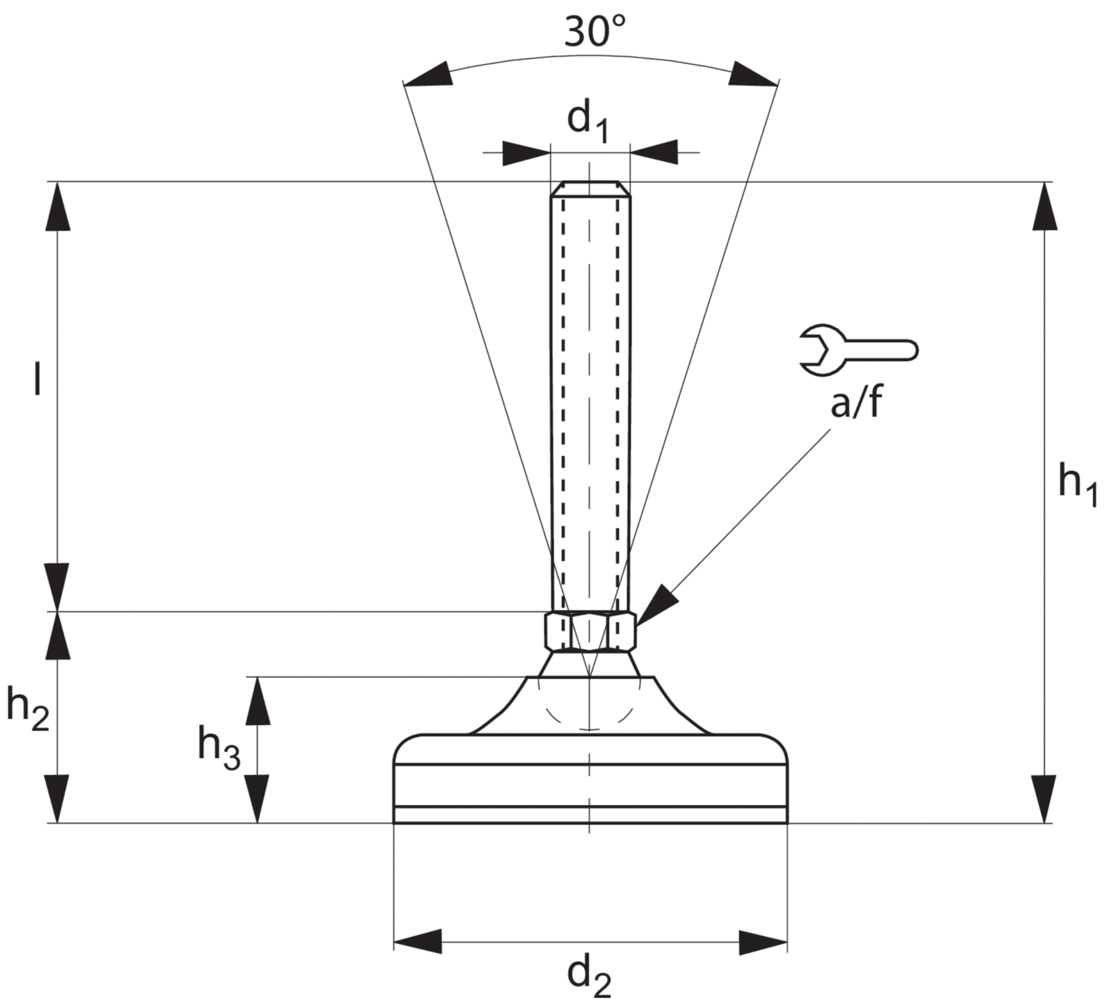
Supplied with plastic mounting hole plugs, these prevent material and waste entering the mounting holes, thus simplifying cleaning and maintenance.

STAINLESS STEEL 303 PA

Order No.	d_1	l	d_2	d_3	c_1	h_1	Max. static load max. kN
34742.W0620	M12	75	100	10,5	70	42	10
34742.W0621	M12	125	100	10,5	70	42	10
34742.W0660	M16	75	100	10,5	70	45	20
34742.W0662	M16	150	100	10,5	70	45	20
34742.W0663	M16	200	100	10,5	70	45	20
34742.W0700	M20	125	100	10,5	70	49	20
34742.W0701	M20	150	100	10,5	70	49	20
34742.W0702	M20	200	100	10,5	70	49	20
34742.W0720	M24	125	100	10,5	70	53	20
34742.W0721	M24	150	100	10,5	70	53	20
34742.W0722	M24	200	100	10,5	70	53	20

Levelling Feet
bolt stainless steel

34743



Material
Pad: polyamide reinforced by fibre glass with anti-slip pad.
Bolt: stainless steel AISI 304.

Technical Notes
Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.

STAINLESS STEEL 304

PA

Order No.	d_1	d_2	l	h_1	h_2	h_3	a/f	Max. load kN
34743.W0800	M 8	40	25	55	30	19,5	12	10
34743.W0801	M 8	40	50	80	30	19,5	12	10
34743.W0802	M 8	40	75	105	30	19,5	12	10
34743.W0803	M 8	40	100	130	30	19,5	12	10
34743.W1001	M10	65	50	86	36	26,0	14	11
34743.W1002	M10	65	75	111	36	26,0	14	11
34743.W1003	M10	65	100	136	36	26,0	14	11
34743.W1004	M10	65	125	161	36	26,0	14	11
34743.W1200	M12	65	50	86	36	26,0	14	11
34743.W1201	M12	65	75	111	36	26,0	14	11
34743.W1202	M12	65	100	136	36	26,0	14	11
34743.W1203	M12	65	125	161	36	26,0	14	11
34743.W1400	M14	65	50	86	36	26,0	14	15
34743.W1401	M14	65	75	111	36	26,0	14	15
34743.W1402	M14	65	100	136	36	26,0	14	15
34743.W1403	M14	65	125	161	36	26,0	14	15
34743.W1404	M14	65	150	186	36	26,0	14	15
34743.W1405	M14	65	175	211	36	26,0	14	15
34743.W1600	M16	65	50	90	40	26,0	13	15
34743.W1601	M16	65	75	115	40	26,0	13	15
34743.W1602	M16	65	100	140	40	26,0	13	15
34743.W1603	M16	65	125	165	40	26,0	13	15
34743.W1604	M16	65	150	190	40	26,0	13	15
34743.W1605	M16	65	175	215	40	26,0	13	15
34743.W1606	M16	65	200	240	40	26,0	13	15
34743.W2000	M20	65	50	90	40	26,0	17	15
34743.W2001	M20	65	75	115	40	26,0	17	15
34743.W2002	M20	65	100	140	40	26,0	17	15
34743.W2003	M20	65	125	165	40	26,0	17	15
34743.W2004	M20	65	150	190	40	26,0	17	15
34743.W2005	M20	65	175	215	40	26,0	17	15
34743.W2006	M20	65	200	240	40	26,0	17	15

34743

Material
Pad: polyamide reinforced by fibre glass with anti-slip pad.
Bolt: stainless steel AISI 304.

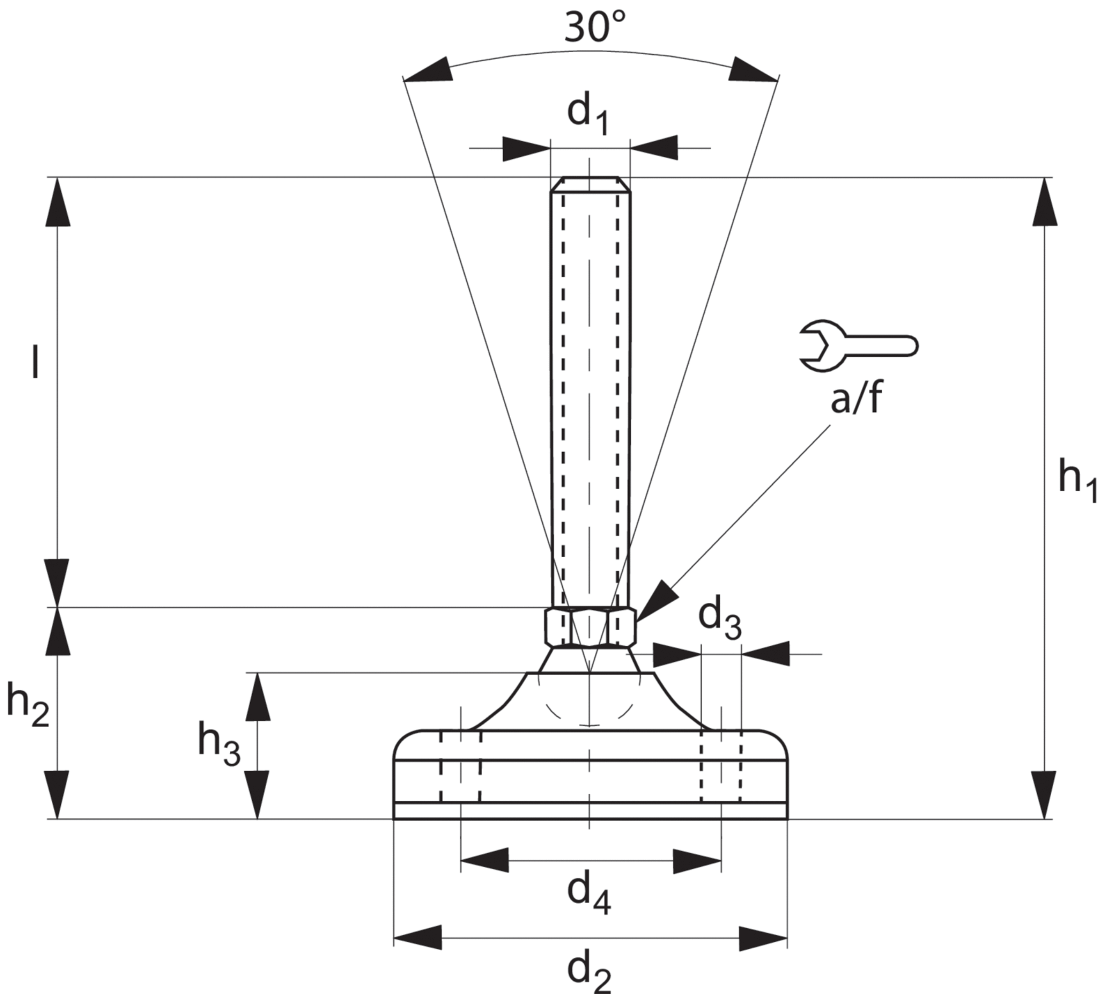
Technical Notes
Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.

STAINLESS STEEL 304 PA

Levelling Feet

bolt down option, bolt stainless steel

34744



Material
Pad: polyamide reinforced by fibre glass with anti-slip pad.
Bolt: stainless steel AISI 304.

Technical Notes
Load values refer to static loads, located at half the screw height.
When vibrations or dynamic loads are present these values should be reduced.
Larger pad size allows for bolt down holes to be drilled through.

STAINLESS STEEL 304 PA

Order No.	d_1	d_2	d_3	d_4	l	h_1	h_2	h_3	a/f	Max. load kN
34744.W1000	M10	83	8,5	55	50	91	38	27	14	15
34744.W1001	M10	83	8,5	55	75	116	38	27	14	15
34744.W1002	M10	83	8,5	55	100	141	38	27	14	15
34744.W1003	M10	83	8,5	55	125	166	38	27	14	15
34744.W1200	M12	83	8,5	55	50	91	38	27	14	15
34744.W1201	M12	83	8,5	55	75	116	38	27	14	15
34744.W1202	M12	83	8,5	55	100	141	38	27	14	15
34744.W1203	M12	83	8,5	55	125	166	38	27	14	15
34744.W1400	M14	83	8,5	55	50	91	38	27	14	20
34744.W1401	M14	83	8,5	55	75	116	38	27	14	20
34744.W1402	M14	83	8,5	55	100	141	38	27	14	20
34744.W1403	M14	83	8,5	55	125	166	38	27	14	20
34744.W1404	M14	83	8,5	55	150	191	38	27	14	20
34744.W1405	M14	83	8,5	55	175	216	38	27	14	20
34744.W1600	M16	83	8,5	55	50	94	41	27	13	20
34744.W1601	M16	83	8,5	55	75	119	41	27	13	20
34744.W1602	M16	83	8,5	55	100	144	41	27	13	20
34744.W1603	M16	83	8,5	55	125	169	41	27	13	20
34744.W1604	M16	83	8,5	55	150	194	41	27	13	20
34744.W1605	M16	83	8,5	55	175	219	41	27	13	20
34744.W1606	M16	83	8,5	55	200	244	41	27	13	20
34744.W1607	M16	103	12,5	73	50	104	51	32	20	25
34744.W1608	M16	103	12,5	73	75	129	51	32	20	25
34744.W1609	M16	103	12,5	73	100	154	51	32	20	25
34744.W1610	M16	103	12,5	73	125	179	51	32	20	25
34744.W1611	M16	103	12,5	73	150	204	51	32	20	25
34744.W1612	M16	103	12,5	73	175	229	51	32	20	25
34744.W1613	M16	103	12,5	73	200	254	51	32	20	25
34744.W1614	M16	103	12,5	73	225	279	51	32	20	25
34744.W2000	M20	83	8,5	55	75	119	41	27	17	20
34744.W2001	M20	83	8,5	55	100	144	41	27	17	20
34744.W2002	M20	83	8,5	55	125	169	41	27	17	20

Levelling Feet

bolt down option, bolt stainless steel

34744

Order No.	d_1	d_2	d_3	d_4	l	h_1	h_2	h_3	a/f	Max. load kN
34744.W2003	M20	83	8,5	55	150	194	41	27	17	20
34744.W2004	M20	83	8,5	55	175	219	41	27	17	20
34744.W2005	M20	83	8,5	55	200	244	41	27	17	20
34744.W2006	M20	83	8,5	55	225	269	41	27	17	20
34744.W2007	M20	103	12,5	73	75	129	51	32	20	25
34744.W2008	M20	103	12,5	73	100	154	51	32	20	25
34744.W2009	M20	103	12,5	73	125	179	51	32	20	25
34744.W2010	M20	103	12,5	73	150	204	51	32	20	25
34744.W2011	M20	103	12,5	73	175	229	51	32	20	25
34744.W2012	M20	103	12,5	73	200	254	51	32	20	25
34744.W2013	M20	103	12,5	73	225	279	51	32	20	25
34744.W2014	M20	103	12,5	73	250	304	51	32	20	25
34744.W2400	M24	103	12,5	73	75	129	51	32	20	25
34744.W2401	M24	103	12,5	73	100	154	51	32	20	25
34744.W2402	M24	103	12,5	73	125	179	51	32	20	25
34744.W2403	M24	103	12,5	73	150	204	51	32	20	25
34744.W2404	M24	103	12,5	73	175	229	51	32	20	25
34744.W2405	M24	103	12,5	73	200	254	51	32	20	25
34744.W2406	M24	103	12,5	73	225	279	51	32	20	25
34744.W2407	M24	103	12,5	73	250	304	51	32	20	25

Material

Pad: polyamide reinforced by fibre glass with anti-slip pad.
Bolt: stainless steel AISI 304.

Technical Notes

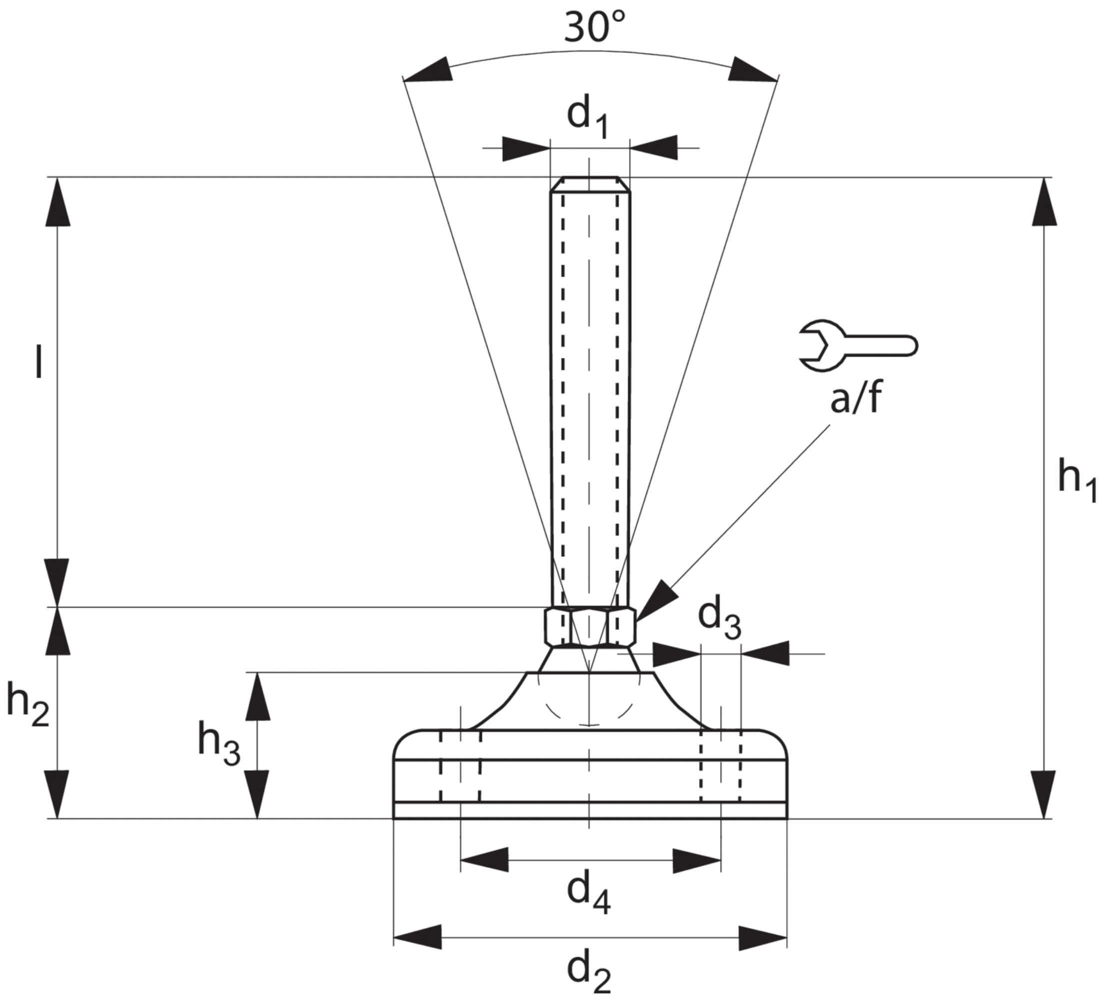
Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.
Larger pad size allows for bolt down holes to be drilled through.

STAINLESS STEEL 304 PA

Levelling Feet - Heavy Duty

bolt down option, bolt stainless steel

34746



Material
Pad: polyamide reinforced by fibre glass with anti-slip pad.
Bolt: stainless steel AISI 304.

Technical Notes
Load values refer to static loads, located at half the screw height. When vibrations or dynamic loads are present these values should be reduced.
Larger pad size allows for bolt down holes to be drilled through.

STAINLESS STEEL 304

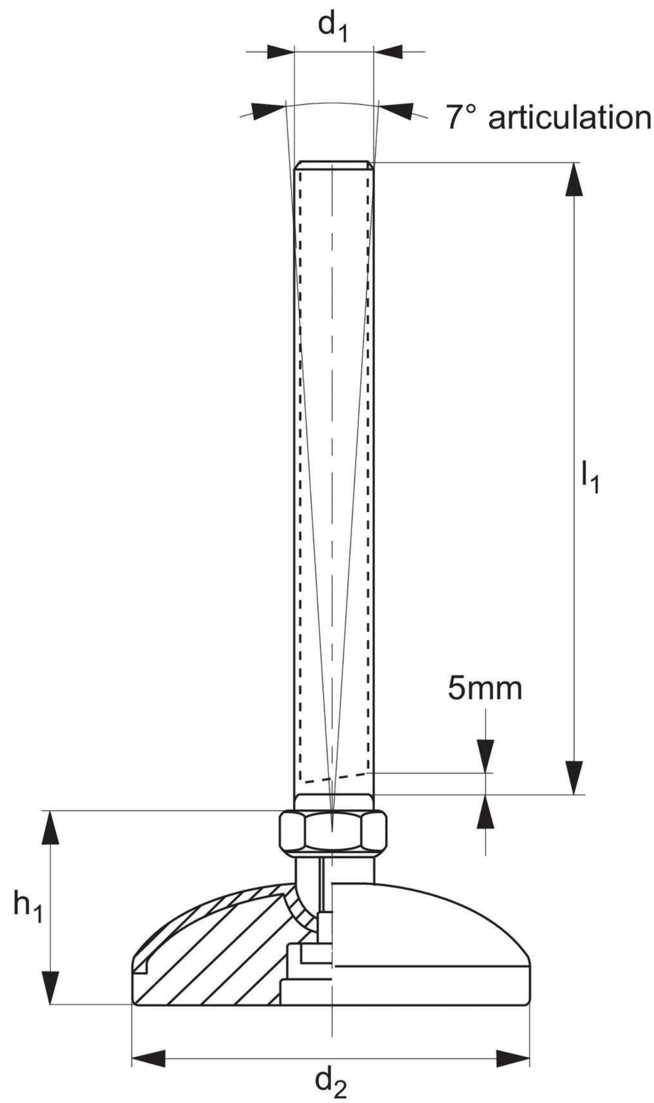
PA

Order No.	d_1	d_2	d_3	d_4	l	h_1	h_2	h_3	A/F	Max. load kN
34746.W1600	M16	123	12,5	87	50	110	60	40	20	35
34746.W1601	M16	123	12,5	87	75	135	60	40	20	35
34746.W1602	M16	123	12,5	87	100	160	60	40	20	35
34746.W1603	M16	123	12,5	87	125	185	60	40	20	35
34746.W1604	M16	123	12,5	87	150	210	60	40	20	35
34746.W1605	M16	123	12,5	87	175	235	60	40	20	35
34746.W1606	M16	123	12,5	87	200	260	60	40	20	35
34746.W1607	M16	123	12,5	87	225	285	60	40	20	35
34746.W2000	M20	123	12,5	87	75	135	60	40	20	35
34746.W2001	M20	123	12,5	87	100	160	60	40	20	35
34746.W2002	M20	123	12,5	87	125	185	60	40	20	35
34746.W2003	M20	123	12,5	87	150	210	60	40	20	35
34746.W2004	M20	123	12,5	87	175	235	60	40	20	35
34746.W2005	M20	123	12,5	87	200	260	60	40	20	35
34746.W2006	M20	123	12,5	87	225	285	60	40	20	35
34746.W2007	M20	123	12,5	87	250	310	60	40	20	35
34746.W2400	M24	123	12,5	87	75	135	60	40	20	35
34746.W2401	M24	123	12,5	87	100	160	60	40	20	35
34746.W2402	M24	123	12,5	87	125	185	60	40	20	35
34746.W2403	M24	123	12,5	87	150	210	60	40	20	35
34746.W2404	M24	123	12,5	87	175	235	60	40	20	35
34746.W2405	M24	123	12,5	87	200	260	60	40	20	35
34746.W2406	M24	123	12,5	87	225	285	60	40	20	35
34746.W2407	M24	123	12,5	87	250	310	60	40	20	35
34746.W3000	M30	123	12,5	87	100	161	61	40	26	35
34746.W3001	M30	123	12,5	87	125	186	61	40	26	35
34746.W3002	M30	123	12,5	87	150	211	61	40	26	35
34746.W3003	M30	123	12,5	87	175	236	61	40	26	35
34746.W3004	M30	123	12,5	87	200	261	61	40	26	35
34746.W3005	M30	123	12,5	87	225	286	61	40	26	35
34746.W3006	M30	123	12,5	87	250	311	61	40	26	35

Machine Mount - Vibration Dampening

pad and bolt - stainless steel

34751



Order No.	d_1	d_2	l_1	h_1	Max. static load kN
34751.W0100	M10	50	50	25	3,5
34751.W0101	M10	50	100	25	3,5
34751.W0120	M12	50	100	25	3,5
34751.W0121	M12	50	150	25	3,5
34751.W0160	M16	50	100	28	3,5
34751.W0161	M16	50	150	28	3,5
34751.W0162	M16	75	100	33	7,5
34751.W0163	M16	75	150	33	7,5
34751.W0164	M16	75	200	33	7,5
34751.W0165	M16	100	100	38	10,0
34751.W0166	M16	100	150	38	10,0
34751.W0167	M16	100	200	38	10,0
34751.W0200	M20	75	150	35	7,5
34751.W0201	M20	75	200	35	7,5
34751.W0202	M20	100	150	41	10,0
34751.W0203	M20	100	200	41	10,0
34751.W0240	M24	100	150	43	10,0
34751.W0241	M24	100	250	43	10,0

Material

Pad: pressed stainless steel AISI 303.
Bolt: stainless steel AISI 303.
Pad insert: nitril rubber.

Technical Notes

Lock nuts available separately. Please see part ref 65686.

Tips

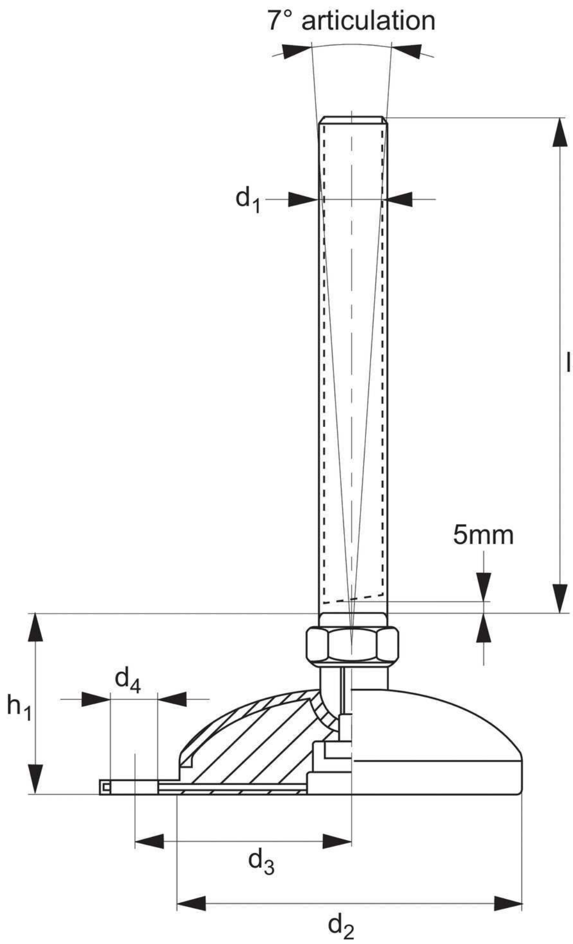
For use in wide range of industries including food processing, medical equipment, electronics and machinery workshops.

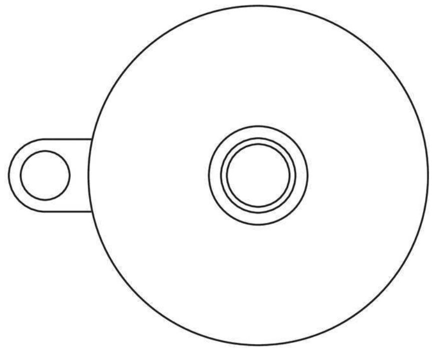
STAINLESS STEEL 303 NBR

Machine Mount - Bolt Down

pad and bolt - stainless steel

34752





Material

Pad: pressed stainless steel AISI 303.
Bolt: stainless steel AISI 303.
Pad insert: nitril rubber.

Technical Notes

Use of the bolt down tag allows the machine mount to be fixed in place.

Tips

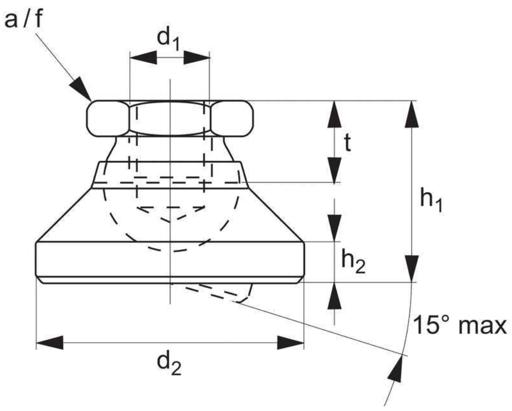
For use in wide range of industries including food processing, medical equipment, electronics and machinery workshops.

STAINLESS STEEL 303 NBR

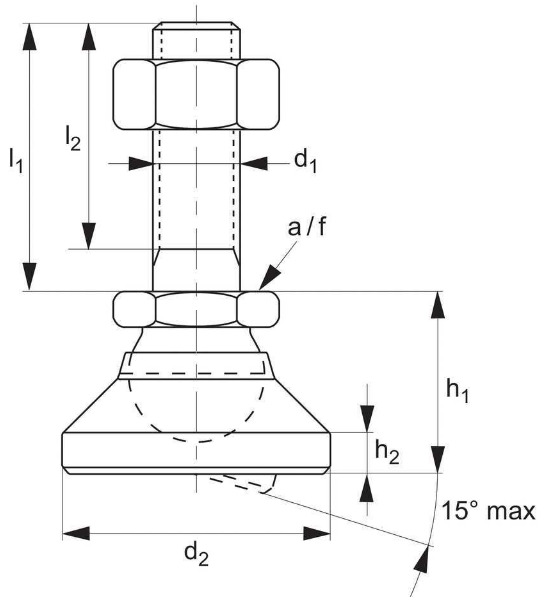
Order No.	d_1	l_1	h_1	d_2	d_3	d_4	Max. static load kN
34752.W0662	M16	100	33	75	52	13	7,5
34752.W0663	M16	150	33	75	52	13	7,5
34752.W0664	M16	200	33	75	52	13	7,5
34752.W0665	M16	100	38	100	67	13	10,0
34752.W0666	M16	150	38	100	67	13	10,0
34752.W0667	M16	200	38	100	67	13	10,0
34752.W0700	M20	150	33	75	52	13	7,5
34752.W0701	M20	200	33	75	52	13	7,5
34752.W0702	M20	150	41	100	67	13	10,0
34752.W0703	M20	200	41	100	67	13	10,0
34752.W0740	M24	150	43	100	67	13	10,0
34752.W0741	M24	200	43	100	67	13	10,0

Levelling Feet

pad thermoplastic, bolt stainless steel



pad



pad and bolt

Order No.	Type	d_1	l_1	d_2	l_2	h_1 ≈	h_2	t	a/f	Max. static load kN	g
34760.W0106	Pad	M 6	-	20	-	14	2,5	5,0	10	4	6
34760.W0108	Pad	M 8	-	25	-	18	4,0	7,0	13	7	13
34760.W0110	Pad	M10	-	32	-	22	5,0	9,0	17	10	26
34760.W0112	Pad	M12	-	40	-	26	6,0	11,0	19	18	40
34760.W0116	Pad	M16	-	50	-	32	7,0	13,5	24	20	75
34760.W0120	Pad	M20	-	60	-	42	8,0	17,0	30	22	120
34760.W0124	Pad	M24	-	60	-	45	9,5	19,0	36	25	184
34760.W0510	Pad and Bolt	M 6	60	20	57,0	14	2,5	-	10	4	20
34760.W0522	Pad and Bolt	M 8	80	25	76,0	18	4,0	-	13	7	46
34760.W0538	Pad and Bolt	M10	100	32	95,5	22	5,0	-	17	10	92
34760.W0542	Pad and Bolt	M10	150	32	145,5	22	5,0	-	17	10	118
34760.W0552	Pad and Bolt	M12	100	40	94,5	26	6,0	-	19	18	139
34760.W0556	Pad and Bolt	M12	150	40	144,5	26	6,0	-	19	18	173
34760.W0568	Pad and Bolt	M16	100	50	94,0	32	7,0	-	24	20	264
34760.W0572	Pad and Bolt	M16	200	50	194,0	32	7,0	-	24	20	393
34760.W0582	Pad and Bolt	M20	100	60	92,5	42	8,0	-	30	22	463
34760.W0588	Pad and Bolt	M20	200	60	192,5	42	8,0	-	30	22	664
34760.W0595	Pad and Bolt	M24	100	60	91,0	45	9,5	-	36	25	662
34760.W0598	Pad and Bolt	M24	200	60	191,0	45	9,5	-	36	25	960

Material

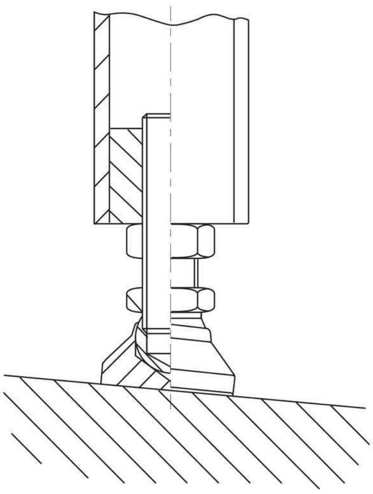
Pad: white thermoplastic (POM).
Bolt: stainless steel 1.4305 (AISI 303).
Lock nut: Stainless steel A2, DIN 934/ISO 4032.

Technical Notes

For use as feet and thrust pads.

STAINLESS STEEL 303

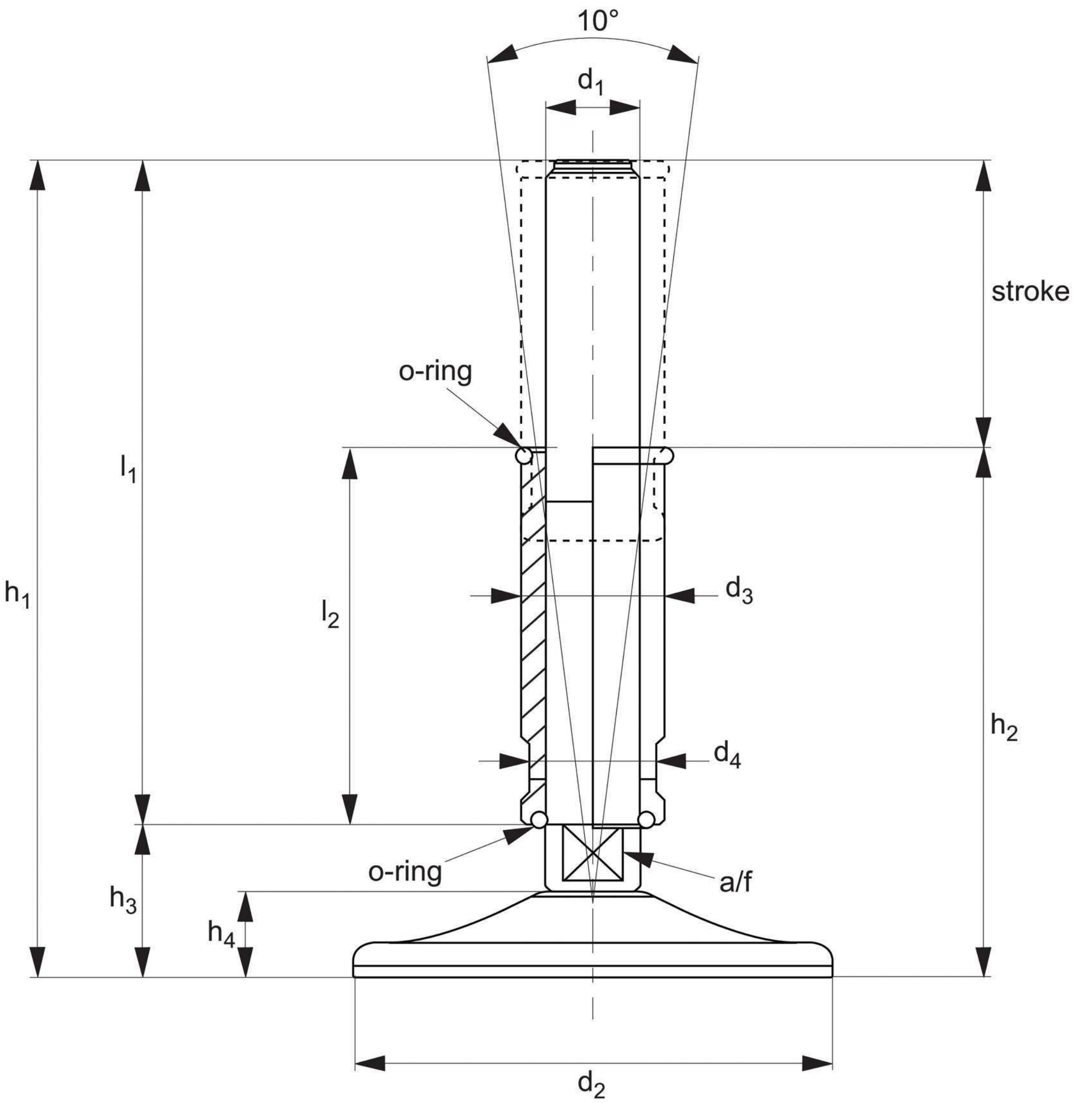
POM



Hygienic Levelling Feet

stainless steel, with rubber pad

34772



Order No.	Stroke	d_1	d_2	d_3	d_4	l_1	l_2	h_1	h_2	h_3	h_4	a/f	Static Load kN
34772.W1600	40mm	M16	60	24	20	125	65	160	95	35	22,0	17	7
34772.W1601	65mm	M16	60	24	20	150	85	185	120	35	22,0	17	7
34772.W1602	40mm	M16	80	24	20	125	65	163	98	38	22,0	17	10
34772.W1603	65mm	M16	80	24	20	150	85	188	123	38	25,0	17	10
34772.W1604	65mm	M16	100	24	20	150	85	193	128	43	25,0	17	15
34772.W1605	65mm	M16	120	24	20	150	85	195	130	45	25,0	17	30
34772.W1606	40mm	M16	75	24	20	125	65	153	88	28	25,0	13	20
34772.W1607	65mm	M16	100	24	20	150	85	187	122	37	30,0	17	30
34772.W2000	65mm	M20	60	30	26	150	85	185	120	35	30,0	17	7
34772.W2001	65mm	M20	80	30	26	150	85	188	123	38	30,0	17	10
34772.W2002	65mm	M20	80	30	26	200	85	238	173	38	30,0	17	10
34772.W2003	65mm	M20	100	30	26	150	85	193	128	43	30,0	17	15
34772.W2004	65mm	M20	100	30	26	200	85	243	178	43	30,0	17	15
34772.W2005	65mm	M20	120	30	26	150	85	195	130	45	30,0	17	30
34772.W2006	65mm	M20	120	30	26	200	85	245	180	45	32,0	17	30
34772.W2007	65mm	M20	100	30	26	150	85	187	122	37	32,0	17	30
34772.W2008	65mm	M20	100	30	26	200	85	237	172	37	32,0	17	30
34772.W2009	65mm	M20	120	30	26	150	85	187	122	37	32,0	17	40
34772.W2010	65mm	M20	120	30	26	200	85	237	172	37	32,0	17	40
34772.W2011	65mm	M20	150	30	26	150	85	189	124	39	32,0	17	50
34772.W2012	65mm	M20	150	30	26	200	85	239	174	39	32,0	17	50
34772.W2400	65mm	M24	100	35	30	150	85	194	129	44	18,0	20	15
34772.W2401	65mm	M24	100	35	30	200	85	244	179	44	22,0	20	15
34772.W2402	65mm	M24	120	35	30	150	85	196	131	46	22,0	20	30
34772.W2403	65mm	M24	120	35	30	200	85	246	181	46	22,0	20	30
34772.W2404	65mm	M24	100	35	30	150	85	188	123	38	22,0	20	30
34772.W2405	65mm	M24	100	35	30	200	85	238	173	38	22,0	26	30

Material
Base: stainless steel with vulcanized rubber pad.
Screw: stainless steel 304.

Technical Notes
Nut shroud is used to cover the exposed threaded section of the levelling feet, and hence prevents areas of contamination. In addition the rubber seal between base and bolt adds to the ease of cleaning.

Load values shown are for static loads calculated at the half of the screw length.
In the presence of vibrations or dynamic loads these values should be reduced.

Tips
Specifically designed for food & drink, pharmaceutical & clean room applications where hygiene is of prime importance and ingress of materials is to be minimised.

Hygienic Levelling Feet

stainless steel, with rubber pad

34772

Order No.	Stroke	d_1	d_2	d_3	d_4	l_1	l_2	h_1	h_2	h_3	h_4	a/f	Static Load kN
34772.W2406	65mm	M24	120	35	30	150	85	188	123	38	22,0	20	40
34772.W2407	65mm	M24	120	35	30	200	85	238	173	38	22,0	20	40
34772.W2408	65mm	M24	150	35	30	150	85	190	125	40	22,0	20	50
34772.W2409	65mm	M24	150	35	30	200	85	240	175	40	22,0	20	50
34772.W3000	65mm	M30	100	42	36	150	85	195	130	45	22,0	26	15
34772.W3001	65mm	M30	100	42	36	200	85	245	180	45	22,0	26	15
34772.W3002	65mm	M30	120	42	36	150	85	197	132	47	22,0	26	30
34772.W3003	65mm	M30	120	42	36	200	85	247	182	47	22,0	26	30
34772.W3004	65mm	M30	100	42	36	150	85	189	124	39	24,5	26	30
34772.W3005	65mm	M30	100	42	36	200	85	239	174	39	24,5	26	30
34772.W3006	65mm	M30	120	42	36	150	85	189	124	39	24,5	26	40
34772.W3007	65mm	M30	120	42	36	200	85	239	174	39	24,5	26	40
34772.W3008	65mm	M30	150	42	36	150	85	191	126	41	24,5	26	50
34772.W3009	65mm	M30	150	42	36	200	85	241	176	41	24,5	26	50

Material

Base: stainless steel with vulcanized rubber pad.
Screw: stainless steel 304.

Technical Notes

Nut shroud is used to cover the exposed threaded section of the levelling feet, and hence prevents areas of contamination. In addition the rubber seal between base and bolt adds to the ease of cleaning.

Load values shown are for static loads calculated at the half of the screw length.
In the presence of vibrations or dynamic loads these values should be reduced.

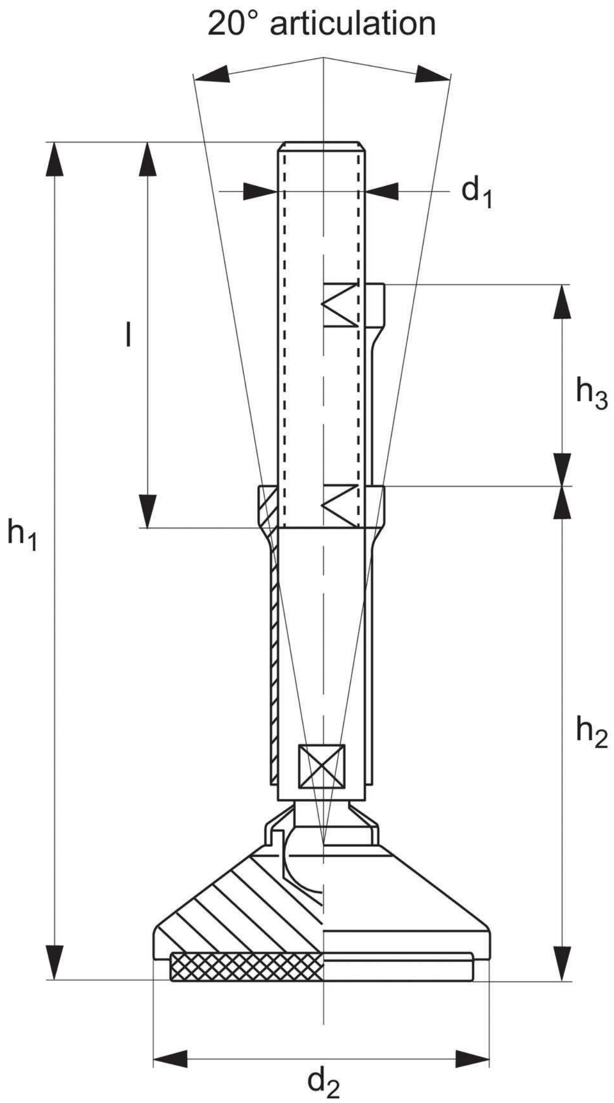
Tips

Specifically designed for food & drink, pharmaceutical & clean room applications where hygiene is of prime importance and ingress of materials is to be minimised.

Machine Mounts - with Hygienic Seal

stainless steel

34770



Material
Bolt and shroud nut: AISI 304 stainless steel.
Pad: AISI 304 stainless steel, with inset nitrile pad.
Seal: nitrile rubber.

Technical Notes
Nut shroud is used to cover the exposed threaded section of the machine mount, and hence prevents areas of contamination. In addition the rubber seal between base and bolt adds to the ease of cleaning.

Tips
Specifically designed for food & drink, pharmaceutical & clean room applications where hygiene is of prime importance and ingress of materials is to be minimised.

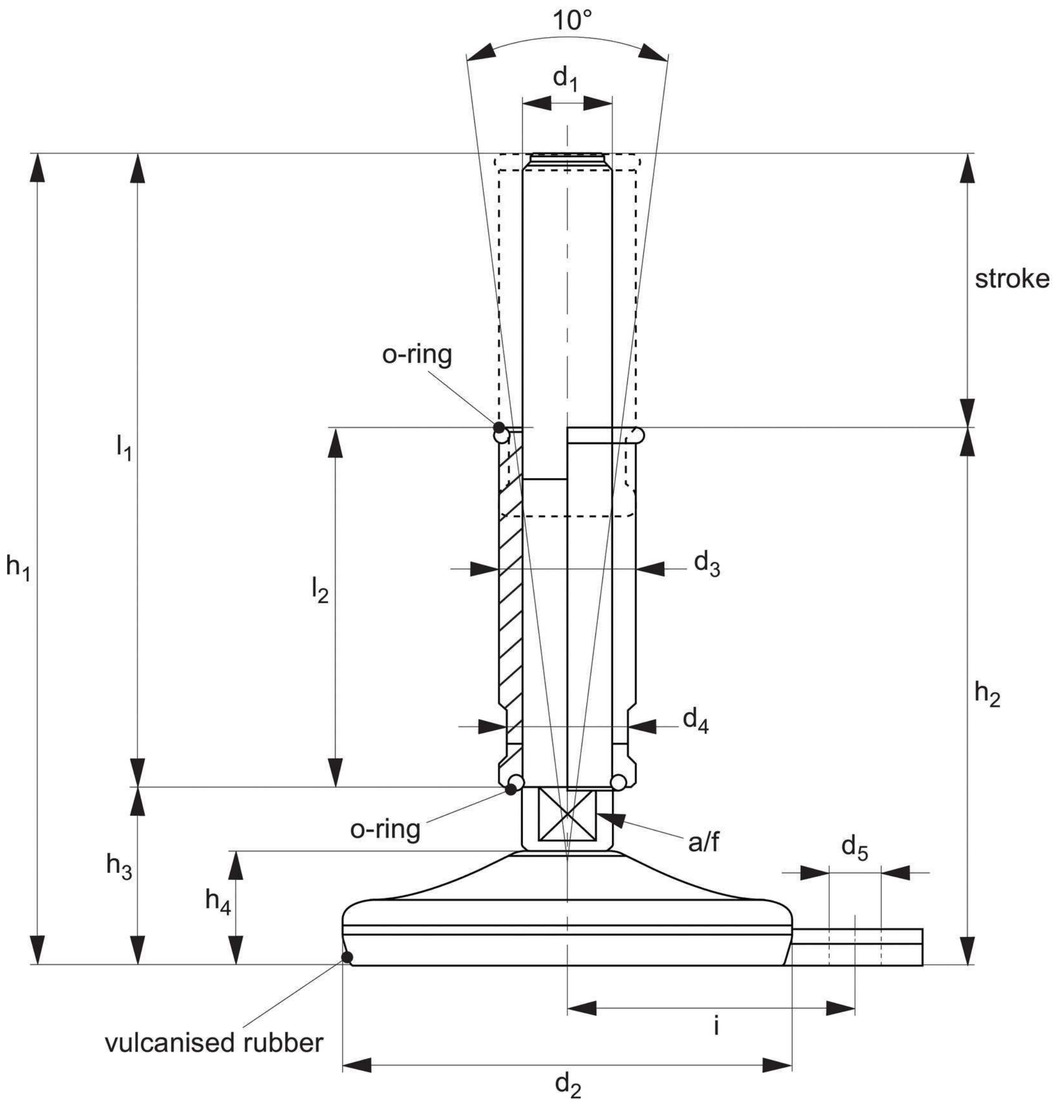
STAINLESS STEEL 304 NBR

Order No.	d_1	l	d_2	Shroud adj. h_3 max.	Min. height h_2	h_1	Max. static load kN
34770.W0120	M12	68	55	25	70	124	7,5
34770.W0121	M12	92	55	50	95	174	7,5
34770.W0160	M16	68	75	50	75	130	17,5
34770.W0162	M16	92	75	50	100	180	17,5
34770.W0200	M20	68	100	25	85	136	25,0
34770.W0201	M20	92	100	50	110	186	25,0

Hygienic Levelling Feet - Bolt Down

stainless steel, with rubber pad

34775



Order no.	Stroke	d_1	d_2	d_3	d_4	l_1	l_2	h_1	h_2	h_3	h_4	i	a/f	Static Load kN
34775.W1600	40mm	M16	60	24	20	125	65	160	95	35	22	45	17	7
34775.W1601	65mm	M16	60	24	20	150	85	185	120	35	22	45	17	7
34775.W1602	40mm	M16	80	24	20	125	65	163	98	38	25	54	17	10
34775.W1603	65mm	M16	80	24	20	150	85	188	123	38	25	54	17	10
34775.W1604	65mm	M16	100	24	20	150	85	193	128	43	30	69	17	15
34775.W2000	65mm	M20	60	30	26	150	85	185	120	35	22	45	17	7
34775.W2001	65mm	M20	80	30	26	150	85	188	123	38	25	54	17	10
34775.W2002	65mm	M20	80	30	26	200	85	238	173	38	25	54	17	10
34775.W2003	65mm	M20	100	30	26	150	85	193	128	43	30	69	17	15
34775.W2004	65mm	M20	100	30	26	200	85	243	178	43	30	69	17	15
34775.W2400	65mm	M24	100	35	30	150	85	194	129	44	30	69	20	15
34775.W2401	65mm	M24	100	35	30	200	85	244	179	44	30	69	20	15
34775.W3000	65mm	M30	100	42	36	150	85	195	130	45	30	69	26	15
34775.W3001	65mm	M30	100	42	36	200	85	245	180	45	30	69	26	15

Material

Base: stainless steel 304 with vulcanized rubber pad.
Screw: stainless steel 304.

Technical Notes

Nut shroud is used to cover the exposed threaded section of the levelling feet, and hence prevents areas of contamination. In addition the rubber seal between base and bolt adds to the ease of cleaning.

Load values shown are for static loads calculated at the half of the screw length.
In the presence of vibrations or dynamic loads these values should be reduced.

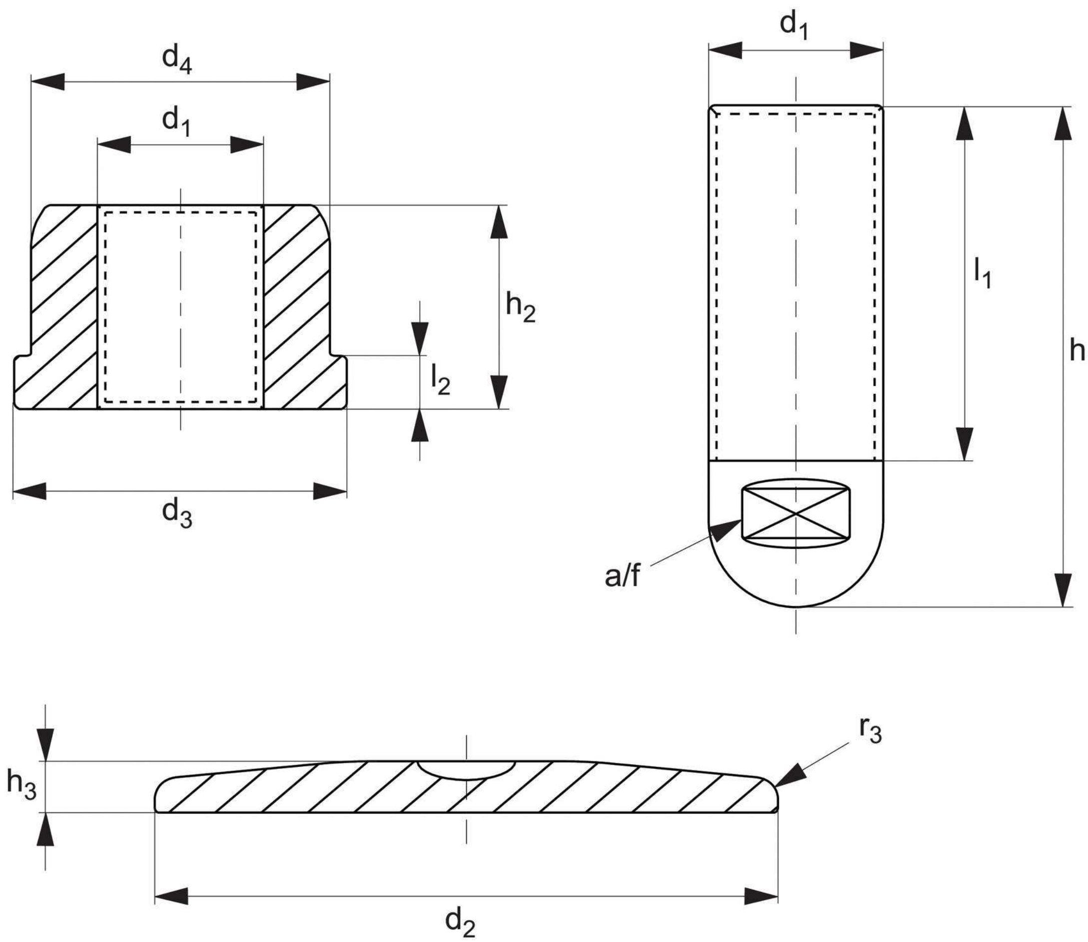
Tips

Specifically designed for food & drink, pharmaceutical & clean room applications where hygiene is of prime importance and ingress of materials is to be minimised.

Hygienic Tank Feet

stainless steel

34777



Material

Stainless steel 304

Technical Notes

Levelling system planned for dairy, pharmaceutical and food industry in respect of the strictest hygienic regulations.

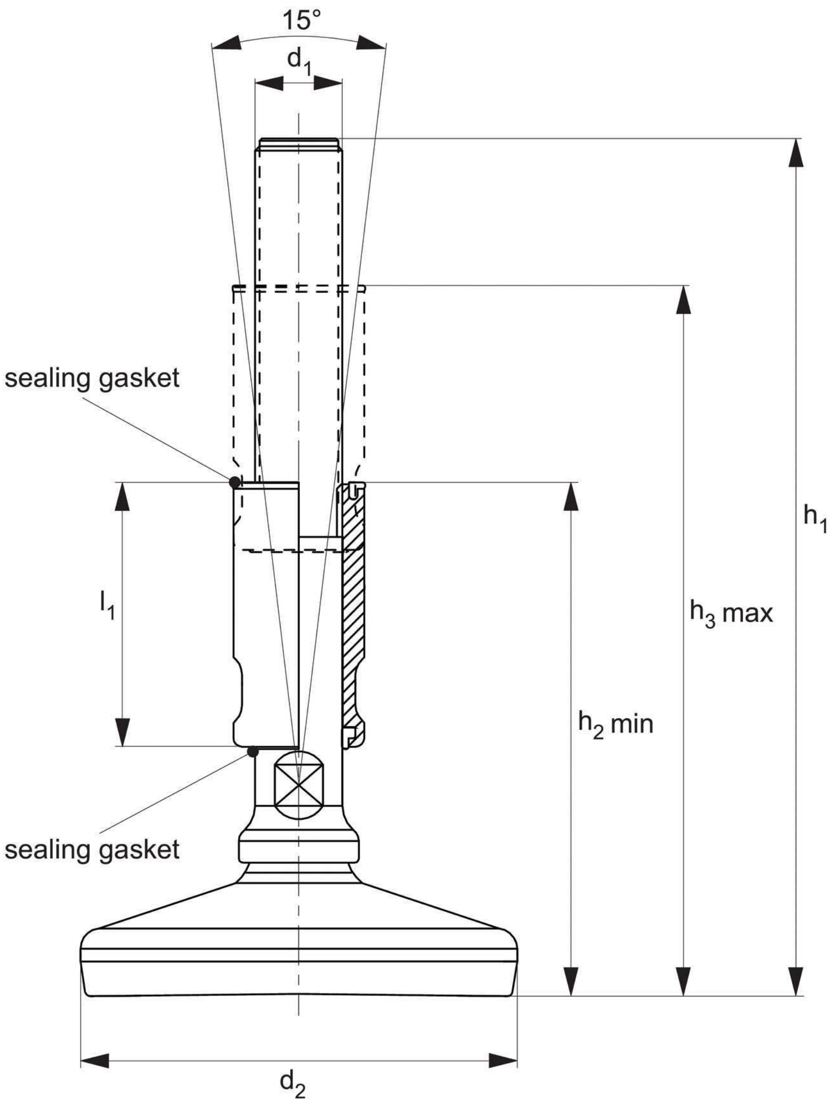
Load values shown are for static loads calculated at the half of the screw length.
In the presence of vibrations or dynamic loads these values should be reduced.

Order no.	d_1	d_2	d_3	d_4	l_1	l_2	h_1	h_2	h_3	a/f	Static Load kN
34777.W2000	M20	80	60	54	70	8	100	25	10	17	35
34777.W2400	M24	100	60	54	70	10	100	40	10	20	70
34777.W3000	M30	120	60	54	70	10	100	40	10	26	80
34777.W3001	M30	120	80	75	100	10	140	25	10	26	80
34777.W4000	M40	150	60	54	100	10	140	50	15	36	120
34777.W4001	M40	200	60	54	100	10	140	50	15	36	120

Levelling Feet - 3A Standard

hygienic line, stainless steel

34778



Order no.	d_1	h_1	Shroud adj. $h_{2\ min.}$	Shroud adj. $h_{3\ max.}$	l_1	d_2	For spanner size	Max. static load kN
34778.W1620	M16	200	121	166	60	120	13	30
34778.W1625	M16	250	146	216	85	120	13	30
34778.W2020	M20	200	121	166	60	120	17	30
34778.W2025	M20	250	146	216	85	120	17	30
34778.W2420	M24	200	121	166	60	120	20	30
34778.W2425	M24	250	146	216	85	120	20	30

Material
Stainless steel AISI 304.
Blue gasket: silicone.
Pad: vulcanised nitrile rubber.

Technical Notes
Nut shroud is used to cover the exposed threaded section of the machine mount, and hence prevents contamination. Use a spanner to adjust this shroud height h_2 and h_3, using spanner size detailed in the table.

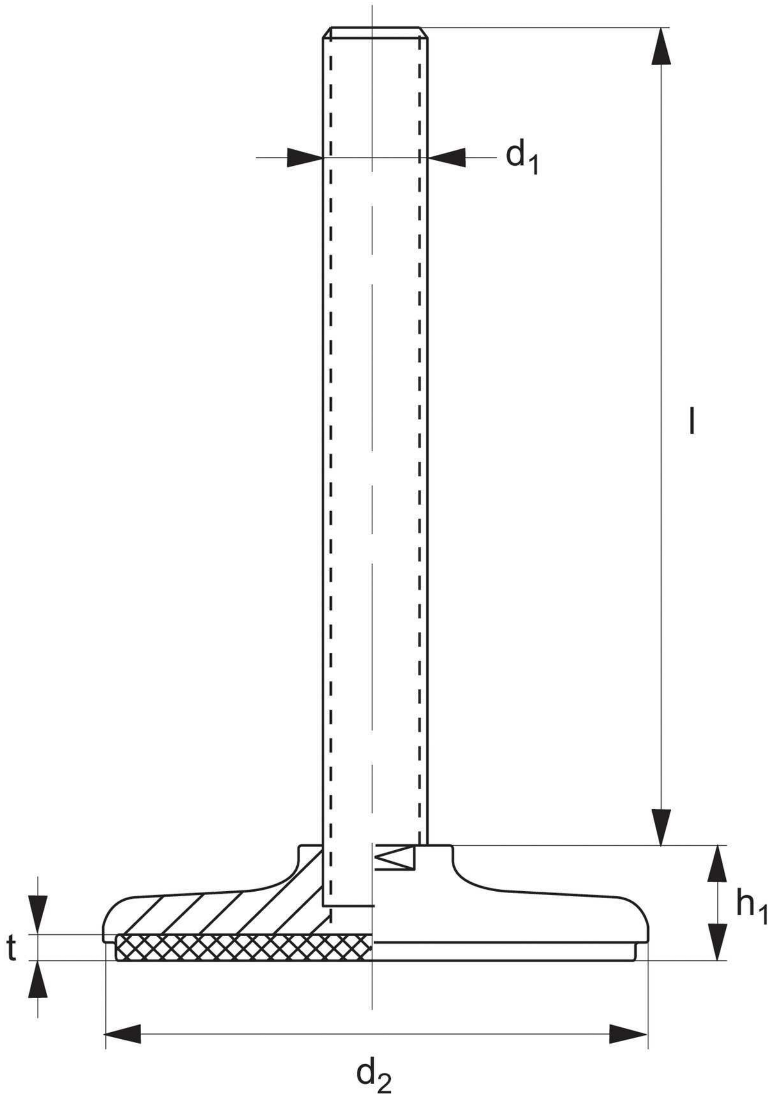
Tips
Made to the high "3A" standard. This ensures it meets the high standards required for use in food, beverage, pharmaceutical and medical applications. Hygienically designed for effective and easy cleaning, corrosion resistant, non-toxic. Design precludes contamination by dirt, food particles and organic matter.

Referral
Other sizes available on request.

Machine Feet - Low Profile

pad and bolt stainless steel

34780



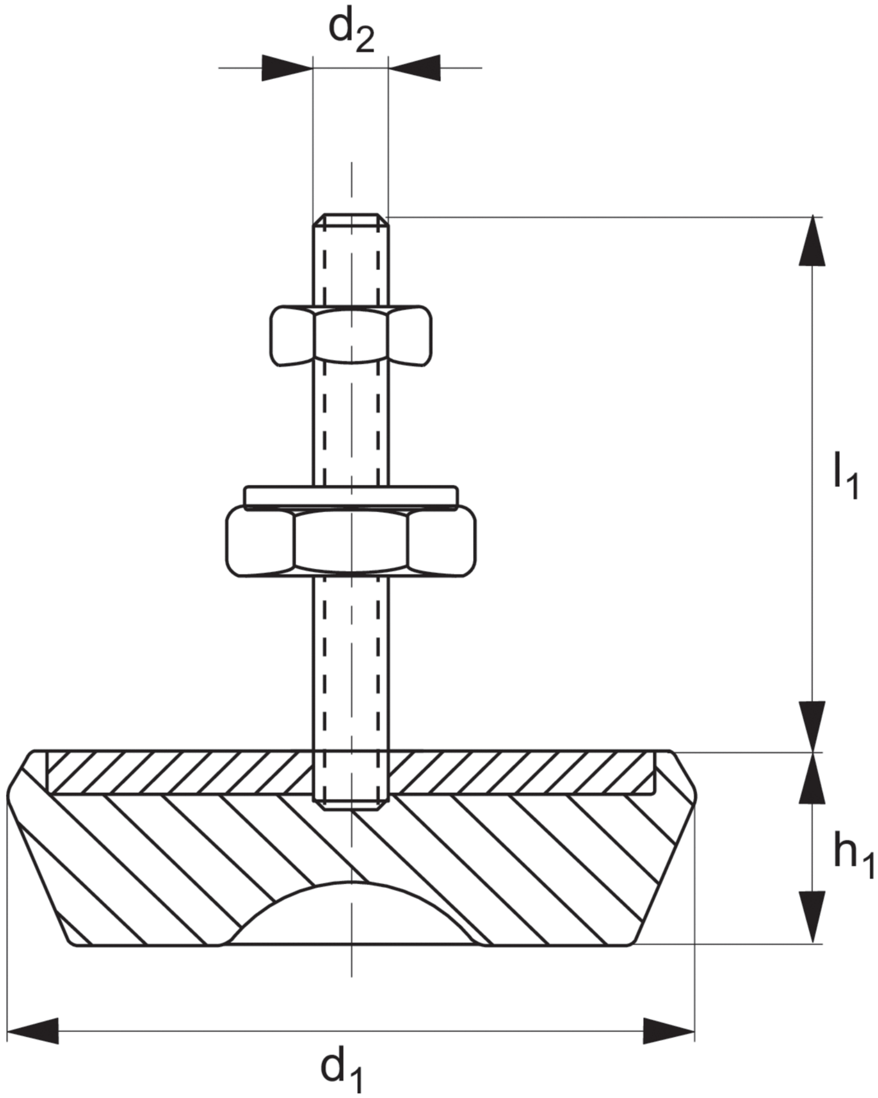
Material
Pad & bolt: AISI 304 stainless steel.
Inset nitrile rubber pad.

Technical Notes
Suitable for use in food & drink, pharmaceutical and clean room environments.

STAINLESS STEEL 304

NBR

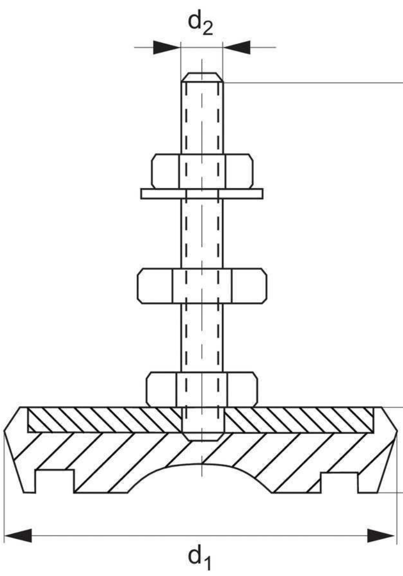
Order No.	d_1	l	t	d_2	h_1	Max. static load kN
34780.W0082	M 8	40	3	40	12	4,5
34780.W0084	M 8	60	3	40	12	4,5
34780.W0100	M10	40	3	40	12	6,0
34780.W0102	M10	60	3	40	12	6,0
34780.W0104	M10	80	3	40	12	6,0
34780.W0086	M 8	40	3	50	14	4,5
34780.W0088	M 8	60	3	50	14	4,5
34780.W0106	M10	40	3	50	14	6,0
34780.W0108	M10	60	3	50	14	6,0
34780.W0110	M10	80	3	50	14	6,0
34780.W0120	M12	50	3	50	15	7,5
34780.W0121	M12	75	3	50	15	7,5
34780.W0123	M12	100	3	50	15	7,5
34780.W0125	M12	75	3	60	15	12,5
34780.W0126	M12	125	3	60	15	12,5
34780.W0127	M12	150	3	60	15	12,5
34780.W0128	M12	150	3	80	21	15,0
34780.W0161	M16	150	3	80	21	20,0
34780.W0162	M16	150	3	120	24	20,0
34780.W0201	M20	200	3	120	24	30,0
34780.W0202	M20	200	3	150	26	30,0
34780.W0241	M24	200	3	150	26	40,0



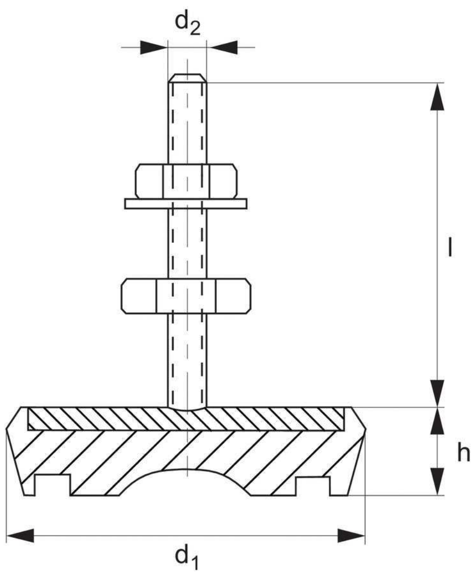
Material
Steel body with silver zinc plated thread.
Synthetic rubber pad (65-70 Shore A) with anti-slide cavity.

Technical Notes
Suitable for machinery with low frequency vibrations and for irregular floors.

Order No.	d_1	h_1	d_2	l_1	Load range Kgf
34900.W0048	48	23	M 8	40	0-80
34900.W0060	60	25	M10	83	50-120
34900.W0075	75	30	M12	90	80-150
34900.W0090	90	33	M12	90	120-300
34900.W0105	105	38	M16	110	250-500
34900.W0125	125	45	M16	110	400-800
34900.W0150	150	55	M16	110	600-1000
34900.W0170	170	57	M16	110	1000-1600
34900.W0187	187	70	M20	115	1400-2400
34900.W0210	210	75	M20	115	2000-3500



fixed



swivel

Order No.	Style	d_1	h	d_2	l	Load range Kgf
34910.W0040	Fixed	40	15	M 8	40	0-60
34910.W0063	Fixed	63	18	M10	83	30-100
34910.W0070	Fixed	70	22	M12	90	80-150
34910.W0090	Fixed	90	25	M12	90	100-350
34910.W0106	Fixed	106	29	M16	110	300-600
34910.W0127	Fixed	127	33	M16	110	500-900
34910.W0150	Fixed	150	39	M16	110	800-1500
34910.W0170	Fixed	170	42	M16	110	1300-2000
34910.W0370	Swivel	70	22	M12	90	80-150
34910.W0390	Swivel	90	26	M12	90	100-350
34910.W0406	Swivel	106	32	M16	110	300-600
34910.W0427	Swivel	127	33	M16	110	500-900
34910.W0450	Swivel	150	39	M16	110	800-1500
34910.W0470	Swivel	170	42	M16	110	1300-2000

Material
Steel body with zinc plated thread. Synthetic rubber base (65 Shore A), with anti-slide cavity.

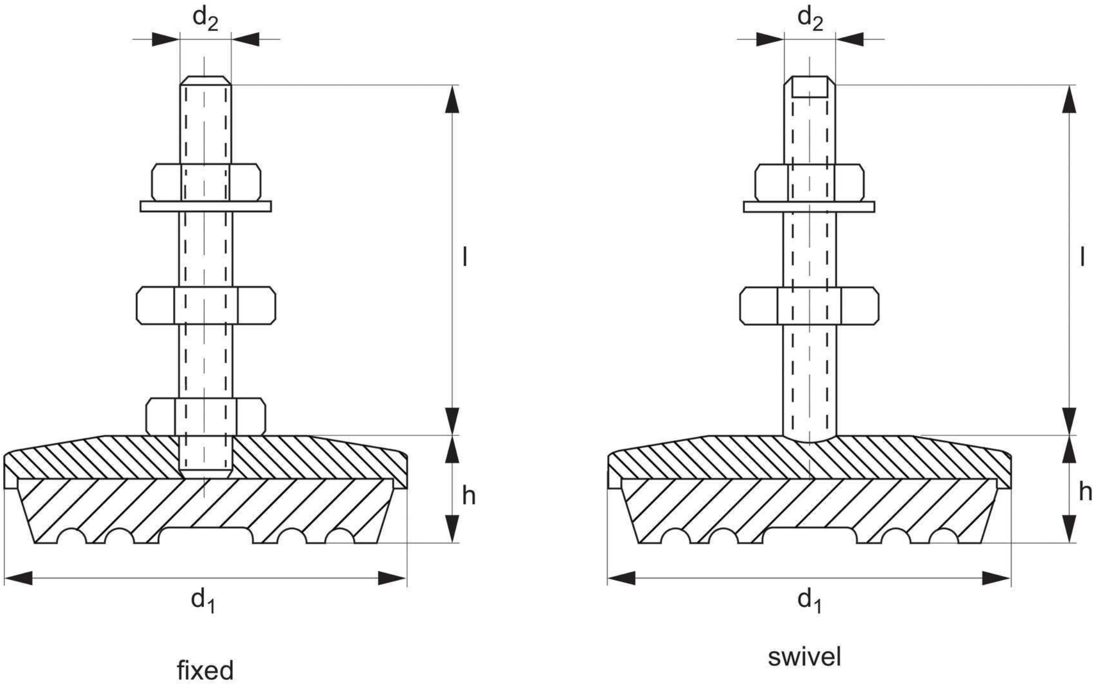
Technical Notes
Suitable for medium and high frequency vibrations and with smooth floors.

Tips
For inclined floors use the swivel base versions (M12 and M16).
The swivel base versions have a separate screw which rests in the concave cup on the top portion of the foot body.

Heavy Duty Machine Mounts

polyurethane base

34930



Order No.	Type	d_1	h	d_2	l	Load range Kgf
34930.W0065	Fixed	65	22	M12	90	200-800
34930.W0100	Fixed	100	30	M16	110	800-2000
34930.W0120	Fixed	120	33	M20	120	2000-4000
34930.W0180	Fixed	180	40	M20	115	4000-6000
34930.W0217	Fixed	217	52	M24	145	5000-10000
34930.W0400	Swivel	100	30	M16	95	500-2000
34930.W0420	Swivel	120	33	M20	120	2000-4000
34930.W0480	Swivel	180	40	M20	130	4000-6000
34930.W0617	Swivel	217	52	M24	150	5000-10000

Material
Steel (GGG-40) coated body with zinc plated thread. Polyurethane base (65-90 Shore A).

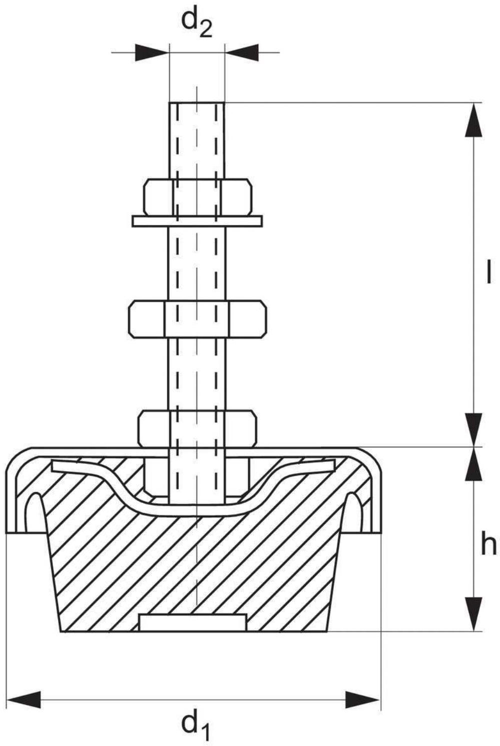
Technical Notes
High resistance machine mounts, little deflection and maximum adherence due to shape of base. Resistant to water, oil, high and low temperatures, abrasions and shocks.

Tips
Suitable for heavy machining and conditions where there is high risk of deterioration due to oil and other substances.
Also available in stainless steel - see product number 34990.

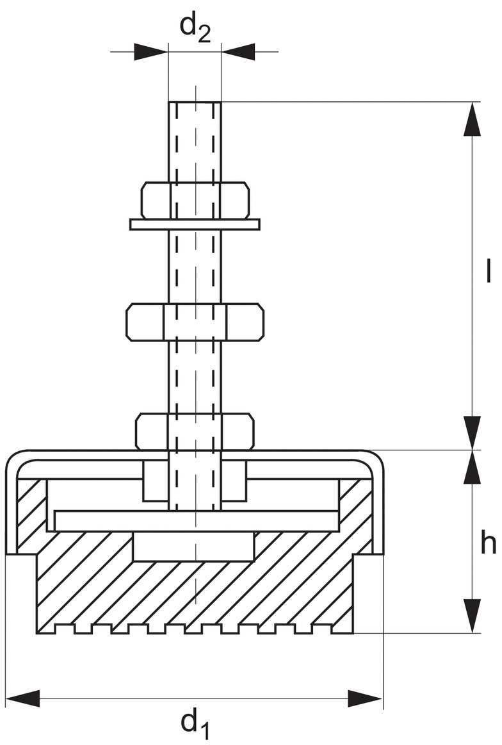
Heavy Duty Machine Mounts

coated

34940



type 1



type 2

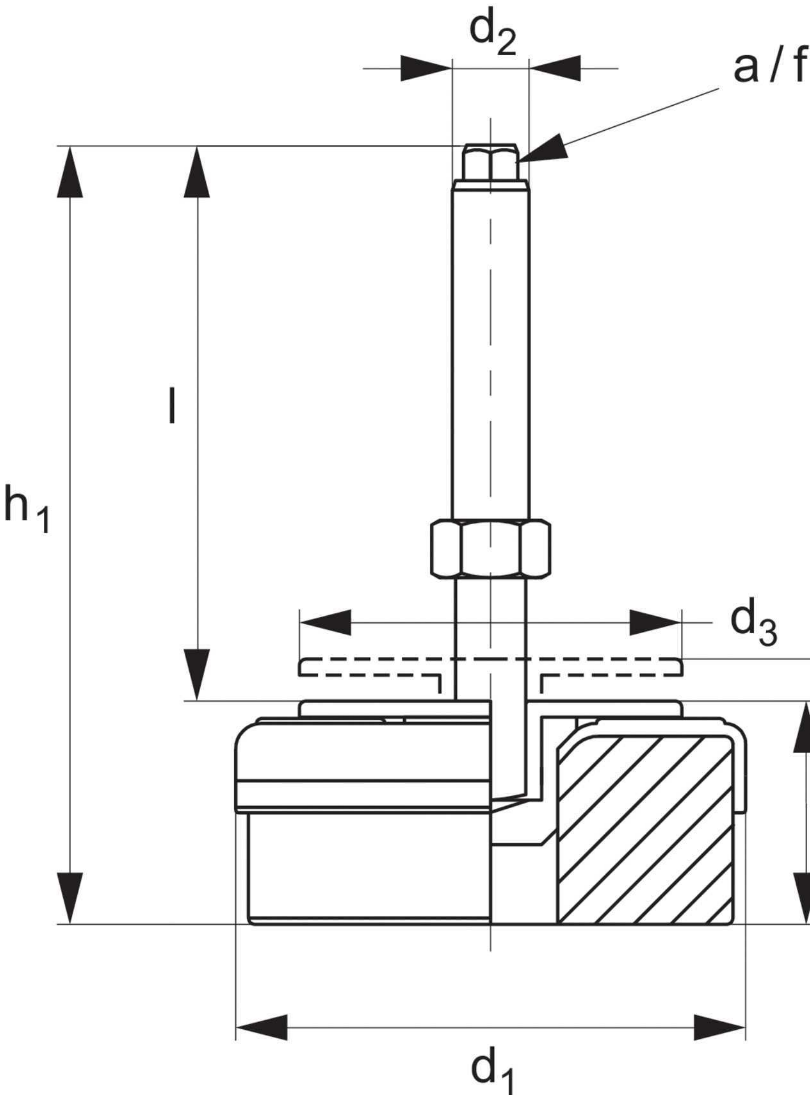
Material
Coated steel body with special bowl shape to protect against corrosion. Synthetic rubber base (75 Shore A).

Technical Notes
Provides long life and outstanding stability. Great adherence to the floor, due to excellent grip property. Quick and easy to install - for machine levelling.

Tips
Suitable for heavy machinery with strong vibration/impact such as plastic injection moulding machines, presses, guillotines etc.

Order No.	Type	d_1	h	d_2	l	Load range Kgf
34940.W0050	Type 1	50	24	M 8	40	0-100
34940.W0075	Type 1	75	35	M10	65	100-350
34940.W0085	Type 2	85	40	M12	80	350-600
34940.W0090	Type 2	90	49	M16	100	600-900
34940.W0125	Type 2	125	52	M16	100	1000-2500
34940.W0170	Type 2	170	57	M20	120	2500-4000

34950



Material
Galvanized steel, with rubber pad (90 Shore A).

Technical Notes
Provides great levelling accuracy, with its fine pitch thread. Can take very high horizontal loads.

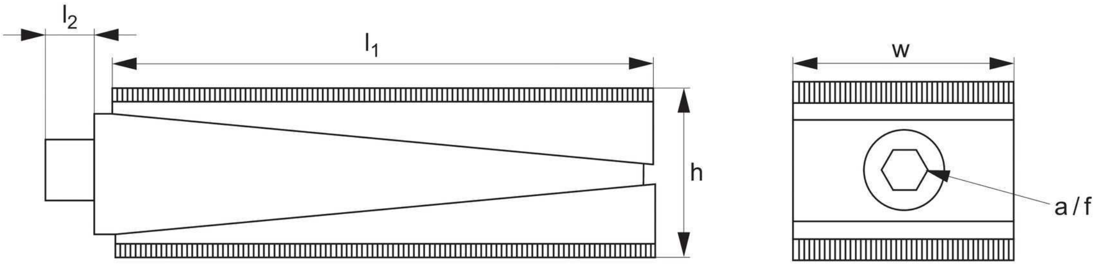
Tips
Suitable for heavy machinery with strong vibration/impacts, such as plastic injection moulding machines, presses, guillotines etc. Do not raise higher than the max height (h_3).

Order No.	d_1	h_1	d_2	d_3	l	h_2	h_3	a/f	Dynamic load Kgf	Static load Kgf
34950.W0080	80	130	M12x1,25	54	90	40	50	8	250	500
34950.W0120	120	130	M16x1,50	80	85	45	58	12	400	1000
34950.W0160	160	190	M20x1,50	102	136	54	68	15	900	2000
34950.W0200	200	195	M20x1,50	102	135	60	75	15	1500	3500

Wedge Mounts

anti-vibration

34960



Order No.	h	l_1	w	l_2	a/f	Base material	Load range Kgf
34960.W0150	60±5	150	75	12	12	Rubber	500 - 1000
34960.W0151	60±5	150	75	12	12	Polyurethane	700 - 2500
34960.W0220	70±10	200	100	12	12	Rubber	1500 - 3000
34960.W0221	70±10	200	100	12	12	Polyurethane	3000 - 6000

Material

Cast body, coated, with rubber base (65 Shore A) or harder polyurethane base (90 Shore A).

Technical Notes

For leveling and vibration dampening of heavy loads.
Adjustment by means of allen key on side.
Adjustment is ±5mm or ±10mm depending on version selected - see table.

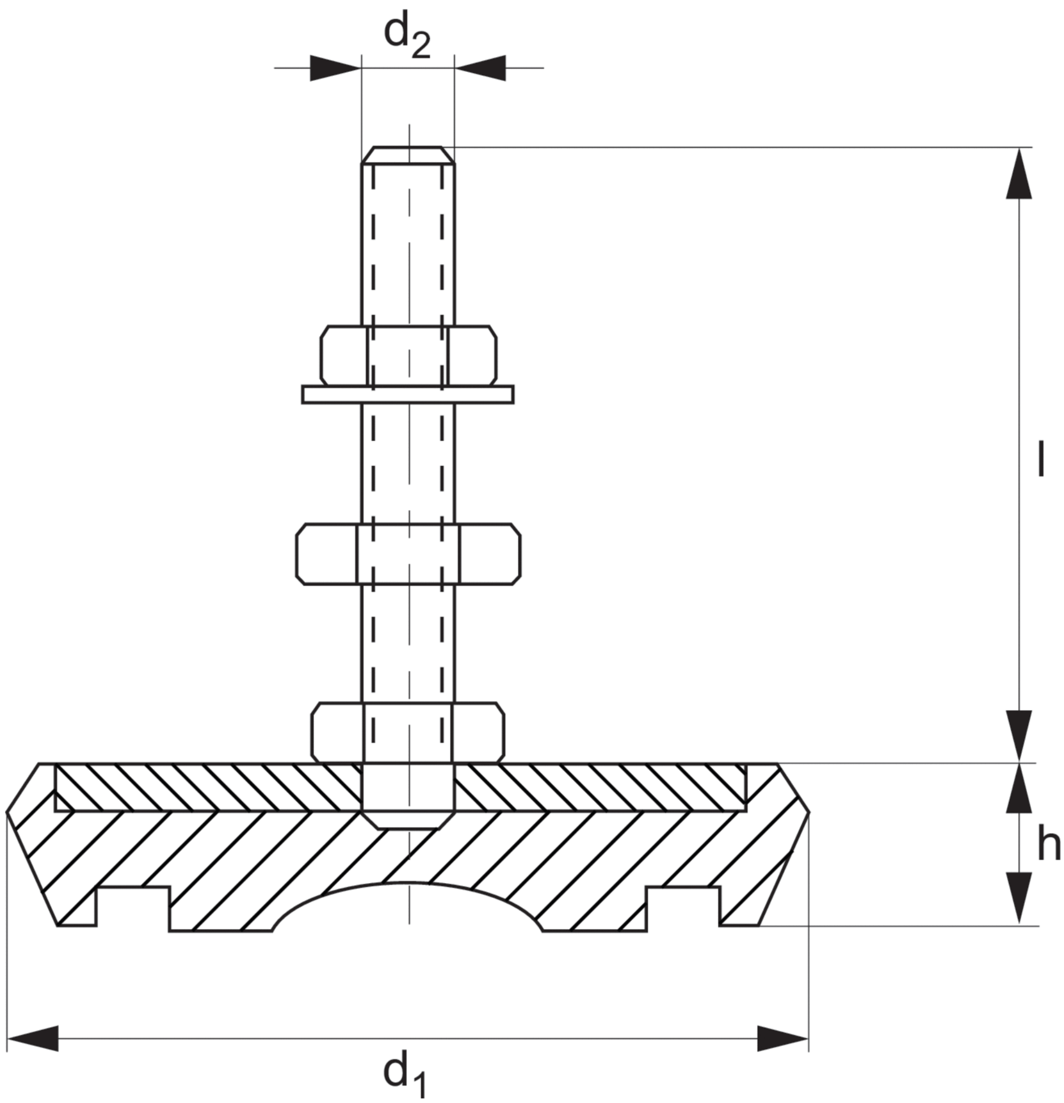
Tips

The rubber base versions have lower load carrying capacity but are less expensive than the polyurethane versions. Studded version available on the website.

Stainless Machine Mounts

rubber base

34980



Material
Stainless steel body and thread (A2, AISI 304), with rubber base (65 Shore A).

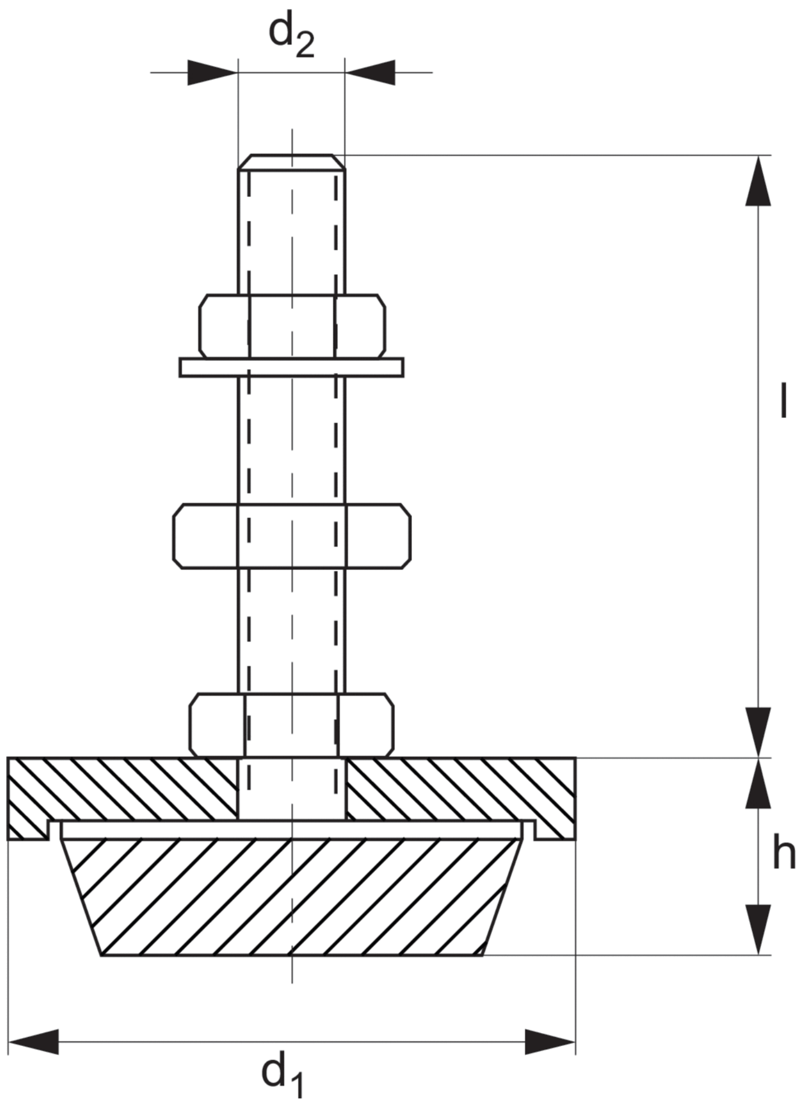
Technical Notes
Suitable for medium and high frequency vibrations and with smooth floors.

Order No.	d_1	h	d_2	l	Load range Kgf
34980.W0040	40	15	M 8	40	0-60
34980.W0063	63	18	M10	83	30-100
34980.W0070	70	22	M12	90	80-150
34980.W0090	90	25	M12	90	100-350
34980.W0106	106	29	M16	110	300-600
34980.W0127	127	33	M16	110	500-900
34980.W0150	150	39	M16	110	800-1500
34980.W0170	170	42	M16	110	1300-2000

Stainless Machine Mounts

polyurethane base

34990

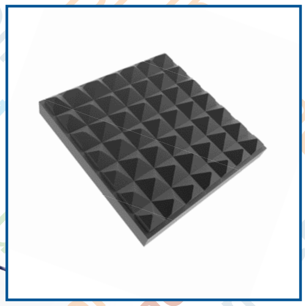


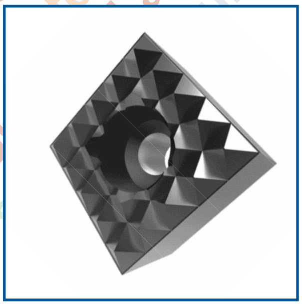
Material
Stainless steel body and thread (A2, AISI 304), with hard polyurethane base (80 Shore A).

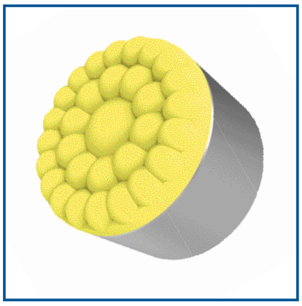
Technical Notes
Ideally suited for food and pharmaceutical applications. The hard polyurethane base is resistant to aggressive oils and chemicals.

Tips
The polyurethane base 80 Shore A also ensures very heavy load carrying capacity.

Order No.	d_1	h	d_2	l	Load range Kgf
34990.W0065	65	22	M12	90	200-800
34990.W0100	100	30	M16	110	500-2000
34990.W0120	120	33	M16	110	2000-4000
34990.W0180	180	40	M16	110	4000-6000

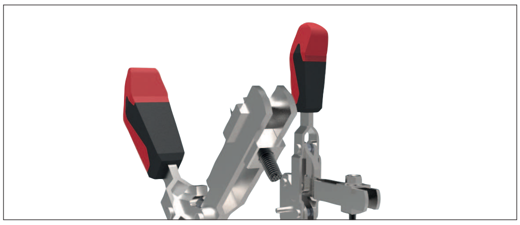




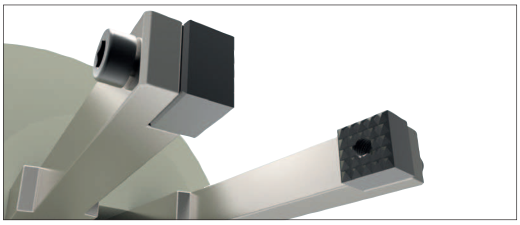


Grippers & Locating Pins

Carbide & Hardened Steel Grippers & Inserts



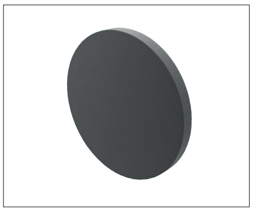
Grippers enhance workholding for multiple machining operations.



Grippers increase handling capability.

Pads and gripper options

Pads

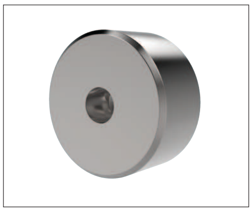


Solid Carbide

High impact carbide pads, can be brazed or bonded into place.

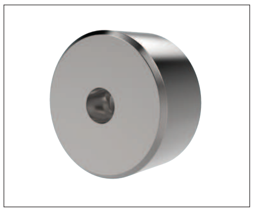
Carbide Tipped

Constructed with high impact carbide pad brazed to a heat treated alloy steel body. Mount via tapped hole or a flat on the outside diameter for set screw mounting.



Hardened Steel

Made from 8620 steel, carburized and hardened to Rc 58/60 1.2mm with black oxide finish. Mount via tapped or counter bored hole.

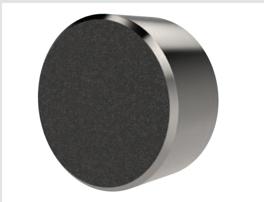


Non-marking Thermoplast

Made from white thermoplast. Mount via tapped or counter bored hole.

Stainless Steel

Pad from 17-4 stainless steel, hardened to Rc 43/46. Mount via tapped or counter bored hole.



Abrasive Diamond Surface

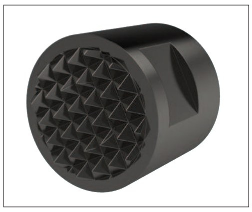
Abrasive surface permanently fused to a 17-4 stainless steel pad, hardened to Rc 43/46. The surface texture is comparable to a 100 grit abrasive. Mount via tapped or counter bored hole.

Soft Urethane Surface

Urethane surface is permanently bonded to a 300 series stainless steel pad. The urethane provides excellent protection against damage on delicate work surfaces. Tapped hole mounting.

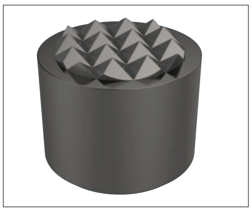
see our website for our full range:
wixroyd.com

Grippers



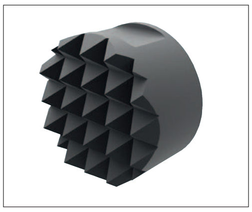
High Speed Tool Steel

Manufactured from M-2 high speed tool steel, hardened to Rc 60/62 with black oxide finish. Mount via tapped hole, counter bored hole or a flat on the outside diameter for set screw mounting.



Carbide Tipped

Constructed with high impact carbide pad brazed to a heat treated alloy steel body. Mounts via tapped hole or a flat on the outside diameter for set screw mounting.

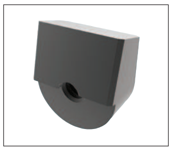


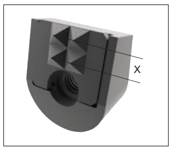
Solid Carbide

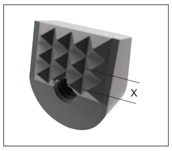
Manufactured from high impact carbide in a solid gripper pad or as a solid gripper body with a threaded brazed-in steel insert. Mount via tapped hole or a flat on the outside diameter for set screw mounting.

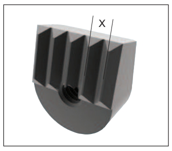
ov-35300-35980-a - Updated - 28-01-2021

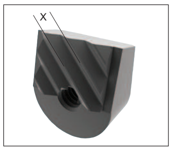
Tooth pattern specifications

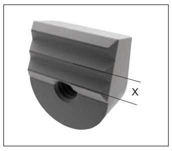

Smooth


4 Point
x = 3.429 x 90°


Fine
x = 2.921 x 90°

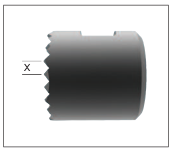

Straight
x = 2.921 x 90°

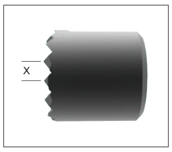

Angular straight
x = 2.921 x 90°

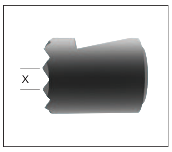

3 Point/90° straight
x = 3.175 x 90°

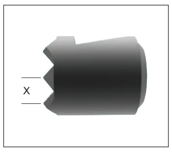
Angular grippers

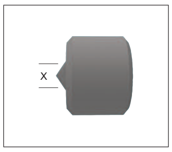
Our carbide and hardened steel grippers are available with a variety of tooth patterns, as specified on the product data tables.

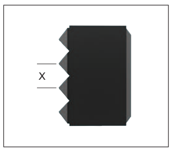

Super Fine "SF"
x = 1.600 x 90°


Extra Fine "EF"
x = 2.387 x 90°


Fine
x = 3.175 x 90°

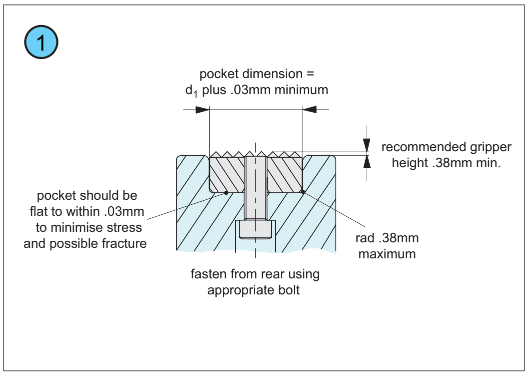

Coarse
x = 4.775 x 90°

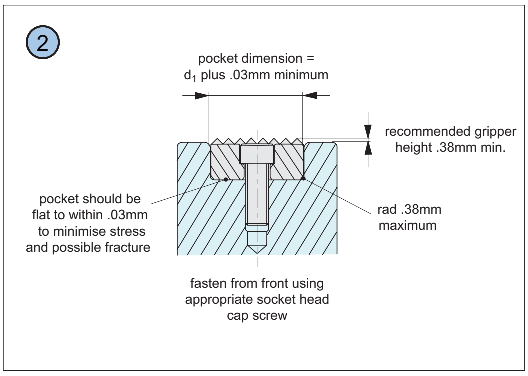

Single point
x = 5.461 x 90°

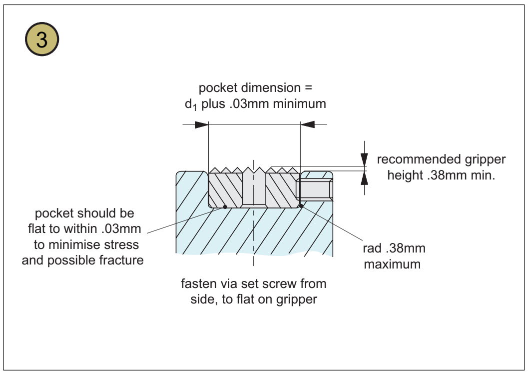

4 Point square
x = 3.962 x 90°

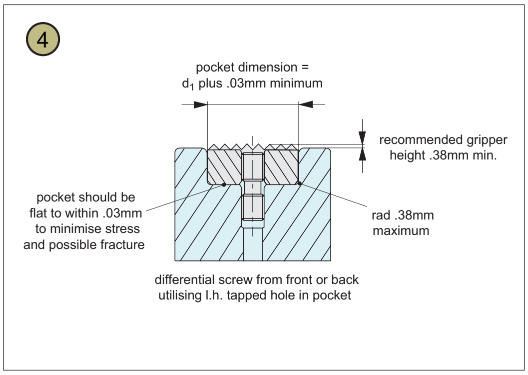
Round/square grippers

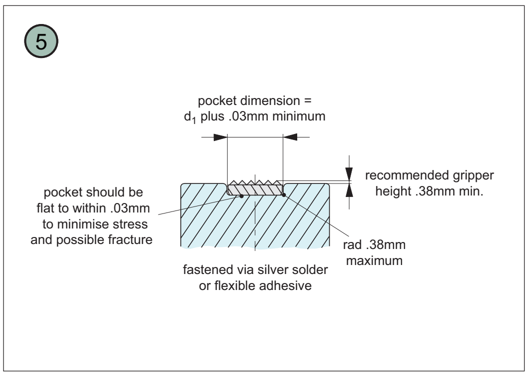
Mounting options

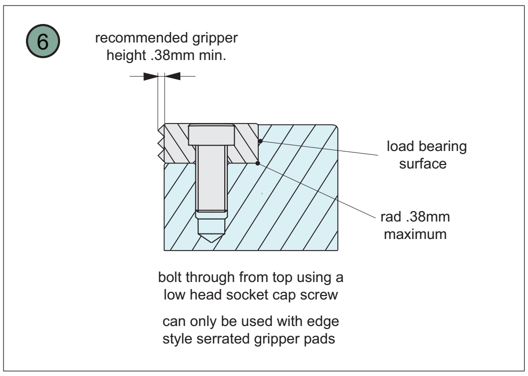












Mounting options for carbide and hardened steel grippers and inserts.

Our carbide grippers and inserts can be installed in a number of different ways, the most suitable mounting method depends upon the specific insert – please refer to the product data table for specific information.

1. Round or square grippers and rest pads with tapped blind-hole or through hole tap.
2. Round or square grippers and rest pads with counter-bored hole.
3. Round grippers with flat on the O.D. for set screw mounting. Also square gripper mounting.
4. Round or square grippers with through tapped hole.
5. Round or square carbide pads.
6. Counter-bored edge grippers.

A range of specialist gripping pads to suit your application

Urethane coated

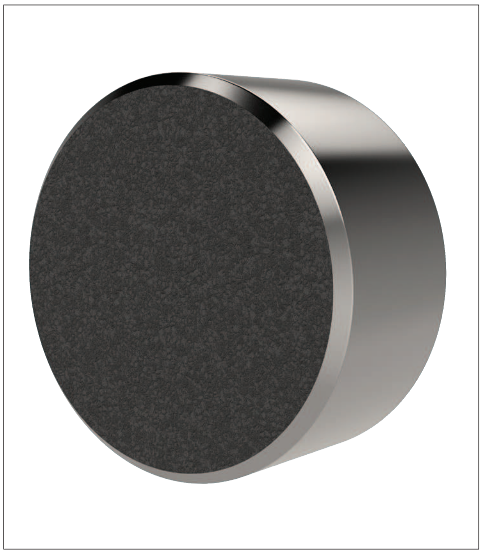
Unique urethane coat prevents marking of delicate components during machining or manipulation by robots. The urethane pad is permanently bonded to the stainless steel body of the gripping pad. With a bubbled texture, air is able to escape and hence avoid any suction action - enabling easy releasing of parts.

These are available in three different urethane durometers.

35 durometer:
Pencil rubber top

60 durometer:
Car tyre

80 durometer:
Skateboard wheel

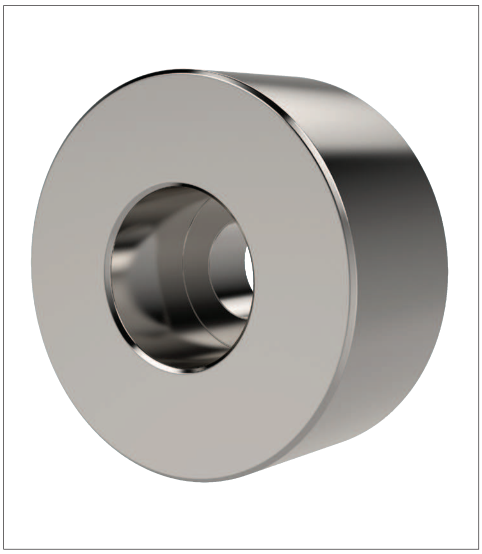


Abrasive diamond coated

To improve handling of smooth or slippery components, with a minimum of clamping pressure, our abrasive diamond coated pads provide an excellent solution.

Diamond powders are permanently fused to a 17-4 stainless pad, to provide an abrasive surface comparable to 100 grit value.

Sandpaper of 100 grit texture

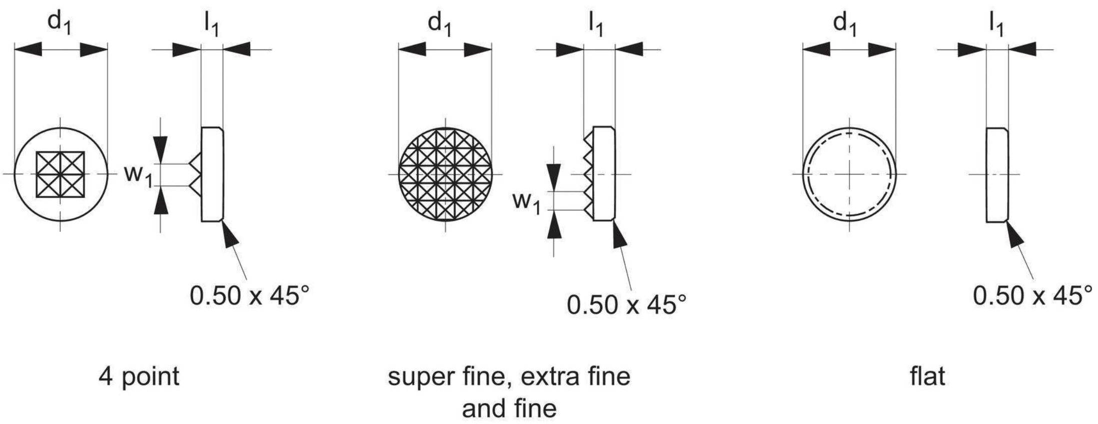


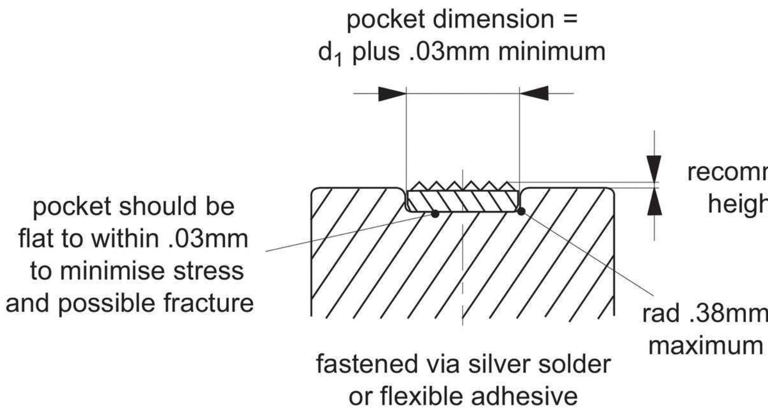
Stainless pads

Pads of 17-4 Stainless, hardened to RC 43/46 provide solutions to applications where material selection is of greater importance; for example nuclear or food processing or pharmaceutical applications.

Gripper Pads - Carbide

round





Material
Solid carbide.

Technical Notes
Solid carbide pads are mounted into fixtures and press down on the surface of the clamped workpiece to give safe holding without distortion. Carbide insert pads are especially suited for clamping cast and forged parts, as well as delicate workpieces such as pipes and tubes. Carbide insert pads can be built into clamps, stops and fixtures as well as chucks and vices.

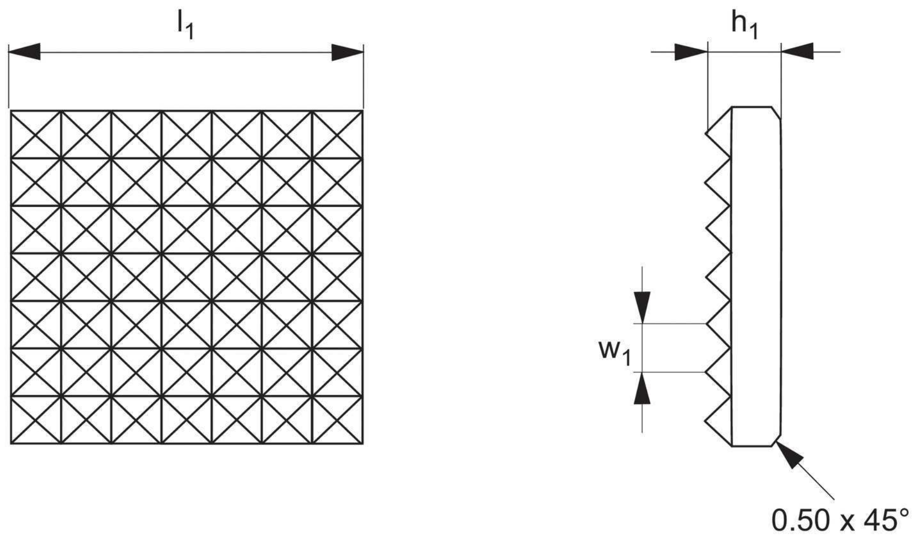
Tips
Can be fastened via silver solder or a flexible adhesive. Note installation recommendations in technical diagram.

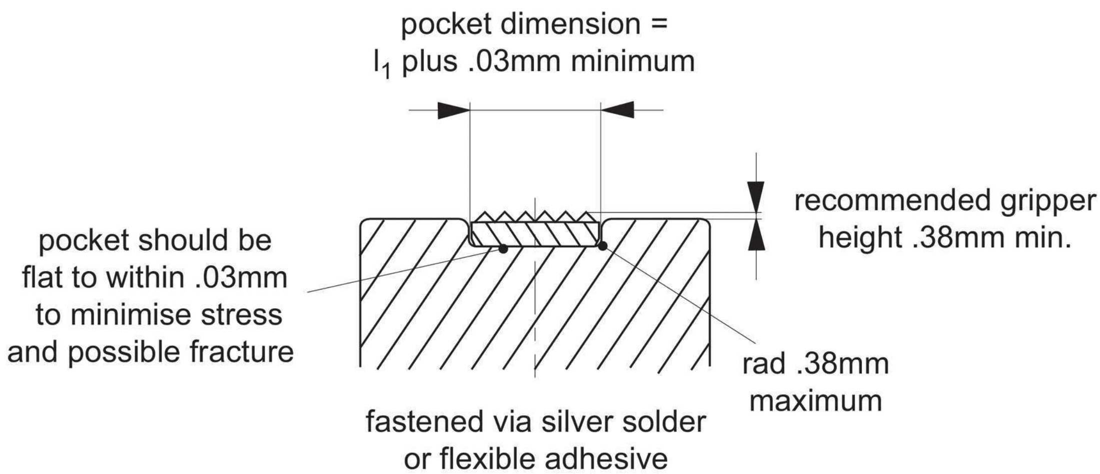
Order No.	Tooth pattern	d_1 tol. +0,00 -0,13	l_1 tol. +0,13 -0,00	w_1
35300.W0004	4 Point	7,9	3,2	3,9x90°
35300.W0008	4 Point	9,5	3,2	3,9x90°
35300.W0012	4 Point	11,1	3,2	3,9x90°
35300.W0015	4 Point	12,7	4,0	3,9x90°
35300.W0025	Super Fine	6,4	3,2	1,6x90°
35300.W0026	Super Fine	7,9	3,2	1,6x90°
35300.W0001	Extra Fine	6,4	3,2	2,4x90°
35300.W0003	Extra Fine	7,9	3,2	2,4x90°
35300.W0007	Extra Fine	9,5	3,2	2,4x90°
35300.W0011	Extra Fine	11,1	3,2	2,4x90°
35300.W0014	Extra Fine	12,7	3,2	2,4x90°
35300.W0018	Extra Fine	15,9	3,2	2,4x90°
35300.W0021	Extra Fine	19,1	3,2	2,4x90°
35300.W0023	Extra Fine	25,4	4,0	2,4x90°
35300.W0006	Fine	9,5	3,2	2,2x90°
35300.W0010	Fine	11,1	3,2	2,2x90°
35300.W0013	Fine	12,7	3,2	2,2x90°
35300.W0017	Fine	15,9	3,2	2,2x90°
35300.W0020	Fine	19,1	3,2	2,2x90°
35300.W0002	Flat	6,4	3,2	-
35300.W0005	Flat	7,9	3,2	-
35300.W0009	Flat	9,5	3,2	-
35300.W0016	Flat	12,7	3,2	-
35300.W0019	Flat	15,9	3,2	-
35300.W0022	Flat	19,1	3,2	-
35300.W0024	Flat	25,4	4,0	-

Gripper Pads - Carbide

square

35310





Material

Solid carbide.

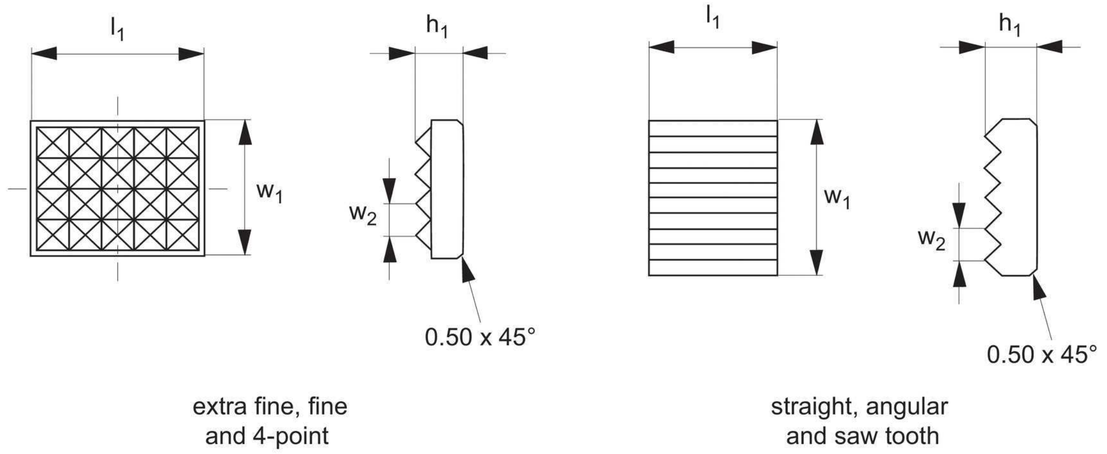
Technical Notes

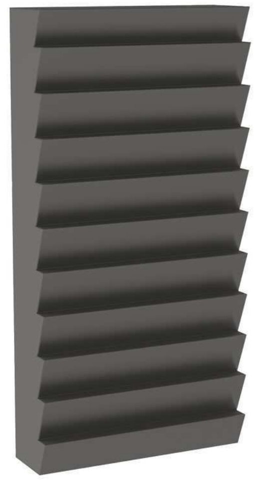
Solid carbide pads are mounted into fixtures and press down on the surface of the clamped workpiece to give safe holding without distortion. Carbide insert pads are especially suited for clamping cast and forged parts, as well as delicate workpieces such as pipes and tubes. Carbide insert pads can be built into clamps, stops and fixtures as well as chucks and vices.

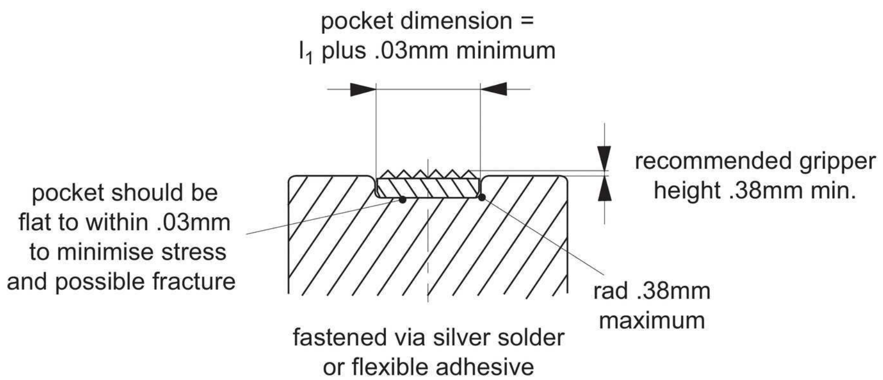
Tips

Can be fastened via silver solder or a flexible adhesive.
Note installation recommendations in technical diagram.

Order No.	Tooth pattern	l_1 tol. +0,00 -0,13	h_1 tol. +0,13 -0,00	w_1
35310.W0000	Fine	9,5	3,2	3,2x90°
35310.W0001	Fine	12,7	3,2	3,2x90°
35310.W0002	Extra Fine	12,7	3,2	2,4x90°
35310.W0003	Extra Fine	15,9	3,2	2,4x90°
35310.W0004	Extra Fine	19,1	4,0	2,4x90°
35310.W0005	Extra Fine	25,4	4,0	2,4x90°
35310.W0006	Extra Fine	9,5	3,2	2,4x90°







Material
Solid carbide.

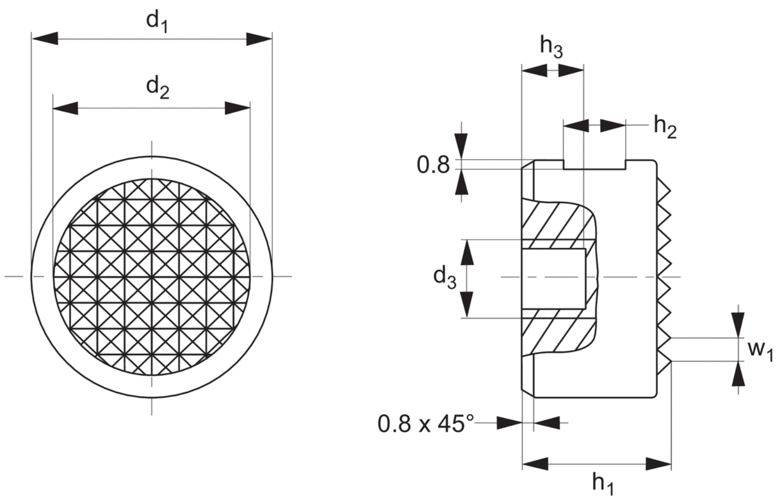
Technical Notes
Solid carbide pads are mounted into fixtures and press down on the surface of the clamped workpiece to give safe holding without distortion. Carbide insert pads are especially suited for clamping cast and forged parts, as well as delicate workpieces such as pipes and tubes. Carbide insert pads can be built into clamps, stops and fixtures as well as chucks and vices.

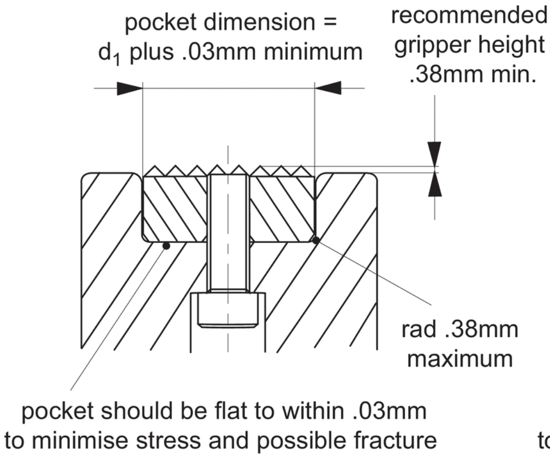
Tips
Can be fastened via silver solder or a flexible adhesive. Note installation recommendations in technical diagram.

Order No.	Tooth pattern	l_1 +0,00 -0,13	w_1 +0,00 -0,13	w_2	h_1 +0,13 -0,00
35320.W0001	Extra Fine	9,5	6,4	2,4x90°	3,2
35320.W0003	Extra Fine	12,7	10,3	2,4x90°	3,2
35320.W0008	Extra Fine	25,4	12,7	2,4x90°	4,8
35320.W0002	Fine	12,7	10,3	3,2x90°	3,2
35320.W0005	Fine	11,5	10,3	3,2x90°	3,2
35320.W0004	4 Point	11,5	10,3	3,9x90°	3,2
35320.W0006	Straight	11,5	10,3	2,9x90°	3,2
35320.W0007	Angular	11,5	10,3	2,9x90°	3,2
35320.W0009	Saw Tooth	25,4	12,7	-	4,8
35320.W0010	Saw Tooth	38,1	19,1	-	6,4

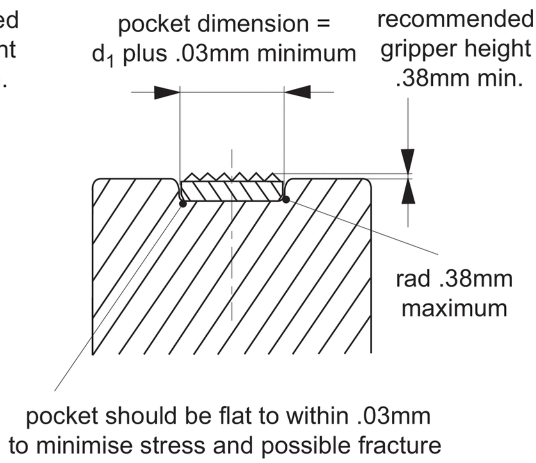
Grippers - Carbide Tipped

steel body - round - rear fixing





fasten from rear using appropriate bolt



fastened via silver solder or flexible adhesive

Material
Solid carbide tipped grippers, in steel body.

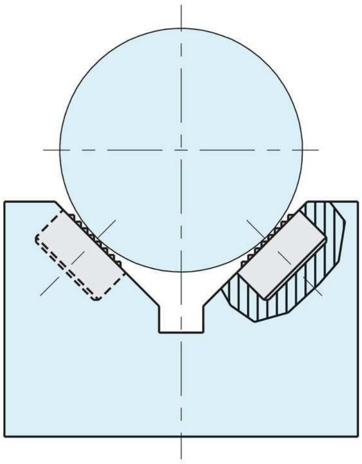
Technical Notes
These carbide tipped gripping pads press down onto the surface of the components to give safe holding without distortion. Especially suitable in chucks, vices and robotic grippers for extra grip.

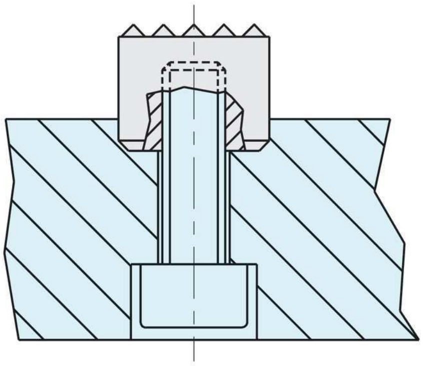
Tips
Can be fastened via use of set screw from side to flat on gripper, or from rear using appropriate bolt of thread d_2. Note installation recommendations in technical diagram.

Order No.	Tooth pattern	d_1 +0,00 -0,13	h_1 +0,00 -0,13	h_2	h_3	d_2	d_3	w_1
35330.W0001	Extra Fine	10	10	4,5	4,8	7,9	M 5x0,8	2,4x90°
35330.W0002	Extra Fine	10	12	6,0	4,8	7,9	M 5x0,8	2,4x90°
35330.W0003	Fine	12	10	4,5	4,8	9,5	M 5x0,8	3,2x90°
35330.W0004	Fine	12	12	6,0	4,8	9,5	M 5x0,8	3,2x90°
35330.W0005	Fine	16	10	4,5	4,8	12,7	M 6x1,0	3,2x90°
35330.W0006	Fine	16	12	6,0	4,8	12,7	M 6x1,0	3,2x90°
35330.W0007	Fine	20	10	4,5	4,8	15,9	M 6x1,0	3,2x90°
35330.W0008	Fine	20	12	6,0	4,8	15,9	M 6x1,0	3,2x90°
35330.W0009	Fine	25	10	4,5	4,8	19,1	M 6x1,0	3,2x90°
35330.W0010	Fine	25	12	6,0	4,8	19,1	M 6x1,0	3,2x90°

Grippers - Carbide Tipped
steel body - round - rear fixing

35330





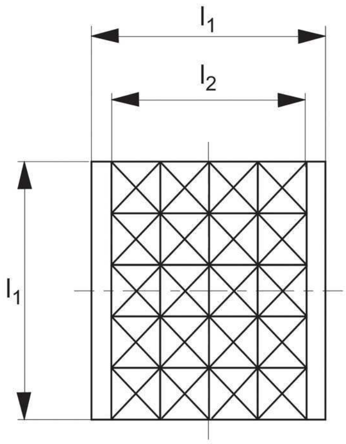
Material
Solid carbide tipped grippers, in steel body.

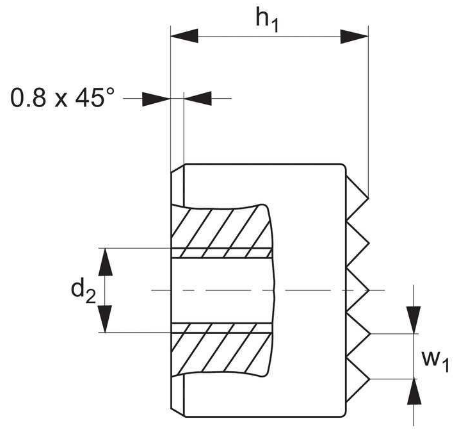
Technical Notes
These carbide tipped gripping pads press down onto the surface of the components to give safe holding without distortion. Especially suitable in chucks, vices and robotic grippers for extra grip.

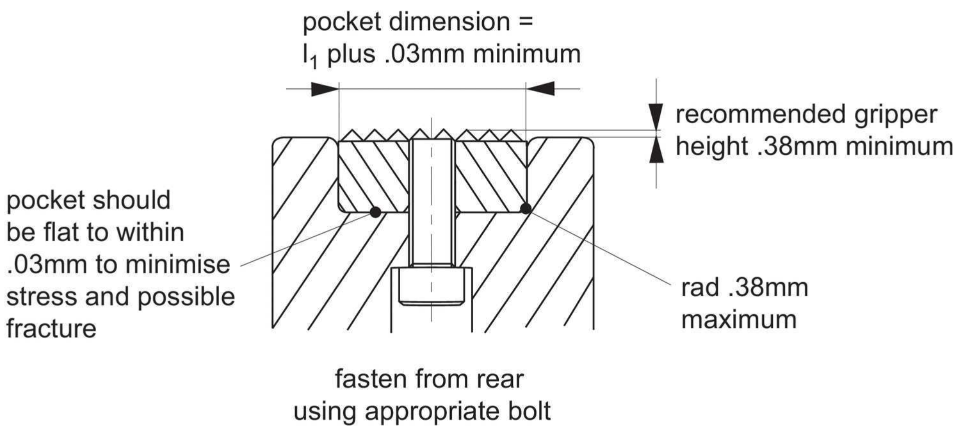
Tips
Can be fastened via use of set screw from side to flat on gripper, or from rear using appropriate bolt of thread d_2. Note installation recommendations in technical diagram.

Grippers - Carbide Tipped

steel body - square - rear fixing





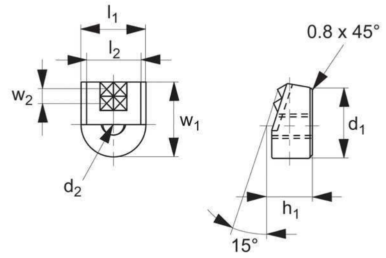


Order No.	Tooth pattern	l_1	h_1	l_2	d_2	w_1
35340.W0001	Fine	12,0	10,00	10,32	M 5x0,8	3,175x90°
35340.W0002	Fine	12,0	12,00	10,32	M 5x0,8	3,175x90°
35340.W0003	Ex-fine	12,7	9,53	10,32	M 6x1,0	2,387x90°

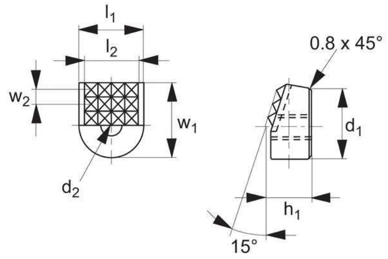
Material
Solid carbide tipped grippers, in steel body.

Technical Notes
These carbide tipped gripping pads press down onto the surface of the component to give safe holding without distortion. Especially suitable in chucks, vices and robotic grippers for extra grip.

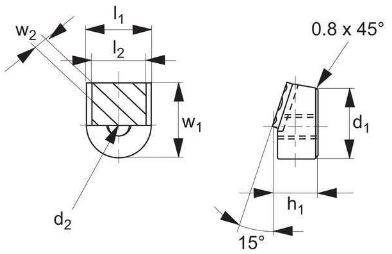
Tips
Can be fastened from rear using appropriate bolt. Note installation recommendations in technical diagram.



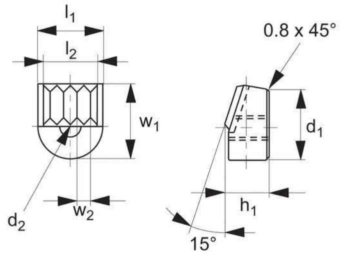
4 point



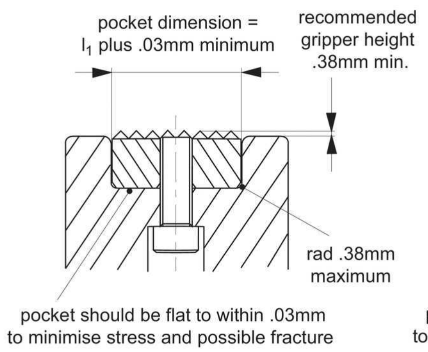
fine



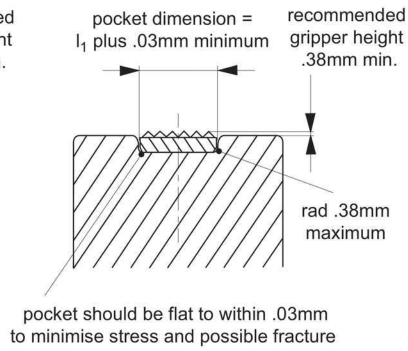
angular



straight



fasten from rear using
appropriate bolt



fastened via silver solder
or flexible adhesive

Material
Steel, heat-treated with brazed on carbide pad.

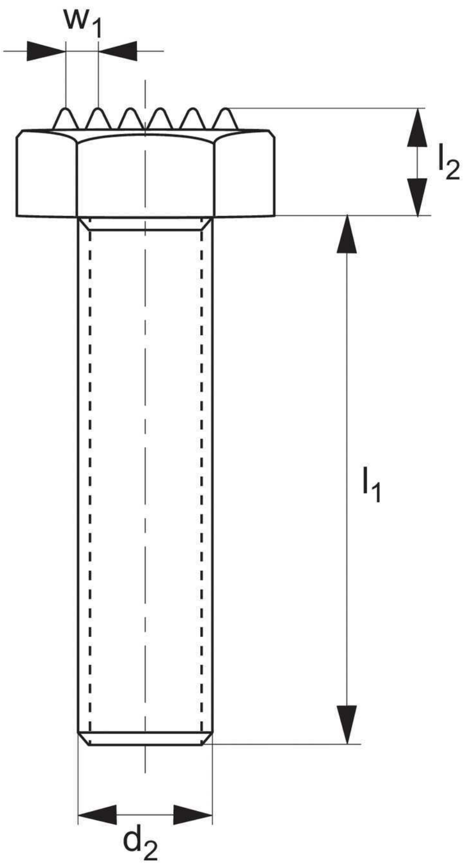
Technical Notes
Also available with imperial threads on request. These angle gripper inserts press down on the surface of the clamped workpiece to give safe holding without distortion. They can be built into clamps, stops and fixtures, as well as chucks, vices and robotic grippers for extra grip.

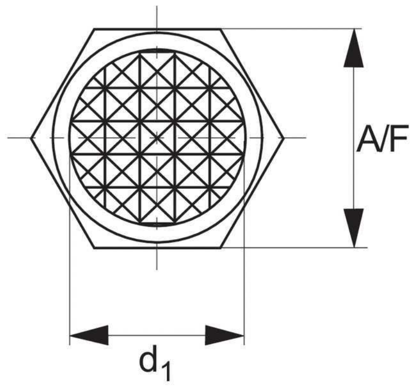
Tips
Can be fastened from rear using appropriate bolt. Note installation recommendations in technical diagram.

Order No.	Tooth pattern	l_1 +0,000 -0,002	l_2	h_1 +0,000 -0,005	w_1 +0,000 -0,010	w_2	d_1	d_2
35350.W0001	4 Point	14,29	11,9	9,5	16,5	3,4x90°	15	M 5x0,8
35350.W0002	Fine	14,29	11,9	9,5	16,5	2,9x90°	15	M 5x0,8
35350.W0003	Straight	14,29	11,9	9,5	16,5	2,9x90°	15	M 5x0,8
35350.W0004	Angular	14,29	11,9	9,5	16,5	2,9x90°	15	M 5x0,8

Grippers - Carbide Tipped
threaded bolt

35400





Material
Hex headed steel bolt with solid carbide tipped insert.

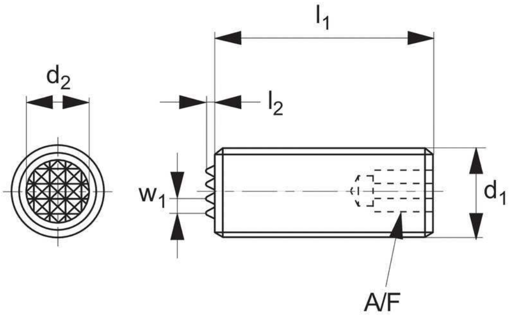
Technical Notes
Adjustable carbide tipped grippers are used in jigs and fixtures, modular fixtures and tooling. They are especially suitable for holding castings and other components. Adjustment can be made within the thread length. Use a DIN 439B hex. nut for adjustment and securing.

Order No.	Tooth pattern	d_2	l_1	l_2	A/F	d_1	w_1
35400.W0001	Ex-fine	M 6x1,00	12	5,0	10	7,94	2,387x90°
35400.W0002	Ex-fine	M 6x1,00	25	5,0	10	7,94	2,387x90°
35400.W0003	Fine	M 8x1,25	12	6,4	13	9,53	3,175x90°
35400.W0004	Fine	M 8x1,25	25	6,4	13	9,53	3,175x90°
35400.W0005	Fine	M 8x1,25	35	6,4	13	9,53	3,175x90°
35400.W0006	Fine	M10x1,50	12	7,5	17	12,70	3,175x90°
35400.W0007	Fine	M10x1,50	25	7,5	17	12,70	3,175x90°
35400.W0008	Fine	M10x1,50	40	7,5	17	12,70	3,175x90°
35400.W0009	Fine	M12x1,75	25	8,7	19	15,88	3,175x90°
35400.W0010	Fine	M12x1,75	40	8,7	19	15,88	3,175x90°
35400.W0011	Fine	M16x2,00	35	11,0	24	19,05	3,175x90°
35400.W0012	Fine	M16x2,00	50	11,0	24	19,05	3,175x90°
35400.W0013	Ex-fine	M20x2,50	40	13,7	30	25,40	2,387x90°
35400.W0014	Ex-fine	M20x2,50	60	13,7	30	25,40	2,387x90°

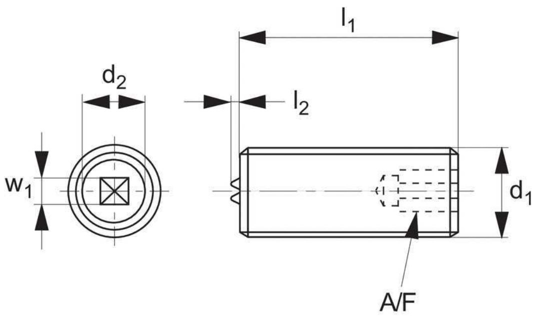
Grippers - Carbide Tipped

set screw

35410



fine and extra fine



4 point

Order No.	Tooth pattern	d_1	d_2	l_1	l_2	w_1	A/F
35410.W0001	Extra Fine	M10x1,5	6,4	25	1,3	2,4x90°	5
35410.W0002	Extra Fine	M10x1,5	6,4	50	1,3	2,4x90°	5
35410.W0004	Extra Fine	M12x1,75	7,9	25	1,3	2,4x90°	6
35410.W0006	Extra Fine	M12x1,75	7,9	50	1,3	2,4x90°	6
35410.W0014	Extra Fine	M20x2,5	12,7	50	1,3	2,4x90°	10
35410.W0008	Fine	M16x2,0	11,1	25	1,3	3,2x90°	8
35410.W0010	Fine	M16x2,0	11,1	50	1,3	3,2x90°	8
35410.W0012	Fine	M20x2,5	12,7	25	1,3	3,2x90°	10
35410.W0003	4 Point	M12x1,75	7,9	25	1,3	3,9x90°	6
35410.W0005	4 Point	M12x1,75	7,9	50	1,3	3,9x90°	6
35410.W0007	4 Point	M16x2,0	11,1	25	1,3	3,9x90°	8
35410.W0009	4 Point	M16x2,0	11,1	50	1,3	3,9x90°	8
35410.W0011	4 Point	M20x2,5	12,7	25	1,3	3,9x90°	10
35410.W0013	4 Point	M20x2,5	12,7	50	1,3	3,9x90°	10

Material

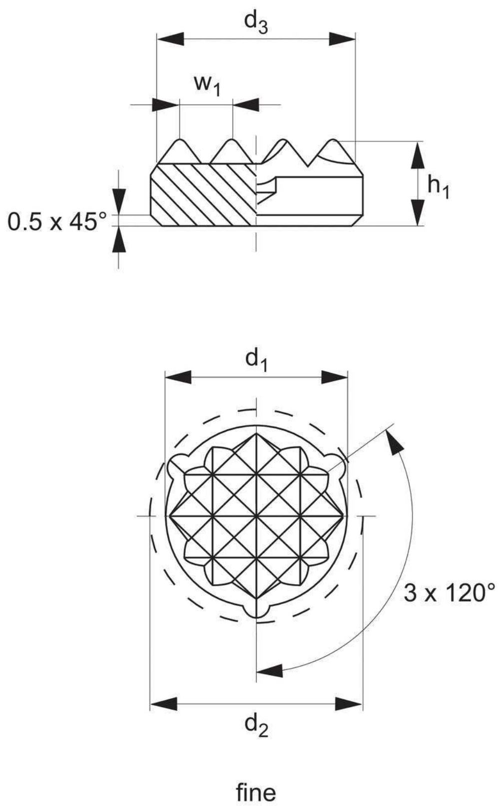
Steel set screw with hex socket and solid carbide tipped insert.

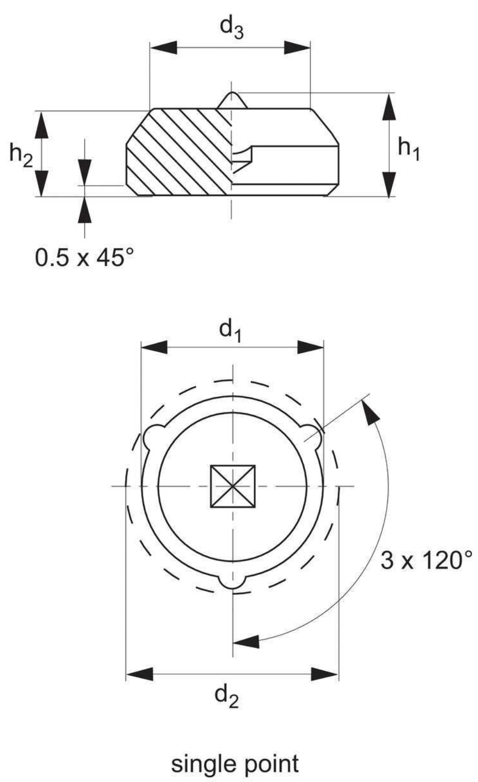
Technical Notes

Adjustable carbide tipped grippers are used in jigs and fixtures, modular fixtures and tooling. They are especially suitable for holding castings and other components. Adjustment can be made by using the hex key in socket, and can be adjusted within the thread length. Use a DIN 439B hex nut for adjustment and securing.

Gripping Pads - Hard Tool Steel

round





Order No.	Tooth pattern	d_1 ±0,1	d_2 ±0,2	d_3 ~	h_1	h_2	w_1	g
35440.W0608	Fine	8,3	9,1	7,7	5,0	-	2	3
35440.W0611	Fine	11,3	12,1	10,6	5,0	-	2	6
35440.W0613	Fine	12,6	13,4	11,9	5,0	-	3	7
35440.W0615	Fine	$16,6^{\pm,15}$	17,4	16,0	5,0	-	3	12
35440.W0617	Fine	$21,6^{\pm,15}$	22,4	21,0	5,0	-	3	20
35440.W0628	Single Point	8,3	9,1	6,3	5,8	5	-	3
35440.W0631	Single Point	11,3	12,1	9,3	5,8	5	-	7
35440.W0633	Single Point	12,6	13,4	10,0	5,8	5	-	8

Material

Hard metal ribbed, hard metal pointed, 60 HRc.

Technical Notes

d_1 - for use when press-fitting into softer metals such as aluminium. The three protrusions ensure centering of insert.
d_2 - for use when gluing or soldering in place.

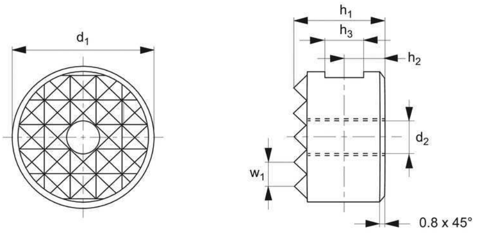
Tips

Can be integrated into fixtures, clamping jaws etc., to provide an abrasion-proof transmission of high holding forces on cast or forged workpieces.

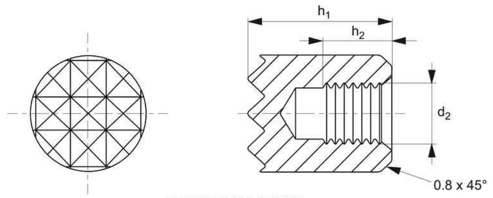
Grippers - Hard Tool Steel

round - screw fixing

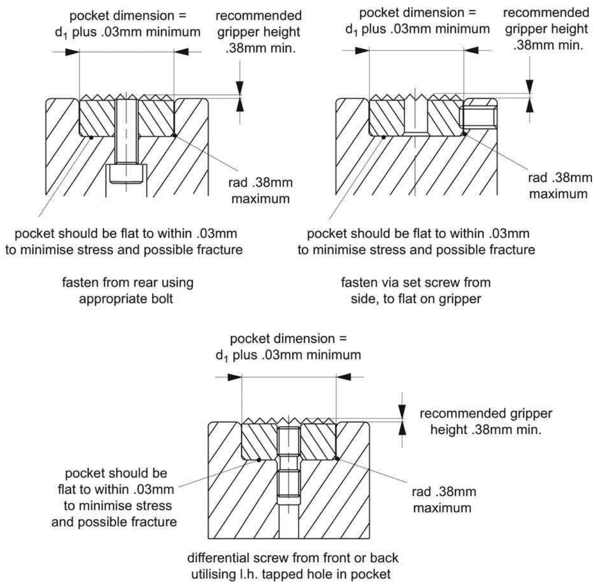
35450



35450.W0001-.W0010



35450.W0130-.W0141



Order No.	Tooth pattern	d_1 +0,00 -0,13	h_1 +0,00 -0,13	h_2	h_3	d_2	w_1
35450.W0001	Extra Fine	10	10	4,5	4,8	M 5x0,8	2,4x90°
35450.W0002	Extra Fine	10	12	6,0	4,8	M 5x0,8	2,4x90°
35450.W0003	Fine	12	10	4,5	4,8	M 5x0,8	3,2x90°
35450.W0004	Fine	12	12	6,0	4,8	M 5x0,8	3,2x90°
35450.W0005	Fine	16	10	4,5	4,8	M 6x1,0	3,2x90°
35450.W0006	Fine	16	12	6,0	4,8	M 6x1,0	3,2x90°
35450.W0007	Fine	20	10	4,5	4,8	M 6x1,0	3,2x90°
35450.W0008	Fine	20	12	6,0	4,8	M 6x1,0	3,2x90°
35450.W0009	Fine	25	10	4,5	4,8	M 6x1,0	3,2x90°
35450.W0010	Fine	25	12	6,0	4,8	M 6x1,0	3,2x90°
35450.W0130	Super Fine	6	10	5,0	-	M 3x0,5	1,6x90°
35450.W0131	Super Fine	6	12	7,0	-	M 3x0,5	1,6x90°
35450.W0140	Super Fine	8	10	5,0	-	M 4x0,7	1,6x90°
35450.W0141	Super Fine	8	12	7,0	-	M 4x0,7	1,6x90°

Material

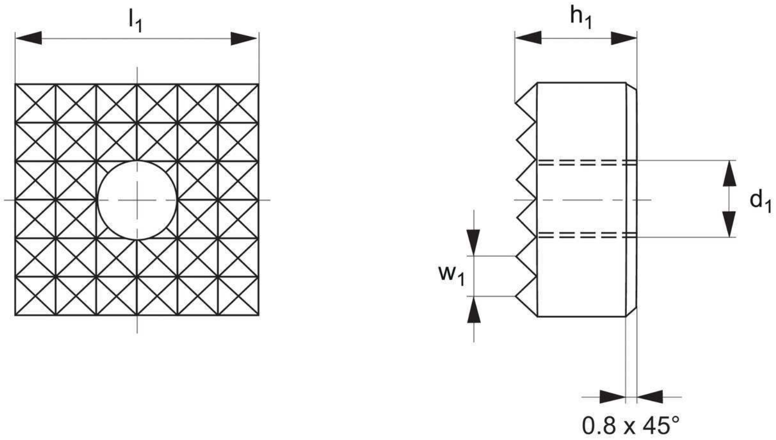
M2 tungsten-molybdenum high-speed steel, hardened to HRc 60-62.

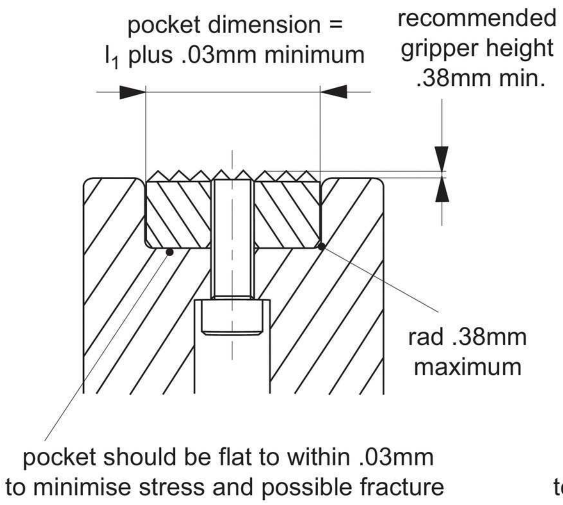
Technical Notes

These hardened steel gripping pads press down on to the surface of the clamped workpiece for safe holding without distortion. They are especially suitable where high load or clamping force is applied. Can be built into clamps, stops and fixtures as well as chucks, vices and robotic grippers for extra grip. M3 to M4 blind hole tapped.

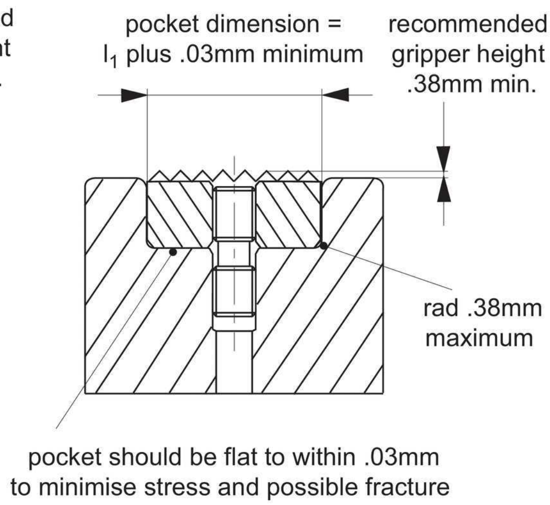
Tips

Can be fastened via use of set screw or from rear using appropriate screw (thread d_2).
Note installation recommendations in technical diagram.





fasten from rear using
appropriate bolt



differential screw from front or back
utilising l.h. tapped hole in pocket

Order No.	Tooth pattern	l_1 +0,00 -0,13	h_1 +0,00 -0,13	d_1	w_1
35460.W0001	Extra Fine	10	10	M 5x0,8	2,4x90°
35460.W0002	Extra Fine	10	12	M 5x0,8	2,4x90°
35460.W0003	Fine	12	10	M 5x0,8	3,2x90°
35460.W0004	Fine	12	12	M 5x0,8	3,2x90°
35460.W0005	Fine	20	10	M 5x0,8	3,2x90°
35460.W0006	Fine	20	12	M 5x0,8	3,2x90°
35460.W0007	Fine	25	10	M 6x1,0	3,2x90°
35460.W0008	Fine	25	12	M 6x1,0	3,2x90°
35460.W0161	Fine	16	10	M 6x1,0	3,2x90°
35460.W0162	Fine	16	12	M 6x1,0	3,2x90°

Material

M2 tungsten-molybdenum high-speed steel, hardened to HRc 60-62.

Technical Notes

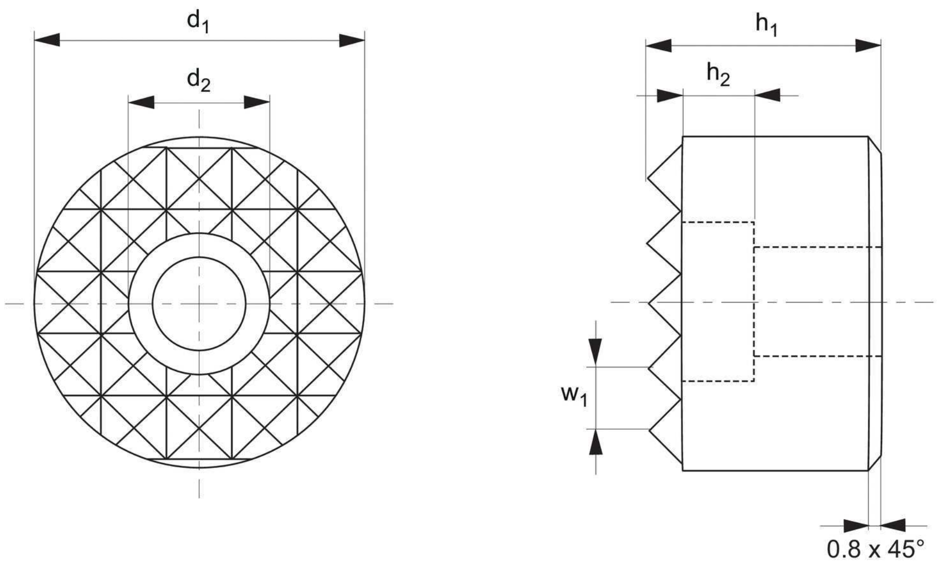
These hardened steel gripping pads press down on to the surface of the clamped workpiece for safe holding without distortion. They are especially suitable where high load or clamping force is applied. Can be built into clamps, stops and fixtures as well as chucks, vices and robotic grippers for extra grip.

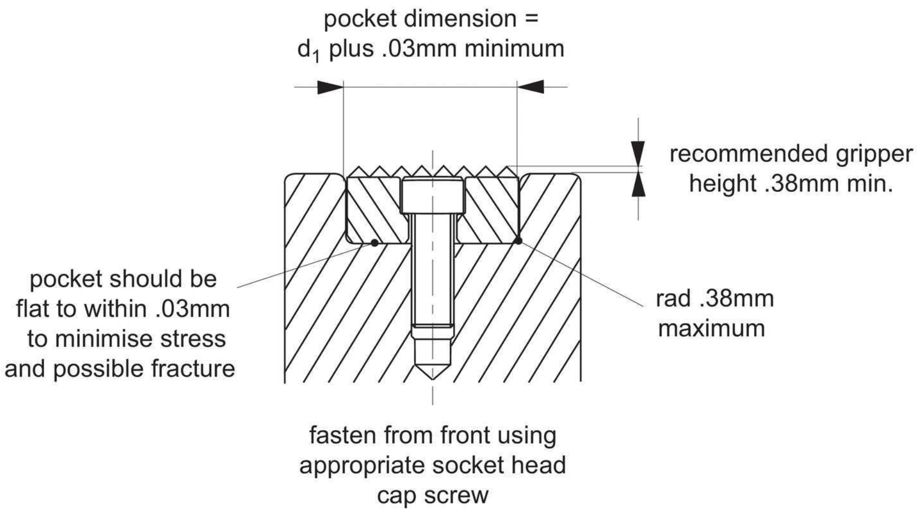
Tips

Can be fastened via use of set screw or from rear using appropriate screw (thread d_2).
Note installation recommendations in technical diagram.

Grippers - Hard Tool Steel

round - front fixing





Order No.	Tooth pattern	d_1 +0,00 -0,13	h_1 +0,00 -0,13	h_2	d_2 to fit DIN 912	w_1
35480.W0001	Fine	12	10	5,6	M 4	3,2x90°
35480.W0002	Fine	12	12	5,6	M 4	3,2x90°
35480.W0003	Fine	16	10	5,6	M 4	3,2x90°
35480.W0004	Fine	16	12	5,6	M 4	3,2x90°
35480.W0005	Fine	20	10	6,6	M 5	3,2x90°
35480.W0006	Fine	20	12	6,6	M 5	3,2x90°
35480.W0007	Fine	25	10	7,6	M 6	3,2x90°
35480.W0008	Fine	25	12	7,6	M 6	3,2x90°

Material
M2 tungsten-molybdenum high-speed steel, hardened to HRc 60-62.

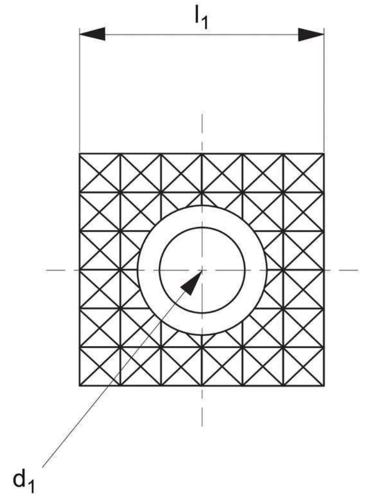
Technical Notes
These hardened steel gripping pads press down onto the surface of the clamped workpiece for safe holding without distortion. They are especially suitable where a high load or clamping force is applied. They can be built into clamps, stops and fixtures as well as chucks, vices and robotic grippers for extra grip.

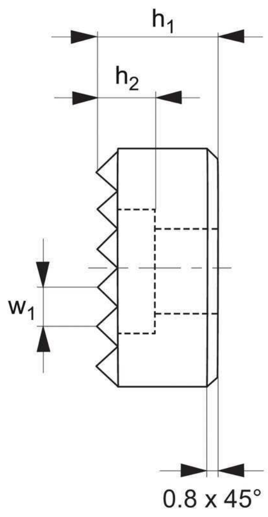
Tips
Can be fastened from the front using a socket head cap screw. Note installation recommendations in technical diagram.

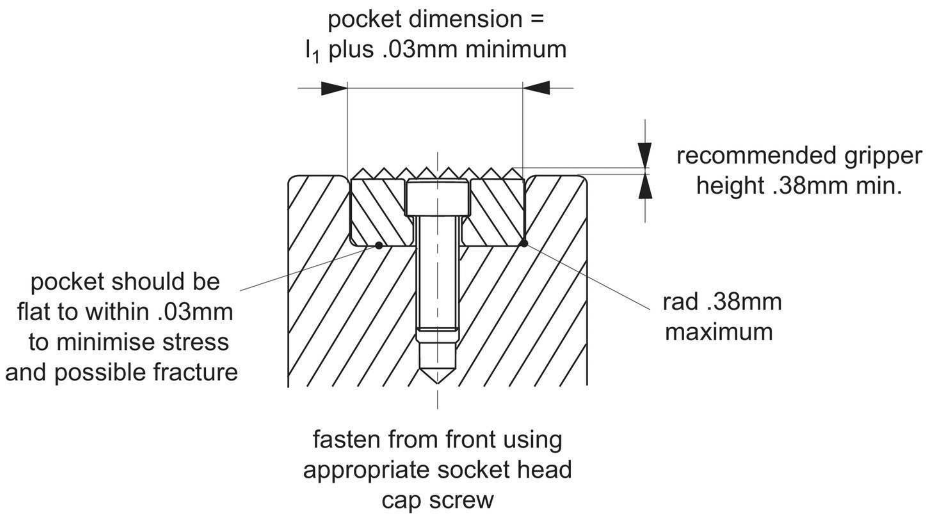
Grippers - Hard Tool Steel

square - front fixing

35490







Order No.	Tooth pattern	l_1 +0,00 -0,13	h_1 +0,00 -0,13	h_2	d_1 to fit DIN 912	w_1
35490.W0001	Fine	12	10	5,6	M 4	3,2x90°
35490.W0002	Fine	12	12	5,6	M 4	3,2x90°
35490.W0003	Fine	20	10	6,6	M 5	3,2x90°
35490.W0004	Fine	20	12	6,6	M 5	3,2x90°
35490.W0005	Fine	25	10	7,6	M 6	3,2x90°
35490.W0006	Fine	25	12	7,6	M 6	3,2x90°
35490.W0161	Fine	16	10	5,6	M 4	3,2x90°
35490.W0162	Fine	16	12	5,6	M 4	3,2x90°

Material

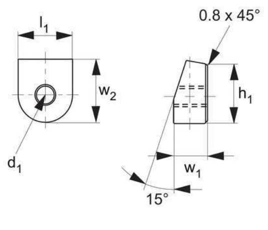
M2 tungsten-molybdenum high-speed steel, hardened to HRc 60-62.

Technical Notes

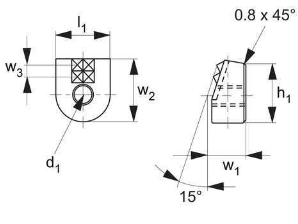
These hardened steel gripping pads press down onto the surface of the clamped workpiece for safe holding without distortion. They are especially suitable where a high load or clamping force is applied. They can be built into clamps, stops and fixtures as well as chucks, vices and robotic grippers for extra grip.

Tips

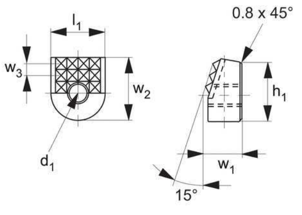
Can be fastened from the front using a socket head cap screw. Note installation recommendations in technical diagram.



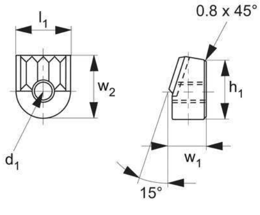
smooth



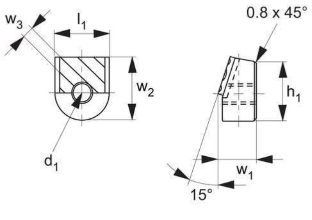
4 point



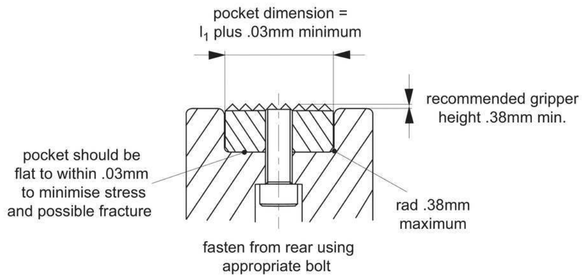
fine



straight



angular



Order No.	Tooth pattern	l_1 +0,000 -0,002	w_1 +0,000 -0,005	w_2 +0,000 -0,005	w_3	h_1	d_1
35500.W0002	4 Point	14,3	9,5	16,5	3,4x90°	15,2	M 5x0,8
35500.W0009	4 Point	10,0	9,5	16,5	3,4x90°	15,2	M 5x0,8
35500.W0003	Fine	14,3	9,5	16,5	2,9x90°	15,2	M 5x0,8
35500.W0006	Straight	14,3	9,5	16,5	2,9x90°	15,2	M 5x0,8
35500.W0010	Straight	10,0	9,5	16,5	2,9x90°	15,2	M 5x0,8
35500.W0008	Smooth	10,0	9,5	16,5	-	15,2	M 5x0,8
35500.W0007	Angular	14,3	9,5	16,5	2,9x90°	15,2	M 5x0,8
35500.W0011	Angular	10,0	9,5	16,5	2,9x90°	15,2	M 5x0,8

Material
High-speed steel (M2), hardened to HRc 60-62.

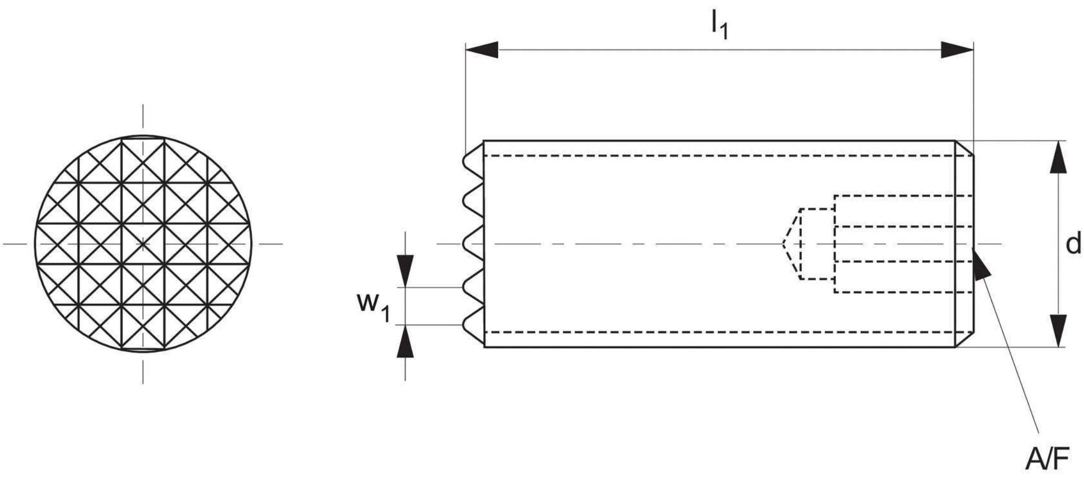
Technical Notes
These angle gripper inserts press down onto the surface of the clamped workpiece for safe holding without distortion. Especially suitable where a high load or clamping force is applied. They can be built into clamps, stops and fixtures as well as chucks, vices and robotic grippers for extra grip.

Tips
Can be fastened from rear using appropriate bolt. Note installation recommendations in technical diagram.

Grippers - Hard Tool Steel

set screw

35510



Order No.	Tooth pattern	l_1	d_1	w_1	A/F
35510.W0001	Extra Fine	40	M10x1,50	2,4x90°	3
35510.W0002	Fine	25	M12x1,75	3,2x90°	5
35510.W0003	Fine	40	M12x1,75	3,2x90°	5
35510.W0004	Fine	40	M16x2,00	3,2x90°	6
35510.W0005	Fine	40	M20x2,50	3,2x90°	8

Material

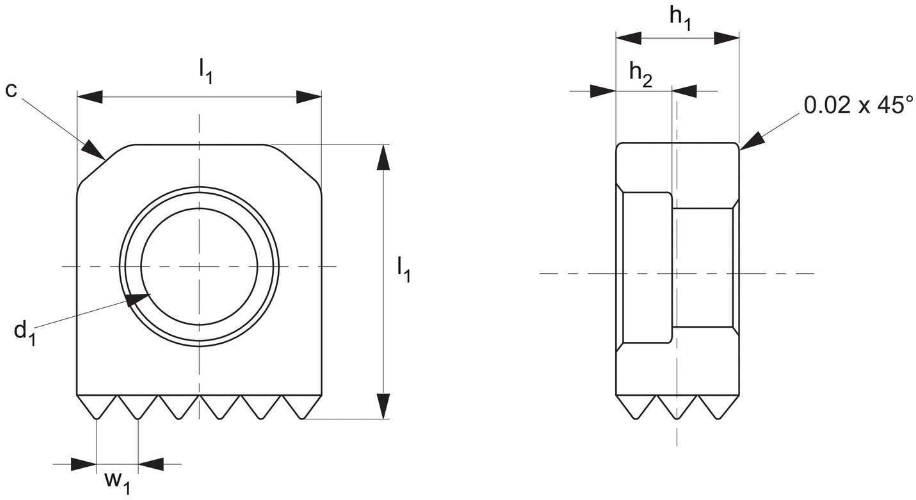
Hardened tool steel to HRc 55-58, black oxide finish.

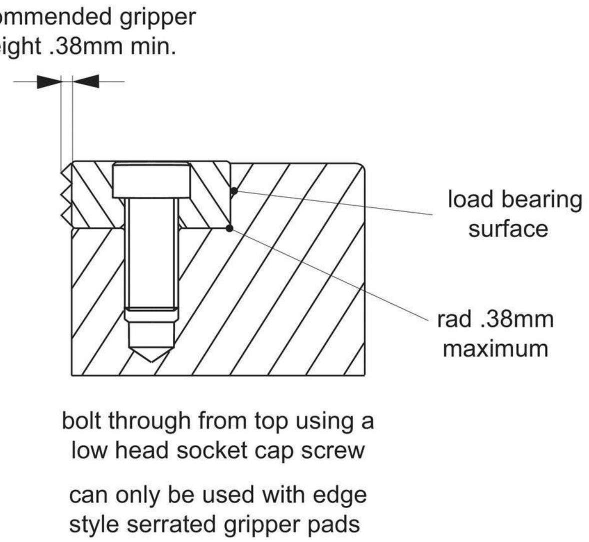
Technical Notes

These hardened tool steel gripping pads press down on to the surface of the clamped workpiece for safe holding without distortion. They are especially suitable where high load or clamping force is applied. Can be built into clamps, stops and fixtures as well as chucks, vices and robotic grippers for extra grip. Use a DIN 439B hex. nut for adjustment and securing.

Grippers - Hard Tool Steel

edge gripper - front fixing





Material

Tool steel, hardened to HRc 60-62.

Technical Notes

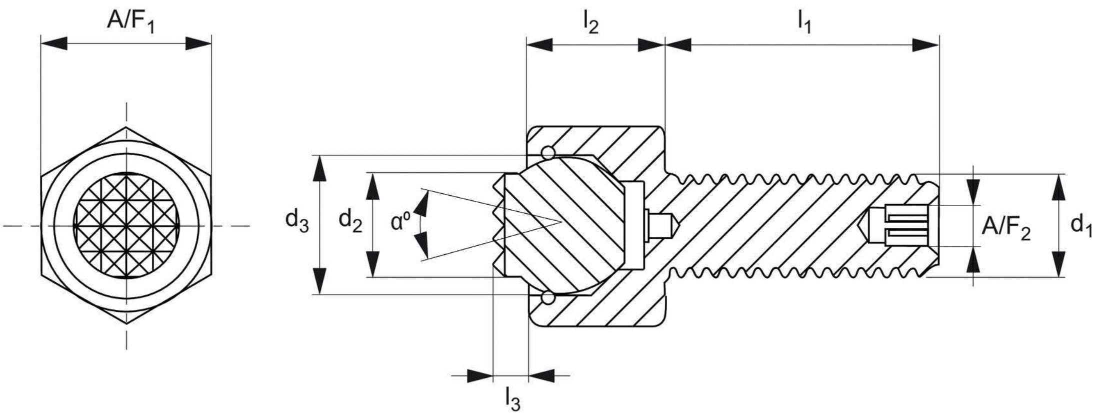
Square edge grippers have serrations on one side. Counterbored hole for front mounting with a socket head or low head cap screw (SHCS - socket head cap screw, LHCS- low head cap screw).

Order No.	Serration type	Tooth pattern	l_1 +0,00 -0,13	h_1 +0,00 -0,13	h_2	d_1	Chamfer c	w_1
35520.W0201	Diamond	Extra Fine	10	6	3,8	M 3 SHCS	1,6x45°	2,4x90°
35520.W0202	Diamond	Extra Fine	10	10	3,8	M 3 SHCS	1,6x45°	2,4x90°
35520.W0203	Diamond	Fine	12	6	4,1	M 4 SHCS	2,3x45°	3,2x90°
35520.W0204	Diamond	Fine	12	10	4,1	M 4 SHCS	2,3x45°	3,2x90°
35520.W0205	Diamond	Fine	12	12	4,1	M 4 SHCS	2,3x45°	3,2x90°
35520.W0206	Diamond	Fine	16	6	4,2	M 6 LHCS	3,2x45°	3,2x90°
35520.W0207	Diamond	Fine	16	10	4,2	M 6 LHCS	3,2x45°	3,2x90°
35520.W0208	Diamond	Fine	16	12	5,1	M 6 LHCS	3,2x45°	3,2x90°
35520.W0209	Diamond	Fine	20	6	5,1	M 8 LHCS	3,2x45°	3,2x90°
35520.W0210	Diamond	Fine	20	10	5,1	M 8 LHCS	3,2x45°	3,2x90°
35520.W0211	Diamond	Fine	20	12	5,1	M 8 LHCS	3,2x45°	3,2x90°
35520.W0212	Diamond	Fine	25	10	6,6	M10 LHCS	3,2x45°	3,2x90°
35520.W0213	Diamond	Fine	25	12	6,6	M10 LHCS	3,2x45°	3,2x90°
35520.W0301	Straight	Extra Fine	10	6	3,8	M 3 SHCS	1,6x45°	2,4x90°
35520.W0302	Straight	Extra Fine	10	10	3,8	M 3 SHCS	1,6x45°	2,4x90°
35520.W0303	Straight	Fine	12	6	4,1	M 4 SHCS	2,3x45°	3,2x90°
35520.W0304	Straight	Fine	12	10	4,1	M 4 SHCS	2,3x45°	3,2x90°
35520.W0305	Straight	Fine	12	12	4,1	M 4 SHCS	2,3x45°	3,2x90°
35520.W0306	Straight	Fine	16	6	4,2	M 6 LHCS	3,2x45°	3,2x90°
35520.W0307	Straight	Fine	16	10	4,2	M 6 LHCS	3,2x45°	3,2x90°
35520.W0308	Straight	Fine	16	12	4,2	M 6 LHCS	3,2x45°	3,2x90°
35520.W0309	Straight	Fine	20	6	5,1	M 8 LHCS	3,2x45°	3,2x90°
35520.W0310	Straight	Fine	20	10	5,1	M 8 LHCS	3,2x45°	3,2x90°
35520.W0311	Straight	Fine	20	12	5,1	M 8 LHCS	3,2x45°	3,2x90°
35520.W0312	Straight	Fine	25	10	6,6	M10 LHCS	3,2x45°	3,2x90°
35520.W0313	Straight	Fine	25	12	6,6	M10 LHCS	3,2x45°	3,2x90°

Grippers - Self Aligning - HTS

serrated - threaded bolt

35530



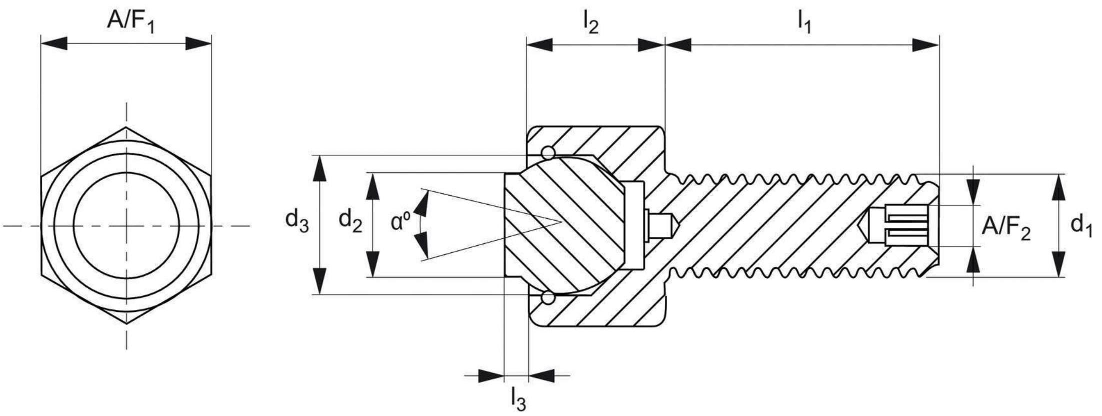
Order No.	Tooth pattern	d_1	d_2	d_3	l_1	l_2 ±0,05	l_3	Swivel angle α°	Load rating Kg	A/F_1	A/F_2
35530.W0001	Super Fine	M6X1,0	6,0	7	12	8,0	1,5	28	935	10	-
35530.W0002	Super Fine	M6X1,0	6,0	7	12	8,0	3,0	28	935	10	-
35530.W0003	Super Fine	M6X1,0	6,0	7	25	8,0	1,5	28	935	10	-
35530.W0004	Super Fine	M6X1,0	6,0	7	25	8,0	3,0	28	935	10	-
35530.W0005	Super Fine	M6X1,0	6,0	7	40	8,0	1,5	28	935	10	-
35530.W0006	Super Fine	M6X1,0	6,0	7	40	8,0	3,0	28	935	10	-
35530.W0007	Extra Fine	M8X1,25	8,5	10	12	11,5	1,5	24	1565	13	-
35530.W0008	Extra Fine	M8X1,25	8,5	10	12	11,5	3,0	24	1565	13	-
35530.W0009	Extra Fine	M8X1,25	8,5	10	25	11,5	1,5	24	1565	13	-
35530.W0010	Extra Fine	M8X1,25	8,5	10	25	11,5	3,0	24	1565	13	-
35530.W0011	Extra Fine	M8X1,25	8,5	10	40	11,5	1,5	24	1565	13	-
35530.W0012	Extra Fine	M8X1,25	8,5	10	40	11,5	3,0	24	1565	13	-
35530.W0013	Extra Fine	M10X1,5	10,0	13	15	13,0	4,0	42	1902	17	3
35530.W0014	Extra Fine	M10X1,5	10,0	13	15	13,0	6,0	42	1902	17	3
35530.W0015	Extra Fine	M10X1,5	10,0	13	30	13,0	4,0	42	1902	17	3
35530.W0016	Extra Fine	M10X1,5	10,0	13	30	13,0	6,0	42	1902	17	3
35530.W0017	Extra Fine	M10X1,5	10,0	13	50	13,0	4,0	42	1902	17	3
35530.W0018	Extra Fine	M10X1,5	10,0	13	50	13,0	6,0	42	1902	17	3
35530.W0019	Fine	M12X1,75	12,0	15	20	15,0	4,0	45	3006	19	5
35530.W0020	Fine	M12X1,75	12,0	15	20	15,0	6,0	45	3006	19	5
35530.W0021	Fine	M12X1,75	12,0	15	40	15,0	4,0	45	3006	19	5
35530.W0022	Fine	M12X1,75	12,0	15	40	15,0	6,0	45	3006	19	5
35530.W0023	Fine	M12X1,75	12,0	15	60	15,0	4,0	45	3006	19	5
35530.W0024	Fine	M12X1,75	12,0	15	60	15,0	6,0	45	3006	19	5
35530.W0025	Fine	M16X2,0	16,0	20	25	19,0	4,0	40	5073	24	6
35530.W0026	Fine	M16X2,0	16,0	20	25	19,0	6,0	40	5073	24	6
35530.W0027	Fine	M16X2,0	16,0	20	50	19,0	4,0	40	5073	24	6
35530.W0028	Fine	M16X2,0	16,0	20	50	19,0	6,0	40	5073	24	6
35530.W0029	Fine	M16X2,0	16,0	20	80	19,0	4,0	40	5073	24	6
35530.W0030	Fine	M16X2,0	16,0	20	80	19,0	6,0	40	5073	24	6

Material

Body: steel, hardened to HRc 43/46, black oxide finish.
Ball: M2 high speed steel, hardened to HRc 60/62.
Viton o-ring holds ball in place and prevents ingress of other material.

Technical Notes

These adjustable self-aligning pads serve as stops, supports and thrust elements in jigs and fixtures. They can also be fitted to existing workholding elements.
Use low-profile hexagon nut (DIN 439B) for adjustment and securing if required.



Order No.	d_1	d_2	d_3	l_1	l_2 ±0,05	l_3	Swivel angle α°	Load rating Kg	A/F_1	A/F_2
35530.W0101	M6X1,0	6,0	7	12	8,0	1,5	28	935	10	-
35530.W0102	M6X1,0	6,0	7	12	8,0	3,0	28	935	10	-
35530.W0103	M6X1,0	6,0	7	25	8,0	1,5	28	935	10	-
35530.W0104	M6X1,0	6,0	7	25	8,0	3,0	28	935	10	-
35530.W0105	M6X1,0	6,0	7	40	8,0	1,5	28	935	10	-
35530.W0106	M6X1,0	6,0	7	40	8,0	3,0	28	935	10	-
35530.W0107	M8X1,25	8,5	10	12	11,5	1,5	24	1565	13	-
35530.W0108	M8X1,25	8,5	10	12	11,5	3,0	24	1565	13	-
35530.W0109	M8X1,25	8,5	10	25	11,5	1,5	24	1565	13	-
35530.W0110	M8X1,25	8,5	10	25	11,5	3,0	24	1565	13	-
35530.W0111	M8X1,25	8,5	10	40	11,5	1,5	24	1565	13	-
35530.W0112	M8X1,25	8,5	10	40	11,5	3,0	24	1565	13	-
35530.W0113	M10X1,5	10,0	13	15	13,0	4,0	42	1902	17	3
35530.W0114	M10X1,5	10,0	13	15	13,0	6,0	42	1902	17	3
35530.W0115	M10X1,5	10,0	13	30	13,0	4,0	42	1902	17	3
35530.W0116	M10X1,5	10,0	13	30	13,0	6,0	42	1902	17	3
35530.W0117	M10X1,5	10,0	13	50	13,0	4,0	42	1902	17	3
35530.W0118	M10X1,5	10,0	13	50	13,0	6,0	42	1902	17	3
35530.W0119	M12X1,75	12,0	15	20	15,0	4,0	45	3006	19	5
35530.W0120	M12X1,75	12,0	15	20	15,0	6,0	45	3006	19	5
35530.W0121	M12X1,75	12,0	15	40	15,0	4,0	45	3006	19	5
35530.W0122	M12X1,75	12,0	15	40	15,0	6,0	45	3006	19	5
35530.W0123	M12X1,75	12,0	15	60	15,0	4,0	45	3006	19	5
35530.W0124	M12X1,75	12,0	15	60	15,0	6,0	45	3006	19	5
35530.W0125	M16X2,0	16,0	20	25	19,0	4,0	40	5073	24	6
35530.W0126	M16X2,0	16,0	20	25	19,0	6,0	40	5073	24	6
35530.W0127	M16X2,0	16,0	20	50	19,0	4,0	40	5073	24	6
35530.W0128	M16X2,0	16,0	20	50	19,0	6,0	40	5073	24	6
35530.W0129	M16X2,0	16,0	20	80	19,0	4,0	40	5073	24	6
35530.W0130	M16X2,0	16,0	20	80	19,0	6,0	40	5073	24	6

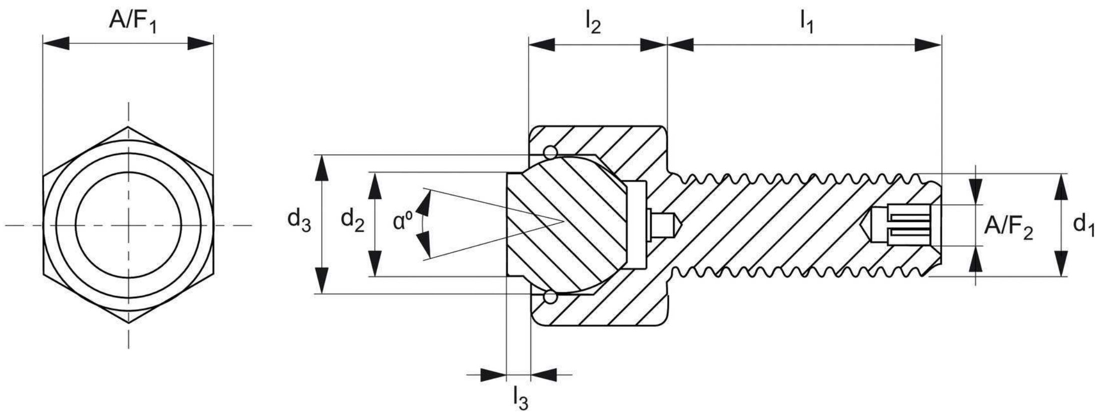
Material
Body: steel, hardened to HRc 43/46, black oxide finish.
Ball: M2 high speed steel, hardened to HRc 60/62.
Viton o-ring holds ball in place and prevents ingress of other material.

Technical Notes
These adjustable self-aligning pads serve as stops, supports and thrust elements in jigs and fixtures. They can also be fitted to existing workholding elements.
Use low-profile hexagon nut (DIN 439B) for adjustment and securing if required.

Grippers - Self Aligning - Plastic

flat - threaded bolt

35530



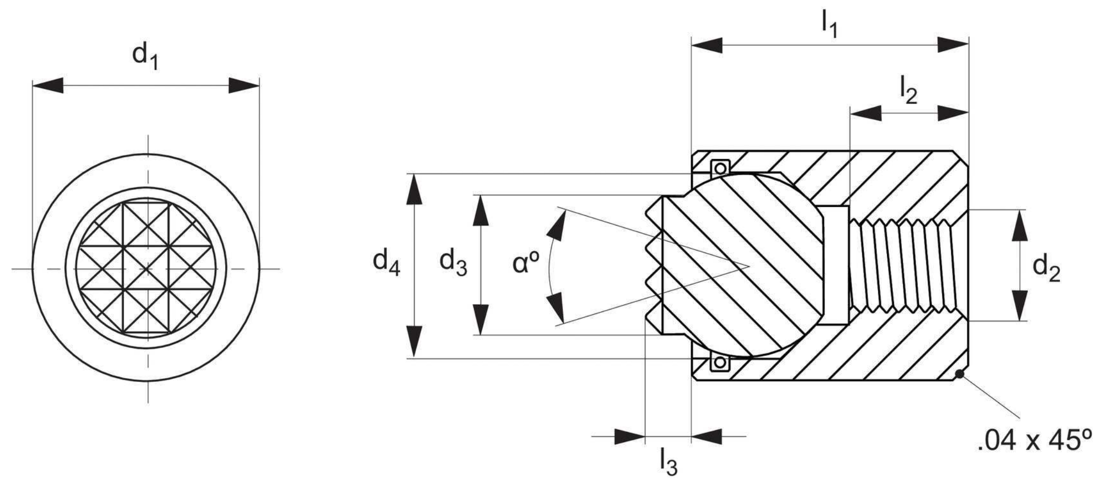
Order No.	d_1	d_2	d_3	l_1	l_2 ±0,05	l_3	Swivel angle α°	A/F_1	A/F_2
35530.W0201	M 6X1,0	6,0	7	12	8,0	1,5	28	10	-
35530.W0202	M 6X1,0	6,0	7	12	8,0	3,0	28	10	-
35530.W0203	M 6X1,0	6,0	7	25	8,0	1,5	28	10	-
35530.W0204	M 6X1,0	6,0	7	25	8,0	3,0	28	10	-
35530.W0205	M 6X1,0	6,0	7	40	8,0	1,5	28	10	-
35530.W0206	M 6X1,0	6,0	7	40	8,0	3,0	28	10	-
35530.W0207	M 8X1,25	8,5	10	12	11,5	1,5	24	13	-
35530.W0208	M 8X1,25	8,5	10	12	11,5	3,0	24	13	-
35530.W0209	M 8X1,25	8,5	10	25	11,5	1,5	24	13	-
35530.W0210	M 8X1,25	8,5	10	25	11,5	3,0	24	13	-
35530.W0211	M 8X1,25	8,5	10	40	11,5	1,5	24	13	-
35530.W0212	M 8X1,25	8,5	10	40	11,5	3,0	24	13	-
35530.W0213	M10X1,5	10,0	13	15	13,0	4,0	42	17	3
35530.W0214	M10X1,5	10,0	13	15	13,0	6,0	42	17	3
35530.W0215	M10X1,5	10,0	13	30	13,0	4,0	42	17	3
35530.W0216	M10X1,5	10,0	13	30	13,0	6,0	42	17	3
35530.W0217	M10X1,5	10,0	13	50	13,0	4,0	42	17	3
35530.W0218	M10X1,5	10,0	13	50	13,0	6,0	42	17	3
35530.W0219	M12X1,75	12,0	15	20	15,0	4,0	45	19	5
35530.W0220	M12X1,75	12,0	15	20	15,0	6,0	45	19	5
35530.W0221	M12X1,75	12,0	15	40	15,0	4,0	45	19	5
35530.W0222	M12X1,75	12,0	15	40	15,0	6,0	45	19	5
35530.W0223	M12X1,75	12,0	15	60	15,0	4,0	45	19	5
35530.W0224	M12X1,75	12,0	15	60	15,0	6,0	45	19	5
35530.W0225	M16X2,0	16,0	20	25	19,0	4,0	40	24	6
35530.W0226	M16X2,0	16,0	20	25	19,0	6,0	40	24	6
35530.W0227	M16X2,0	16,0	20	50	19,0	4,0	40	24	6
35530.W0228	M16X2,0	16,0	20	50	19,0	6,0	40	24	6
35530.W0229	M16X2,0	16,0	20	80	19,0	4,0	40	24	6
35530.W0230	M16X2,0	16,0	20	80	19,0	6,0	40	24	6

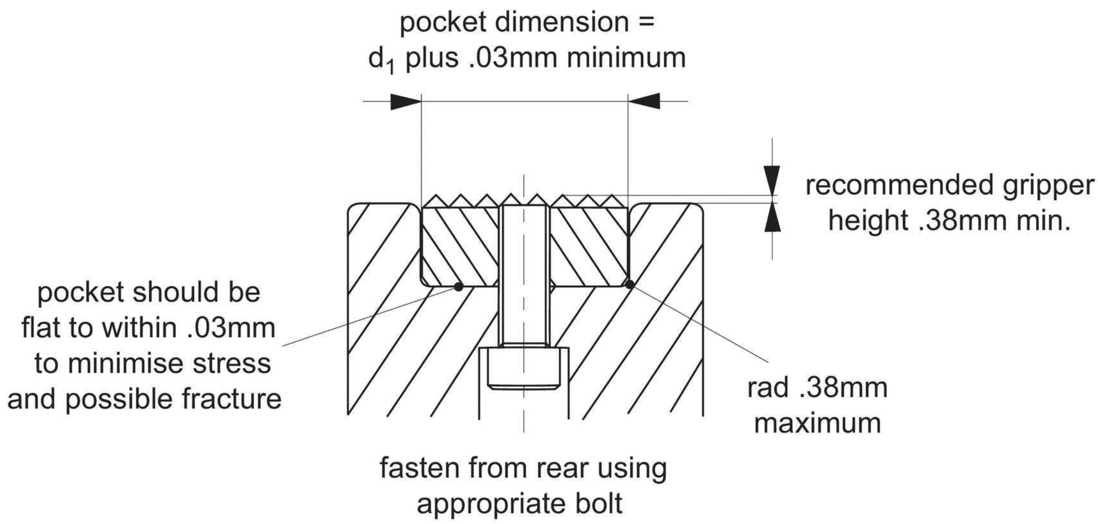
Material

Body: steel, hardened to HRc 43/46, black oxide finish.
Ball: thermoplastic, white.
Viton o-ring holds ball in place and prevents ingress of other material.

Technical Notes

These adjustable self-aligning pads serve as stops, supports and thrust elements in jigs and fixtures. They can also be fitted to existing workholding elements.
Use low-profile hexagon nut (DIN 439B) for adjustment and securing if required.





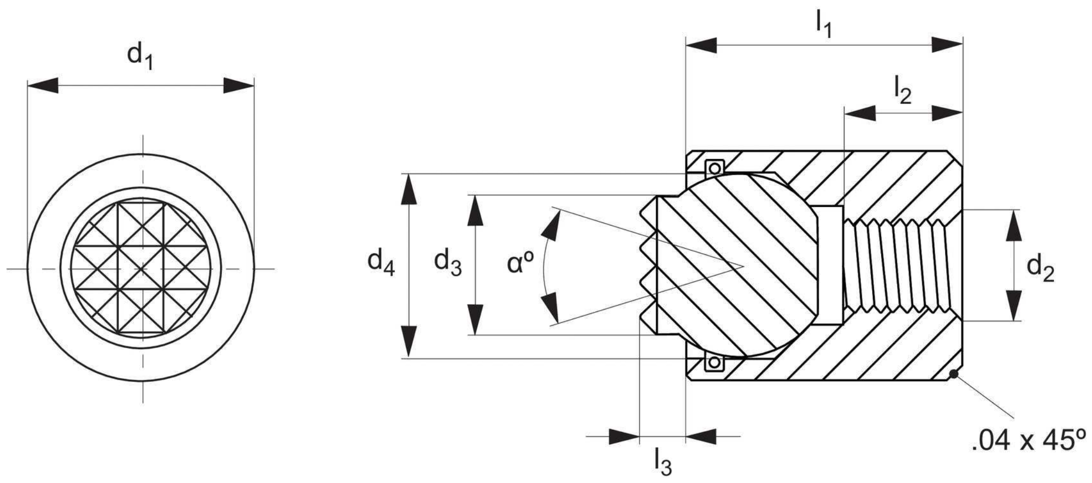
Material

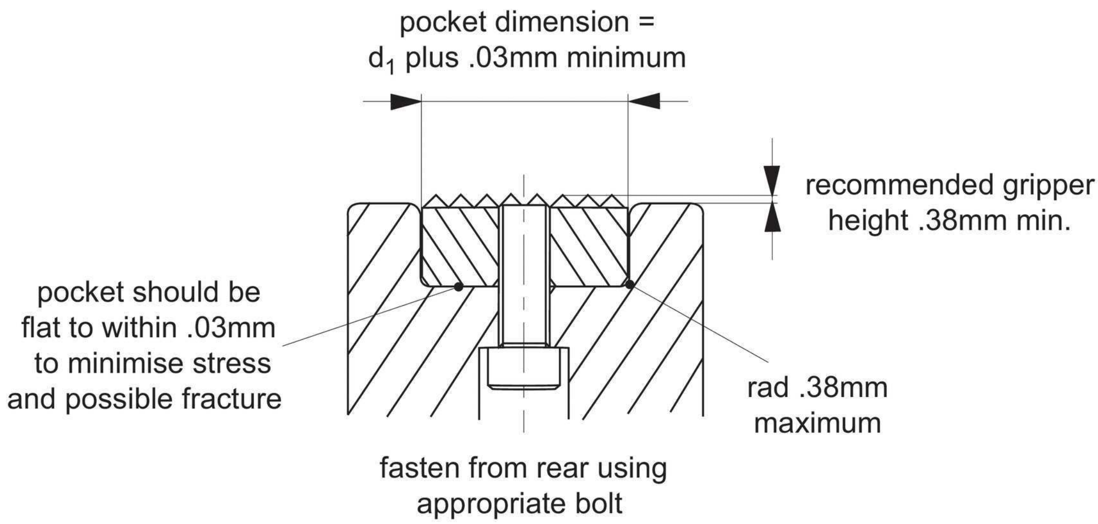
Body: steel, hardened to HRc 43/46, black oxide finish.
Ball: M2 high speed steel, hardened to HRc 60/62.
Viton o-ring holds ball in place and prevents ingress of other material.

Technical Notes

These adjustable self-aligning pads serve as stops, supports and thrust elements in jigs and fixtures. They can also be fitted to existing workholding elements.
Use low-profile hexagon nut (DIN 439B) for adjustment and securing if required.

Order No.	Type	Tooth pattern	d_1 +0,00 -0,13	d_2	d_3	d_4	l_1 ±0,05	l_2 ±0,25	l_3	Swivel angle α°	Load rating Kg
35540.W0001	Serrated	Super Fine	10	M 4x0,7	6,0	7	10,5	3,5	1,5	28	1173
35540.W0002	Serrated	Super Fine	10	M 4x0,7	6,0	7	10,5	3,5	3,0	28	1173
35540.W0003	Serrated	Super Fine	10	M 4x0,7	6,0	7	23,5	9,0	1,5	28	1173
35540.W0004	Serrated	Super Fine	10	M 4x0,7	6,0	7	23,5	9,0	3,0	28	1173
35540.W0005	Serrated	Extra Fine	13	M 5x0,8	8,5	10	14,5	6,5	1,5	24	2019
35540.W0006	Serrated	Extra Fine	13	M 5x0,8	8,5	10	14,5	6,5	3,0	24	2019
35540.W0007	Serrated	Extra Fine	13	M 5x0,8	8,5	10	23,5	9,0	1,5	24	2019
35540.W0008	Serrated	Extra Fine	13	M 5x0,8	8,5	10	23,5	9,0	3,0	24	2019
35540.W0009	Serrated	Extra Fine	17	M 6x1,0	10,0	13	18,0	7,5	4,0	42	2799
35540.W0010	Serrated	Extra Fine	17	M 6x1,0	10,0	13	18,0	7,5	6,0	42	2799
35540.W0011	Serrated	Fine	19	M 8x1,25	12,0	15	20,0	8,5	4,0	45	3941
35540.W0012	Serrated	Fine	19	M 8x1,25	12,0	15	20,0	8,5	6,0	45	3941
35540.W0013	Serrated	Fine	24	M10x1,5	16,0	20	24,0	9,0	4,0	40	5950
35540.W0014	Serrated	Fine	24	M10x1,5	16,0	20	24,0	9,0	6,0	40	5950





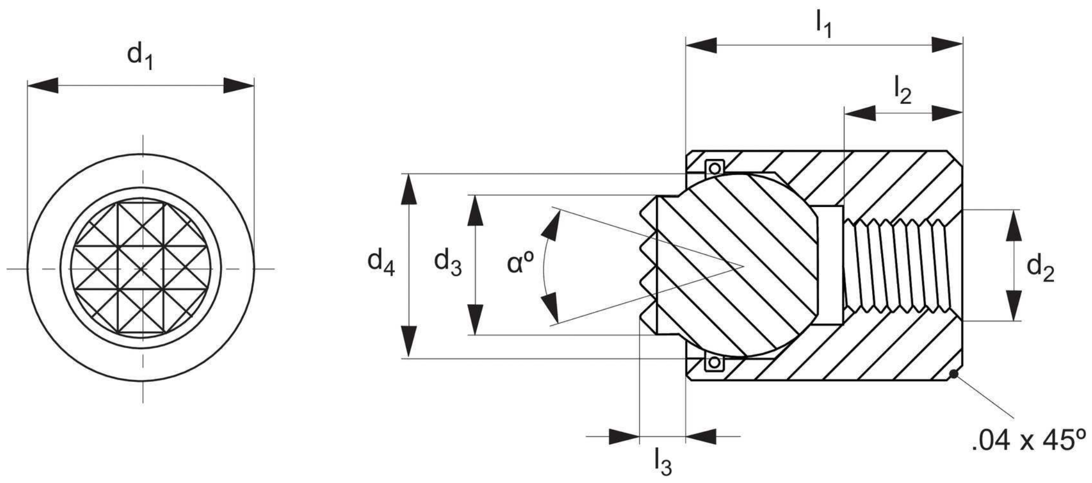
Material

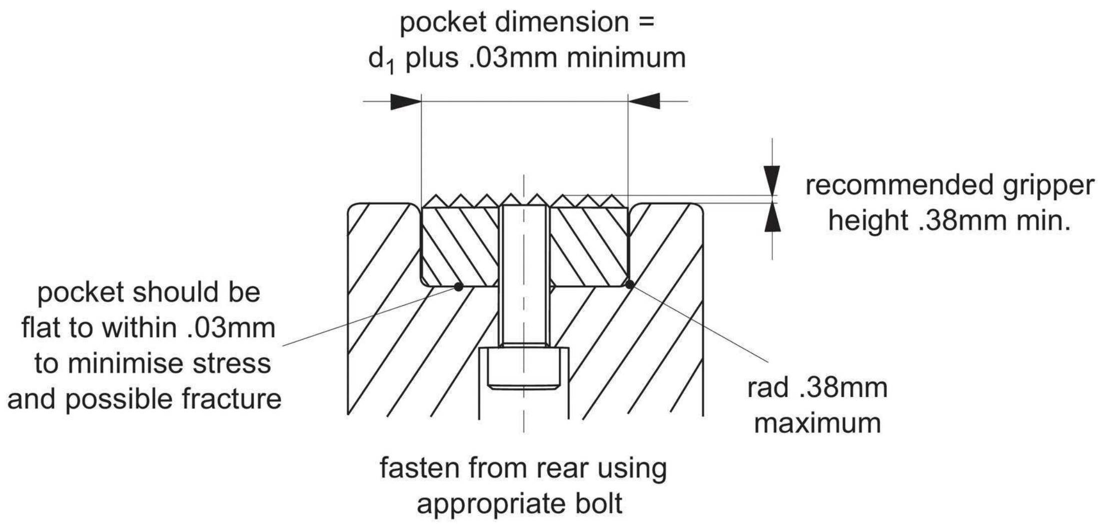
Body: steel, hardened to HRc 43/46, black oxide finish.
Ball: M2 high speed steel, hardened to HRc 60/62.
Viton o-ring holds ball in place and prevents ingress of other material.

Technical Notes

These adjustable self-aligning pads serve as stops, supports and thrust elements in jigs and fixtures. They can also be fitted to existing workholding elements.
Use low-profile hexagon nut (DIN 439B) for adjustment and securing if required.

Order No.	Type	d_1	d_2	d_3	d_4	l_1 ±0,05	l_2 ±0,25	l_3	Swivel angle α°	Load rating Kg
35540.W0101	Flat, Steel	10	M 4 x 0,7	6,0	7	10,5	3,5	1,5	28	1173
35540.W0102	Flat, Steel	10	M 4 x 0,7	6,0	7	10,5	3,5	3,0	28	1173
35540.W0103	Flat, Steel	10	M 4 x 0,7	6,0	7	23,5	9,0	1,5	28	1173
35540.W0104	Flat, Steel	10	M 4 x 0,7	6,0	7	23,5	9,0	3,0	28	1173
35540.W0105	Flat, Steel	13	M 5 x 0,8	8,5	10	14,5	6,5	1,5	24	2019
35540.W0106	Flat, Steel	13	M 5 x 0,8	8,5	10	14,5	6,5	3,0	24	2019
35540.W0107	Flat, Steel	13	M 5 x 0,8	8,5	10	23,5	9,0	1,5	24	2019
35540.W0108	Flat, Steel	13	M 5 x 0,8	8,5	10	23,5	9,0	3,0	24	2019
35540.W0109	Flat, Steel	17	M 6 x 1,0	10,0	13	18,0	7,5	4,0	42	2799
35540.W0110	Flat, Steel	17	M 6 x 1,0	10,0	13	18,0	7,5	6,0	42	2799
35540.W0111	Flat, Steel	19	M 8 x 1,25	12,0	15	20,0	8,5	4,0	45	3941
35540.W0112	Flat, Steel	19	M 8 x 1,25	12,0	15	20,0	8,5	6,0	45	3941
35540.W0113	Flat, Steel	24	M10 x 1,5	16,0	20	24,0	9,0	4,0	40	5950
35540.W0114	Flat, Steel	24	M10 x 1,5	16,0	20	24,0	9,0	6,0	40	5950

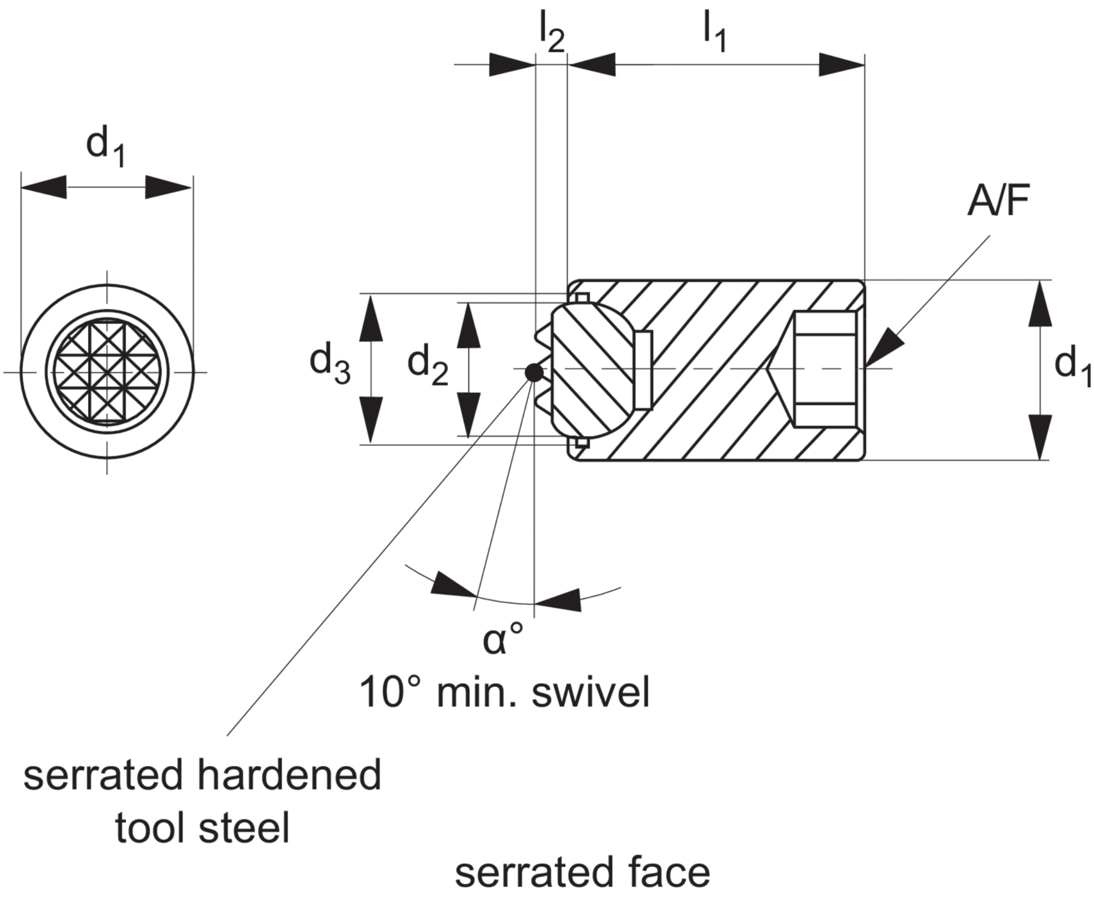




Material
Body: steel, hardened to HRc 43/46, black oxide finish.
Ball: thermoplastic, white.
Viton o-ring holds ball in place and prevents ingress of other material.

Technical Notes
These adjustable self-aligning pads serve as stops, supports and thrust elements in jigs and fixtures. They can also be fitted to existing workholding elements.
Use low-profile hexagon nut (DIN 439B) for adjustment and securing if required.

Order No.	Type	d_1	d_2	d_3	d_4	l_1 ±0,05	l_2 ±0,25	l_3	Swivel angle α°
35540.W0201	Flat, Plastic	10	M 4 x 0,7	6,0	7,0	10,5	3,5	1,5	28
35540.W0202	Flat, Plastic	10	M 4 x 0,7	6,0	7,0	10,5	3,5	3,0	28
35540.W0203	Flat, Plastic	10	M 4 x 0,7	6,0	7,0	23,5	9,0	1,5	28
35540.W0204	Flat, Plastic	10	M 4 x 0,7	6,0	7,0	23,5	9,0	3,0	28
35540.W0205	Flat, Plastic	13	M 5 x 0,8	8,5	10,0	14,5	6,5	1,5	24
35540.W0206	Flat, Plastic	13	M 5 x 0,8	8,5	10,0	14,5	6,5	3,0	24
35540.W0207	Flat, Plastic	13	M 5 x 0,8	8,5	10,0	23,5	9,0	1,5	24
35540.W0208	Flat, Plastic	13	M 5 x 0,8	8,5	10,0	23,5	9,0	3,0	24
35540.W0209	Flat, Plastic	17	M 6 x 1,0	10,0	13,0	18,0	7,5	4,0	42
35540.W0210	Flat, Plastic	17	M 6 x 1,0	10,0	13,0	18,0	7,5	6,0	42
35540.W0211	Flat, Plastic	19	M 8 x 1,25	12,0	15,0	20,0	8,5	4,0	45
35540.W0212	Flat, Plastic	19	M 8 x 1,25	12,0	15,0	20,0	8,5	6,0	45
35540.W0213	Flat, Plastic	24	M10 x 1,5	16,0	20,0	24,0	9,0	4,0	40
35540.W0214	Flat, Plastic	24	M10 x 1,5	16,0	20,0	24,0	9,0	6,0	40



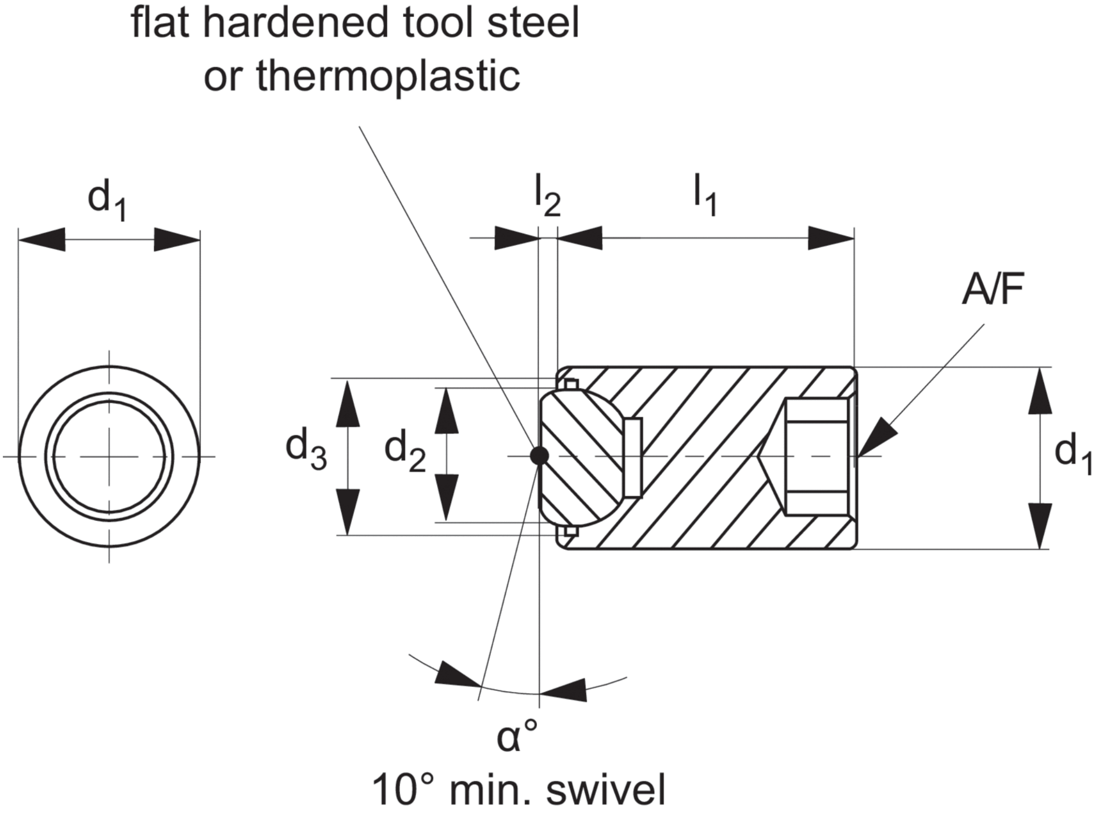
Material

Body: steel set screw with hardened tool steel or thermoplastic inserts.

Technical Notes

These adjustable ball end gripping screws also serve as stops, supports elements. They can be inserted into jigs, fixtures and other workholding elements.

Order No.	Tooth pattern	d_1 +0,00 -0,13	d_2	d_3	l_1	l_2	A/F	Swivel Angle α°	Load rating Kg
35550.W0001	Super Fine	4	M10x1,5	5	25	1,5	5	30	-
35550.W0002	Super Fine	4	M10x1,5	5	35	1,5	5	30	-
35550.W0003	Super Fine	4	M10x1,5	5	50	1,5	5	30	-
35550.W0004	Super Fine	6	M12x1,75	7	25	1,5	6	28	1560
35550.W0005	Super Fine	6	M12x1,75	7	25	3,0	6	28	1560
35550.W0006	Super Fine	6	M12x1,75	7	35	1,5	6	28	1560
35550.W0007	Super Fine	6	M12x1,75	7	35	3,0	6	28	1560
35550.W0008	Super Fine	6	M12x1,75	7	50	1,5	6	28	1560
35550.W0009	Super Fine	6	M12x1,75	7	50	3,0	6	28	1560
35550.W0010	Extra Fine	8.5	M16x2,0	10	25	1,5	8	24	2354
35550.W0011	Extra Fine	8.5	M16x2,0	10	25	3,0	8	24	2354
35550.W0012	Extra Fine	8.5	M16x2,0	10	35	1,5	8	24	2354
35550.W0013	Extra Fine	8.5	M16x2,0	10	35	3,0	8	24	2354
35550.W0014	Extra Fine	8.5	M16x2,0	10	50	1,5	8	24	2354
35550.W0015	Extra Fine	8.5	M16x2,0	10	50	3,0	8	24	2354
35550.W0016	Extra Fine	10	M20x2,5	13	30	4,0	10	42	3800
35550.W0017	Extra Fine	10	M20x2,5	13	30	6,0	10	42	3800
35550.W0018	Extra Fine	10	M20x2,5	13	50	4,0	10	42	3800
35550.W0019	Extra Fine	10	M20x2,5	13	50	6,0	10	42	3800
35550.W0020	Extra Fine	10	M20x2,5	13	70	4,0	10	42	3800
35550.W0021	Extra Fine	10	M20x2,5	13	70	6,0	10	42	3800
35550.W0022	Fine	12	M24x3,0	15	40	4,0	10	45	5549
35550.W0023	Fine	12	M24x3,0	15	40	6,0	10	45	5549
35550.W0024	Fine	12	M24x3,0	15	80	4,0	10	45	5549
35550.W0025	Fine	12	M24x3,0	15	80	6,0	10	45	5549



flat face

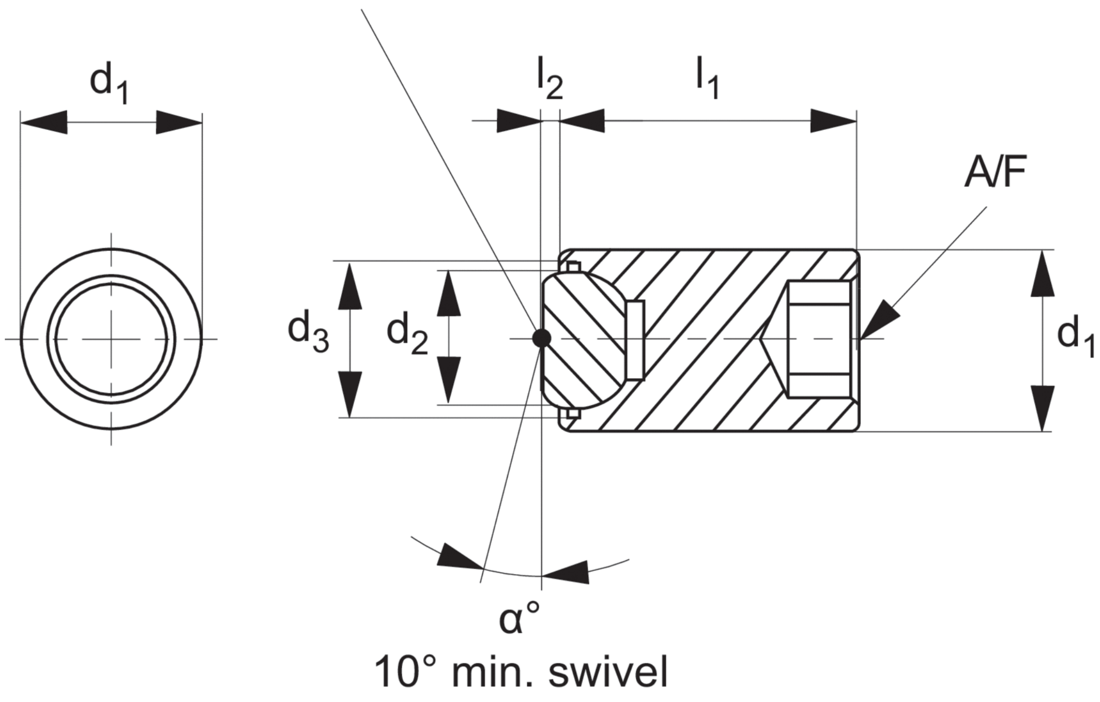
Order No.	d_1 +0,00 -0,13	d_2	d_3	l_1	l_2	A/F	Swivel angle α°	Load rating Kg
35550.W0101	6,0	M12x1,75	7	25	1,5	6	28	1560
35550.W0102	6,0	M12x1,75	7	25	3,0	6	28	1560
35550.W0103	6,0	M12x1,75	7	35	1,5	6	28	1560
35550.W0104	6,0	M12x1,75	7	35	3,0	6	28	1560
35550.W0105	6,0	M12x1,75	7	50	1,5	6	28	1560
35550.W0106	6,0	M12x1,75	7	50	3,0	6	28	1560
35550.W0107	8,5	M16x2,0	10	25	1,5	8	24	2354
35550.W0108	8,5	M16x2,0	10	25	3,0	8	24	2354
35550.W0109	8,5	M16x2,0	10	35	1,5	8	24	2354
35550.W0110	8,5	M16x2,0	10	35	3,0	8	24	2354
35550.W0111	8,5	M16x2,0	10	50	1,5	8	24	2354
35550.W0112	8,5	M16x2,0	10	50	3,0	8	24	2354
35550.W0113	10,0	M20x2,5	13	30	4,0	10	42	3800
35550.W0114	10,0	M20x2,5	13	30	6,0	10	42	3800
35550.W0115	10,0	M20x2,5	13	50	4,0	10	42	3800
35550.W0116	10,0	M20x2,5	13	50	6,0	10	42	3800
35550.W0117	10,0	M20x2,5	13	70	4,0	10	42	3800
35550.W0118	10,0	M20x2,5	13	70	6,0	10	42	3800
35550.W0119	12,0	M24x3,0	15	40	4,0	10	45	5549
35550.W0120	12,0	M24x3,0	15	40	6,0	10	45	5549
35550.W0121	12,0	M24x3,0	15	80	4,0	10	45	5549
35550.W0122	12,0	M24x3,0	15	80	6,0	10	45	5549

Material

Body: steel set screw with hardened tool steel or thermoplastic inserts.

Technical Notes

These adjustable ball end gripping screws also serve as stops, supports elements. They can be inserted into jigs, fixtures and other workholding elements.



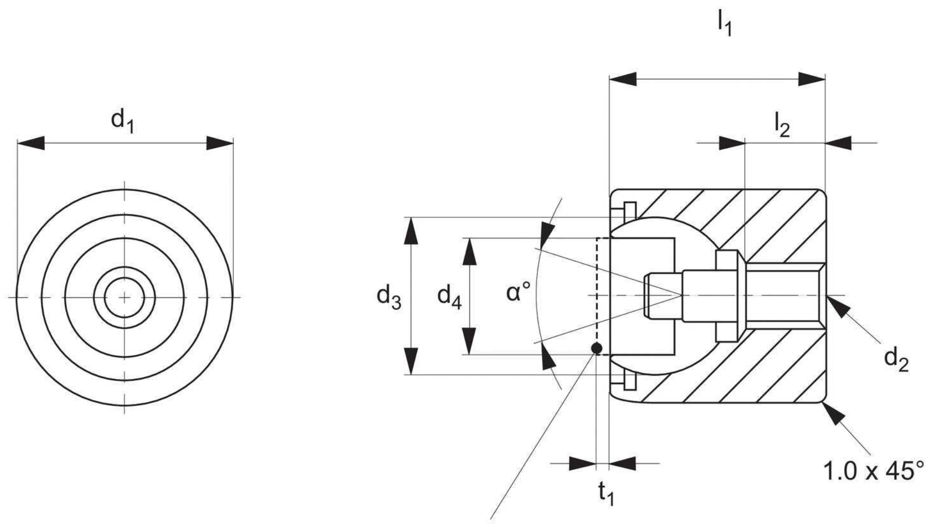
flat face

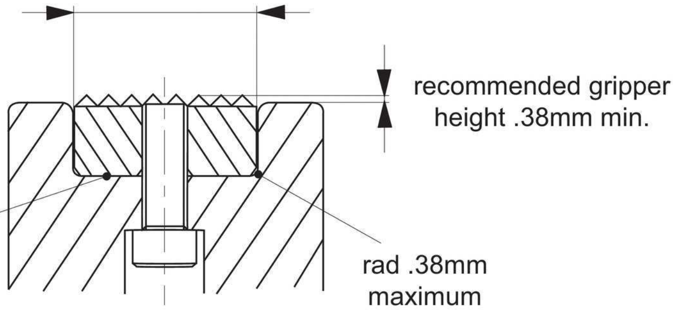
Order No.	d_1 +0,00 -0,13	d_2	d_3	l_1	l_2	Swivel angle α°	A/F	Load rating Kg
35550.W0201	6,0	M12x1,75	7	25	1,5	28	6	1560
35550.W0202	6,0	M12x1,75	7	25	3,0	28	6	1560
35550.W0203	6,0	M12x1,75	7	35	1,5	28	6	1560
35550.W0204	6,0	M12x1,75	7	35	3,0	28	6	1560
35550.W0205	6,0	M12x1,75	7	50	1,5	28	6	1560
35550.W0206	6,0	M12x1,75	7	50	3,0	28	6	1560
35550.W0207	8,5	M16x2,0	10	25	1,5	24	8	2354
35550.W0208	8,5	M16x2,0	10	25	3,0	24	8	2354
35550.W0209	8,5	M16x2,0	10	35	1,5	24	8	2354
35550.W0210	8,5	M16x2,0	10	35	3,0	24	8	2354
35550.W0211	8,5	M16x2,0	10	50	1,5	24	8	2354
35550.W0212	8,5	M16x2,0	10	50	3,0	24	8	2354
35550.W0213	10,0	M20x2,5	13	30	4,0	42	10	3800
35550.W0214	10,0	M20x2,5	13	30	6,0	42	10	3800
35550.W0215	10,0	M20x2,5	13	50	4,0	42	10	3800
35550.W0216	10,0	M20x2,5	13	50	6,0	42	10	3800
35550.W0217	10,0	M20x2,5	13	70	4,0	42	10	3800
35550.W0218	10,0	M20x2,5	13	70	6,0	42	10	3800
35550.W0219	12,0	M24x3,0	15	40	4,0	45	10	5549
35550.W0220	12,0	M24x3,0	15	40	6,0	45	10	5549
35550.W0221	12,0	M24x3,0	15	80	4,0	45	10	5549
35550.W0222	12,0	M24x3,0	15	80	6,0	45	10	5549

Material
Body: steel set screw with hardened tool steel or thermoplastic inserts.

Technical Notes
These adjustable ball end gripping screws also serve as stops, supports elements. They can be inserted into jigs, fixtures and other workholding elements.

35580





Order No.	d_1 +0,00 -0,13	d_2	Ball Ø d_3	Replaceable pad Ø d_4	l_1 ±0,05	l_2 ± 0,25	t_1	α°	Max. load kg
35580.W0001	17	M 6x1,0	13	10	18	7,5	4	20	2799
35580.W0004	19	M 8x1,25	15	12	20	8,5	4	20	3941
35580.W0007	24	M10x1,5	20	16	24	9,0	4	20	5952
35580.W0010	30	M12x1,75	23	20	26	8,5	4	20	9683
35580.W0013	36	M12x1,75	28	25	32	12,0	4	20	13861

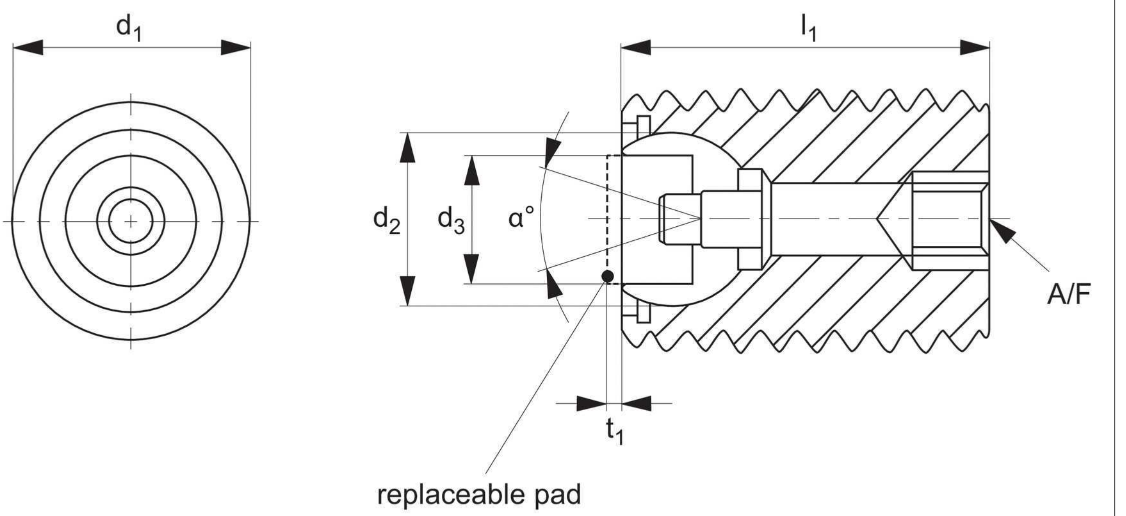
Material
Body: steel, heat treated to HRc 43/46, back oxide finish.
Ball: stainless steel (440C), hardened to HRc58/60.

Technical Notes
These adjustable self-aligning ball units accept inserts:
- no. 35330 carbide tipped grippers.
- no. 35450 hardened tool steel grippers.
- no. 35980 steel/thermoplastic rest pads.

These must be ordered separately.
These parts can serve as stops, supports and thrust elements in jigs and fixtures. They can also be fitted to existing workholding elements.

Grippers - Self Aligning - Housing

set screw housing only



Order No.	d_1	Ball Ø d_2	Replaceable pad Ø d_3	l_1	t_1	A/F	Swivel angle α°	Max. load kg
35590.W0001	M20x2,5	13	10	30	6	10	20	3801
35590.W0004	M20x2,5	13	10	50	6	10	20	3801
35590.W0007	M20x2,5	13	10	70	6	10	20	3801
35590.W0010	M24x3,0	15	12	40	6	10	20	5549
35590.W0013	M24x3,0	15	12	80	6	10	20	5549

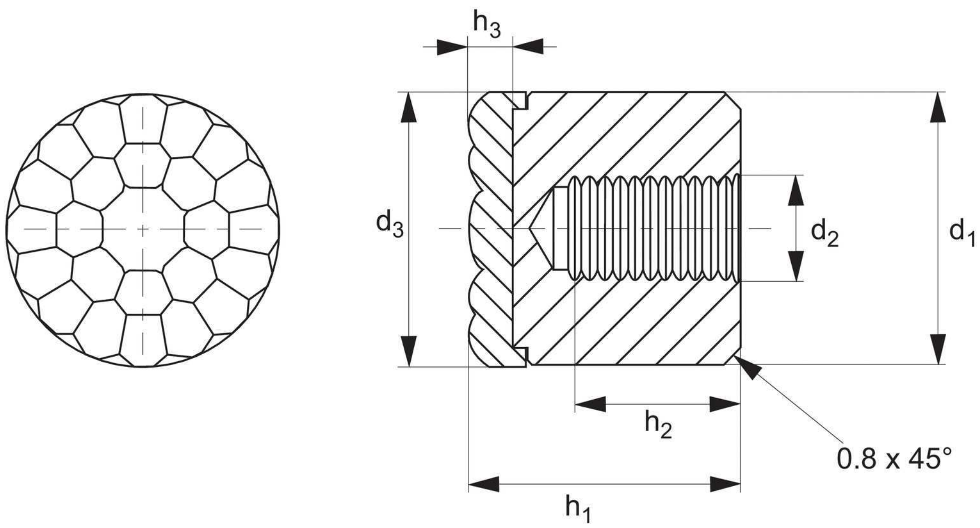
Material

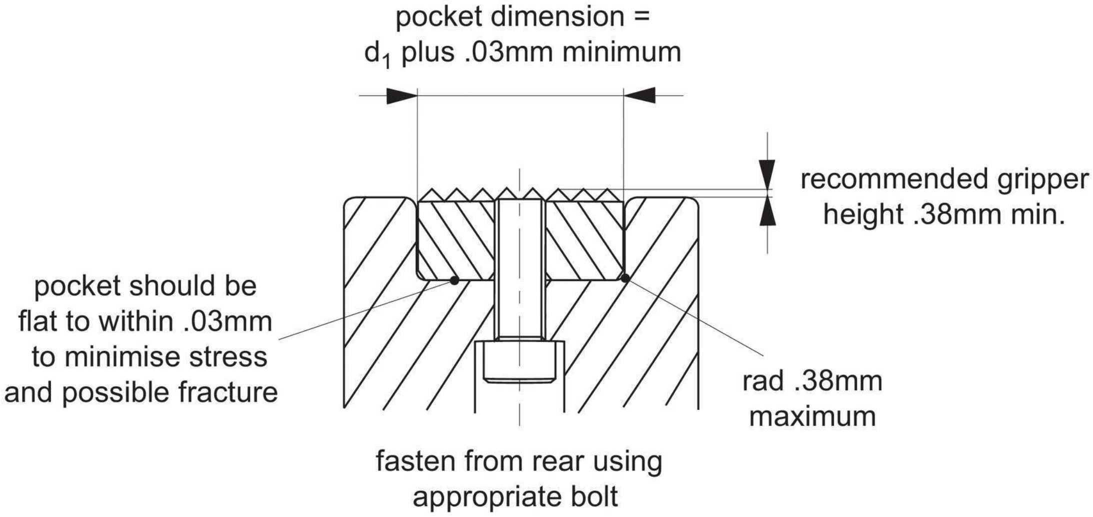
Body: steel, heat treated to HRc 43/46, back oxide finish.
Ball: stainless steel (440C), hardened to HRc 58/60.

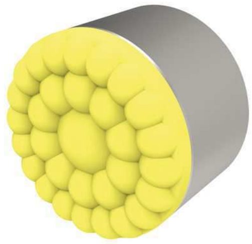
Technical Notes

These adjustable self-aligning ball units accept inserts:
- no. 35330 carbide tipped grippers.
- no. 35450 hardened tool steel grippers.
- no. 35980 steel/thermoplastic rest pads.

These must be ordered separately.
These parts can serve as stops, supports and thrust elements in jigs and fixtures. They can also be fitted to existing workholding elements.







Material
Body: AISI 300 series stainless steel.
Pad: urethane; non-marking, non-staining

Technical Notes
Non-marking, non-staining urethane pad is permanently bonded to the stainless steel body. Available in three different durometers: 35, 60 &80 (see table). Bubbled texture of urethane pad allows air to escape so avoiding any suction action.

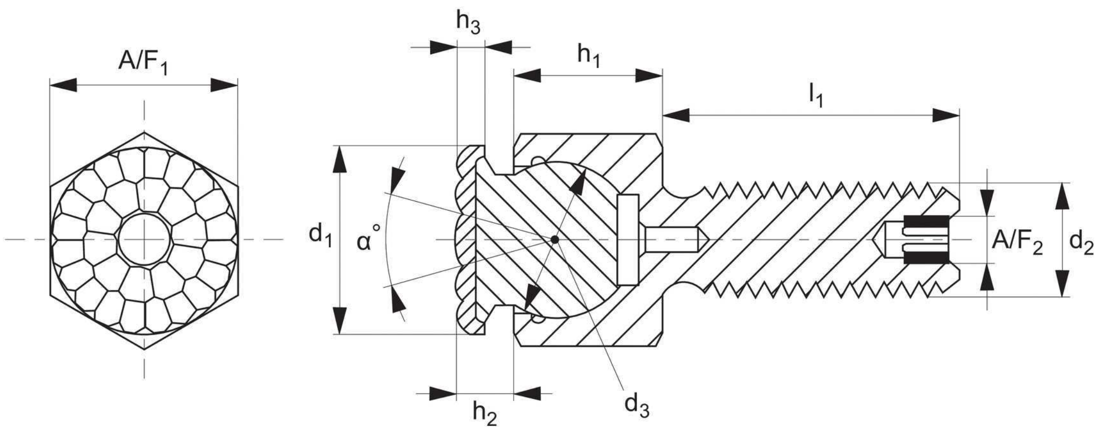
Important Notes
Load compression ratings based on load required to compress urethane surface 0,812mm for 2mm thick pad. Compression ratings vary greatly depending upon temperature and other application-specific factors.

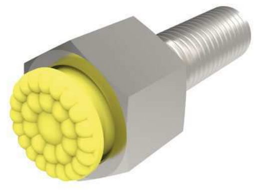
Order No.	d_1 +0,00 -0,13	d_2	d_3	h_1	h_2	Urethane thickness h_3	Durometer shore A	Load compression kg
35610.W0083	8	M 4x0,7	8	12	6	2	35	4
35610.W0086	8	M 4x0,7	8	12	6	2	60	13
35610.W0088	8	M 4x0,7	8	12	6	2	80	20
35610.W0103	10	M 5x0,8	10	12	6	2	35	5
35610.W0106	10	M 5x0,8	10	12	6	2	60	15
35610.W0108	10	M 5x0,8	10	12	6	2	80	40
35610.W0123	12	M 5x0,8	13	12	6	2	35	18
35610.W0126	12	M 5x0,8	13	12	6	2	60	34
35610.W0128	12	M 5x0,8	13	12	6	2	80	86
35610.W0163	16	M 6x1,0	16	12	6	2	35	36
35610.W0166	16	M 6x1,0	16	12	6	2	60	72
35610.W0168	16	M 6x1,0	16	12	6	2	80	117
35610.W0203	20	M 6x1,0	21	12	6	3	35	38
35610.W0206	20	M 6x1,0	21	12	6	3	60	104
35610.W0208	20	M 6x1,0	21	12	6	3	80	165
35610.W0253	25	M 6x1,0	27	12	6	3	35	65
35610.W0256	25	M 6x1,0	27	12	6	3	60	136
35610.W0258	25	M 6x1,0	27	12	6	3	80	272

Grippers - Self Aligning

urethane coated - threaded bolt

35620





Order No.	d_1	d_2	l_1	d_3	h_1 ± 0,05	h_2	Urethane thickness h_3	Durometer shore A	A/F_1	A/F_2	Swivel angle α°	Load compression Kg
35620.W3061	10	M 6x1,0	12	7	8,0	4	2	35	10	-	28	3
35620.W3062	10	M 6x1,0	25	7	8,0	4	2	35	10	-	28	3
35620.W3063	10	M 6x1,0	40	7	8,0	4	2	35	10	-	28	3
35620.W3081	13	M 8x1,25	12	10	11,5	5	2	35	13	-	28	18
35620.W3082	13	M 8x1,25	25	10	11,5	5	2	35	13	-	28	18
35620.W3083	13	M 8x1,25	40	10	11,5	5	2	35	13	-	28	18
35620.W3101	16	M10x1,5	15	13	13,0	5	2	35	17	3	28	24
35620.W3102	16	M10x1,5	30	13	13,0	5	2	35	17	3	28	24
35620.W3103	16	M10x1,5	50	13	13,0	5	2	35	17	3	28	24
35620.W3121	21	M12x1,75	20	15	15,0	6	2	35	19	5	24	68
35620.W3122	21	M12x1,75	40	15	15,0	6	2	35	19	5	24	68
35620.W3123	21	M12x1,75	60	15	15,0	6	2	35	19	5	24	68
35620.W3161	23	M16x2,0	25	20	19,0	6	2	35	24	6	24	102
35620.W3162	23	M16x2,0	50	20	19,0	6	2	35	24	6	24	102
35620.W3163	23	M16x2,0	80	20	19,0	6	2	35	24	6	24	102
35620.W6061	10	M 6x1,0	12	7	8,0	4	2	60	10	-	28	11
35620.W6062	10	M 6x1,0	25	7	8,0	4	2	60	10	-	28	11
35620.W6063	10	M 6x1,0	40	7	8,0	4	2	60	10	-	28	11
35620.W6081	13	M 8x1,25	12	10	11,5	5	2	60	13	-	28	34
35620.W6082	13	M 8x1,25	25	10	11,5	5	2	60	13	-	28	34
35620.W6083	13	M 8x1,25	40	10	11,5	5	2	60	13	-	28	34
35620.W6101	16	M10x1,5	15	13	13,0	5	2	60	17	3	28	65
35620.W6102	16	M10x1,5	30	13	13,0	5	2	60	17	3	28	65
35620.W6103	16	M10x1,5	50	13	13,0	5	2	60	17	3	28	65
35620.W6121	21	M12x1,75	20	15	15,0	6	2	60	19	5	24	154
35620.W6122	21	M12x1,75	40	15	15,0	6	2	60	19	5	24	154
35620.W6123	21	M12x1,75	60	15	15,0	6	2	60	19	5	24	154
35620.W6161	23	M16x2,0	25	20	19,0	6	2	60	24	6	24	181
35620.W6162	23	M16x2,0	50	20	19,0	6	2	60	24	6	24	181
35620.W6163	23	M16x2,0	80	20	19,0	6	2	60	24	6	24	181
35620.W8061	10	M 6x1,0	12	7	8,0	4	2	80	10	-	28	29
35620.W8062	10	M 6x1,0	25	7	8,0	4	2	80	10	-	28	29
35620.W8063	10	M 6x1,0	40	7	8,0	4	2	80	10	-	28	29
35620.W8081	13	M 8x1,25	12	10	11,5	5	2	80	13	-	28	68
35620.W8082	13	M 8x1,25	25	10	11,5	5	2	80	13	-	28	68
35620.W8083	13	M 8x1,25	40	10	11,5	5	2	80	13	-	28	68
35620.W8101	16	M10x1,5	15	13	13,0	5	2	80	17	3	28	97
35620.W8102	16	M10x1,5	30	13	13,0	5	2	80	17	3	28	97
35620.W8103	16	M10x1,5	50	13	13,0	5	2	80	17	3	28	97
35620.W8121	21	M12x1,75	20	15	15,0	6	2	80	19	5	24	238
35620.W8122	21	M12x1,75	40	15	15,0	6	2	80	19	5	24	238
35620.W8123	21	M12x1,75	60	15	15,0	6	2	80	19	5	24	238
35620.W8161	23	M16x2,0	25	20	19,0	6	2	80	24	6	24	272
35620.W8162	23	M16x2,0	0	20	19,0	6	2	80	24	6	24	272
35620.W8163	23	M16x2,0	80	20	19,0	6	2	80	24	6	24	272

Material

Housing body: alloy steel, heat treated to HRc 43-46, black oxide finish.
Pad: urethane, bonded to AISI 300 series stainless steel ball.

Technical Notes

Non-marking, non-staining urethane pad is permanently bonded to the stainless steel body. Available in three different durometers: 35, 60 & 80 (see table). Bubbled texture of urethane pad allows air to escape so avoiding any suction action.

Tips

Re-seating: expel air by using 0,3 monofilament line between ball and housing, remove line when seated correctly.

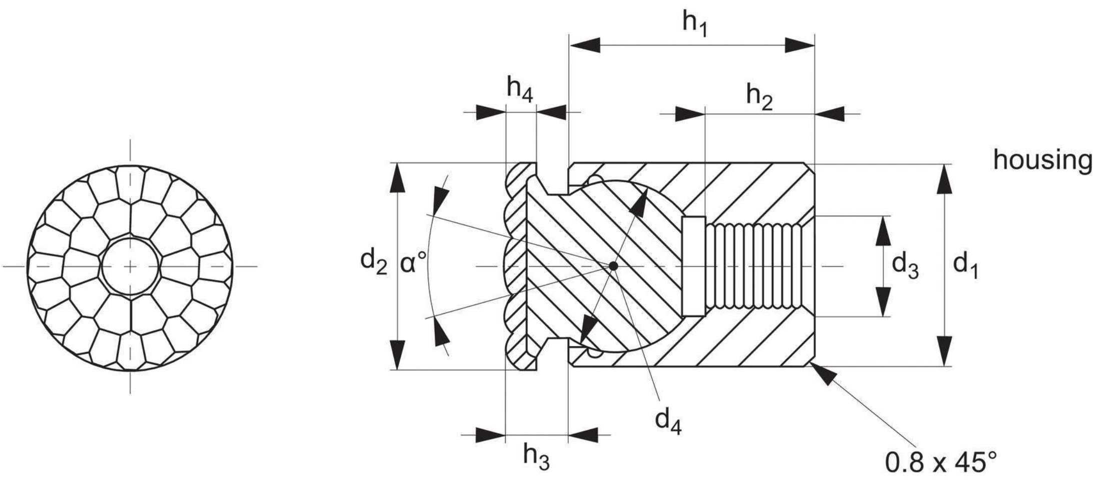
Important Notes

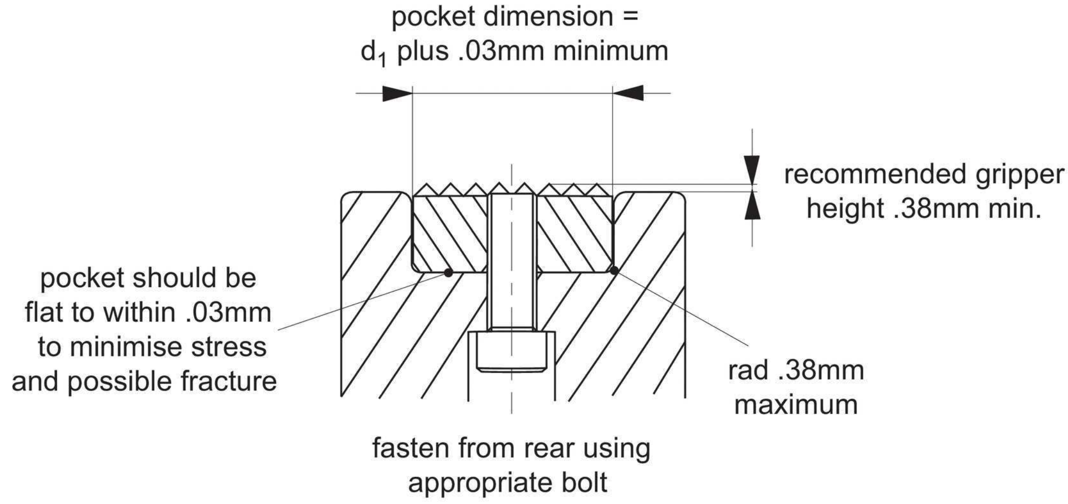
Load compression ratings based on load required to compress urethane surface 0,812mm for 2mm thick pad. Compression ratings vary greatly depending upon temperature and other application-specific factors.

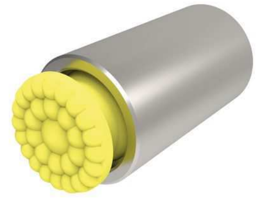
Grippers - Self Aligning

urethane coated - female threaded housing

35622







Material

Housing body: alloy steel, heat treated to HRc 43-46, black oxide finish.
Pad: urethane, bonded to AISI 300 series stainless steel ball.

Technical Notes

Non-marking, non-staining urethane pad is permanently bonded to the stainless steel body. Available in three different durometers: 35, 60 & 80 (see table). Bubbled texture of urethane pad allows air to escape so avoiding any suction action.

Tips

Re-seating: expel air by using 0,3 monofilament line between ball and housing, remove line when seated correctly.

Important Notes

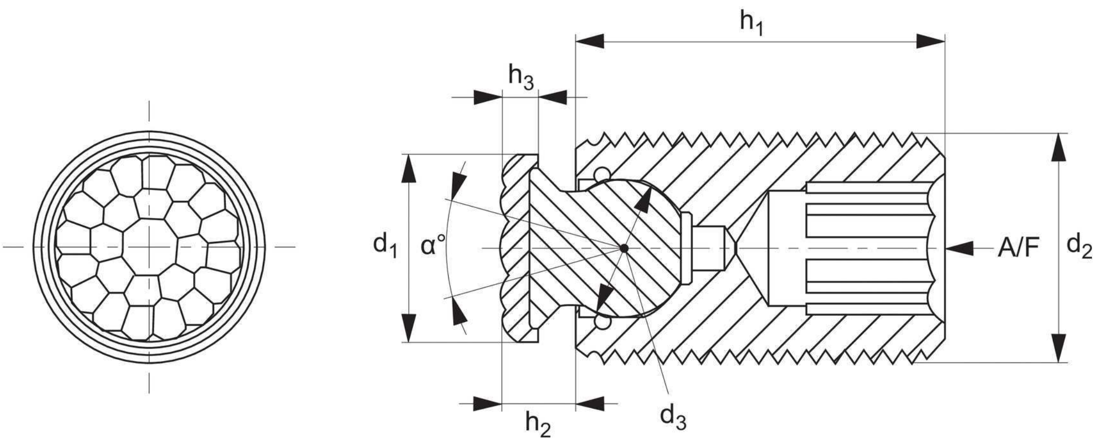
Load compression ratings based on load required to compress urethane surface 0,812mm for 2mm thick pad. Compression ratings vary greatly depending upon temperature and other application-specific factors.

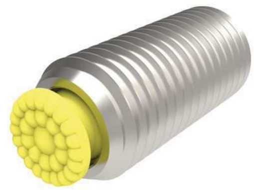
Order No.	d_1 +0,00 -0,13	d_2	d_3	d_4	h_1 ±0,05	h_2 ±0,25	h_3	Urethane thickness h_4	Durometer shore A	Swivel angle α°	Load compression Kg
35622.W3041	10	10	M 4x0,7	7	10,5	3,5	4	2	35	28	3
35622.W3042	10	10	M 4x0,7	7	23,5	9,0	4	2	35	28	3
35622.W3051	13	13	M 5x0,8	10	14,5	6,5	5	2	35	28	18
35622.W3052	13	13	M 5x0,8	10	23,5	9,0	5	2	35	28	18
35622.W3061	17	16	M 6x1,0	13	18,0	7,5	5	2	35	28	24
35622.W3081	19	21	M 8x1,25	15	20,0	8,5	6	2	35	24	68
35622.W3101	24	23	M10x1,5	20	24,0	9,0	6	2	35	24	102
35622.W6041	10	10	M 4x0,7	7	10,5	3,5	4	2	60	28	11
35622.W6042	10	10	M 4x0,7	7	23,5	9,0	4	2	60	28	11
35622.W6051	13	13	M 5x0,8	10	14,5	6,5	5	2	60	28	34
35622.W6052	13	13	M 5x0,8	10	23,5	9,0	5	2	60	28	34
35622.W6061	17	16	M 6x1,0	13	18,0	7,5	5	2	60	28	63
35622.W6081	19	21	M 8x1,25	15	20,0	8,5	6	2	60	24	154
35622.W6101	24	23	M10x1,5	20	24,0	9,0	6	2	60	24	181
35622.W8041	10	10	M 4x0,7	7	10,5	3,5	4	2	80	28	29
35622.W8042	10	10	M 4x0,7	7	23,5	9,0	4	2	80	28	29
35622.W8051	13	13	M 5x0,8	10	14,5	6,5	5	2	80	28	68
35622.W8052	13	13	M 5x0,8	10	23,5	9,0	5	2	80	28	68
35622.W8061	17	16	M 6x1,0	13	18,0	7,5	5	2	80	28	97
35622.W8081	19	21	M 8x1,25	15	20,0	8,5	6	2	80	24	238
35622.W8101	24	23	M10x1,5	20	24,0	9,0	6	2	80	24	272

Grippers - Self Aligning

set screw - urethane coated

35624





Order No.	d_1	d_2	d_3	h_1	h_2	h_3	Durometer shore A	A/F	Swivel angle α°	Load compression Kg
35624.W3101	8	M10x1,5	5	25	3,5	2	35	5	28	3
35624.W3102	8	M10x1,5	5	35	3,5	2	35	5	28	3
35624.W3103	8	M10x1,5	5	50	3,5	2	35	5	28	3
35624.W3121	10	M12x1,75	7	25	4,0	2	35	6	28	3
35624.W3122	10	M12x1,75	7	35	4,0	2	35	6	28	3
35624.W3123	10	M12x1,75	7	50	4,0	2	35	6	28	3
35624.W3161	13	M16x2,0	10	25	5,0	2	35	8	28	18
35624.W3162	13	M16x2,0	10	35	5,0	2	35	8	28	18
35624.W3163	13	M16x2,0	10	50	5,0	2	35	8	28	18
35624.W3201	16	M20x2,5	13	30	5,0	2	35	10	28	24
35624.W3202	16	M20x2,5	13	50	5,0	2	35	10	28	24
35624.W3203	16	M20x2,5	13	70	5,0	2	35	10	28	24
35624.W3241	21	M24x3,0	15	40	6,0	2	35	10	24	68
35624.W3242	21	M24x3,0	15	80	6,0	2	35	10	24	68
35624.W6101	8	M10x1,5	5	25	3,5	2	60	5	28	9
35624.W6102	8	M10x1,5	5	35	3,5	2	60	5	28	9
35624.W6103	8	M10x1,5	5	50	3,5	2	60	5	28	9
35624.W6121	10	M12x1,75	7	25	4,0	2	60	6	28	11
35624.W6122	10	M12x1,75	7	35	4,0	2	60	6	28	11
35624.W6123	10	M12x1,75	7	50	4,0	2	60	6	28	11
35624.W6161	13	M16x2,0	10	25	5,0	2	60	8	28	34
35624.W6162	13	M16x2,0	10	35	5,0	2	60	8	28	34
35624.W6163	13	M16x2,0	10	50	5,0	2	60	8	28	34
35624.W6201	16	M20x2,5	13	30	5,0	2	60	10	28	63
35624.W6202	16	M20x2,5	13	50	5,0	2	60	10	28	63
35624.W6203	16	M20x2,5	13	70	5,0	2	60	10	28	63
35624.W6241	21	M24x3,0	15	40	6,0	2	60	10	24	154
35624.W6242	21	M24x3,0	15	80	6,0	2	60	10	24	154
35624.W8101	8	M10x1,5	5	25	3,5	2	80	5	28	18
35624.W8102	8	M10x1,5	5	35	3,5	2	80	5	28	18
35624.W8103	8	M10x1,5	5	50	3,5	2	80	5	28	18
35624.W8121	10	M12x1,75	7	25	4,0	2	80	6	28	29
35624.W8122	10	M12x1,75	7	35	4,0	2	80	6	28	29
35624.W8123	10	M12x1,75	7	50	4,0	2	80	6	28	29
35624.W8161	13	M16x2,0	10	25	5,0	2	80	8	28	68
35624.W8162	13	M16x2,0	10	35	5,0	2	80	8	28	68
35624.W8163	13	M16x2,0	10	50	5,0	2	80	8	28	68
35624.W8201	16	M20x2,5	13	30	5,0	2	80	10	28	97
35624.W8202	16	M20x2,5	13	50	5,0	2	80	10	28	97
35624.W8203	16	M20x2,5	13	70	5,0	2	80	10	28	97
35624.W8241	21	M24x3,0	15	40	6,0	2	80	10	24	238
35624.W8242	21	M24x3,0	15	80	6,0	2	80	10	24	238

Material

Housing body: alloy steel, heat treated to HRc 43-46, black oxide finish.
Pad: urethane, bonded to AISI 300 series stainless steel ball.

Technical Notes

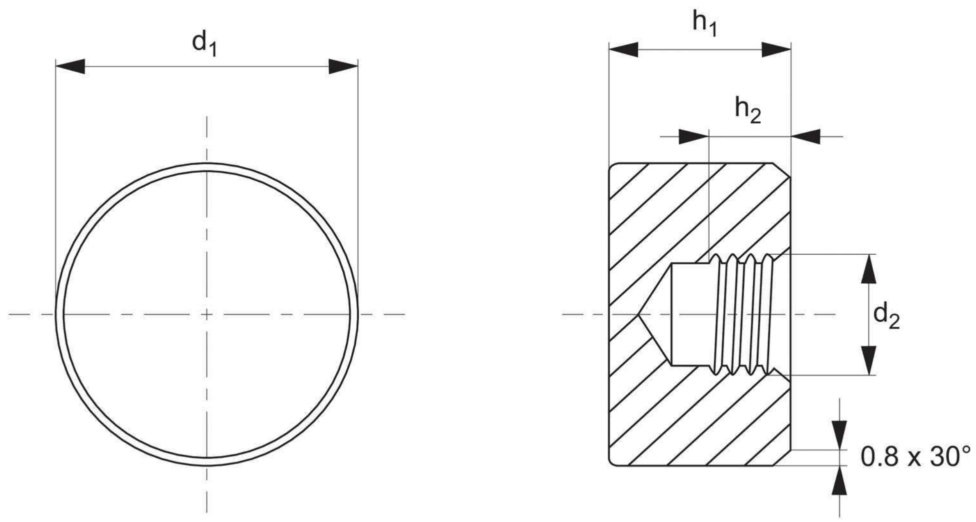
Available in three different durometers: 35, 60 & 80 (see table). Bubbled texture of urethane pad allows air to escape so avoiding any suction action.

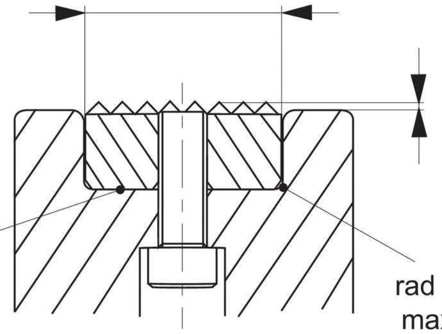
Tips

Re-seating: expel air by using 0,3 monofilament line between ball and housing, remove line when seated correctly.

Important Notes

Load compression ratings based on load required to compress urethane surface 0,812mm for 2mm thick pad. Compression ratings vary greatly depending upon temperature and other application-specific factors.





Material
Stainless steel (AISI 630, precipitation-hardened), heat treated to HRc 43-46.

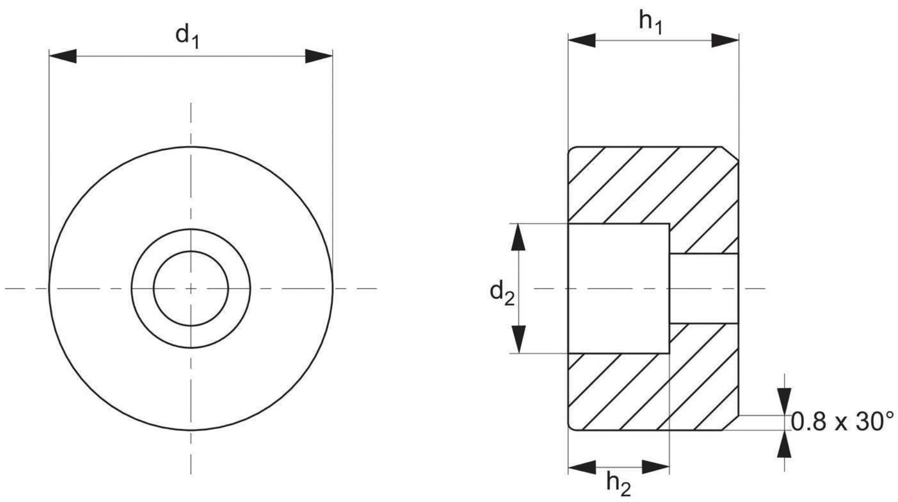
Technical Notes
Permanently fused diamond powder creates an abrasive surface comparable to 100 grit abrasive value. Ideal for holding smooth or slippery components with a minimum of clamping pressure, and minimal surface marking. Excellent wear resistance.

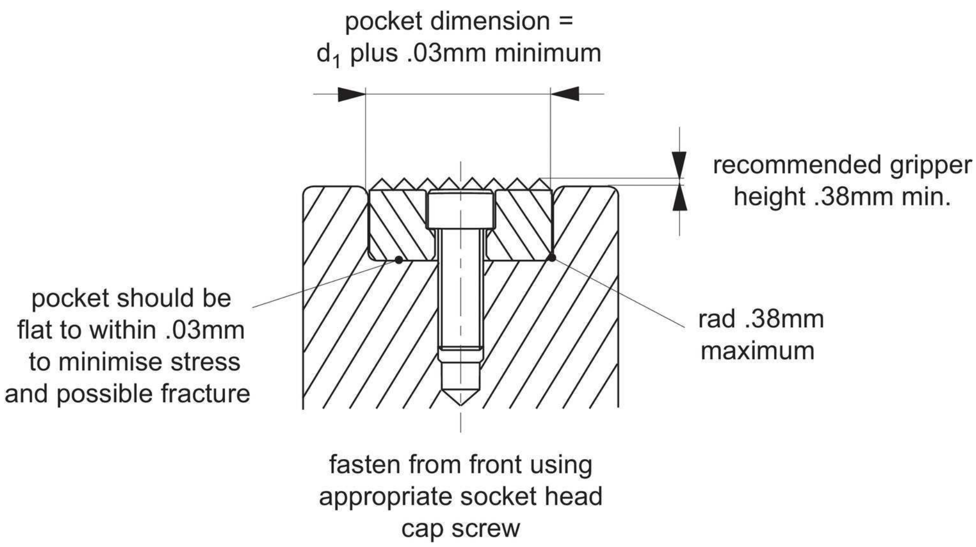
Order No.	d_1 +0,00 -0,13	d_2	h_1 +0,00 -0,13	h_2
35630.W0841	8	M 4x0,7	10	5,0
35630.W0842	8	M 4x0,7	12	6,4
35630.W1051	10	M 5x0,8	10	5,0
35630.W1052	10	M 5x0,8	12	6,4
35630.W1251	12	M 5x0,8	10	5,0
35630.W1252	12	M 5x0,8	12	6,4
35630.W1661	16	M 6x1,0	10	5,0
35630.W1662	16	M 6x1,0	12	6,4
35630.W2061	20	M 6x1,0	10	5,0
35630.W2062	20	M 6x1,0	12	6,4
35630.W2561	25	M 6x1,0	10	5,0
35630.W2562	25	M 6x1,0	12	6,4

Gripping Pads - Diamond Coated

stainless - round - front fixing

35632





Order No.	d_1 +0,00 -0,13	d_2 to fit DIN 912	h_1 +0,00 -0,13	h_2
35632.W1051	10	M 3	10	5,0
35632.W1052	10	M 3	12	5,0
35632.W1251	12	M 4	10	5,6
35632.W1252	12	M 4	12	5,6
35632.W1661	16	M 5	10	6,6
35632.W1662	16	M 5	12	6,6
35632.W2061	20	M 6	10	7,6
35632.W2062	20	M 6	12	7,6
35632.W2561	25	M 6	10	7,6
35632.W2562	25	M 6	12	7,6

Material

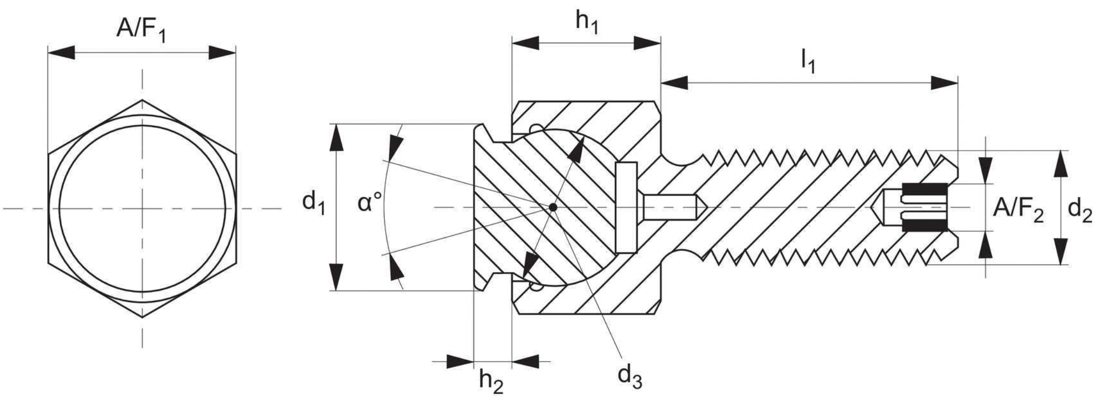
Stainless steel (AISI 630, precipitation-hardened), heat treated to HRc 43-46.

Technical Notes

Permanently fused diamond powder creates an abrasive surface comparable to 100 grit abrasive value. Ideal for holding smooth or slippery components with a minimum of clamping pressure, and minimal surface marking. Excellent wear resistance.

Grippers - Self Aligning

diamond coated - threaded bolt



Order No.	d_1	d_2	l_1	d_3	h_1 ±0,05	h_2	A/F_1	A/F_2	Swivel angle α°	Max. load kg
35640.W0861	8	M 6x1,0	12	7	8,0	2	10	-	28	935
35640.W0862	8	M 6x1,0	25	7	8,0	2	10	-	28	935
35640.W0863	8	M 6x1,0	40	7	8,0	2	10	-	28	935
35640.W1181	11	M 8x1,25	12	10	11,5	3	13	-	28	1565
35640.W1182	11	M 8x1,25	25	10	11,5	3	13	-	28	1565
35640.W1183	11	M 8x1,25	40	10	11,5	3	13	-	28	1565
35640.W1410	14	M10x1,5	15	13	13,0	3	17	3	28	1902
35640.W1412	14	M10x1,5	30	13	13,0	3	17	3	28	1902
35640.W1413	14	M10x1,5	50	13	13,0	3	17	3	28	1902
35640.W1912	19	M12x1,75	20	15	15,0	4	19	5	24	3006
35640.W1913	19	M12x1,75	40	15	15,0	4	19	5	24	3006
35640.W1914	19	M12x1,75	60	15	15,0	4	19	5	24	3006
35640.W2116	21	M16x2,0	25	20	19,0	4	24	6	24	5073
35640.W2117	21	M16x2,0	50	20	19,0	4	24	6	24	5073
35640.W2118	21	M16x2,0	80	20	19,0	4	24	6	24	5073

Material

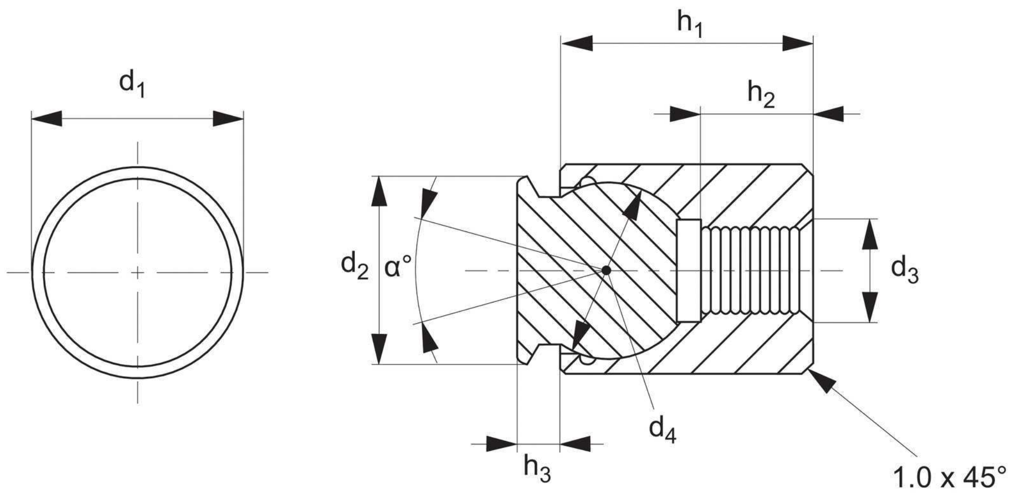
Housing body: alloy steel, heat treated to HRc 43-46, black oxide finish.
Pad: diamond powder bonded to AISI 300 series stainless steel ball.

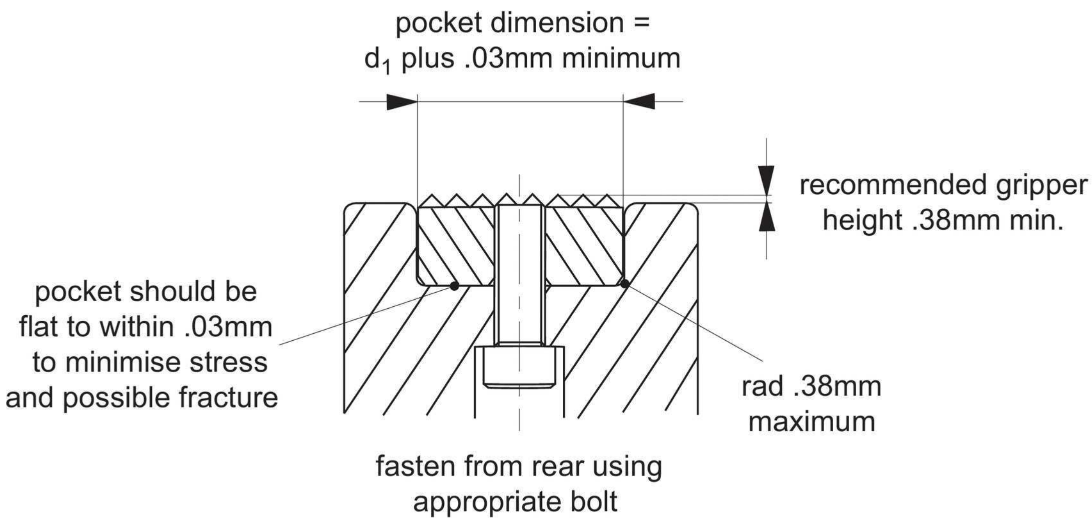
Technical Notes

Permanently fused diamond powder creates an abrasive surface comparable to 100 grit abrasive value. Ideal for holding smooth or slippery components with a minimum of clamping pressure, and minimal surface marking. Excellent wear resistance.

Tips

Re-seating: expel air by using 0.3 monofilament line between ball and housing, remove line when seated correctly.





Material
Housing: alloy steel, heat treated to HRc 43-46 with black oxide finish. Pad: diamond powder bonded to AISI 300 series stainless steel ball.

Technical Notes
Permanently fused diamond powder creates an abrasive surface comparable to 100 grit abrasive value. Ideal for holding smooth or slippery components with a minimum of clamping pressure, and minimal surface marking. Excellent wear resistance.

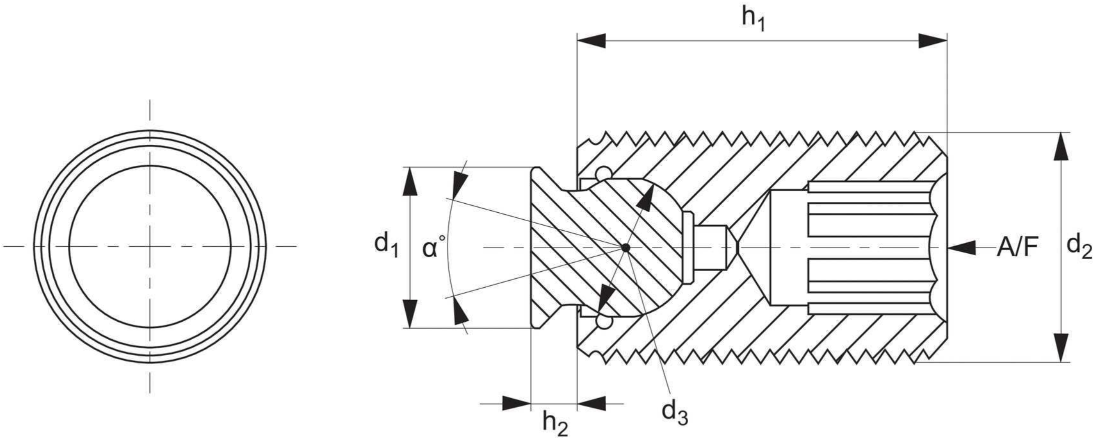
Tips
Re-seating: expel air by using 0,3 monofilament line between ball and housing, remove line when seated correctly.

Order No.	d_1 +0,00 -0,13	d_2 +0,00 -0,13	d_3	d_4	h_1 ±0,05	h_2 ±0,25	h_3	Swivel angle α°	Max. load kg
35642.W0841	10	8	M 4x0,7	7	10,5	3,5	2	28	1,2
35642.W0842	10	8	M 4x0,7	7	23,5	9,0	2	28	1,2
35642.W1151	13	11	M 5x0,8	10	14,5	6,5	3	28	2,0
35642.W1152	13	11	M 5x0,8	10	23,5	9,0	3	28	2,0
35642.W1461	17	14	M 6x1,0	13	18,0	7,5	3	28	2,8
35642.W1981	19	19	M 8x1,25	15	20,0	8,5	4	24	3,9
35642.W2110	24	21	M10x1,5	20	24,0	9,0	4	24	6,0

Grippers - Self Aligning

set screw - diamond coated

35644



Order No.	d_1	d_2	d_3	h_1	h_2	A/F	Swivel angle α°	Max. load kg
35644.W0610	6	M10x1,5	5	25	1,5	5	28	-
35644.W0611	6	M10x1,5	5	35	1,5	5	28	-
35644.W0612	6	M10x1,5	5	50	1,5	5	28	-
35644.W0812	8	M12x1,75	7	25	2,0	6	28	1,6
35644.W0813	8	M12x1,75	7	35	2,0	6	28	1,6
35644.W0814	8	M12x1,75	7	50	2,0	6	28	1,6
35644.W1116	11	M16x2,0	10	25	3,0	8	28	2,4
35644.W1117	11	M16x2,0	10	35	3,0	8	28	2,4
35644.W1118	11	M16x2,0	10	50	3,0	8	28	2,4
35644.W1420	14	M20x2,5	13	30	3,0	10	28	3,8
35644.W1421	14	M20x2,5	13	50	3,0	10	28	3,8
35644.W1422	14	M20x2,5	13	70	3,0	10	28	3,8
35644.W1924	19	M24x3,0	15	40	4,0	10	24	5,6
35644.W1925	19	M24x3,0	15	80	4,0	10	24	5,6

Material

Housing: alloy steel, heat treated to HRc 43-46 with black oxide finish.
Pad: diamond powder bonded to AISI 300 series stainless steel ball.

Technical Notes

Permanently fused diamond powder creates an abrasive surface comparable to 100 grit abrasive value. Ideal for holding smooth or slippery components with a minimum of clamping pressure, and minimal surface marking. Excellent wear resistance.

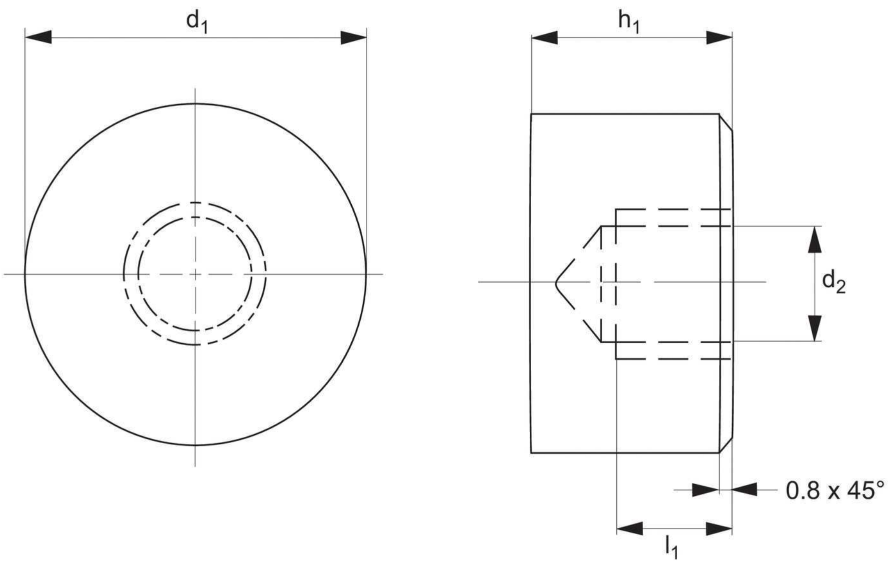
Tips

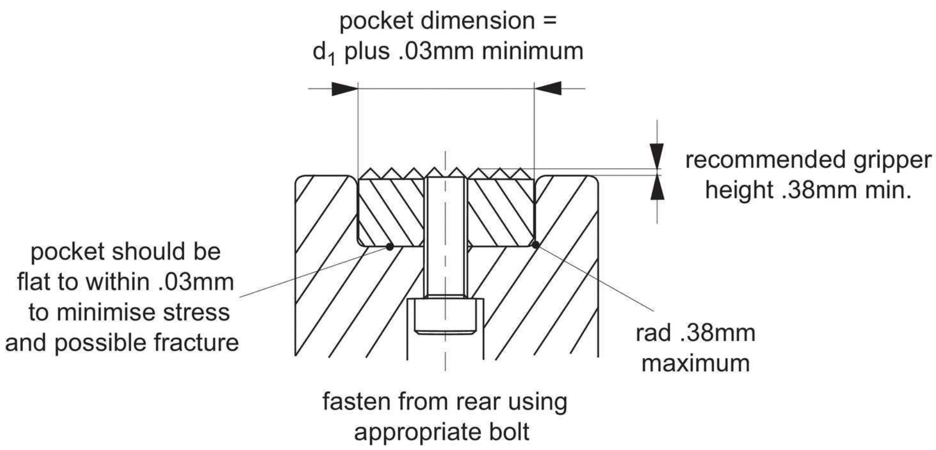
Re-seating: expel air by using 0,3 monofilament line between ball and housing, remove line when seated correctly.

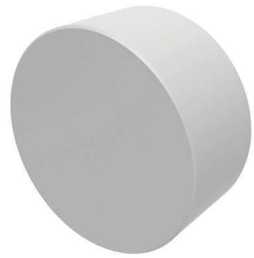
Rest Pads - Steel and Thermoplastic

round - rear fixing

35980







Material

Steel (AISI 8620), hardened to HRc 58-60, black oxide finish.
Thermoplastic, white.

Technical Notes

Can be used as rest pads, stops, supports etc in jigs and fixtures.
h_1 = tol. of steel ±0,03, tol., for thermoplastic +0,00 -0,13.

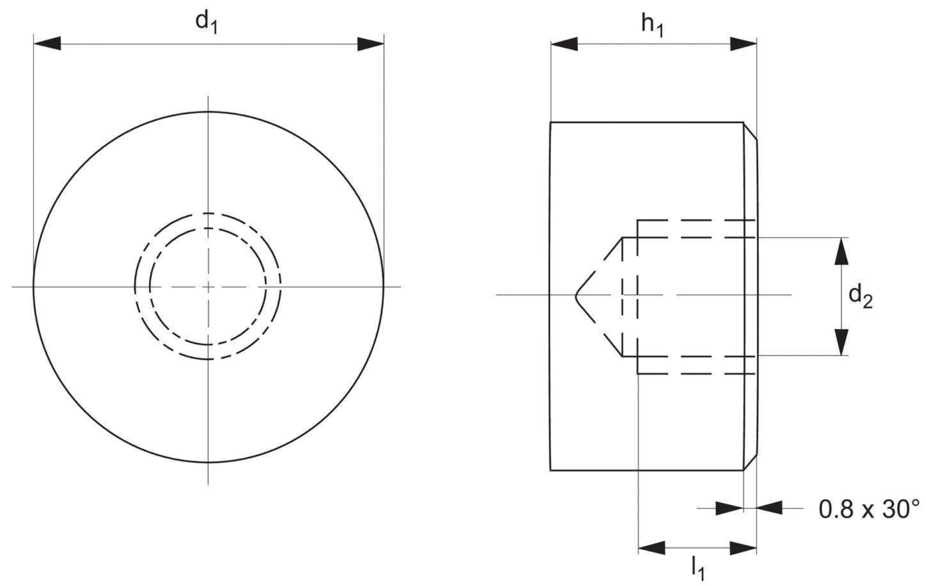
Tips

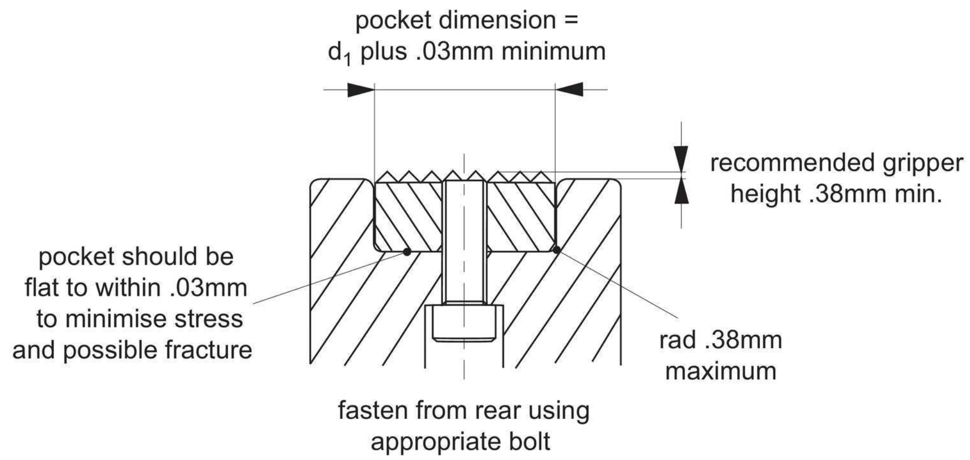
Can be fastened from rear using appropriate bolt or alternatively via use of a differential screw. Note installation recommendations in technical diagram.

Order No.	Material	d_1 +0,00 -0,13	d_2	h_1	l_1
35980.W0011	Steel	8	M 4x0,7	10	5,0
35980.W0012	Steel	8	M 4x0,7	12	6,4
35980.W0001	Steel	10	M 5x0,8	10	5,0
35980.W0002	Steel	10	M 5x0,8	12	6,4
35980.W0003	Steel	12	M 5x0,8	10	5,0
35980.W0004	Steel	12	M 5x0,8	12	6,4
35980.W0005	Steel	16	M 6x1,0	10	5,0
35980.W0006	Steel	16	M 6x1,0	12	6,4
35980.W0007	Steel	20	M 6x1,0	10	5,0
35980.W0008	Steel	20	M 6x1,0	12	6,4
35980.W0009	Steel	25	M 6x1,0	10	5,0
35980.W0010	Steel	25	M 6x1,0	12	6,4
35980.W0211	Plastic	8	M 4x0,7	10	5,0
35980.W0212	Plastic	8	M 4x0,7	12	6,4
35980.W0201	Plastic	10	M 5x0,8	10	5,0
35980.W0202	Plastic	10	M 5x0,8	12	6,4
35980.W0203	Plastic	12	M 5x0,8	10	5,0
35980.W0204	Plastic	12	M 5x0,8	12	6,4
35980.W0205	Plastic	16	M 6x1,0	10	5,0
35980.W0206	Plastic	16	M 6x1,0	12	6,4
35980.W0207	Plastic	20	M 6x1,0	10	5,0
35980.W0208	Plastic	20	M 6x1,0	12	6,4
35980.W0209	Plastic	25	M 6x1,0	10	5,0
35980.W0210	Plastic	25	M 6x1,0	12	6,4

Rest Pads - Stainless Steel

round - rear fixing





Material

Stainless steel (AISI 630), hardened to HRc 43-46.

Technical Notes

Can be used as rest pads, stops, supports etc in jigs and fixtures.

Tips

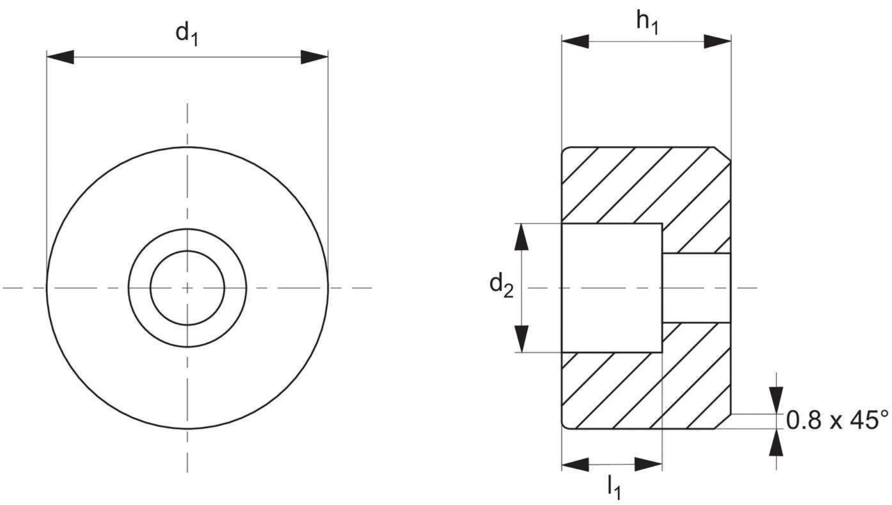
Can be fastened from rear using appropriate bolt, or alternatively via use of a differential screw. Note installation recommendations in technical diagram.

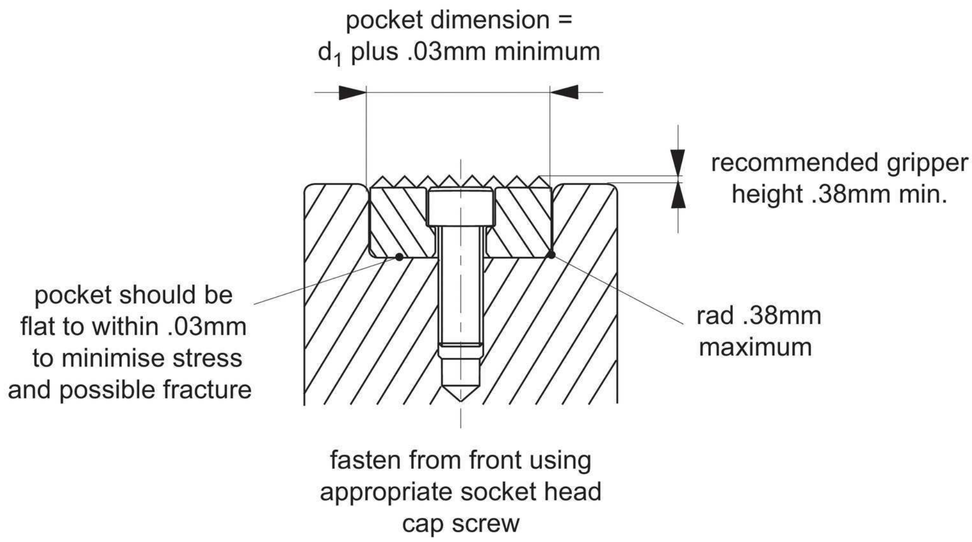
Order No.	d_1 +0,00 -0,13	h_1 ±0,03	d_2	l_1
35982.W0080	8	10	M 4x0,7	5,0
35982.W0082	8	12	M 4x0,7	6,4
35982.W0100	10	10	M 5x0,8	5,0
35982.W0102	10	12	M 5x0,8	6,4
35982.W0120	12	10	M 5x0,8	5,0
35982.W0122	12	12	M 5x0,8	6,4
35982.W0160	16	10	M 6x1,0	5,0
35982.W0162	16	12	M 6x1,0	6,4
35982.W0200	20	10	M 6x1,0	5,0
35982.W0202	20	12	M 6x1,0	6,4
35982.W0250	25	10	M 6x1,0	5,0
35982.W0252	25	12	M 6x1,0	6,4

Rest Pads - Steel and Thermoplastic

round - front fixing

35984





Material
Steel (AISI 8620), hardened to HRc 58-60. Black oxide finish. Thermoplastic, white.

Technical Notes
Can be used as rest pads, stops, supports etc in jigs and fixtures. h_1 = tol. of steel ±0,03, tol. of thermoplastic +0,00 -0,13.

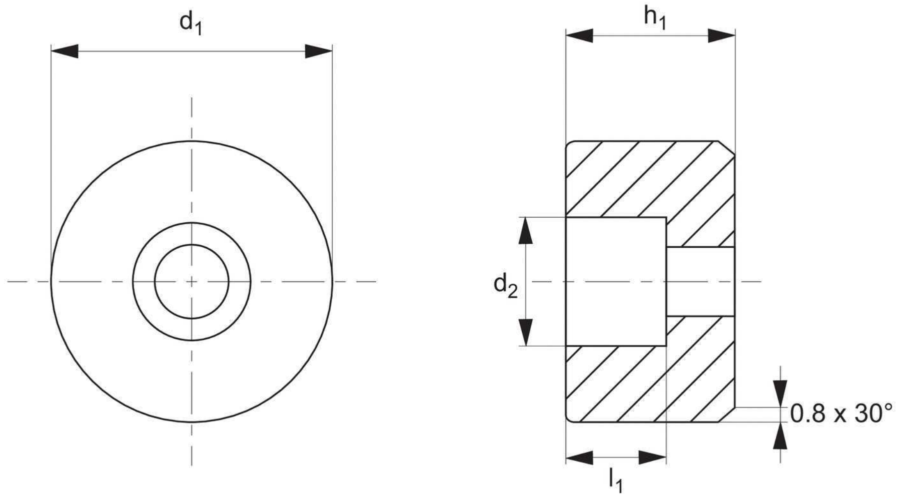
Tips
Fasten from front using appropriate socket head cap screw. Note installation recommendations in technical diagram.

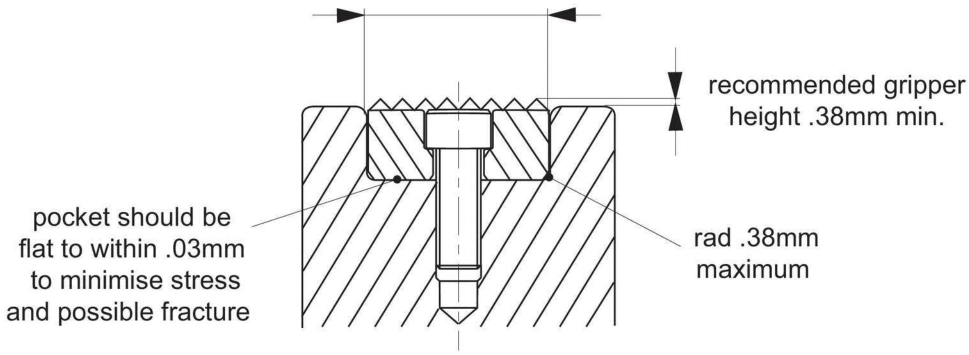
Order No.	Material	d_1 +0,00 -0,13	d_2 to fit DIN 912	h_1	l_1
35984.W0100	Steel	10	M 3	10	5,0
35984.W0102	Steel	10	M 3	12	5,0
35984.W0120	Steel	12	M 4	10	5,6
35984.W0122	Steel	12	M 4	12	5,6
35984.W0160	Steel	16	M 5	10	6,6
35984.W0162	Steel	16	M 5	12	6,6
35984.W0200	Steel	20	M 6	10	7,6
35984.W0202	Steel	20	M 6	12	7,6
35984.W0250	Steel	25	M 6	10	7,6
35984.W0252	Steel	25	M 6	12	7,6
35984.W1100	Plastic	10	M 3	10	5,0
35984.W1102	Plastic	10	M 3	12	5,0
35984.W1120	Plastic	12	M 4	10	5,6
35984.W1122	Plastic	12	M 4	12	5,6
35984.W1160	Plastic	16	M 5	10	6,6
35984.W1162	Plastic	16	M 5	12	6,6
35984.W1200	Plastic	20	M 6	10	7,6
35984.W1202	Plastic	20	M 6	12	7,6
35984.W1250	Plastic	25	M 6	10	7,6
35984.W1252	Plastic	25	M 6	12	7,6

Rest Pads - Stainless Steel

round - front fixing

35986





Material
Stainless steel (AISI 630), hardened to RHc 43-46.

Technical Notes
Stainless steel provides high strength as well as protection against chemical and environmental corrosion.

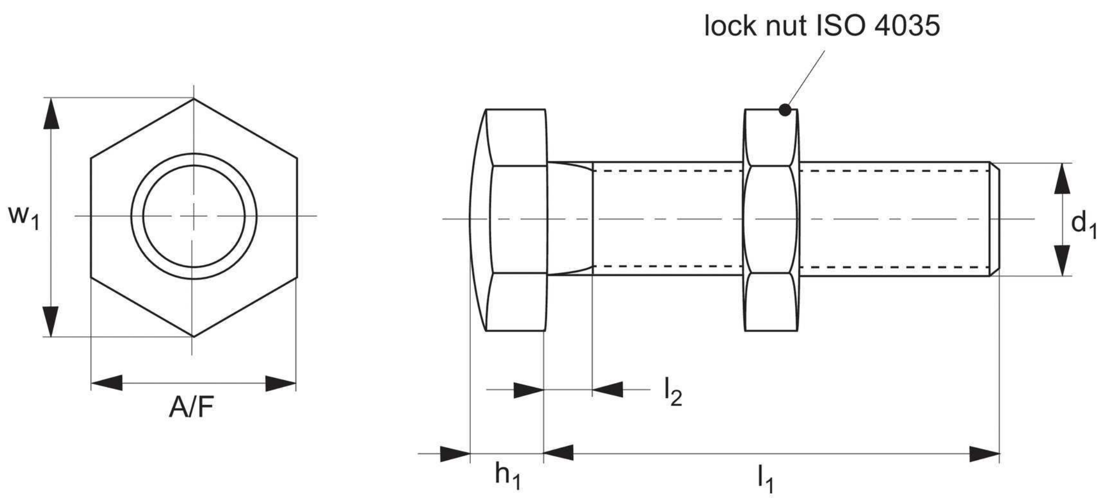
Tips
Counterbored hole for front mounting with a socket head cap screw. Note installation recommendations in technical diagram.

Order No.	d_1 +0,00 -0,13	d_2 to fit DIN 912	h_1 ±0,03	l_1
35986.W0100	10	M 3	10	5,0
35986.W0102	10	M 3	12	5,0
35986.W0120	12	M 4	10	5,6
35986.W0122	12	M 4	12	5,6
35986.W0160	16	M 5	10	6,6
35986.W0162	16	M 5	12	6,6
35986.W0200	20	M 6	10	7,6
35986.W0202	20	M 6	12	7,6
35986.W0250	25	M 6	10	7,6
35986.W0252	25	M 6	12	7,6

Setting Bolts

with lock nut

18300



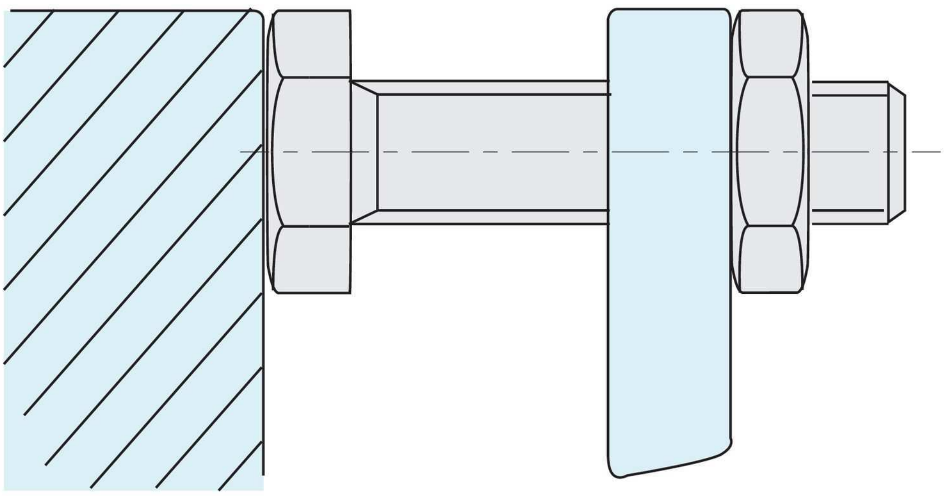
Order No.	d_1	l_1	l_2	h_1	w_1	A/F
18300.W0031	M 3	10	2	2,0	6,4	5,5
18300.W0032	M 3	20	2	2,0	6,4	5,5
18300.W0033	M 3	30	2	2,0	6,4	5,5
18300.W0041	M 4	10	2	2,8	8,1	7,0
18300.W0042	M 4	20	2	2,8	8,1	7,0
18300.W0043	M 4	30	2	2,8	8,1	7,0
18300.W0051	M 5	20	2	3,5	9,2	8,0
18300.W0052	M 5	30	2	3,5	9,2	8,0
18300.W0053	M 5	40	2	3,5	9,2	8,0
18300.W0061	M 6	30	3	4,0	11,5	10,0
18300.W0062	M 6	40	3	4,0	11,5	10,0
18300.W0063	M 6	50	3	4,0	11,5	10,0
18300.W0081	M 8	30	4	5,5	15,0	13,0
18300.W0082	M 8	40	4	5,5	15,0	13,0
18300.W0083	M 8	50	4	5,5	15,0	13,0
18300.W0101	M10	40	5	7,0	19,6	17,0
18300.W0102	M10	50	5	7,0	19,6	17,0
18300.W0103	M10	60	5	7,0	19,6	17,0
18300.W0104	M10	70	5	7,0	19,6	17,0
18300.W0121	M12	40	5	8,0	21,9	19,0
18300.W0122	M12	50	5	8,0	21,9	19,0
18300.W0123	M12	60	5	8,0	21,9	19,0
18300.W0124	M12	70	5	8,0	21,9	19,0
18300.W0161	M16	50	6	10,0	27,7	24,0
18300.W0162	M16	60	6	10,0	27,7	24,0
18300.W0163	M16	70	6	10,0	27,7	24,0
18300.W0164	M16	80	6	10,0	27,7	24,0

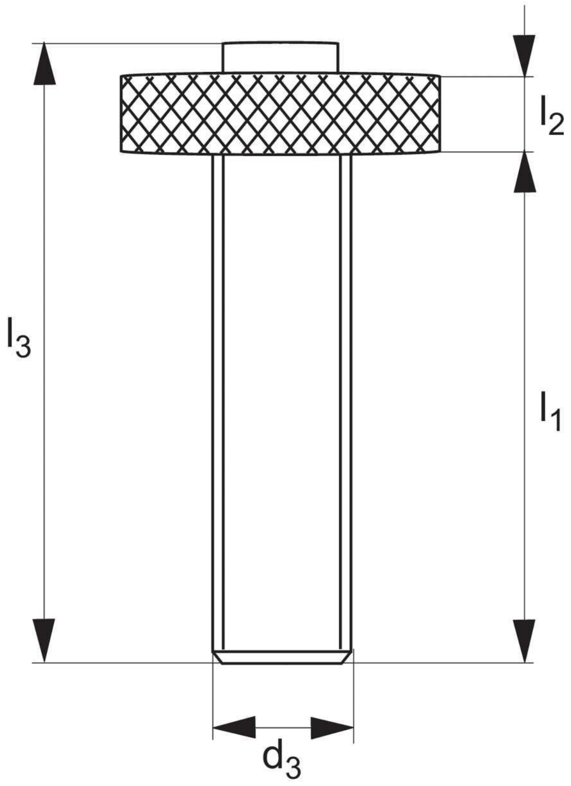
Material

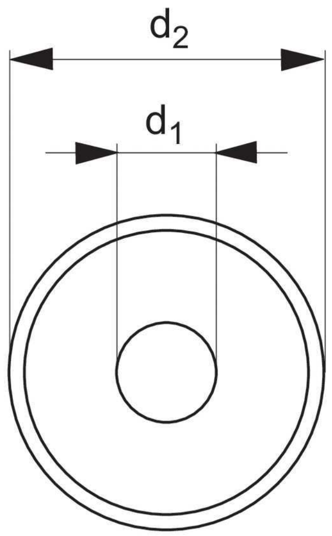
Bolt: steel, blackened and with a hardened head. Tensile strength 500N/mm^2.

Technical Notes

Setting bolts are produced with a hardened and rounded head which can be used as support or setting bolt as an end stop. These bolts are normally used together with a locknut.



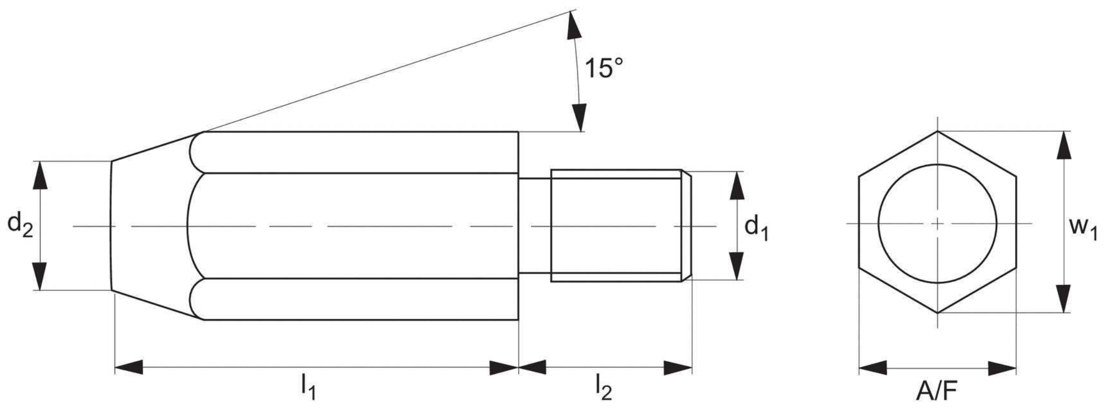




Material
Steel, heat-treated.

Locating Feet

threaded shank



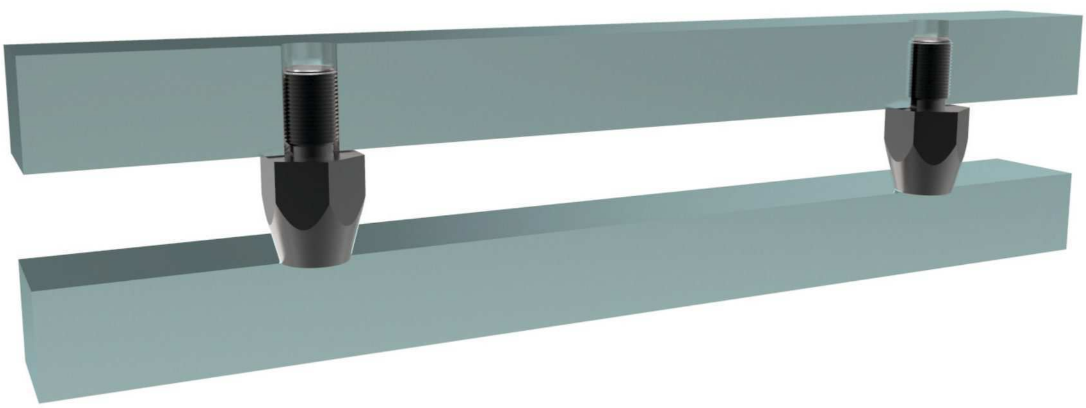
Order No.	d_1	d_2	l_1	l_2	w_1	A/F	Torque to max. Nm.	g
36000.W0061	M 6	8	10	11	11,5	10	7	8
36000.W0062	M 6	6	20	11	11,5	10	7	13
36000.W0081	M 8	10	15	13	15,0	13	7	19
36000.W0082	M 8	9	30	13	15,0	13	18	35
36000.W0101	M10	13	20	16	19,6	17	32	41
36000.W0102	M10	13	40	16	19,6	17	32	81
36000.W0121	M12	15	25	20	21,9	19	60	70
36000.W0122	M12	15	50	20	21,9	19	60	129

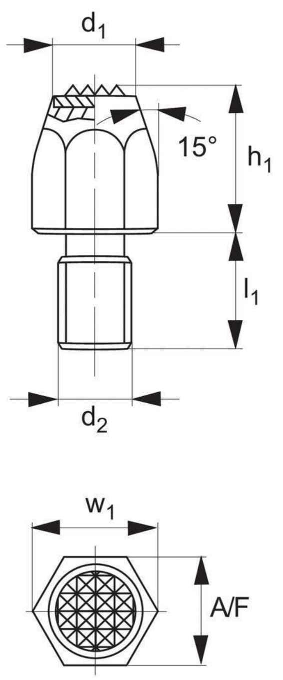
Material

Heat-treated steel (DIN 6320), blackened, turned, unhardened.

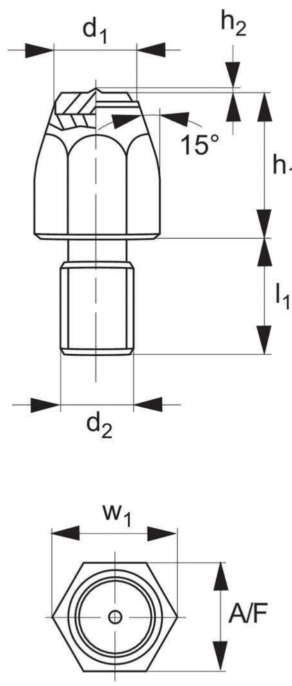
Technical Notes

Bearing surface without centre.
Locating pins nos. 36220 and 36300 can also be used as feet.

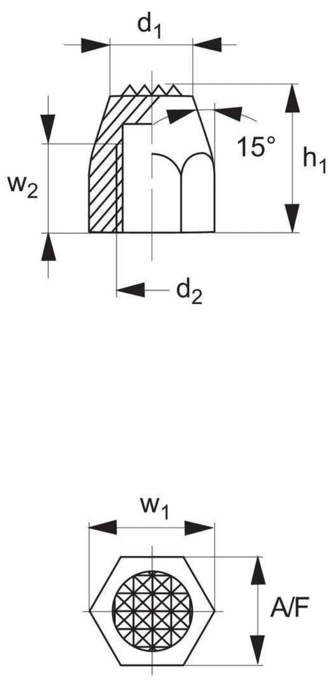




ribbed, male
hard metal insert

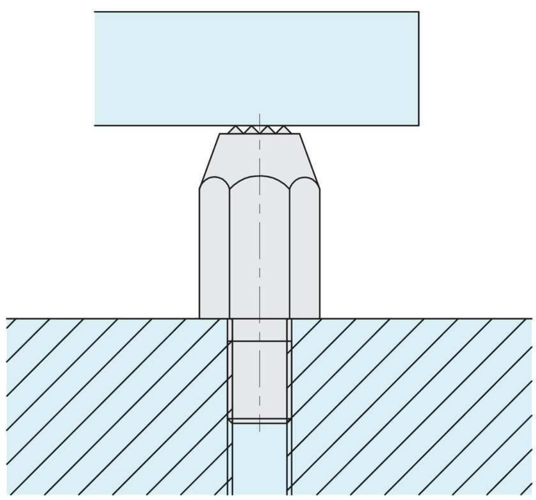


single point, male
hard metal insert



ribbed, female
no insert

Order No.	Type	Insert material	d_1	d_2	l_1	h_1	h_2	w_1	w_2	A/F	Torque to max. Nm.	g
36200.W0061	Ribbed, Male	Hard Metal	9,5	M 6	11	10	-	11,5	-	10	7	9
36200.W0081	Ribbed, Male	Hard Metal	12,5	M 8	13	15	-	15,0	-	13	18	22
36200.W0101	Ribbed, Male	Hard Metal	12,5	M10	15	20	-	19,6	-	17	32	40
36200.W0121	Ribbed, Male	Hard Metal	13,8	M12	20	25	-	21,9	-	19	60	64
36200.W0063	Single Point, Male	Hard Metal	9,5	M 6	11	10	0,8	11,5	-	10	7	9
36200.W0083	Single Point, Male	Hard Metal	12,5	M 8	13	15	0,8	15,0	-	13	18	23
36200.W0103	Single Point, Male	Hard Metal	12,5	M10	15	20	0,8	19,6	-	17	32	40
36200.W0123	Single Point, Male	Hard Metal	13,8	M12	20	25	0,8	21,9	-	19	60	65
36200.W0142	Ribbed, Female	W/O Insert	9,0	M 8	-	20	-	15,0	10	13	18	14
36200.W0144	Ribbed, Female	W/O Insert	9,0	M 8	-	25	-	15,0	10	13	18	20
36200.W0164	Ribbed, Female	W/O Insert	12,5	M10	-	25	-	19,6	13	17	32	1
36200.W0166	Ribbed, Female	W/O Insert	12,5	M10	-	30	-	19,6	13	17	32	40
36200.W0168	Ribbed, Female	W/O Insert	12,5	M10	-	40	-	19,6	13	17	32	60
36200.W0184	Ribbed, Female	W/O Insert	13,0	M12	-	25	-	21,9	15	19	60	33
36200.W0186	Ribbed, Female	W/O Insert	13,0	M12	-	30	-	21,9	15	19	60	44
36200.W0188	Ribbed, Female	W/O Insert	13,0	M12	-	40	-	21,9	15	19	60	69



Material

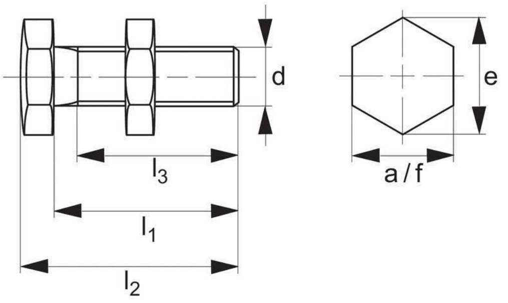
With hard metal insert:
Body: heat-treated steel, tempered, blackened.
Insert: hard metal, brazed-in.
Without hard metal insert:
Body: free-cutting steel, case-hardened, blackened.

Technical Notes

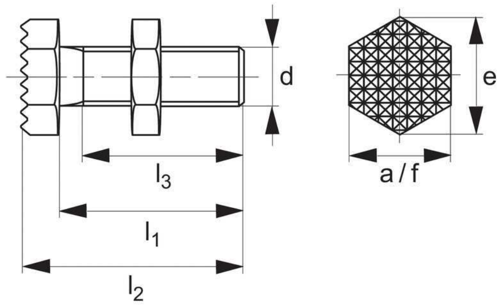
For workpieces having a rough surface. The single pointed type is ideal for cast parts.

Locating Pins
adjustable

36210



spherical surface

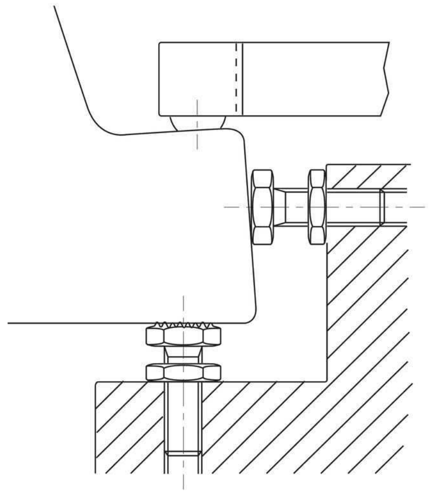


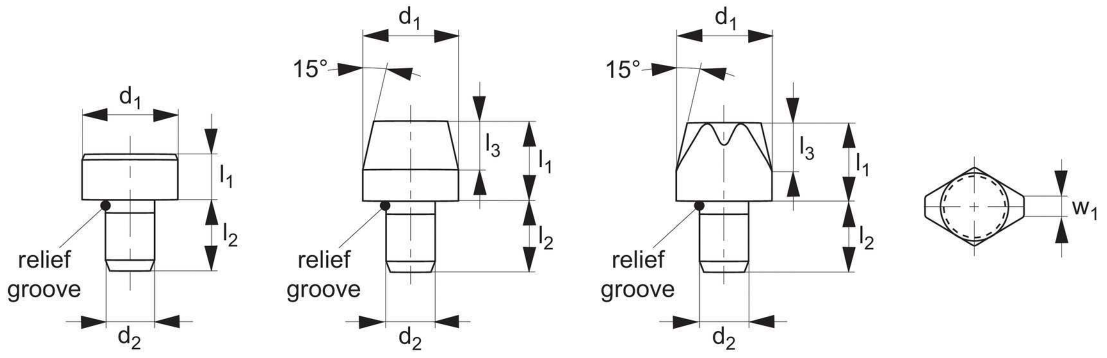
ribbed surface

Order No.	Finish	d	l_1 ±1.5	l_2 ±1.5	l_3 min.	e	a/f	g
36210.W0606	Spherical Surface	M 6	20	23,5	19,0	11,5	10	6,8
36210.W0608	Spherical Surface	M 8	25	30,0	21,0	14,5	13	15,0
36210.W0610	Spherical Surface	M10	30	36,0	25,5	19,6	17	31,0
36210.W0612	Spherical Surface	M12	35	42,0	29,7	21,9	19	48,0
36210.W0616	Spherical Surface	M16	40	49,5	34,0	27,7	24	99,0
36210.W0620	Spherical Surface	M20	45	57,0	37,0	34,6	30	179,0
36210.W0624	Spherical Surface	M24	50	64,0	40,0	41,6	36	294,0
36210.W0626	Ribbed Surface	M 6	20	23,5	19,0	11,5	10	6,7
36210.W0628	Ribbed Surface	M 8	25	30,0	21,0	14,5	13	15,0
36210.W0630	Ribbed Surface	M10	30	36,0	25,5	19,6	17	32,0
36210.W0632	Ribbed Surface	M12	35	42,0	29,7	21,9	19	49,0
36210.W0636	Ribbed Surface	M16	40	49,5	34,0	27,7	24	99,0
36210.W0640	Ribbed Surface	M20	45	57,0	37,0	34,6	30	177,0
36210.W0644	Ribbed Surface	M24	50	64,0	40,0	41,6	36	296,0

Material
Body and nut: heat treated steel, tempered, blackened and support induction hardened, quality 10,9.

Technical Notes
Ideal for use as seats and stops.



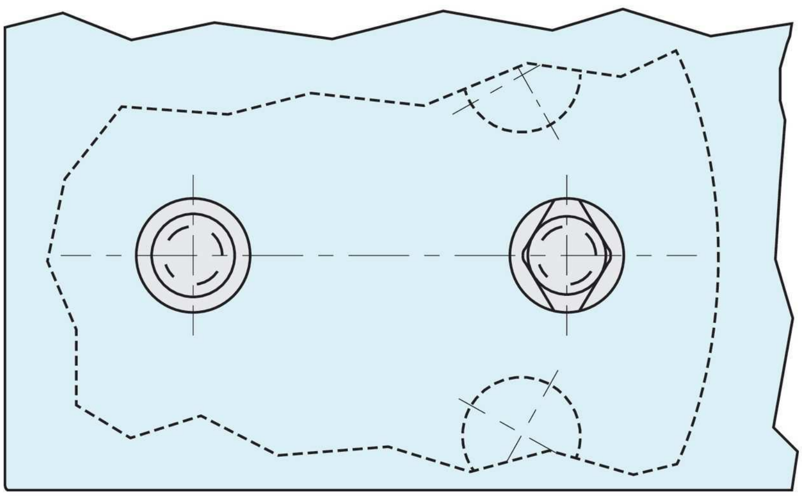


seating pin

cylindrical locating pin

diamond locating pin

Order No. Short	Order No. Long	Type	d_1 g6	l_1 short	l_1 long	b	d_2 n6	l_2	l_4	g short	g long
36220.W0011	-	Seating, Standard	6	5	-	-	4	6	-	1,5	-
36220.W0012	-	Seating, Standard	10	6	-	-	6	9	-	5,5	-
36220.W0013	-	Seating, Standard	16	8	-	-	8	12	-	16,0	-
36220.W0014	-	Seating, Standard	25	10	-	-	12	18	-	50,0	-
36220.W0020	36220.W0021	Locating, Cylindrical	6	7	12	-	4	6	4	2,0	3,0
36220.W0022	36220.W0023	Locating, Cylindrical	8	10	16	-	6	9	6	5,0	8,0
36220.W0024	36220.W0025	Locating, Cylindrical	10	10	18	-	6	9	6	7,0	10,0
36220.W0026	36220.W0027	Locating, Cylindrical	12	10	18	-	6	9	6	9,5	12,0
36220.W0028	36220.W0029	Locating, Cylindrical	16	13	22	-	8	12	8	22,0	31,0
36220.W0030	36220.W0031	Locating, Cylindrical	20	15	25	-	12	18	9	48,0	64,0
36220.W0032	36220.W0033	Locating, Cylindrical	25	15	25	-	12	18	9	66,0	98,0
36220.W0040	36220.W0041	Locating, Flattened	6	7	12	1,0	4	6	4	1.5	1,9
36220.W0042	36220.W0043	Locating, Flattened	8	10	16	1,6	6	9	6	4,0	5,5
36220.W0044	36220.W0045	Locating, Flattened	10	10	18	2,5	6	9	6	5,6	8,9
36220.W0046	36220.W0047	Locating, Flattened	12	10	18	2,5	6	9	6	7,0	11,3
36220.W0048	36220.W0049	Locating, Flattened	16	13	22	3,5	8	12	8	17,0	25,5
36220.W0050	36220.W0051	Locating, Flattened	20	15	25	5,0	12	18	9	38,8	54,4
36220.W0052	36220.W0053	Locating, Flattened	25	15	25	5,0	12	18	9	49,0	72,2



Material

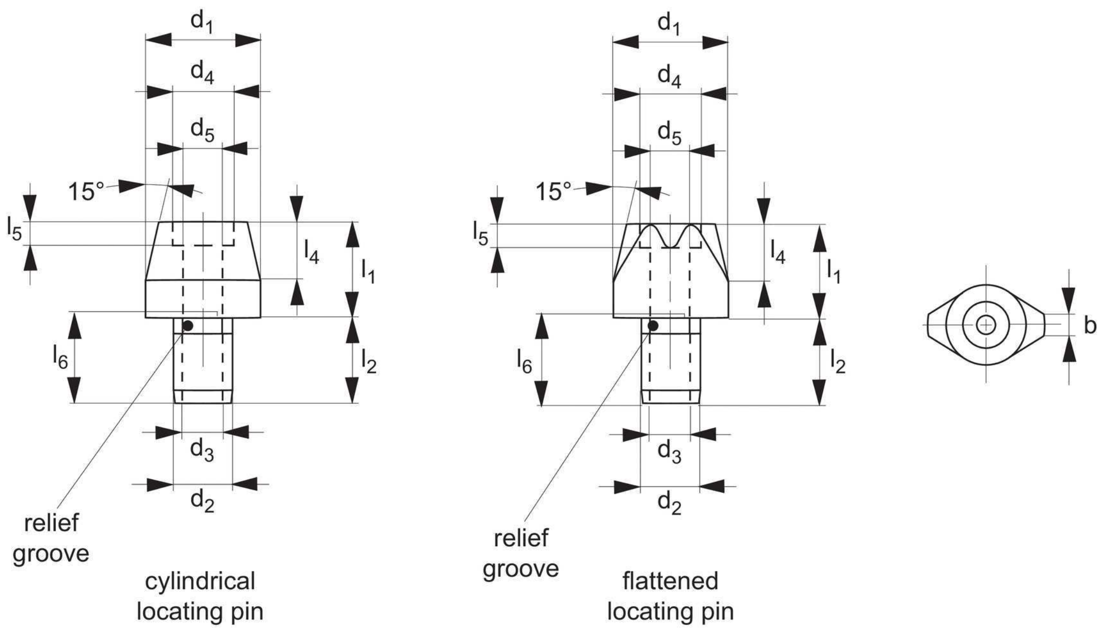
Tool steel, hardened, ground.
Bearing surface without centre.

Technical Notes

Cylindrical locating pins serve to locate workpieces and fixture elements into toleranced holes. The flattened locating pin can be used to overcome differences in tolerances, between holes or to position an element in one direction only.
Standard seating pins 36220.W0011 to .W0014 only, have tolerance h9 on dimension l_1, and can act as bearing surfaces for tools and jigs.

Tips

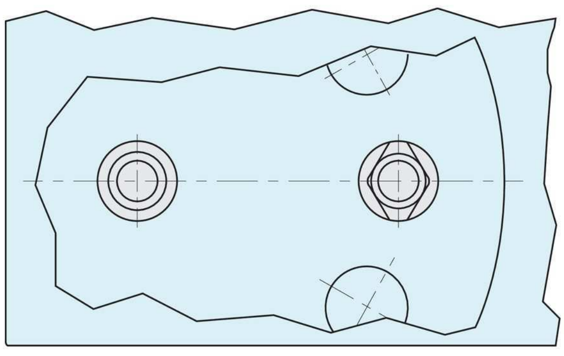
Suggested hole tolerance for shaft d_2, is a hole to H7.
For standard type length tolerance is h, for all other types length tolerance is ±0,1.

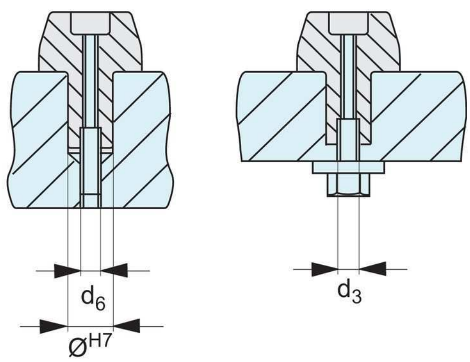


Order No.	Type	d_1* g6	l_1	b	d_2 k6	l_2	d_3	d_4	l_4	d_5	l_5	d_6	l_6	g
36240.W0220	Cylindrical	6*	7	-	4	6	-	-	4	2,1	-	M2,0	-	1,2
36240.W0221	Cylindrical	6*	12	-	4	6	-	-	4	2,1	-	M2,0	-	2,0
36240.W0222	Cylindrical	8	10	-	6	9	M 3	-	6	2,6	-	M2,5	10	3,9
36240.W0223	Cylindrical	8	16	-	6	9	M 3	-	6	2,6	-	M2,5	10	6,6
36240.W0224	Cylindrical	10	10	-	6	9	M 3	5,0	6	2,6	2,6	M2,5	10	5,9
36240.W0225	Cylindrical	10	18	-	6	9	M 3	5,0	6	2,6	2,6	M2,5	10	8,5
36240.W0226	Cylindrical	12	10	-	6	9	M 3	5,0	6	2,6	2,6	M2,5	10	8,4
36240.W0227	Cylindrical	12	18	-	6	9	M 3	5,0	6	2,6	2,6	M2,5	10	10,5
36240.W0228	Cylindrical	16	13	-	8	12	M 4	6,5	8	3,3	3,1	M3,0	13	19,5
36240.W0229	Cylindrical	16	22	-	8	12	M 4	6,5	8	3,3	3,1	M3,0	13	27,7
36240.W0230	Cylindrical	20	15	-	12	18	M 6	10,0	9	5,2	5,1	M5,0	19	39,5
36240.W0231	Cylindrical	20	25	-	12	18	M 6	10,0	9	5,2	5,1	M5,0	19	53,5
36240.W0232	Cylindrical	25	15	-	12	18	M 6	10,0	9	5,2	5,1	M5,0	19	57,5
36240.W0233	Cylindrical	25	25	-	12	18	M 6	10,0	9	5,2	5,1	M5,0	19	87,5
36240.W0240	Flattened	6*	7	1,0	4	6	-	-	4	2,1	-	M2,0	-	0,7
36240.W0241	Flattened	6*	12	1,0	4	6	-	-	4	2,1	-	M2,0	-	0,9
36240.W0242	Flattened	8	10	1,6	6	9	M 3	-	6	2,6	-	M2,5	10	2,9
36240.W0243	Flattened	8	16	1,6	6	9	M 3	-	6	2,6	-	M2,5	10	4,1
36240.W0244	Flattened	10	10	2,5	6	9	M 3	5,0	6	2,6	2,6	M2,5	10	4,5
36240.W0245	Flattened	10	18	2,5	6	9	M 3	5,0	6	2,6	2,6	M2,5	10	7,4
36240.W0246	Flattened	12	10	2,5	6	9	M 3	5,0	6	2,6	2,6	M2,5	10	5,9
36240.W0247	Flattened	12	18	2,5	6	9	M 3	5,0	6	2,6	2,6	M2,5	10	9,8
36240.W0248	Flattened	16	13	3,5	8	12	M 4	6,5	8	3,3	3,1	M3,0	13	14,5
36240.W0249	Flattened	16	22	3,5	8	12	M 4	6,5	8	3,3	3,1	M3,0	13	22,2
36240.W0250	Flattened	20	15	5,0	12	18	M 6	10,0	9	5,2	5,1	M5,0	19	30,3
36240.W0251	Flattened	20	25	5,0	12	18	M 6	10,0	9	5,2	5,1	M5,0	19	43,9
36240.W0252	Flattened	25	15	5,0	12	18	M 6	10,0	9	5,2	5,1	M5,0	19	40,6
36240.W0253	Flattened	25	25	5,0	12	18	M 6	10,0	9	5,2	5,1	M5,0	19	61,7

Material
Case hardened steel, blackened and ground.

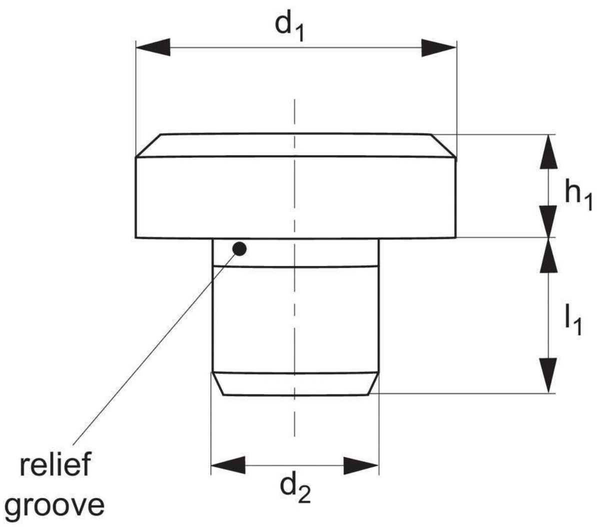
Technical Notes
Cylindrical locating pins for locating work pieces in toleranced holes and also to be used as stops and feet.
Flattened locating pins used to overcome differences in tolerances, between holes or to position an element in one direction only.
Outer dimensions similar to DIN 63210.
For additional safety these parts can be secured to the jig from above, see dimension d_6 for cap screw size, or from below, see dimension d_3 for thread size.
*** size d_1 = 6, can only be fixed from above.**
Suggested hole tolerance for shaft d_2, is a hole to H7.

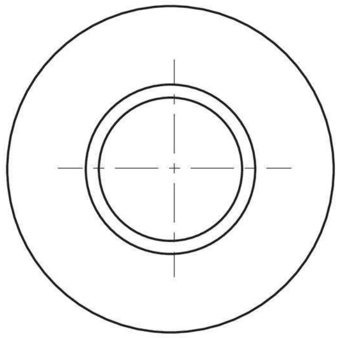




Seating Pins

36300

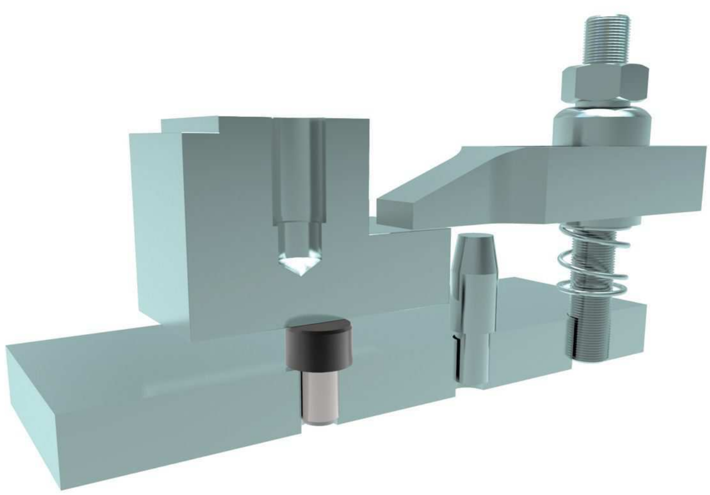


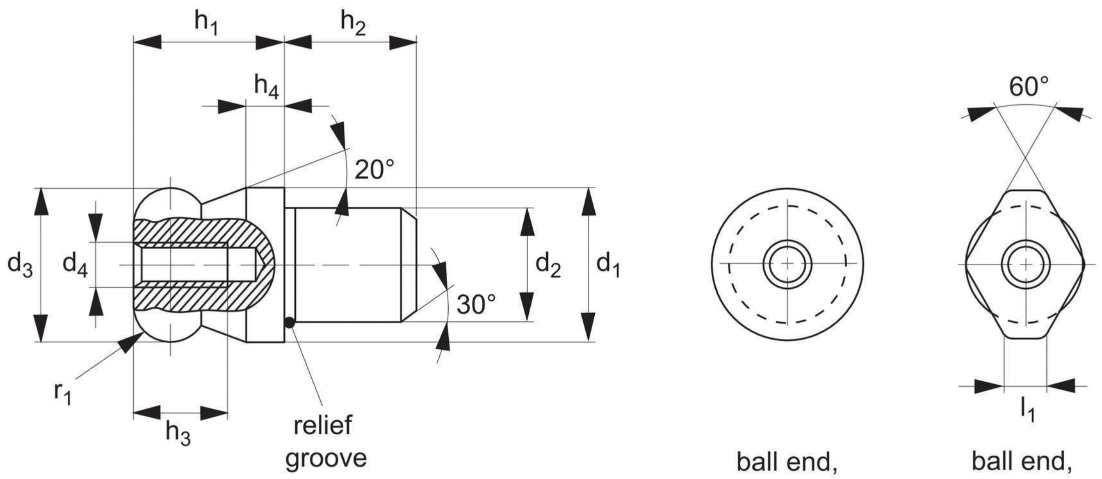


Material
Tool steel (DIN 6321), hardened and ground.

Technical Notes
Bearing surface without centering.
Seating pins serve as bearing surfaces for tools and jigs.
Suggested hole tolerance for shaft d_2 is a hole to N6.

Order No.	Type	d_1	d_2 tol. N6	Location hole $=d_2$ to tol. H7	l_1	h_1 tol. H9	g
36300.W0001	DIN 6321 Standard	6	4	4	6,0	5,0	1,8
36300.W0002	DIN 6321 Standard	10	6	6	8,0	8,0	6,5
36300.W0003	DIN 6321 Standard	16	8	8	10,0	5,0	11
36300.W0004	DIN 6321 Standard	16	8	8	10,0	13,0	24
36300.W0005	DIN 6321 Standard	25	12	12	14,0	8,0	41
36300.W0006	DIN 6321 Standard	25	12	12	14,0	20,0	88
36300.W0007	DIN 6321 Standard	40	20	20	20,0	13,0	171
36300.W0008	DIN 6321 Standard	40	20	20	20,0	32,0	358
36300.W0110	Intermediate Sizes	6	4	4	6,5	2,5	1,2
36300.W0112	Intermediate Sizes	6	4	4	8,5	4,5	1,9
36300.W0116	Intermediate Sizes	8	5	5	8,0	4,0	3,1
36300.W0118	Intermediate Sizes	8	5	5	8,0	7,0	4,2
36300.W0120	Intermediate Sizes	10	6	6	8,5	4,5	4,4
36300.W0124	Intermediate Sizes	12	6	6	10,0	6,0	7,6
36300.W0126	Intermediate Sizes	12	6	6	10,0	10,0	11
36300.W0130	Intermediate Sizes	20	10	10	12,0	6,0	21
36300.W0132	Intermediate Sizes	20	10	10	12,0	12,0	36
36300.W0135	Intermediate Sizes	25	12	12	14,0	30,0	125
36300.W0137	Intermediate Sizes	30	16	16	20,0	25,0	164
36300.W0140	Intermediate Sizes	30	16	16	20,0	40,0	248
36300.W0144	Intermediate Sizes	30	16	16	20,0	50,0	305
36300.W0148	Intermediate Sizes	30	16	16	20,0	65,0	385
36300.W0152	Intermediate Sizes	30	20	20	20,0	80,0	485
36300.W0156	Intermediate Sizes	30	20	20	20,0	100,0	594





ball end, plain

ball end, flattened

Order No.	Material	Type	d_1 tol. g6	d_2 tol. n6	d_3 -0,01 -0,05	d_4	h_1	h_2	h_3	h_4	l_1	r_1	g
36340.W0310	Steel	Plain	10	7	10	M 3	10	7	6	2,5	-	2,5	7
36340.W0312	Steel	Plain	12	8	12	M 4	12	8	8	3,0	-	3,0	11
36340.W0316	Steel	Plain	16	12	16	M 5	16	12	10	4,0	-	4,0	30
36340.W0320	Steel	Plain	20	14	20	M 5	20	14	10	5,0	-	5,0	57
36340.W0322	Steel	Plain	22	16	22	M 5	22	16	10	5,5	-	5,5	79
36340.W0325	Steel	Plain	25	18	25	M 5	25	18	10	6,0	-	6,0	116
36340.W0410	Steel	Flattened	10	7	10	M 3	10	7	6	2,5	2,5	2,5	5
36340.W0412	Steel	Flattened	12	8	12	M 4	12	8	8	3,0	2,5	3,0	8
36340.W0416	Steel	Flattened	16	12	16	M 5	16	12	10	4,0	4,3	4,0	23
36340.W0420	Steel	Flattened	20	14	20	M 5	20	14	10	5,0	5,0	5,0	45
36340.W0422	Steel	Flattened	22	16	22	M 5	22	16	10	5,5	5,0	5,5	62
36340.W0425	Steel	Flattened	25	18	25	M 5	25	18	10	6,0	5,6	6,0	91
36340.W0350	Stainless	Plain	10	7	10	M 3	10	7	6	2,5	-	2,5	7
36340.W0352	Stainless	Plain	12	8	12	M 4	12	8	8	3,0	-	3,0	11
36340.W0356	Stainless	Plain	16	12	16	M 5	16	12	10	4,0	-	4,0	30
36340.W0360	Stainless	Plain	20	14	20	M 5	20	14	10	5,0	-	5,0	57
36340.W0450	Stainless	Flattened	10	7	10	M 3	10	7	6	2,5	2,5	2,5	5
36340.W0452	Stainless	Flattened	12	8	12	M 4	12	8	8	3,0	2,5	3,0	8
36340.W0456	Stainless	Flattened	16	12	16	M 5	16	12	10	4,0	4,3	4,0	23
36340.W0460	Stainless	Flattened	20	14	20	M 5	20	14	10	5,0	5,0	5,0	45

Material

Steel type:
Tool steel, hardened, blackened and ground.

Stainless steel type:
Stainless steel (AISI 303, 1.4305), ground, surface heat-treated.

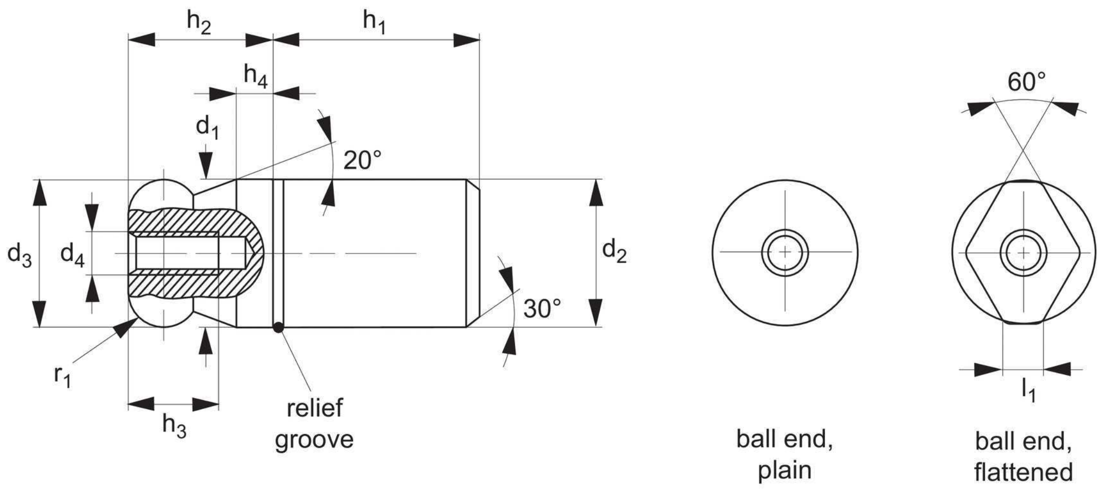
Technical Notes

Ball ended straight pins facilitate inserting workpieces and avoid clamping inclination.
Suggested installation is a hole = d_2 H7 tolerance.

Location Pins - Non-Stepped

ball end

36341



Order No.	Material	Type	d_1 tol. g6	d_2 tol. n6	d_3 -0,01 -0,05	d_4	h_1	h_2	h_3	h_4	l_1	r_1	g
36341.W0508	Steel	Plain	8	8	8	M 3	10	8	6	2,0	-	2,0	6
36341.W0510	Steel	Plain	10	10	10	M 3	13	10	6	2,5	-	2,5	12
36341.W0512	Steel	Plain	12	12	12	M 4	15	12	8	3,0	-	3,0	21
36341.W0516	Steel	Plain	16	16	16	M 5	20	16	10	4,0	-	4,0	51
36341.W0520	Steel	Plain	20	20	20	M 5	25	20	10	5,0	-	5,0	101
36341.W0525	Steel	Plain	25	25	25	M 5	25	25	10	6,0	-	6,0	176
36341.W0530	Steel	Plain	30	30	30	M 6	30	30	12	8,0	-	8,0	307
36341.W0540	Steel	Plain	40	40	40	M 6	40	40	12	10,0	-	10,0	729
36341.W0550	Steel	Plain	50	50	50	M 6	50	50	12	12,0	-	12,0	1422
36341.W0608	Steel	Flattened	8	8	8	M 3	10	8	6	2,0	1,9	2,0	5
36341.W0610	Steel	Flattened	10	10	10	M 3	13	10	6	2,5	2,5	2,5	11
36341.W0612	Steel	Flattened	12	12	12	M 4	15	12	8	3,0	2,5	3,0	17
36341.W0616	Steel	Flattened	16	16	16	M 5	20	16	10	4,0	4,3	4,0	44
36341.W0620	Steel	Flattened	20	20	20	M 5	25	20	10	5,0	5,0	5,0	88
36341.W0625	Steel	Flattened	25	25	25	M 5	25	25	10	6,0	5,6	6,0	149
36341.W0630	Steel	Flattened	30	30	30	M 6	30	30	12	8,0	8,8	8,0	270
36341.W0640	Steel	Flattened	40	40	40	M 6	40	40	12	10,0	12,8	10,0	657
36341.W0650	Steel	Flattened	50	50	50	M 6	50	50	12	12,0	16,7	12,0	1243
36341.W0568	Stainless	Plain	8	8	8	M 3	10	8	6	2,0	-	2,0	6
36341.W0570	Stainless	Plain	10	10	10	M 3	13	10	6	2,5	-	2,5	12
36341.W0572	Stainless	Plain	12	12	12	M 4	15	12	8	3,0	-	3,0	21
36341.W0576	Stainless	Plain	16	16	16	M 5	20	16	10	4,0	-	4,0	51
36341.W0580	Stainless	Plain	20	20	20	M 5	25	20	10	5,0	-	5,0	101
36341.W0668	Stainless	Flattened	8	8	8	M 3	10	8	6	2,0	1,9	2,0	5
36341.W0670	Stainless	Flattened	10	10	10	M 3	13	10	6	2,5	2,5	2,5	11
36341.W0672	Stainless	Flattened	12	12	12	M 4	15	12	8	3,0	2,5	3,0	17
36341.W0676	Stainless	Flattened	16	16	16	M 5	20	16	10	4,0	4,3	4,0	44
36341.W0680	Stainless	Flattened	20	20	20	M 5	25	20	10	5,0	5,0	5,0	88

Material

Steel type:
Tool steel, hardened, ground, blackened.

Stainless steel type:
Stainless steel 1.4305 (AISI 303), ground, surface heat-treated.

Technical Notes

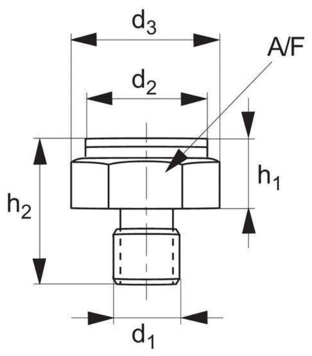
Ball ended straight pins facilitate inserting workpieces and avoid clamping inclination.
Suggested installation is a hole = d_2 H7 tolerance.

STAINLESS STEEL 303

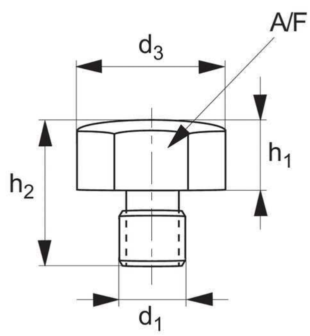
Threaded Rest Buttons

male thread

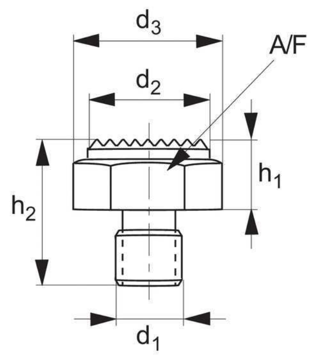
36401



flat, male



spherical, male



ribbed, male

Order No.	Type	d_1	d_2	d_3	h_1	h_2	A/F	Torque to max. Nm.	g
36401.W0021	Flat Face	M 8	17	19,4	10	20	17	18	21
36401.W0031	Flat Face	M10	19	21,9	10	22	19	32	28
36401.W0032	Flat Face	M10	19	21,9	15	27	19	32	40
36401.W0001	Flat Face	M12	22	25,2	10	24	22	60	34
36401.W0002	Flat Face	M12	22	25,2	15	29	22	60	56
36401.W0042	Flat Face	M16	30	33,0	15	34	30	140	110
36401.W0043	Flat Face	M16	30	33,0	20	39	30	140	140
36401.W0052	Flat Face	M20	36	40,0	20	44	36	290	214
36401.W0053	Flat Face	M20	36	40,0	25	49	36	290	257
36401.W0062	Flat Face	M24	41	46,0	20	49	41	498	300
36401.W0063	Flat Face	M24	41	46,0	25	54	41	498	356
36401.W0064	Flat Face	M24	41	46,0	30	59	41	498	412
36401.W0121	Spherical Face	M 8	-	19,4	10	20	17	18	20
36401.W0131	Spherical Face	M10	-	21,9	10	22	19	32	30
36401.W0132	Spherical Face	M10	-	21,9	15	27	19	32	40
36401.W0101	Spherical Face	M12	-	25,2	10	24	22	60	38
36401.W0102	Spherical Face	M12	-	25,2	15	29	22	60	53
36401.W0142	Spherical Face	M16	-	33,0	15	34	30	140	105
36401.W0143	Spherical Face	M16	-	33,0	20	39	30	140	135
36401.W0152	Spherical Face	M20	-	40,0	20	44	36	290	206
36401.W0153	Spherical Face	M20	-	40,0	25	49	36	290	249
36401.W0162	Spherical Face	M24	-	46,0	20	49	41	498	258
36401.W0163	Spherical Face	M24	-	46,0	25	54	41	498	342
36401.W0164	Spherical Face	M24	-	46,0	30	59	41	498	398
36401.W0221	Ribbed Face	M 8	17	19,4	10	20	17	18	21
36401.W0231	Ribbed Face	M10	19	21,9	10	22	19	32	30
36401.W0232	Ribbed Face	M10	19	21,9	15	27	19	32	41
36401.W0201	Ribbed Face	M12	22	25,2	10	24	22	60	38
36401.W0202	Ribbed Face	M12	22	25,2	15	29	22	60	54
36401.W0242	Ribbed Face	M16	30	33,0	15	34	30	140	106
36401.W0243	Ribbed Face	M16	30	33,0	20	39	30	140	136
36401.W0252	Ribbed Face	M20	36	40,0	20	44	36	290	206
36401.W0253	Ribbed Face	M20	36	40,0	25	49	36	290	253
36401.W0262	Ribbed Face	M24	41	46,0	20	49	41	498	297
36401.W0263	Ribbed Face	M24	41	46,0	25	54	41	498	353
36401.W0264	Ribbed Face	M24	41	46,0	30	59	41	498	410

Material

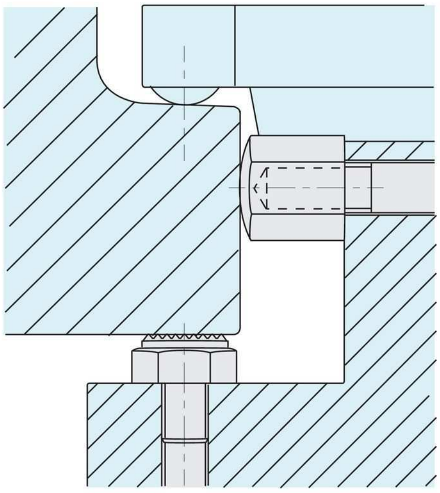
Free-cutting steel, case-hardened and blackened. Thread not hardened.

Technical Notes

The buttons are used as seats, stops and thrust pads in jigs and fixtures as well as machine and equipment design. Dimension h_1 tolerance of ±0,01 for flat face type only, other types have h_1 tolerance of ±0,1. Stated starting torque for female thread is based on use of bolt of strength class 8 or greater and with full engagement of female thread.

Tips

For female thread see 36402.



Material
Free-cutting steel, case-hardened and blackened. Thread not hardened.

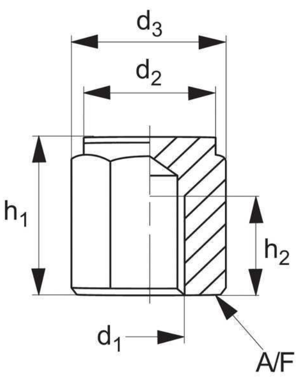
Technical Notes
The buttons are used as seats, stops and thrust pads in jigs and fixtures as well as machine and equipment design. Dimension h_1 tolerance of ±0,01 for flat face type only, other types have h_1 tolerance of ±0,1. Stated starting torque for female thread is based on use of bolt of strength class 8 or greater and with full engagement of female thread.

Tips
For female thread see 36402.

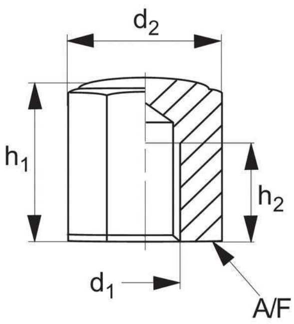
Threaded Rest Buttons

female thread

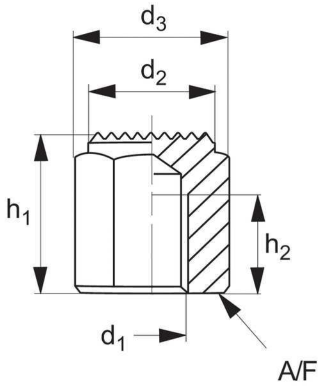
36402



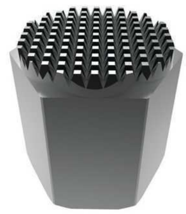
flat, female



spherical, female



ribbed, female



Order No.	Type	d_1	d_2	d_3	h_1	h_2	A/F	Torque to max. Nm.	g
36402.W0321	Flat Face	M 8	17	19,4	15	6	17	25	25
36402.W0323	Flat Face	M 8	17	19,4	25	12	17	25	42
36402.W0333	Flat Face	M10	19	21,9	20	10	19	46	40
36402.W0335	Flat Face	M10	19	21,9	30	15	19	46	61
36402.W0337	Flat Face	M10	19	21,9	40	15	19	46	85
36402.W0301	Flat Face	M12	22	25,2	20	10	22	82	52
36402.W0302	Flat Face	M12	22	25,2	25	15	22	82	65
36402.W0303	Flat Face	M12	22	25,2	30	18	22	82	79
36402.W0304	Flat Face	M12	22	25,2	40	18	22	82	111
36402.W0305	Flat Face	M12	22	25,2	50	18	22	82	142
36402.W0343	Flat Face	M16	30	33,0	30	20	30	206	140
36402.W0345	Flat Face	M16	30	33,0	50	24	30	206	257
36402.W0353	Flat Face	M20	36	40,0	40	26	36	407	279
36402.W0355	Flat Face	M20	36	40,0	60	38	36	407	431
36402.W0363	Flat Face	M24	41	46,0	40	26	41	698	341
36402.W0365	Flat Face	M24	41	46,0	60	38	41	698	530
36402.W0421	Spherical Face	M 8	-	19,4	15	6	17	25	23
36402.W0423	Spherical Face	M 8	-	19,4	25	12	17	25	41
36402.W0433	Spherical Face	M10	-	21,9	20	10	19	46	38
36402.W0435	Spherical Face	M10	-	21,9	30	15	19	46	60
36402.W0437	Spherical Face	M10	-	21,9	40	15	19	46	84
36402.W0401	Spherical Face	M12	-	25,2	20	10	22	82	50
36402.W0402	Spherical Face	M12	-	25,2	25	15	22	82	62
36402.W0403	Spherical Face	M12	-	25,2	30	18	22	82	76
36402.W0404	Spherical Face	M12	-	25,2	40	18	22	82	109
36402.W0405	Spherical Face	M12	-	25,2	50	18	22	82	141
36402.W0443	Spherical Face	M16	-	33,0	30	20	30	206	136
36402.W0445	Spherical Face	M16	-	33,0	50	24	30	206	252
36402.W0453	Spherical Face	M20	-	40,0	40	26	36	407	272
36402.W0455	Spherical Face	M20	-	40,0	60	38	36	407	423
36402.W0463	Spherical Face	M24	-	46,0	40	26	41	698	340
36402.W0465	Spherical Face	M24	-	46,0	60	38	41	698	530
36402.W0521	Ribbed Face	M 8	17	19,4	15	6	17	25	24
36402.W0523	Ribbed Face	M 8	17	19,4	25	12	17	25	41
36402.W0533	Ribbed Face	M10	19	21,9	20	10	19	46	38
36402.W0535	Ribbed Face	M10	19	21,9	30	15	19	46	60
36402.W0537	Ribbed Face	M10	19	21,9	40	15	19	46	84
36402.W0501	Ribbed Face	M12	22	25,2	20	10	22	82	50
36402.W0502	Ribbed Face	M12	22	25,2	25	15	22	82	63
36402.W0503	Ribbed Face	M12	22	25,2	30	18	22	82	77
36402.W0504	Ribbed Face	M12	22	25,2	40	18	22	82	109
36402.W0505	Ribbed Face	M12	22	25,2	50	18	22	82	141
36402.W0543	Ribbed Face	M16	30	33,0	30	20	30	206	137
36402.W0545	Ribbed Face	M16	30	33,0	50	24	30	206	254
36402.W0553	Ribbed Face	M20	36	40,0	40	26	36	407	266
36402.W0555	Ribbed Face	M20	36	40,0	60	38	36	407	418
36402.W0563	Ribbed Face	M24	41	46,0	40	26	41	698	338
36402.W0565	Ribbed Face	M24	41	46,0	60	38	41	698	528

Material

Free-cutting steel, case-hardened and blackened. Thread not hardened.

Technical Notes

The buttons are used as seats, stops and thrust pads in jigs and fixtures as well as machine and equipment design. Dimension h_1 tolerance of ±0,01 for flat face type only, other types have h_1 tolerance of ±0,1. Stated starting torque for female thread is based on use of bolt strength class 8 or greater and with full engagement of female thread.

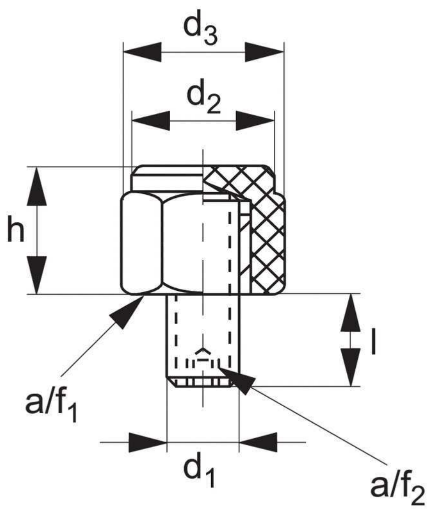
Tips

For male thread see 36401.

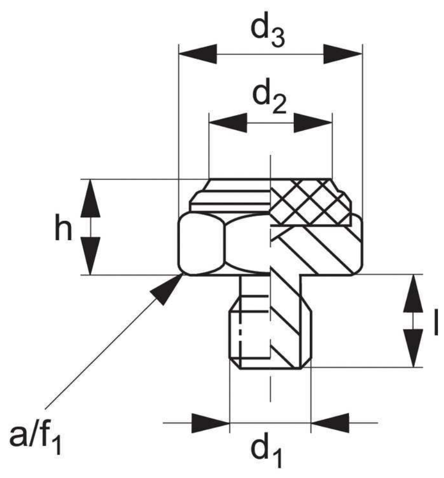
Screwed Rest Buttons - Plastic

male thread

36403



Type One



Type Two

Material
Body: stainless steel 1.4305
Pad: plastic (PEEK), blue

Technical Notes
The buttons are used as seats, stops, supports and thrust pads in jigs and fixtures as well as machine and equipment design.
Temperature range -60 to +250°C.

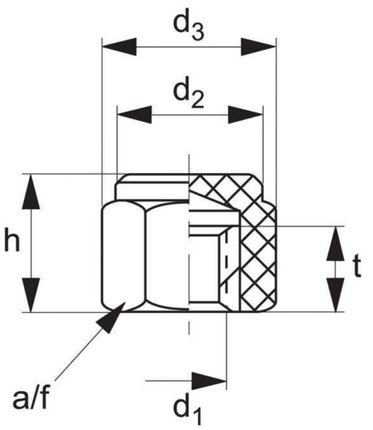
Tips
For female thread see 36404.

Order No.	Type	h +/-0.1	d_1	d_2	d_3	l	a/f_1	a/f_2	Static Load max. kN	Tighteni ng Torque max. Nm	g
36403.W0122	One	15	M 8	17,0	19,0	8	17	4	2,1	10	12
36403.W0133	One	20	M10	19,0	21,5	10	19	5	2,4	10	18
36403.W0143	One	20	M12	22,0	25,0	14	22	6	3,4	10	24
36403.W0021	Two	10	M 8	12,5	19,4	10	17	-	2,8	18	15
36403.W0031	Two	10	M10	14,5	21,9	12	19	-	3,8	2	21
36403.W0032	Two	15	M10	14,5	21,9	12	19	-	3,8	32	33
36403.W0041	Two	10	M12	17,5	25,2	14	22	-	5,5	60	30
36403.W0042	Two	15	M12	17,5	25,2	14	22	-	5,5	60	46

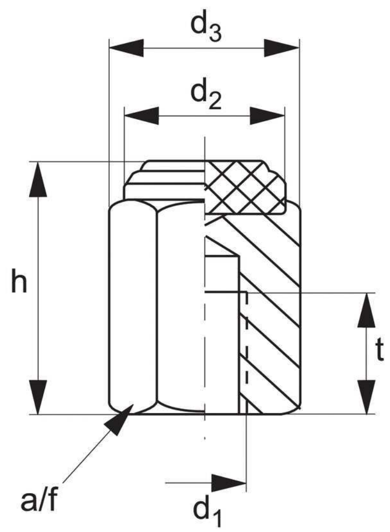
Screwed Rest Buttons - Plastic

female thread

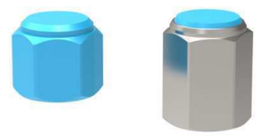
36404



Type One



Type Two

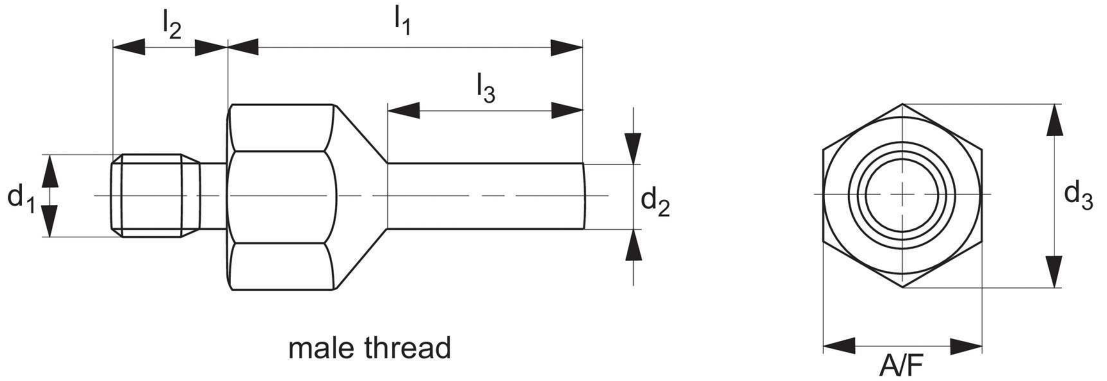


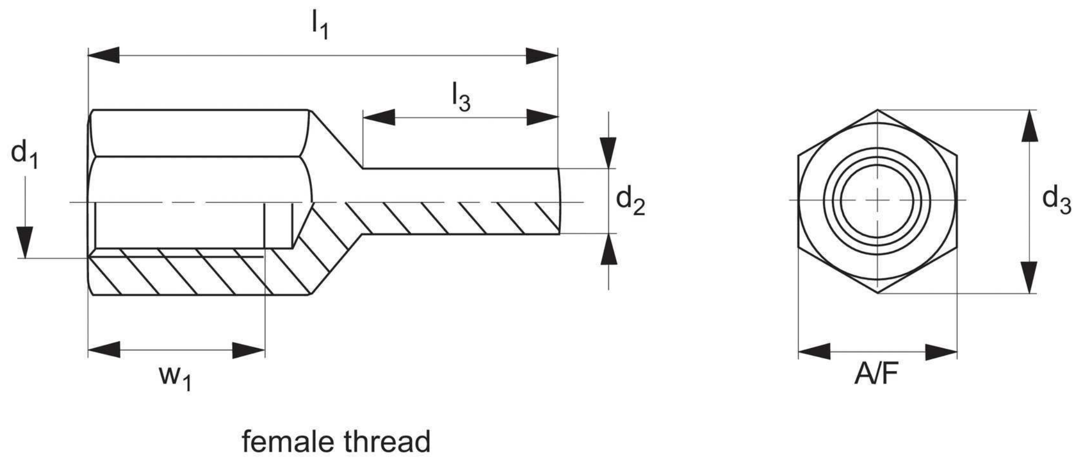
Material
Body: stainless steel 1.4305
Pad: plastic (PEEK), blue

Technical Notes
The buttons are used as seats, stops, supports and thrust pads in jigs and fixtures as well as machine and equipment design.
Stated starting torque for female thread is based on use of bolt strength class 8 or greater, and with full engagement of female thread.
Temperature range -60 to +250°C.

Tips
For male thread see 36403.

Order No.	Type	h_1 ±0,1	d_1	d_2	d_3	t_1	A/F_1	Static Load kN.	Tightening Torque max. Nm.	g
36404.W0222	One	15	M 8	17,0	19,0	9	-	2,1	10	7
36404.W0233	One	20	M10	19,0	21,5	10	-	2,4	10	11
36404.W0243	One	20	M12	22,0	25,0	12	-	3,4	10	16
36404.W0324	Two	25	M 8	12,5	19,4	12	17	2,8	18	36
36404.W0335	Two	30	M10	14,5	21,9	15	19	3,8	32	54
36404.W0345	Two	30	M12	17,5	25,2	18	22	5,5	60	71

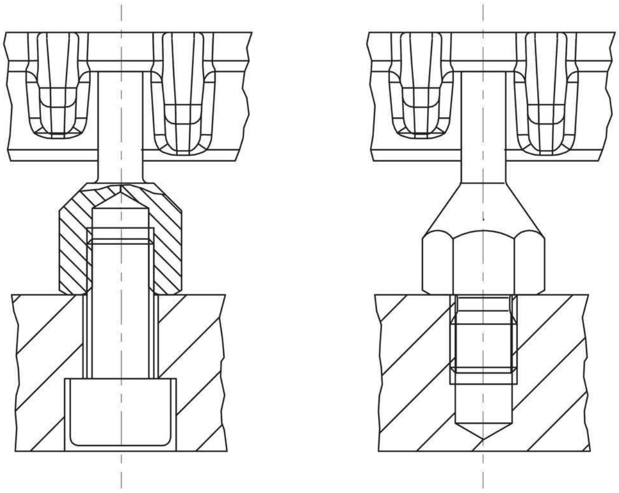




Material
Heat-treated steel, blackened. Surface induction hardened and ground.

Technical Notes
To be used as solid and precise seat and stop. The pin-shaped form of this locating pin allows an application in components with narrow seating points.

Order No.	Finish	d_1	l_1 ±0,01	d_2	d_3	l_2	l_3	w_1	A/F	Torque to max. Nm.	g
36440.W0402	Male Thread	M 6	20	4	11,0	8	10,0	-	10	7	8
36440.W0404	Male Thread	M 6	30	4	11,0	8	15,0	-	10	7	12
36440.W0412	Male Thread	M 8	30	4	14,4	10	15,0	-	13	18	17
36440.W0414	Male Thread	M 8	40	4	14,4	10	20,0	-	13	18	23
36440.W0416	Male Thread	M 8	30	6	14,4	10	15,0	-	13	18	20
36440.W0418	Male Thread	M 8	40	6	14,4	10	20,0	-	13	18	27
36440.W0422	Male Thread	M10	30	6	19,0	14	15,0	-	17	32	30
36440.W0424	Male Thread	M10	50	6	19,0	14	25,0	-	17	32	51
36440.W0426	Male Thread	M10	30	8	19,0	14	15,0	-	17	32	35
36440.W0428	Male Thread	M10	50	8	19,0	14	25,0	-	17	32	58
36440.W0432	Male Thread	M12	40	6	21,2	14	20,0	-	19	60	48
36440.W0434	Male Thread	M12	60	6	21,2	14	30,0	-	19	60	75
36440.W0436	Male Thread	M12	40	8	21,2	14	20,0	-	19	60	56
36440.W0438	Male Thread	M12	60	8	21,2	14	30,0	-	19	60	83
36440.W0452	Female Thread	M 6	20	4	11,0	-	8,5	6	10	7	6
36440.W0454	Female Thread	M 6	30	4	11,0	-	13,5	9	10	7	9
36440.W0462	Female Thread	M 8	30	4	14,4	-	13,0	10	13	18	13
36440.W0464	Female Thread	M 8	40	4	14,4	-	18,0	14	13	18	18
36440.W0466	Female Thread	M 8	30	6	14,4	-	13,0	10	13	18	16
36440.W0468	Female Thread	M 8	40	6	14,4	-	18,0	14	13	18	21
36440.W0472	Female Thread	M10	30	6	19,0	-	12,0	10	17	32	24
36440.W0474	Female Thread	M10	50	6	19,0	-	25,0	15	17	32	38
36440.W0476	Female Thread	M10	30	8	19,0	-	12,0	10	17	32	28
36440.W0478	Female Thread	M10	50	8	19,0	-	25,0	15	17	32	44
36440.W0482	Female Thread	M12	40	6	21,2	-	18,0	12	19	60	36
36440.W0484	Female Thread	M12	60	6	21,2	-	28,0	18	19	60	56
36440.W0486	Female Thread	M12	40	8	21,2	-	18,0	12	19	60	41
36440.W0488	Female Thread	M12	60	8	21,2	-	28,0	18	19	60	63

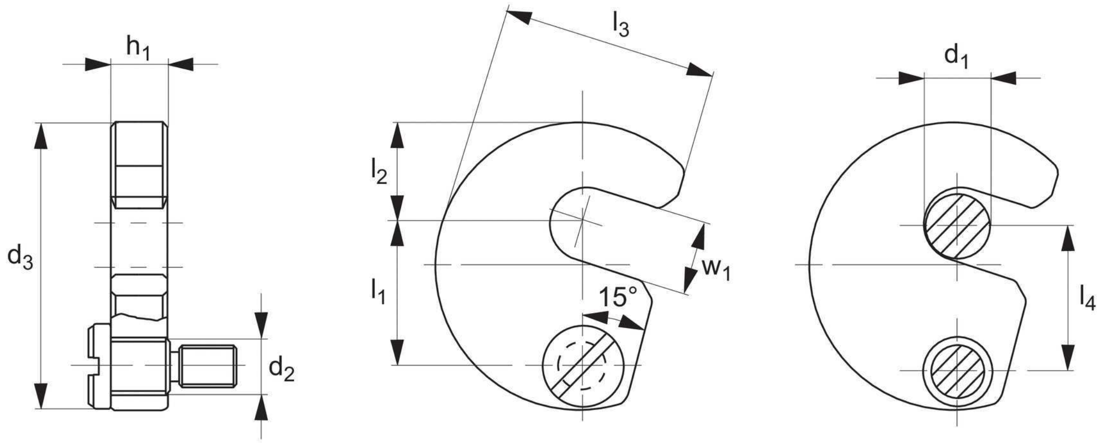


Material
Heat-treated steel, blackened.
Surface induction hardened and ground.

Technical Notes
To be used as solid and precise seat and stop. The pin-shaped form of this locating pin allows an application in components with narrow seating points.

Captive C Washers
shoulder bolt

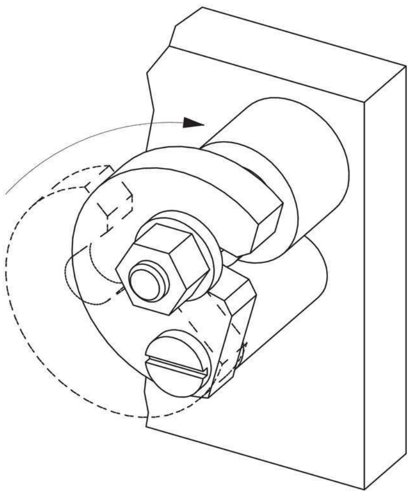
36620



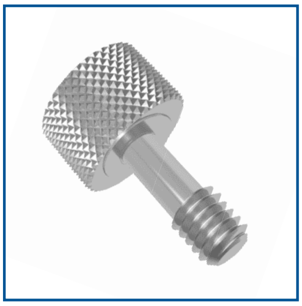
Material
Heat-treated steel (DIN 6371), blackened and tempered.
Shoulder bolt: steel, strength class 5.8, blackened.

Technical Notes
Shoulder bolt no. 36700 (DIN 923) provided.

Order No.	Size	d_1	d_2	d_3	h_1 -0,2	l_1	l_2	l_3	l_4	w_1	Matching screw DIN 923	g
36620.W0006	6	6	9	38	9,8	19,6	11	29,0	19	7,5	M 6x10	66
36620.W0008	8	8	9	43	9,8	21,6	14	32,5	21	9,5	M 6x10	81
36620.W0010	10	10	9	48	9,8	23,6	17	36,5	23	11,5	M 6x10	99
36620.W0012	12	12	11	61	11,8	29,6	22	45,0	29	13,5	M 8x12	194
36620.W0016	16	16	11	68	11,8	33,6	25	50,0	33	17,5	M 8x12	229
36620.W0020	20	20	11	74	11,8	36,6	28	55,0	36	21,5	M 8x12	265
36620.W0024	24	24	11	82	15,8	40,6	32	62,0	40	25,5	M 8x16	430
36620.W0030	30	30	11	97	15,8	49,0	39	73,0	48	32,0	M 8x16	584



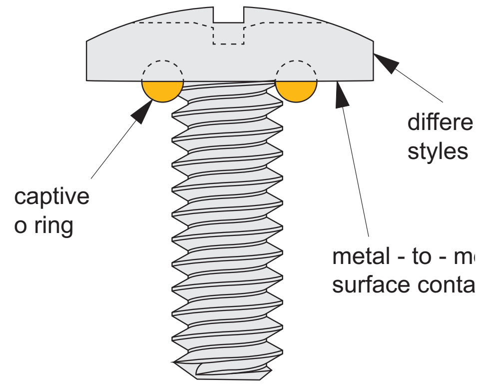
Wixroyd



Captive & Sealing Screws

Wixroyd Sealing Screws

why use a sealing screw?



our most popular sealing screw type is the
pan head style with Phillips® drive.

Why use sealing screws?

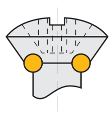
An ordinary screw lacks seal protection, allowing dirt, fluids, gases etc to infiltrate and damage sensitive devices. Sealing screws provide bi-directional sealing protection to systems where screws are used, to protect them against dirt, chemicals, water or other contaminates, which (without the screw seal), may penetrate and cause damage, or alternatively where gases and liquids may leak out.

Sealing screws are designed and manufactured with a precision engineered groove beneath the head of the fastener to accomodate the integral O-ring. As the fastener is tightened, the O-ring is compressed, squeezing it between the groove and mating surface to complete the seal. The design of the groove controls the amount of compression of the O-ring, and because O-rings retain their elastic memory, the screws are reusable time after time.

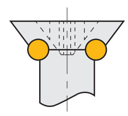
The seal provides bi-directional sealing which provides a total barrier seal against internal or external conditions (water, fluids, chemicals, dirt, air, contaminants etc) which could otherwise penetrate and damage systems. The screws are very easy to use and do not need any special preparation or re-tightening.

There are a range of O-ring materials that can resist virtually all chemical and environmental conditions. We can also provide sealing screws (on request) to military specifications (MILSPEC).

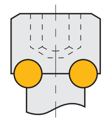
Sealing screw heads



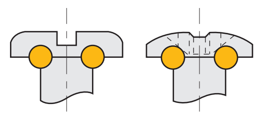
oval undercut



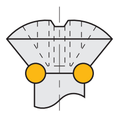
flat undercut - 90°



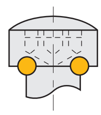
socket head



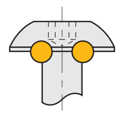
pan



oval



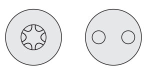
fillister



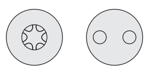
socket button

Ordering options

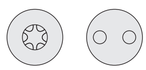
36630 - Pan head - Phillips® Security and Torx® options

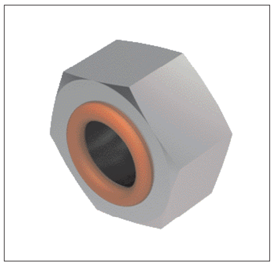


36631 - Button Hex-head Security and Torx® options



36633 - Socket Head Security and Torx® options





36636 - Hexagon Nut

Optimal performance

Self-sealing screw

When using self-sealing screws a high pressure seal is formed along the thread's contact surface when torqued.

If possible, and to ensure maximum sealing performance, we recommend a clearance hole (see table below), this creates room for the O-ring to flow into.

The aim is to ensure full metal-to-metal contact between the underside of the fastener and the mounting surface.

If a clearance hole cannot be utilized, the O-ring will still function as it will compress to fill the gap between the male and female surfaces.

We also have a range of sealing nuts to complement our range of sealing screws. These sealing nuts often eliminate the need for gaskets, compounds and surface preparation. They are widely used in the hydraulic, pneumatic or fuel systems industries.

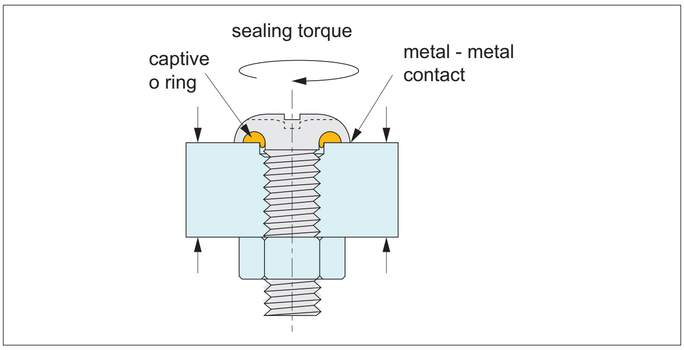
They are invaluable when a vacuum needs to be created and provide a complete seal when gaseous or liquid pressure is a factor. Domed nuts are self-sealing and provide exceptional vibration resistance.

Applications

Some of the typical applications for our sealing screws include:

- Motors
- Cabinets and enclosures
- Sensors and instrumentation
- Internal combustion engines
- Gear pumps
- Fuel tanks
- Transmissions
- Gear boxes
- Air cylinders
- Pressure gauges
- Computer disk drives
- Motion control valves
- Missile tanks
- Wet wings

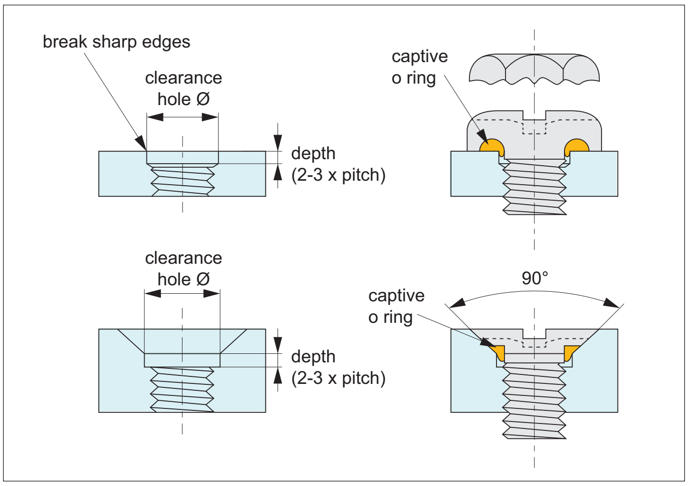
Installation torque



Thread Size	Standard Installation Torque
M3	0.6 Nm
M3.5	1.0 Nm
M4	2.2 Nm
M5	2.5 Nm
M6	8.5 Nm
M8	16 Nm
M10	30 Nm

Clearance hole Ø - recommended

Nom. Size	Max clearance hole Ø
M2	2,437
M2,5	2,946
M3	3,454
M3,5	3,656
M4	4,546
M5	5,562
M6	6,655
M8	9,041
M10	11,048
M12	14,045
M14	16,051
M16	18,057



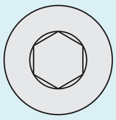
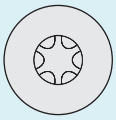
For optimal seal screw performance we recommend creating a clearance hole in the panel into which the O-ring can be fitted. This causes the O-ring to create a complete seal, and the clearance hole thus prevents extrusion into the metal when the screw is under pressure.

ov-36630-36630-b - Updated - 10-01-2017

Wixroyd Sealing Screws

drive types and o ring selection

Drive types

Schematic	Drive Types	Uses
	Hexagonal recess	Ideal for precision assembly. Most recommended where less surface area is available.
	Cross Drive (Phillips®)	Most recommended drive type. Provides good control in driving. Always use a driver bit of the proper size which is in good condition.
	Star drive (Torx®)	Positive-engaging, fast-locating method which transmits drive torque with less required downward pressure. Good fastening appearance.
	Security	These screws are impossible to remove without the special matching screwdriver.

We can provide Torx® heads and security/tamper-proof screws, as well as special threads, grooves and cross holes for safety wires, and a further range of styles such as captive screws, anti-vibration strips on the threads etc (for extreme vibration applications).

O ring selection

Standard O rings are red silicone, but a further five O ring material types are readily available. The main factor to consider when selecting an O ring type is the environment in which it will be placed, and the temperature range it will be subjected to.

Material	Notes
Silicone (SI)	Our standard O ring type with a wide temperature range -60°C to +200°C. Resistant to moderate or oxidising chemical, but not generally oil or solvent resistant.
Fluorosilicone (FS)	Widely used in the automotive and aerospace industries as it has excellent resistance to fuel, oil and solvents. Standard temperature range -50°C to +170°C.
EPDM (EP)	These O rings are very suited for outdoor environments and are good for weather and water resistant applications having excellent ozone, steam and chemical resistance. Temperature range -50°C to +110°C.
Viton-fluorocarbon (VI)	These seals are widely used on aircraft engines and automotive fuel handling systems as they have excellent fuel, oil and solvent resistance. Standard temperature range -50°C to +200°C
Nitrile (NI)	Widely used as highly resistant to petroleum based substances, water and alcohols. Temperature range -50°C to +110°C.

Other O rings types can include Neoprene, Buna N, Teflon etc.

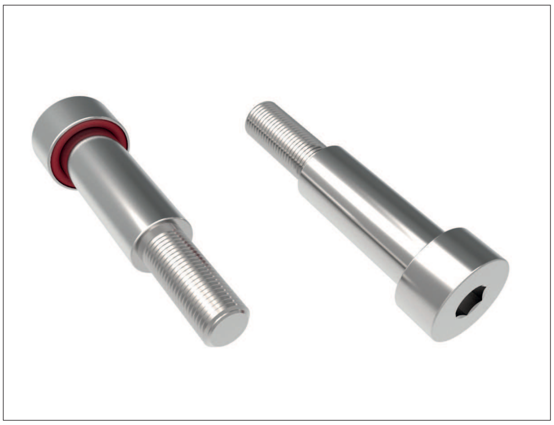
Materials

Our standard screw material is stainless steel (A2, AISI 303). Other materials available are aluminium (non-magnetic and 1/3 weight of steel), brass (high electrical conductivity, non-magnetic and good corrosion resistance), titanium (low weight, very strong and highly corrosion resistant), stainless steel (A4, AISI 316).
Fasteners can be supplied to MILSPEC standards (MIL-S-82496A) on request.

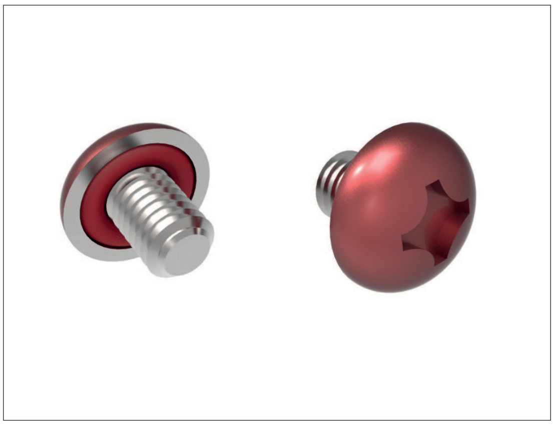
Finishes

Finishes are dependent on the material you are wishing to coat and subject to minimum quantities.

Finish	Notes
Black Chrome (MIL-C-1458B)	Black chrome is a hard, non-reflective coating which is resistant to abrasion, heat and erosion. The black chrome surface is a dull, dark grey and may be waxed or oiled to darken surface.
Black Oxide Coating (MIL-C-13924B)	Black oxide is a uniform black coating for ferrous metals. Generally it is considered a decorative coating and provides only very limited corrosion protection under mild corrosion conditions.
Cadmium	Cadmium is a bright, silvery white plating. Supplementary treatments for Type II can be golden, iridescent, amber, black or olive drab.
Passivate (QQ-P-35/MIL S-500SC)	Passivation is a process designed to remove foreign metals from the surface of stainless and corrosion resistant steels.
Phosphate Coating Light (TT-C-00490B)	Phosphate coating is a light coating for use as a base paint.
Gold (MIL-G-45204B)	Yellow to orange colour depending on proprietary process used. Will range from matt to bright finish depending on base metal. Good corrosion resistance and high tarnish resistance.
Nickel (QQ-N-290A)	Nickel is a corrosion protective plating for steel, zinc and zinc alloys as well as copper and copper alloys.
Zinc (QQ-Z-325C)	The primary use of chromate finishes on zinc is to retard or prevent formation of white corrosion products on zinc surfaces.



Shoulder Screws



Painted Heads

Captive Screws

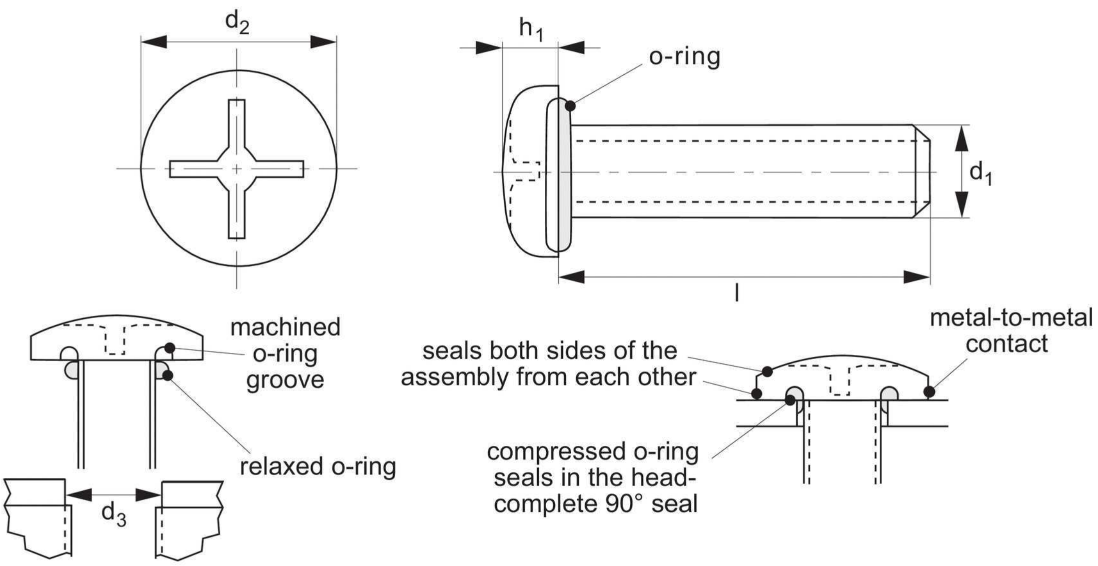
Security Heads (Tamper Proof)

ov-36630-36636-d - Updated - 10-01-2017

Integral Seal Screws

pan head - phillips drive

36630



Order No.	d_1	l	h_1 max.	d_2 max.	d_3 ±0,05	Drive
36630.W0204	M 2	4	1,6	4,0	2,35	PH-1
36630.W0205	M 2	5	1,6	4,0	2,35	PH-1
36630.W0208	M 2	8	1,6	4,0	2,35	PH-1
36630.W0210	M 2	10	1,6	4,0	2,35	PH-1
36630.W0212	M 2	12	1,6	4,0	2,35	PH-1
36630.W0251	M 2,5	6	2,1	4,7	2,35	PH-1
36630.W0252	M 2,5	8	2,1	4,7	2,75	PH-1
36630.W0253	M 2,5	10	2,1	4,7	2,75	PH-1
36630.W0254	M 2,5	12	2,1	4,7	2,75	PH-1
36630.W0306	M 3	6	2,4	5,6	2,75	PH-1
36630.W0308	M 3	8	2,4	5,6	3,60	PH-1
36630.W0310	M 3	10	2,4	5,6	3,60	PH-1
36630.W0312	M 3	12	2,4	5,6	3,60	PH-1
36630.W0320	M 3	20	2,4	5,6	3,60	PH-1
36630.W0406	M 4	6	3,1	8,0	4,50	PH-2
36630.W0408	M 4	8	3,1	8,0	4,50	PH-2
36630.W0410	M 4	10	3,1	8,0	4,50	PH-2
36630.W0412	M 4	12	3,1	8,0	4,50	PH-2
36630.W0416	M 4	16	3,1	8,0	4,50	PH-2
36630.W0420	M 4	20	3,1	8,0	4,50	PH-2
36630.W0508	M 5	8	3,7	9,5	5,60	PH-2
36630.W0510	M 5	10	3,7	9,5	5,60	PH-2
36630.W0512	M 5	12	3,7	9,5	5,60	PH-2
36630.W0516	M 5	16	3,7	9,5	5,60	PH-2
36630.W0520	M 5	20	1,6	9,5	5,60	PH-2
36630.W0612	M 6	12	4,6	12,0	6,80	PH-3
36630.W0616	M 6	16	4,6	12,0	6,80	PH-3
36630.W0620	M 6	20	4,6	12,0	6,80	PH-3
36630.W0625	M 6	25	4,6	12,0	6,80	PH-3
36630.W0630	M 6	30	4,6	12,0	6,80	PH-3
36630.W0812	M 8	12	6,0	16,0	8,50	PH-4
36630.W0816	M 8	16	6,0	16,0	8,50	PH-4
36630.W0820	M 8	20	6,0	16,0	8,50	PH-4
36630.W0825	M 8	25	6,0	16,0	8,50	PH-4
36630.W0830	M 8	30	6,0	16,0	8,50	PH-4
36630.W1016	M10	16	7,5	20,0	10,60	PH-4
36630.W1020	M10	20	7,5	20,0	10,60	PH-4
36630.W1025	M10	25	7,5	20,0	10,60	PH-4
36630.W1030	M10	30	7,5	20,0	10,60	PH-4
36630.W1040	M10	40	7,5	20,0	10,60	PH-4

Material

Stainless steel (DIN 1.4300, AISI 302 screw), with silicone "O" ring as standard.
Other "O" ring materials available on request subject to min. quantity.

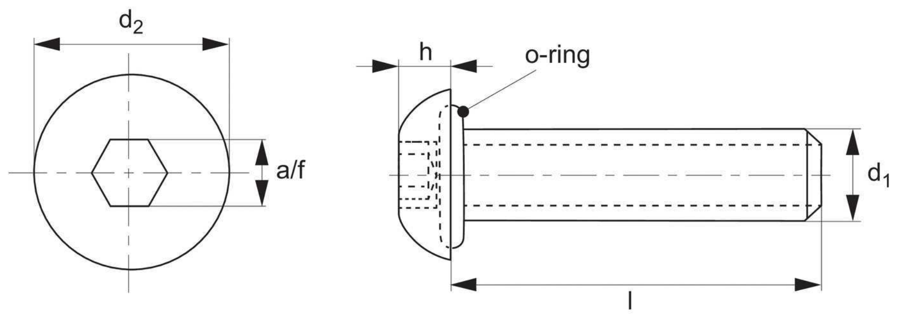
Technical Notes

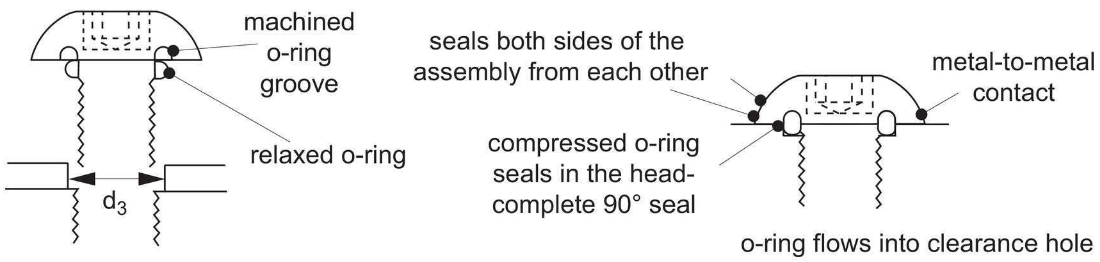
Screws generally as DIN 85, ISO 1580.
Re-useable. Clearance holes recommended for maximum sealing. (see dimension in table). Clearance hole depth 2-3x thread pitch.
Threads are metric coarse pitch.
Max temperature range: -100°C to +260°C.
Pressure range - up to 410 bar, (up to 6000 psi).

Integral Seal Screws

button head - hex. socket

36631





Material

Stainless steel (DIN 1.4300, AISI 302 screw), with silicone "O" ring as standard.
Other "O" ring materials available on request subject to min. quantity.

Technical Notes

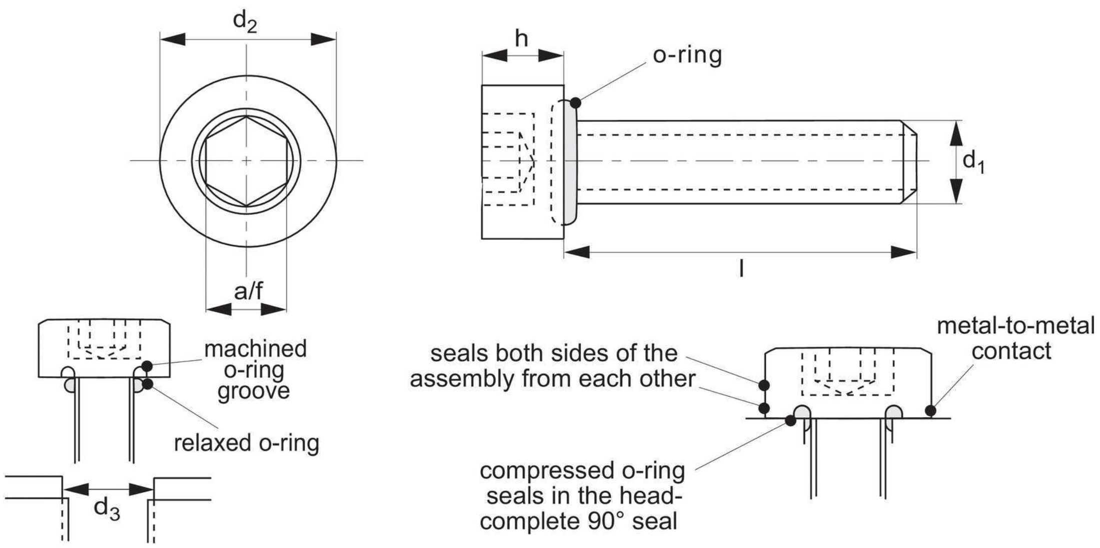
Screws generally as ISO 7380.
Re-useable. Clearance holes recommended for maximum sealing.
Clearance hole depth 2-3x thread pitch. Threads are metric coarse pitch.
Max temperature range: -100°C to +260°C.
Pressure range - up to 410 bar, (up to 6000 psi).

Order No.	d_1	l	h_1 max.	d_2 max.	d_3	a/f
36631.W0306	M 3	6	1,65	5,7	3,60	2,5
36631.W0308	M 3	8	1,65	5,7	3,60	2,5
36631.W0310	M 3	10	1,65	5,7	3,60	2,5
36631.W0312	M 3	12	1,65	5,7	3,60	2,5
36631.W0320	M 3	20	1,65	5,7	3,60	2,5
36631.W0406	M 4	6	2,20	7,6	4,50	3,0
36631.W0408	M 4	8	2,20	7,6	4,50	3,0
36631.W0410	M 4	10	2,20	7,6	4,50	3,0
36631.W0412	M 4	12	2,20	7,6	4,50	3,0
36631.W0416	M 4	16	2,20	7,6	4,50	3,0
36631.W0420	M 4	20	2,20	7,6	4,50	3,0
36631.W0508	M 5	8	2,75	9,5	5,60	4,0
36631.W0510	M 5	10	2,75	9,5	5,60	4,0
36631.W0512	M 5	12	2,75	9,5	5,60	4,0
36631.W0516	M 5	16	2,75	9,5	5,60	4,0
36631.W0520	M 5	20	2,75	9,5	5,60	4,0
36631.W0612	M 6	12	3,30	10,5	6,80	5,0
36631.W0616	M 6	16	3,30	10,5	6,80	5,0
36631.W0620	M 6	20	3,30	10,5	6,80	5,0
36631.W0625	M 6	25	3,30	10,5	6,80	5,0
36631.W0630	M 6	30	3,30	10,5	6,80	5,0
36631.W0812	M 8	12	4,40	14,0	8,50	6,0
36631.W0816	M 8	16	4,40	14,0	8,50	6,0
36631.W0820	M 8	20	4,40	14,0	8,50	6,0
36631.W0825	M 8	25	4,40	14,0	8,50	6,0
36631.W0830	M 8	30	4,40	14,0	8,50	6,0
36631.W1016	M10	16	5,50	17,5	10,60	8,0
36631.W1020	M10	20	5,50	17,5	10,60	8,0
36631.W1025	M10	25	5,50	17,5	10,60	8,0
36631.W1030	M10	30	5,50	17,5	10,60	8,0
36631.W1040	M10	40	5,50	17,5	10,60	8,0
36631.W1220	M12	20	6,60	21,0	12,85	10,0
36631.W1225	M12	25	6,60	21,0	12,85	10,0
36631.W1230	M12	30	6,60	21,0	12,85	10,0
36631.W1240	M12	40	6,60	21,0	12,85	10,0
36631.W1250	M12	50	6,60	21,0	12,85	10,0

Integral Seal Screws

socket head

36633



Order No.	d_1	l	h_1 max.	d_2 max.	d_3 ±0,05	a/f
36633.W0306	M 3	6	3,0	5,5	3,60	2,5
36633.W0308	M 3	8	3,0	5,5	3,60	2,5
36633.W0310	M 3	10	3,0	5,5	3,60	2,5
36633.W0312	M 3	12	3,0	5,5	3,60	2,5
36633.W0320	M 3	20	3,0	5,5	3,60	2,5
36633.W0406	M 4	6	4,0	7,0	4,50	3,0
36633.W0408	M 4	8	4,0	7,0	4,50	3,0
36633.W0410	M 4	10	4,0	7,0	4,50	3,0
36633.W0412	M 4	12	4,0	7,0	4,50	3,0
36633.W0416	M 4	16	4,0	7,0	4,50	3,0
36633.W0420	M 4	20	4,0	7,0	4,50	3,0
36633.W0508	M 5	8	5,0	8,5	5,60	4,0
36633.W0510	M 5	10	5,0	8,5	5,60	4,0
36633.W0512	M 5	12	5,0	8,5	5,60	4,0
36633.W0516	M 5	16	5,0	8,5	5,60	4,0
36633.W0520	M 5	20	5,0	8,5	5,60	4,0
36633.W0612	M 6	12	6,0	10,0	6,80	5,0
36633.W0616	M 6	16	6,0	10,0	6,80	5,0
36633.W0620	M 6	20	6,0	10,0	6,80	5,0
36633.W0625	M 6	25	6,0	10,0	6,80	5,0
36633.W0630	M 6	30	6,0	10,0	6,80	5,0
36633.W0812	M 8	12	8,0	13,0	8,50	6,0
36633.W0816	M 8	16	8,0	13,0	8,50	6,0
36633.W0820	M 8	20	8,0	13,0	8,50	6,0
36633.W0825	M 8	25	8,0	13,0	8,50	6,0
36633.W0830	M 8	30	8,0	13,0	8,50	6,0
36633.W1016	M10	16	10,0	16,0	10,60	8,0
36633.W1020	M10	20	10,0	16,0	10,60	8,0
36633.W1025	M10	25	10,0	16,0	10,60	8,0
36633.W1030	M10	30	10,0	16,0	10,60	8,0
36633.W1040	M10	40	10,0	16,0	10,60	8,0
36633.W1220	M12	20	12,0	18,0	12,85	10,0
36633.W1225	M12	25	12,0	18,0	12,85	10,0
36633.W1230	M12	30	12,0	18,0	12,85	10,0
36633.W1240	M12	40	12,0	18,0	12,85	10,0
36633.W1250	M12	50	12,0	18,0	12,85	10,0

Material

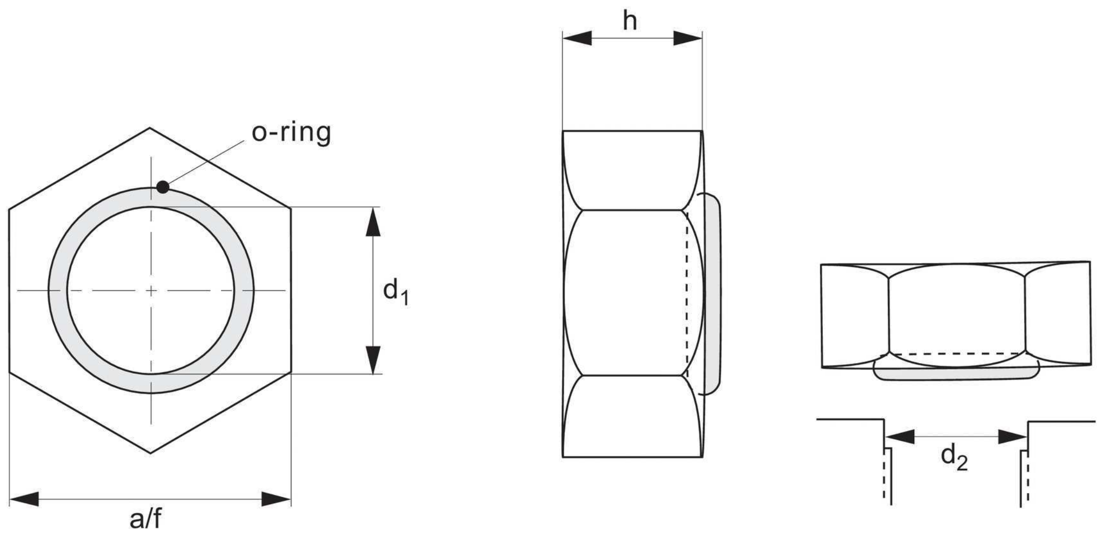
Stainless steel (DIN 1.4300, AISI 302 screw), with silicone "O" ring as standard.
For other "O" ring materials available on request subject to min. quantity.

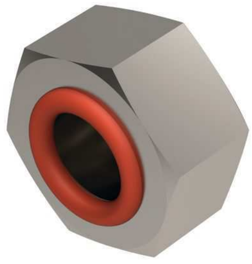
Technical Notes

Screws generally as DIN 912.
Re-useable. Clearance holes recommended for maximum sealing. Clearance hole depth 2-3x thread pitch. Threads are metric coarse pitch.
Max temperature range: -100°C to +260°C.
Pressure range - up to 410 bar, (up to 6000 psi).

Integral Seal Hex Nuts

36636





Order No.	d	h max.	d_2 ±0,05	a/f
36636.W0020	M 2,0	1,6	2,35	4,0
36636.W0025	M 2,5	2,0	2,75	5,0
36636.W0030	M 3,0	2,4	3,60	5,5
36636.W0040	M 4,0	3,2	4,50	7,0
36636.W0050	M 5,0	4,7	5,60	8,0
36636.W0060	M 6,0	5,2	6,80	10,0
36636.W0080	M 8,0	6,8	8,50	13,0
36636.W0100	M10,0	8,4	10,60	16,0
36636.W0120	M12,0	10,8	12,85	18,0
36636.W0140	M14,0	12,8	15,10	21,0
36636.W0160	M16,0	14,8	17,50	24,0

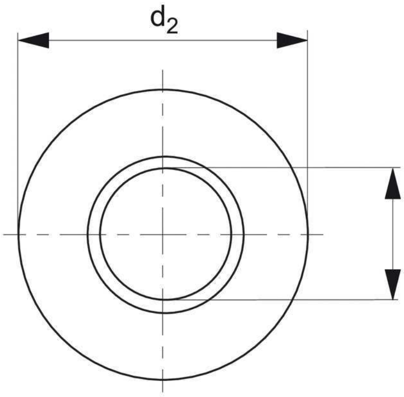
Material
Stainless steel (DIN 1.4300, AISI 302 screw), with silicone "O" ring as standard.
Other "O" ring materials available on request subject to min. quantity.

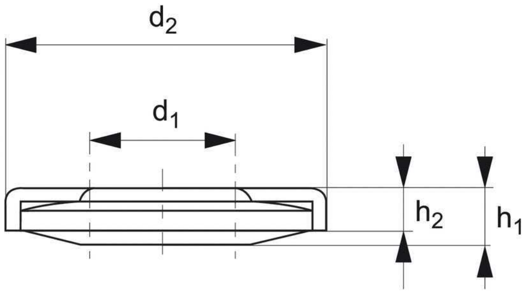
Technical Notes
Re-useable. Clearance holes recommended for maximum sealing. Clearance hole depth 2-3x thread pitch. Threads are metric coarse pitch. Max temperature range: -100°C to +260°C.
Pressure range - up to 410 bar,(up to 6000 psi).
Silicone "O" rings are used for most applications unless chemicals present.

Waterproof Seal Washers

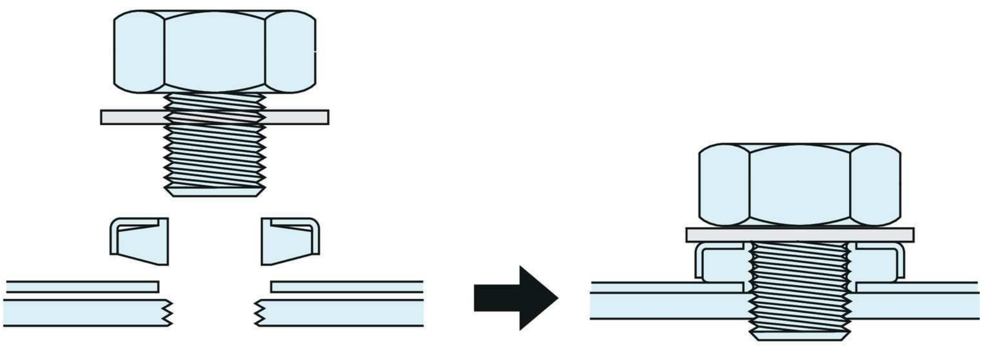
304 stainless steel

36637





Order No.	For thread	d_1	d_2	h_1	h_2	Recommended tightening torque Nm	Max. rated pressure (liquids) bar	Max. rated pressure (gases) bar	g
36637.W0030	M 3	3,0	8	3,1	2,5	0,3-0,6	7	7	0,4
36637.W0040	M 4	4,1	10	3,5	3,0	0,8-1,5	7	7	0,6
36637.W0050	M 5	5,1	12	3,5	3,0	1,5-3,0	7	7	1,0
36637.W0060	M 6	6,1	14	3,5	3,0	2,5-5,0	7	7	1,0
36637.W0080	M 8	8,1	18	4,0	3,0	6,2-12	7	7	2,0
36637.W0100	M10	10,1	23	4,0	3,0	24-12	7	7	3,0
36637.W0120	M12	12,1	25	4,0	3,0	21-42	7	7	4,0
36637.W0160	M16	16,1	30	4,5	3,0	53-106	7	7	6,0
36637.W0200	M20	20,1	37	4,5	3,0	103 min.	7	7	9,0



recommended application, the polymer is compressed around the thread providing a waterproof seal

Material

Stainless steel (AISI 304, 1.4301), with thermoplastic elastomer (TPE) insert.

Technical Notes

Seals substances in and contaminants out. For watertight applications, the seal is best placed against a smooth material, ensuring a tight seal is created.

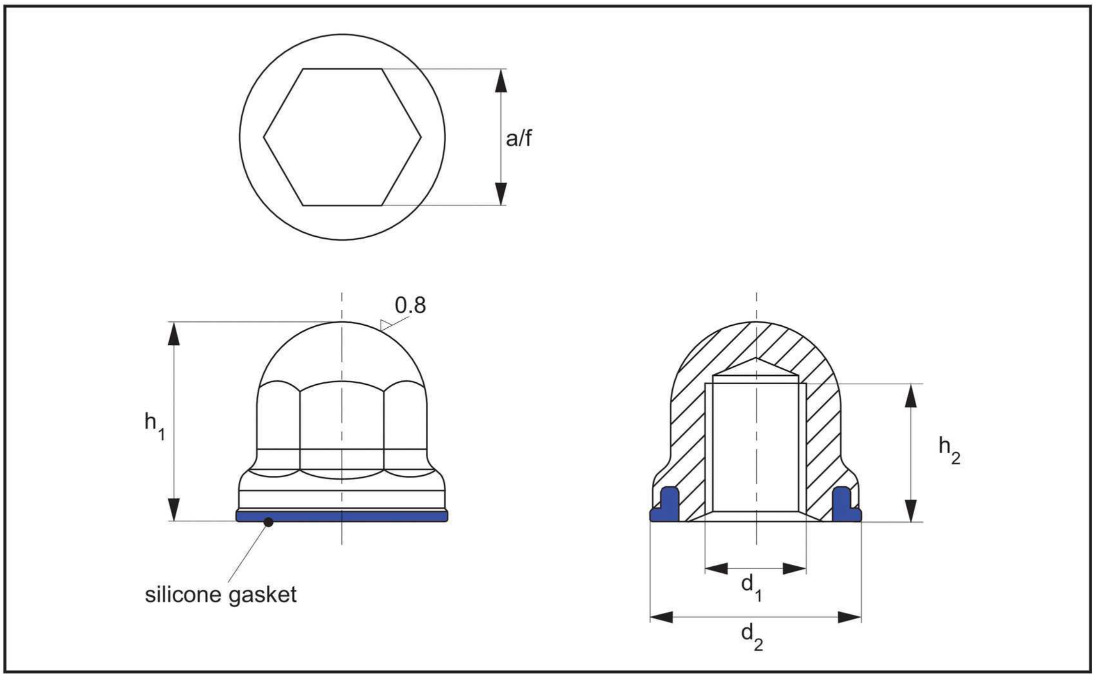
Tips

We recommend installing a flat washer above the sealing washer to ensure that uniform pressure is applied to the elastomer inside the washer. We recommend that you test the sealing washer in your application to determine the optimum tightening torque. For use at -30 °C to 90 °C.

Domed Nut 3A Standard

hygienic line, stainless steel

36638



Material
Stainless steel AISI304
Blue gasket: silicone

Technical Notes
Coarse Pitch as standard.
Fine Pitch on request.

Tips
Made to the high 3A standard.
This ensures it meets the high standards required for use in food, beverage, pharmaceutical and medical applications.
Hygienically designed for effective and easy cleaning, corrosion resistant, non-toxic.
Design precludes contamination by dirt, food particles and organic matter.

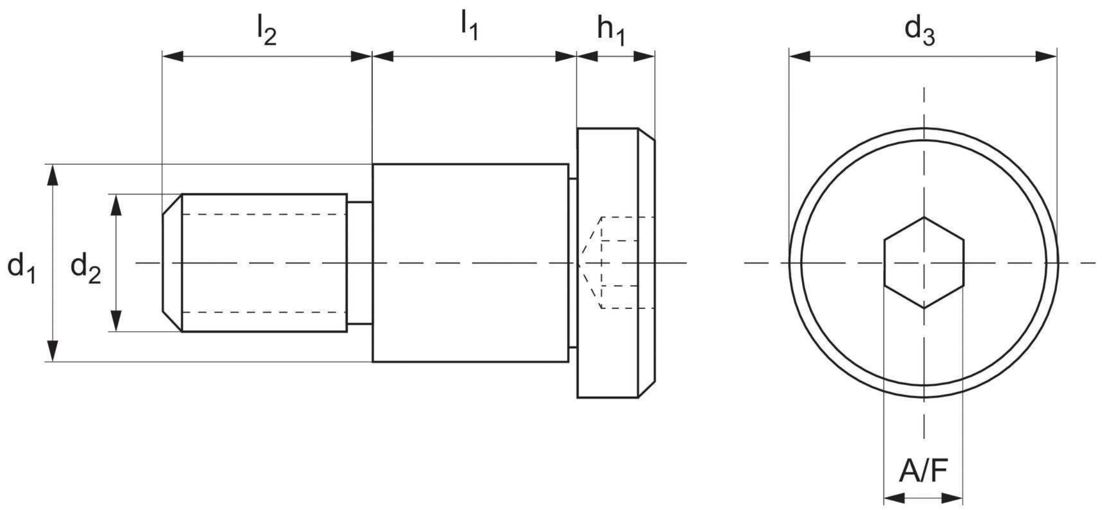
Referral
AISI316 available on request.

Order No.	d_1	d_2	h_1	h_2	A/F
36638.W0003	M 3	15	12	8	10
36638.W0004	M 4	15	12	8	10
36638.W0005	M 5	19	17	12	14
36638.W0006	M 6	19	17	12	14
36638.W0008	M 8	25	23	15	17
36638.W0010	M10	25	23	15	17
36638.W0012	M12	25	23	15	17
36638.W0014	M14	31	28	20	22
36638.W0016	M16	31	28	20	22
36638.W0020	M20	36	34	25	27
36638.W0024	M24	43	40	30	32

Shoulder Screws - Cap Head

hex drive - 303 stainless

36642



Material

Stainless steel (AISI 303, 1.4305).
Tensile strength 550 N/mm^2.
Proof stress min. 190 N/mm^2,
austenitic stainless steel.

Technical Notes

303 series stainless steel provides good resistance to corrosion. It is mildly magnetic.
Special lengths and diameters produced to drawings.

Order No.	d_1 +0, -0,025	l_1 +0,05, -0,0	d_2	d_3	l_2	h_1	A/F
36642.W0404-A2	4	4	M 3	6	4	3	2
36642.W0405-A2	4	5	M 3	6	4	3	2
36642.W0406-A2	4	6	M 3	6	4	3	2
36642.W0408-A2	4	8	M 3	6	4	3	2
36642.W0410-A2	4	10	M 3	6	4	3	2
36642.W0504-A2	5	4	M 4	8	5	4	2,5
36642.W0505-A2	5	5	M 4	8	5	4	2,5
36642.W0506-A2	5	6	M 4	8	5	4	2,5
36642.W0508-A2	5	8	M 4	8	5	4	2,5
36642.W0510-A2	5	10	M 4	8	5	4	2,5
36642.W0512-A2	5	12	M 4	8	5	4	2,5
36642.W0514-A2	5	14	M 4	8	5	4	2,5
36642.W0516-A2	5	16	M 4	8	5	4	2,5
36642.W0520-A2	5	20	M 4	8	5	4	2,5
36642.W0525-A2	5	25	M 4	8	5	4	2,5
36642.W0530-A2	5	30	M 4	8	5	4	2,5
36642.W0604-A2	6	4	M 5	10	6	5	3
36642.W0605-A2	6	5	M 5	10	6	5	3
36642.W0606-A2	6	6	M 5	10	6	5	3
36642.W0608-A2	6	8	M 5	10	6	5	3
36642.W0610-A2	6	10	M 5	10	6	5	3
36642.W0612-A2	6	12	M 5	10	6	5	3
36642.W0614-A2	6	14	M 5	10	6	5	3
36642.W0616-A2	6	16	M 5	10	6	5	3
36642.W0620-A2	6	20	M 5	10	6	5	3

Shoulder Screws - Cap Head

hex drive - 303 stainless

36642

Order No.	d_1 +0, -0,025	l_1 +0,05, -0,0	d_2	d_3	l_2	h_1	A/F
36642.W0625-A2	6	25	M 5	10	6	5	3
36642.W0630-A2	6	30	M 5	10	6	5	3
36642.W0806-A2	8	6	M 6	12	11	6	4
36642.W0808-A2	8	8	M 6	12	11	6	4
36642.W0810-A2	8	10	M 6	12	11	6	4
36642.W0812-A2	8	12	M 6	12	11	6	4
36642.W0814-A2	8	14	M 6	12	11	6	4
36642.W0816-A2	8	16	M 6	12	11	6	4
36642.W0820-A2	8	20	M 6	12	11	6	4
36642.W0825-A2	8	25	M 6	12	11	6	4
36642.W0830-A2	8	30	M 6	12	11	6	4
36642.W0880-A2	8	80	M 6	12	11	6	4
36642.W1010-A2	10	10	M 6	12	11	6	4
36642.W1108-A2	10	8	M 8	14	12	7	5
36642.W1110-A2	10	10	M 8	14	12	7	5
36642.W1112-A2	10	12	M 8	14	12	7	5
36642.W1116-A2	10	16	M 8	14	12	7	5
36642.W1120-A2	10	20	M 8	14	12	7	5
36642.W1125-A2	10	25	M 8	14	12	7	5
36642.W1130-A2	10	30	M 8	14	12	7	5
36642.W1140-A2	10	40	M 8	14	12	7	5
36642.W1150-A2	10	50	M 8	14	12	7	5
36642.W1160-A2	10	60	M 8	14	12	7	5
36642.W1170-A2	10	70	M 8	14	12	7	5
36642.W1180-A2	10	80	M 8	14	12	7	5
36642.W1190-A2	10	90	M 8	14	12	7	5
36642.W1199-A2	10	100	M 8	14	12	7	5
36642.W1212-A2	12	12	M10	20	16	8	6
36642.W1216-A2	12	16	M10	20	16	8	6
36642.W1220-A2	12	20	M10	20	16	8	6
36642.W1225-A2	12	25	M10	20	16	8	6
36642.W1230-A2	12	30	M10	20	16	8	6

Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm^2. Proof stress min. 190 N/mm^2, austenitic stainless steel.

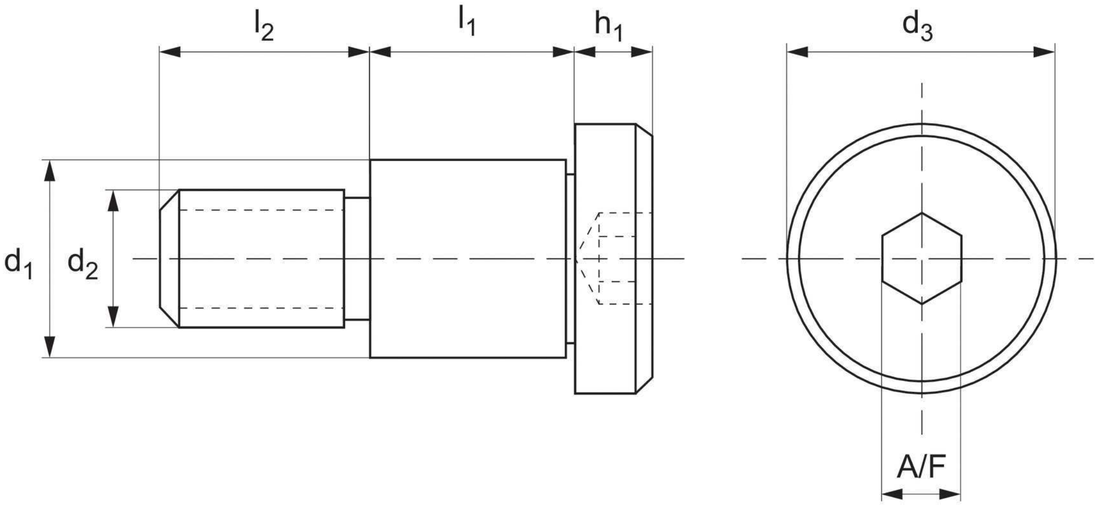
Technical Notes

303 series stainless steel provides good resistance to corrosion. It is mildly magnetic.
Special lengths and diameters produced to drawings.

Shoulder Screws

hex drive - 316 stainless

36644



Order No.	d_1 +0 -0,025	l_1 +0,05 -0	d_2	d_3	l_2	h_1	A/F
36644.W0404-A4	4	4	M 3	6	4	3,0	2
36644.W0405-A4	4	5	M 3	6	4	3,0	2
36644.W0406-A4	4	6	M 3	6	4	3,0	2
36644.W0408-A4	4	8	M 3	6	4	3,0	2
36644.W0410-A4	4	10	M 3	6	4	3,0	2
36644.W0510-A4	5	10	M 4	8	5	4,0	2,5
36644.W0512-A4	5	12	M 4	8	5	4,0	2,5
36644.W0516-A4	5	16	M 4	8	5	4,0	2,5
36644.W0520-A4	5	20	M 4	8	5	4,0	2,5
36644.W0525-A4	5	25	M 4	8	5	4,0	2,5
36644.W0530-A4	5	30	M 4	8	5	4,0	2,5
36644.W0610-A4	6	10	M 5	10	6	5,0	3
36644.W0612-A4	6	12	M 5	10	6	5,0	3
36644.W0616-A4	6	16	M 5	10	6	5,0	3
36644.W0620-A4	6	20	M 5	10	6	5,0	3
36644.W0625-A4	6	25	M 5	10	6	5,0	3
36644.W0630-A4	6	30	M 5	10	6	5,0	3
36644.W0640-A4	6	40	M 5	10	6	5,0	3
36644.W0650-A4	6	50	M 5	10	6	5,0	3
36644.W0812-A4	8	12	M 6	12	11	6,0	4
36644.W0816-A4	8	16	M 6	12	11	6,0	4
36644.W0820-A4	8	20	M 6	12	11	6,0	4
36644.W0825-A4	8	25	M 6	12	11	6,0	4
36644.W0830-A4	8	30	M 6	12	11	6,0	4
36644.W0840-A4	8	40	M 6	12	11	6,0	4

Material

Stainless steel (AISI 316, 1.440).
Tensile strength 480 N/mm^2.
Proof stress min. 200 N/mm^2,
austenitic stainless steel.

Technical Notes

Highly resistant to corrosion (including from salt water).
These 316 series stainless steel shoulder bolts are considerably more expensive than our standard 303 grade stainless shoulder bolts (36642).
Shim washers can be used to reduce shoulder length if required.
Non- magnetic.
Can also be manufactured (for a batch size) in aluminium, monel & titanium.

Shoulder Screws

hex drive - 316 stainless

36644

Order No.	d_1 +0 -0,025	l_1 +0,05 -0	d_2	d_3	l_2	h_1	A/F
36644.W0850-A4	8	50	M 6	12	11	6,0	4
36644.W1016-A4	10	16	M 8	14	12	7,0	5
36644.W1020-A4	10	20	M 8	14	12	7,0	5
36644.W1025-A4	10	25	M 8	14	12	7,0	5
36644.W1030-A4	10	30	M 8	14	12	7,0	5
36644.W1040-A4	10	40	M 8	14	12	7,0	5
36644.W1050-A4	10	50	M 8	14	12	7,0	5
36644.W1060-A4	10	60	M 8	14	12	7,0	5
36644.W1070-A4	10	70	M 8	14	12	7,0	5
36644.W1216-A4	12	16	M10	20	16	8,0	6
36644.W1220-A4	12	20	M10	20	16	8,0	6
36644.W1225-A4	12	25	M10	20	16	8,0	6
36644.W1230-A4	12	30	M10	20	16	8,0	6
36644.W1240-A4	12	40	M10	20	16	8,0	6
36644.W1250-A4	12	50	M10	20	16	8,0	6
36644.W1260-A4	12	60	M10	20	16	8,0	6
36644.W1270-A4	12	70	M10	20	16	8,0	6

Material

Stainless steel (AISI 316, 1.440). Tensile strength 480 N/mm^2. Proof stress min. 200 N/mm^2, austenitic stainless steel.

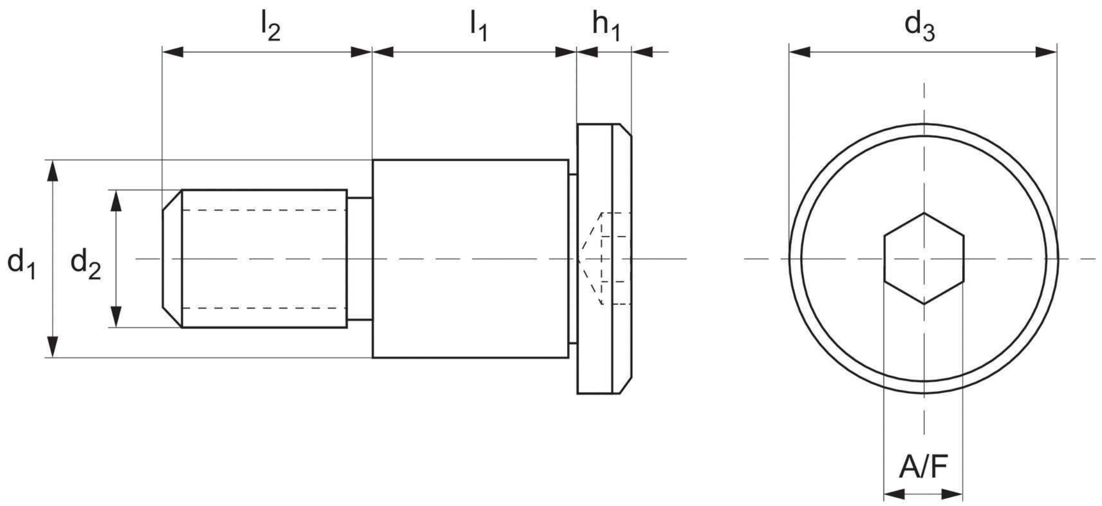
Technical Notes

Highly resistant to corrosion (including from salt water).
These 316 series stainless steel shoulder bolts are considerably more expensive than our standard 303 grade stainless shoulder bolts (36642).
Shim washers can be used to reduce shoulder length if required.
Non- magnetic.
Can also be manufactured (for a batch size) in aluminium, monel & titanium.

Ultra Low Head Shoulder Screw

hex drive - stainless steel

36650



Order No.	d_1 +0, -0.025	l_1 +0.05, -0.0	d_2	l_2	d_3	h_1	A/F
36650.W0401	4	4	M 3	4	6	1,3	2,0
36650.W0402	4	5	M 3	4	6	1,3	2,0
36650.W0403	4	6	M 3	4	6	1,3	2,0
36650.W0404	4	8	M 3	4	6	1,3	2,0
36650.W0405	4	10	M 3	4	6	1,3	2,0
36650.W0406	5	4	M 4	5	9	1,3	2,5
36650.W0407	5	5	M 4	5	9	1,3	2,5
36650.W0408	5	6	M 4	5	9	1,3	2,5
36650.W0409	5	8	M 4	5	9	1,3	2,5
36650.W0410	5	10	M 4	5	9	1,3	2,5
36650.W0411	5	12	M 4	5	9	1,3	2,5
36650.W0413	5	16	M 4	5	9	1,3	2,5
36650.W0414	5	20	M 4	5	9	1,3	2,5
36650.W0417	6	4	M 5	6	10	1,7	3,0
36650.W0418	6	5	M 5	6	10	1,7	3,0
36650.W0419	6	6	M 5	6	10	1,7	3,0
36650.W0420	6	8	M 5	6	10	1,7	3,0
36650.W0421	6	10	M 5	6	10	1,7	3,0
36650.W0422	6	12	M 5	6	10	1,7	3,0
36650.W0424	6	16	M 5	6	10	1,7	3,0
36650.W0425	6	20	M 5	6	10	1,7	3,0
36650.W0428	8	6	M 6	11	13	2,0	4,0
36650.W0429	8	8	M 6	11	13	2,0	4,0
36650.W0430	8	10	M 6	11	13	2,0	4,0
36650.W0431	8	12	M 6	11	13	2,0	4,0
36650.W0432	8	16	M 6	11	13	2,0	4,0
36650.W0433	8	20	M 6	11	13	2,0	4,0

Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm^2. Proof stress min. 190 N/mm^2, austenitic stainless steel.

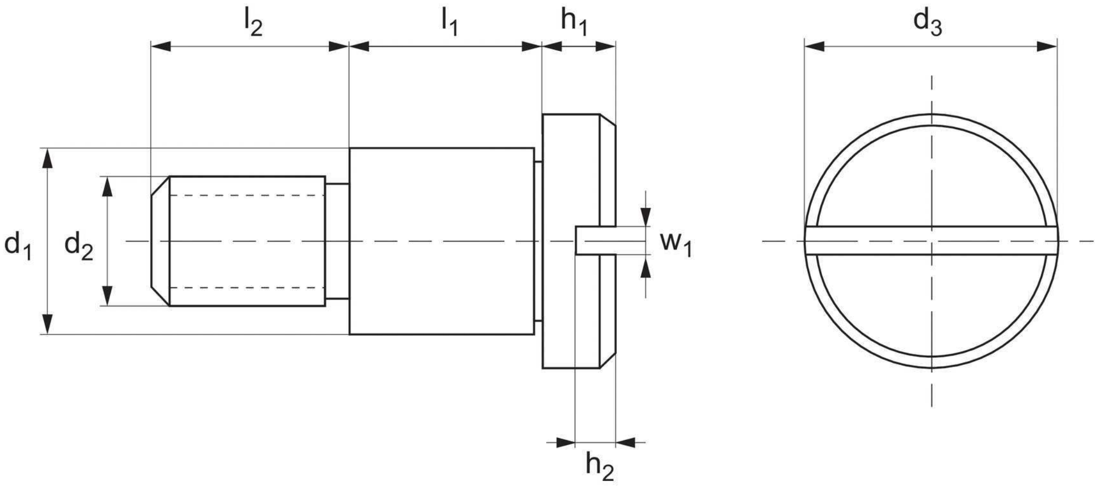
Technical Notes

These very low profile socket shoulder screws have a head height approximately 1/3 that of normal shoulder screws.
303 Series stainless is suitable for pharmaceutical and other applications. Stainless steel suitable for marine and other applications.

Shoulder Screws - Cap Head

416 stainless

36660



Material

Stainless steel (AISI 416, 1.4005).
Tensile strength 650 N/mm^2.
Proof stress min. 450 N/mm^2,
martensitic stainless steel.

Technical Notes

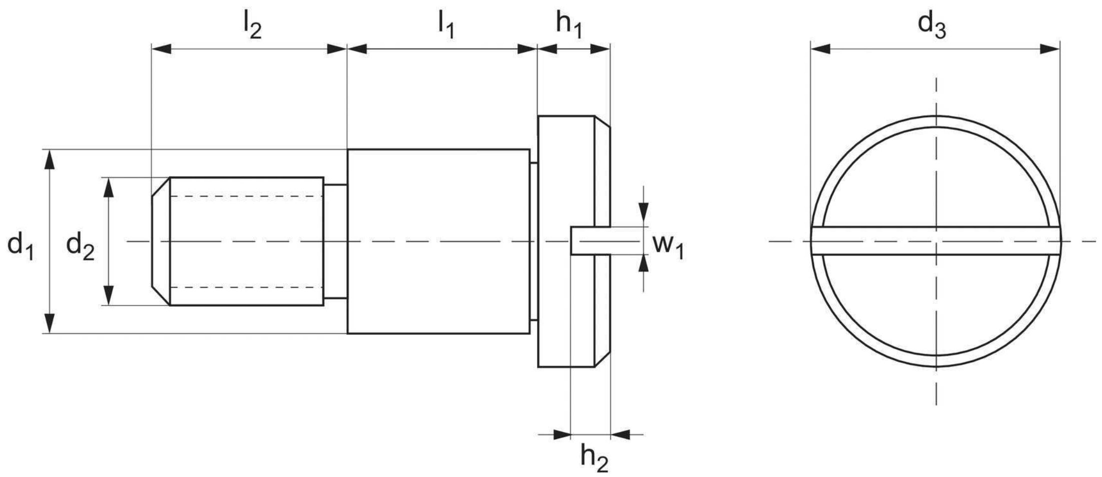
Stainless steel 416 is a harder, stronger grade of stainless steel than the 303 stainless alternatives. They are magnetic and slightly less resistant to corrosion than the 303 alternative (see 36642 or 36662). For corrosion resistance it is suited to dry atmosphere, fresh water and mild alkalis and acids.
Special lengths and diameters produced to drawings.

Order No.	d_1 +0 -0,025	l_1 +0,05 -0,0	d_2	d_3	l_2	h_1	h_2
36660.W0001	4	4	M 3	6	4	3	0,3
36660.W0002	4	5	M 3	6	4	3	0,3
36660.W0003	4	6	M 3	6	4	3	0,3
36660.W0004	4	8	M 3	6	4	3	0,3
36660.W0005	4	10	M 3	6	4	3	0,3
36660.W0006	5	4	M 4	8	5	4	0,9
36660.W0007	5	5	M 4	8	5	4	0,9
36660.W0008	5	6	M 4	8	5	4	0,9
36660.W0009	5	8	M 4	8	5	4	0,9
36660.W0010	5	10	M 4	8	5	4	0,9
36660.W0011	5	12	M 4	8	5	4	0,9
36660.W0012	5	14	M 4	8	5	4	0,9
36660.W0013	5	16	M 4	8	5	4	0,9
36660.W0014	5	20	M 4	8	5	4	0,9
36660.W0016	5	30	M 4	8	5	4	0,9
36660.W0017	6	4	M 5	10	6	5	1,2
36660.W0018	6	5	M 5	10	6	5	1,2
36660.W0019	6	6	M 5	10	6	5	1,2
36660.W0020	6	8	M 5	10	6	5	1,2
36660.W0021	6	10	M 5	10	6	5	1,2
36660.W0023	6	14	M 5	10	6	5	1,2
36660.W0024	6	16	M 5	10	6	5	1,2
36660.W0025	6	20	M 5	10	6	5	1,2
36660.W0026	6	25	M 5	10	6	5	1,2
36660.W0027	6	30	M 5	10	6	5	1,2
36660.W0028	8	6	M 6	12	11	6	1,3
36660.W0029	8	8	M 6	12	11	6	1,3
36660.W0032	8	16	M 6	12	11	6	1,3
36660.W0034	10	8	M 6	12	11	6	1,5
36660.W0036	10	12	M 6	12	11	6	1,5
36660.W0037	10	16	M 6	12	11	6	1,5
36660.W0038	10	8	M 8	14	12	7	1,9
36660.W0040	10	12	M 8	14	12	7	1,9
36660.W0041	10	16	M 8	14	12	7	1,9
36660.W0042	12	12	M10	20	16	8	2,4
36660.W0043	12	16	M10	20	16	8	2,4
36660.W0045	12	26	M10	20	16	8	2,4

Shoulder Screws - Cap Head

slot drive - 303 stainless

36662



Order No.	d_1 +0 -0,025	l_1 +0,05 -0,0	d_2	d_3	l_2	h_1	h_2	w_1
36662.W0810-A2	8	10	M 6	12	11	6	1,5	1,6
36662.W0404-A2	4	4	M 3	6	4	3	0,9	0,8
36662.W0405-A2	4	5	M 3	6	4	3	0,9	0,8
36662.W0406-A2	4	6	M 3	6	4	3	0,9	0,8
36662.W0408-A2	4	8	M 3	6	4	3	0,9	0,8
36662.W0410-A2	4	10	M 3	6	4	3	0,9	0,8
36662.W0504-A2	5	4	M 4	8	5	4	1,2	1,0
36662.W0505-A2	5	5	M 4	8	5	4	1,2	1,0
36662.W0506-A2	5	6	M 4	8	5	4	1,2	1,0
36662.W0508-A2	5	8	M 4	8	5	4	1,2	1,0
36662.W0510-A2	5	10	M 4	8	5	4	1,2	1,0
36662.W0512-A2	5	12	M 4	8	5	4	1,2	1,0
36662.W0514-A2	5	14	M 4	8	5	4	1,2	1,0
36662.W0516-A2	5	16	M 4	8	5	4	1,2	1,0
36662.W0520-A2	5	20	M 4	8	5	4	1,2	1,0
36662.W0525-A2	5	25	M 4	8	5	4	1,2	1,0
36662.W0530-A2	5	30	M 4	8	5	4	1,2	1,0
36662.W0604-A2	6	4	M 5	10	6	5	1,3	1,2
36662.W0605-A2	6	5	M 5	10	6	5	1,3	1,2
36662.W0606-A2	6	6	M 5	10	6	5	1,3	1,2
36662.W0608-A2	6	8	M 5	10	6	5	1,3	1,2
36662.W0610-A2	6	10	M 5	10	6	5	1,3	1,2
36662.W0612-A2	6	12	M 5	10	6	5	1,3	1,2
36662.W0614-A2	6	14	M 5	10	6	5	1,3	1,2
36662.W0616-A2	6	16	M 5	10	6	5	1,3	1,2

Material

Stainless steel (AISI 303, 1.4305).
Tensile strength 550 N/mm^2.
Proof stress min. 190 N/mm^2,
austenitic stainless steel.

Technical Notes

303 stainless steel provides good resistance to corrosion, it is soft and mildly magnetic.
These shoulder screws are less expensive than the 416 steel grade (see part no. 36660), which are harder but less resistant to corrosion.
Special lengths and diameters produced to drawings.

Shoulder Screws - Cap Head

slot drive - 303 stainless

36662

Order No.	d_1 +0 -0,025	l_1 +0,05 -0,0	d_2	d_3	l_2	h_1	h_2	w_1
36662.W0620-A2	6	20	M 5	10	6	5	1,3	1,2
36662.W0625-A2	6	25	M 5	10	6	5	1,3	1,2
36662.W0630-A2	6	30	M 5	10	6	5	1,3	1,2
36662.W0806-A2	8	6	M 6	12	11	6	1,5	1,6
36662.W0808-A2	8	8	M 6	12	11	6	1,5	1,6
36662.W0812-A2	8	12	M 6	12	11	6	1,5	1,6
36662.W0816-A2	8	16	M 6	12	11	6	1,5	1,6
36662.W1008-A2	10	8	M 6	14	11	6	1,5	1,6
36662.W1012-A2	10	12	M 6	14	11	6	1,5	1,6
36662.W1108-A2	10	8	M 8	14	12	7	1,9	2,0
36662.W1112-A2	10	12	M 8	14	12	7	1,9	2,0
36662.W1116-A2	10	16	M 8	14	12	7	1,9	2,0
36662.W1212-A2	12	12	M10	20	16	8	2,4	2,5
36662.W1225-A2	12	16	M10	20	16	8	2,4	2,5

Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm^2. Proof stress min. 190 N/mm^2, austenitic stainless steel.

Technical Notes

303 stainless steel provides good resistance to corrosion, it is soft and mildly magnetic.
These shoulder screws are less expensive than the 416 steel grade (see part no. 36660), which are harder but less resistant to corrosion.
Special lengths and diameters produced to drawings.

Coatings and drive types

Coatings

Wixroyd produce a wide range of fasteners designed for application where it is important that fasteners are not separated from equipment (e.g. cover panels etc). This is now important to ensure that equipment complies with Machinery Directive 200642/EC - requiring that fasteners remain attached to fixed guards or equipment when guards are removed.

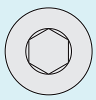
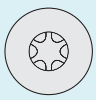
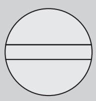
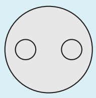
Our captive panel screws are manufactured mainly from stainless steel (A2, AISI 303 grade), but they can also be produced in stainless steel (A4, AISI 316), aluminium, brass or zinc plated steel.

Many finishes can be applied - black oxide finish, anodizing etc.

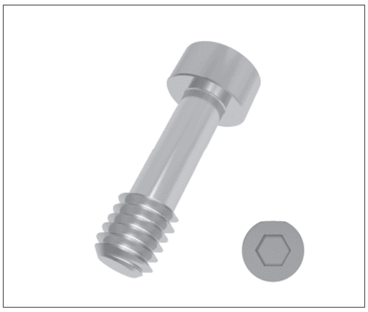
The main options are as follows:

Finish	Notes
Black Chrome (MIL-C-1458B)	Black chrome is a hard, non-reflective coating which is resistant to abrasion, heat and corrosion. The black chrome surface is a dull, dark grey and may be waxed or oiled to darken surface.
Black Oxide Coating (MIL-C-13924B)	Black oxide is a uniform black coating for ferrous metals. Generally it is considered a decorative coating and provides only very limited corrosion protection under mild corrosion conditions.
Cadmium	Cadmium is a bright, silvery white plating. Supplementary treatments for Type II can be golden, irridescent, amber, black or olive drab.
Passivate (QQ-P-35/MIL S-500SC)	Passivation is a process designed to remove foreign metals from the surface of stainless and corrosion resistant steels.
Phosphate Coating Light (TT-C-00490B)	Phosphate coating is a light coating for use as a base paint.
Gold (MIL-G-45204B)	Yellow to orange colour depending on proprietary process used. Will range from matt to bright finish depending on base metal. Good corrosion resistance and high tarnish resistance.
Nickel (QQ-N-290A)	Nickel is a corrosion protective plating for steel, zinc and zinc alloys as well as copper and copper alloys.
Zinc (QQ-Z-325C)	The primary use of chromate finishes on zinc is to retard or prevent formation of white corrosion products on zinc surfaces.

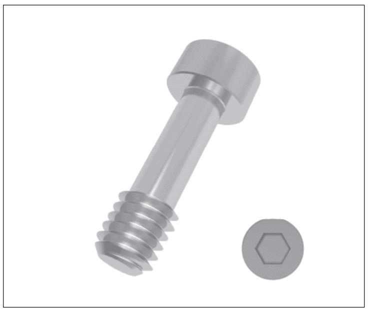
Drive types

Schematic	Drive Types	Uses
	Hexagonal recess	Ideal for precision assembly. Most recommended where less surface area is available.
	Crosshead (Phillips®)	Provides good control in driving. Always use a driver bit of the proper size which is in good condition.
	Star Head (Torx®)	Positive-engaging, fast-locating method which transmits drive torque with less required downward pressure. Good fastening appearance.
	Slotted	Accepts standard blade screwdriver. Requires less downward pressure to drive parts than those with recessed openings. Use a proper fitting blade to minimize slippage.
	Security	These screws are impossible to remove without the special matching screw driver.

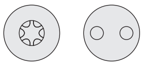
ov-36681-36692-a - Updated - 10-01-2017

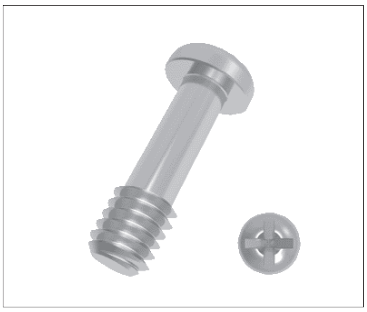


36681 - **Cap head - hex. socket**

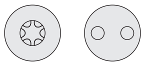


36682 - **Cap head - hex. socket**
Security and Torx® options

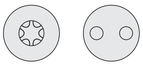




36683 - **Pan Head - Phillips®**
Security and Torx® options

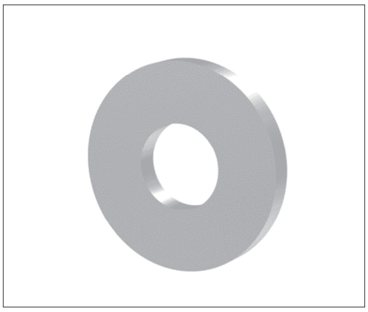


36684 - **Countersunk - hex. socket**
Security and Torx® options

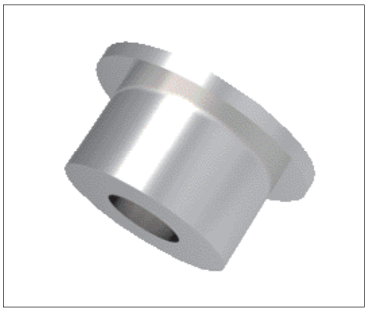


36686 - **Thin head thumb screw**

36687 - **Thumb screw**



36691 - **Threaded captive washers**

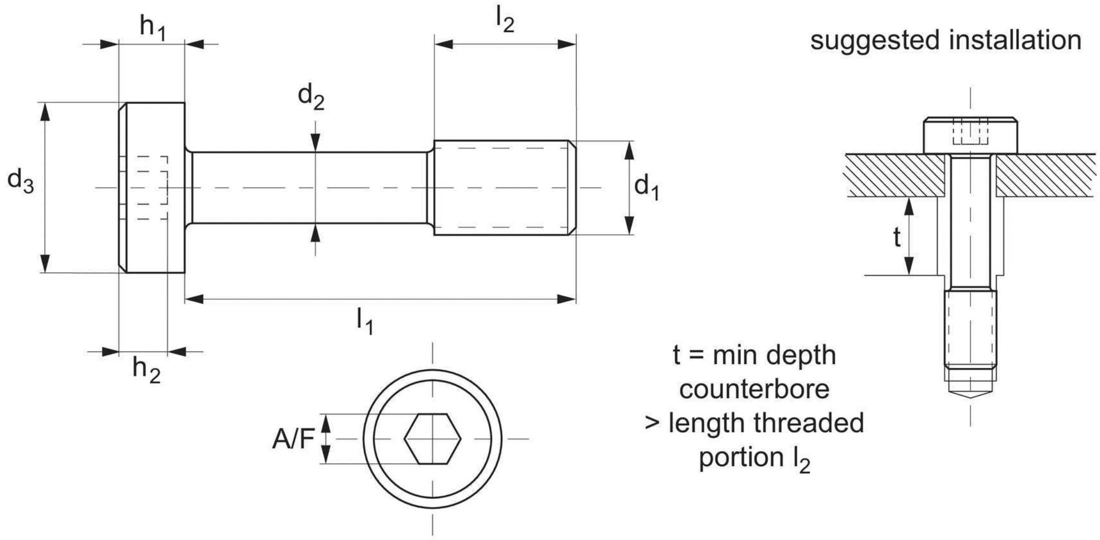


36692 - **Retainer flanges**

Captive Screws - Cheese Head

hex drive - 303 stainless

36681



Order No.	d_1	l_1 ±0,25	d_2 ±0,12	l_2 ±0,25	d_3	h_1	h_2	A/F
36681.W2010	M 2,0	10	1,2	3,0	3,8	1,3	0,85	1,3
36681.W2012	M 2,0	12	1,2	3,0	3,8	1,3	0,85	1,3
36681.W2016	M 2,0	16	1,2	3,0	3,8	1,3	0,85	1,3
36681.W2020	M 2,0	20	1,2	3,0	3,8	1,3	0,85	1,3
36681.W2510	M 2,5	10	1,7	3,7	4,5	1,6	1,00	1,5
36681.W2516	M 2,5	16	1,7	3,7	4,5	1,6	1,00	1,5
36681.W2520	M 2,5	20	1,7	3,7	4,5	1,6	1,00	1,5
36681.W2525	M 2,5	25	1,7	3,7	4,5	1,6	1,00	1,5
36681.W2530	M 2,5	30	1,7	3,7	4,5	1,6	1,00	1,5
36681.W3010	M 3,0	10	2,0	4,5	5,5	2,0	1,30	2,0
36681.W3011	M 3,0	11	2,0	4,5	5,5	2,0	1,30	2,0
36681.W3013	M 3,0	13	2,0	4,5	5,5	2,0	1,30	2,0
36681.W3016	M 3,0	16	2,0	3,7	5,5	2,0	1,30	2,0
36681.W3018	M 3,0	18	2,0	3,7	5,5	2,0	1,30	2,0
36681.W3020	M 3,0	20	2,0	3,7	5,5	2,0	1,30	2,0
36681.W3025	M 3,0	25	2,0	3,7	5,5	2,0	1,30	2,0
36681.W3030	M 3,0	30	2,0	3,7	5,5	2,0	1,30	2,0
36681.W3040	M 3,0	40	2,0	3,7	5,5	2,0	1,30	2,0
36681.W3510	M 3,5	10	2,3	5,2	6,0	2,4	1,40	2,5
36681.W3516	M 3,5	16	2,3	5,2	6,0	2,4	1,40	2,5
36681.W3520	M 3,5	20	2,3	5,2	6,0	2,4	1,40	2,5
36681.W3525	M 3,5	25	2,3	5,2	6,0	2,4	1,40	2,5
36681.W3530	M 3,5	30	2,3	5,2	6,0	2,4	1,40	2,5
36681.W3540	M 3,5	40	2,3	5,2	6,0	2,4	1,40	2,5
36681.W4012	M 4,0	12	2,8	6,0	7,0	2,6	1,60	2,5
36681.W4016	M 4,0	16	2,8	6,0	7,0	2,6	1,60	2,5
36681.W4018	M 4,0	18	2,8	6,0	7,0	2,6	1,60	2,5
36681.W4019	M 4,0	19	2,8	6,0	7,0	2,6	1,60	2,5
36681.W4020	M 4,0	20	2,8	6,0	7,0	2,6	1,60	2,5
36681.W4025	M 4,0	25	2,8	6,0	7,0	2,6	1,60	2,5
36681.W4030	M 4,0	30	2,8	6,0	7,0	2,6	1,60	2,5
36681.W4040	M 4,0	40	2,8	6,0	7,0	2,6	1,60	2,5
36681.W4050	M 4,0	50	2,8	6,0	7,0	2,6	1,60	2,5
36681.W4060	M 4,0	60	2,8	6,0	7,0	2,6	1,60	2,5
36681.W5012	M 5,0	12	3,7	7,5	8,5	3,3	2,00	3,0
36681.W5016	M 5,0	16	3,7	7,5	8,5	3,3	2,00	3,0
36681.W5020	M 5,0	20	3,7	7,5	8,5	3,3	2,00	3,0
36681.W5022	M 5,0	22	3,7	7,5	8,5	3,3	2,00	3,0
36681.W5025	M 5,0	25	3,7	7,5	8,5	3,3	2,00	3,0
36681.W5030	M 5,0	30	3,7	7,5	8,5	3,3	2,00	3,0
36681.W5040	M 5,0	40	3,7	7,5	8,5	3,3	2,00	3,0
36681.W5050	M 5,0	50	3,7	7,5	8,5	3,3	2,00	3,0
36681.W5060	M 5,0	60	3,7	7,5	8,5	3,3	2,00	3,0
36681.W5080	M 5,0	80	3,7	7,5	8,5	3,3	2,00	3,0
36681.W6016	M 6,0	16	4,2	7,5	10,0	3,9	2,30	4,0
36681.W6020	M 6,0	20	4,2	7,5	10,0	3,9	2,30	4,0
36681.W6025	M 6,0	25	4,2	7,5	10,0	3,9	2,30	4,0
36681.W6030	M 6,0	30	4,2	7,5	10,0	3,9	2,30	4,0
36681.W6040	M 6,0	40	4,2	7,5	10,0	3,9	2,30	4,0

Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm^2. Blackened and marine grade stainless steel (AISI 316, 1.4401) versions of this product are available. Also available on request in steel (anodised, black oxide or zinc plated), brass, aluminium etc.

Technical Notes

Used to comply with the Machinery Directive 2006/42/EC. Generally to ISO 1207. Often used with our captive washers (P0168) or retaining flanges (P0169 - for sheet metal applications). The use of our captive washers should be considered when fitted in panels with unthreaded holes.

Important Notes

Please note that these screws have a reduced diameter shank and should not be tightened to the recommended torque for an equivalent machine screw of size d_1.

Captive Screws - Cheese Head

hex drive - 303 stainless

36681

Order No.	d_1	l_1 ±0,25	d_2 ±0,12	l_2 ±0,25	d_3	h_1	h_2	A/F
36681.W6050	M 6,0	50	4,2	7,5	10,0	3,9	2,30	4,0
36681.W6060	M 6,0	60	4,2	7,5	10,0	3,9	2,30	4,0
36681.W6080	M 6,0	80	4,2	7,5	10,0	3,9	2,30	4,0

MADE IN BRITAIN

Material
Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm^2. Blackened and marine grade stainless steel (AISI 316, 1.4401) versions of this product are available. Also available on request in steel (anodised, black oxide or zinc plated), brass, aluminium etc.

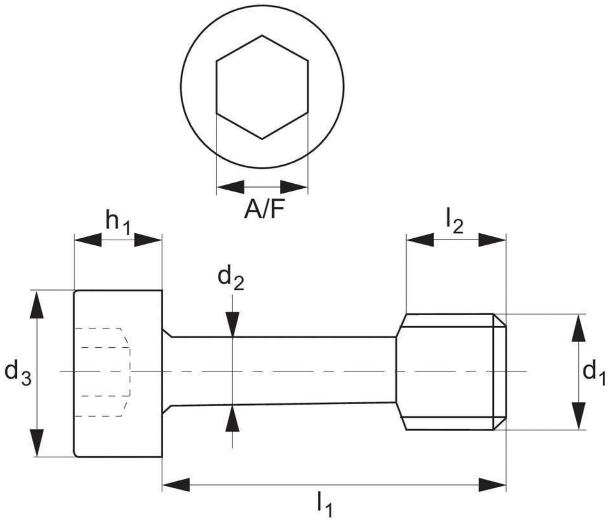
Technical Notes
Used to comply with the Machinery Directive 2006/42/EC. Generally to ISO 1207. Often used with our captive washers (P0168) or retaining flanges (P0169 - for sheet metal applications). The use of our captive washers should be considered when fitted in panels with unthreaded holes.

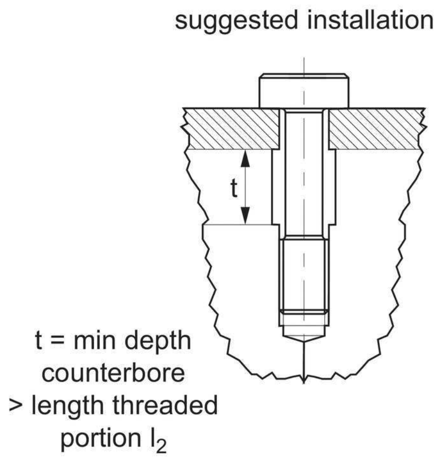
Important Notes
Please note that these screws have a reduced diameter shank and should not be tightened to the recommended torque for an equivalent machine screw of size d_1.

Captive Screws - Cap Head

hex drive- 303 stainless

36682





Order No.	d_1	l_1 ±0,25	d_2 ±0,12	l_2 ±0,25	d_3 max.	h_1 max.	A/F
36682.W0205	M2,5	5	1,8	3,0	4,5	2,5	2,0
36682.W0208	M2,5	8	1,8	3,0	4,5	2,5	2,0
36682.W0210	M2,5	10	1,8	3,0	4,5	2,5	2,0
36682.W0212	M2,5	12	1,8	3,0	4,5	2,5	2,0
36682.W0308	M 3	8	2,0	4,5	5,5	3	2,5
36682.W0310	M 3	10	2,0	4,5	5,5	3	2,5
36682.W0312	M 3	12	2,0	4,5	5,5	3	2,5
36682.W0316	M 3	16	2,0	4,5	5,5	3	2,5
36682.W0320	M 3	20	2,0	4,5	5,5	3	2,5
36682.W0325	M 3	25	2,0	4,5	5,5	3	2,5
36682.W0330	M 3	30	2,0	4,5	5,5	3	2,5
36682.W0412	M 4	12	2,8	6,0	7,0	4	3,0
36682.W0416	M 4	16	2,8	6,0	7,0	4	3,0
36682.W0420	M 4	20	2,8	6,0	7,0	4	3,0
36682.W0425	M 4	25	2,8	6,0	7,0	4	3,0
36682.W0430	M 4	30	2,8	6,0	7,0	4	3,0
36682.W0440	M 4	40	2,8	6,0	7,0	4	3,0
36682.W0450	M 4	50	2,8	6,0	7,0	4	3,0
36682.W0512	M 5	12	3,7	7,5	8,5	5	4,0
36682.W0516	M 5	16	3,7	7,5	8,5	5	4,0
36682.W0520	M 5	20	3,7	7,5	8,5	5	4,0
36682.W0525	M 5	25	3,7	7,5	8,5	5	4,0
36682.W0530	M 5	30	3,7	7,5	8,5	5	4,0
36682.W0540	M 5	40	3,7	7,5	8,5	5	4,0
36682.W0550	M 5	50	3,7	7,5	8,5	5	4,0
36682.W0612	M 6	12	4,2	7,5	10,0	6	5,0
36682.W0616	M 6	16	4,2	7,5	10,0	6	5,0
36682.W0620	M 6	20	4,2	7,5	10,0	6	5,0
36682.W0625	M 6	25	4,2	7,5	10,0	6	5,0
36682.W0630	M 6	30	4,2	7,5	10,0	6	5,0
36682.W0640	M 6	40	4,2	7,5	10,0	6	5,0
36682.W0650	M 6	50	4,2	7,5	10,0	6	5,0
36682.W0660	M 6	60	4,2	7,5	10,0	6	5,0
36682.W0680	M 6	80	4,2	7,5	10,0	6	5,0
36682.W0816	M 8	16	6,0	10,0	13,0	8	6,0
36682.W0820	M 8	20	6,0	10,0	13,0	8	6,0
36682.W0825	M 8	25	6,0	10,0	13,0	8	6,0
36682.W0830	M 8	30	6,0	10,0	13,0	8	6,0
36682.W0835	M 8	35	6,0	10,0	13,0	8	6,0
36682.W0840	M 8	40	6,0	10,0	13,0	8	6,0
36682.W0845	M 8	45	6,0	10,0	13,0	8	6,0
36682.W0850	M 8	50	6,0	10,0	13,0	8	6,0
36682.W0860	M 8	60	6,0	10,0	13,0	8	6,0
36682.W0880	M 8	80	6,0	10,0	13,0	8	6,0
36682.W1020	M10	20	7,5	12,5	16,0	10	8,0
36682.W1025	M10	25	7,5	12,5	16,0	10	8,0
36682.W1030	M10	30	7,5	12,5	16,0	10	8,0
36682.W1035	M10	35	7,5	12,5	16,0	10	8,0
36682.W1040	M10	40	7,5	12,5	16,0	10	8,0
36682.W1045	M10	45	7,5	12,5	16,0	10	8,0

Material

Stainless steel (AISI 303 , 1.4305). Tensile strength 550 N/mm^2. Also available on request in steel (anodised, black oxide or zinc plated), stainless steel (AISI 316, 1.440), brass, aluminium etc.

Technical Notes

Used to comply with the Machinery Directive 2006/42/EC. Generally to ISO 4762. Often used with our captive washers or retaining flanges. The use of our captive washers should be considered when fitted in panels with unthreaded holes.

Tips

TX drive style available.

Important Notes

Please note that these screws have a reduced diameter shank and should not be tightened to the recommended torque for an equivalent machine screw of size d_1.

Captive Screws - Cap Head

hex drive- 303 stainless

Order No.	d_1	l_1 ±0,25	d_2 ±0,12	l_2 ±0,25	d_3 max.	h_1 max.	A/F
36682.W1050	M10	50	7,5	12,5	16,0	10	8,0
36682.W1060	M10	60	7,5	12,5	16,0	10	8,0
36682.W1080	M10	80	7,5	12,5	16,0	10	8,0
36682.W1225	M12	25	8,0	15,0	18,0	12	10,0
36682.W1230	M12	30	8,0	15,0	18,0	12	10,0
36682.W1235	M12	35	8,0	15,0	18,0	12	10,0
36682.W1240	M12	40	8,0	15,0	18,0	12	10,0
36682.W1245	M12	45	8,0	15,0	18,0	12	10,0
36682.W1250	M12	50	8,0	15,0	18,0	12	10,0
36682.W1260	M12	60	8,0	15,0	18,0	12	10,0
36682.W1280	M12	80	8,0	15,0	18,0	12	10,0

36682

Material

Stainless steel (AISI 303 , 1.4305). Tensile strength 550 N/mm^2. Also available on request in steel (anodised, black oxide or zinc plated), stainless steel (AISI 316, 1.440), brass, aluminium etc.

Technical Notes

Used to comply with the Machinery Directive 2006/42/EC. Generally to ISO 4762. Often used with our captive washers or retaining flanges. The use of our captive washers should be considered when fitted in panels with unthreaded holes.

Tips

TX drive style available.

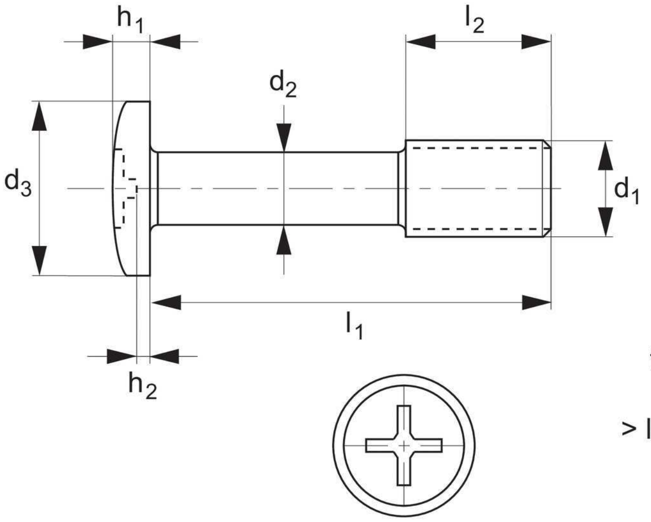
Important Notes

Please note that these screws have a reduced diameter shank and should not be tightened to the recommended torque for an equivalent machine screw of size d_1.

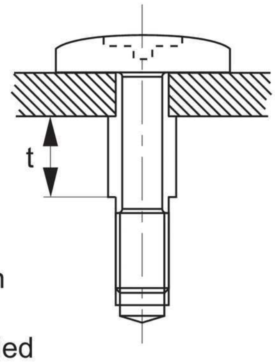
Captive Screws - Pan Head

TX drive - 303 stainless

36683



suggested installation



t = min depth counterbore > length threaded portion l_2

Order No.	d_1	l_1 ±0,25	d_2 ±0,12	l_2 ±0,25	d_3 max.	h_1 max.	h_2	Drive #
36683.W0251	M 2,5	8	1,7	4,0	5,0	2,1	0,7	1
36683.W0252	M 2,5	10	1,7	4,0	5,0	2,1	0,7	1
36683.W0253	M 2,5	12	1,7	4,0	5,0	2,1	0,7	1
36683.W0254	M 2,5	16	1,7	4,0	5,0	2,1	0,7	1
36683.W0255	M 2,5	20	1,7	4,0	5,0	2,1	0,7	1
36683.W0310	M 3	10	2,0	5,0	5,6	2,4	0,74	1
36683.W0316	M 3	16	2,0	5,0	5,6	2,4	0,74	1
36683.W0320	M 3	20	2,0	5,0	5,6	2,4	0,74	1
36683.W0325	M 3	25	2,0	5,0	5,6	2,4	0,74	1
36683.W0330	M 3	30	2,0	5,0	5,6	2,4	0,74	1
36683.W0340	M 3	40	2,0	5,0	5,6	2,4	0,74	1
36683.W0412	M 4	12	2,8	6,0	8,0	3,1	0,93	2
36683.W0416	M 4	16	2,8	6,0	8,0	3,1	0,93	2
36683.W0420	M 4	20	2,8	6,0	8,0	3,1	0,93	2
36683.W0430	M 4	30	2,8	6,0	8,0	3,1	0,93	2
36683.W0440	M 4	40	2,8	6,0	8,0	3,1	0,93	2
36683.W0450	M 4	50	2,8	6,0	8,0	3,1	0,93	2
36683.W0460	M 4	60	2,8	6,0	8,0	3,1	0,93	2
36683.W0512	M 5	12	3,7	7,5	9,5	3,7	1,0	2
36683.W0516	M 5	16	3,7	7,5	9,5	3,7	1,0	2
36683.W0520	M 5	20	3,7	7,5	10	3,9	1,0	2
36683.W0530	M 5	30	3,7	7,5	9,5	3,7	1,0	2
36683.W0540	M 5	40	3,7	7,5	9,5	3,7	1,0	2
36683.W0550	M 5	50	3,7	7,5	9,5	3,7	1,0	2
36683.W0560	M 5	60	3,7	7,5	9,5	3,7	1,0	2
36683.W0612	M 6	12	4,2	7,5	12,0	4,7	1,14	3
36683.W0616	M 6	16	4,2	8,0	12,0	4,7	1,14	3
36683.W0620	M 6	20	4,2	8,0	12,0	4,7	1,14	3
36683.W0630	M 6	30	4,2	8,0	12,0	4,7	1,14	3
36683.W0640	M 6	40	4,2	8,0	12,0	4,7	1,14	3
36683.W0650	M 6	50	4,2	8,0	12,0	4,7	1,14	3
36683.W0660	M 6	60	4,2	8,0	12,0	4,7	1,14	3
36683.W0680	M 6	80	4,2	8,0	12,0	4,7	1,14	3

Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm^2. Proof stress min. 190 N/mm^2, austenitic stainless steel.
Also available on request in steel (anodised, black oxide or zinc plated), stainless steel (AISI 316, 1.440), brass, aluminium etc.

Technical Notes

Used to comply with the Machinery Directive 2006/42/EC. Generally to ISO 14583. Often used with our captive washers (P0168) or retaining flanges (P0169 - for sheet metal applications). The use of our captive washers should be considered when fitted in panels with unthreaded holes. *M 8 sizes have a reduced TX size.

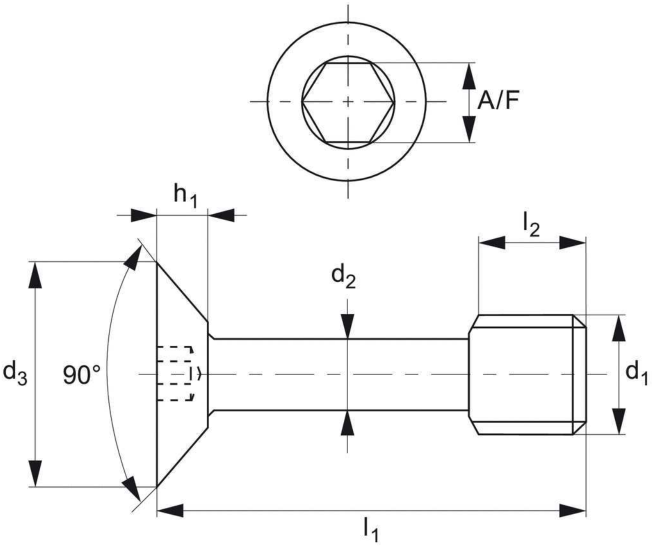
Important Notes

Please note that these screws have a reduced diameter shank and should not be tightened to the recommended torque for an equivalent machine screw of size d_1.

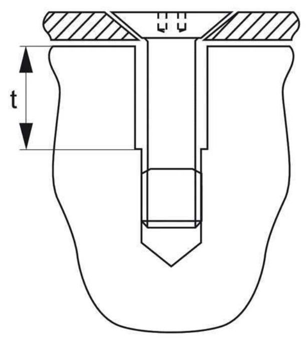
Captive Screws - Countersunk

hex drive- 303 stainless

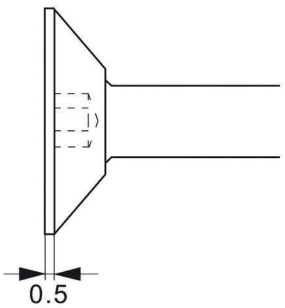
36684



suggested installation



t=min depth counterbore > length threaded portion l_2



head dimensions for M2 and M2.5 sizes

MADE IN BRITAIN

Order No.	d_1	l_1 ±0,25	d_2 ±0,12	l_2 ±0,25	d_3 max.	h_1 max.	A/F
36684.W0210	M 2	10	1,2	3,5	3,8	1,20	1,3
36684.W0212	M 2	12	1,2	3,5	3,8	1,20	1,3
36684.W0216	M 2	16	1,2	3,5	3,8	1,20	1,3
36684.W0220	M 2	20	1,2	3,5	3,8	1,20	1,3
36684.W0251	M 2,5	10	1,7	3,7	4,7	1,80	1,5
36684.W0252	M 2,5	12	1,7	3,7	4,7	1,80	1,5
36684.W0253	M 2,5	16	1,7	3,7	4,7	1,80	1,5
36684.W0254	M 2,5	20	1,7	3,7	4,7	1,80	1,5
36684.W0310	M 3	10	2,0	4,5	5,6	1,65	2
36684.W0316	M 3	16	2,0	4,5	5,6	1,65	2
36684.W0320	M 3	20	2,0	4,5	5,6	1,65	2
36684.W0325	M 3	25	2,0	4,5	5,6	1,65	2
36684.W0330	M 3	30	2,0	4,5	5,6	1,65	2
36684.W0340	M 3	40	2,0	4,5	5,6	1,65	2
36684.W0412	M 4	12	2,8	6,0	7,5	2,20	2,5
36684.W0416	M 4	16	2,8	6,0	7,5	2,20	2,5
36684.W0420	M 4	20	2,8	6,0	7,5	2,20	2,5
36684.W0430	M 4	30	2,8	6,0	7,5	2,20	2,5
36684.W0440	M 4	40	2,8	6,0	7,5	2,20	2,5
36684.W0450	M 4	50	2,8	6,0	7,5	2,20	2,5
36684.W0460	M 4	60	2,8	6,0	7,5	2,20	2,5
36684.W0512	M 5	12	3,7	7,5	9,2	2,50	3
36684.W0516	M 5	16	3,7	7,5	9,2	2,50	3
36684.W0520	M 5	20	3,7	7,5	9,2	2,50	3
36684.W0525	M 5	25	3,7	7,5	9,2	2,50	3
36684.W0530	M 5	30	3,7	7,5	9,2	2,50	3
36684.W0540	M 5	40	3,7	7,5	9,2	2,50	3
36684.W0550	M 5	50	3,7	7,5	9,2	2,50	3
36684.W0560	M 5	60	3,7	7,5	9,2	2,50	3
36684.W0616	M 6	16	4,2	8,0	11,0	3,00	4
36684.W0620	M 6	20	4,2	8,0	11,0	3,00	4
36684.W0625	M 6	25	4,2	8,0	11,0	3,00	4
36684.W0630	M 6	30	4,2	8,0	11,0	3,00	4
36684.W0640	M 6	40	4,2	8,0	11,0	3,00	4
36684.W0650	M 6	50	4,2	8,0	11,0	3,00	4
36684.W0660	M 6	60	4,2	8,0	11,0	3,00	4

Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm^2. Also available on request in steel (anodised, black oxide or zinc plated), stainless steel (AISI 316, 1.440), brass, aluminium etc.

Technical Notes

Used to comply with the Machinery Directive 2006/42/EC. Generally to ISO 10642. Often used with our captive washers (P0168) or retaining flanges (P0169 - for sheet metal applications). The use of our captive washers should be considered when fitted in panels with unthreaded holes.

Important Notes

Please note that these screws have a reduced diameter shank and should not be tightened to the recommended torque for an equivalent machine screw of size d_1. To accommodate the slight undercut at the top of the shank, the hex socket is smaller than on a similar threaded machine screw.

Captive Screws - Countersunk

hex drive- 303 stainless

36684

Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm^2. Also available on request in steel (anodised, black oxide or zinc plated), stainless steel (AISI 316, 1.440), brass, aluminium etc.

Technical Notes

Used to comply with the Machinery Directive 2006/42/EC. Generally to ISO 10642. Often used with our captive washers (P0168) or retaining flanges (P0169 - for sheet metal applications). The use of our captive washers should be considered when fitted in panels with unthreaded holes.

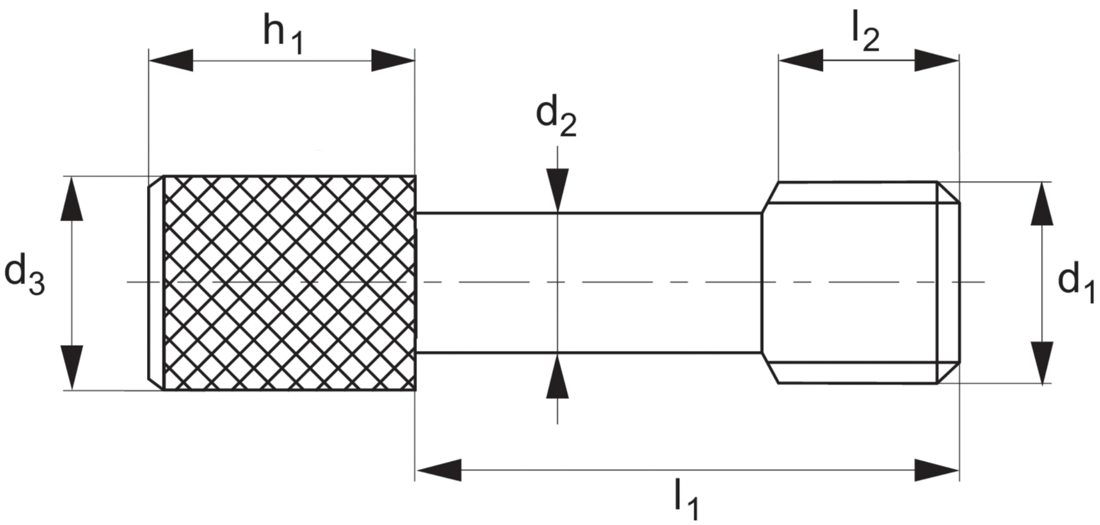
Important Notes

Please note that these screws have a reduced diameter shank and should not be tightened to the recommended torque for an equivalent machine screw of size d_1. To accommodate the slight undercut at the top of the shank, the hex socket is smaller than on a similar threaded machine screw.

Captive Thumb Screws

303 stainless

36686



Order No.	d_1	l_1 ±0,25	d_2 ±0,12	l_2 ±0,25	h_1	d_3
36686.W0316	M 3	16	2,0	8,0	10	5
36686.W0320	M 3	20	2,0	10,0	10	5
36686.W0325	M 3	25	2,0	13,0	10	5
36686.W0330	M 3	30	2,0	16,0	10	5
36686.W0335	M 3	35	2,0	17,5	10	5
36686.W0340	M 3	40	2,0	21,0	10	5
36686.W0350	M 3	50	2,0	25,0	10	5
36686.W0351	M 3,5	16	2,5	8,0	10	5
36686.W0352	M 3,5	20	2,5	10,0	10	5
36686.W0353	M 3,5	25	2,5	13,0	10	5
36686.W0354	M 3,5	30	2,5	16,0	10	5
36686.W0355	M 3,5	35	2,5	17,5	10	5
36686.W0356	M 3,5	40	2,5	21,0	10	5
36686.W0357	M 3,5	50	2,5	25,0	10	5
36686.W0416	M 4	16	3,0	8,0	10	5
36686.W0420	M 4	20	3,0	10,0	10	5
36686.W0425	M 4	25	3,0	12,5	10	5
36686.W0430	M 4	30	3,0	15,0	10	5
36686.W0435	M 4	35	3,0	17,5	10	5
36686.W0440	M 4	40	3,0	20,0	10	5
36686.W0450	M 4	50	3,0	25,0	10	5
36686.W0516	M 5	16	3,5	8,0	12	6
36686.W0520	M 5	20	3,5	10,0	12	6
36686.W0525	M 5	25	3,5	12,5	12	6
36686.W0530	M 5	30	3,5	15,0	12	6
36686.W0535	M 5	35	3,5	17,5	12	6
36686.W0540	M 5	40	3,5	24,0	12	6
36686.W0550	M 5	50	3,5	25,0	12	6
36686.W0616	M 6	16	4,5	8,0	12	8
36686.W0620	M 6	20	4,5	10,0	12	8
36686.W0625	M 6	25	4,5	12,5	12	8
36686.W0630	M 6	30	4,5	15,0	12	8
36686.W0635	M 6	35	4,5	17,5	12	8
36686.W0640	M 6	40	4,5	20,0	12	8
36686.W0650	M 6	50	4,5	25,0	12	8

Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm^2. Also available on request in steel (anodised, black oxide or zinc plated), stainless steel (AISI 316, 1.440), brass, aluminium etc.

Technical Notes

Used to comply with the Machinery Directive 2006/42/EC. Often used with our captive washers (36691) or retaining flanges (36692 - for sheet metal applications). The use of our captive washers should be considered when fitted in panels with unthreaded holes.

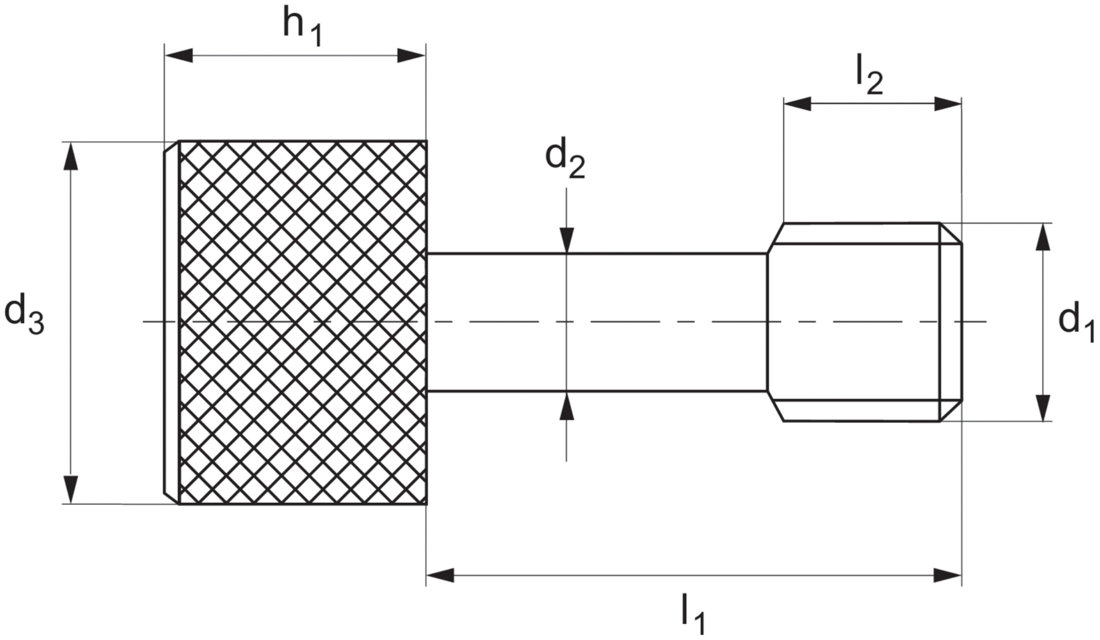
Important Notes

Please note that these screws have a reduced diameter shank and should not be tightened to the recommended torque for an equivalent machine screw of size d_1.

Captive Thumb Screws

303 stainless

36687



Order No.	d_1	l_1 ±0,25	d_2 ±0,12	l_2 ±0,25	d_3	h_1
36687.W3008	M 3	8	2,0	4,5	8	5
36687.W3010	M 3	10	2,0	4,5	8	5
36687.W3012	M 3	12	2,0	4,5	8	5
36687.W3014	M 3	14	2,0	4,5	8	5
36687.W3016	M 3	16	2,0	4,5	8	5
36687.W3508	M 3,5	8	2,3	6,0	8	5
36687.W3510	M 3,5	10	2,3	6,0	8	5
36687.W3512	M 3,5	12	2,3	6,0	8	5
36687.W3514	M 3,5	14	2,3	6,0	8	5
36687.W3516	M 3,5	16	2,3	6,0	8	5
36687.W4010	M 4	10	2,8	6,0	10	5
36687.W4012	M 4	12	2,8	6,0	10	5
36687.W4014	M 4	14	2,8	6,0	10	5
36687.W4016	M 4	16	2,8	6,0	10	5
36687.W4018	M 4	18	2,8	6,0	10	5
36687.W4020	M 4	20	2,8	6,0	10	5
36687.W4025	M 4	25	2,8	6,0	10	5
36687.W5010	M 5	10	3,7	7,5	10	5
36687.W5012	M 5	12	3,7	7,5	10	5
36687.W5014	M 5	14	3,7	7,5	10	5
36687.W5016	M 5	16	3,7	7,5	10	5
36687.W5018	M 5	18	3,7	7,5	10	5
36687.W5020	M 5	20	3,7	7,5	10	5
36687.W5025	M 5	25	3,7	7,5	10	5
36687.W5030	M 5	30	3,7	7,5	10	5
36687.W6013	M 6	12	4,5	7,5	12	6
36687.W6014	M 6	14	4,5	7,5	12	6
36687.W6016	M 6	16	4,5	7,5	12	6
36687.W6018	M 6	18	4,5	7,5	12	6
36687.W6020	M 6	20	4,5	7,5	12	6
36687.W6025	M 6	25	4,5	7,5	12	6
36687.W6030	M 6	30	4,5	7,5	12	6

Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm^2. Also available on request in steel (anodised, black oxide or zinc plated), stainless steel (AISI 316, 1.440), brass, aluminium etc.

Technical Notes

Used to comply with the Machinery Directive 2006/42/EC. Often used with our captive washers (36691) or retaining flanges (36692 - for sheet metal applications). The use of our captive washers should be considered when fitted in panels with unthreaded holes.

Important Notes

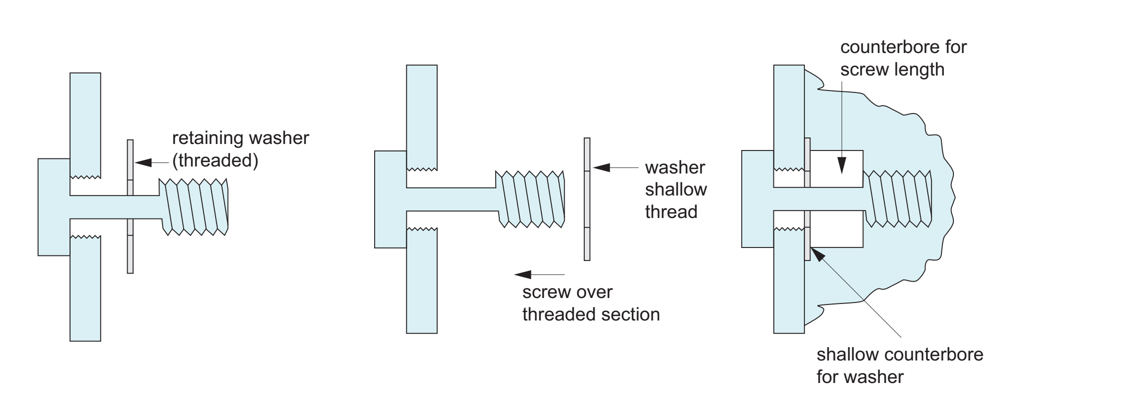
Please note that these screws have a reduced diameter shank and should not be tightened to the recommended torque for an equivalent machine screw of size d_1.

Retaining Washers

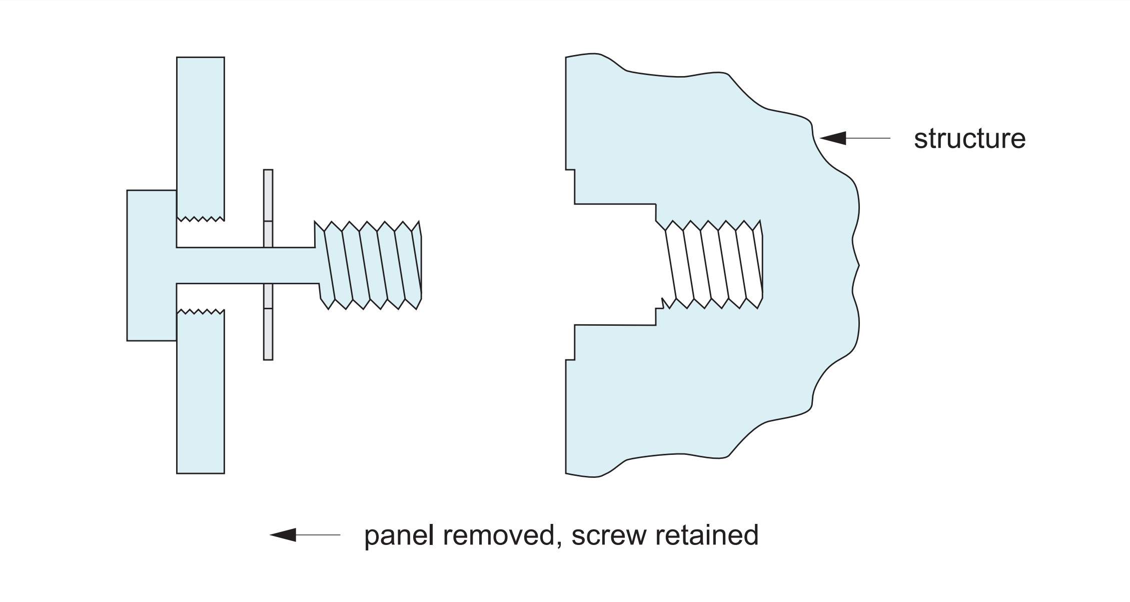
One option to retain screws to panels are our retaining washers. Used in place of retainer flanges, retaining washers are simple but effective when used with our captive screws. The captive screws have a normal thread then a reduced diameter for the rest of the screw length.

The retaining washer has a small length of thread on the internal diameter and once screwed on to the captive screw is effectively captive.

Example



Screw the thin retaining washer onto the captive screw and the screw is therefore retained to the panel.



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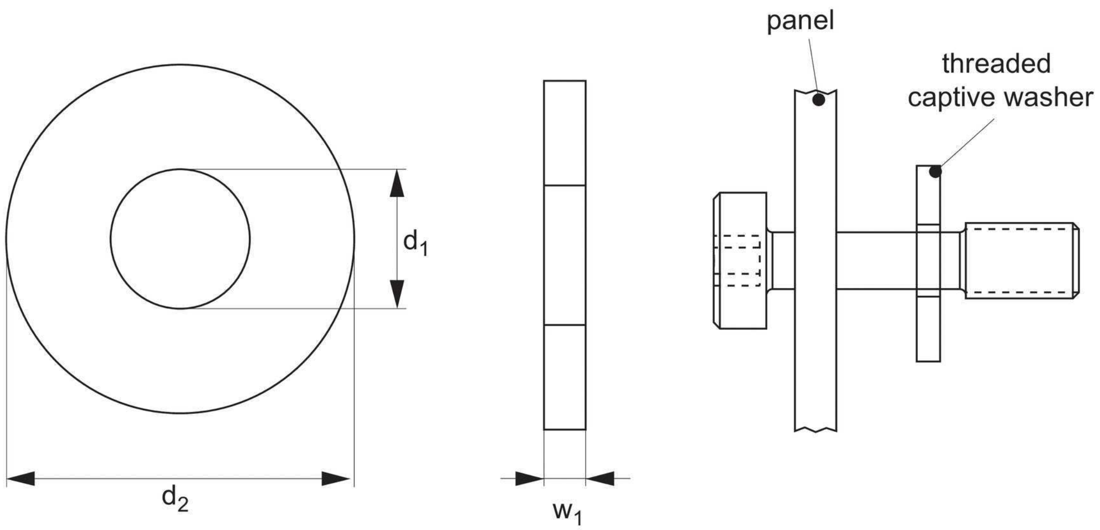
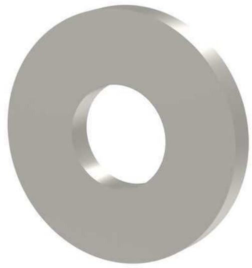
Threaded Captive Washers

for captive screws

36691





Order No.	d_1	d_2	w_1 ±0,05	Material
36691.W0025	M 2,5	5,0	1,0	A2 S/S
36691.W0030	M 3,0	6,0	1,0	A2 S/S
36691.W0040	M 4,0	8,0	1,2	A2 S/S
36691.W0050	M 5,0	10,0	1,5	A2 S/S
36691.W0060	M 6,0	12,0	1,6	A2 S/S
36691.W0080	M 8,0	16,0	2,0	A2 S/S
36691.W0100	M 10,0	20,0	3,0	A2 S/S
36691.W0120	M 12,0	24,0	3,5	A2 S/S
36691.W1025	M 2,5	5,0	1,0	A4 S/S
36691.W1030	M 3,0	6,0	1,0	A4 S/S
36691.W1040	M 4,0	8,0	1,2	A4 S/S
36691.W1050	M 5,0	10,0	1,5	A4 S/S
36691.W1060	M 6,0	12,0	1,6	A4 S/S
36691.W1080	M 8,0	16,0	2,0	A4 S/S
36691.W1100	M 10,0	20,0	3,0	A4 S/S
36691.W1120	M 12,0	24,0	3,5	A4 S/S
36691.W2025	M 2,5	5,0	1,0	Steel ZP
36691.W2030	M 3,0	6,0	1,0	Steel ZP
36691.W2040	M 4,0	8,0	1,2	Steel ZP
36691.W2050	M 5,0	10,0	1,5	Steel ZP
36691.W2060	M 6,0	12,0	1,6	Steel ZP
36691.W2080	M 8,0	16,0	2,0	Steel ZP
36691.W2100	M 10,0	20,0	3,0	Steel ZP
36691.W2120	M 12,0	24,0	3,5	Steel ZP
36691.W2160	M16	32,0	4,0	Titanium grade 5

Material

Stainless steel (AISI 303, 1.4305 and AISI 316, 1.4401), black oxide coated stainless steel, steel (zinc-plated or black oxide coated) and titanium (grade 2 and grade 5).

Technical Notes

Captive washers have a very shallow thread on the i/d. This enables them to be screwed on, and once past the threads they do not separate from the captive screw or bolt.

Tips

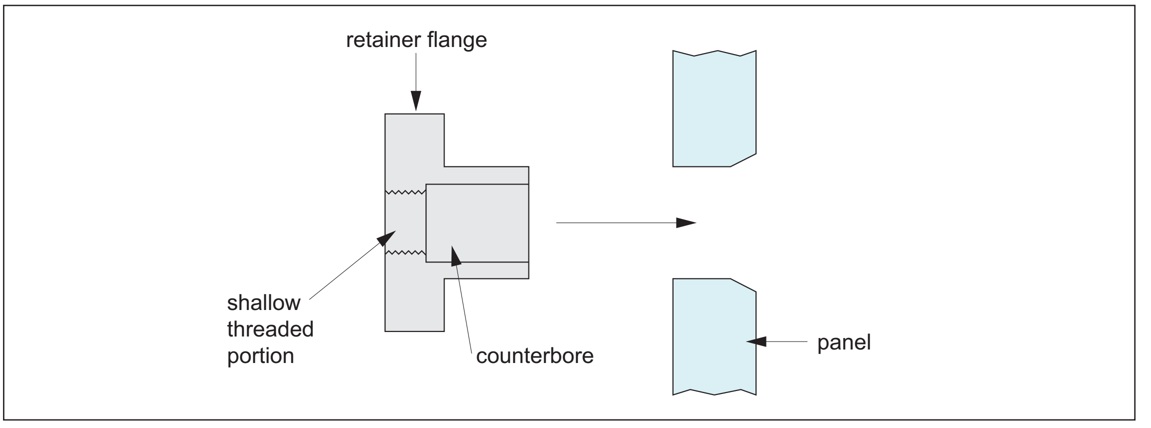
Captive washers are primarily used to retain captive screws in panels which have unthreaded holes. The panel (onto which the screw needs to be retained) is placed onto the captive screw, the threaded washer is then threaded onto the screw, past the threaded section and the screw is therefore captive to the panel.

Retainer Flanges

Preparation

- Select retainer based upon panel thickness
- Countersink panel

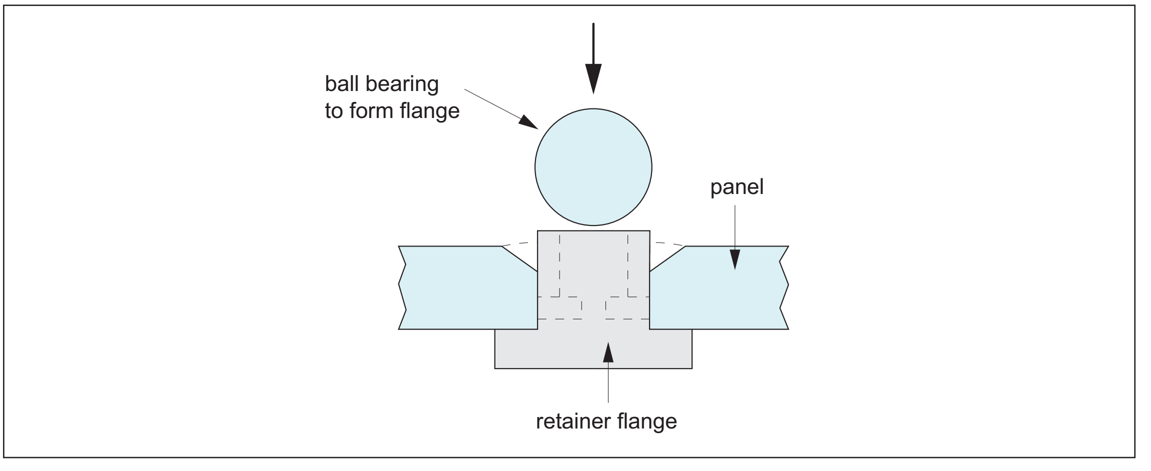
Wixroyd captive screw retainer flanges are available in both aluminium and stainless steel to suit the most common panel thicknesses. The retainer flange has a very shallow thread length on its internal diameter. A suitable hole is machined into the panel, and the underside of the hole is countersunk.



Mounting

- Insert flange
- Use ball bearing or punch to form flange onto panel

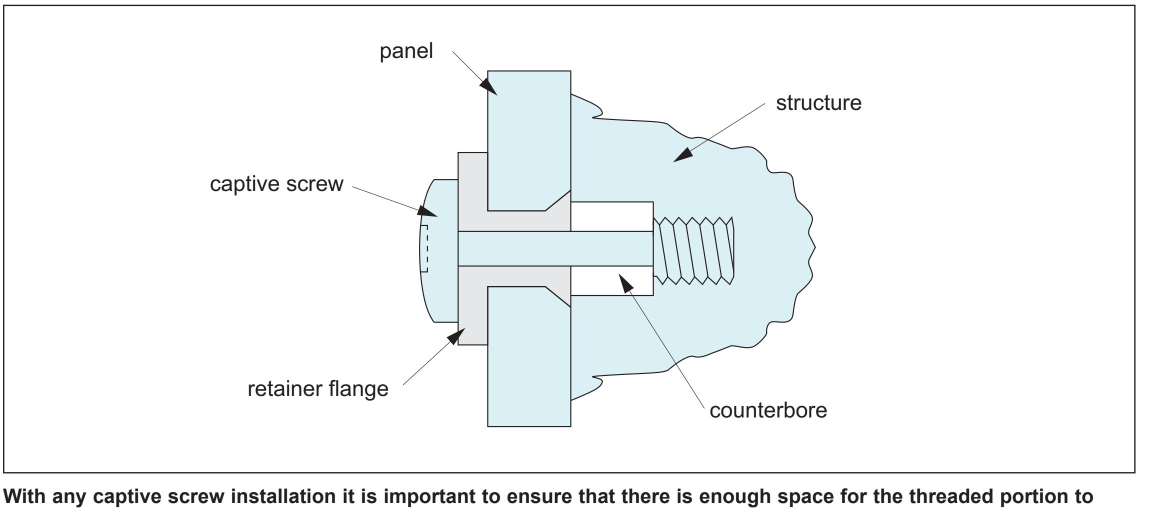
The flange is then joined to the panel using either a simple ball bearing (or for higher volume parts a hand punch) to form the bottom of the flange into the countersink. This retains the flange to the sheet.



Retaining flange secured onto panel using ball bearing or punch

Captive screw assembly

The captive screw or bolt is then threaded onto the retainer flange and once the thread length is through the initial shallow threaded portion of the retainer flange – is captive.

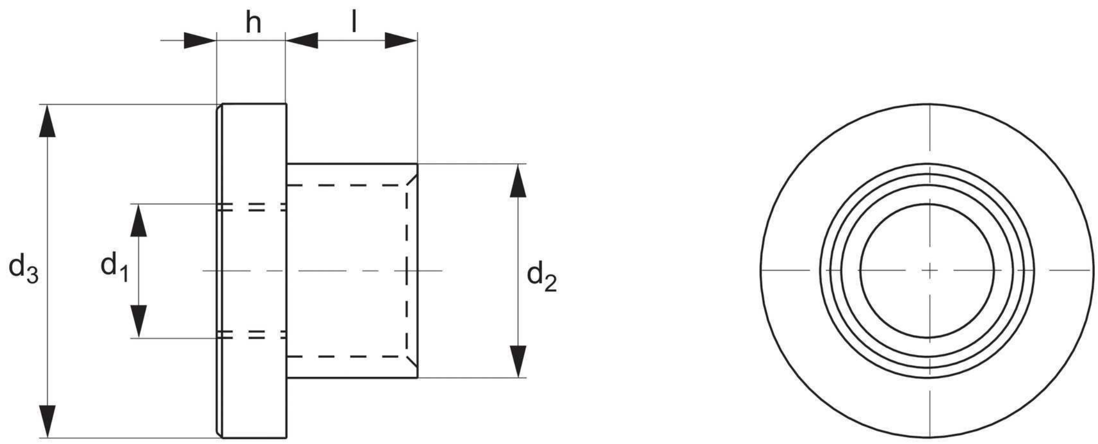


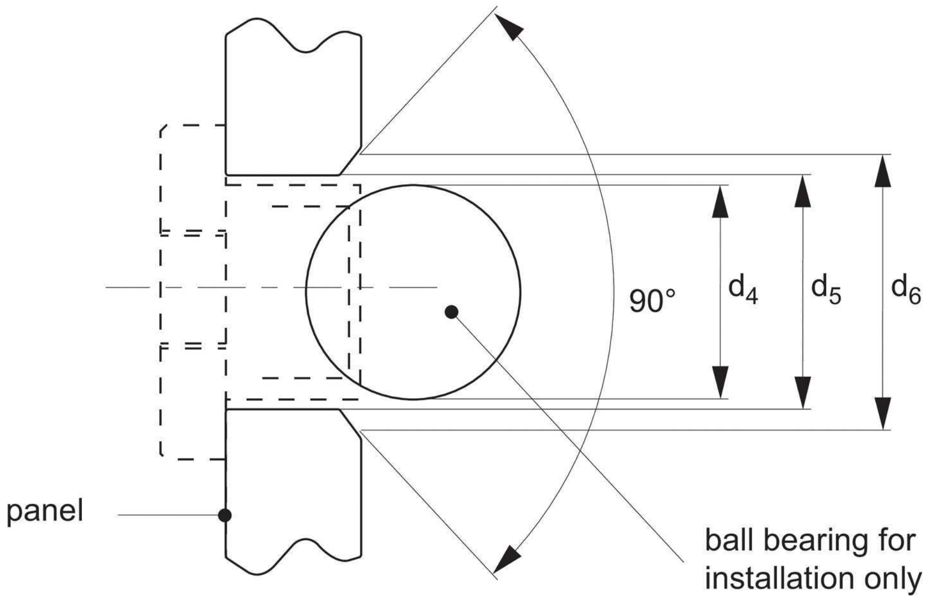
With any captive screw installation it is important to ensure that there is enough space for the threaded portion to become disengaged from the female thread of the structure.

Captive Screw Retainer Flange

303 stainless

36692





Material
Stainless steel (AISI 303, 1.4305). Also available on request in steel (anodised, black oxide or zinc plated) stainless steel (AISI 316, 1.440), brass.

Technical Notes
Select the retainer flange to suit thread of the captive screw and the thickness of the panel to be retained. Drill and countersink hole in the panel and use the ball bearing supplied to spread the flange into the countersunk hole. The captive screw is then screwed into the flange and the screw is retained to the panel.

Tips
Mounting hole diameter to H9 clearance.
Countersunk d_6 to 90°.

Order No.	For thread d_1	Panel t ± 8%	d_2	h	l	d_3	Instalation ball Ø d_4	d_5 H9	d_6
36692.W3007	M 3	0,7	5,0	1,5	0,7	7,5	5	5,0	6,0
36692.W3009	M 3	0,9	5,0	1,5	0,9	7,5	5	5,0	6,0
36692.W3012	M 3	1,25	5,0	1,5	1,25	7,5	5	5,0	6,0
36692.W3015	M 3	1,5	5,0	1,5	1,5	7,5	5	5,0	6,0
36692.W3020	M 3	2,0	5,0	1,5	2,0	7,5	5	5,0	6,0
36692.W3025	M 3	2,5	5,0	1,5	2,5	7,5	5	5,0	6,0
36692.W3030	M 3	3,0	5,0	1,5	3,0	7,5	5	5,0	6,0
36692.W3040	M 3	4,0	5,0	1,5	4,0	7,5	5	5,0	6,0
36692.W3050	M 3	5,0	5,0	1,5	5,0	7,5	5	5,0	6,0
36692.W3060	M 3	6,0	5,0	1,5	6,0	7,5	5	5,0	6,0
36692.W4007	M 4	0,7	6,8	2,0	0,7	10,0	7	6,8	8,2
36692.W4009	M 4	0,9	6,8	2,0	0,9	10,0	7	6,8	8,2
36692.W4012	M 4	1,25	6,8	2,0	1,25	10,0	7	6,8	8,2
36692.W4015	M 4	1,5	6,8	2,0	1,5	10,0	7	6,8	8,2
36692.W4020	M 4	2,0	6,8	2,0	2,0	10,0	7	6,8	8,2
36692.W4025	M 4	2,5	6,8	2,0	2,5	10,0	7	6,8	8,2
36692.W4030	M 4	3,0	6,8	2,0	3,0	10,0	7	6,8	8,2
36692.W4040	M 4	4,0	6,8	2,0	4,0	10,0	7	6,8	8,2
36692.W4050	M 4	5,0	6,8	2,0	5,0	10,0	7	6,8	8,2
36692.W4060	M 4	6,0	6,8	2,0	6,0	10,0	7	6,8	8,2
36692.W5007	M 5	0,7	8,0	2,5	0,7	12,5	8	8,0	9,6
36692.W5009	M 5	0,9	8,0	2,5	0,9	12,5	8	8,0	9,6
36692.W5012	M 5	1,25	8,0	2,5	1,25	12,5	8	8,0	9,6
36692.W5015	M 5	1,5	8,0	2,5	1,5	12,5	8	8,0	9,6
36692.W5020	M 5	2,0	8,0	2,5	2,0	12,5	8	8,0	9,6
36692.W5025	M 5	2,5	8,0	2,5	2,5	12,5	8	8,0	9,6
36692.W5030	M 5	3,0	8,0	2,5	3,0	12,5	8	8,0	9,6

Captive Screw Retainer Flange

303 stainless

36692

Order No.	For thread d_1	Panel t ± 8%	d_2	h	l	d_3	Installation ball Ø d_4	d_5 H9	d_6
36692.W5040	M 5	4,0	8,0	2,5	4,0	12,5	8	8,0	9,6
36692.W5050	M 5	5,0	8,0	2,5	5,0	12,5	8	8,0	9,6
36692.W5060	M 5	6,0	8,0	2,5	6,0	12,5	8	8,0	9,6
36692.W6007	M 6	0,7	10,0	3,0	0,7	15,0	10	10,0	12,0
36692.W6009	M 6	0,9	10,0	3,0	0,9	15,0	10	10,0	12,0
36692.W6012	M 6	1,25	10,0	3,0	1,25	15,0	10	10,0	12,0
36692.W6015	M 6	1,5	10,0	3,0	1,5	15,0	10	10,0	12,0
36692.W6020	M 6	2,0	10,0	3,0	2,0	15,0	10	10,0	12,0
36692.W6025	M 6	2,5	10,0	3,0	2,5	15,0	10	10,0	12,0
36692.W6030	M 6	3,0	10,0	3,0	3,0	15,0	10	10,0	12,0
36692.W6040	M 6	4,0	10,0	3,0	4,0	15,0	10	10,0	12,0
36692.W6050	M 6	5,0	10,0	3,0	5,0	15,0	10	10,0	12,0
36692.W6060	M 6	6,0	10,0	3,0	6,0	15,0	10	10,0	12,0
36692.W8007	M 8	0,7	13,0	4,0	0,7	20,0	13	13,0	15,5
36692.W8009	M 8	0,9	13,0	4,0	0,9	20,0	13	13,0	15,5
36692.W8012	M 8	1,25	13,0	4,0	1,25	20,0	13	13,0	15,5
36692.W8015	M 8	1,5	13,0	4,0	1,5	20,0	13	13,0	15,5
36692.W8020	M 8	2,0	13,0	4,0	2,0	20,0	13	13,0	15,5
36692.W8025	M 8	2,5	13,0	4,0	2,5	20,0	13	13,0	15,5
36692.W8030	M 8	3,0	13,0	4,0	3,0	20,0	13	13,0	15,5
36692.W8040	M 8	4,0	13,0	4,0	4,0	20,0	13	13,0	15,5
36692.W8050	M 8	5,0	13,0	4,0	5,0	20,0	13	13,0	15,5
36692.W8060	M 8	6,0	13,0	4,0	6,0	20,0	13	13,0	15,5

Material

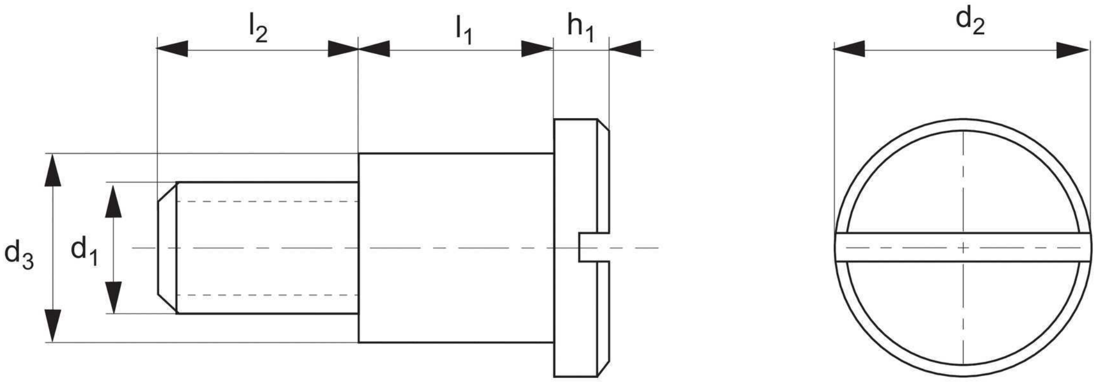
Stainless steel (AISI 303, 1.4305). Also available on request in steel (anodised, black oxide or zinc plated) stainless steel (AISI 316, 1.440), brass.

Technical Notes

Select the retainer flange to suit thread of the captive screw and the thickness of the panel to be retained. Drill and countersink hole in the panel and use the ball bearing supplied to spread the flange into the countersunk hole. The captive screw is then screwed into the flange and the screw is retained to the panel.

Tips

Mounting hole diameter to H9 clearance.
Countersunk d_6 to 90°.

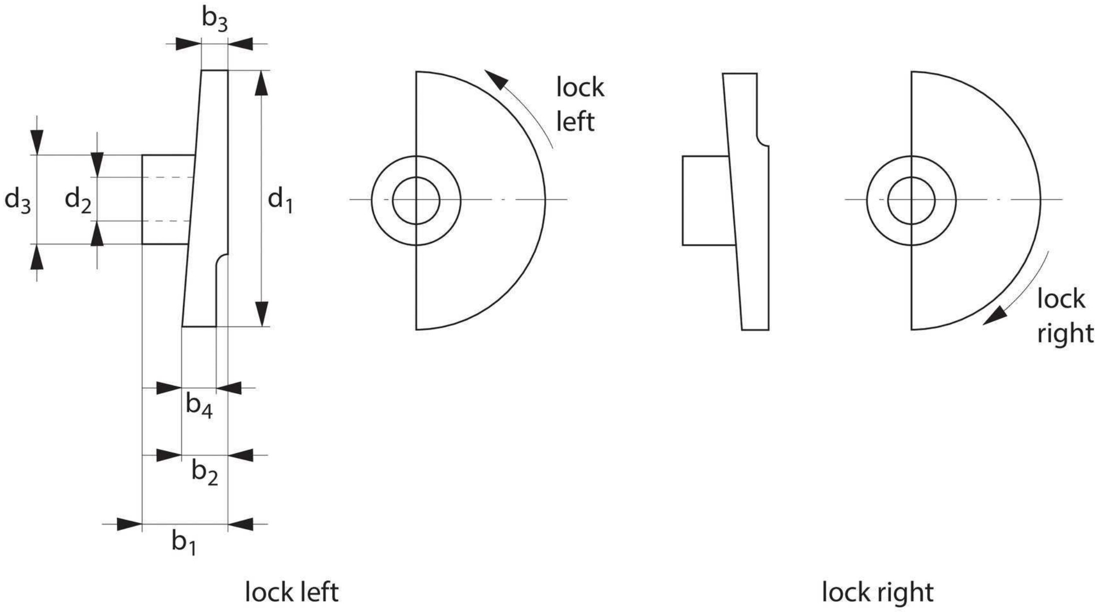


Material
Steel, strength class 5.8, blackened. Case hardened to 0,2 - 0,4mm depth.

Technical Notes
Suitable for use with captive C washers no. 36620.

Tips
Dimension tolerances:
l_1 = 10 (+0,15/+0,07),
l_1 = 12 (+0,20/+0,10),
l_1 = 16 (+0,20/0,10).

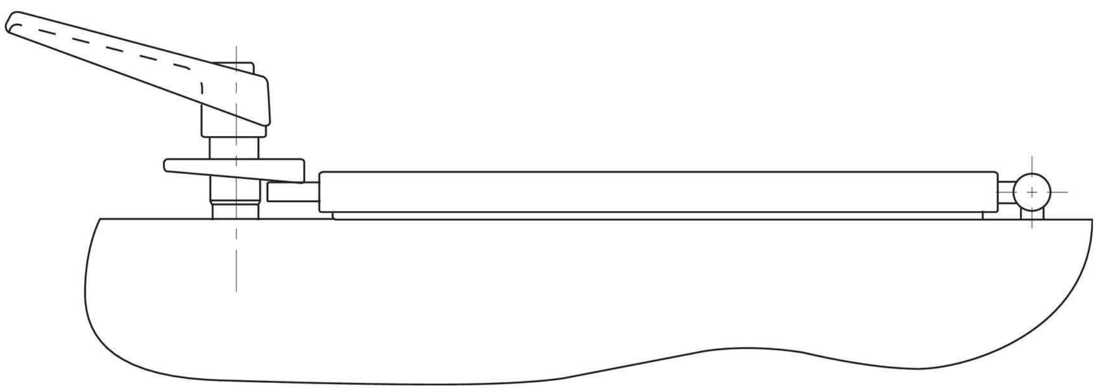
36820

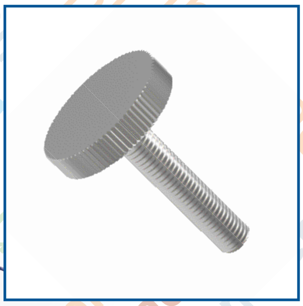


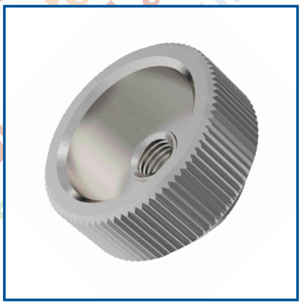
Material
Dry powdered metal.

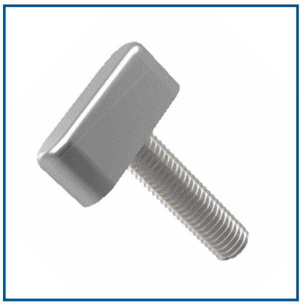
Technical Notes
Not suitable for welding. Secure by using pins.

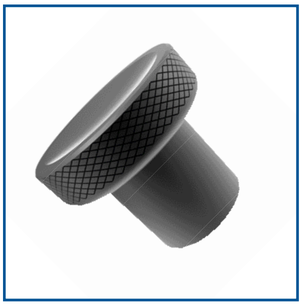
Order No.	Type	d_1	d_2 H8	d_3	b_1	b_2	b_3	b_4	g
36820.W0008	Lock-right	35	8	18	15	7	3	7,0	30
36820.W0010	Lock-right	35	10	18	15	7	3	7,0	31
36820.W0012	Lock-right	65	12	23	20	10	5	7,2	103
36820.W0016	Lock-right	80	16	27	24	12	6	8,8	174
36820.W0108	Lock-left	35	8	18	15	7	3	7,0	34
36820.W0110	Lock-left	35	10	18	15	7	3	7,0	31
36820.W0112	Lock-left	65	12	23	20	10	5	7,2	103
36820.W0116	Lock-left	80	16	27	24	12	6	8,8	175



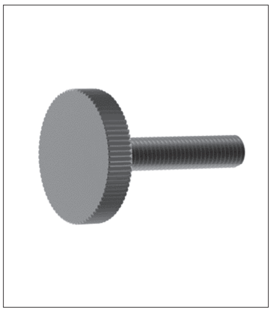




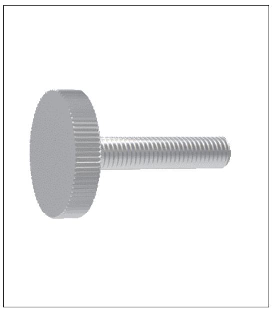




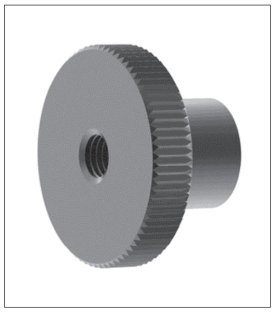
Thumb Screws & Nuts



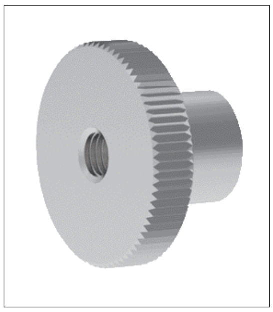
37020 - Steel flat knurled screw



37040 - Stainless steel flat knurled screw



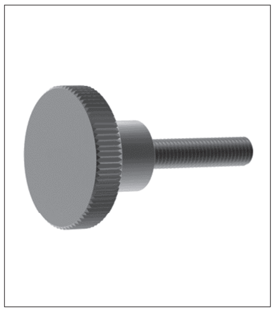
37100 - Steel knurled nut with collar



37110 - Stainless steel knurled nut with collar

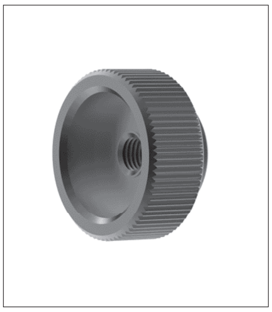
37120 - Steel flat knurled nut

37130 - Stainless steel flat knurled nut

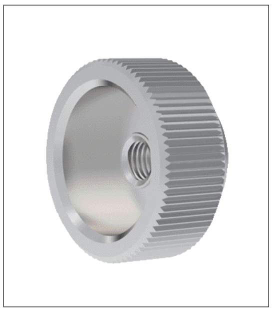


37140 - Steel knurled screw with collar

37150 - Stainless steel knurled screw with collar

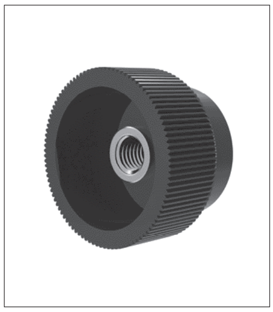


37160 - Steel knurled nut



37170 - Stainless steel knurled nut

37200 - Stainless steel knurled thumb screw



37330 - Plastic knurled nut

37352 - Plastic knurled steel screw

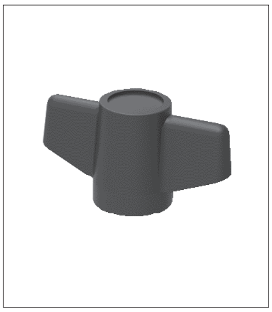
37354 - Plastic knurled stainless steel screw

37380 - 1/4 turn screw

37400 - 1/4 turn nut

37460 - Thumb knob

Wixroyd 0845 26 66 577 info@wixroyd.com



72180 - **Plastic wing nut**

72190 - **Plastic wing nut with screw**

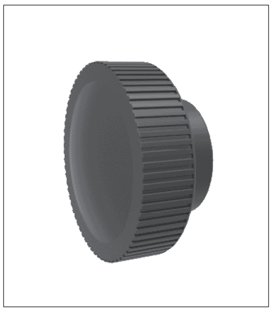
72210 - **Plastic wing nuts**

72270 - **1/4 turn nut**

72280 - **1/4 turn nut**

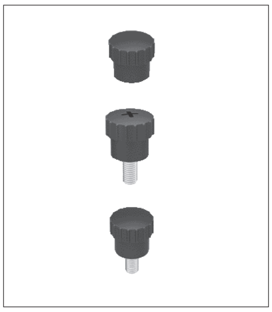
72290 - **1/4 turn screw**

72300 - **1/4 turn screw**

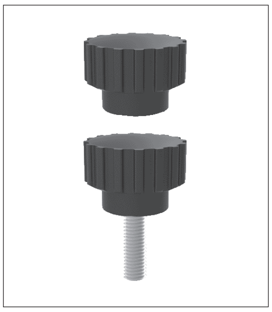


72410 - **Knurled knob**

72430 - **Knurled knob with screw**



72440 - **Knurled knobs**

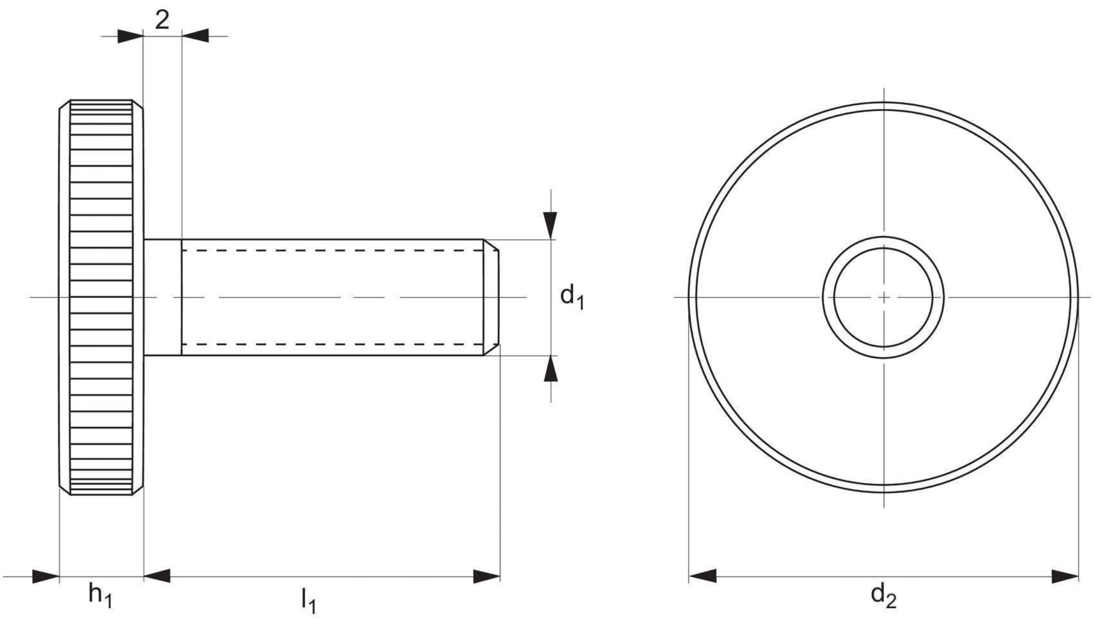


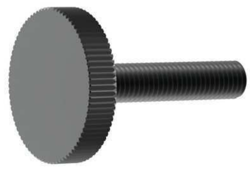
72460 - **Knurled knobs**

73200 - **Mushroom knobs**

Flat Knurled Thumb Screws

37020





Material
Steel, quality 5.8, blackened.
Turned, visible face, good finish.

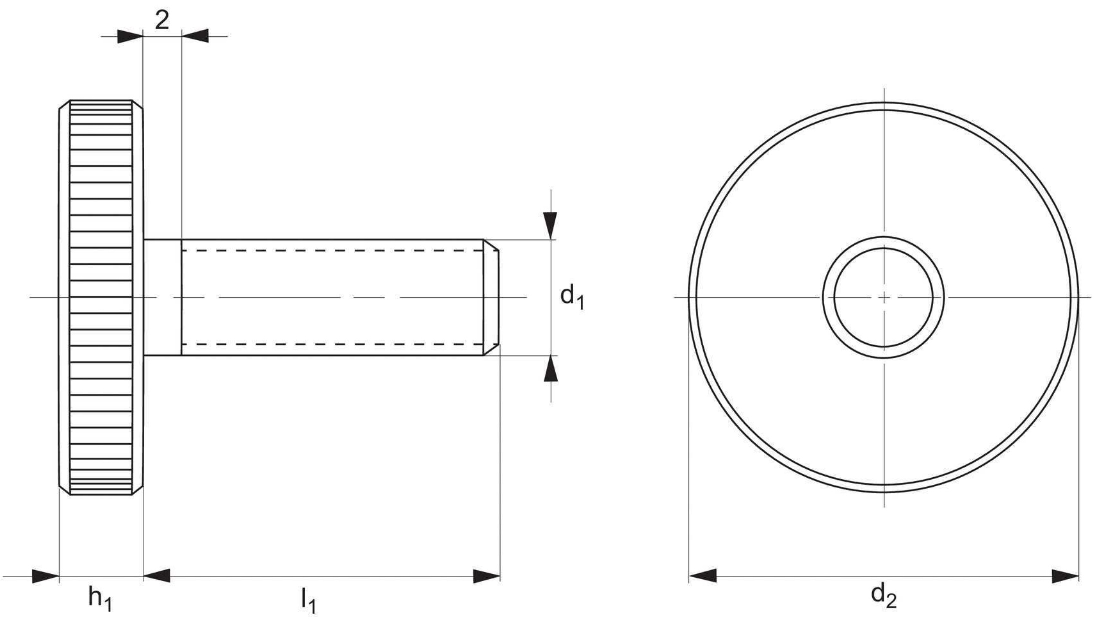
Technical Notes
All knurled screws are one-piece manufactured with thread up to the head (DIN-designation 'A').

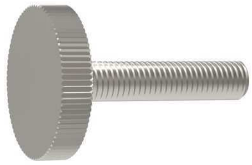
Order No.	d_1	l_1	d_2	k	g
37020.W0072	M 3	6	12	2,5	2,3
37020.W0073	M 3	8	12	2,5	2,4
37020.W0074	M 3	10	12	2,5	2,5
37020.W0077	M 3	16	12	2,5	2,7
37020.W0079	M 3	20	12	2,5	2,9
37020.W0092	M 4	8	16	3,5	5,6
37020.W0093	M 4	10	16	3,5	5,7
37020.W0094	M 4	12	16	3,5	6,1
37020.W0096	M 4	16	16	3,5	6,2
37020.W0098	M 4	20	16	3,5	6,6
37020.W0100	M 4	25	16	3,5	7,0
37020.W0112	M 5	10	20	4,0	10,0
37020.W0113	M 5	12	20	4,0	11,0
37020.W0115	M 5	16	20	4,0	12,0
37020.W0117	M 5	20	20	4,0	12,0
37020.W0119	M 5	25	20	4,0	12,0
37020.W0121	M 5	30	20	4,0	13,0
37020.W0132	M 6	12	24	5,0	18,0
37020.W0134	M 6	16	24	5,0	20,0
37020.W0136	M 6	20	24	5,0	20,0
37020.W0138	M 6	25	24	5,0	20,0
37020.W0140	M 6	30	24	5,0	22,0
37020.W0142	M 6	40	24	5,0	23,0
37020.W0152	M 8	16	30	6,0	36,0
37020.W0154	M 8	20	30	6,0	37,0
37020.W0156	M 8	25	30	6,0	39,0
37020.W0158	M 8	30	30	6,0	41,0
37020.W0160	M 8	35	30	6,0	42,0
37020.W0161	M 8	40	30	6,0	44,0
37020.W0172	M10	20	36	8,0	71,0
37020.W0174	M10	25	36	8,0	72,0
37020.W0176	M10	30	36	8,0	76,0
37020.W0180	M10	40	36	8,0	80,0

Flat Knurled Thumb Screws

stainless steel

37040





Material
Stainless steel 1.4305 (AISI 303).

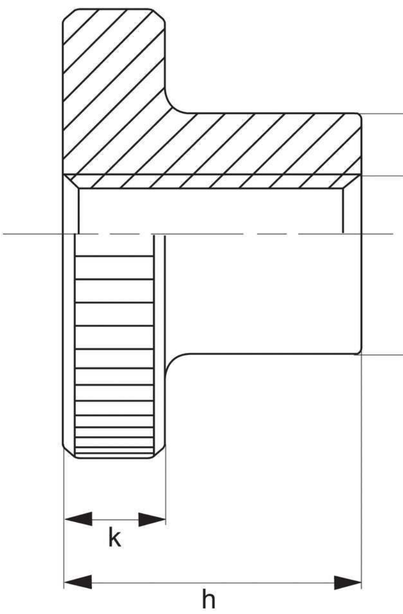
Technical Notes
All knurled screws are one-piece manufactured with thread up to the head (DIN-designation 'A').

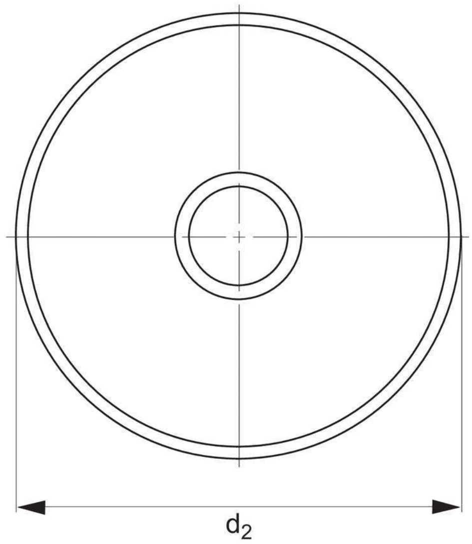
Order No.	d_1	l_1	d_2	h_1	g
37040.W0092	M 4	8	16	3,5	5,6
37040.W0093	M 4	10	16	3,5	5,7
37040.W0094	M 4	12	16	3,5	6,1
37040.W0096	M 4	16	16	3,5	6,2
37040.W0112	M 5	10	20	4,0	10,0
37040.W0113	M 5	12	20	4,0	11,0
37040.W0115	M 5	16	20	4,0	12,0
37040.W0117	M 5	20	20	4,0	12,0
37040.W0132	M 6	12	24	5,0	18,0
37040.W0134	M 6	16	24	5,0	20,0
37040.W0136	M 6	20	24	5,0	20,0
37040.W0138	M 6	25	24	5,0	20,0
37040.W0152	M 8	16	30	6,0	36,0
37040.W0154	M 8	20	30	6,0	37,0
37040.W0156	M 8	25	30	6,0	39,0
37040.W0158	M 8	30	30	6,0	41,0
37040.W0172	M10	20	36	8,0	71,0
37040.W0174	M10	25	36	8,0	72,0
37040.W0176	M10	30	36	8,0	76,0
37040.W0180	M10	40	36	8,0	80,0

Knurled Nuts

with collar - DIN 466

37100





Material
Steel, quality 5, blackened. Turned, visible face, good finish.

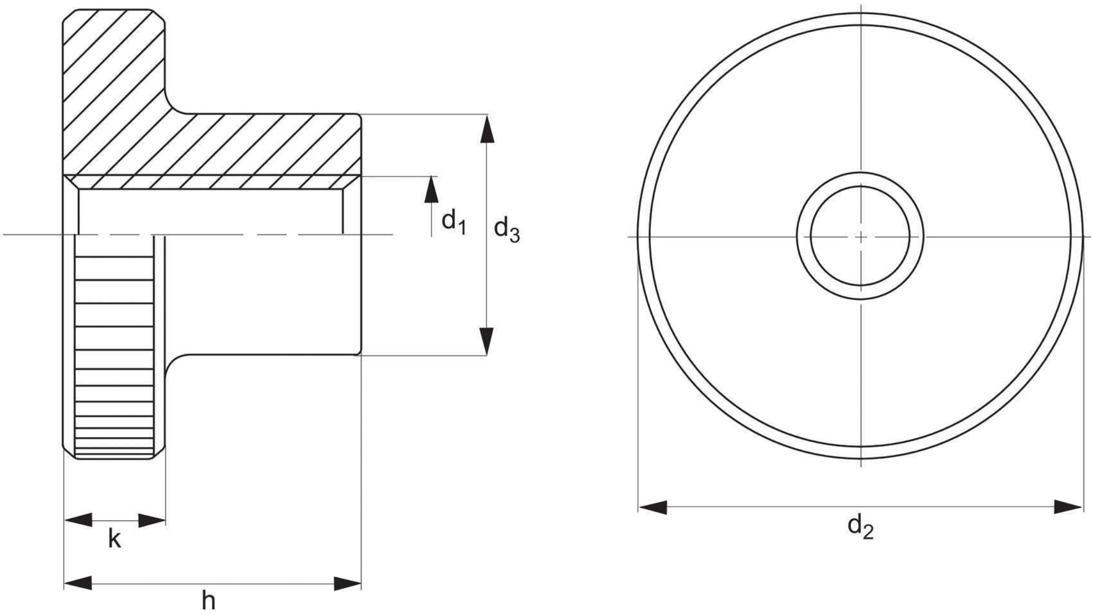
Technical Notes
Size M12 not contained in DIN standard.

Order No.	d_1	d_2	d_3	h	k	g
37100.W0003	M 3	12	6	7,5	2,5	2,9
37100.W0004	M 4	16	8	9,5	3,5	6,7
37100.W0005	M 5	20	10	11,5	4,0	12,0
37100.W0006	M 6	24	12	15,0	5,0	23,0
37100.W0008	M 8	30	16	18,0	6,0	44,0
37100.W0010	M10	36	20	23,0	8,0	85,0
37100.W0012	M12	40	22	25,0	10,0	119.0

Knurled Nuts

with collar, stainless steel - DIN 466

37110

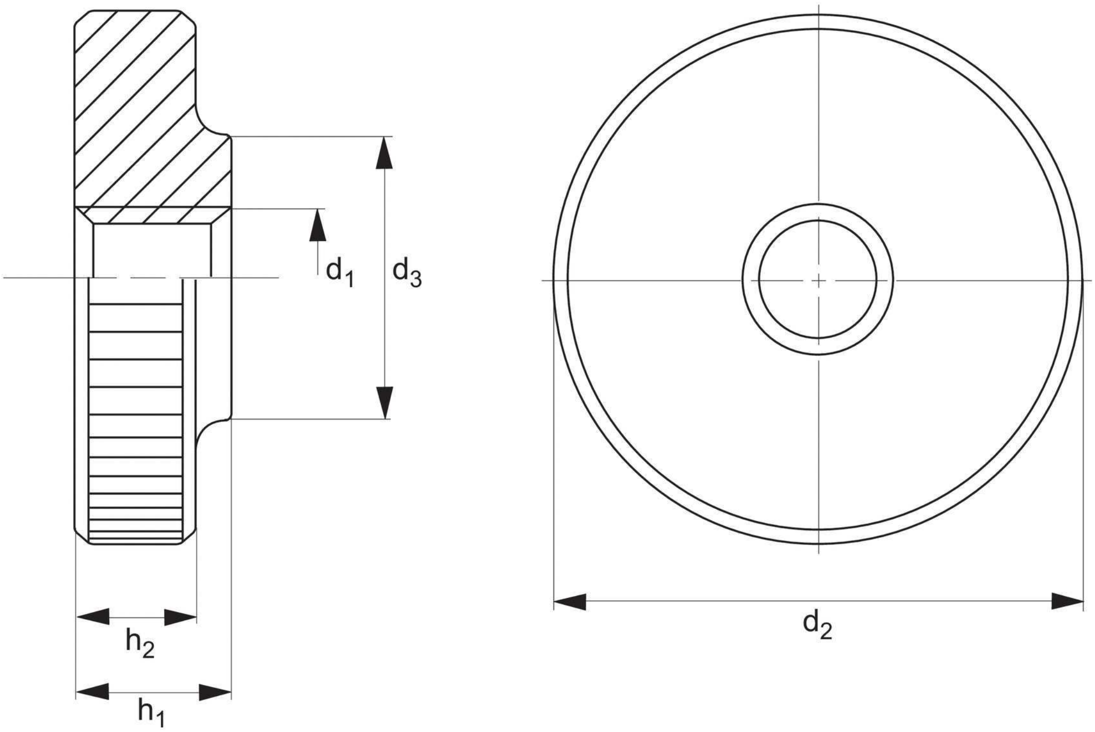


Material

Stainless steel 1.4305 (AISI 303), matte, shot-blasted.

STAINLESS STEEL 303

Order No.	d_1	d_2	d_3	h	k	g
37110.W0002	M2,5	11	5	6,5	2,5	3,5
37110.W0003	M 3	12	6	7,5	2,5	3,5
37110.W0004	M 4	16	8	9,5	3,5	6,7
37110.W0005	M 5	20	10	11,5	4,0	12,0
37110.W0006	M 6	24	12	15,0	5,0	23,0
37110.W0008	M 8	30	16	18,0	6,0	44,0
37110.W0010	M10	36	20	23,0	8,0	85,0



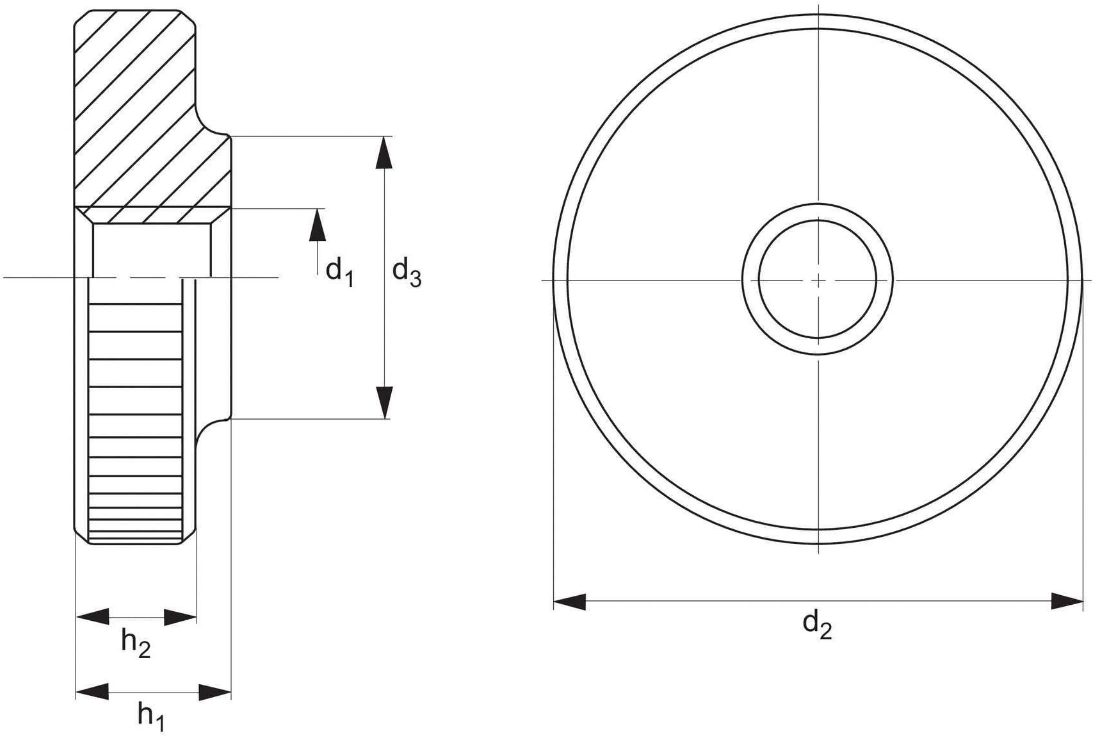
Material
Steel, quality 5, blackened. Turned, visible face, good finish.

Technical Notes
Size M12 not contained in DIN standard.

Order No.	d_1	d_2	d_3	h_1	h_2	g
37120.W0003	M 3	12	6	3	2,5	2,1
37120.W0004	M 4	16	8	4	3,5	5,0
37120.W0005	M 5	20	10	5	4,0	9,4
37120.W0006	M 6	24	12	6	5,0	17,0
37120.W0008	M 8	30	16	8	6,0	32,0
37120.W0010	M10	36	20	10	8,0	61,0
37120.W0012	M12	40	22	12	10,0	92,0

Flat Knurled Nuts
stainless steel

37130



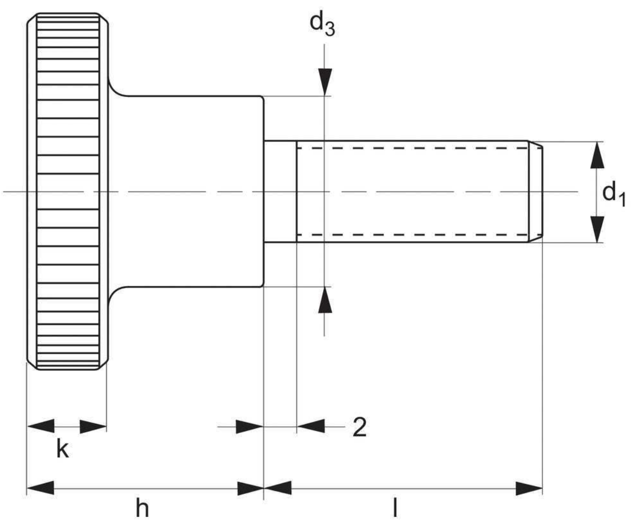
Material
Stainless steel 1,4305 (AISI 303), dull blasted.

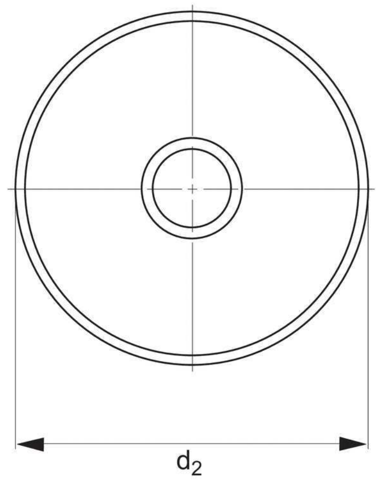
Order No.	d_1	d_2	d_3	h_1	h_2	g
37130.W0003	M 3	12	6	3	2,5	2,1
37130.W0004	M 4	16	8	4	3,5	5,0
37130.W0005	M 5	20	10	5	4,0	9,4
37130.W0006	M 6	24	12	6	5,0	17,0
37130.W0008	M 8	30	16	8	6,0	32,0
37130.W0010	M10	36	20	10	8,0	61,0

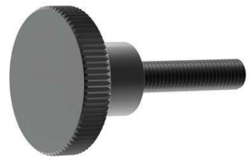
Knurled Thumb Screws

DIN 464

37140







Material

Steel, quality 5.8, blackened. Turned, visible face, good finish.

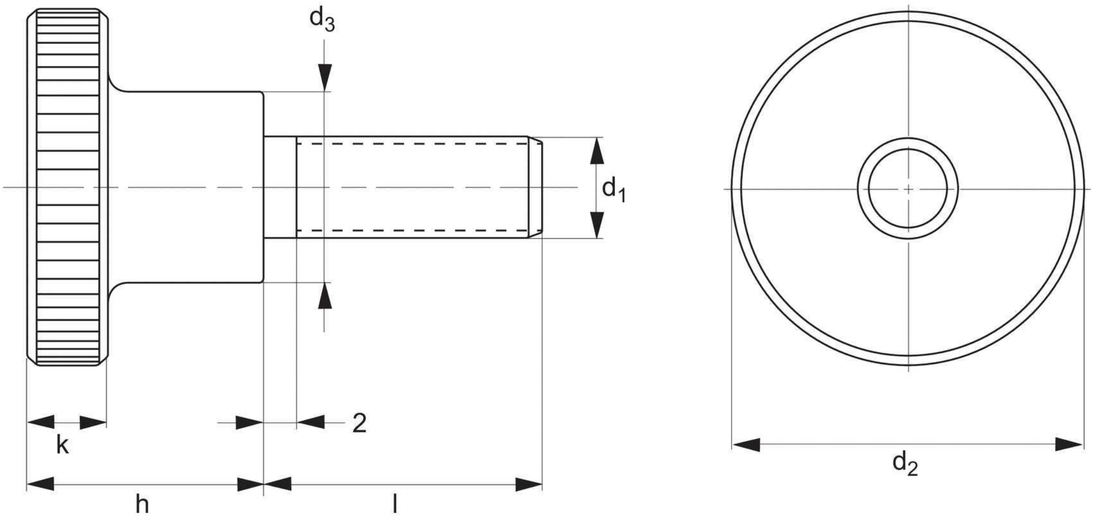
Technical Notes

All knurled screws are one-piece manufactured. Contrary to the Official Standard Sheet, they all have a thread up to the head, as shown, but no recess at the thread end.

Order No.	d_1	l	d_2	d_3	h	k	g
37140.W0031	M 3	6	12	6	7,5	2,5	3,7
37140.W0032	M 3	10	12	6	7,5	2,5	3,8
37140.W0033	M 3	12	12	6	7,5	2,5	4,0
37140.W0034	M 3	16	12	6	7,5	2,5	4,0
37140.W0040	M 4	5	16	8	9,5	3,5	7,7
37140.W0041	M 4	8	16	8	9,5	3,5	7,9
37140.W0042	M 4	10	16	8	9,5	3,5	8,1
37140.W0043	M 4	12	16	8	9,5	3,5	8,3
37140.W0044	M 4	16	16	8	9,5	3,5	8,4
37140.W0045	M 4	20	16	8	9,5	3,5	9,1
37140.W0046	M 4	25	16	8	9,5	3,5	9,0
37140.W0051	M 5	6	20	10	11,5	4,0	14,0
37140.W0052	M 5	8	20	10	11,5	4,0	15,0
37140.W0053	M 5	10	20	10	11,5	4,0	15,0
37140.W0054	M 5	12	20	10	11,5	4,0	15,0
37140.W0055	M 5	16	20	10	11,5	4,0	16,0
37140.W0056	M 5	20	20	10	11,5	4,0	16,0
37140.W0057	M 5	25	20	10	11,5	4,0	17,0
37140.W0058	M 5	30	20	10	11,5	4,0	17,0
37140.W0061	M 6	8	24	12	15,0	5,0	28,0
37140.W0062	M 6	10	24	12	15,0	5,0	27,0
37140.W0063	M 6	12	24	12	15,0	5,0	28,0
37140.W0064	M 6	16	24	12	15,0	5,0	28,0
37140.W0065	M 6	20	24	12	15,0	5,0	29,0
37140.W0066	M 6	25	24	12	15,0	5,0	30,0
37140.W0067	M 6	30	24	12	15,0	5,0	31,0
37140.W0068	M 6	35	24	12	15,0	5,0	31,0
37140.W0081	M 8	12	30	16	18,0	6,0	53,0
37140.W0082	M 8	16	30	16	18,0	6,0	55,0
37140.W0083	M 8	20	30	16	18,0	6,0	56,0
37140.W0084	M 8	25	30	16	18,0	6,0	58,0
37140.W0085	M 8	30	30	16	18,0	6,0	60,0
37140.W0086	M 8	35	30	16	18,0	6,0	50,0
37140.W0087	M 8	40	30	16	18,0	6,0	61,0
37140.W0101	M10	20	36	20	23,0	8,0	106,0
37140.W0102	M10	25	36	20	23,0	8,0	109,0
37140.W0103	M10	30	36	20	23,0	8,0	112,0
37140.W0104	M10	35	36	20	23,0	8,0	116,0
37140.W0105	M10	40	36	20	23,0	8,0	116,0

Knurled Thumb Screws

stainless steel - DIN 464

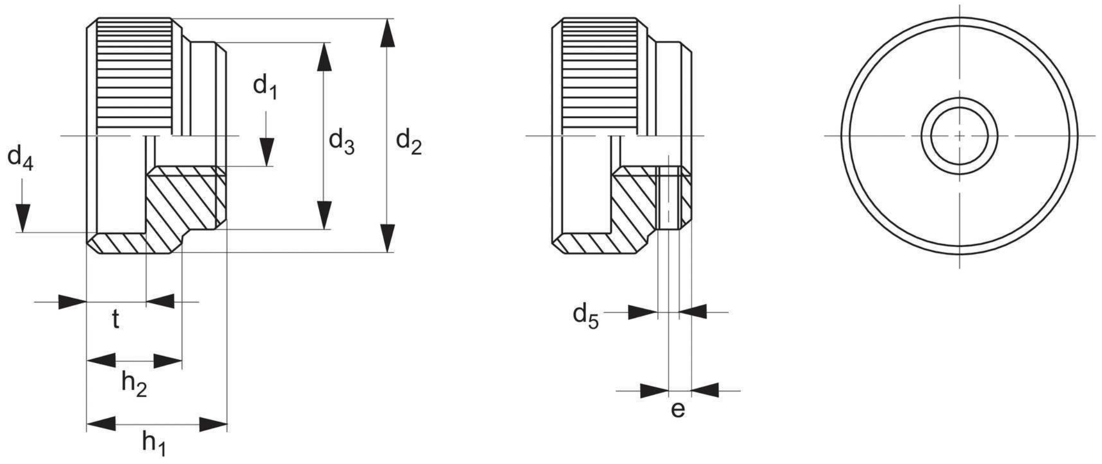


Material
Stainless steel 1.4305 (AISI 303), matte, shot-blasted.

Technical Notes
All knurled screws are one-piece manufactured. Contrary to the Official Standard Sheet, they all have a thread up to the head, as shown, but no recess at the thread end.

STAINLESS STEEL 303

Order No.	d_1	l	d_2	d_3	h	k	g
37150.W0031	M 3	6	12	6	7,5	2,5	3,7
37150.W0032	M 3	10	12	6	7,5	2,5	3,8
37150.W0033	M 3	12	12	6	7,5	2,5	4,0
37150.W0034	M 3	16	12	6	7,5	2,5	4,0
37150.W0041	M 4	8	16	8	9,5	3,5	7,9
37150.W0042	M 4	10	16	8	9,5	3,5	8,1
37150.W0043	M 4	12	16	8	9,5	3,5	8,3
37150.W0044	M 4	16	16	8	9,5	3,5	8,4
37150.W0045	M 4	20	16	8	9,5	3,5	9,1
37150.W0046	M 4	25	16	8	9,5	3,5	9,0
37150.W0051	M 5	10	20	10	11,5	4,0	15,0
37150.W0052	M 5	12	20	10	11,5	4,0	15,0
37150.W0053	M 5	16	20	10	11,5	4,0	16,0
37150.W0054	M 5	20	20	10	11,5	4,0	16,0
37150.W0055	M 5	25	20	10	11,5	4,0	17,0
37150.W0058	M 5	30	20	10	11,5	4,0	17,0
37150.W0061	M 6	12	24	12	15,0	5,0	28,0
37150.W0062	M 6	16	24	12	15,0	5,0	28,0
37150.W0063	M 6	20	24	12	15,0	5,0	29,0
37150.W0064	M 6	25	24	12	15,0	5,0	30,0
37150.W0065	M 6	30	24	12	15,0	5,0	31,0
37150.W0068	M 6	35	24	12	15,0	5,0	31,0
37150.W0081	M 8	16	30	16	18,0	6,0	55,0
37150.W0082	M 8	20	30	16	18,0	6,0	56,0
37150.W0083	M 8	25	30	16	18,0	6,0	58,0
37150.W0084	M 8	30	30	16	18,0	6,0	60,0
37150.W0086	M 8	35	30	16	18,0	6,0	50,0



without pin hole

with pin hole

Material
Free-cutting steel, blackened.

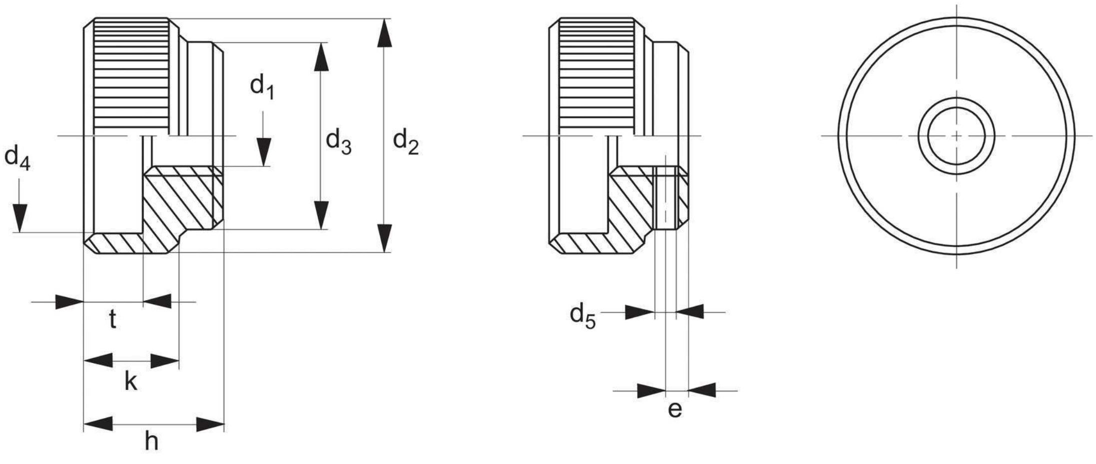
Technical Notes
Tolerance of pin hole d_5 is H7.

Order No.	Type	d_1	d_2	d_3	d_4	d_5 Pre-drilled	e	h_1	h_2	t	Pin required DIN 7	g
37160.W0005	Without Pin Hole	M 5	20	14	15	-	-	12	8	5	-	16
37160.W0006	Without Pin Hole	M 6	24	16	18	-	-	14	10	6	-	27
37160.W0008	Without Pin Hole	M 8	30	20	24	-	-	17	12	7	-	46
37160.W0010	Without Pin Hole	M10	36	28	30	-	-	20	14	8	-	82
37160.W0012	Without Pin Hole	M12	40	32	34	-	-	24	16	10	-	123
37160.W0105	With Pin Hole	M 5	20	14	15	1,4	2,5	12	8	5	1,5 M 6x14	15
37160.W0106	With Pin Hole	M 6	24	16	18	1,4	2,5	14	10	6	1,5 M 6x16	25
37160.W0108	With Pin Hole	M 8	30	20	24	1,9	3,0	17	12	7	2,0 M 6x20	45
37160.W0110	With Pin Hole	M10	36	28	30	2,9	4,0	20	14	8	3,0 M 6x28	86
37160.W0112	With Pin Hole	M12	40	32	34	3,9	4,0	24	16	10	4,0 M 6x32	121

Knurled Nuts

stainless steel - DIN 6303

37170



without pin hole

with pin hole

Material
Stainless steel 1.4305 (AISI 303), matte, shot-blasted.

Technical Notes
Tolerance of pin hole d_5 is H7.

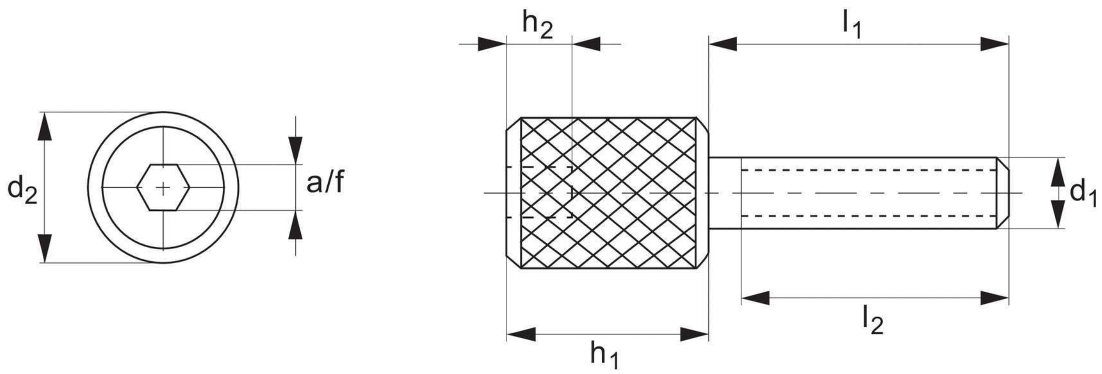
STAINLESS STEEL 303

Order No.	Type	d_1	d_2	d_3	d_4	d_5 Pre-drilled	e	h	k	t	Pin required DIN 7	g
37170.W0005	Without Pin Hole	M 5	20	14	15	-	-	12	8	5	-	16
37170.W0006	Without Pin Hole	M 6	24	16	18	-	-	14	10	6	-	27
37170.W0008	Without Pin Hole	M 8	30	20	24	-	-	17	12	7	-	46
37170.W0010	Without Pin Hole	M10	36	28	30	-	-	20	14	8	-	82
37170.W0012	Without Pin Hole	M12	40	32	34	-	-	24	16	10	-	123
37170.W0105	With Pin Hole	M 5	20	14	15	1,4	2,5	12	8	5	1,5 M 6x14	15
37170.W0106	With Pin Hole	M 6	24	16	18	1,4	2,5	14	10	6	1,5 M 6x16	25
37170.W0108	With Pin Hole	M 8	30	20	24	1,9	3,0	17	12	7	2,0 M 6x20	45
37170.W0110	With Pin Hole	M10	36	28	30	2,9	4,0	20	14	8	3,0 M 6x28	86
37170.W0112	With Pin Hole	M12	40	32	34	3,9	4,0	24	16	10	4,0 M 6x32	121

Thin Head Thumb Screws

303 series stainless

37200



Order No.	d_1	d_2	l_1	l_2	h_1	h_2 min.	a/f
37200.W0001	M 3	6	12	11	12	2	2
37200.W0002	M 3	6	20	16	12	2	2
37200.W0003	M 3	8	12	11	12	2	2
37200.W0004	M 3	8	20	16	12	2	2
37200.W0005	M 3	10	10	8	12	3	3
37200.W0006	M 3	10	12	11	12	3	3
37200.W0015	M 4	6	12	11	12	2	2
37200.W0016	M 4	6	20	16	12	2	2
37200.W0017	M 4	6	25	20	12	2	2
37200.W0018	M 4	8	12	11	12	2	2
37200.W0019	M 4	8	20	16	12	2	2
37200.W0020	M 4	8	25	20	12	2	2
37200.W0021	M 4	10	10	8	12	3	3
37200.W0022	M 4	10	14	12	12	3	3
37200.W0023	M 5	8	12	11	12	2	2
37200.W0024	M 5	8	20	16	12	2	2
37200.W0025	M 5	8	25	20	12	2	2
37200.W0026	M 5	8	32	25		2	2
37200.W0027	M 5	10	12	11	12	3	3
37200.W0028	M 5	10	20	16	12	3	3
37200.W0029	M 5	10	25	20	12	3	3
37200.W0030	M 5	10	32	25	12	3	3

Material

Stainless steel (AISI 303 series, 1.4305).

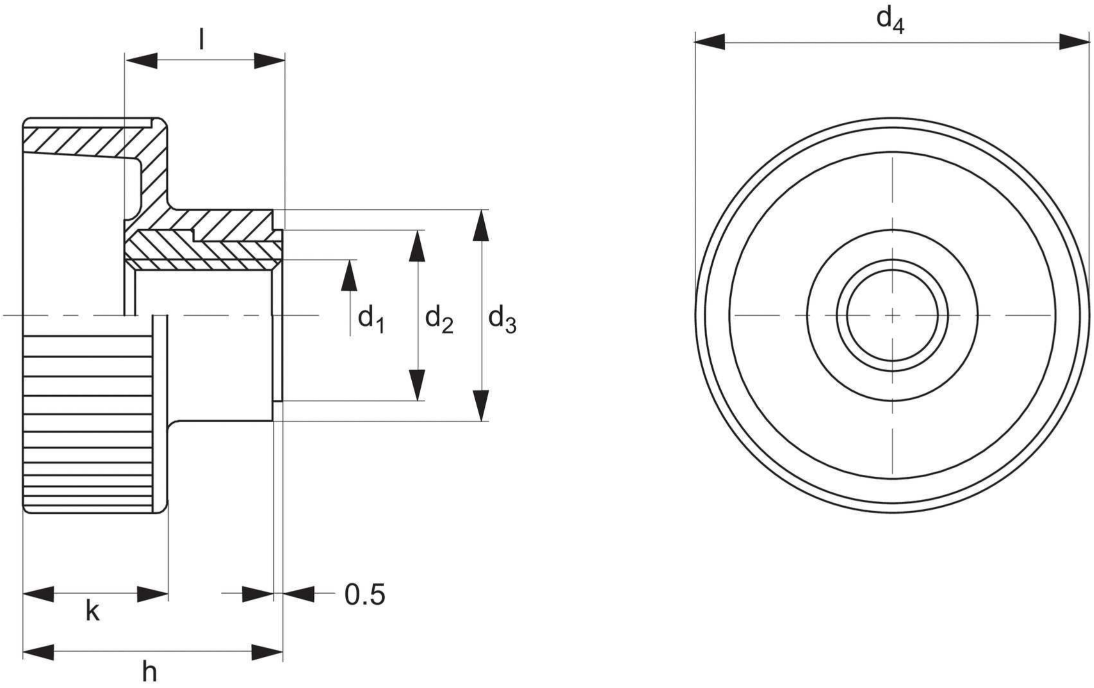
Technical Notes

Stainless steel 303 series is a hard stainless steel which may (in harsh conditions) exhibit slight signs of rusting. Typically used in food and pharmaceutical applications.

STAINLESS STEEL 303

Plastic Knurled Nuts

37330



Material
Body: thermoplastic (PA), black.
Insert: steel, galvanised or stainless steel 1.4305 (AISI 303).

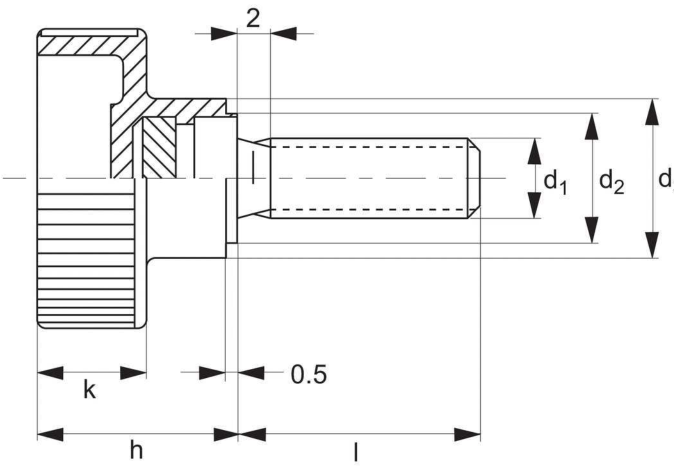
Technical Notes
Temperature resistant from -30ºC to + 80ºC.

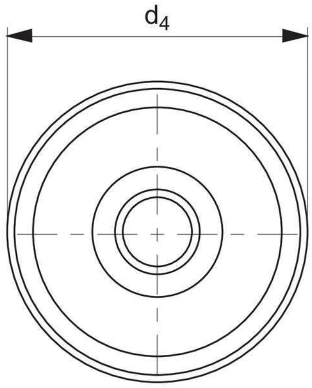
Order No.	Type	d_1	d_2	d_3	d_4	h	k	l	g
37330.W0004	Steel Insert	M 4	9	12	19	14,0	8,0	9,0	4,5
37330.W0005	Steel Insert	M 5	9	12	19	14,0	8,0	9,0	4,0
37330.W0006	Steel Insert	M 6	12	14	24	16,5	9,5	10,5	7,0
37330.W0008	Steel Insert	M 8	14	16	30	19,5	11,0	11,5	10,0
37330.W0010	Steel Insert	M10	16	18	36	22,5	12,5	14,0	15,0
37330.W0505	Stainless Insert	M 5	9	12	19	14,0	8,0	9,0	4,0
37330.W0506	Stainless Insert	M 6	12	14	24	16,5	9,5	10,5	7,0
37330.W0508	Stainless Insert	M 8	14	16	30	19,5	11,0	11,5	10,0

Knurled Thumb Screws

plastic - steel grub screw

37352





Material
Handle: thermoplastic PA, black.
Screw: steel, galvanised

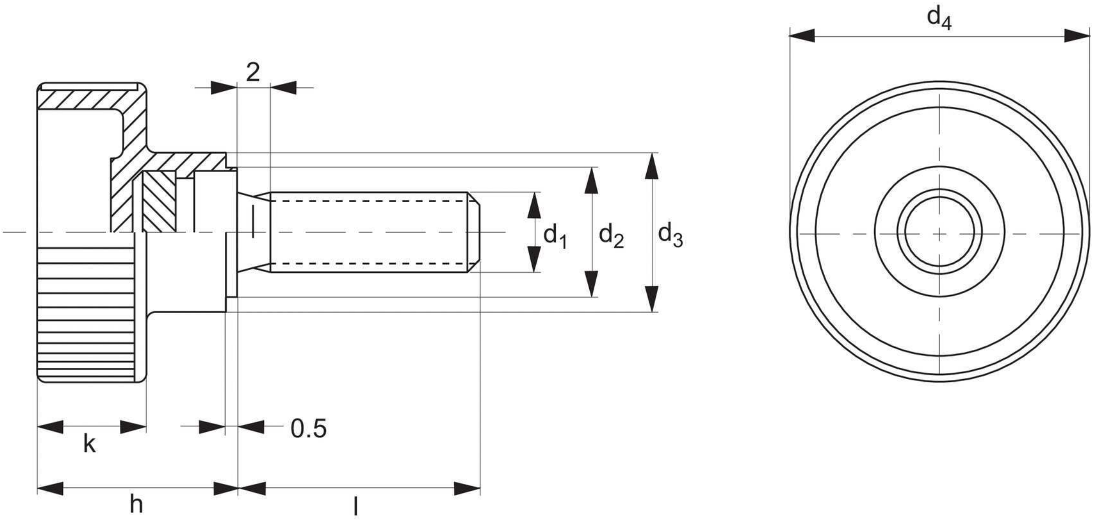
Technical Notes
Temperature rance from -30°C up to +80°C.

Order No.	d_1	l	d_2	d_3	d_4	h	k	g
37352.W0030	M 4	10	9	12	19	14,0	8,0	4,0
37352.W0032	M 4	15	9	12	19	14,0	8,0	6,0
37352.W0034	M 4	20	9	12	19	14,0	8,0	7,0
37352.W0036	M 4	30	9	12	19	14,0	8,0	7,0
37352.W0042	M 5	10	9	12	19	14,0	8,0	6,0
37352.W0043	M 5	15	9	12	19	14,0	8,0	5,0
37352.W0045	M 5	20	9	12	19	14,0	8,0	7,0
37352.W0046	M 5	25	9	12	19	14,0	8,0	8,0
37352.W0050	M 6	10	12	14	24	16,5	9,5	7,0
37352.W0053	M 6	16	12	14	24	16,5	9,5	8,0
37352.W0054	M 6	20	12	14	24	16,5	9,5	12,0
37352.W0055	M 6	25	12	14	24	16,5	9,5	9,0
37352.W0057	M 6	30	12	14	24	16,5	9,5	13,0
37352.W0060	M 8	16	14	16	30	19,5	11,0	14,0
37352.W0062	M 8	20	14	16	30	19,5	11,0	16,0
37352.W0064	M 8	25	14	16	30	19,5	11,0	17,0
37352.W0065	M 8	30	14	16	30	19,5	11,0	23,0
37352.W0067	M 8	40	14	16	30	19,5	11,0	20,0
37352.W0070	M10	20	16	18	36	22,5	12,5	30,0
37352.W0072	M10	25	16	18	36	22,5	12,5	31,0
37352.W0074	M10	30	16	18	36	22,5	12,5	33,0
37352.W0076	M10	40	16	18	36	22,5	12,5	38,0

Knurled Thumb Screws

plastic - stainless steel grub screw

37354



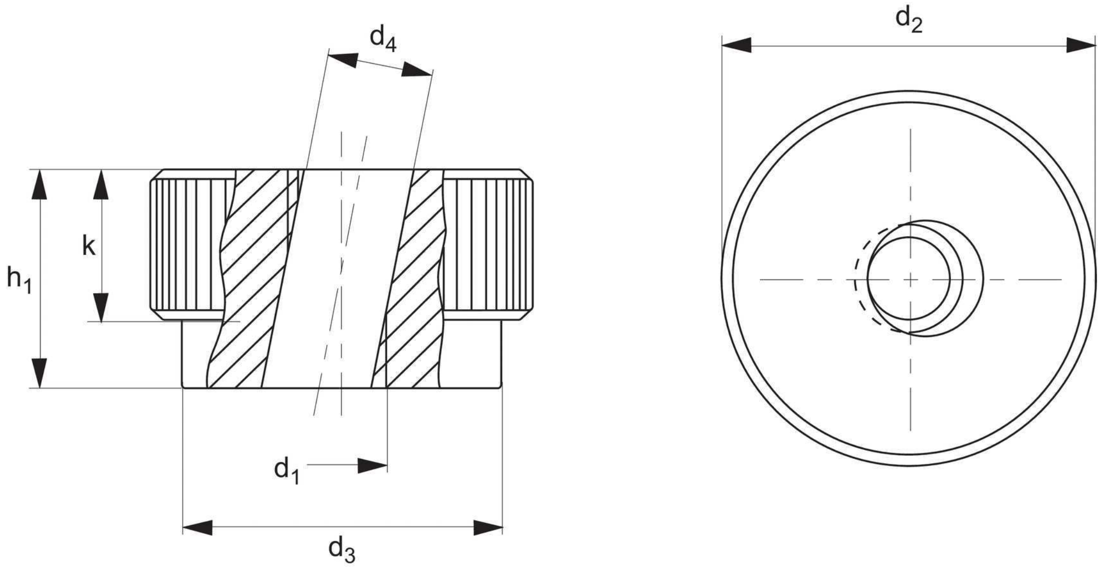
Material
Handle: thermoplastic PA, black.
Screw: stainless steel 1.4567. (AISI 304)

Technical Notes
Temperature rance from -30°C up to +80°C.

Order No.	d_1	l	d_2	d_3	d_4	h	k	g
37354.W0242	M 5	10	9	12	19	14,0	8,0	4,3
37354.W0243	M 5	15	9	12	19	14,0	8,0	5,0
37354.W0245	M 5	20	9	12	19	14,0	8,0	5,5
37354.W0246	M 5	25	9	12	19	14,0	8,0	6,0
37354.W0250	M 6	10	12	14	24	16,5	9,5	7,0
37354.W0253	M 6	16	12	14	24	16,5	9,5	8,0
37354.W0254	M 6	20	12	14	24	16,5	9,5	9,0
37354.W0255	M 6	25	12	14	24	16,5	9,5	9,0
37354.W0257	M 6	30	12	14	24	16,5	9,5	10,0
37354.W0262	M 8	20	14	16	30	19,5	11,0	16,0
37354.W0264	M 8	25	14	16	30	19,5	11,0	17,0
37354.W0265	M 8	30	14	16	30	19,5	11,0	19,0
37354.W0267	M 8	40	14	16	30	19,5	11,0	20,0
37354.W0270	M10	20	16	18	36	22,5	12,5	30,0
37354.W0272	M10	25	16	18	36	22,5	12,5	31,0
37354.W0274	M10	30	16	18	36	22,5	12,5	33,0
37354.W0278	M 10	45	16	18	36	22,5	12,5	43,0
37354.W0280	M 10	55	16	18	36	22,5	12,5	48,0

Quick Tightening Knurled Knob

37360



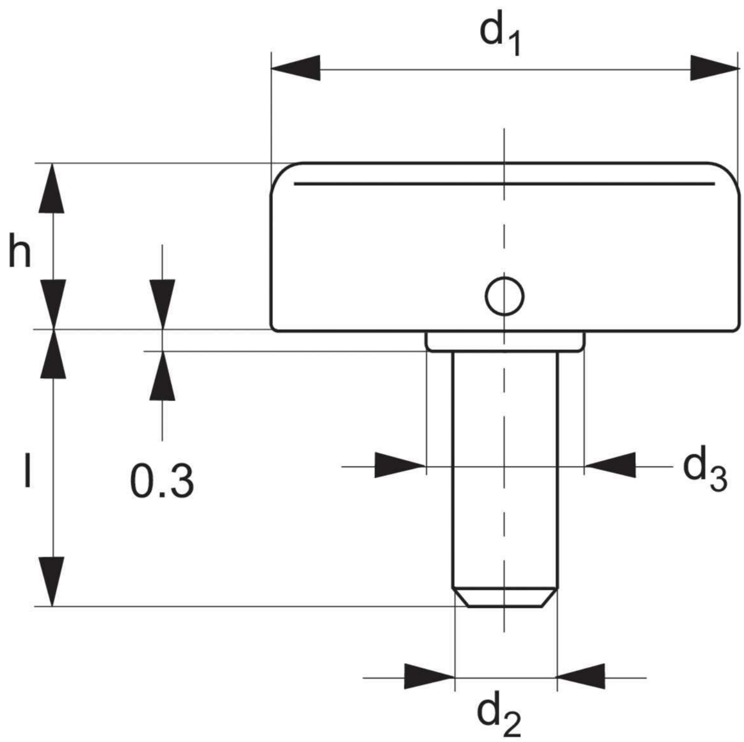
Order No.	d_1	d_2	d_3	d_4	h_1	k	g
37360.W0006	M 6	24	16	6,7	14	10	35
37360.W0008	M 8	30	20	8,7	17	12	70
37360.W0010	M10	36	28	11,0	20	14	120

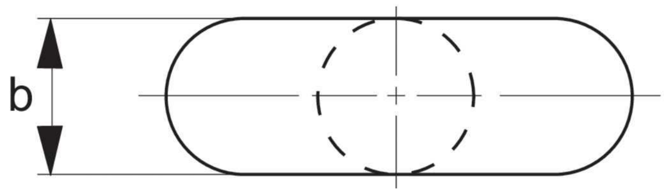
Material
Turned and burnished steel, blackened.
Tensile strength class 5.

Technical Notes
These knurled knobs are used when quick tightening is required and with only a slight clamping force. The knob is inserted obliquely on the threaded stud and then placed in the axial position so that it fits onto the stud threads. At this point it can be locked with just a slight rotation.

Quarter Turn Screw, Male

stainless steel





Material

Stainless steel 1.4404 (AISI 316), body sintered, matte, shot-blasted. Screw: stainless steel, 1.4301 (AISI 304), matte, shot-blasted.

Technical Notes

These quarter turn screws are used to develop higher clamping torques than is possible with knurled handles.

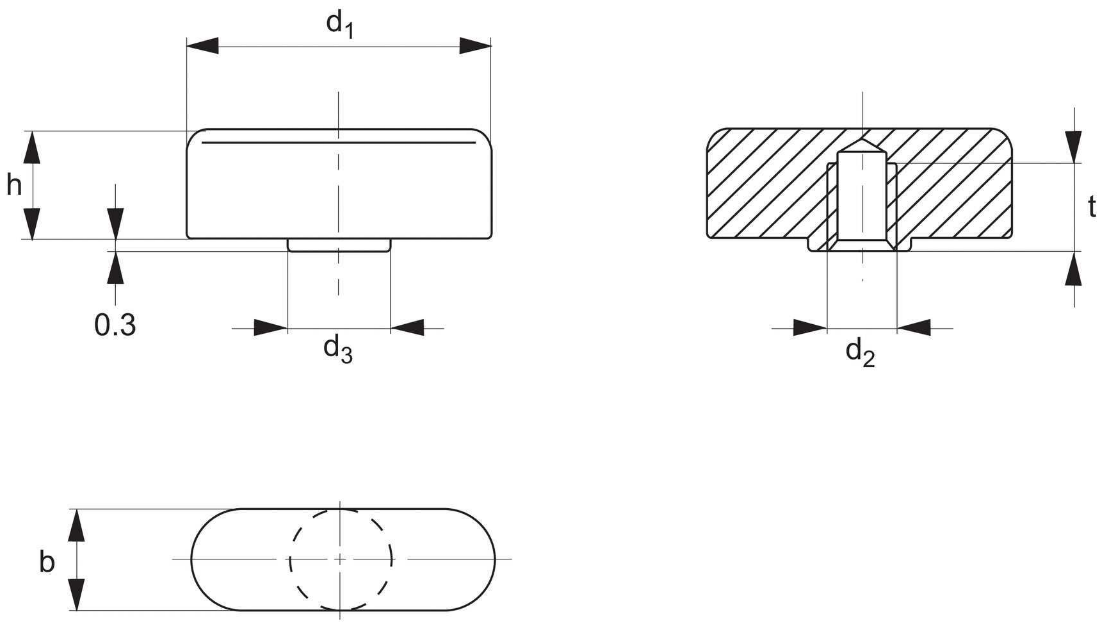
STAINLESS STEEL 316

Order No.	d_1	d_2	d_3	l	b	h	g
37380.W0061	25	M 6	8	16	8	10,0	12
37380.W0062	25	M 6	8	20	8	10,0	16
37380.W0063	25	M 6	8	25	8	10,0	10
37380.W0081	30	M 8	10	16	10	12,0	26
37380.W0082	30	M 8	10	20	10	12,0	28
37380.W0083	30	M 8	10	25	10	12,0	30
37380.W0084	30	M 8	10	32	10	12,0	32
37380.W0085	36	M 8	12	16	12	14,5	44
37380.W0086	36	M 8	12	20	12	14,5	45
37380.W0087	36	M 8	12	25	12	14,5	50
37380.W0088	36	M 8	12	32	12	14,5	49
37380.W0101	36	M10	12	20	12	14,5	48
37380.W0102	36	M10	12	30	12	14,5	53
37380.W0103	36	M10	12	40	12	14,5	55

Quarter Turn Screw, Female

stainless steel

37400



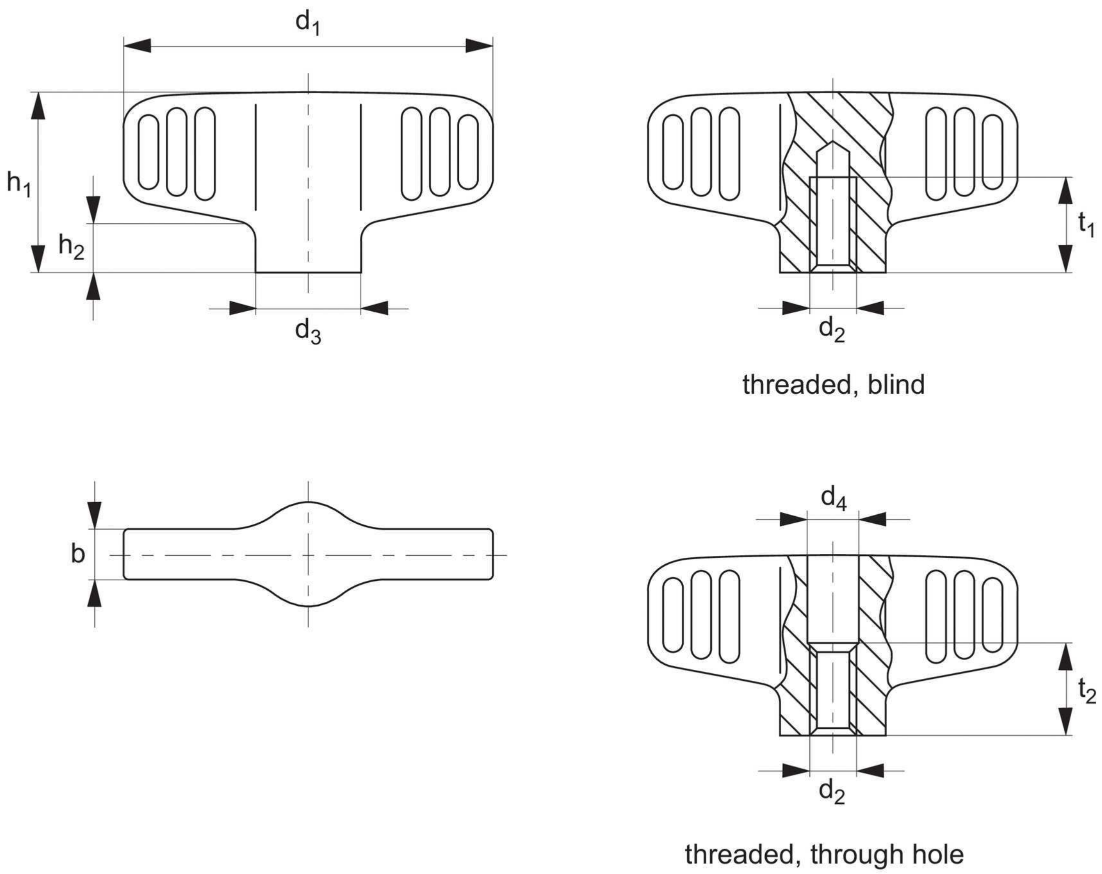
Order No.	d_1	d_2	d_3	b	h	t min.	g
37400.W0061	25	M 6	8	8	10,0	7	11
37400.W0062	30	M 6	10	10	12,0	9	18
37400.W0081	30	M 8	10	10	12,0	9	18
37400.W0082	36	M 8	12	12	14,5	10	36
37400.W0101	36	M10	12	12	14,5	10	36

Material
Stainless steel 1.4404 (AISI 316), sintered, matte, shot-blasted.

Technical Notes
These quarter turn screws are used to develop higher clamping torques than is possible with knurled handles.

Wing Nut

stainless steel

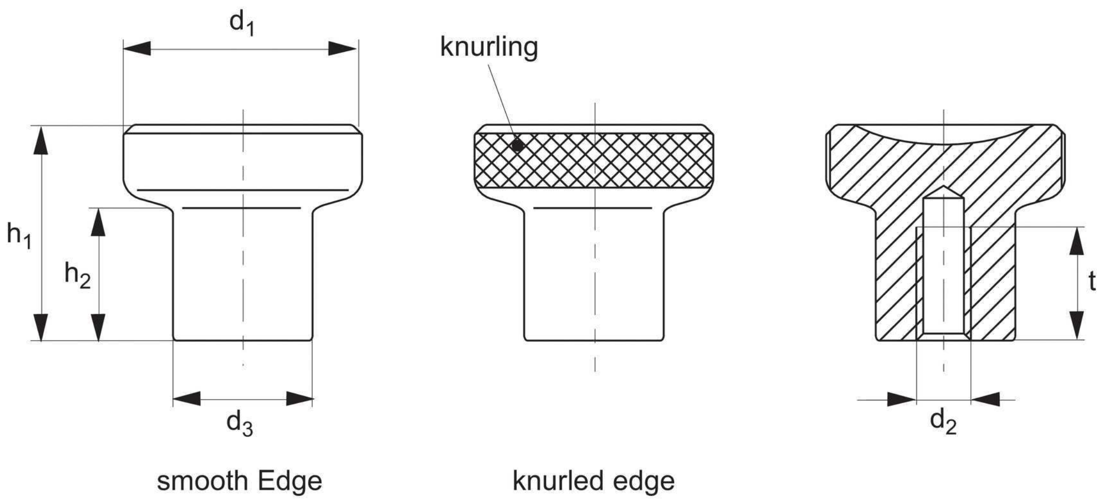


Material
Stainless steel 1.4308, matt finish.

Order No.	Type	d_1	d_2	d_3	d_4 H13	b	h_1	h_2 ≈	t_1 min.	t_2
37420.W0010	Threaded, blind	46	M 6	13	6,5	6	22,5	6,0	12	10
37420.W0012	Threaded, blind	46	M 8	13	8,5	6	22,5	6,0	15	13
37420.W0014	Threaded, blind	58	M 8	16	8,5	7	26,5	7,0	15	13
37420.W0016	Threaded, blind	58	M10	16	10,5	7	26,5	7,0	18	16
37420.W0210	Threaded, through hole	46	M 6	13	6,5	6	22,5	6,0	12	10
37420.W0212	Threaded, through hole	46	M 8	13	8,5	6	22,5	6,0	15	13
37420.W0214	Threaded, through hole	58	M 8	16	8,5	7	26,5	7,0	15	13
37420.W0216	Threaded, through hole	58	M10	16	10,5	7	26,5	7,0	18	16

Thumb Knob

steel or stainless steel



Order No.	Finish	Edge finish	d_1	d_2	d_3	h_1	h_2	t min.	
37460.W0242	Steel	Knurled	21	M 4	12,5	18,0	10,5	10	26
37460.W0042	Stainless	Knurled	21	M 4	12,5	18,0	10,5	10	26
37460.W0252	Steel	Knurled	21	M 5	12,5	18,0	10,5	10	25
37460.W0052	Stainless	Knurled	21	M 5	12,5	18,0	10,5	10	25
37460.W0264	Steel	Knurled	25	M 6	14,5	22,5	14,0	12	42
37460.W0064	Stainless	Knurled	25	M 6	14,5	22,5	14,0	12	42
37460.W0284	Steel	Knurled	25	M 8	14,5	22,5	14,0	12	39
37460.W0084	Stainless	Knurled	25	M 8	14,5	22,5	14,0	12	39
37460.W0288	Steel	Knurled	31	M 8	18,5	27,0	17,0	15	75
37460.W0088	Stainless	Knurled	31	M 8	18,5	27,0	17,0	15	75
37460.W0308	Steel	Knurled	31	M10	18,5	27,0	17,0	17	70
37460.W0108	Stainless	Knurled	31	M10	18,5	27,0	17,0	17	70
37460.W0642	Steel	Smooth	21	M 4	12,5	18,0	10,5	10	26
37460.W0542	Stainless	Smooth	21	M 4	12,5	18,0	10,5	10	26
37460.W0752	Steel	Smooth	21	M 5	12,5	18,0	10,5	10	25
37460.W0552	Stainless	Smooth	21	M 5	12,5	18,0	10,5	10	25
37460.W0764	Steel	Smooth	25	M 6	14,5	22,5	14,0	12	42
37460.W0564	Stainless	Smooth	25	M 6	14,5	22,5	14,0	12	42
37460.W0784	Steel	Smooth	25	M 8	14,5	22,5	14,0	12	39
37460.W0584	Stainless	Smooth	25	M 8	14,5	22,5	14,0	12	39
37460.W0788	Steel	Smooth	31	M 8	18,5	27,0	17,0	15	75
37460.W0588	Stainless	Smooth	31	M 8	18,5	27,0	17,0	15	75
37460.W0808	Steel	Smooth	31	M10	18,5	27,0	17,0	17	70
37460.W0608	Stainless	Smooth	31	M10	18,5	27,0	17,0	17	70

Material
Steel, blackened.
Stainless steel 1.4305 (AISI 303), Matte finish.

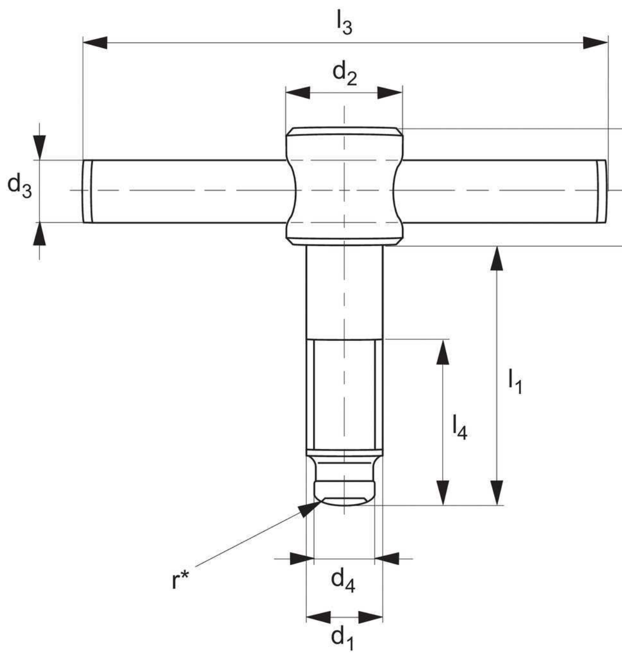
Important Notes
Stainless steel knobs are used in applications where a push or pull movement is required.

STAINLESS STEEL 303

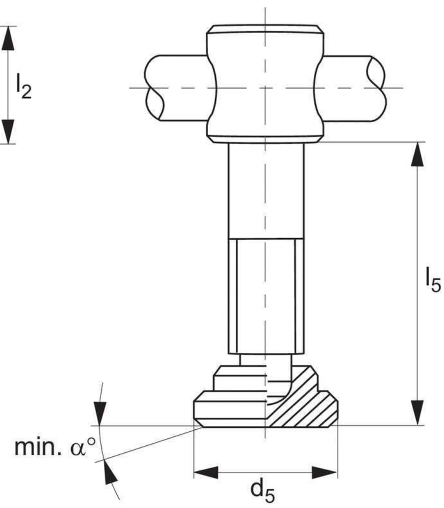
Tommy Screws

with fixed bar - DIN 6304

38000



without thrust pad



with thrust pad

Order No.	Thrust Pad	d_1	l_1	d_2	d_3	d_4	d_5	l_2	l_3 ~	l_4	l_5 Approx.	Min. α°	g with pad
38000.W0006	W/o Pad	M 6	40	12	5	4,5	-	10	50	30	-	-	21
38000.W0007	W/o Pad	M 6	50	12	5	4,5	-	10	50	40	-	-	23
38000.W0008	W/o Pad	M 8	50	14	6	6,0	-	12	60	35	-	-	39
38000.W0009	W/o Pad	M 8	60	14	6	6,0	-	12	60	45	-	-	43
38000.W0010	W/o Pad	M10	60	18	8	8,0	-	14	80	40	-	-	82
38000.W0011	W/o Pad	M10	70	18	8	8,0	-	14	80	50	-	-	86
38000.W0012	W/o Pad	M12	70	20	10	8,0	-	18	100	50	-	-	140
38000.W0013	W/o Pad	M12	80	20	10	8,0	-	18	100	60	-	-	149
38000.W0016	W/o Pad	M16	75	24	12	12,0	-	20	120	55	-	-	248
38000.W0017	W/o Pad	M16	90	24	12	12,0	-	20	120	70	-	-	267
38000.W0018	W/o Pad	M16	110	24	12	12,0	-	20	120	90	-	-	294
38000.W0020	W/o Pad	M20	75	30	16	15,5	-	28	140	55	-	-	475
38000.W0021	W/o Pad	M20	90	30	16	15,5	-	28	140	70	-	-	506
38000.W0022	W/o Pad	M20	110	30	16	15,5	-	28	140	90	-	-	548
38000.W0106	With Pad	M 6	40	12	5	4,5	12	10	50	30	42,1	7	24
38000.W0107	With Pad	M 6	50	12	5	4,5	12	10	50	40	52,1	7	28
38000.W0108	With Pad	M 8	50	14	6	6,0	16	12	60	35	53,0	4	49
38000.W0109	With Pad	M 8	60	14	6	6,0	16	12	60	45	63,0	4	54
38000.W0110	With Pad	M10	60	18	8	8,0	20	14	80	40	63,6	2	97
38000.W0111	With Pad	M10	70	18	8	8,0	20	14	80	50	73,6	3	102
38000.W0112	With Pad	M12	70	20	10	8,0	25	18	100	50	74,6	3	173
38000.W0113	With Pad	M12	80	20	10	8,0	25	18	100	60	84,6	3	178
38000.W0116	With Pad	M16	75	24	12	12,0	32	20	120	55	80,4	5	317
38000.W0117	With Pad	M16	90	24	12	12,0	32	20	120	70	95,4	5	342
38000.W0118	With Pad	M16	110	24	12	12,0	32	20	120	90	115,4	5	367
38000.W0120	With Pad	M20	75	30	16	15,5	40	28	140	55	80,5	4	573
38000.W0121	With Pad	M20	90	30	16	15,5	40	28	140	70	95,5	4	603
38000.W0122	With Pad	M20	110	30	16	15,5	40	28	140	90	115,4	4	643

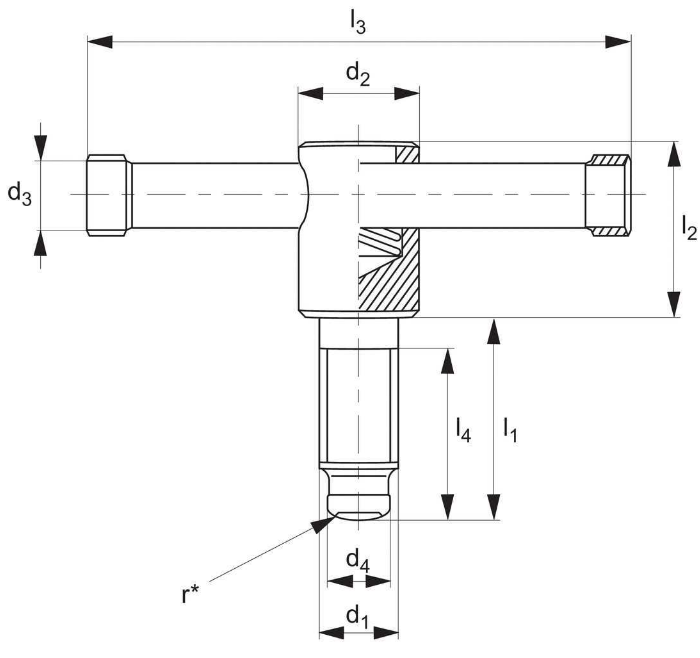
Material

Free-cutting steel, black. Pressure lug hardened, bar pressed-in.

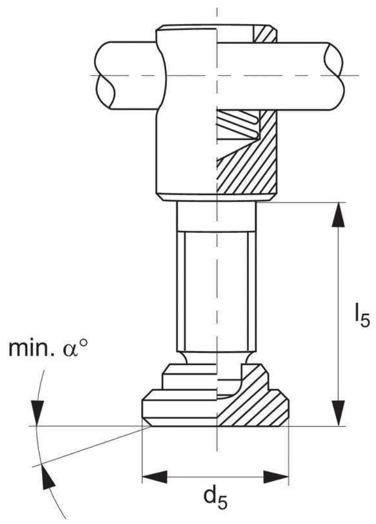
Technical Notes

To ease assembly minor radius (r*) added outside of DIN standard.

Tommy Screws
with moveable bar - DIN 6306



without thrust pad



with thrust pad

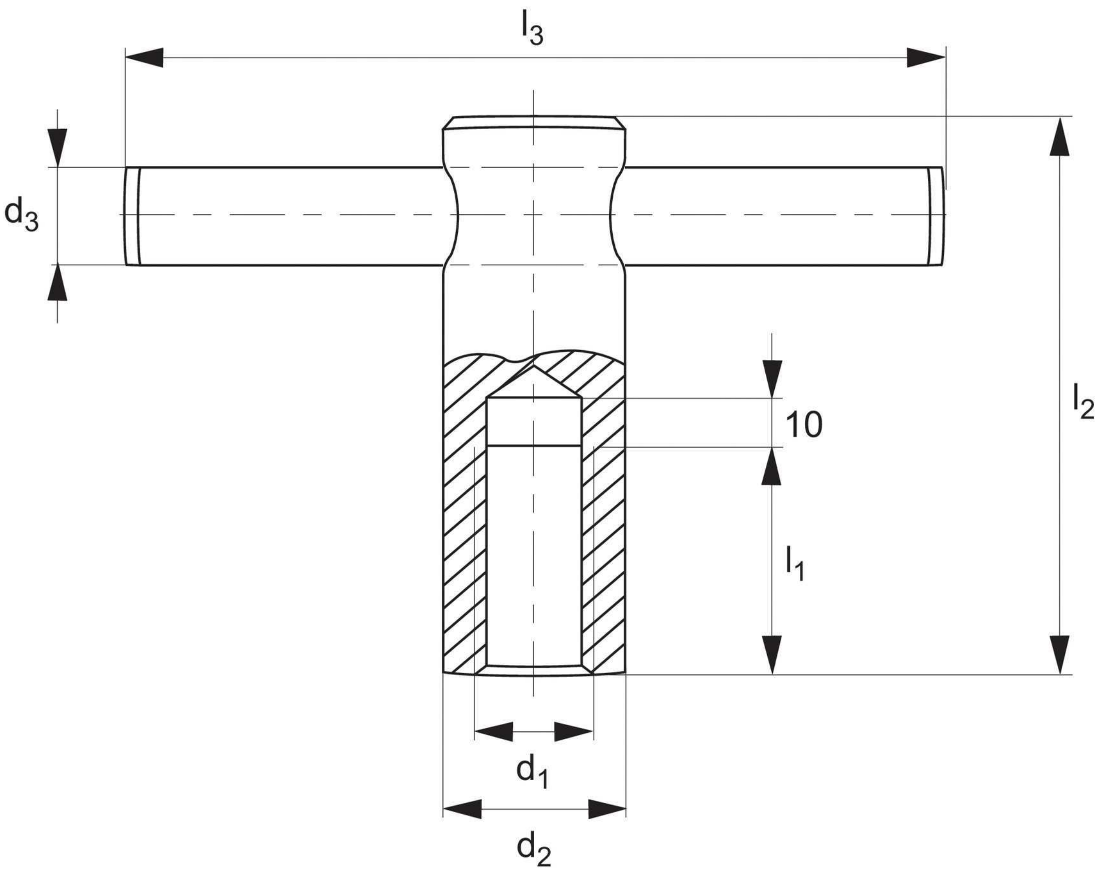
Order No.	Thrust Pad	d_1	l_1	d_2	d_3	d_4	d_5	l_2	l_3	l_4	l_5 Approx.	Min. α°	g with pad
38100.W0008	W/o Pad	M 8	40	14	6	6,0	-	25	60	32	-	-	41
38100.W0009	W/o Pad	M 8	50	14	6	6,0	-	25	60	42	-	-	45
38100.W0010	W/o Pad	M10	40	18	8	8,0	-	32	80	30	-	-	91
38100.W0011	W/o Pad	M10	50	18	8	8,0	-	32	80	40	-	-	95
38100.W0012	W/o Pad	M12	50	20	10	8,0	-	35	100	40	-	-	154
38100.W0013	W/o Pad	M12	60	20	10	8,0	-	35	100	50	-	-	161
38100.W0016	W/o Pad	M16	55	24	13	12,0	-	40	120	45	-	-	330
38100.W0017	W/o Pad	M16	70	24	13	12,0	-	40	120	60	-	-	318
38100.W0018	W/o Pad	M16	90	24	13	12,0	-	40	120	80	-	-	345
38100.W0020	W/o Pad	M20	55	30	16	15,5	-	45	140	45	-	-	522
38100.W0021	W/o Pad	M20	70	30	16	15,5	-	45	140	60	-	-	551
38100.W0022	W/o Pad	M20	90	30	16	15,5	-	45	140	80	-	-	593
38100.W0108	With Pad	M 8	40	14	6	6,0	16	25	60	32	43,0	3	50
38100.W0109	With Pad	M 8	50	14	6	6,0	16	25	60	42	53,0	3	54
38100.W0110	With Pad	M10	40	18	8	8,0	20	32	80	30	43,6	3	110
38100.W0111	With Pad	M10	50	18	8	8,0	20	32	80	40	53,6	3	114
38100.W0112	With Pad	M12	50	20	10	8,0	25	35	100	40	52,6	3	193
38100.W0113	With Pad	M12	60	20	10	8,0	25	35	100	50	64,6	3	198
38100.W0116	With Pad	M16	55	24	13	12,0	32	40	120	45	60,4	5	357
38100.W0117	With Pad	M16	70	24	13	12,0	32	40	120	60	75,4	5	377
38100.W0118	With Pad	M16	90	24	13	12,0	32	40	120	80	95,4	5	402
38100.W0120	With Pad	M20	55	30	16	15,5	40	45	140	45	60,5	4	623
38100.W0121	With Pad	M20	70	30	16	15,5	40	45	140	60	75,5	4	653
38100.W0122	With Pad	M20	90	30	16	15,5	40	45	140	80	95,5	4	693

Material
Free-cutting steel, black. Turned, pressure lug hardened, with moveable pin retained by spring.

Technical Notes
To ease assembly minor radius (r*) added outside of DIN standard.

Tommy Nuts
with fixed bar - DIN 6305

38200



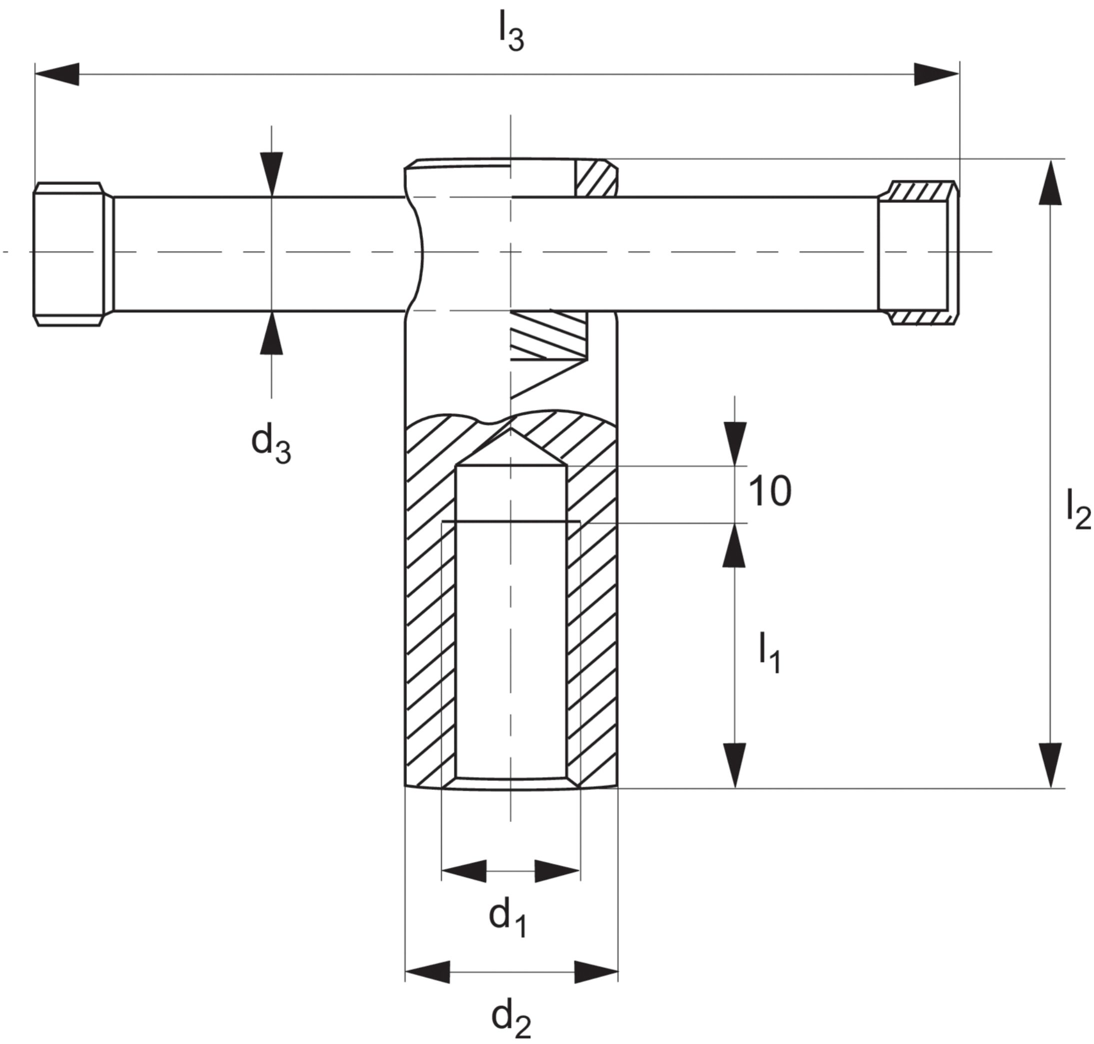
Material
Free-cutting steel, blackened.
Moveable bar retained by spring.

Technical Notes
* - DIN standards do not include these dimensions.

Order No.	d_1	d_2	d_3	l_1	l_2	l_3	g
38200.W0508	M 8	16	6	16	50	60	79
38200.W0510	M10	18	8	20	60	80	127
38200.W0512	M12	20	10	25	70	100	192
38200.W0516	M16	24	12	35	85	120	318
38200.W0520	M20	30	16	40	95	140	590

Tommy Nuts

with moveable bar - DIN 6307



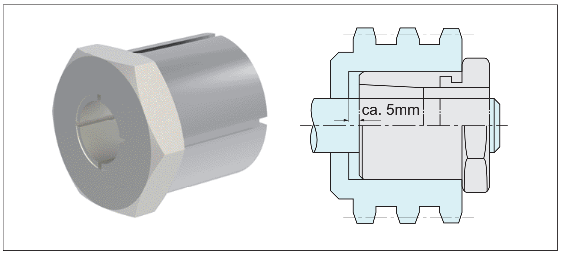
Material
Free-cutting steel, blackened.
Moveable bar retained by spring.

Technical Notes
* - DIN standards do not include these dimensions.

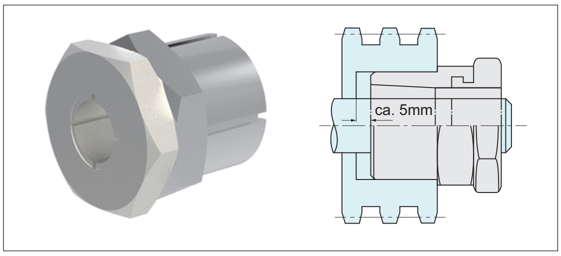
Order No.	d_1	d_2	d_3	l_1	l_2	l_3	g
38300.W0708	M 8	16	6	16	50	60	69
38300.W0710	M10	18	8	20	60	80	112
38300.W0712	M12	20	10	25	70	100	179
38300.W0716	M16	24	13	35	85	120	327
38300.W0720	M20	30	16	40	95	140	581

Wixroyd Tapered Shaft Hubs

mounting and assembly instructions



Tapered shaft hub with hexagon nut

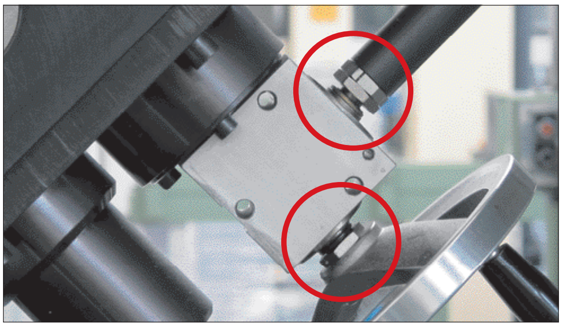


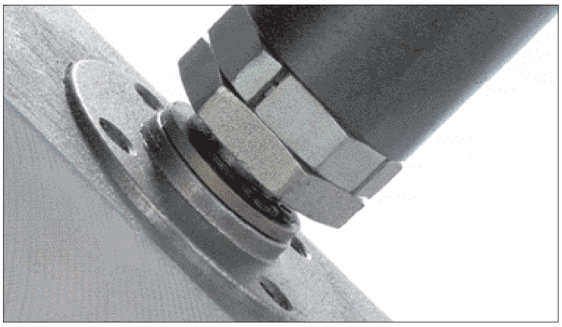
Tapered shaft hub with hexagon nut and lock nut

Applications

By using tapered shaft hubs, sprocket wheels, gear wheels, belt pulleys, cams, levers etc. can be easily and efficiently installed.

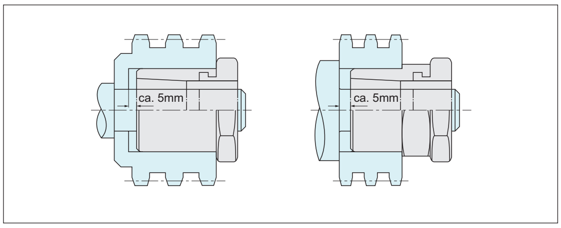
Tapered shaft hubs are available with or without lock nuts.





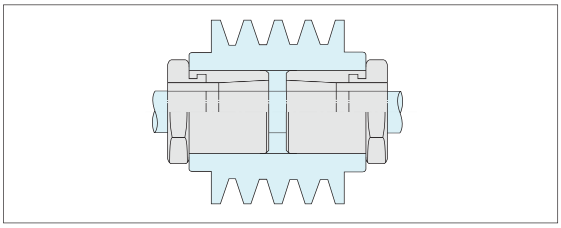
No axial shift

If, on mounting, the hub sits close to a collar, an axial offset is not possible. In this case, only 60% of the forces mentioned in the charts can be transmitted.



Two tapered shaft hubs in one hub

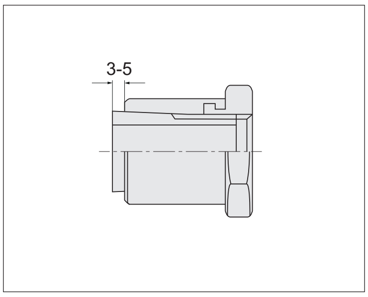
When using this method, the tapered shaft hub which is tightened first transmits 100% of the forces mentioned in the charts. When tightening the second tapered shaft hub, an axial offset of the hub is not possible. Therefore, this tapered shaft hub is able to transmit only 60% of the forces.



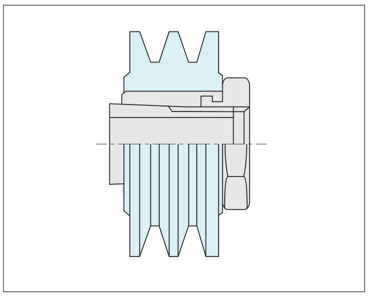
Assembly and disassembly

Assembly

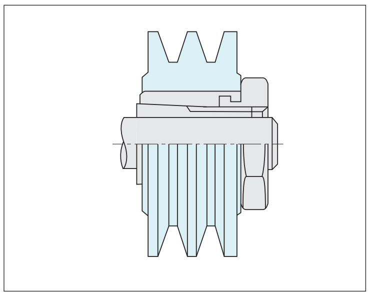
The contact surface of the shaft and the hub must be free from oil and dirt.



1. Rotate nut to the left until the inner part protrudes approx. 3-5mm over the outer.



2. Install tapered shaft hub in the hub hole.



3. Slightly tighten the nut when located in the desired position. Compensate the axial offset thus produced with a soft-face mallet. Tighten the tapered shaft hub.

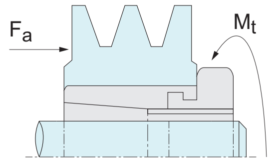
Disassembly

1. Release tapered shaft hub by turning the nut to the left until the inner part protrudes approx. 3-5mm over the outer part.

ov-38400-38420-a - Updated - 10-01-2017

Simultaneous exposure to different forces

If torque (M_t) and axial forces (F_a) are transmitted simultaneously, a resultant total torque (M_r) is obtained which must be less than or equal to the maximum torque (M_{max}) indicated in the charts. ($M_r \leq M_{max}$).



$$M_r = \sqrt{\frac{d_1}{M_t^2 + (F_a \times 2 \times 1000)^2 \times \nu}}$$

M_r = Resultant total torque
M_t = Torque
F_a = Axial force
d_1 = Shaft diameter
ν = Safety factor

Example:

Shaft hub 38420.W0125

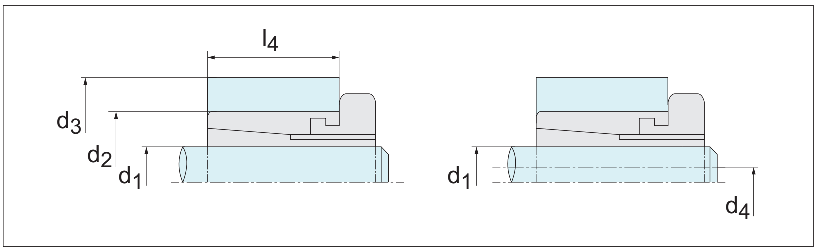
M_t = 150Nm
F_a = 5kN
d_1 = 25mm
ν = 2

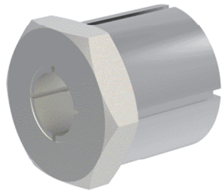
$$M_r = \sqrt{\frac{25mm}{150^2Nm^2 + (5000N \times 2 \times 1000mm/m)^2 \times 2}} = 325Nm$$

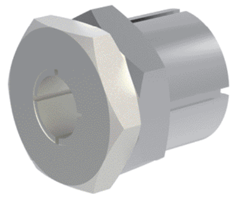
A maximum torque (M_{max}) of 520 Nm is transmitted by the tapered shaft hub 38420.W0125. The forces can be transmitted because M_r (325 Nm) is less than M_{max}.

Outside diameter of hub and inside diameter to hollow shaft

When fitting tapered shaft hubs, the outside diameter of the hub and the inside diameter of the hollow shaft have to be considered.







Smallest possible outside diameter of hub

$$d_3 \geq d_2 \times \sqrt{\frac{R_e + P_N \times C_N}{R_e - P_N \times C_N}} \quad [mm]$$

d_1 = Shaft diameter
d_2 = Hub hole
d_3 = Outside diameter of hub
d_4 = Inside diameter of hollow shaft
R_e = Apparent yielding point
$R_{p0,2}$ $R_{p0,1}$ = Permanent elongation limit

Largest possible inside diameter of hollow shaft

$$d_4 \leq d_1 \times \sqrt{\frac{R_e - 2P_W}{R_e\ (R_p)}} \quad [mm]$$

P_N = Surface pressure hub
P_W = Surface pressure shaft
C_N = Factor [is “1”, if the hub length is ≥ the fitting length of the tapered shaft hub ($L_N \geq L_2$)]

Example:

Tapered shaft hub 38400.W0025, hub material GG25;

$R_{p0,1}$ = 165Nmm²
C_N = 1

$$d_3 \geq = 42mm \times \sqrt{\frac{165Nmm^2 + 103Nmm^2 \times 1}{165Nmm^2 - 103Nmm^2 \times 1}} \geq 87{,}4mm$$

Tapered shaft hub 38400.W0025, hub material CK45;

R_e = 380Nmm²
C_N = 1

$$d_4 \leq 25mm \times \sqrt{\frac{380Nmm^2 - 2 \times 174Nmm^2}{380Nmm^2}} \leq 7{,}2mm$$

Material chart

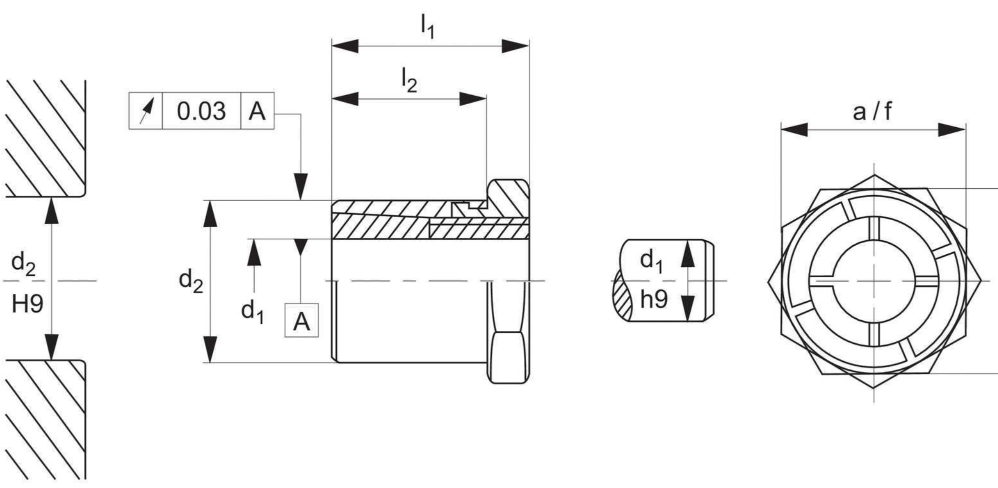
	Material									
	St 37-2 Ust 37-2	St 50-2	Ck 35	Ck 45	11 SMn 30 11SMn Pb 30	GG 15	GG 20	GG 25	GGG-40	AlMg 3 F 25
	Minimum strength values in N/mm²									
Diameter	**Re**	**Re**	**Re**	**Re**	**Re**	**Rp 0,1**	**Rp 0,1**	**Rp 0,1**	**Rp 0,2**	**Re**
16 < d_1 ≤ 40	225	285	320	380	375	90	130	165	250	180
40 < d_1 ≤ 100	205	265	260	300	245	90	130	165	250	180

ov-38400-38420-b - Updated - 10-01-2017

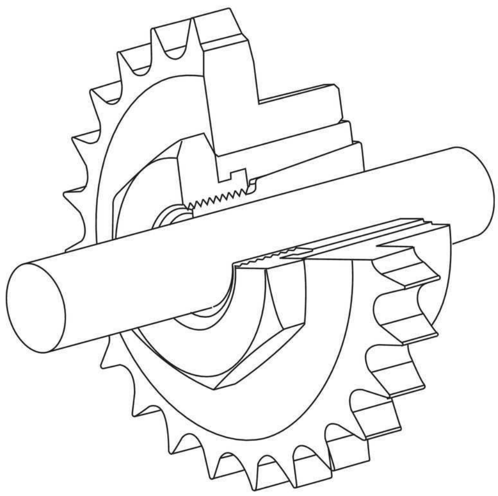
Tapered Shaft Hubs

non-locking

38400



Order No.	Finish	d_1	d_2	l_1	l_2	a/f	Ta max. Nm	M max. Nm	Fa max. kN	pw max. N/mm²	pn max. N/mm²	g
38400.W0005	Without Lock Nut	5	14	19	15	14	9,9	10,1	4,0	264	96	20
38400.W0006	Without Lock Nut	6	14	19	15	14	9,9	12,1	4,0	220	96	19
38400.W0008	Without Lock Nut	8	16	22	17	16	16,9	23,4	5,8	179	91	26
38400.W0009	Without Lock Nut	9	20	24	19	22	34,9	43,7	9,7	245	115	47
38400.W0010	Without Lock Nut	10	20	24	19	22	34,9	48,6	9,7	221	115	46
38400.W0011	Without Lock Nut	11	22	24	19	22	43,8	59,9	10,9	225	117	51
38400.W0012	Without Lock Nut	12	22	24	19	22	43,8	65,3	10,9	206	117	49
38400.W0014	Without Lock Nut	14	26	28	22	27	65,0	93,0	13,3	178	99	83
38400.W0015	Without Lock Nut	15	26	28	22	27	65,0	99,0	13,3	166	99	78
38400.W0016	Without Lock Nut	16	26	28	22	27	65,0	106,0	13,3	156	99	73
38400.W0018	Without Lock Nut	18	35	36	27	36	161,0	223,0	24,8	224	125	201
38400.W0019	Without Lock Nut	19	35	36	27	36	161,0	235,0	24,8	212	125	189
38400.W0020	Without Lock Nut	20	35	36	27	36	161,0	248,0	24,8	201	125	186
38400.W0022	Without Lock Nut	22	42	41	30	46	250,0	349,0	31,8	197	110	346
38400.W0024	Without Lock Nut	24	42	41	30	46	250,0	381,0	31,8	180	110	326
38400.W0025	Without Lock Nut	25	42	41	30	46	250,0	397,0	31,8	173	110	315
38400.W0028	Without Lock Nut	28	47	44	33	50	355,0	565,0	40,4	174	110	403
38400.W0030	Without Lock Nut	30	47	44	33	50	355,0	605,0	40,4	162	110	378
38400.W0032	Without Lock Nut	32	55	51	38	55	490,0	764,0	47,8	166	102	632
38400.W0035	Without Lock Nut	35	55	51	38	55	490,0	836,0	47,8	151	102	571
38400.W0038	Without Lock Nut	38	62	58	43	65	720,0	1179,0	62,1	159	111	897
38400.W0040	Without Lock Nut	40	62	58	43	65	720,0	1241,0	62,1	151	111	842



Material

Inner part: steel, blackened. Outer part: steel, galvanised. Nut: steel, nickel-plated.

Technical Notes

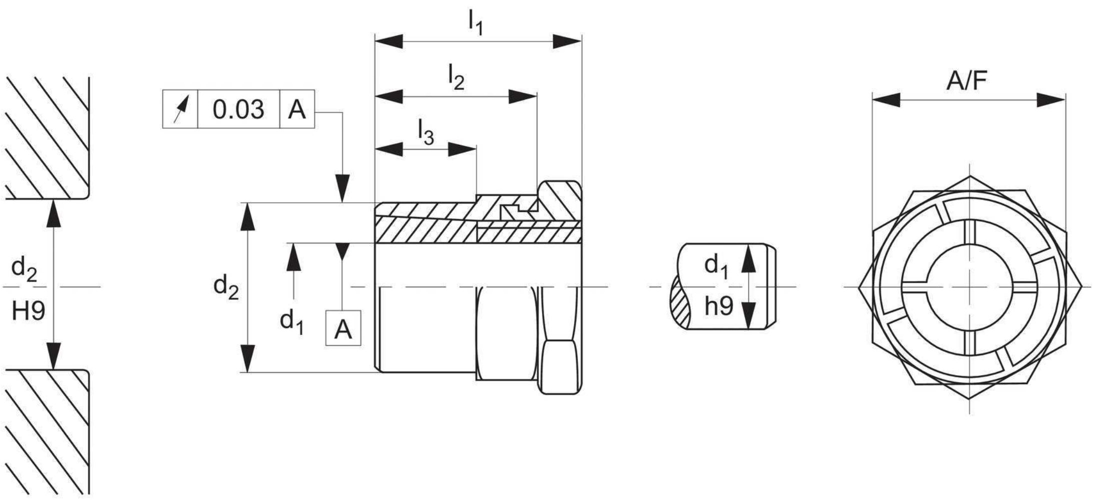
Ta = tightening torque of nut.
M = transferable torque.
Fa = transferable thrust load.
pw = surface pressure of shaft.
pn = surface pressure of hub.
The rotational accuracy is 0,03mm.
Please refer to technical pages for mounting instructions.

Tips

These self-centering and non-floating tapered shaft hubs are used to easily and effectively achieve shaft/hub joints of machine elements such as sprocket wheels, gear wheels, belt pulleys, cams, levers etc.
For special fork wrench see part 38420.W0814- .W0865.

Tapered Shaft Hubs
with lock nut

38420



Order No.	Finish	d_1	d_2	l_1	l_2	l_3	A/F	Ta max. Nm	M max. Nm	Fa max. kN	pw max. N/mm²	pn max. N/mm²	g
38420.W0105	With Lock Nut	5	12	19	15	9	14	9,9	10,1	4,0	264	119	18
38420.W0106	With Lock Nut	6	12	19	15	9	14	9,9	12,1	4,0	220	119	17
38420.W0108	With Lock Nut	8	14	22	17	11	16	16,9	23,4	5,8	179	121	23
38420.W0109	With Lock Nut	9	18	24	19	12	22	34,9	43,7	9,7	245	127	47
38420.W0110	With Lock Nut	10	18	24	19	12	22	34,9	48,6	9,7	221	127	46
38420.W0111	With Lock Nut	11	20	24	19	12	22	43,8	59,9	10,9	225	128	47
38420.W0112	With Lock Nut	12	20	24	19	12	22	43,8	65,3	10,9	206	128	45
38420.W0114	With Lock Nut	14	24	28	22	15	27	65,0	93,0	13,3	178	107	78
38420.W0115	With Lock Nut	15	24	28	22	15	27	65,0	99,0	13,3	166	107	75
38420.W0116	With Lock Nut	16	24	28	22	15	27	65,0	106,0	13,3	156	107	70
38420.W0118	With Lock Nut	18	30	36	27	17	36	161,0	223,0	24,8	224	145	179
38420.W0119	With Lock Nut	19	30	36	27	17	36	161,0	235,0	24,8	212	145	169
38420.W0120	With Lock Nut	20	30	36	27	17	36	161,0	248,0	24,8	201	145	213
38420.W0122	With Lock Nut	22	38	41	30	20	46	250,0	349,0	31,8	197	122	341
38420.W0124	With Lock Nut	24	38	41	30	20	46	250,0	381,0	31,8	180	122	320
38420.W0125	With Lock Nut	25	38	41	30	20	46	250,0	397,0	31,8	173	122	310
38420.W0128	With Lock Nut	28	42	44	33	23	50	355,0	565,0	40,4	174	123	370
38420.W0130	With Lock Nut	30	42	44	33	23	50	355,0	605,0	40,4	162	123	348
38420.W0132	With Lock Nut	32	50	51	38	28	55	490,0	764,0	47,8	166	112	555
38420.W0135	With Lock Nut	35	50	51	38	28	55	490,0	836,0	47,8	151	112	501
38420.W0814	Special Fork Wrench		-	-	-	-	14	-	-	-	-	-	45
38420.W0816	Special Fork Wrench		-	-	-	-	16	-	-	-	-	-	72
38420.W0822	Special Fork Wrench		-	-	-	-	22	-	-	-	-	-	195
38420.W0827	Special Fork Wrench		-	-	-	-	27	-	-	-	-	-	195
38420.W0836	Special Fork Wrench		-	-	-	-	36	-	-	-	-	-	428
38420.W0846	Special Fork Wrench		-	-	-	-	46	-	-	-	-	-	610
38420.W0850	Special Fork Wrench		-	-	-	-	50	-	-	-	-	-	870
38420.W0855	Special Fork Wrench		-	-	-	-	55	-	-	-	-	-	1125
38420.W0865	Special Fork Wrench		-	-	-	-	65	-	-	-	-	-	1295

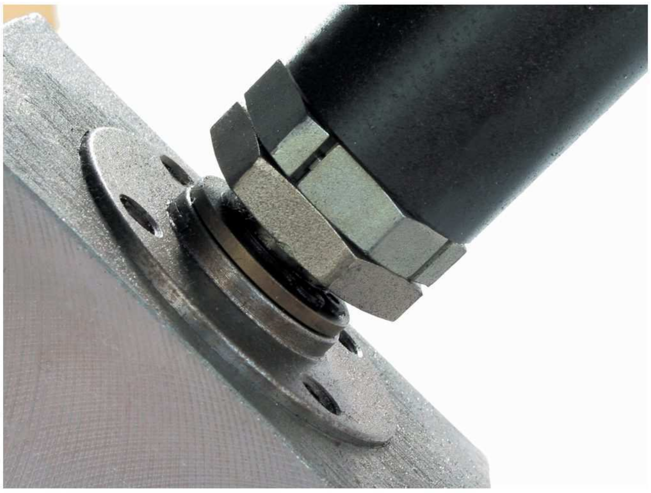
Material
Inner part: steel, nickel plated.
Outer part: steel, galvanised.
Nut: steel, nickel-plated.

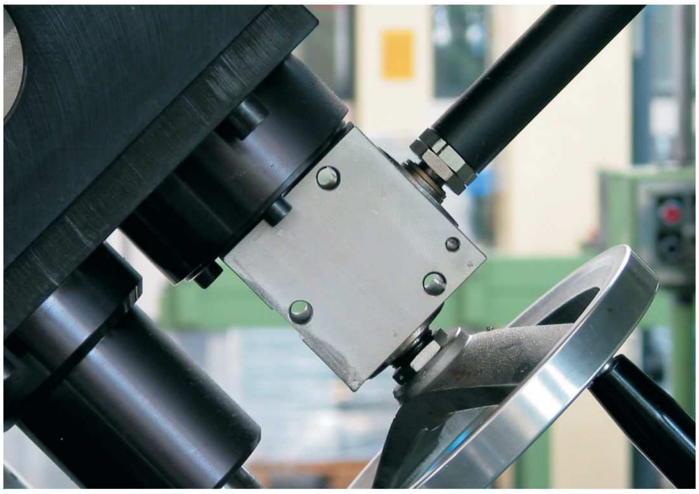
Technical Notes
Ta = tightening torque of nut.
M = transferable torque.
Fa = transferable thrust load.
pw = surface pressure of shaft.
pn = surface pressure of hub.
Rotational accuracy is 0,3mm.
Please note special fork wrench is required for mounting, wrench thickness is equal to l2 - l3.

Tips
These self-centering and non-floating tapered shaft hubs are used to easily and effectively achieve shaft/hub joints of machine elements such as sprocket wheels, gear wheels, belt pulleys, cams, levers etc. The lock nut enables locking of the shaft-hub joint, where free rotating shafts are used.

Tapered Shaft Hubs

with lock nut



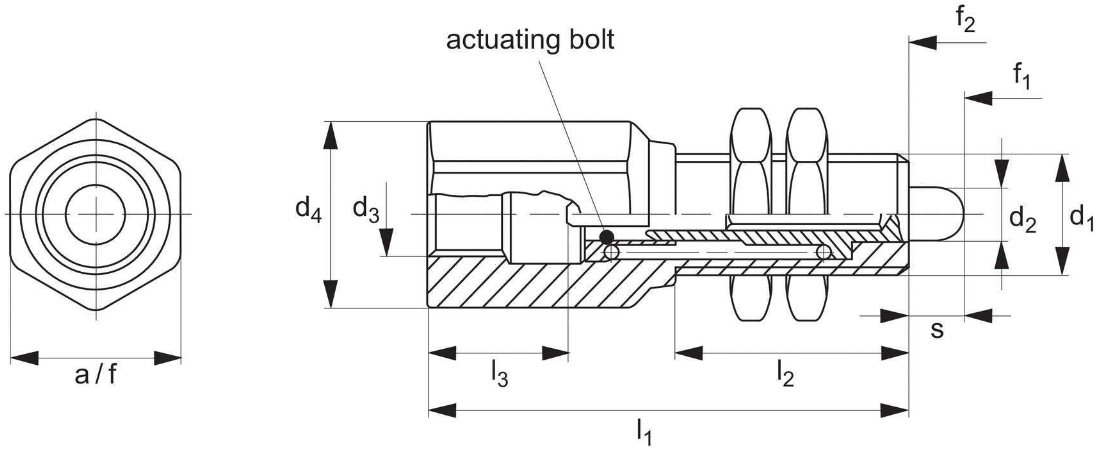


38420

Material
Inner part: steel, nickel plated.
Outer part: steel, galvanised.
Nut: steel, nickel-plated.

Technical Notes
Ta = tightening torque of nut.
M = transferable torque.
Fa = transferable thrust load.
pw = surface pressure of shaft.
pn = surface pressure of hub.
Rotational accuracy is 0,3mm.
Please note special fork wrench is required for mounting, wrench thickness is equal to l2 - l3.

Tips
These self-centering and non-floating tapered shaft hubs are used to easily and effectively achieve shaft/hub joints of machine elements such as sprocket wheels, gear wheels, belt pulleys, cams, levers etc. The lock nut enables locking of the shaft-hub joint, where free rotating shafts are used.



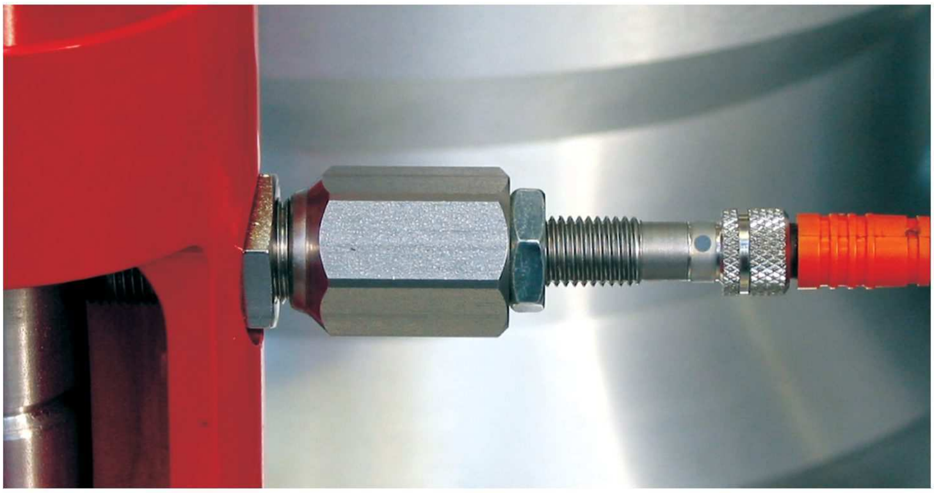
Order No.	d_1	d_2	d_3	d_4	l_1	l_2	l_3 ≈	s	a/f	Spring load* f_1 N≈	Spring load* f_2 N≈	g
38700.W0012	M12x1	6,2	M 8x1	19,0	44	20	15,5	5,6	17	24,0	47,3	57
38700.W0016	M16x1	8,5	M12×1	21,5	65	32	20,0	7,5	19	32,5	65,5	103

Material
Housing: stainless steel 1.4305
Spring: stainless steel
Pin: stainless steel 1.4305
Nut: (ISO 4035), nickle plated.

Technical Notes
Spring plunger with integrated position sensing via standard inductive sensors. Adjustment of the sensor screw enables variation of the switching range. Sensitivity of switch can be adjusted throughout the entire stroke. Suitable for inductive sensors with flush contact. Spring loads * = statistical average value.

Tips
Suitable for multiple applications, e.g. position control.

STAINLESS STEEL 303

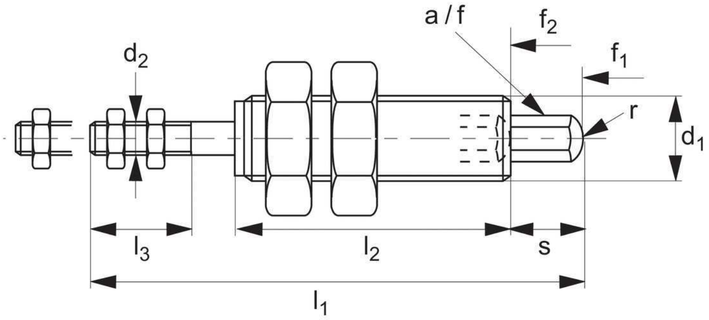


Sensing Elements

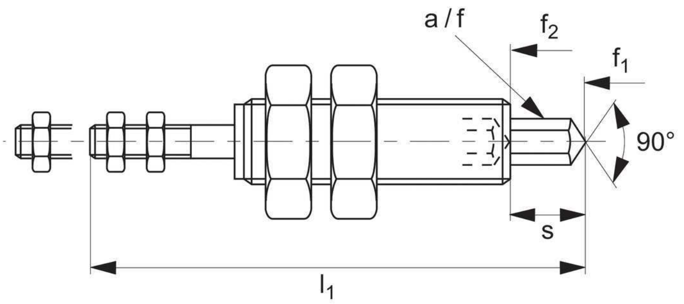
with actuating bolt, protected against rotating

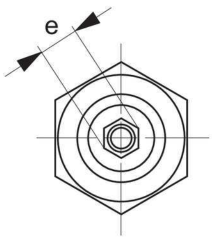
38720

rounded

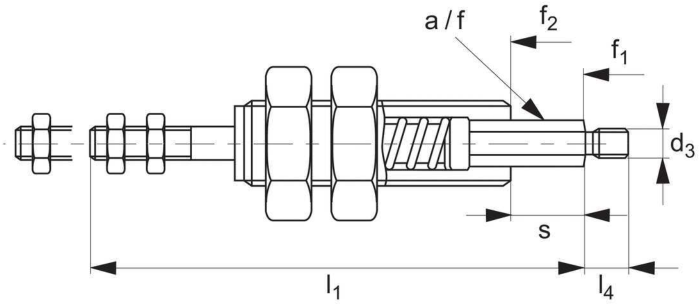


pointed





threaded



Material

Bolt: steel, nitrided, black.
Nut: steel, quality 8.8, blackened (ISO 4035).
Actuating bolt: nitrided, black.
Spring: stainless steel.

Technical Notes

Spring plunger with position sensing by means of an actuating bolt (protected against turning). Threaded tip allows for fitting of special purpose adapters. A switching element can be fitted to the fastening thread of the actuating bolt, most commonly used switches are suitable. Spring loads * = statistical average values.

Tips

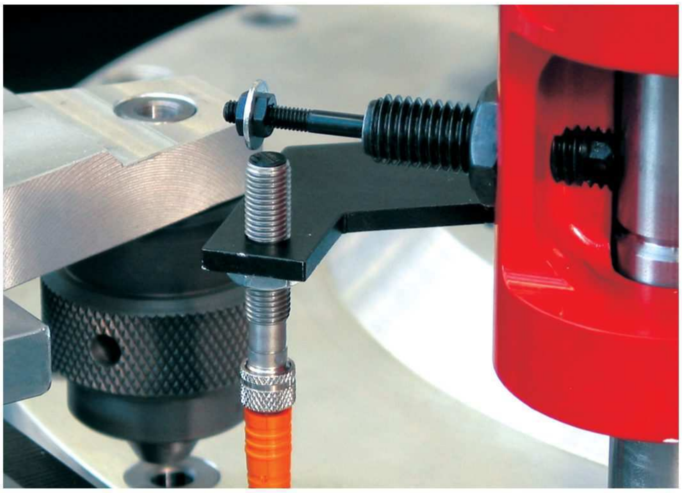
Suitable for multiple applications, e.g. as lift-off pin in tools with position control.

Order No.	Type	d_1	s	d_2	d_3	e ≈	l_1	l_2	l_3 min.	l_4	r	a/f	Spring load* f_1 N≈	Spring load* f_2 N≈	g
38720.W0008	Rounded Tip	M 8	6	M2,5	-	3,5	50	32	9	-	1,75	3	4,1	7,6	15
38720.W0010	Rounded Tip	M10	8	M 3	-	4,6	59	35	11	-	2,30	4	5,0	9,0	28
38720.W0012	Rounded Tip	M12	10	M 4	-	5,8	68	38	14	-	2,90	5	5,1	11,0	44
38720.W0016	Rounded Tip	M16	12	M 5	-	6,9	78	42	16	-	3,50	6	7,5	13,8	87
38720.W0058	Pointed Tip	M 8	6	M2,5	-	3,5	50	32	9	-		3	4,1	7,6	14
38720.W0060	Pointed Tip	M10	8	M 3	-	4,6	59	35	11	-		4	5,0	9,0	29
38720.W0062	Pointed Tip	M12	10	M 4	-	5,8	68	38	14	-		5	5,1	11,0	44
38720.W0066	Pointed Tip	M16	12	M 5	-	6,9	78	42	16	-		6	7,5	13,8	88
38720.W0108	Threaded Tip	M 8	6	M2,5	M2,5	3,5	50	32	9	4		3	4,1	7,6	15
38720.W0110	Threaded Tip	M10	8	M 3	M 3	4,6	59	35	11	5		4	5,0	9,0	29
38720.W0112	Threaded Tip	M12	10	M 4	M 4	5,8	68	38	14	6		5	5,1	11,0	44
38720.W0116	Threaded Tip	M16	12	M 5	M 5	6,9	78	42	16	7		6	7,5	13,8	89

Sensing Elements

with actuating bolt, protected against rotating

38720



Material
Bolt: steel, nitrided, black.
Nut: steel, quality 8.8, blackened (ISO 4035).
Actuating bolt: nitrided, black.
Spring: stainless steel.

Technical Notes
Spring plunger with position sensing by means of an actuating bolt (protected against turning). Threaded tip allows for fitting of special purpose adapters. A switching element can be fitted to the fastening thread of the actuating bolt, most commonly used switches are suitable. Spring loads * = statistical average values.

Tips
Suitable for multiple applications, e.g. as lift-off pin in tools with position control.

Why use an expansion sealing plug?

Hydraulic and pneumatic components and systems are often cross-drilled to provide the correct channels for air and gas. Some of these channels have to be drilled from the outside and later need to be closed off (plugged).

Expansion sealing plugs are inserted into a drilled hole and the expander ball is driven into the plug sleeve. The independent grooved sealing rings on the plug sleeve are driven into the housing material to permanently plug and seal the hole. The ball is retained in place.

No need for tapping or reaming, no machining of O ring grooves or the use of tapes or sealants. To seal a hole, follow this procedure:

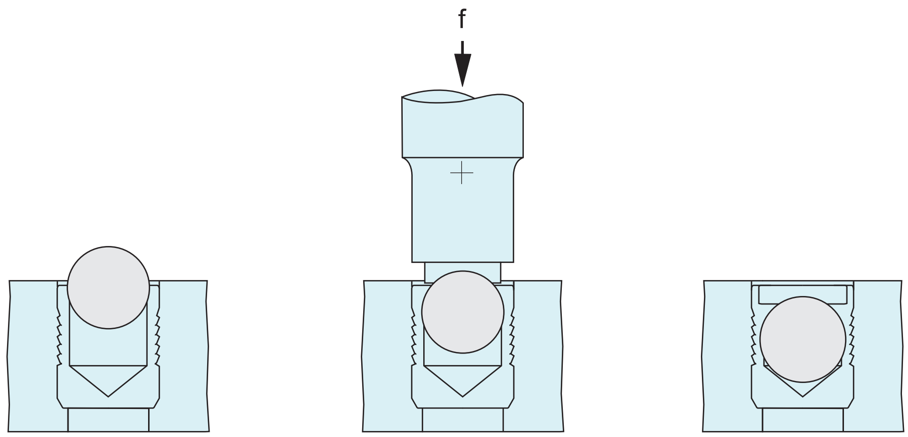


fig. 1
drill hole suitably toleranced hole and insert plug

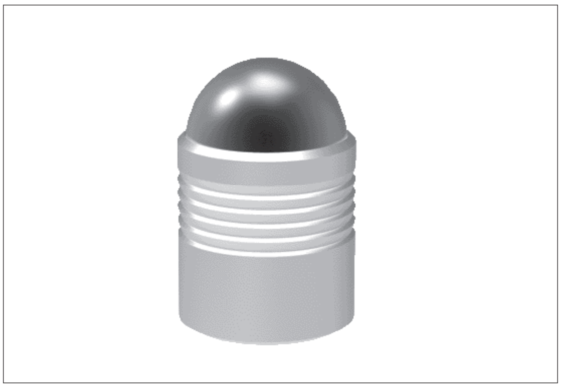
fig. 2
using suitable punch drive ball into plug sleeve

fig. 3
installation complete when ball is flush or sub-flush to plug body/sleeve

Applications

Some of the typical applications for our sealing screws include:

- Pneumatics
- Hydraulics
- Fluid Power
- Automation
- Aerospace
- Valves
- Regulators
- Cylinders



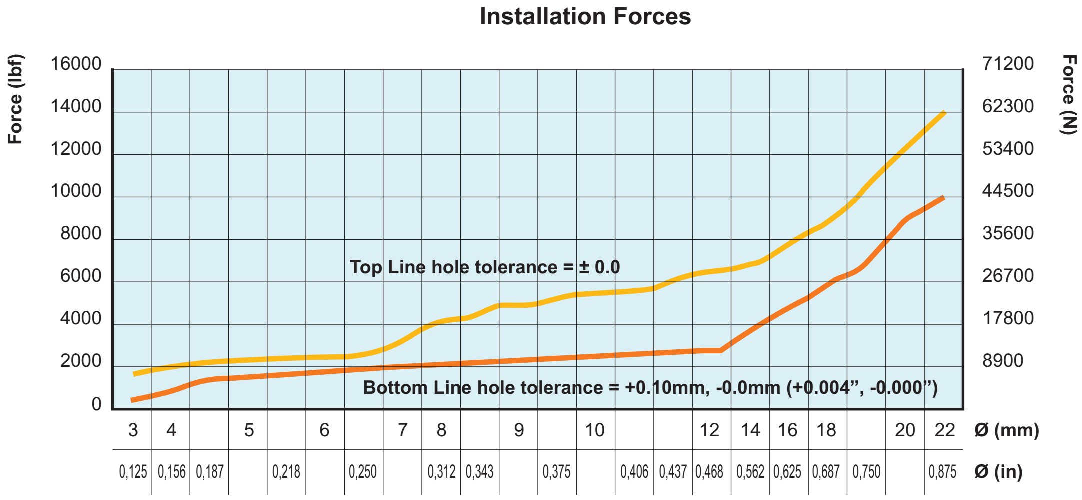
“Standard” Expansion sealing plugs - push the ball which expands the sleeve and seals the channel.

“Pull” Expansion sealing plugs. Pulling on the mandrel expands the sleeve, sealing the channel. At a predetermined force the mandrel breaks off.

ov-39001-39030-a - Updated - 10-01-2017

Installation forces guidelines

The values offered are to be used as a guideline. The base metal chosen for your specific application, the surface treatment, hole size and surface finish all affect the seal performance. Please contact our technical department for more information.



Pressure performance guidelines

Material	Steel (Case-hardened) Plug Body Ø 3-10	Steel (Case-hardened) Plug Body Ø 12-32
Steel (SAE 1144) Steel (SAE 10L15) Cast Iron (ASTM A48) Ductile Iron (ASTM A356)	350 bar working pressure 1,100 bar proof pressure	380 bar working pressure 900 bar proof pressure
Aluminium (2024-T4) Aluminium (6061-T6) Cast Aluminium (356-T6)	310 bar working pressure 1,000 bar proof pressure	240 bar working pressure 800 bar proof pressure

Material	Stainless Steel (300 Series) Plug Body Ø 3-10	Stainless Steel (300 Series) Plug Body Ø 12-32
Steel (SAE 1144) Steel (SAE 10L15) Cast Iron (ASTM A48) Ductile Iron (ASTM A356)	450 bar working pressure 1,300 bar proof pressure	450 bar working pressure 1,100 bar proof pressure
Aluminium (2024-T4) Aluminium (6061-T6) Cast Aluminium (356-T6)	380 bar working pressure 1,200 bar proof pressure	280 bar working pressure 900 bar proof pressure

Material	Aluminium (2024-T4) Plug Body Ø 3-10	Aluminium (2024-T4) Plug Body Ø 12-32
Steel (SAE 1144) Steel (SAE 10L15) Cast Iron (ASTM A48) Ductile Iron (ASTM A356)	450 bar working pressure 1,300 bar proof pressure	350 bar working pressure 1,100 bar proof pressure
Aluminium (2024-T4) Aluminium (6061-T6) Cast Aluminium (356-T6)	380 bar working pressure 1,200 bar proof pressure	280 bar working pressure 900 bar proof pressure

Standard installation

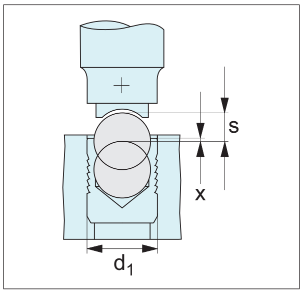
Hole preparation

Refer to the data sheet for the correct hole size to drill for the counterbored and drilled hole size and tolerance. Hole concentricity must be held within 0,05mm.

Bore roughness must be between Rz (RMS) 10-30µ (especially for hard materials).

Avoid spiral or longitudinal grooves as these may affect plug performance. Ensure the holes are clean and dirt free.

Installation



Insert the plug into the counterbored hole with the ball facing outwards, seated against the counterbore shoulder.

Press the ball into the sleeve so that the top of the ball is slightly below the top of the sleeve (note approximate values for x and s in table below):

d_1	3	4	5	6	7	8	9	10	12	14	16	18	20	22
Stroke - s	1,2	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,5	6,35	7,0	8,0	9,0	10,0
Top of ball relative to top of sleeve - x ±0.2	0,4	0,2	0,4	0,4	0,4	0,3	0,4	0,4	0,4	0,4	0,6	0,6	0,8	0,8

Use the correct installation tool for each plug size. The plugs can be installed using a hammer and the installation tool. An air hammer with the correct air hammer installation tool can also be used.

Minimum wall thickness and distance from an edge

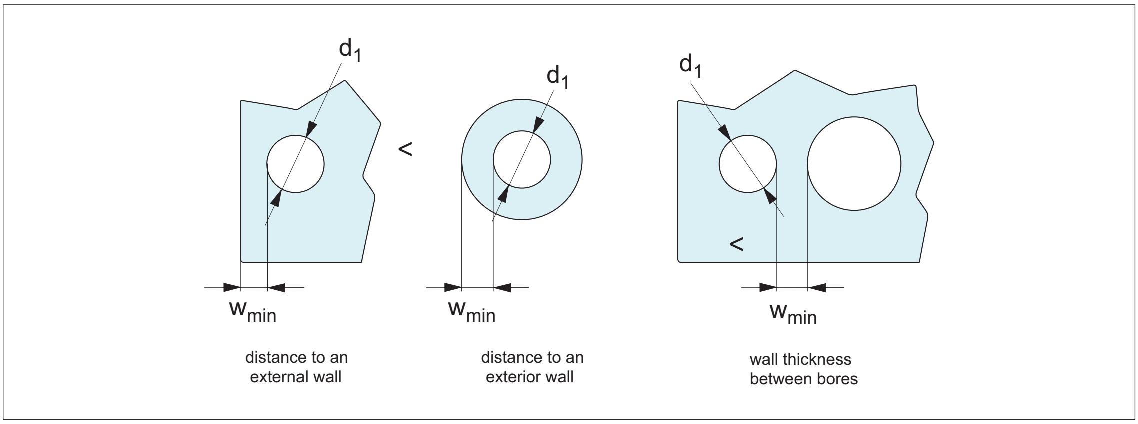
$d_1 \geq 4mm$

$w_{min} = f_{min} \times d_1$

$d_1 < 4mm$

$w_{min} = (f_{min} \times d_1) + 0{,}5mm$

The radial expansion of the plug causes the housing material around the plug to deform plastically. Therefore a proper minimum wall thickness or distance from an edge is necessary to optimise the strength of the mechanical connection. The operating hydraulic pressure, thermal cycling, plug type and characteristics of the base metal also need to be considered – please consult our technical department.

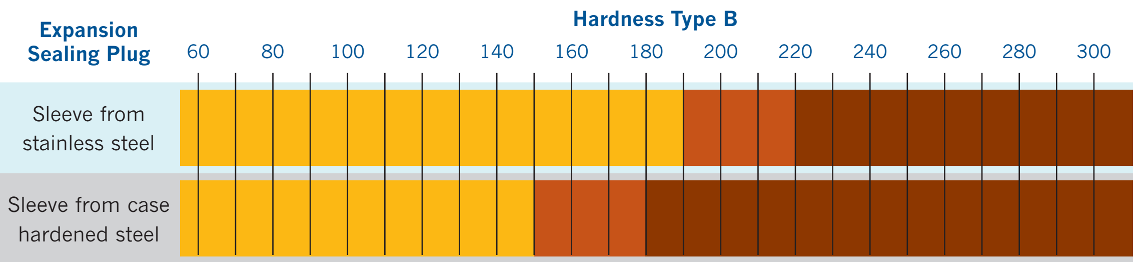


The guidelines for minimum wall thickness or distance from and edge (W_{min}) are shown below – these minimum values produce only a very slight deformation on the exterior profile (less than 20 microns).

Sealing plug type	Base Metal: Steel (SAE 1144)	Steel (SAE 10L15)	Cast Iron (ASTM A48)	Ductile Iron (ASTM A356)	Aluminium (2024-T4)	Aluminium (6061-T6)	Cast Aluminium (356-T6)
	Factor f_{min}						
Steel body	0,5	0,6	1,0	0,6	0,6	1,0	1,0
Stainless body	0,6	0,8	1,0	0,8	0,8	1,0	1,0
Pull plugs	0,5	0,6	1,0	0,6	0,6	1,0	1,0

Anchorage principle

There is a direct connection between the necessary drilling roughnesses required and both the hardness and the tensile characteristics of the base material. Depending on the mounting combination of sealing plug and base material, anchorage can either take place via the rifle profile of the expansion sleeve (Automatic anchorage) or via the surface of the drilling hole.



= Hard base material: For the allowed working pressures, the anchorage must be achieved via the drilling roughness. Roughness: R_z = 10-30µm.

= Intermediate area: For the allowed working pressures anchorage has to be achieved via the drilling roughness of the base material. Roughness: R_z = 10 - 30µm.

= Soft base material: The anchorage within the drilling hole of the base material will automatically be achieved via the rifle profile of the expansion sealing plug (automatic anchorage).

Attention

Depending on the type of expansion sealing plug and the hardness of the base material a bore roughness of Rz = 10 - 30µm has to be adhered to. Requirements to achieve maximum operation reliability:

- Drilling tolerance d1 = + 0,1 mm.
- Consideration of counterbore hole relations.
- Roundness tolerance t = 0,05mm.
- Longitudinal rifles and spiral grooves that may have a negative influence on the sealing effectiveness have to be avoided.
- Drilling holes have to be free from oil and grease.

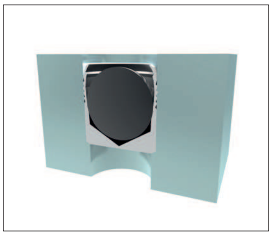
In cases where an automatic anchorage is not possible when building in the expander sealing plug into a hard base material a drilling roughness of:

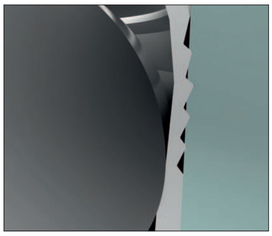
- > Rz = 10-30µm is necessary to achieve the required pressure values.
- When having roughness: > Rz = 30µm, leakages may occur.

Anchorage by rifle profile

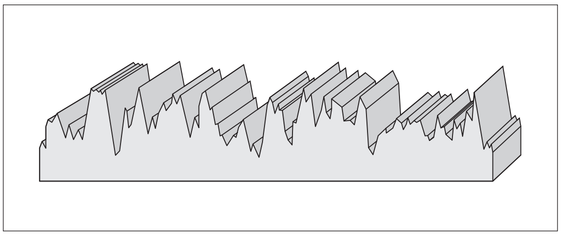
Automatic anchorage

Example: expansion sealing plug made from case hardened steel HB = 180, in aluminium alloy HB = 90.



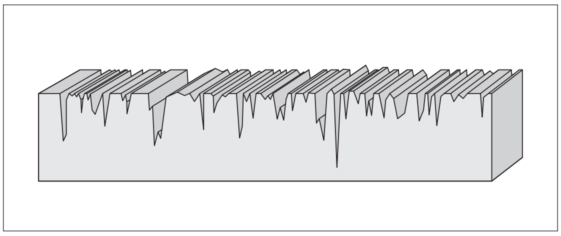


Anchorage by bore roughness



Required roughness design

An ideal bore roughness for the anchor can be achieved by using a twist drill or countersink.



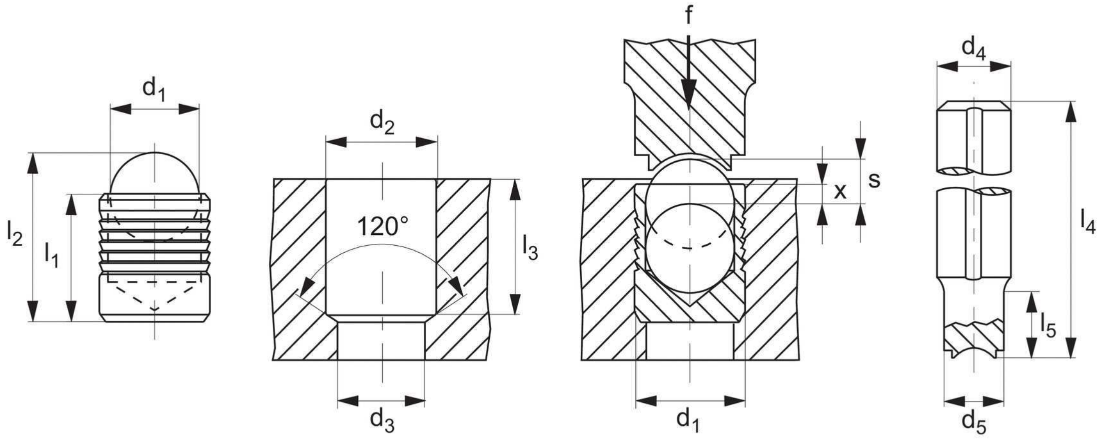
Undesirable roughness design

Friction will cause a smooth roughness profile that is not desired.

Expander® Sealing Plugs

case hardened steel body

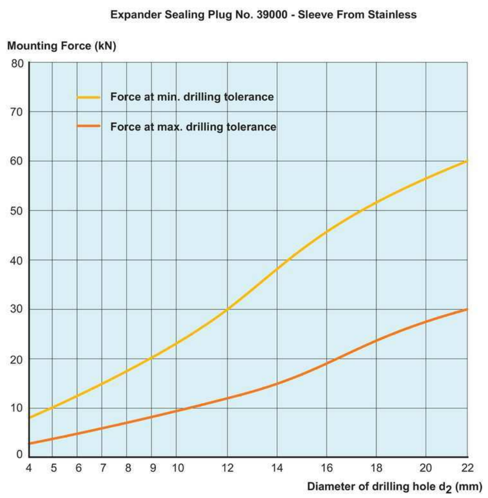
39000



sealing plug

fitting tool

Order No.	Type	d_1	l_1	l_2 Ø	d_2 +0,1	d_3 max.	l_3 min.	x ±0,2	s	d_4 h9	d_5	l_4	l_5	g
39000.W0004	Sealing Plug	4	4,0	5,2	4	3,3	3,8	0,2	1,50	-	-	-	-	0,4
39000.W0005	Sealing Plug	5	5,5	7,0	5	4,3	5,3	0,4	2,00	-	-	-	-	0,7
39000.W0006	Sealing Plug	6	6,5	8,6	6	5,3	6,3	0,4	2,50	-	-	-	-	1,3
39000.W0007	Sealing Plug	7	7,5	10,1	7	6,4	7,3	0,4	3,00	-	-	-	-	2,0
39000.W0008	Sealing Plug	8	8,5	11,7	8	7,4	8,3	0,3	3,50	-	-	-	-	2,8
39000.W0009	Sealing Plug	9	10,0	13,7	9	8,4	9,8	0,4	4,00	-	-	-	-	4,2
39000.W0010	Sealing Plug	10	11,0	15,2	10	9,4	10,8	0,4	4,50	-	-	-		6,1
39000.W0012	Sealing Plug	12	13,0	18,0	12	10,6	12,8	0,4	5,50	-	-	-	-	9,6
39000.W0014	Sealing Plug	14	15,0	20,8	14	12,7	14,5	0,4	6,35	-	-	-	-	15,0
39000.W0016	Sealing Plug	16	17,0	23,7	16	14,7	16,5	0,6	7,00	-	-	-	-	22,0
39000.W0018	Sealing Plug	18	19,0	26,3	18	16,7	18,5	0,6	8,00	-	-	-	-	32,0
39000.W0020	Sealing Plug	20	22,0	30,5	20	18,7	21,5	0,8	9,00	-	-		-	44,0
39000.W0022	Sealing Plug	22	25,0	34,2	22	20,7	24,5	0,8	10,00	-	-	-	-	58,0
39000.W0153	Fitting Tool	3	-	-	-	-	-	0,4	1,20	10	2,8	100	10	53,0
39000.W0154	Fitting Tool	4	-	-	-	-	-	0,2	1,50	10	3,8	100	10	54,0
39000.W0155	Fitting Tool	5	-	-	-	-	-	0,4	2,00	10	4,8	100	12	53,0
39000.W0156	Fitting Tool	6	-	-	-	-	-	0,4	2,50	10	5,8	100	15	53,0
39000.W0157	Fitting Tool	7	-	-	-	-	-	0,4	3,00	10	6,8	100	18	54,0
39000.W0158	Fitting Tool	8	-	-	-	-	-	0,3	3,50	10	7,8	100	20	55,0
39000.W0159	Fitting Tool	9	-	-	-	-	-	0,4	4,00	14	8,8	100	22	101
39000.W0160	Fitting Tool	10	-	-	-	-	-	0,4	4,50	14	9,8	100	25	103
39000.W0162	Fitting Tool	12	-	-	-	-	-	0,4	5,50	14	11,7	150	30	167
39000.W0164	Fitting Tool	14	-	-	-	-	-	0,4	6,35	20	13,7	150	35	316
39000.W0166	Fitting Tool	16	-	-	-	-	-	0,6	7,00	20	15,7	150	40	326
39000.W0168	Fitting Tool	18	-	-	-	-	-	0,6	8,00	20	17,7	150	45	340
39000.W0170	Fitting Tool	20	-	-	-	-	-	0,8	9,00	25	19,7	150	50	495
39000.W0172	Fitting Tool	22	-	-	-	-	-	0,8	10,00	25	21,7	150	55	516



Material

Body: case-hardened steel, zinc coated, thick film passivated roller.
Ball: roller bearing steel, heat treated, tempered.
Setting die: tool steel, heat treated.

Technical Notes

Expander sealing plugs are used for safe, quick and economic sealing of bore holes in fluid technology, e.g. hydraulic drilling holes in jig and fixtures. Setting dies are required for assembly.

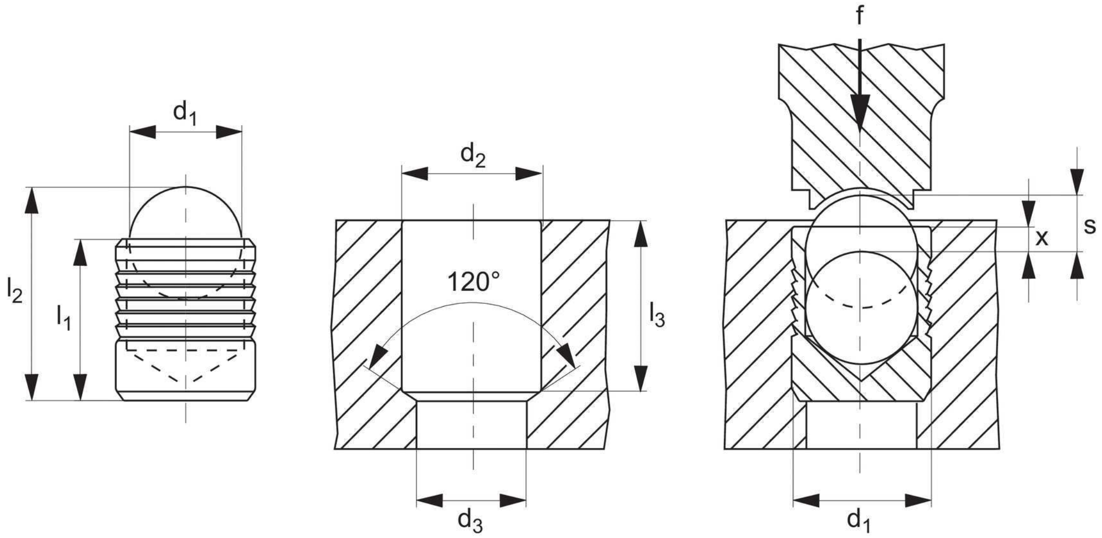
Tips

For assembly instructions please see technical pages.

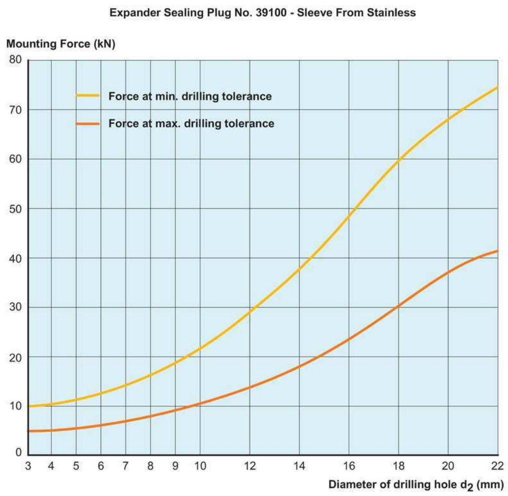
Expander® Sealing Plugs

stainless steel body

39100



Order No.	d_1	l_1	l_2≈	d_2 +0,1	d_3 max.	l_3 min.	x ±0,2	s	g
39100.W0053	3	3,6	4,6	3	2,2	3,4	0,4	1,20	0,1
39100.W0054	4	4,0	5,2	4	3,3	3,8	0,2	1,50	0,3
39100.W0055	5	5,5	7,0	5	4,3	5,3	0,4	2,00	0,7
39100.W0056	6	6,5	8,6	6	5,3	6,3	0,4	2,50	1,3
39100.W0057	7	7,5	10,1	7	6,4	7,3	0,4	3,00	2,4
39100.W0058	8	8,5	11,7	8	7,4	8,3	0,3	3,50	3,2
39100.W0059	9	10,0	13,7	9	8,4	9,8	0,4	4,00	4,5
39100.W0060	10	11,0	15,2	10	9,4	10,8	0,4	4,50	6,1
39100.W0062	12	13,0	18,0	12	10,6	12,8	0,4	5,50	9,7
39100.W0064	14	15,0	20,8	14	12,7	14,5	0,4	6,35	15,0
39100.W0066	16	17,0	23,7	16	14,7	16,5	0,6	7,00	22,0
39100.W0068	18	19,0	26,3	18	16,7	18,5	0,6	8,00	31,0
39100.W0070	20	22,0	30,5	20	18,7	21,5	0,8	9,00	46,0
39100.W0072	22	25,0	34,2	22	20,7	24,5	0,8	10,00	58,0



Material
Body: stainless steel 1,4305 (AISI 303).
Ball: roller bearing steel, heat-treated, tempered.

Technical Notes
Expander sealing plugs are used for safe, quick and economic sealing of bore holes in fluid technology, e.g. hydraulic drilling holes in jig and fixtures. Setting dies are required for assembly.

Tips
For assembly instructions please see technical pages.

STAINLESS STEEL 303

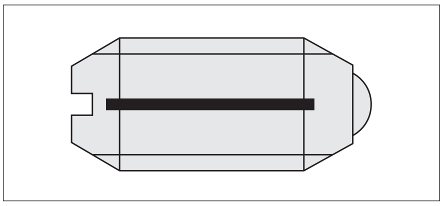
Wixroyd Imperial Spring Plungers

imperial thread

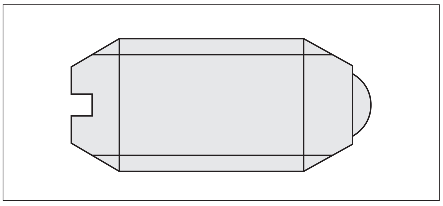
3B100 -3B200

Wixroyd have applied their extensive experience and expertise in spring plunger design and production to offer a range of imperial plungers.

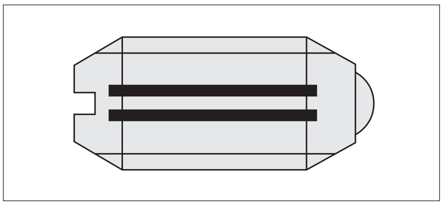
At last – imperial version spring plungers stocked in the UK!



Light spring load = marked with one line.



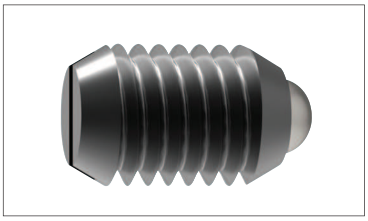
Standard spring load = no marking.



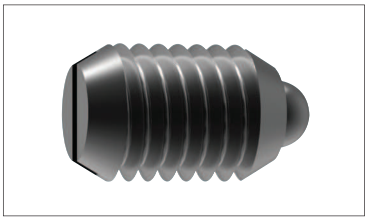
Heavy spring load = marked with two lines.

Spring loads

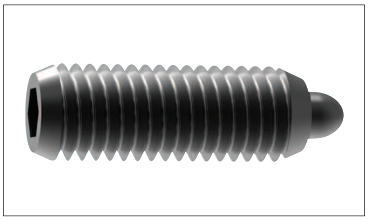
Three available spring pressure models.



3B100 Imperial plunger with ball and slot.



3B150 Imperial plunger with pin and slot.



3B200 Imperial plunger with pin and hex socket.

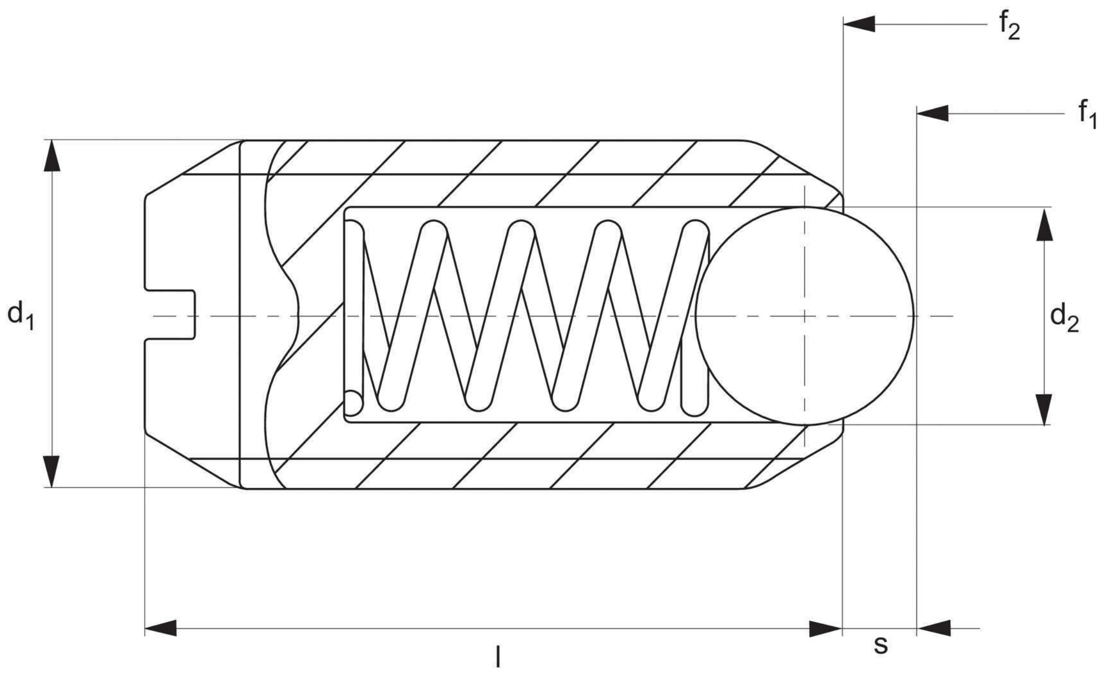
Thread details

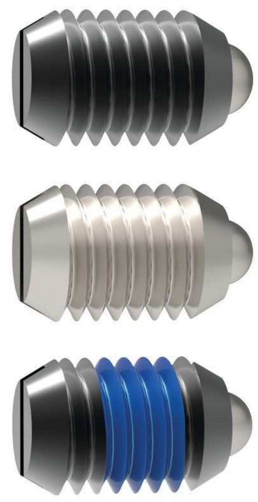
2A-UNC/UNF: sizes 4-48 to 5/8-11.

Conversion table: Metric/Imperial values

	To convert from	To	Use conversion factor
Lengths	Inch (in)	Millimeter (mm)	in x 25,4 = mm
	Millimeter (mm)	Inch (in)	mm x 0,03937 = in
Weight/force	Ounces (oz)	Gram (g)	oz x 28 = g
	Gram (g)	Ounces (oz)	g x 0,035 = oz
	Pounds (lbs)	Kilogram (Kg)	lbs x 0,4536 = Kg
	Kilogram (Kg)	Pounds (lbs)	Kg x 2,205 = lbs
	Kilogram (Kg)	Newton (N)	Kg x 9,81 = N
	Newton (N)	Kilogram (Kg)	N/ 9,81 = Kg
Temperature	Degree fahrenheit (°F)	Degree centigrade (°C)	(°F-32) x 5/9 = °C
	Degree centigrade (°C)	Degree fahrenheit (°F)	°C x 9/5 + 32 = °F
Torque	Foot-pounds (ft-lbs)	Newton-meter (Nm)	ft/lbs x 1,35 = Nm
	Newton-meter (Nm)	Foot-pounds (ft-lbs)	Nm x 0,74 = ft/lbs

ov-3b100-3b200-a - Updated - 10-01-2017





Order No.	Type	Finish	Spring load	UNC/UNF d_1**	l_1**	s**	d_2**	Spring load* F_1 lbs≈	Spring load* F_2 lbs≈	oz.
3B100.W0010	w/o Threadlock	Steel	Light	UNF 10-32	33/64	0,025	3/32	0,9	1,5	0,049
3B100.W0012	w/o Threadlock	Steel	Light	UNC 1/4-20	17/32	0,035	1/8	2,1	4,0	0,074
3B100.W0016	w/o Threadlock	Steel	Light	UNC 5/16-18	37/64	0,040	5/32	2,0	4,6	0,123
3B100.W0018	w/o Threadlock	Steel	Light	UNC 3/8-16	5/8	0,048	3/16	2,5	5,0	0,193
3B100.W0020	w/o Threadlock	Steel	Light	UNC 1/2-13	3/4	0,072	9/32	3,0	6,0	0,397
3B100.W0022	w/o Threadlock	Steel	Light	UNC 5/8-11	63/64	0,096	3/8	4,5	9,0	0,787
3B100.W0031	w/o Threadlock	Steel	Standard	UNF 4-48	3/16	0,020	1/16	0,1	0,5	0,008
3B100.W0032	w/o Threadlock	Steel	Standard	UNC 5-40	1/4	0,020	1/16	0,3	0,8	0,016
3B100.W0033	w/o Threadlock	Steel	Standard	UNC 6-32	5/16	0,023	5/64	0,5	1,0	0,020
3B100.W0035	w/o Threadlock	Steel	Standard	UNF 6-40	5/16	0,023	5/64	0,5	1,0	0,020
3B100.W0036	w/o Threadlock	Steel	Standard	UNC 8-32	11/32	0,025	3/32	0,8	1,3	0,026
3B100.W0038	w/o Threadlock	Steel	Standard	UNF 8-36	11/32	0,025	3/32	0,8	1,3	0,026
3B100.W0040	w/o Threadlock	Steel	Standard	UNF 10-32	33/64	0,025	3/32	2,0	3,1	0,049
3B100.W0042	w/o Threadlock	Steel	Standard	UNC 1/4-20	17/32	0,035	1/8	3,8	6,8	0,073
3B100.W0046	w/o Threadlock	Steel	Standard	UNC 5/16-18	37/64	0,040	5/32	4,0	8,4	0,123
3B100.W0048	w/o Threadlock	Steel	Standard	UNC 3/8-16	5/8	0,048	3/16	5,0	10,3	0,198
3B100.W0050	w/o Threadlock	Steel	Standard	UNC 1/2-13	3/4	0,072	9/32	6,0	12,0	0,406
3B100.W0052	w/o Threadlock	Steel	Standard	UNC 5/8-11	63/64	0,096	3/8	9,0	18,0	0,811
3B100.W0070	w/o Threadlock	Steel	Heavy	UNF 10-32	33/64	0,025	3/32	3,3	4,8	0,049
3B100.W0072	w/o Threadlock	Steel	Heavy	UNC 1/4-20	17/32	0,035	1/8	5,6	8,6	0,073
3B100.W0076	w/o Threadlock	Steel	Heavy	UNC 5/16-18	37/64	0,040	5/32	6,0	11,1	0,122
3B100.W0078	w/o Threadlock	Steel	Heavy	UNC 3/8-16	5/8	0,048	3/16	7,5	15,1	0,196
3B100.W0080	w/o Threadlock	Steel	Heavy	UNC 1/2-13	3/4	0,072	9/32	6,0	24,0	0,408
3B100.W0082	w/o Threadlock	Steel	Heavy	UNC 5/8-11	63/64	0,096	3/8	7,0	40,0	0,825
3B100.W0110	w/o Threadlock	Stainless	Light	UNF 10-32	33/64	0,025	3/32	0,9	1,5	0,048
3B100.W0112	w/o Threadlock	Stainless	Light	UNC 1/4-20	17/32	0,035	1/8	2,1	4,0	0,071
3B100.W0116	w/o Threadlock	Stainless	Light	UNC 5/16-18	37/64	0,040	5/32	2,0	4,6	0,123
3B100.W0118	w/o Threadlock	Stainless	Light	UNC 3/8-16	5/8	0,048	3/16	2,5	5,0	0,190
3B100.W0120	w/o Threadlock	Stainless	Light	UNC 1/2-13	3/4	0,072	9/32	3,0	6,0	0,397
3B100.W0122	w/o Threadlock	Stainless	Light	UNC 5/8-11	63/64	0,096	3/8	4,5	9,0	0,790
3B100.W0131	w/o Threadlock	Stainless	Standard	UNF 4-48	3/16	0,020	1/16	0,1	0,5	0,005
3B100.W0132	w/o Threadlock	Stainless	Standard	UNC 5-40	1/4	0,020	1/16	0,3	0,8	0,015
3B100.W0133	w/o Threadlock	Stainless	Standard	UNC 6-32	5/16	0,023	5/64	0,5	1,0	0,018
3B100.W0135	w/o Threadlock	Stainless	Standard	UNF 6-40	5/16	0,023	5/64	0,5	1,0	0,019
3B100.W0136	w/o Threadlock	Stainless	Standard	UNC 8-32	11/32	0,025	3/32	0,8	1,3	0,026
3B100.W0138	w/o Threadlock	Stainless	Standard	UNF 8-36	11/32	0,025	3/32	0,8	1,3	0,026
3B100.W0140	w/o Threadlock	Stainless	Standard	UNF 10-32	33/64	0,025	3/32	2,0	3,1	0,049
3B100.W0142	w/o Threadlock	Stainless	Standard	UNC 1/4-20	17/32	0,035	1/8	3,8	6,8	0,072
3B100.W0146	w/o Threadlock	Stainless	Standard	UNC 5/16-18	37/64	0,040	5/32	4,0	8,4	0,123
3B100.W0148	w/o Threadlock	Stainless	Standard	UNC 3/8-16	5/8	0,048	3/16	5,0	10,3	0,198
3B100.W0150	w/o Threadlock	Stainless	Standard	UNC 1/2-13	3/4	0,072	9/32	6,0	12,0	0,396

Material

Free cutting steel type-
Body: free cutting steel, blackened.
Ball: ball bearing steel 1.3505 (100Cr6) hardened.
Spring: stainless steel.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Ball: ball bearing steel, hardened.
Spring: stainless steel.

Technical Notes

To be used as detents or for locating, positioning, indexing, locking, latching, ejecting, lifting off and other similar push application.
Temperature range for execution without thread up to 482°F.
Thread lock - Polyamide spot coating.

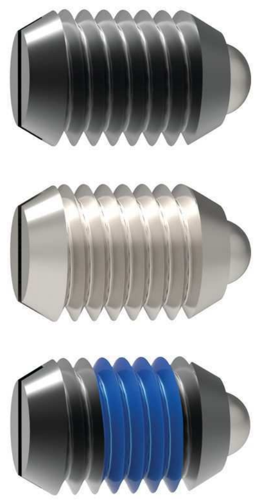
Tips

Light spring load - marked with one line.
Standard spring load - no marking.
Heavy spring load - marked with two lines.
Special types available on request.

Important Notes

* statistical average value
** all dimensions are in inches
Thread: 2A-UNC/UNF.

Order No.	Type	Finish	Spring load	UNC/UNF d_1**	l_1**	s**	d_2**	Spring load* F_1 lbs≈	Spring load* F_2 lbs≈	oz.
3B100.W0152	w/o Threadlock	Stainless	Standard	UNC 5/8-11	63/64	0,096	3/8	9,0	18,0	0,813
3B100.W0170	w/o Threadlock	Stainless	Heavy	UNF 10-32	33/64	0,025	3/32	3,3	4,8	0,046
3B100.W0172	w/o Threadlock	Stainless	Heavy	UNC 1/4-20	17/32	0,35	1/8	5,6	8,6	0,074
3B100.W0176	w/o Threadlock	Stainless	Heavy	UNC 5/16-18	37/64	0,040	5/32	6,0	11,1	0,123
3B100.W0178	w/o Threadlock	Stainless	Heavy	UNC 3/8-16	5/8	0,048	3/16	7,5	15,1	0,197
3B100.W0180	w/o Threadlock	Stainless	Heavy	UNC 1/2-13	3/4	0,072	9/32	6,0	24,0	0,409
3B100.W0182	w/o Threadlock	Stainless	Heavy	UNC 5/8-11	63/64	0,096	3/8	7,0	40,0	0,825
3B100.W0210	With Threadlock	Steel	Light	UNF 10-32	33/64	0,025	3/32	0,9	1,5	0,049
3B100.W0212	With Threadlock	Steel	Light	UNC 1/4-20	17/32	0,035	1/8	2,1	4,0	0,074
3B100.W0216	With Threadlock	Steel	Light	UNC 5/16-18	37/64	0,040	5/32	2,0	4,6	0,123
3B100.W0218	With Threadlock	Steel	Light	UNC 3/8-16	5/8	0,048	3/16	2,5	5,0	0,193
3B100.W0220	With Threadlock	Steel	Light	UNC 1/2-13	3/4	0,072	9/32	3,0	6,0	0,397
3B100.W0222	With Threadlock	Steel	Light	UNC 5/8-11	63/64	0,096	3/8	4,5	9,0	0,787
3B100.W0231	With Threadlock	Steel	Standard	UNF 4-48	3/16	0,020	1/16	0,1	0,5	0,008
3B100.W0232	With Threadlock	Steel	Standard	UNC 5-40	1/4	0,020	1/16	0,3	0,8	0,016
3B100.W0233	With Threadlock	Steel	Standard	UNC 6-32	5/16	0,023	5/64	0,5	1,0	0,020
3B100.W0235	With Threadlock	Steel	Standard	UNF 6-40	5/16	0,023	5/64	0,5	1,0	0,020
3B100.W0236	With Threadlock	Steel	Standard	UNC 8-32	11/32	0,025	3/32	0,8	1,3	0,026
3B100.W0238	With Threadlock	Steel	Standard	UNF 8-36	11/32	0,025	3/32	0,8	1,3	0,026
3B100.W0240	With Threadlock	Steel	Standard	UNF 10-32	33/64	0,025	3/32	2,0	3,1	0,049
3B100.W0242	With Threadlock	Steel	Standard	UNC 1/4-20	17/32	0,035	1/8	3,8	6,8	0,073
3B100.W0246	With Threadlock	Steel	Standard	UNC 5/16-18	37/64	0,040	5/32	4,0	8,4	0,123
3B100.W0248	With Threadlock	Steel	Standard	UNC 3/8-16	5/8	0,048	3/16	5,0	10,3	0,198
3B100.W0250	With Threadlock	Steel	Standard	UNC 1/2-13	3/4	0,072	9/32	6,0	12,0	0,406
3B100.W0252	With Threadlock	Steel	Standard	UNC 5/8-11	63/64	0,096	3/8	9,0	18,0	0,811
3B100.W0270	With Threadlock	Steel	Heavy	UNF 10-32	33/64	0,025	3/32	3,3	4,8	0,049
3B100.W0272	With Threadlock	Steel	Heavy	UNC 1/4-20	17/32	0,035	1/8	5,6	8,6	0,073
3B100.W0276	With Threadlock	Steel	Heavy	UNC 5/16-18	37/64	0,040	5/32	6,0	11,1	0,122
3B100.W0278	With Threadlock	Steel	Heavy	UNC 3/8-16	5/8	0,048	3/16	7,5	15,1	0,196
3B100.W0280	With Threadlock	Steel	Heavy	UNC 1/2-13	3/4	0,072	9/32	6,0	24,0	0,408
3B100.W0282	With Threadlock	Steel	Heavy	UNC 5/8-11	63/64	0,096	3/8	7,0	40,0	0,825
3B100.W0310	With Threadlock	Stainless	Light	UNF 10-32	33/64	0,025	3/32	0,9	1,5	0,048
3B100.W0312	With Threadlock	Stainless	Light	UNC 1/4-20	17/32	0,035	1/8	2,1	4,0	0,071
3B100.W0316	With Threadlock	Stainless	Light	UNC 5/16-18	37/64	0,040	5/32	2,0	4,6	0,123
3B100.W0318	With Threadlock	Stainless	Light	UNC 3/8-16	5/8	0,048	3/16	2,5	5,0	0,190
3B100.W0320	With Threadlock	Stainless	Light	UNC 1/2-13	3/4	0,072	9/32	3,0	6,0	0,397
3B100.W0322	With Threadlock	Stainless	Light	UNC 5/8-11	63/64	0,096	3/8	4,5	9,0	0,790
3B100.W0331	With Threadlock	Stainless	Standard	UNF 4-48	3/16	0,020	1/16	0,1	0,5	0,005
3B100.W0332	With Threadlock	Stainless	Standard	UNC 5-40	1/4	0,020	1/16	0,3	0,8	0,015
3B100.W0333	With Threadlock	Stainless	Standard	UNC 6-32	5/16	0,023	5/64	0,5	1,0	0,018
3B100.W0335	With Threadlock	Stainless	Standard	UNF 6-40	5/16	0,023	5/64	0,5	1,0	0,019
3B100.W0336	With Threadlock	Stainless	Standard	UNC 8-32	11/32	0,025	3/32	0,8	1,3	0,026
3B100.W0338	With Threadlock	Stainless	Standard	UNF 8-36	11/32	0,025	3/32	0,8	1,3	0,026
3B100.W0340	With Threadlock	Stainless	Standard	UNF 10-32	33/64	0,025	3/32	2,0	3,1	0,035
3B100.W0342	With Threadlock	Stainless	Standard	UNC 1/4-20	17/32	0,035	1/8	3,8	6,8	0,072
3B100.W0346	With Threadlock	Stainless	Standard	UNC 5/16-18	37/64	0,040	5/32	4,0	8,4	0,123
3B100.W0348	With Threadlock	Stainless	Standard	UNC 3/8-16	5/8	0,048	3/16	5,0	10,3	0,198
3B100.W0350	With Threadlock	Stainless	Standard	UNC 1/2-13	3/4	0,072	9/32	6,0	12,0	0,396
3B100.W0352	With Threadlock	Stainless	Standard	UNC 5/8-11	63/64	0,096	3/8	9,0	18,0	0,813
3B100.W0370	With Threadlock	Stainless	Heavy	UNF 10-32	33/64	0,025	3/32	3,3	4,8	0,046
3B100.W0372	With Threadlock	Stainless	Heavy	UNC 1/4-20	17/32	0,35	1/8	5,6	8,6	0,074
3B100.W0376	With Threadlock	Stainless	Heavy	UNC 5/16-18	37/64	0,040	5/32	6,0	11,1	0,123
3B100.W0378	With Threadlock	Stainless	Heavy	UNC 3/8-16	5/8	0,048	3/16	7,5	15,1	0,197
3B100.W0380	With Threadlock	Stainless	Heavy	UNC 1/2-13	3/4	0,072	9/32	6,0	24,0	0,409
3B100.W0382	With Threadlock	Stainless	Heavy	UNC 5/8-11	63/64	0,096	3/8	7,0	40,0	0,825



Material

Free cutting steel type-
Body: free cutting steel, blackened.
Ball: ball bearing steel 1.3505 (100Cr6) hardened.
Spring: stainless steel.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Ball: ball bearing steel, hardened.
Spring: stainless steel.

Technical Notes

To be used as detents or for locating, positioning, indexing, locking, latching, ejecting, lifting off and other similar push application.
Temperature range for execution without thread up to 482°F.
Thread lock - Polyamide spot coating.

Tips

Light spring load - marked with one line.
Standard spring load - no marking.
Heavy spring load - marked with two lines.
Special types available on request.

Important Notes

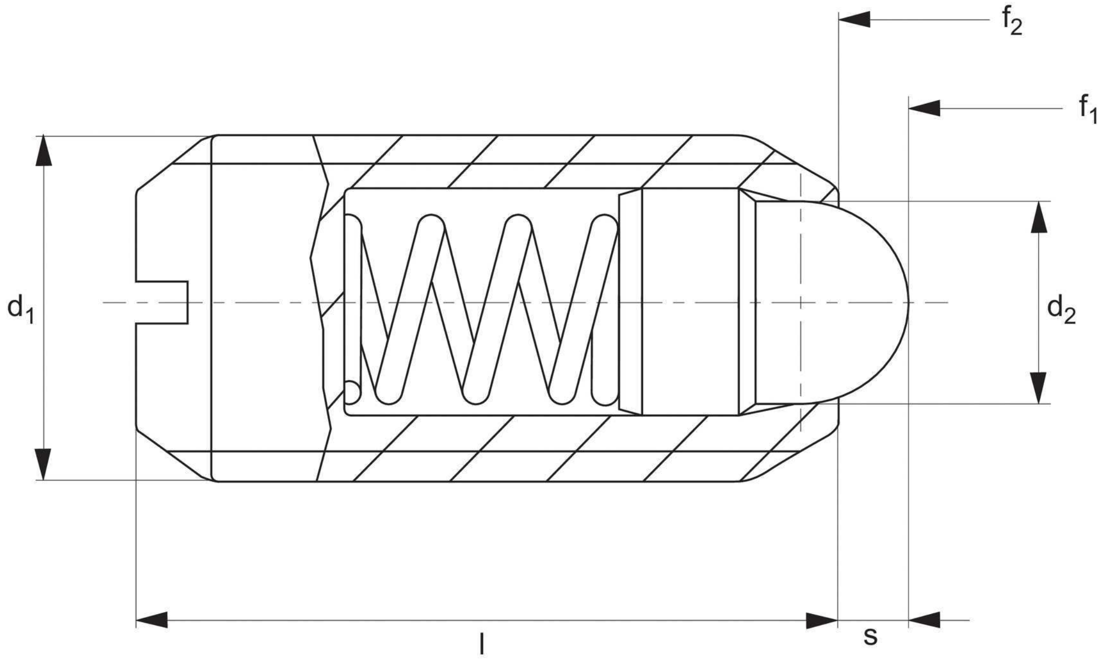
* statistical average value
** all dimensions are in inches
Thread: 2A-UNC/UNF.

STAINLESS STEEL 303

IMPERIAL SIZES

Spring Plungers - IMPERIAL

with round-ended pin and slot - stainless steel



Order No. w/o Threadlock	**Order No. with Threadlock**	Finish	Spring load	UNC/UNF d_1**	l**	s**	d_2**	Spring load* f_1 lbs≈	Spring load* f_2 lbs≈	oz.
3B150.W0033	3B150.W0233	Steel	Standard	UNC 6-32	3/8	0,063	0,046	0,5	1,5	0,021
3B150.W0036	3B150.W0236	Steel	Standard	UNC 8-32	7/16	0,052	0,070	0,8	1,5	0,032
3B150.W0038	3B150.W0238	Steel	Standard	UNF 8-36	7/16	0,052	0,070	0,8	1,5	0,032
3B150.W0040	3B150.W0240	Steel	Standard	UNF 10-32	15/32	0,065	0,093	1,0	2,5	0,042
3B150.W0042	3B150.W0242	Steel	Standard	UNC 1/4-20	17/32	0,078	0,119	1,1	3,5	0,074
3B150.W0046	3B150.W0246	Steel	Standard	UNC 5/16-18	37/64	0,084	0,135	1,0	4,0	0,123
3B150.W0048	3B150.W0248	Steel	Standard	UNC 3/8-16	5/8	0,110	0,186	1,5	4,5	0,187
3B150.W0050	3B150.W0250	Steel	Standard	UNC 1/2-13	3/4	0,151	0,248	1,8	5,5	0,377
3B150.W0052	3B150.W0252	Steel	Standard	UNC 5/8-11	1 1/16	0,215	0,310	2,0	8,5	0,885
3B150.W0063	3B150.W0263	Steel	Heavy	UNC 6-32	3/8	0,063	0,046	0,5	2,5	0,018
3B150.W0066	3B150.W0266	Steel	Heavy	UNC 8-32	7/16	0,052	0,070	1.8	4,6	0,032
3B150.W0068	3B150.W0268	Steel	Heavy	UNF 8-36	7/16	0,052	0,070	1,8	4,6	0,032
3B150.W0070	3B150.W0270	Steel	Heavy	UNF 10-32	15/32	0,065	0,093	2,6	6,3	0,042
3B150.W0072	3B150.W0272	Steel	Heavy	UNC 1/4-20	17/32	0,078	0,119	3,0	9,7	0,074
3B150.W0076	3B150.W0276	Steel	Heavy	UNC 5/16-18	37/64	0,084	0,135	3,8	13,0	0,123
3B150.W0078	3B150.W0278	Steel	Heavy	UNC 3/8-16	5/8	0,110	0,186	4,5	16,0	0,190
3B150.W0080	3B150.W0280	Steel	Heavy	UNC 1/2-13	3/4	0,151	0,248	5,0	22,4	0,384
3B150.W0082	3B150.W0282	Steel	Heavy	UNC 5/8-11	1 1/16	0,215	0,310	7,0	43,5	0,907
3B150.W0133	3B150.W0333	Stainless	Standard	UNC 6-32	3/8	0,063	0,046	0,5	1,5	0,021
3B150.W0136	3B150.W0336	Stainless	Standard	UNC 8-32	7/16	0,052	0,070	0,8	1,5	0,032
3B150.W0138	3B150.W0338	Stainless	Standard	UNF 8-36	7/16	0,052	0,070	0,8	1,5	0,032
3B150.W0140	3B150.W0340	Stainless	Standard	UNF 10-32	15/32	0,065	0,093	1,0	2,5	0,042
3B150.W0142	3B150.W0342	Stainless	Standard	UNC 1/4-20	17/32	0,078	0,119	1,1	3,5	0,074
3B150.W0146	3B150.W0346	Stainless	Standard	UNC 5/16-18	37/64	0,084	0,135	1,0	4,0	0,123
3B150.W0148	3B150.W0348	Stainless	Standard	UNC 3/8-16	5/8	0,110	0,186	1,5	4,5	0,190
3B150.W0150	3B150.W0350	Stainless	Standard	UNC 1/2-13	3/4	0,151	0,248	1,8	5,5	0,388
3B150.W0152	3B150.W0352	Stainless	Standard	UNC 5/8-11	1 1/16	0,215	0,310	2,0	8,5	0,892
3B150.W0163	3B150.W0363	Stainless	Heavy	UNC 6-32	3/8	0,063	0,046	0,5	2,5	0,014
3B150.W0166	3B150.W0366	Stainless	Heavy	UNC 8-32	7/16	0,052	0,070	1,8	4,6	0,032
3B150.W0168	3B150.W0368	Stainless	Heavy	UNF 8-36	7/16	0,052	0,070	1,8	4,6	0,032
3B150.W0170	3B150.W0370	Stainless	Heavy	UNF 10-32	15/32	0,065	0,093	2,6	6,3	0,042
3B150.W0172	3B150.W0372	Stainless	Heavy	UNC 1/4-20	17/32	0,078	0,119	3,0	9,7	0,071
3B150.W0176	3B150.W0376	Stainless	Heavy	UNC 5/16-18	37/64	0,084	0,135	3,8	13,0	0,123
3B150.W0178	3B150.W0378	Stainless	Heavy	UNC 3/8-16	5/8	0,110	0,186	4,5	16,0	0,194
3B150.W0180	3B150.W0380	Stainless	Heavy	UNC 1/2-13	3/4	0,151	0,248	5,0	22,4	0,399
3B150.W0182	3B150.W0382	Stainless	Heavy	UNC 5/8-11	1 1/16	0,215	0,310	7,0	43,5	0,914

Material

Free cutting steel type-
Body: free cutting steel, blackened.
Pin: free cutting steel, hardened.
Spring: stainless steel.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303).
Spring: stainless steel.

Technical Notes

To be used as detents or for locating, positioning, indexing, locking, latching, ejecting, lifting off and other similar push application.
Temperature range for execution without thread up to 482°F.
Thread lock - Polyamide spot coating.

Tips

Standard spring load = no marking
Heavy spring load = marked with two lines
Special types available on request.

Important Notes

* statistical average value
** all dimensions are in inches
Thread: 2A-UNC/UNF.

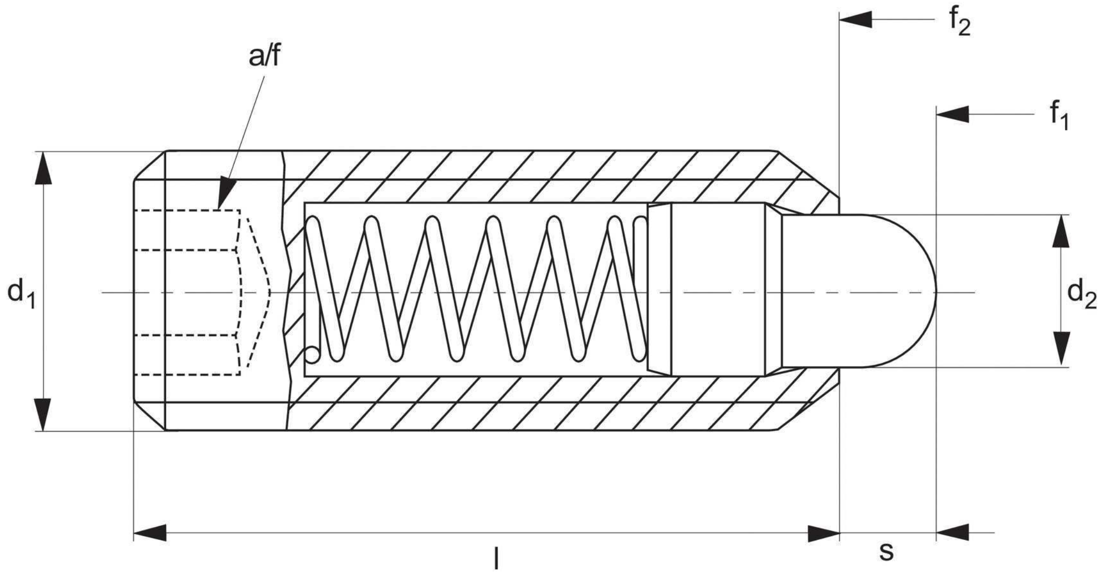
STAINLESS STEEL 303

IMPERIAL SIZES

Spring Plungers - IMPERIAL

with round-ended pin and hex. socket - stainless steel

3B200



Order No. w/o threadlock	Order No. with threadlock	Finish	Spring load	UNC/UNF d_1**	l**	s**	d_2**	a/f**	Spring Load* f_1 lbs≈	Spring Load* f_2 lbs≈	oz.
3B200.W0033	3B200.W0233	Steel	Std.	UNC 6-32	17/32	0,063	0,046	1/16	0,5	1,5	0,025
3B200.W0036	3B200.W0236	Steel	Std.	UNC 8-32	5/8	0,094	0,070	5/64	0,8	2,3	0,042
3B200.W0040	3B200.W0240	Steel	Std.	UNF 10-32	3/4	0,125	0,093	3/32	1,4	2,7	0,063
3B200.W0042	3B200.W0242	Steel	Std.	UNC 1/4-20	1	0,188	0,119	1/8	1,0	4,0	0,134
3B200.W0044	3B200.W0244	Steel	Std.	UNF 1/4-28	1	0,188	0.119	1/8	1,0	4,0	0,145
3B200.W0046	3B200.W0246	Steel	Std.	UNC 5/16-18	1	0,188	0,135	5/32	1,5	4,5	0,205
3B200.W0048	3B200.W0248	Steel	Std.	UNC 3/8-16	1 1/8	0,188	0,186	3/16	2,7	7,2	0,335
3B200.W0050	3B200.W0250	Steel	Std.	UNC 1/2-13	1 1/4	0,250	0,248	1/4	2,7	9,3	0,656
3B200.W0052	3B200.W0252	Steel	Std.	UNC 5/8-11	1 1/2	0,313	0,310	5/16	3,5	10,6	1,242
3B200.W0053	3B200.W0253	Steel	Std.	UNC 3/4-10	1 3/4	0,313	0,374	3/8	5,5	14,5	2,152
3B200.W0054	3B200.W0254	Steel	Std.	UNC 1-8	2 13/32	0,500	0,499	3/8	4,0	31,0	5,443
3B200.W0063	3B200.W0263	Steel	Heavy	UNC 6-32	17/32	0,063	0,046	1/16	1,5	3,4	0,026
3B200.W0066	3B200.W0266	Steel	Heavy	UNC 8-32	5/8	0,094	0,070	5/64	2,6	6,6	0,042
3B200.W0070	3B200.W0270	Steel	Heavy	UNF 10-32	3/4	0,125	0,093	3/32	3,2	9,0	0,067
3B200.W0072	3B200.W0272	Steel	Heavy	UNC 1/4-20	1	0,188	0,119	1/8	3,1	10,1	0,134
3B200.W0074	3B200.W0274	Steel	Heavy	UNF 1/4-28	1	0,188	0,119	1/8	3,1	10,1	0,145
3B200.W0076	3B200.W0276	Steel	Heavy	UNC 5/16-18	1	0,188	0,135	5/32	3,0	15,0	0,207
3B200.W0078	3B200.W0278	Steel	Heavy	UNC 3/8-16	1 1/8	0,188	0,186	3/16	5,5	12,7	0,335
3B200.W0080	3B200.W0280	Steel	Heavy	UNC 1/2-13	1 1/4	0,250	0,248	1/4	6,6	16,0	0,649
3B200.W0082	3B200.W0282	Steel	Heavy	UNC 5/8-11	1 1/2	0,313	0,310	5/16	10,5	22,2	1,245
3B200.W0083	3B200.W0283	Steel	Heavy	UNC 3/4-10	1 3/4	0,313	0,374	3/8	6,7	33,0	2,187
3B200.W0084	3B200.W0284	Steel	Heavy	UNC 1-8	2 13/32	0,500	0,499	3/8	16,0	60,0	5,538
3B200.W0133	3B200.W0333	Stainless	Std.	UNC 6-32	17/32	0,063	0,046	1/16	0,5	1,5	0,018
3B200.W0136	3B200.W0336	Stainless	Std.	UNC 8-32	5/8	0,094	0,070	5/64	0,8	2,3	0,039
3B200.W0140	3B200.W0340	Stainless	Std.	UNF 10-32	3/4	0,125	0,093	3/32	1,4	2,7	0,063
3B200.W0142	3B200.W0342	Stainless	Std.	UNC 1/4-20	1	0,188	0,119	1/8	1,0	4,0	0,131
3B200.W0144	3B200.W0344	Stainless	Std.	UNF 1/4-28	1	0,188	0,119	1/8	1,0	4,0	0,141
3B200.W0146	3B200.W0346	Stainless	Std.	UNC 5/16-18	1	0,188	0,135	5/32	1,5	4,5	0,208
3B200.W0148	3B200.W0348	Stainless	Std.	UNC 3/8-16	1 1/8	0,188	0,186	3/16	2,7	7,2	0,328
3B200.W0150	3B200.W0350	Stainless	Std.	UNC 1/2-13	1 1/4	0,250	0,248	1/4	2,7	9,3	0,653
3B200.W0152	3B200.W0352	Stainless	Std.	UNC 5/8-11	1 1/2	0,313	0,310	5/16	3,5	10,6	1,242
3B200.W0153	3B200.W0353	Stainless	Std.	UNC 3/4-10	1 3/4	0,313	0,374	3/8	5,5	14,5	2,180
3B200.W0154	3B200.W0354	Stainless	Std.	UNC 1-8	2 13/32	0,500	0,499	3/8	4,0	31,0	5,474
3B200.W0163	3B200.W0363	Stainless	Heavy	UNC 6-32	17/32	0,063	0,046	1/16	1,5	3,4	0,025
3B200.W0166	3B200.W0366	Stainless	Heavy	UNC 8-32	5/8	0,094	0,070	5/64	2,6	6,6	0,042
3B200.W0170	3B200.W0370	Stainless	Heavy	UNF 10-32	3/4	0,125	0,093	3/32	3,2	9,0	0,063
3B200.W0172	3B200.W0372	Stainless	Heavy	UNC 1/4-20	1	0,188	0,119	1/8	3,1	10,1	0,131
3B200.W0174	3B200.W0374	Stainless	Heavy	UNF 1/4-28	1	0,188	0,119	1/8	3,1	10,1	0,145
3B200.W0176	3B200.W0376	Stainless	Heavy	UNC 5/16-18	1	0,188	0,135	5/32	3,0	15,0	0,212
3B200.W0178	3B200.W0378	Stainless	Heavy	UNC 3/8-16	1 1/8	0,188	0,186	3/16	5,5	12,7	0,339
3B200.W0180	3B200.W0380	Stainless	Heavy	UNC 1/2-13	1 1/4	0,250	0,248	1/4	6,6	16,0	0,653
3B200.W0182	3B200.W0382	Stainless	Heavy	UNC 5/8-11	1 1/2	0,313	0,310	5/16	10,5	22,2	1,252
3B200.W0183	3B200.W0383	Stainless	Heavy	UNC 3/4-10	1 3/4	0,313	0,374	3/8	6,7	33,0	2,198
3B200.W0184	3B200.W0384	Stainless	Heavy	UNC 1-8	2 13/32	0,500	0,499	3/8	16,0	60,0	5,524

Material

Free cutting steel type-
Body: free cutting steel, blackened.
Pin: free cutting steel, hardened, blackened.
Spring: stainless steel.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303).
Spring: stainless steel.

Technical Notes

To be used as detents or for locating, positioning, indexing, locking, latching, ejecting, lifting off and other similar push application.
Temperature range for execution without thread up to 482°F.
Thread lock - Polyamide spot coating.

Tips

Standard spring load = no marking
Heavy spring load = marked with two lines

Important Notes

* statistical average value
** all dimensions are in inches
Thread: 2A-UNC/UNF.

STAINLESS STEEL 303
IMPERIAL SIZES

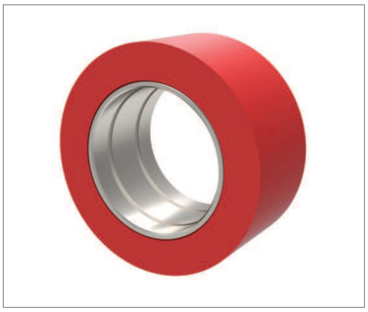
Wixroyd INGENUITY

Materials Handling

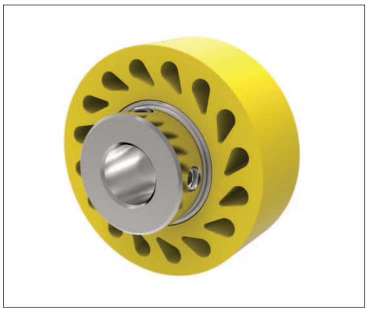
ov-materials-handling - Updated - 12-01-2017

Wixroyd Rollers

Product overview



Solid rollers - have a smooth surface and a solid body



Durasoft rollers - have a smooth contact surface with teardrop holes to allow greater roller compression under load.

Finned rollers - are grooved and provide self-cleaning as dirt, debris and liquid pass under the contact surface of the roller.

Durability levels

20 durometer:
Stiff foam rubber

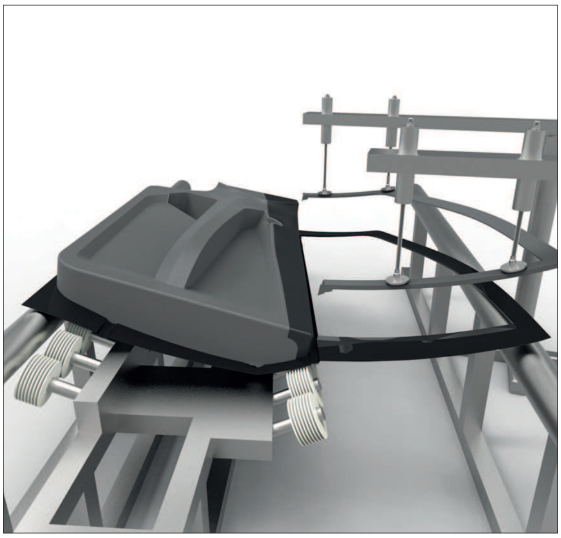
35 durometer:
Pencil rubber top

60 durometer:
Car tyre

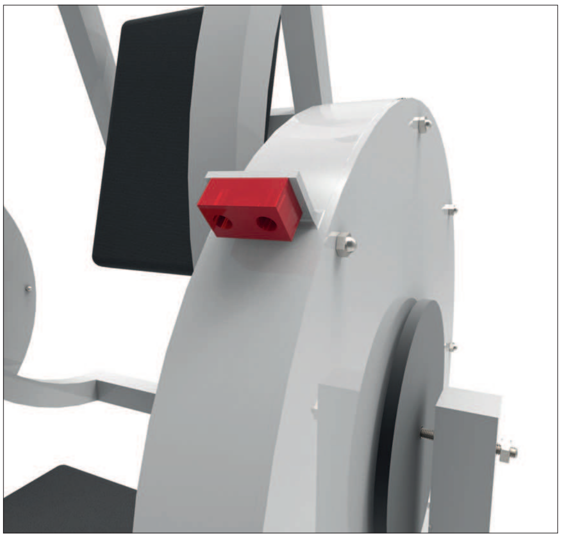
80 durometer:
Skateboard wheel

90 durometer:
Hockey puck

Applications



Rollers are used in car manufacturing to guide and align doors during bonding and curing applications

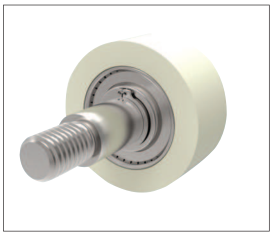


Bumpers have found their way into commercial exercise equipment to provide protection and stability during use.

Wixroyd 0845 26 66 577 info@wixroyd.com

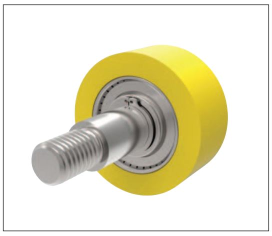
Materials colour guide and properties

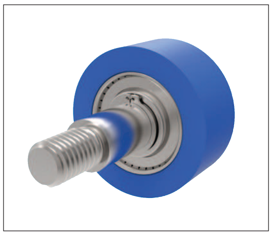
Nitrile and neoprene

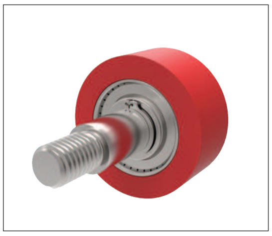

Nitrile - one colour

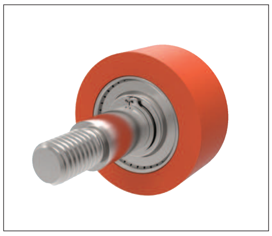

Neoprene - one colour

Urethane


35 Durometer (Yellow)


60 Durometer (Blue)


80 Durometer (Red)


95 Durometer (Orange)

Material properties

Base Elastomer	Chemical Name	Advantages	Disadvantages	Max. Temp	Min. Temp
Nitrile	Nitrile Butadiene	Resistant to petroleum, oil, alcohol & abrasion.	Affected by degreaser solvents.	Continuous 79ºC Intermittent 107ºC	-51ºC
Neoprene	Chloroprene	Flame and weather resistant. Resistant to Petroleum, oil, ozone & high temp.	Affected by phosphate hydraulic fluids, aromatic hydrocarbons.	Continuous 93ºC Intermittent 121ºC	-40ºC
Urethane	Di-Isocyante Polyurethane	Highest abrasion resistance, strength & load bearing. High elongation, hardness. Resistance to Ozone & Oxygen.	Affected by ether, esters, acid, aromatics, alkallis.	Continuous 93ºC Intermittent 121ºC	-54ºC

Property:	Nitrile	Neoprene	Urethane
Tensile Strength	3 3	3 3 3	3 3 3 3
Ozone Resistance	3	3 3	3 3 3 3
Cut Resistance	3 3	3 3 3	3 3 3 3
Abrasion Resistance	3 3	3 3 3	3 3 3 3

Resistance To:	Nitrile	Neoprene	Urethane
Compression Set	3 3	3 3 3	3 3 3
ASTM #1 Oil	3 3 3 3	3 3	3 3 3 3
ASTM #2 Oil	3 3 3 3	3 3	3 3 3 3
Reference Fuel B	3 3 3	3 3	3 3 3 3
Ketones: MEK	3	3 3	3
Aromatics: Toluene	3 3 3	3	3 3 3 3
Aliphatics: Hexane	3 3 3 3	3 3 3	3 3 3 3
Ethyl Acetate	3	3 3 3	3
Cellosolve	3 3	3 3 3 3	3
Methylene Chloride	3	3	3 3 3 3
Trichloroethylene	3	3	3 3 3 3
Diethylene Glycol	3 3 3 3	3 3 3 3	3 3 3
Isopropyl Alcohol	3 3 3	3 3 3	3 3 3
Caustics: 10% NaOH	3 3 3	3 3 3	3
Acids: H2S04	3 3	3 3 3	3

Excellent 3 3 3 3 Good 3 3 3 Fair 3 3 Poor 3

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The tables below show the maximum theoretical radius loads that can be applied to the respective bearings. Refer to individual product tables to identify bearing type supplied with roller.

Standard bearings

Bearing Type	Inside diameter (inches)	Outside diameter (inches)	Width (inches)	Load (Kg)	Speed (rpm)
A - Standard Double	.313/.317	.870/.875	.498/.502	55 36 24 20	50 100 250 500
B - Standard Single	.500/505	1.245/1.250	.370/.380	119 79 51 47	50 100 250 500
C - Standard Double	.500/505	1.245/1.250	.745/.755	192 128 83 70	50 100 250 500

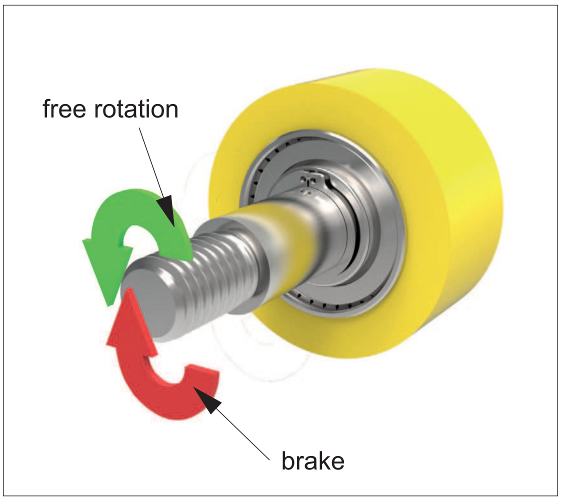
With the calculations above, typical life is approximately 2500 hours.

Clutch bearings

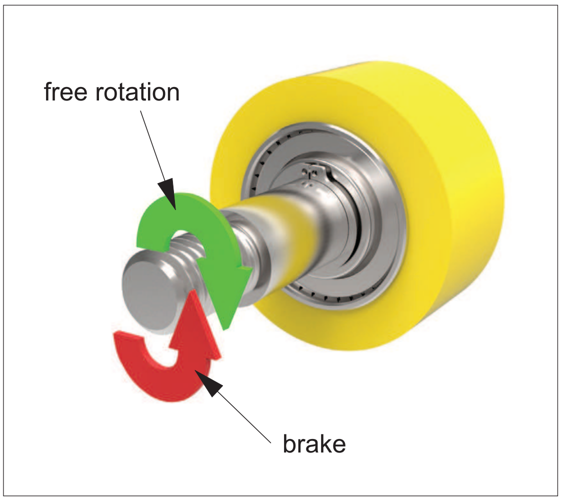
Bearing Type	Inside diameter (inches)	Outside diameter (inches)	Width (inches)	Load (Kg)	Speed (rpm)
H	.3745/.3750	.6245/.6255	.865/.875	167 146 116 85	33 50 100 250
I	.6245/.6250	.8745/.8755	.990/1.000	277 242 192 142	33 50 100 250

With the calculations above, typical life is approximately 1,000,000 revolutions or 500 hours. The bearings are shielded and pre-lubricated for life with grease.

A clutch roller can only be used in one direction, as shown. See data table for clutch direction of particular part.



Left clutch bearing



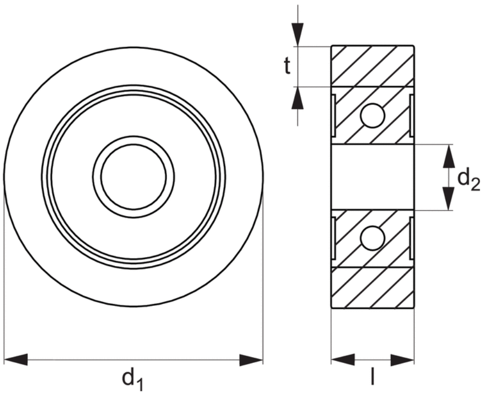
Right clutch bearing

ov-60620-60910-c - Updated - 20-12-2016

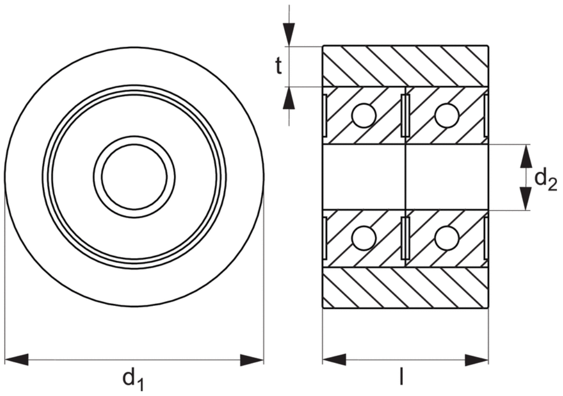
Urethane Covered Bearings

bearing only

60610



single bearing



double bearing

Material

Urethane cast directly to a precision sealed ball bearing. Hardness from 35-95 durometer (Shore A).

Technical Notes

These bearings provide a smooth, quiet and non-marring operation. Urethane provides excellent durability and resistance to abrasion.

Order No.	Bearing Type	Durometer	d_1	l	d_2	t
60610.W0003	Single	35	20	5	5	3
60610.W0006	Single	60	20	5	5	3
60610.W0009	Single	95	20	5	5	3
60610.W0013	Single	35	25	6	6	3
60610.W0016	Single	60	25	6	6	3
60610.W0019	Single	95	25	6	6	3
60610.W0023	Single	35	30	7	8	4
60610.W0026	Single	60	30	7	8	4
60610.W0029	Single	95	30	7	8	4
60610.W0033	Single	35	35	7	9	6
60610.W0036	Single	60	35	7	9	6
60610.W0039	Single	95	35	7	9	6
60610.W0043	Single	35	35	8	10	5
60610.W0046	Single	60	35	8	10	5
60610.W0049	Single	95	35	8	10	5
60610.W0053	Single	35	40	8	10	7
60610.W0056	Single	60	40	8	10	7
60610.W0059	Single	95	40	8	10	7
60610.W0063	Single	35	40	8	12	6
60610.W0066	Single	60	40	8	12	6
60610.W0069	Single	95	40	8	12	6
60610.W0073	Single	35	50	8	12	11
60610.W0076	Single	60	50	8	12	11
60610.W0079	Single	95	50	8	12	11
60610.W0089	Single	95	45	9	15	7
60610.W0099	Single	95	50	10	17	8
60610.W0109	Single	95	60	12	20	9
60610.W1003	Double	35	20	10	5	3
60610.W1006	Double	60	20	10	5	3
60610.W1009	Double	95	20	10	5	3
60610.W1013	Double	35	25	12	6	3
60610.W1016	Double	60	25	12	6	3
60610.W1019	Double	95	25	12	6	3
60610.W1023	Double	35	30	14	8	4
60610.W1026	Double	60	30	14	8	4
60610.W1029	Double	95	30	14	8	4
60610.W1033	Double	35	35	14	9	6
60610.W1036	Double	60	35	14	9	6
60610.W1039	Double	95	35	14	9	6
60610.W1043	Double	35	35	16	10	5
60610.W1046	Double	60	35	16	10	5
60610.W1049	Double	95	35	16	10	5
60610.W1053	Double	35	40	16	10	7
60610.W1056	Double	60	40	16	10	7
60610.W1059	Double	95	40	16	10	7
60610.W1063	Double	35	40	16	12	6
60610.W1066	Double	60	40	16	12	6
60610.W1069	Double	95	40	16	12	6
60610.W1073	Double	35	50	16	12	11
60610.W1076	Double	60	50	16	12	11

Urethane Covered Bearings

bearing only

60610

Order No.	Bearing Type	Durometer	d_1	l	d_2	t
60610.W1079	Double	95	50	16	12	11
60610.W1089	Double	95	45	18	15	7
60610.W1099	Double	95	50	20	17	8
60610.W1109	Double	95	60	24	20	9
60610.W1119	Double	95	70	24	25	12
60610.W0119	Single	95	70	12	25	12

Material

Urethane cast directly to a precision sealed ball bearing. Hardness from 35-95 durometer (Shore A).

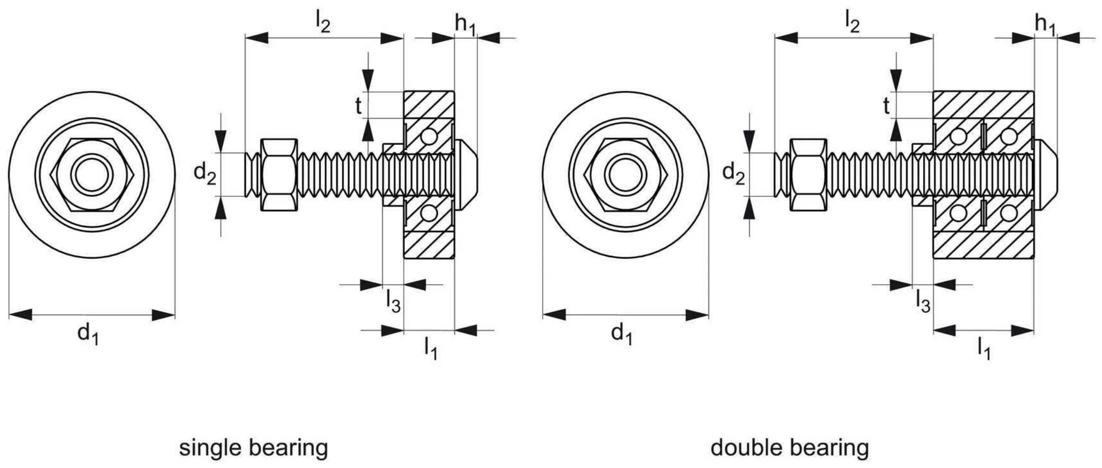
Technical Notes

These bearings provide a smooth, quiet and non-marring operation. Urethane provides excellent durability and resistance to abrasion.

Urethane Covered Bearings

stud mounted

60614



Material

Urethane cast directly to a precision sealed ball bearing. Hardness from 35-95 durometer (Shore A).

Technical Notes

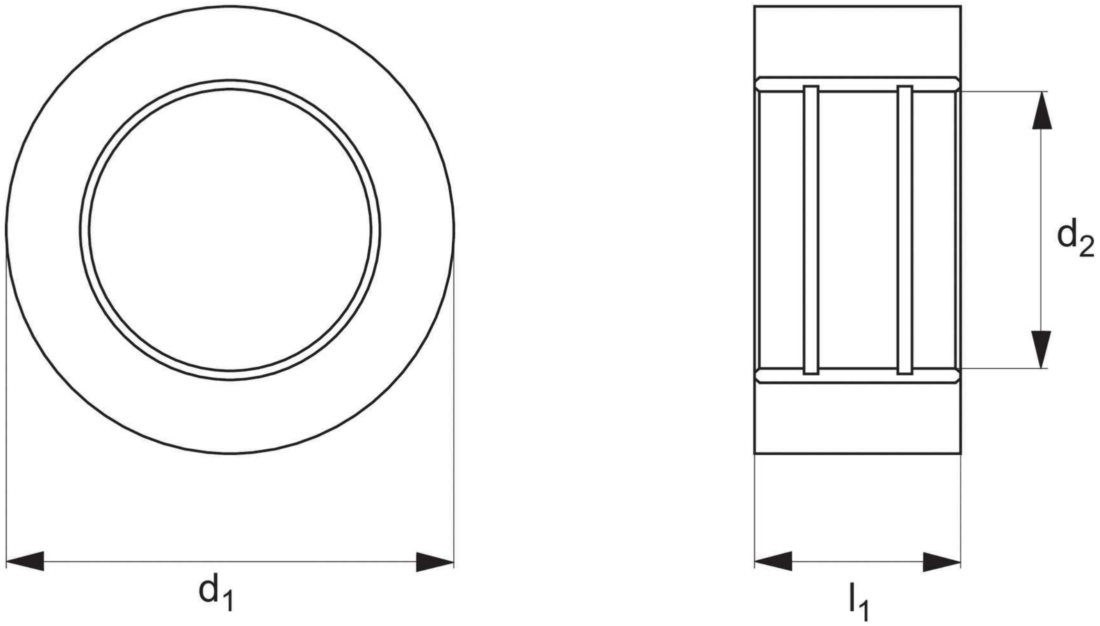
These bearings provide a smooth, quiet and non-marring operation. Urethane provides excellent durability and resistance to abrasion. Assembled with button head cap screw, spacer and lock nut.

Order No.	Bearing Type	Durometer	d_1	l_1	d_2	l_2
60614.W1003	Double	35	20	10	M5x0.8	25
60614.W1006	Double	60	20	10	M5x0.8	25
60614.W1009	Double	95	20	10	M5x0.8	25
60614.W1013	Double	35	25	12	M6x1.0	28
60614.W1016	Double	60	25	12	M6x1.0	28
60614.W1019	Double	95	25	12	M6x1.0	28
60614.W1023	Double	35	30	14	M8x1.25	26
60614.W1026	Double	60	30	14	M8x1.25	26
60614.W1029	Double	95	30	14	M8x1.25	26
60614.W1033	Double	35	35	16	M10x1.5	29
60614.W1036	Double	60	35	16	M10x1.5	29
60614.W1039	Double	95	35	16	M10x1.5	29
60614.W1043	Double	35	40	16	M10x1.5	29
60614.W1046	Double	60	40	16	M10x1.5	29
60614.W1049	Double	95	40	16	M10x1.5	29
60614.W1053	Double	35	40	16	M12x1.75	29
60614.W1056	Double	60	40	16	M12x1.75	29
60614.W1059	Double	95	40	16	M12x1.75	29
60614.W1063	Double	35	50	16	M12x1.75	29
60614.W1066	Double	60	50	16	M12x1.75	29
60614.W1069	Double	95	50	16	M12x1.75	29
60614.W0003	Single	35	20	5	M5x0.8	30
60614.W0006	Single	60	20	5	M5x0.8	30
60614.W0009	Single	95	20	5	M5x0.8	30
60614.W0013	Single	35	25	6	M6x1.0	34
60614.W0016	Single	60	25	6	M6x1.0	34
60614.W0019	Single	95	25	6	M6x1.0	34
60614.W0023	Single	35	30	7	M8x1.25	33
60614.W0026	Single	60	30	7	M8x1.25	33
60614.W0029	Single	95	30	7	M8x1.25	33
60614.W0033	Single	35	35	8	M10x1.5	37
60614.W0036	Single	60	35	8	M10x1.5	37
60614.W0039	Single	95	35	8	M10x1.5	37
60614.W0043	Single	35	40	8	M10x1.5	37
60614.W0046	Single	60	40	8	M10x1.5	37
60614.W0049	Single	95	40	8	M10x1.5	37
60614.W0053	Single	35	40	8	M12x1.75	37
60614.W0056	Single	60	40	8	M12x1.75	37
60614.W0059	Single	95	40	8	M12x1.75	37
60614.W0063	Single	35	50	8	M12x1.75	37
60614.W0066	Single	60	50	8	M12x1.75	37
60614.W0069	Single	95	50	8	M12x1.75	37

Solid Roller

roller only

60620



Material
Nitrile, urethane or neoprene bonded to a steel insert.
Hardness from 20-80 durometer (Shore A).

Technical Notes
Roller only - allows for custom mounting.

Order No.	Type	Durometer	d_1	l_1	d_2 min./max.
60620.W1002	Nitrile	20	38,1 (1.5")	31,75 (1.25")	22,22 (7/8")
60620.W1003	Nitrile	35	38,1 (1.5")	31,75 (1.25")	22,22 (7/8")
60620.W1006	Nitrile	60	38,1 (1.5")	31,75 (1.25")	22,22 (7/8")
60620.W1008	Nitrile	80	38,1 (1.5")	31,75 (1.25")	22,22 (7/8")
60620.W1012	Nitrile	20	50,8 (2")	23,37 (0.92")	22,23 (1-1/8")
60620.W1013	Nitrile	35	50,8 (2")	23,37 (0.92")	22,23 (1-1/8")
60620.W1016	Nitrile	60	50,8 (2")	23,37 (0.92")	22,23 (1-1/8")
60620.W1018	Nitrile	80	50,8 (2")	23,37 (0.92")	22,23 (1-1/8")
60620.W1022	Nitrile	20	50,8 (2")	49,28 (1.94")	22,23 (1-1/8")
60620.W1023	Nitrile	35	50,8 (2")	49,28 (1.94")	22,23 (1-1/8")
60620.W1026	Nitrile	60	50,8 (2")	49,28 (1.94")	22,23 (1-1/8")
60620.W1028	Nitrile	80	50,8 (2")	49,28 (1.94")	22,23 (1-1/8")
60620.W1032	Nitrile	20	50,8 (2")	49,28 (1.94")	19,05 (1-1/4")
60620.W1033	Nitrile	35	50,8 (2")	49,28 (1.94")	19,05 (1-1/4")
60620.W1036	Nitrile	60	50,8 (2")	49,28 (1.94")	19,05 (1-1/4")
60620.W1038	Nitrile	80	50,8 (2")	49,28 (1.94")	19,05 (1-1/4")
60620.W1042	Nitrile	20	63,5 (2.5")	23,37 (0.92")	19,05 (1-1/4")
60620.W1043	Nitrile	35	63,5 (2.5")	23,37 (0.92")	19,05 (1-1/4")
60620.W1046	Nitrile	60	63,5 (2.5")	23,37 (0.92")	19,05 (1-1/4")
60620.W1048	Nitrile	80	63,5 (2.5")	23,37 (0.92")	19,05 (1-1/4")
60620.W1052	Nitrile	20	63,5 (2.5")	49,28 (1.94")	22,23 (1-1/8")
60620.W1053	Nitrile	35	63,5 (2.5")	49,28 (1.94")	22,23 (1-1/8")
60620.W1056	Nitrile	60	63,5 (2.5")	49,28 (1.94")	22,23 (1-1/8")
60620.W1059	Nitrile	80	63,5 (2.5")	49,28 (1.94")	22,23 (1-1/8")
60620.W1062	Nitrile	20	63,5 (2.5")	49,28 (1.94")	19,05 (1-1/4")
60620.W1063	Nitrile	35	63,5 (2.5")	49,28 (1.94")	19,05 (1-1/4")
60620.W1066	Nitrile	60	63,5 (2.5")	49,28 (1.94")	19,05 (1-1/4")
60620.W1069	Nitrile	80	63,5 (2.5")	49,28 (1.94")	19,05 (1-1/4")
60620.W1072	Nitrile	20	101,6 (4")	23,37 (0.92")	22,23 (1-1/8")
60620.W1073	Nitrile	35	101,6 (4")	23,37 (0.92")	22,23 (1-1/8")
60620.W1076	Nitrile	60	101,6 (4")	23,37 (0.92")	22,23 (1-1/8")
60620.W1079	Nitrile	80	101,6 (4")	23,37 (0.92")	22,23 (1-1/8")
60620.W1082	Nitrile	20	101,6 (4")	23,37 (0.92")	19,05 (1-1/4")
60620.W1083	Nitrile	35	101,6 (4")	23,37 (0.92")	19,05 (1-1/4")
60620.W1086	Nitrile	60	101,6 (4")	23,37 (0.92")	19,05 (1-1/4")
60620.W1089	Nitrile	80	101,6 (4")	23,37 (0.92")	19,05 (1-1/4")
60620.W1092	Nitrile	20	101,6 (4")	49,28 (1.94")	22,23 (1-1/8")
60620.W1093	Nitrile	35	101,6 (4")	49,28 (1.94")	22,23 (1-1/8")
60620.W1096	Nitrile	60	101,6 (4")	49,28 (1.94")	22,23 (1-1/8")
60620.W1099	Nitrile	80	101,6 (4")	49,28 (1.94")	22,23 (1-1/8")
60620.W1102	Nitrile	20	101,6 (4")	49,28 (1.94")	19,05 (1-1/4")
60620.W1103	Nitrile	35	101,6 (4")	49,28 (1.94")	19,05 (1-1/4")
60620.W1106	Nitrile	60	101,6 (4")	49,28 (1.94")	19,05 (1-1/4")
60620.W1109	Nitrile	80	101,6 (4")	49,28 (1.94")	19,05 (1-1/4")
60620.W2003	Urethane	35	38,1 (1.5")	31,75 (1.25")	22,22 (7/8")
60620.W2006	Urethane	60	38,1 (1.5")	31,75 (1.25")	22,22 (7/8")

Solid Roller

roller only

Order No.	Type	Durometer	d_1	l_1	d_2 min./max.
60620.W2008	Urethane	80	38,1 (1.5")	31,75 (1.25")	22,22 (7/8")
60620.W2013	Urethane	35	50,8 (2")	23,37 (0.92")	22,23 (1-1/8")
60620.W2016	Urethane	60	50,8 (2")	23,37 (0.92")	22,23 (1-1/8")
60620.W2018	Urethane	80	50,8 (2")	23,37 (0.92")	22,23 (1-1/8")
60620.W2023	Urethane	35	50,8 (2")	49,28 (1.94")	22,23 (1-1/8")
60620.W2026	Urethane	60	50,8 (2")	49,28 (1.94")	22,23 (1-1/8")
60620.W2028	Urethane	80	50,8 (2")	49,28 (1.94")	22,23 (1-1/8")
60620.W2033	Urethane	35	50,8 (2")	49,28 (1.94")	19,05 (1-1/4")
60620.W2036	Urethane	60	50,8 (2")	49,28 (1.94")	19,05 (1-1/4")
60620.W2038	Urethane	80	50,8 (2")	49,28 (1.94")	19,05 (1-1/4")
60620.W2043	Urethane	35	63,5 (2.5")	23,37 (0.92")	19,05 (1-1/4")
60620.W2046	Urethane	60	63,5 (2.5")	23,37 (0.92")	19,05 (1-1/4")
60620.W2048	Urethane	80	63,5 (2.5")	23,37 (0.92")	19,05 (1-1/4")
60620.W2056	Urethane	80	63,5 (2.5")	49,28 (1.94")	22,23 (1-1/8")
60620.W2059	Urethane	95	63,5 (2.5")	49,28 (1.94")	22,23 (1-1/8")
60620.W2062	Urethane	35	63,5 (2.5")	49,28 (1.94")	19,05 (1-1/4")
60620.W2063	Urethane	60	63,5 (2.5")	49,28 (1.94")	19,05 (1-1/4")
60620.W2066	Urethane	80	63,5 (2.5")	49,28 (1.94")	19,05 (1-1/4")
60620.W2069	Urethane	95	63,5 (2.5")	49,28 (1.94")	19,05 (1-1/4")
60620.W2072	Urethane	35	101,6 (4")	23,37 (0.92")	22,23 (1-1/8")
60620.W2073	Urethane	60	101,6 (4")	23,37 (0.92")	22,23 (1-1/8")
60620.W2076	Urethane	80	101,6 (4")	23,37 (0.92")	22,23 (1-1/8")
60620.W2079	Urethane	95	101,6 (4")	23,37 (0.92")	22,23 (1-1/8")
60620.W2082	Urethane	35	101,6 (4")	23,37 (0.92")	19,05 (1-1/4")
60620.W2083	Urethane	60	101,6 (4")	23,37 (0.92")	19,05 (1-1/4")
60620.W2086	Urethane	80	101,6 (4")	23,37 (0.92")	19,05 (1-1/4")
60620.W2089	Urethane	95	101,6 (4")	23,37 (0.92")	19,05 (1-1/4")
60620.W2092	Urethane	35	101,6 (4")	49,28 (1.94")	22,23 (1-1/8")
60620.W2093	Urethane	60	101,6 (4")	49,28 (1.94")	22,23 (1-1/8")
60620.W2096	Urethane	80	101,6 (4")	49,28 (1.94")	22,23 (1-1/8")
60620.W2099	Urethane	95	101,6 (4")	49,28 (1.94")	22,23 (1-1/8")
60620.W2102	Urethane	35	101,6 (4")	49,28 (1.94")	19,05 (1-1/4")
60620.W2103	Urethane	60	101,6 (4")	49,28 (1.94")	19,05 (1-1/4")
60620.W2106	Urethane	80	101,6 (4")	49,28 (1.94")	19,05 (1-1/4")
60620.W2108	Urethane	95	101,6 (4")	49,28 (1.94")	19,05 (1-1/4")
60620.W2109	Urethane	60	152,4 (6")	49,28 (1.94")	22,23 (1-1/8")
60620.W2110	Urethane	60	152,4 (6")	49,28 (1.94")	19,05 (1-1/4")
60620.W2111	Urethane	80	152,4 (6")	49,28 (1.94")	22,23 (1-1/8")
60620.W2112	Urethane	80	152,4 (6")	49,28 (1.94")	19,05 (1-1/4")
60620.W2113	Urethane	35	152,4 (6")	49,28 (1.94")	22,23 (1-1/8")
60620.W2114	Urethane	35	127,0 (5")	49,28 (1.94")	22,23 (1-1/8")
60620.W2116	Urethane	60	127,0 (5")	49,28 (1.94")	22,23 (1-1/8")
60620.W2119	Urethane	80	127,0 (5")	49,28 (1.94")	22,23 (1-1/8")
60620.W2123	Urethane	35	127,0 (5")	49,28 (1.94")	19,05 (1-1/4")
60620.W2126	Urethane	60	127,0 (5")	49,28 (1.94")	19,05 (1-1/4")
60620.W2129	Urethane	80	127,0 (5")	49,28 (1.94")	19,05 (1-1/4")
60620.W2133	Urethane	35	152,4 (6")	49,28 (1.94")	19,05 (1-1/4")
60620.W3053	Urethane	35	63,5 (2.5")	49,28 (1.94")	22,23 (1-1/8")
60620.W2052	Neoprene	35	63,5 (2.5")	49,28 (1.94")	22,23 (1-1/8")
60620.W3056	Neoprene	60	63,5 (2.5")	49,28 (1.94")	22,23 (1-1/8")
60620.W3059	Neoprene	80	63,5 (2.5")	49,28 (1.94")	22,23 (1-1/8")
60620.W3062	Neoprene	20	63,5 (2.5")	49,28 (1.94")	22,23 (1-1/8")
60620.W3063	Neoprene	35	63,5 (2.5")	49,28 (1.94")	19,05 (1-1/4")
60620.W3069	Neoprene	80	63,5 (2.5")	49,28 (1.94")	19,05 (1-1/4")
60620.W2053	Neoprene	60	63,5 (2.5")	49,28 (1.94")	19,05 (1-1/4")
60620.W3002	Neoprene	20	38,1 (1.5")	31,75 (1.25")	22,22 (7/8")
60620.W3003	Neoprene	35	38,1 (1.5")	31,75 (1.25")	22,22 (7/8")
60620.W3006	Neoprene	60	38,1 (1.5")	31,75 (1.25")	22,22 (7/8")
60620.W3008	Neoprene	80	38,1 (1.5")	31,75 (1.25")	22,22 (7/8")
60620.W3012	Neoprene	20	50,8 (2")	23,37 (0.92")	19,05 (1-1/4")
60620.W3013	Neoprene	35	50,8 (2")	23,37 (0.92")	22,23 (1-1/8")
60620.W3016	Neoprene	60	50,8 (2")	23,37 (0.92")	22,23 (1-1/8")
60620.W3018	Neoprene	80	50,8 (2")	23,37 (0.92")	22,23 (1-1/8")
60620.W3022	Neoprene	20	50,8 (2")	49,28 (1.94")	22,23 (1-1/8")
60620.W3023	Neoprene	35	50,8 (2")	49,28 (1.94")	22,23 (1-1/8")
60620.W3026	Neoprene	60	50,8 (2")	49,28 (1.94")	22,23 (1-1/8")
60620.W3028	Neoprene	80	50,8 (2")	49,28 (1.94")	22,23 (1-1/8")
60620.W3032	Neoprene	20	50,8 (2")	49,28 (1.94")	19,05 (1-1/4")
60620.W3033	Neoprene	35	50,8 (2")	49,28 (1.94")	19,05 (1-1/4")
60620.W3036	Neoprene	60	50,8 (2")	49,28 (1.94")	19,05 (1-1/4")
60620.W3038	Neoprene	80	50,8 (2")	49,28 (1.94")	19,05 (1-1/4")

Material

Nitrile, urethane or neoprene bonded to a steel insert. Hardness from 20-80 durometer (Shore A).

Technical Notes

Roller only - allows for custom mounting.

Solid Roller

roller only

Order No.	Type	Durometer	d_1	l_1	d_2 min./max.
60620.W3042	Neoprene	20	63,5 (2.5")	23,37 (0.92")	19,05 (1-1/4")
60620.W3043	Neoprene	35	63,5 (2.5")	23,37 (0.92")	19,05 (1-1/4")
60620.W3046	Neoprene	60	63,5 (2.5")	23,37 (0.92")	19,05 (1-1/4")
60620.W3048	Neoprene	80	63,5 (2.5")	23,37 (0.92")	19,05 (1-1/4")
60620.W3072	Neoprene	20	101,6 (4")	23,37 (0.92")	22,23 (1-1/8")
60620.W3073	Neoprene	35	101,6 (4")	23,37 (0.92")	22,23 (1-1/8")
60620.W3076	Neoprene	60	101,6 (4")	23,37 (0.92")	22,23 (1-1/8")
60620.W3079	Neoprene	80	101,6 (4")	23,37 (0.92")	22,23 (1-1/8")
60620.W3082	Neoprene	20	101,6 (4")	23,37 (0.92")	19,05 (1-1/4")
60620.W3083	Neoprene	35	101,6 (4")	23,37 (0.92")	19,05 (1-1/4")
60620.W3086	Neoprene	60	101,6 (4")	23,37 (0.92")	19,05 (1-1/4")
60620.W3089	Neoprene	80	101,6 (4")	23,37 (0.92")	19,05 (1-1/4")
60620.W3092	Neoprene	20	101,6 (4")	49,28 (1.94")	22,23 (1-1/8")
60620.W3093	Neoprene	35	101,6 (4")	49,28 (1.94")	22,23 (1-1/8")
60620.W3096	Neoprene	60	101,6 (4")	49,28 (1.94")	22,23 (1-1/8")
60620.W3099	Neoprene	80	101,6 (4")	49,28 (1.94")	22,23 (1-1/8")
60620.W3102	Neoprene	20	101,6 (4")	49,28 (1.94")	19,05 (1-1/4")
60620.W3103	Neoprene	35	101,6 (4")	49,28 (1.94")	19,05 (1-1/4")
60620.W3106	Neoprene	60	101,6 (4")	49,28 (1.94")	19,05 (1-1/4")
60620.W3109	Neoprene	80	101,6 (4")	49,28 (1.94")	19,05 (1-1/4")

60620

Material

Nitrile, urethane or neoprene bonded to a steel insert. Hardness from 20-80 durometer (Shore A).

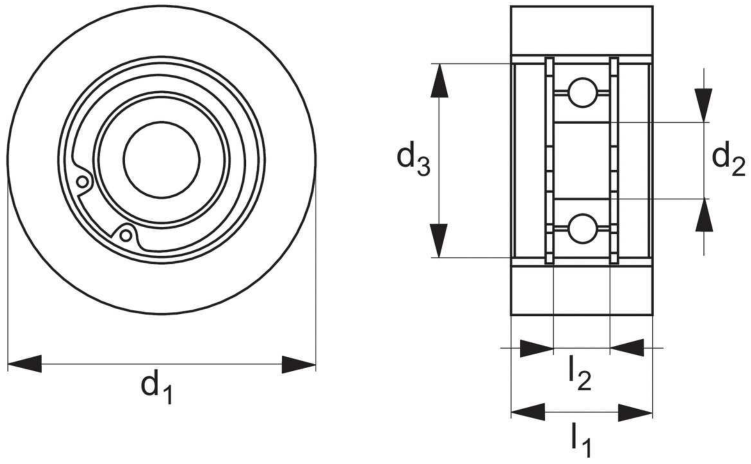
Technical Notes

Roller only - allows for custom mounting.

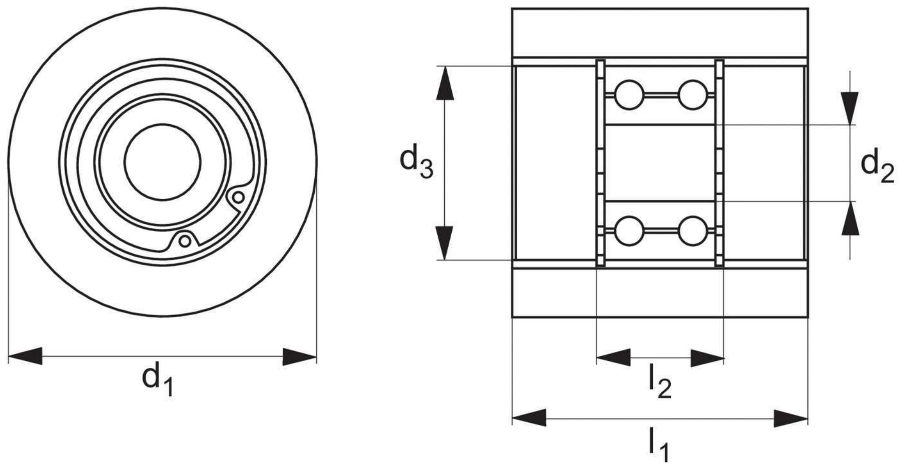
Solid Roller

bearing mount

60622



bearing type b



bearing type a & c

Material

Nitrile, urethane or neoprene bonded to a steel insert. Hardness from 20-80 durometer (Shore A).

Technical Notes

Bearings included (held in place with snap rings). For more details on bearings please see technical pages.

Tolerances:
When d_1=38,10
d_2 ±0.05
d_3 ±0.07
l_2 ±0.05

When d_1>38,10
d_2 ±0,065
d_3 ±0,065
l_2 ±0,08

Order No. Nitrile	Order No. Urethane	Durometer	d_1	l_1	d_2	d_3	l_2	Bearing type
60622.W1002	-	20	38,1 (1.5")	31,75	8,0	22,16	12,70	A
60622.W1003	60622.W2003	35	38,1 (1.5")	31,75	8,0	22,16	12,70	A
60622.W1006	60622.W2006	60	38,1 (1.5")	31,75	8,0	22,16	12,70	A
60622.W1008	60622.W2008	80	38,1 (1.5")	31,75	8,0	22,16	12,70	A
60622.W1012	-	20	50,8 (2")	23,37	12,77	31,69	9,52	B
60622.W1013	60622.W2013	35	50,8 (2")	23,37	12,77	31,69	9,52	B
60622.W1016	60622.W2016	60	50,8 (2")	23,37	12,77	31,69	9,52	B
60622.W1018	60622.W2018	80	50,8 (2")	23,37	12,77	31,69	9,52	B
60622.W1022	-	20	50,8 (2")	49,28	12,77	31,69	19,05	C
60622.W1023	60622.W2023	35	50,8 (2")	49,28	12,77	31,69	19,05	C
60622.W1026	60622.W2026	60	50,8 (2")	49,28	12,77	31,69	19,05	C
60622.W1028	60622.W2028	80	50,8 (2")	49,28	12,77	31,69	19,05	C
60622.W1032	-	20	63,5 (2.5")	23,37	12,77	31,69	9,52	C
60622.W1033	60622.W2033	35	63,5 (2.5")	23,37	12,77	31,69	9,52	C
60622.W1036	60622.W2036	60	63,5 (2.5")	23,37	12,77	31,69	9,52	C
60622.W1038	60622.W2038	80	63,5 (2.5")	23,37	12,77	31,69	9,52	C
60622.W1042	-	20	63,5 (2.5")	49,28	12,77	31,69	19,05	C
60622.W1043	60622.W2043	35	63,5 (2.5")	49,28	12,77	31,69	19,05	C
60622.W1046	60622.W2046	60	63,5 (2.5")	49,28	12,77	31,69	19,05	C
60622.W1048	60622.W2048	80	63,5 (2.5")	49,28	12,77	31,69	19,05	C
60622.W1052	-	20	101,6 (4")	23,37	12,77	31,69	9,52	B
60622.W1053	60622.W2053	35	101,6 (4")	23,37	12,77	31,69	9,52	B
60622.W1056	60622.W2056	60	101,6 (4")	23,37	12,77	31,69	9,52	B
60622.W1058	60622.W2058	80	101,6 (4")	23,37	12,77	31,69	9,52	B
60622.W1062	-	20	101,6 (4")	49,28	12,77	31,69	19,05	C
60622.W1063	60622.W2063	35	101,6 (4")	49,28	12,77	31,69	19,05	C
60622.W1066	60622.W2066	60	101,6 (4")	49,28	12,77	31,69	19,05	C
60622.W1068	60622.W2068	80	101,6 (4")	49,28	12,77	31,69	19,05	C

Solid Roller

bearing mount

Order No. Nitrile	Order No. Urethane	Durometer	d_1	l_1	d_2	d_3	l_2	Bearing type
-	60622.W2073	35	127,0 (5")	49,28	12,77	31,69	19,05	C
-	60622.W2076	60	127,0 (5")	49,28	12,77	31,69	19,05	C
-	60622.W2083	35	152,4 (6")	49,28	12,77	31,69	19,05	C
-	60622.W2086	60	152,4 (6")	49,28	12,77	31,69	19,05	C
-	60622.W2088	80	152,4 (6")	49,28	12,77	31,69	19,05	C

60622

Material
Nitrile, urethane or neoprene bonded to a steel insert. Hardness from 20-80 durometer (Shore A).

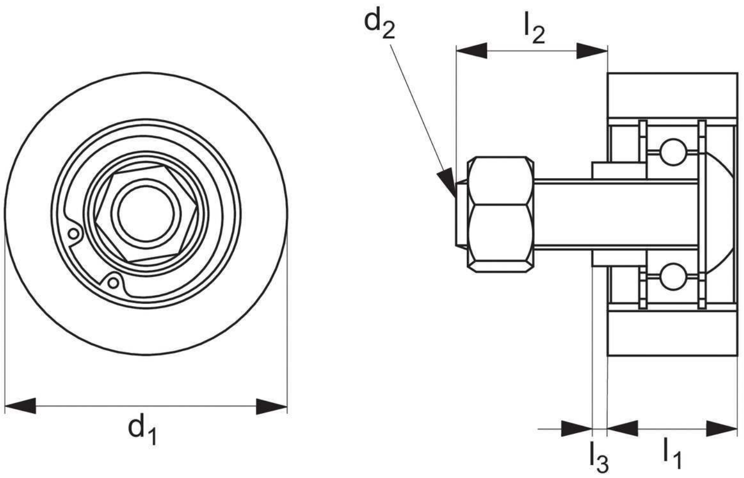
Technical Notes
Bearings included (held in place with snap rings). For more details on bearings please see technical pages.

Tolerances:
When d_1=38,10
d_2 ±0.05
d_3 ±0.07
l_2 ±0.05

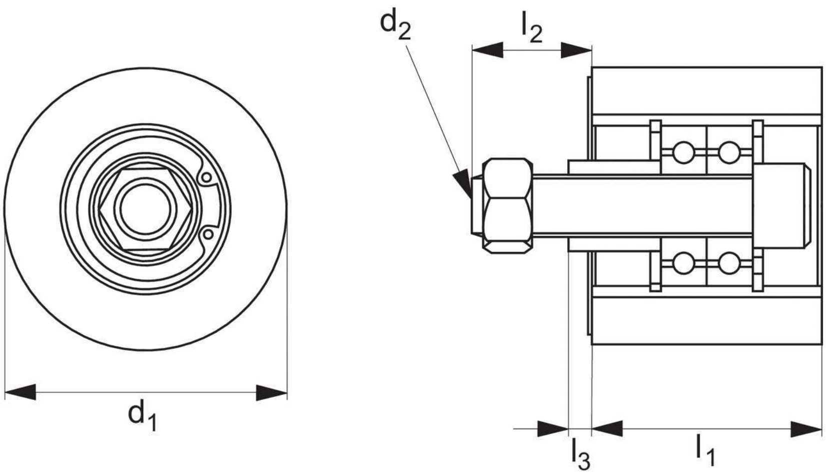
When d_1>38,10
d_2 ±0,065
d_3 ±0,065
l_2 ±0,08

Solid Roller
stud mount

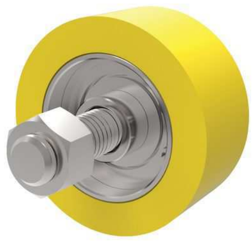
60624



bearing type b



bearing type a & c



Material
Nitrile, urethane or neoprene bonded to a steel insert. Hardness from 20-80 durometer (Shore A).

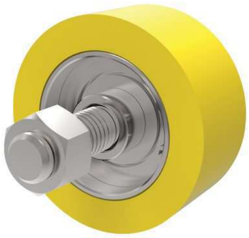
Technical Notes
Bearings included (held in place with snap rings). For more details on bearings please see technical pages. Assembled with socket head cap screw, spacer and lock nut.

Order No. Nitrile	Order No. Urethane	Duro -meter	d_1	l_1	d_2	l_2	l_3	Bearin g type
60624.W1002	-	20	38,1 (1.5")	31,80	5/16-18"	16,00	3,05	A
60624.W1003	60624.W2003	35	38,1 (1.5")	31,80	5/16-18"	16,00	3,05	A
60624.W1006	60624.W2006	60	38,1 (1.5")	31,80	5/16-18"	16,00	3,05	A
60624.W1008	60624.W2008	80	38,1 (1.5")	31,80	5/16-18"	16,00	3,05	A
60624.W1012	-	20	50,8 (2")	23,37	1/2-13"	27,94	3,05	B
60624.W1013	60624.W2013	35	50,8 (2")	23,37	1/2-13"	27,94	3,05	B
60624.W1016	60624.W2016	60	50,8 (2")	23,37	1/2-13"	27,94	3,05	B
60624.W1018	60624.W2018	80	50,8 (2")	23,37	1/2-13"	27,94	3,05	B
60624.W1022	-	20	50,8 (2")	49,28	1/2-13"	35,81	6,35	C
60624.W1023	60624.W2023	35	50,8 (2")	49,28	1/2-13"	35,81	6,35	C
60624.W1026	60624.W2026	60	50,8 (2")	49,28	1/2-13"	35,81	6,35	C
60624.W1028	60624.W2028	80	50,8 (2")	49,28	1/2-13"	35,81	6,35	C
60624.W1032	-	20	63,5 (2.5")	23,37"	1/2-13	27,94	3,05	B
60624.W1033	60624.W2033	35	63,5 (2.5")	23,37	1/2-13"	27,94	3,05	B
60624.W1036	60624.W2036	60	63,5 (2.5")	23,37	1/2-13"	27,94	3,05	B
60624.W1038	60624.W2038	80	63,5 (2.5")	23,37	1/2-13"	27,94	3,05	B
60624.W1042	-	20	63,5 (2.5")	49,28	1/2-13"	35,81	6,35	C
60624.W1043	60624.W2043	35	63,5 (2.5")	49,28	1/2-13"	35,81	6,35	C
60624.W1046	60624.W2046	60	63,5 (2.5")	49,28	1/2-13"	35,81	6,35	C
60624.W1048	60624.W2048	80	63,5 (2.5")	49,28	1/2-13"	35,81	6,35	C
60624.W1052	-	20	101,6 (4")	23,37	1/2-13"	27,94	3,05	B
60624.W1053	60624.W2053	35	101,6 (4")	23,37	1/2-13"	27,94	3,05	B
60624.W1056	60624.W2056	60	101,6 (4")	23,37	1/2-13"	27,94	3,05	B
60624.W1058	60624.W2058	80	101,6 (4")	23,37	1/2-13"	27,94	3,05	B
60624.W1062	-	20	101,6 (4")	49,28	1/2-13"	35,56	6,35	C
60624.W1063	60624.W2063	35	101,6 (4")	49,28	1/2-13"	35,56	6,35	C
60624.W1066	60624.W2066	60	101,6 (4")	49,28	1/2-13"	35,56	6,35	C
60624.W1068	60624.W2068	60	101,6 (4")	49,28	1/2-13"	35,56	6,35	C

Solid Roller
stud mount

60624

Order No. Nitrile	Order No. Urethane	Duro -meter	d_1	l_1	d_2	l_2	l_3	Bearin g type
-	60624.W2073	35	127,0 (5")	49,28	1/2-13"	35,56	6,35	C
-	60624.W2076	60	127,0 (5")	49,28	1/2-13"	35,56	6,35	C
-	60624.W2078	80	127,0 (5")	49,28	1/2-13"	35,56	6,35	C
-	60624.W2083	35	152,4 (6")	49,28	1/2-13"	35,56	6,35	C
-	60624.W2086	60	152,4 (6")	49,28	1/2-13"	35,56	6,35	C
-	60624.W2088	80	152,4 (6")	49,28	1/2-13"	35,56	6,35	C



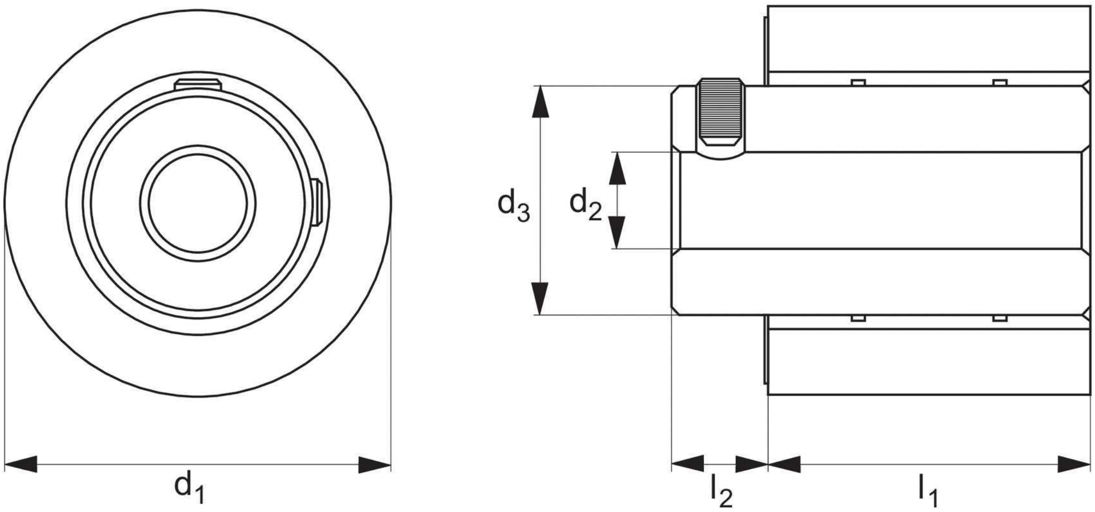
Material
Nitrile, urethane or neoprene bonded to a steel insert. Hardness from 20-80 durometer (Shore A).

Technical Notes
Bearings included (held in place with snap rings). For more details on bearings please see technical pages. Assembled with socket head cap screw, spacer and lock nut.

Solid Roller

shaft drive

60626



Material
Nitrile, urethane or neoprene bonded to a steel insert. Hardness from 20-80 durometer (Shore A).

Technical Notes
Designed to be mounted onto a shaft. A hub extends past the roller and is supplied with two set screws at 90°.

Order No. Nitrile	Order No. Urethane	Durometer	d_1	l_1	d_2	d_3	l_2
60626.W1002	-	20	38,10 (1.5")	31,75	12,72/12,83	22,36	9,65
60626.W1003	60626.W2003	35	38,10 (1.5")	31,75	12,72/12,83	22,36	9,65
60626.W1006	60626.W2006	60	38,10 (1.5")	31,75	12,72/12,83	22,36	9,65
60626.W1008	60626.W2008	80	38,10 (1.5")	31,75	12,72/12,83	22,36	9,65
60626.W1012	-	20	50,80 (2")	23,37	12,72/12,83	31,75	12,70
60626.W1013	60626.W2013	35	50,80 (2")	23,37	12,72/12,83	31,75	12,70
60626.W1016	60626.W2016	60	50,80 (2")	23,37	12,72/12,83	31,75	12,70
60626.W1018	60626.W2018	80	50,80 (2")	23,37	12,72/12,83	31,75	12,70
60626.W1022	-	20	50,80 (2")	23,37	19,08/19,20	31,75	12,70
60626.W1023	60626.W2023	35	50,80 (2")	23,37	19,08/19,20	31,75	12,70
60626.W1026	60626.W2026	60	50,80 (2")	23,37	19,08/19,20	31,75	12,70
60626.W1028	60626.W2028	80	50,80 (2")	23,37	19,08/19,20	31,75	12,70
60626.W1032	-	20	50,80 (2")	49,28	12,73/12,83	31,75	12,70
60626.W1033	60626.W2033	35	50,80 (2")	49,28	12,73/12,83	31,75	12,70
60626.W1036	60626.W2036	60	50,80 (2")	49,28	12,73/12,83	31,75	12,70
60626.W1038	60626.W2038	80	50,80 (2")	49,28	12,73/12,83	31,75	12,70
60626.W1042	-	20	50,80 (2")	49,28	19,08/19,20	31,75	12,70
60626.W1043	60626.W2043	35	50,80 (2")	49,28	19,08/19,20	31,75	12,70
60626.W1046	60626.W2046	60	50,80 (2")	49,28	19,08/19,20	31,75	12,70
60626.W1048	60626.W2048	80	50,80 (2")	49,28	19,08/19,20	31,75	12,70
60626.W1052	-	20	63,50 (2.5")	23,37	12,73/12,83	31,75	12,70
60626.W1053	60626.W2053	35	63,50 (2.5")	23,37	12,73/12,83	31,75	12,70
60626.W1056	60626.W2056	60	63,50 (2.5")	23,37	12,73/12,83	31,75	12,70
60626.W1058	60626.W2058	80	63,50 (2.5")	23,37	12,73/12,83	31,75	12,70
60626.W1062	-	20	63,50 (2.5")	23,37	19,08/19,20	34,79	12,70
60626.W1063	60626.W2063	35	63,50 (2.5")	23,37	19,08/19,20	34,79	12,70
60626.W1066	60626.W2066	60	63,50 (2.5")	23,37	19,08/19,20	34,79	12,70
60626.W1068	60626.W2068	80	63,50 (2.5")	23,37	19,08/19,20	34,79	12,70
60626.W1072	-	20	63,50 (2.5")	49,28	12,73/12,83	31,75	12,70
60626.W1073	60626.W2073	35	63,50 (2.5")	49,28	12,73/12,83	31,75	12,70
60626.W1076	60626.W2076	60	63,50 (2.5")	49,28	12,73/12,83	31,75	12,70
60626.W1078	60626.W2078	80	63,50 (2.5")	49,28	12,73/12,83	31,75	12,70
60626.W1082	-	20	63,50 (2.5")	49,28	19,08/19,20	31,75	12,70
60626.W1083	60626.W2083	35	63,50 (2.5")	49,28	19,08/19,20	31,75	12,70
60626.W1086	60626.W2086	60	63,50 (2.5")	49,28	19,08/19,20	31,75	12,70
60626.W1088	60626.W2088	80	63,50 (2.5")	49,28	19,08/19,20	31,75	12,70
60626.W1092	-	20	63,50 (2.5")	49,28	25,42/25,55	34,79	12,70
60626.W1093	60626.W2093	35	63,50 (2.5")	49,28	25,42/25,55	34,79	12,70
60626.W1096	60626.W2096	60	63,50 (2.5")	49,28	25,42/25,55	34,79	12,70
60626.W1098	60626.W2098	80	63,50 (2.5")	49,28	25,42/25,55	34,79	12,70
60626.W1102	-	20	101,6 (4")	23,37	12,73/12,83	31,75	12,70
60626.W1103	60626.W2103	35	101,6 (4")	23,37	12,73/12,83	31,75	12,70
60626.W1106	60626.W2106	60	101,6 (4")	23,37	12,73/12,83	31,75	12,70
60626.W1108	60626.W2108	80	101,6 (4")	23,37	12,73/12,83	31,75	12,70
60626.W1112	-	20	101,6 (4")	23,37	19,08/19,20	31,75	12,70
60626.W1113	60626.W2123	35	101,6 (4")	23,37	19,08/19,20	31,75	12,70
60626.W1116	60626.W2116	60	101,6 (4")	23,37	19,08/19,20	31,75	12,70
60626.W1118	60626.W2118	80	101,6 (4")	23,37	19,08/19,20	31,75	12,70
60626.W1122	-	20	101,6 (4")	49,28	12,73/12,83	31,75	12,70
60626.W1123	60626.W2123	35	101,6 (4")	49,28	12,73/12,83	31,75	12,70

Solid Roller

shaft drive

60626

Order No. Nitrile	Order No. Urethane	Duro-meter	d_1	l_1	d_2	d_3	l_2
60626.W1126	60626.W2126	60	101,6 (4")	49,28	12,73/12,83	31,75	12,70
60626.W1128	60626.W2128	80	101,6 (4")	49,28	12,73/12,83	31,75	12,70
60626.W1132	-	20	101,6 (4")	49,28	19,08/19,20	31,75	12,70
60626.W1133	60626.W2133	35	101,6 (4")	49,28	19,08/19,20	31,75	12,70
60626.W1136	60626.W2136	60	101,6 (4")	49,28	19,08/19,20	31,75	12,70
60626.W1138	60626.W2138	80	101,6 (4")	49,28	19,08/19,20	31,75	12,70
-	-		101,6 (4")	49,28	31,78/31,90	34,80	12,70
60626.W1146	60626.W2146	60	101,6 (4")	49,28	31,78/31,90	34,80	12,70
-	60626.W2148	80	101,6 (4")	49,28	31,78/31,90	34,80	12,70
-	60626.W2153	35	127,0 (5")	49,28	12,72/12,83	31,75	12,70
-	60626.W2156	60	127,0 (5")	49,28	12,72/12,83	31,75	12,70
-	60626.W2158	80	127,0 (5")	49,28	12,72/12,83	31,75	12,70
-	60626.W2163	35	127,0 (5")	49,28	19,07/19,20	31,75	12,70
-	60626.W2166	60	127,0 (5")	49,28	19,07/19,20	31,75	12,70
-	60626.W2168	80	127,0 (5")	49,28	19,07/19,20	31,75	12,70
-	60626.W2173	35	127,0 (5")	49,28	31,78/31,90	41,40	12,70
-	60626.W2176	60	127,0 (5")	49,28	31,78/31,90	41,40	12,70
-	60626.W2178	80	127,0 (5")	49,28	31,78/31,90	41,40	12,70
-	60626.W2183	35	152,4 (6")	49,28	12,73/12,83	31,75	12,70
-	60626.W2186	60	152,4 (6")	49,28	12,73/12,83	31,75	12,70
-	60626.W2188	80	152,4 (6")	49,28	12,73/12,83	31,75	12,70
-	60626.W2193	35	152,4 (6")	49,28	19,08/19,20	31,75	12,70
-	60626.W2196	60	152,4 (6")	49,28	19,08/19,20	31,75	12,70
-	60626.W2198	80	152,4 (6")	49,28	19,08/19,20	31,75	12,70
-	60626.W2203	35	152,4 (6")	49,28	31,78/31,90	41,40	12,70
-	60626.W2206	60	152,4 (6")	49,28	31,78/31,90	41,40	12,70
-	60626.W2208	80	152,4 (6")	49,28	31,78/31,90	41,40	12,70

Material

Nitrile, urethane or neoprene bonded to a steel insert. Hardness from 20-80 durometer (Shore A).

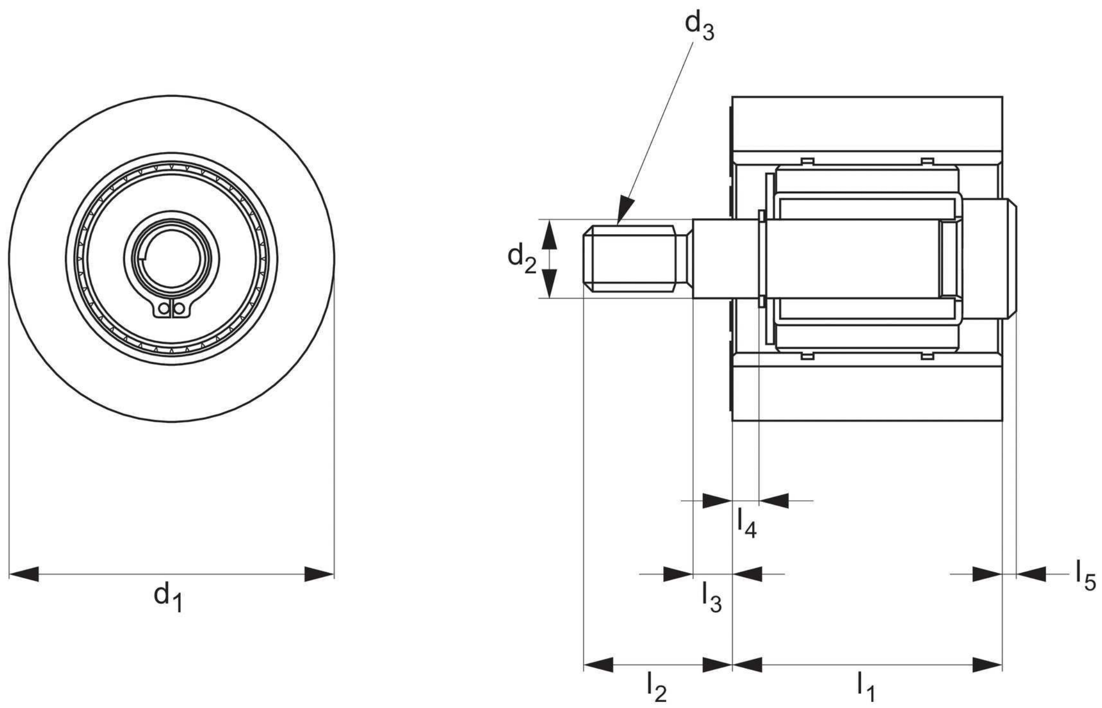
Technical Notes

Designed to be mounted onto a shaft. A hub extends past the roller and is supplied with two set screws at 90°.

Solid Roller

clutch bearing

60628



Material

Nitrile, urethane or neoprene bonded to a steel insert. Hardness from 20-80 durometer (Shore A).

Technical Notes

A clutch bearing allows the roller to turn in only one direction. Available in left or right hand rotation (with the stud pointed upwards, a right hand rotation turns clockwise.) Supplied with type I bearing, other d_1=38,1 roller which is supplied with type h bearing.

Tips

Type R = Right handed clutch bearing.
Type L = Left handed clutch bearing.
See technical introduction pages for further information.

Order No. Nitrile	Order No. Urethane	Type	Duro	d_1	l_1	d_2 -0 +0.05	d_3	l_2	l_3	l_4	l_5
60628.W1002	-	Right	20	38,10	31,75	9,42	5/16-18"	17,53	4,83	3,05	1,52
60628.W1003	60628.W2003	Right	35	38,10	31,75	9,42	5/16-18"	17,53	4,83	3,05	1,52
60628.W1006	60628.W2006	Right	60	38,10	31,75	9,42	5/16-18"	17,53	4,83	3,05	1,52
60628.W1008	60628.W2008	Right	80	38,10	31,75	9,42	5/16-18"	17,53	4,83	3,05	1,52
60628.W1012	-	Left	20	38,10	31,75	9,42	5/16-18"	17,53	4,83	3,05	1,52
60628.W1013	60628.W2013	Left	35	38,10	31,75	9,42	5/16-18"	17,53	4,83	3,05	1,52
60628.W1016	60628.W2016	Left	60	38,10	31,75	9,42	5/16-18"	17,53	4,83	3,05	1,52
60628.W1018	60628.W2018	Left	80	38,10	31,75	9,42	5/16-18"	17,53	4,83	3,05	1,52
60628.W1032	-	Left	20	50,80	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,41
60628.W1022	-	Right	20	50,80	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,41
60628.W1023	60628.W2023	Right	35	50,80	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,41
60628.W1026	60628.W2026	Right	60	50,80	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,41
60628.W1028	60628.W2028	Right	80	50,80	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,41
60628.W1033	60628.W2033	Left	35	50,80	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,41
60628.W1036	60628.W2036	Left	60	50,80	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,41
60628.W1038	60628.W2038	Left	80	50,80	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,41
60628.W1052	-	Left	20	50,80	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1042	-	Right	20	50,80	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1043	60628.W2043	Right	35	50,80	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1046	60628.W2046	Right	60	50,80	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1048	60628.W2048	Right	80	50,80	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1053	60628.W2053	Left	35	50,80	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1056	60628.W2056	Left	60	50,80	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1058	60628.W2058	Left	80	50,80	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1072	-	Left	20	63,50	23,27	15,77	1/2-13"	31,75	26,42	3,05	10,41
60628.W1062	-	Right	20	63,50	23,27	15,77	1/2-13"	31,75	26,42	3,05	10,41
60628.W1063	60628.W2063	Right	35	63,50	23,27	15,77	1/2-13"	31,75	26,42	3,05	10,41
60628.W1066	60628.W2066	Right	60	63,50	23,27	15,77	1/2-13"	31,75	26,42	3,05	10,41
60628.W1068	60628.W2068	Right	80	63,50	23,27	15,77	1/2-13"	31,75	26,42	3,05	10,41
60628.W1073	60628.W2073	Left	35	63,50	23,27	15,77	1/2-13"	31,75	26,42	3,05	10,41
60628.W1076	60628.W2076	Left	60	63,50	23,27	15,77	1/2-13"	31,75	26,42	3,05	10,41
60628.W1078	60628.W2078	Left	80	63,50	23,27	15,77	1/2-13"	31,75	26,42	3,05	10,41
60628.W1082	-	Right	20	63,50	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1092	-	Left	20	63,50	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1083	60628.W2083	Right	35	63,50	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1086	60628.W2086	Right	60	63,50	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1088	60628.W2088	Right	80	63,50	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1093	60628.W2093	Left	35	63,50	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1096	60628.W2096	Left	60	63,50	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1098	60628.W2098	Left	80	63,50	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1102	-	Right	20	101,6	23,27	15,77	1/2-13"	31,75	26,42	3,05	10,41
60628.W1103	60628.W2103	Right	35	101,6	23,27	15,77	1/2-13"	31,75	26,42	3,05	10,41

Solid Roller
clutch bearing

60628

Order No. Nitrile	Order No. Urethane	Type	Duro	d_1	l_1	d_2 -0 +0.05	d_3	l_2	l_3	l_4	l_5
60628.W1106	60628.W2106	Right	60	101,6	23,27	15,77	1/2-13"	31,75	26,42	3,05	10,41
60628.W1108	60628.W2108	Right	80	101,6	23,27	15,77	1/2-13"	31,75	26,42	3,05	10,41
60628.W1112	-	Left	20	101,6	23,27	15,77	1/2-13"	31,75	26,42	3,05	10,41
60628.W1113	60628.W2113	Left	35	101,6	23,27	15,77	1/2-13"	31,75	26,42	3,05	10,41
60628.W1116	60628.W2116	Left	60	101,6	23,27	15,77	1/2-13"	31,75	26,42	3,05	10,41
60628.W1118	60628.W2118	Left	80	101,6	23,27	15,77	1/2-13"	31,75	26,42	3,05	10,41
60628.W1122	-	Right	20	101,6	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1123	60628.W2123	Right	35	101,6	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1126	60628.W2126	Right	60	101,6	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1128	60628.W2128	Right	80	101,6	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1132	-	Left	20	101,6	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1133	60628.W2133	Left	35	101,6	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1136	60628.W2136	Left	60	101,6	49,28	15,77	1/2-13"	31,75	12,70	3,05	-
60628.W1138	60628.W2138	Left	80	101,6	49,28	15,77	1/2-13"	31,75	12,70	3,05	-

Material
Nitrile, urethane or neoprene bonded to a steel insert.
Hardness from 20-80 durometer (Shore A).

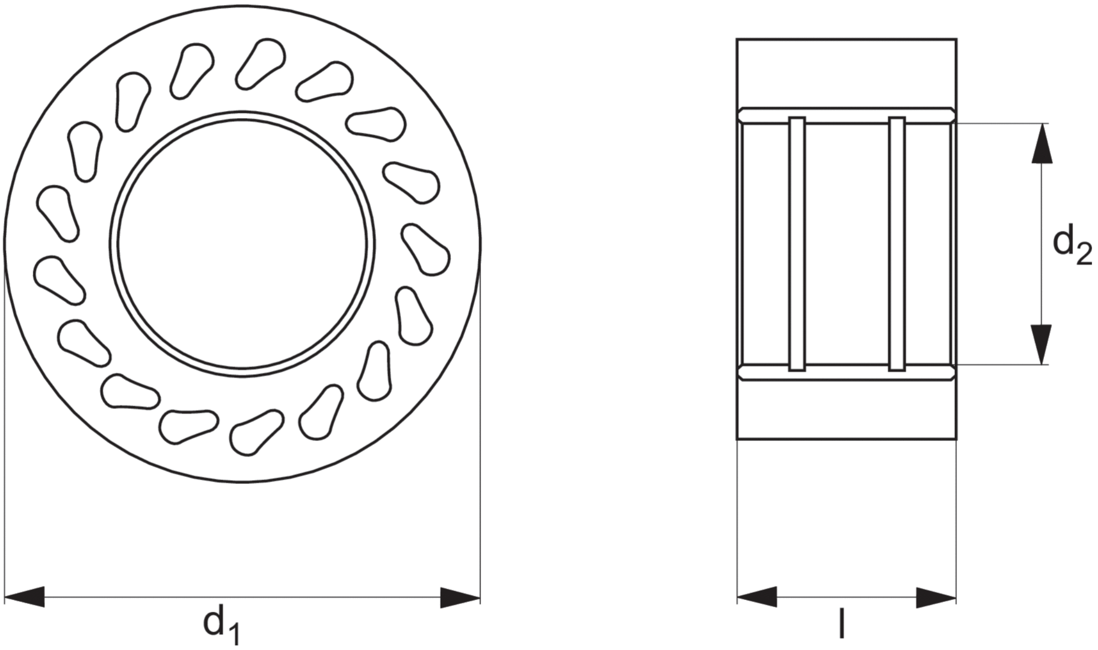
Technical Notes
A clutch bearing allows the roller to turn in only one direction. Available in left or right hand rotation (with the stud pointed upwards, a right hand rotation turns clockwise.)
Supplied with type I bearing, other d_1=38,1 roller which is supplied with type h bearing.

Tips
Type R = Right handed clutch bearing.
Type L = Left handed clutch bearing.
See technical introduction pages for further information.

Durasoft Roller

roller only

60640



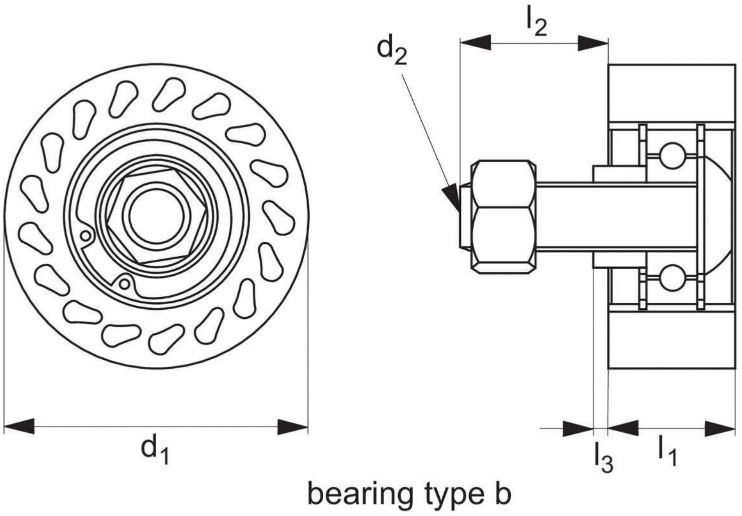
Material
Urethane bonded to a steel insert. Hardness from 35-95 durometer (Shore A).

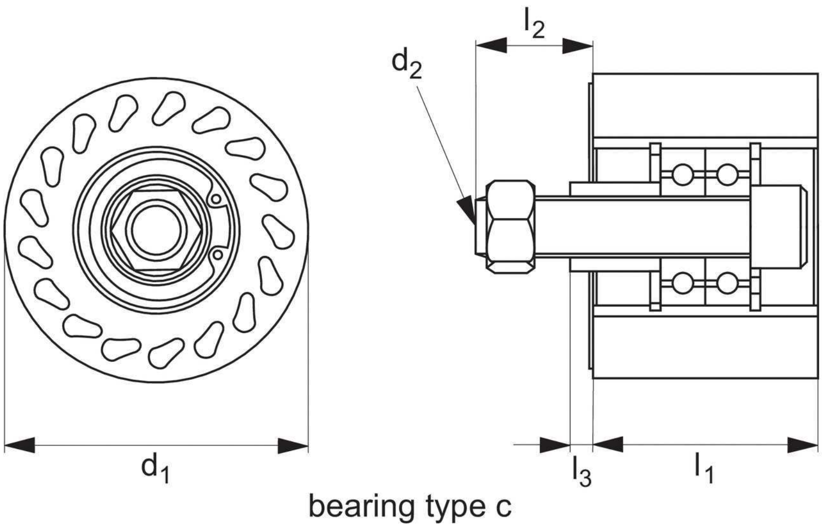
Technical Notes
Roller only - allows for custom mounting.

Tips
Durasoft rollers have "teardrop" holes to allow the roller to flex for firm but non-damaging contact.

Order No.	Durometer	d_1	l	d_2 min./max.
60640.W1003	35	63,5 (2,5")	23,37	28,58/28,65
60640.W1006	60	63,5 (2,5")	23,37	28,58/28,65
60640.W1008	80	63,5 (2,5")	23,37	28,58/28,65
60640.W1009	95	63,5 (2,5")	23,37	28,58/28,68
60640.W1013	35	63,5 (2,5")	49,28	31,80/31,90
60640.W1016	60	63,5 (2,5")	49,28	31,80/31,90
60640.W1018	80	63,5 (2,5")	49,28	31,80/31,90
60640.W1019	95	63,5 (2,5")	49,28	31,80/31,90
60640.W1023	35	101,6 (4")	23,37	31,80/31,90
60640.W1026	60	101,6 (4")	23,37	31,80/31,90
60640.W1028	80	101,6 (4")	23,37	31,80/31,90
60640.W1029	95	101,6 (4")	23,37	31,80/31,90
60640.W1033	35	101,6 (4")	49,28	31,80/31,90
60640.W1036	60	101,6 (4")	49,28	31,80/31,90
60640.W1038	80	101,6 (4")	49,28	31,80/31,90
60640.W1039	95	101,6 (4")	49,28	31,80/31,90

60644





Material
Urethane bonded to a steel insert. Hardness from 35-80 durometer (Shore A).

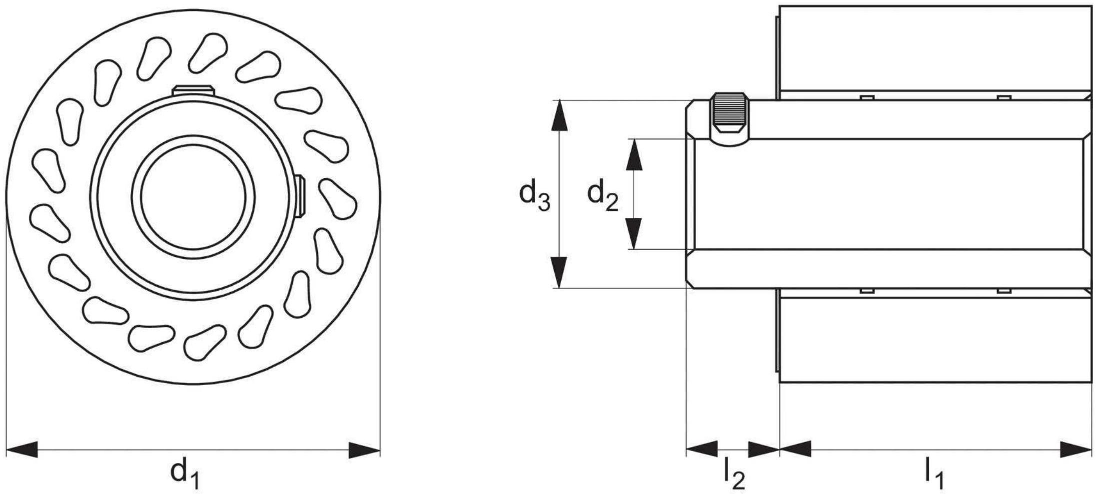
Technical Notes
Bearings included (held in place with snap rings). For more details on bearings please see technical pages. Assembled with socket head cap screw, spacer and lock nut.

Tips
Durasoft rollers have "teardrop" holes to allow the roller to flex for firm but non-damaging contact.

Order No.	Durometer	d_1	l_1	d_2	l_2	l_3	Bearing type
60644.W1003	35	62,5 (2,5")	23,37	1/2-13	27,94	3,05	B
60644.W1006	60	62,5 (2,5")	23,37	1/2-13	27,94	3,05	B
60644.W1008	80	62,5 (2,5")	23,37	1/2-13	27,94	3,05	B
60644.W1013	35	62,5 (2,5")	49,28	1/2-13	35,81	6,35	C
60644.W1016	60	62,5 (2,5")	49,28	1/2-13	35,81	6,35	C
60644.W1018	80	62,5 (2,5")	49,28	1/2-13	35,81	6,35	C
60644.W1023	35	101,6 (4")	23,37	1/2-13	27,94	3,05	B
60644.W1026	60	101,6 (4")	23,37	1/2-13	27,94	3,05	B
60644.W1028	80	101,6 (4")	23,37	1/2-13	27,94	3,05	B
60644.W1033	35	101,6 (4")	49,28	1/2-13	35,81	6,35	C
60644.W1036	60	101,6 (4")	49,28	1/2-13	35,81	6,35	C
60644.W1038	80	101,6 (4")	49,28	1/2-13	35,81	6,35	C

Durasoft Roller

shaft drive



Order No.	Durometer	d_1	l_1	d_2 min./max.	d_3	l_2
60646.W1003	35	63,5 (2,5")	23,37	12,73/12,83	31,75	12,7
60646.W1006	60	63,5 (2,5")	23,37	12,73/12,83	31,75	12,7
60646.W1008	80	63,5 (2,5")	23,37	12,73/12,83	31,75	12,7
60646.W1009	95	63,5 (2,5")	23,37	12,73/12,83	31,75	12,7
60646.W1013	35	63,5 (2,5")	23,37	15,90/16,03	31,75	12,7
60646.W1016	60	63,5 (2,5")	23,37	15,90/16,03	31,75	12,7
60646.W1018	80	63,5 (2,5")	23,37	15,90/16,03	31,75	12,7
60646.W1019	95	63,5 (2,5")	23,37	15,90/16,03	31,75	12,7
60646.W1023	35	63,5 (2,5")	23,27	19,08/19,20	31,75	12,7
60646.W1026	60	63,5 (2,5")	23,27	19,08/19,20	31,75	12,7
60646.W1028	80	63,5 (2,5")	23,27	19,08/19,20	31,75	12,7
60646.W1029	95	63,5 (2,5")	23,27	19,08/19,20	31,75	12,7

Material

Urethane bonded to a steel insert. Hardness from 35-80 durometer (Shore A).

Technical Notes

Designed to be mounted onto a shaft. A hub extends past the roller and is supplied with two set screws at 90°.

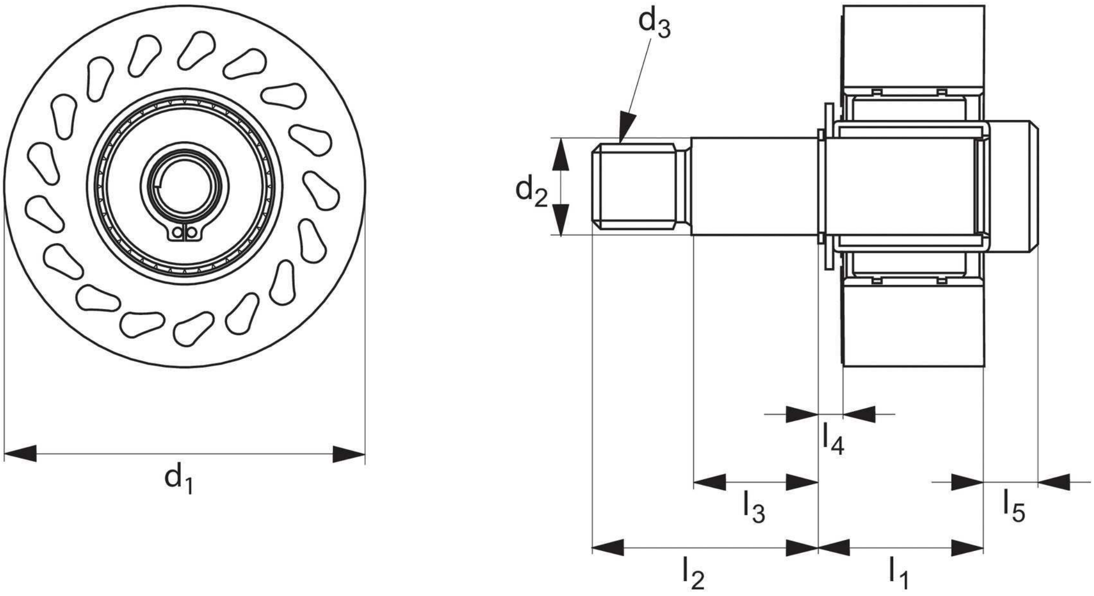
Tips

Durasoft rollers have "teardrop" holes to allow the roller to flex for firm but non-damaging contact.

Durasoft Roller

clutch bearing

60648



Order No.	Type	Duro meter	d_1	l_1	d_2 max./min.	l_2	l_3	l_4	l_5	d_3
60648.W1003	R	35	63,50 (2,5")	23,37	15,77/15,82	45,47	26,42	3,05	10,41	1/2-13"
60648.W1006	R	60	63,50 (2,5")	23,37	15,77/15,82	45,47	26,42	3,05	10,41	1/2-13"
60648.W1008	R	80	63,50 (2,5")	23,37	15,77/15,82	45,47	26,42	3,05	10,41	1/2-13"
60648.W1013	L	35	63,50 (2,5")	23,37	15,77/15,82	45,47	26,42	3,05	10,41	1/2-13"
60648.W1016	L	60	63,50 (2,5")	23,37	15,77/15,82	45,47	26,42	3,05	10,41	1/2-13"
60648.W1018	L	80	23,37	23,37	15,77/15,82	45,47	26,42	3,05	10,41	1/2-13"
60648.W1023	R	35	63,50 (2,5")	49,28	15,77/15,82	31,75	12,70	10,92	-	1/2-13"
60648.W1026	R	60	63,50 (2,5")	49,28	15,77/15,82	31,75	12,70	10,92	-	1/2-13"
60648.W1028	R	80	63,50 (2,5")	49,28	15,77/15,82	31,75	12,70	10,92	-	1/2-13"
60648.W1033	L	35	63,50 (2,5")	49,28	15,77/15,82	31,75	12,70	10,92	-	1/2-13"
60648.W1036	L	60	63,50 (2,5")	49,28	15,77/15,82	31,75	12,70	10,92	-	1/2-13"
60648.W1038	L	80	63,50 (2,5")	49,28	15,77/15,82	31,75	12,70	10,92	-	1/2-13"
60648.W1043	R	35	101,60 (4")	23,37	15,77/15,82	45,47	26,42	3,05	10,41	1/2-13"
60648.W1046	R	60	101,60 (4")	23,37	15,77/15,82	45,47	26,42	3,05	10,41	1/2-13"
60648.W1048	R	80	101,60 (4")	23,37	15,77/15,82	45,47	26,42	3,05	10,41	1/2-13"
60648.W1053	L	35	101,60 (4")	23,37	15,77/15,82	45,47	26,42	3,05	10,41	1/2-13"
60648.W1056	L	60	101,60 (4")	23,37	15,77/15,82	45,47	26,42	3,05	10,41	1/2-13"
60648.W1058	L	80	101,60 (4")	23,37	15,77/15,82	45,47	26,42	3,05	10,41	1/2-13"
60648.W1063	R	35	101,60 (4")	49,28	15,77/15,82	31,75	12,70	10,92	-	1/2-13"
60648.W1066	R	60	101,60 (4")	49,28	15,77/15,82	31,75	12,70	10,92	-	1/2-13"
60648.W1068	R	80	101,60 (4")	49,28	15,77/15,82	31,75	12,70	10,92	-	1/2-13"
60648.W1073	L	35	101,60 (4")	49,28	15,77/15,82	31,75	12,70	10,92	-	1/2-13"
60648.W1076	L	60	101,60 (4")	49,28	15,77/15,82	31,75	12,70	10,92	-	1/2-13"
60648.W1078	L	80	101,60 (4")	49,28	15,77/15,82	31,75	12,70	10,92	-	1/2-13"

Material

Urethane bonded to a steel insert. Hardness from 35-80 durometer (Shore A).

Technical Notes

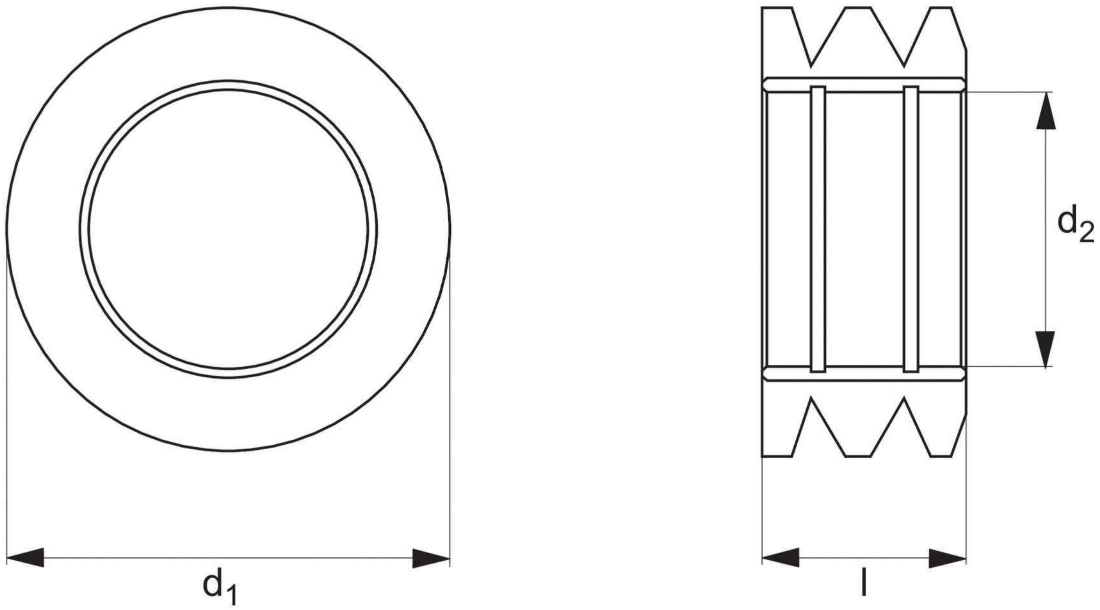
A clutch bearing allows the roller to turn in only one direction. Available in left or right hand rotation (with the stud pointed upwards, a right hand rotation turns clockwise).
Type R= right hand clutch bearing.
Type L= left hand clutch bearing.

Tips

Durasoft rollers have "teardrop" holes to allow the roller to flex for firm but non-damaging contact. All clutch bearing are type I. Please see technical page for more information on the bearing.

Finned Roller

roller only



Material
Nitrile, urethane or neoprene bonded to a steel insert. Hardness from 20-60 durometer (Shore A).

Technical Notes
Roller only - allows for custom mounting.

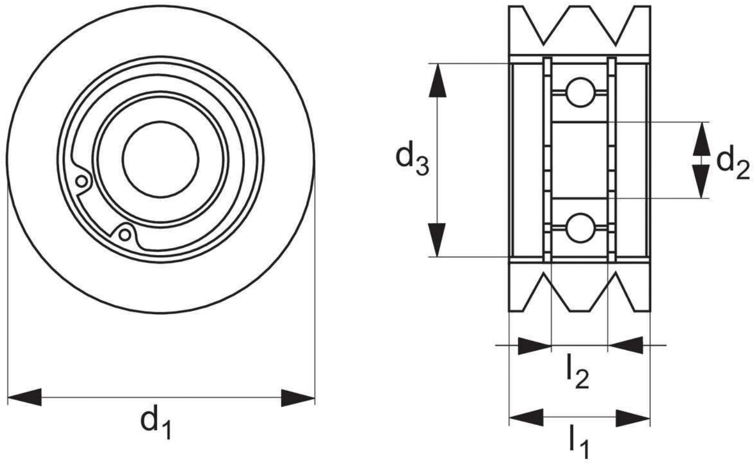
Tips
Finned rollers have grooves on the surface, creating less surface contact with the workpiece, and allowing dirt, debris and liquid to pass.

Order No. Nitrile	**Order No. Urethane**	Durometer	d_1	l	d_2 max./min.	No. of fins
60680.W1002	60680.W3002	20	50,8 (2")	23,37	28,58/28,65	3
60680.W1003	60680.W2003	35	50,8 (2")	23,37	28,58/28,65	3
60680.W1006	60680.W2006	60	50,8 (2")	23,37	28,58/28,65	3
60680.W1012	60680.W3012	20	50,8 (2")	23,37	31,80/31,90	3
60680.W1013	60680.W2013	35	50,8 (2")	23,37	31,80/31,90	3
60680.W1016	60680.W2016	60	50,8 (2")	23,37	31,80/31,90	3
60680.W1022	60680.W3022	20	50,8 (2")	49,28	28,58/28,65	6
60680.W1023	60680.W2023	35	50,8 (2")	49,28	28,58/28,65	6
60680.W1026	60680.W2026	60	50,8 (2")	49,28	28,58/28,65	6
60680.W1032	60680.W3032	20	50,8 (2")	49,28	31,80/31,90	6
60680.W1033	60680.W2033	35	50,8 (2")	49,28	31,80/31,90	6
60680.W1036	60680.W2036	60	50,8 (2")	49,28	31,80/31,90	6
60680.W1042	60680.W3042	20	50,8 (2")	23,37	28,58/28,65	3
60680.W1043	60680.W2043	35	50,8 (2")	23,37	28,58/28,65	3
60680.W1046	60680.W2046	60	50,8 (2")	23,37	28,58/28,65	3
60680.W1052	60680.W3052	20	63,5 (2.5")	23,37	31,80/31,90	3
60680.W1053	60680.W2053	35	63,5 (2.5")	23,37	31,80/31,90	3
60680.W1056	60680.W2056	60	63,5 (2.5")	23,37	31,80/31,90	3
60680.W1062	60680.W3062	20	63,5 (2.5")	49,28	28,58/28,65	6
60680.W1063	60680.W2063	35	63,5 (2.5")	49,28	28,58/28,65	6
60680.W1066	60680.W2066	60	63,5 (2.5")	49,28	28,58/28,65	6
60680.W1072	60680.W3072	20	63,5 (2.5")	49,28	31,80/31,90	6
60680.W1073	60680.W2073	35	63,5 (2.5")	49,28	31,80/31,90	6
60680.W1076	60680.W2076	60	63,5 (2.5")	49,28	31,80/31,90	6
60680.W1083	60680.W2083	35	101,6 (4")	49,28	28,58/28,65	8
60680.W1086	60680.W2086	60	101,6 (4")	49,28	28,58/28,65	8
60680.W1093	60680.W2093	35	101,6 (4")	49,28	31,80/31,90	8
60680.W1096	60680.W2096	60	101,6 (4")	49,28	31,80/31,90	8

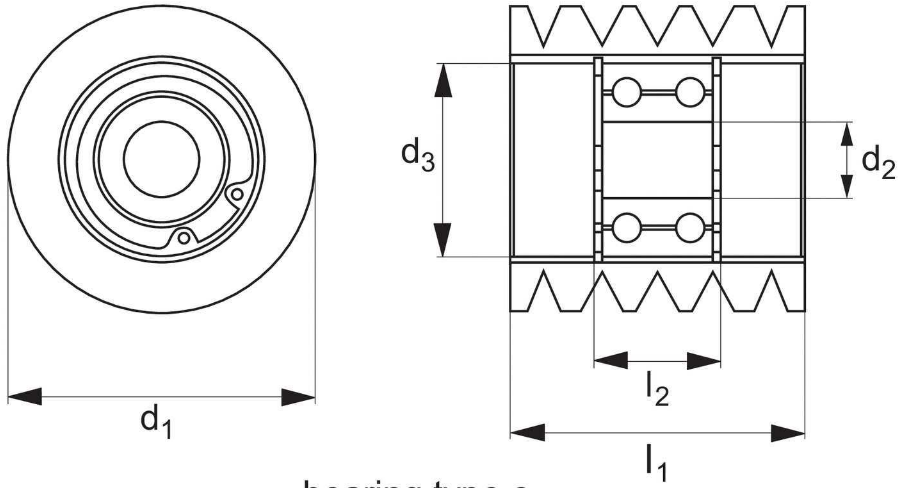
Finned Roller

bearing mount

60682



bearing type b



bearing type c

Material

Nitrile, urethane or neoprene bonded to a steel insert. Hardness from 20-60 durometer (Shore A).

Technical Notes

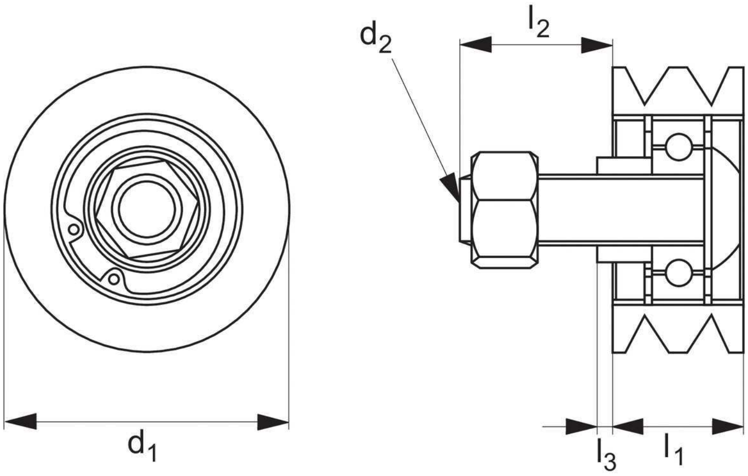
Bearings included (held in place with snap rings). For more details on bearings please see technical pages.

Tips

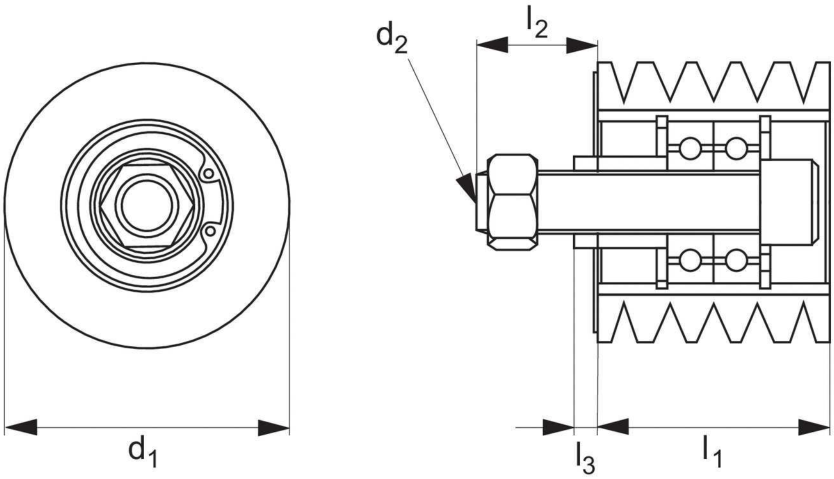
Finned rollers have grooves on the surface, creating less surface contact with the workpiece, and allowing dirt, debris and liquid to pass.

Order No. Nitrile	**Order No. Urethane**	Durometer	d_1	l_1	d_2 -0 +.13	d_3 -0 +.13	l_2 -0 +.13	Bearing type
60682.W1002	-	20	50,8 (2")	23,37	12,7	31,62	9,40	B
60682.W1003	60682.W2003	35	50,8 (2")	23,37	12,7	31,62	9,40	B
60682.W1006	60682.W2006	60	50,8 (2")	23,37	12,7	31,62	9,40	B
60682.W1012	-	20	50,8 (2")	49,28	12,7	31,62	18,92	C
60682.W1013	60682.W2013	35	50,8 (2")	49,28	12,7	31,62	18,92	C
60682.W1016	60682.W2016	60	50,8 (2")	49,28	12,7	31,62	18,92	C
60682.W1022	60682.W3022	20	63,5 (2.5")	23,37	12,7	31,62	9,40	B
60682.W1023	60682.W2023	35	63,5 (2.5")	23,37	12,7	31,62	9,40	B
60682.W1026	60682.W2026	60	63,50(2.5")	23,37	12,7	31,62	9,40	B

Finned Roller
stud mount



bearing type b



bearing type c

Material
Nitrile, urethane or neoprene bonded to a steel insert. Hardness from 20-60 durometer (Shore A).

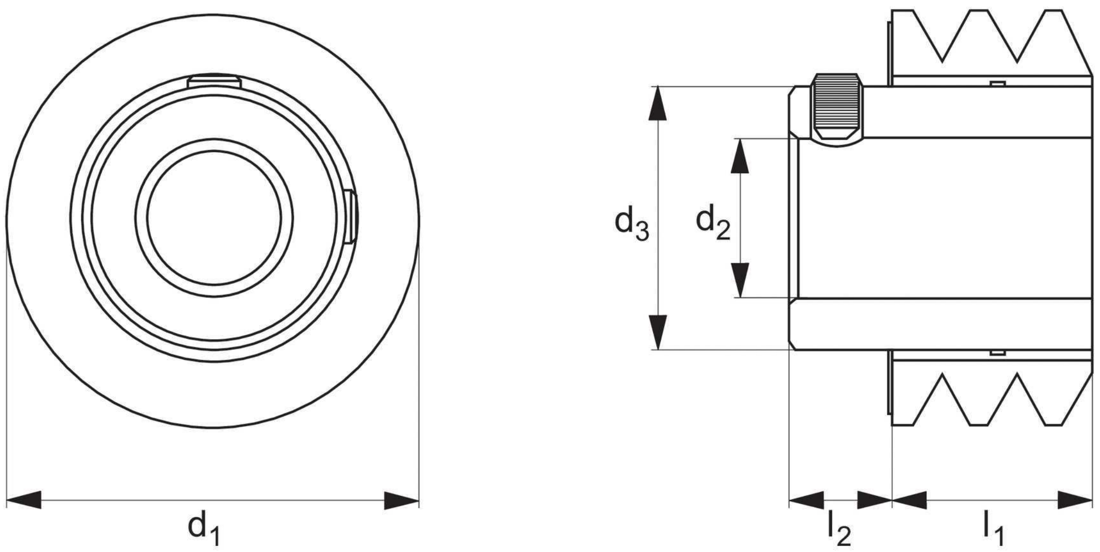
Technical Notes
Bearings included (held in place with snap rings). For more details on bearings please see technical pages. Assembled with socket head cap screw, spacer and lock nut.

Tips
Finned rollers have grooves on the surface, creating less surface contact with the workpiece, and allowing dirt, debris and liquid to pass.

Order No. Nitrile	**Order No. Urethane**	Duro	d_1	l_1	d_2	l_2	l_3	No. of bearings	Bearing type	No. of fins
60684.W1002	60684.W3002	20	50,8 (2")	23,37	1/2-13	27,94	3,05	1	B	3
60684.W1003	60684.W2003	35	50,8 (2")	23,37	1/2-13	27,94	3,05	1	B	3
60684.W1006	60684.W2006	60	50,8 (2")	23,37	1/2-13	27,94	3,05	1	B	3
60684.W1012	60684.W3012	20	50,8 (2")	49,27	1/2-13	35,81	6,35	1	C	6
60684.W1013	60684.W2013	35	50,8 (2")	49,27	1/2-13	35,81	6,35	1	C	6
60684.W1016	60684.W2016	60	50,8 (2")	49,27	1/2-13	35,81	6,35	1	C	6
60684.W1022	60684.W3022	20	63,5 (2")	49,27	1/2-13	27,94	3,05	1	B	3
60684.W1023	60684.W2023	35	50,8 (2")	49,27	1/2-13	27,94	3,05	1	B	3
60684.W1026	60684.W2026	60	50,8 (2")	49,27	1/2-13	27,94	3,05	1	B	3

Finned Roller
shaft drive

60686



Material
Nitrile, urethane or neoprene bonded to a steel insert. Hardness from 20-60 durometer (Shore A).

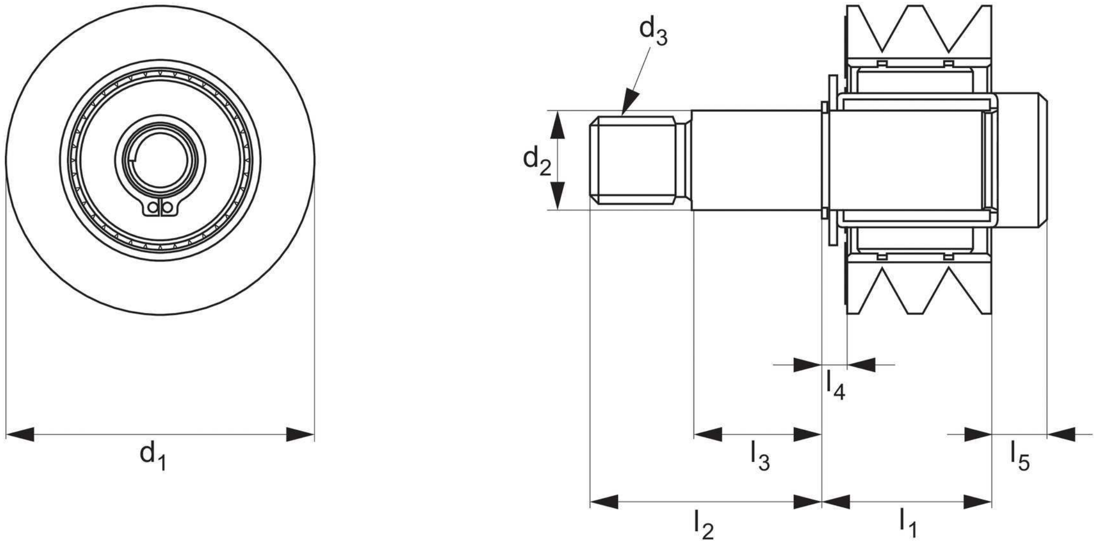
Technical Notes
Designed to be mounted onto a shaft. A hub extends past the roller and is supplied with two set screws at 90°.

Tips
Finned rollers have grooves on the surface, creating less surface contact with the workpiece, and allowing dirt, debris and liquid to pass.

Order No. Nitrile	Order No. Urethane	Duro	d_1	l_1	d_2 max./min.	d_3	l_2	No. of fins
60686.W1002	60686.W3002	20	50,80 (2")	23,37	12,73/12,83	31,75	12,70	3
60686.W1003	60686.W2003	35	50,80 (2")	23,37	12,73/12,83	31,75	12,70	3
60686.W1006	60686.W2006	60	50,80 (2")	23,37	12,73/12,83	31,75	12,70	3
60686.W1012	60686.W3012	20	50,80 (2")	23,37	15,90/16,03	31,75	12,70	3
60686.W1013	60686.W2013	35	50,80 (2")	23,37	15,90/16,03	31,75	12,70	3
60686.W1016	60686.W2016	60	50,80 (2")	23,37	15,90/16,03	31,75	12,70	3
60686.W1022	60686.W3022	20	50,80 (2")	23,37	19,08/19,20	31,75	12,70	3
60686.W1023	60686.W2023	35	50,80 (2")	23,37	19,08/19,20	31,75	12,70	3
60686.W1026	60686.W2026	60	50,80 (2")	23,37	19,08/19,20	31,75	12,70	3
60686.W1032	60686.W3032	20	50,80 (2")	23,27	25,43/25,55	34,80	12,70	3
60686.W1033	60686.W2033	35	50,80 (2")	23,27	25,43/25,55	34,80	12,70	3
60686.W1036	60686.W2036	60	50,80 (2")	23,27	25,43/25,55	34,80	12,70	3
60686.W1042	60686.W3042	20	50,80 (2")	49,28	12,73/12,83	31,75	12,70	6
60686.W1043	60686.W2043	35	50,80 (2")	49,28	12,73/12,83	31,75	12,70	6
60686.W1046	60686.W2046	60	50,80 (2")	49,28	12,73/12,83	31,75	12,70	6

Finned Roller
clutch bearing

60688

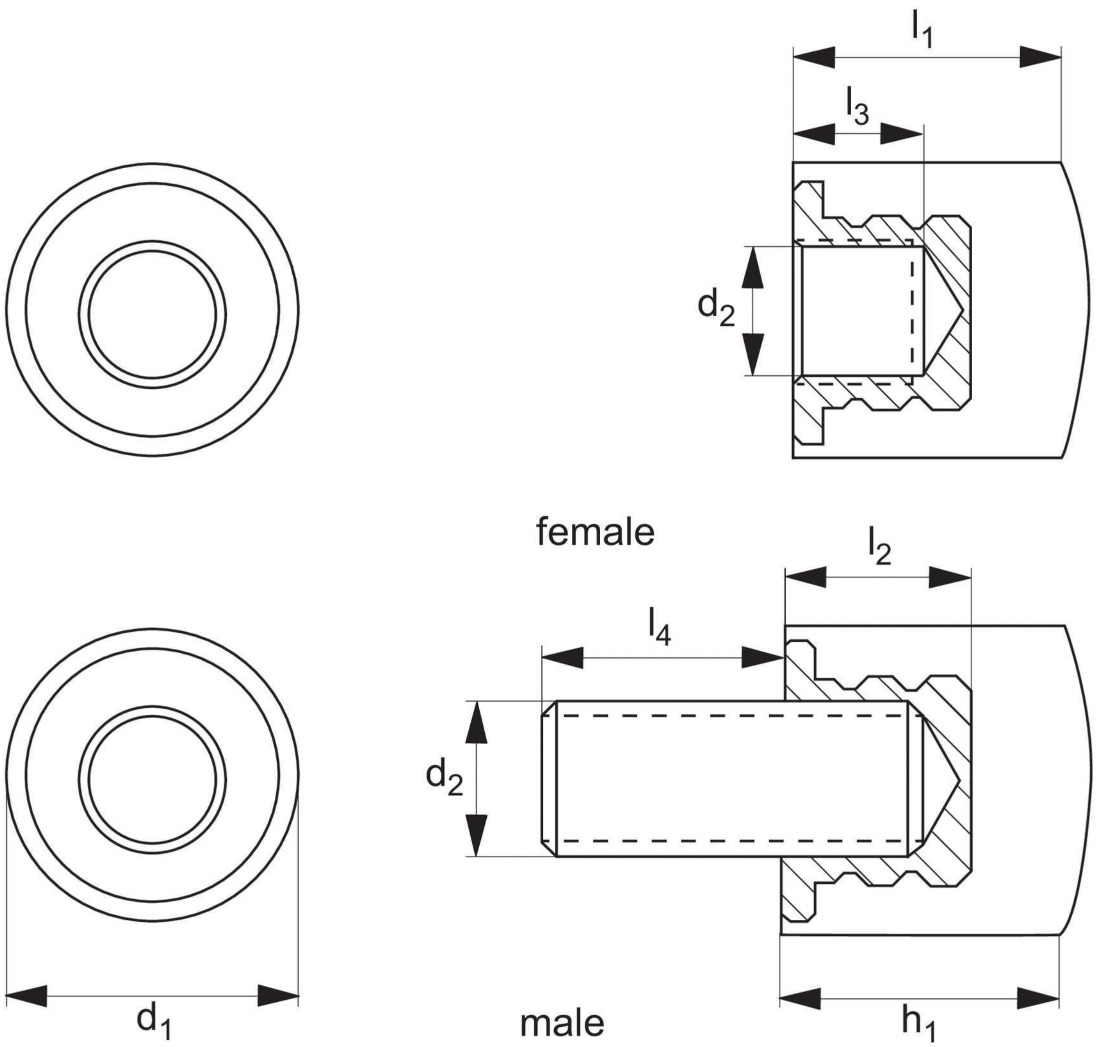


Order No. Nitrile	Order No. Urethane	Type	Duro	d_1	l_1	d_2 +0.05	d_3	l_2	l_3	l_4	l_5
60688.W1002	60688.W3002	R	20	50,80	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,41
60688.W1003	60688.W2003	R	35	50,80	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,41
60688.W1006	60688.W2006	R	60	50,80	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,41
60688.W1012	60688.W3012	L	20	50,80	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,41
60688.W1013	60688.W2013	L	35	50,80	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,41
60688.W1016	60688.W2016	L	60	50,80	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,41
60688.W1022	60688.W3022	R	20	50,80	49,28	15,77	1/2-13"	31,75	23,62	10,42	-
60688.W1023	60688.W2023	R	35	50,80	49,28	15,77	1/2-13"	31,75	23,62	10,42	-
60688.W1026	60688.W2026	R	60	50,80	49,28	15,77	1/2-13"	31,75	23,62	10,42	-
60688.W1032	60688.W3032	L	20	50,80	49,28	15,77	1/2-13"	31,75	23,62	10,42	-
60688.W1033	60688.W2033	L	35	50,80	49,28	15,77	1/2-13"	31,75	23,62	10,42	-
60688.W1036	60688.W2036	L	60	50,80	49,28	15,77	1/2-13"	31,75	23,62	10,42	-
60688.W1052	60688.W3052	L	20	63,50	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,42
60688.W1042	60688.W3042	R	20	63,50	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,42
60688.W1043	60688.W2043	R	35	63,50	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,42
60688.W1046	60688.W2046	R	60	63,50	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,42
60688.W1053	60688.W2053	L	35	63,50	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,42
60688.W1056	60688.W2056	L	60	63,50 (2.5")	23,37	15,77	1/2-13"	45,47	26,42	3,05	10,42

Material
Nitrile, urethane or neoprene bonded to a steel insert. Hardness from 20-60 durometer (Shore A).

Technical Notes
A clutch bearing allows the roller to turn in only one direction. Available in left or right hand rotation (with the stud pointed upwards, a right hand rotation turns clockwise.
Type R = right hand clutch bearing.
Type L = left hand clutch bearing.
Supplied with type I bearings, please see technical page for more information on bearings.

Tips
Finned rollers have grooves on the surface, creating less surface contact with the workpiece, and allowing dirt, debris and liquid to pass.
No. of fins:
l_1 = 23,37 3 fins
l_1 = 49,28 6 fins



Order No. Neoprene	Order No. Urethane	Type	d_1	l_1	d_2	l_3	l_4	l_2	Duro neoprene	Duro urethane
60880.W0413	60880.W0453	Female	32	32	M10 x 1,50	13	-	19,0	40	80
60880.W0412	60880.W0452	Female	19	16	M 8 x 1,25	6	-	9,0	70	80
60880.W0411	60880.W0451	Female	19	16	M 6 x 1,00	6	-	9,0	70	80
60880.W0414	60880.W0454	Female	32	32	M10 x 1,25	13	-	19,0	40	80
60880.W0415	60880.W0455	Female	32	32	M12 x 1,75	13	-	19,0	40	80
60880.W0416	60880.W0456	Female	32	32	M12 x 1,25	13	-	19,0	40	80
60880.W0417	60880.W0457	Female	32	32	M16 x 2,00	13	-	19,0	40	80
60880.W0418	60880.W0458	Female	45	42	M16 x 2,00	16	-	22,5	40	80
60880.W0419	60880.W0459	Female	57	57	M20 x 2,50	26	-	35,0	40	80
60880.W0420	60880.W0460	Female	57	57	M24 x 3,00	25	-	35,0	40	80
60880.W0615	60880.W0635	Male	32	32	M10 x 1,50	-	15	19,0	40	80
60880.W0616	60880.W0636	Male	32	32	M10 x 1,50	-	30	19,0	40	80
60880.W0617	60880.W0637	Male	32	32	M12 x 1,75	-	15	19,0	40	80
60880.W0618	60880.W0638	Male	32	19	M12 x 1,75	-	30	19,0	40	80
60880.W0619	60880.W0639	Male	32	32	M16 x 2,00	-	15	19,0	40	80
60880.W0620	60880.W0640	Male	32	32	M16 x 2,00	-	30	19,0	40	80
60880.W0621	60880.W0641	Male	45	42	M1 6 x 2,00	-	15	22,5	40	80
60880.W0622	60880.W0642	Male	45	42	M16 x 2,00	-	30	22,5	40	80

Material
Black Neoprene: flame and weather resistant. Resists: oil, ozone and gasoline. Temperature resistance: -5°C to +93°C (shortly +120°C).
Urethane: highly abrasion resistant, high strength and load bearing. High elongation and hardness. Resists ozone and oxygen. Temperature resistance: -18°C to +93°C (shortly +120°C).

Technical Notes
Bumpers are moulded to solid steel cores. They are used to guard, stop, align, position, or protect parts through stages of manufacturing.

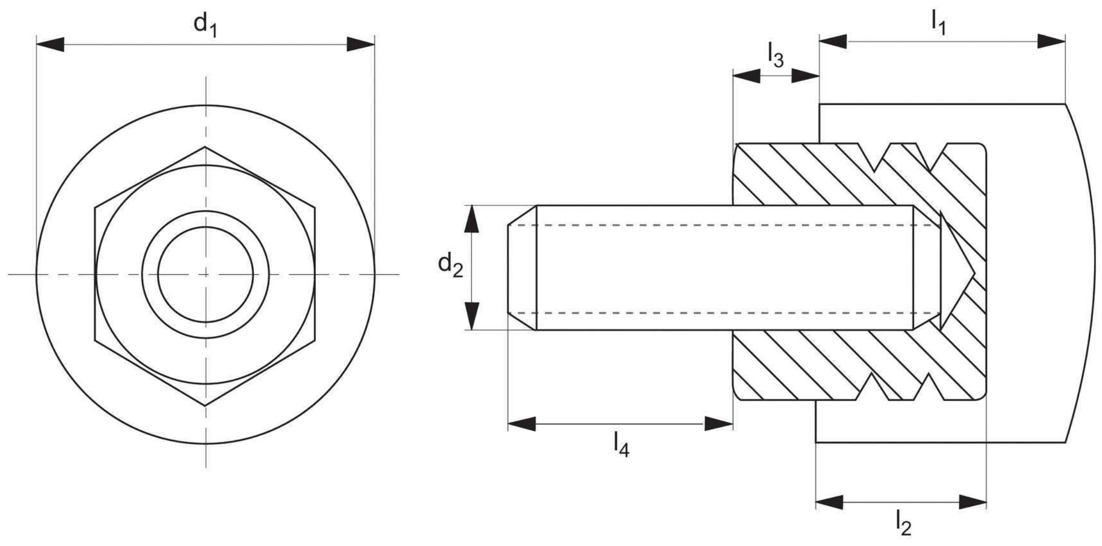
Tips
All dimensions metric.

NEW SIZES

Metric Bumpers with Hex Shoulder - Round

male

60890



Order No. Neoprene 70 Duro	Order No. Urethane 80 Duro	d_1	l_1	l_2	l_3	d_2	l_4
60890.W0501	60890.W0701	19	16	9	3,2	M 6 x 1,00	15
60890.W0502	60890.W0702	19	16	9	3,2	M 6 x 1,00	30
60890.W0503	60890.W0703	19	16	9	4,0	M 8 x 1,25	15
60890.W0504	60890.W0704	19	16	9	4,0	M 8 x 1,25	30

Material

Black Neoprene: flame and weather resistant. Resists: oil, ozone and gasoline. Temperature resistance: -5°C to +93°C (shortly +120°C).
Urethane: highly abrasion resistant, high strength and load bearing. High elongation and hardness. Resists ozone and oxygen. Temperature resistance: -18°C to +93°C (shortly +120°C).

Technical Notes

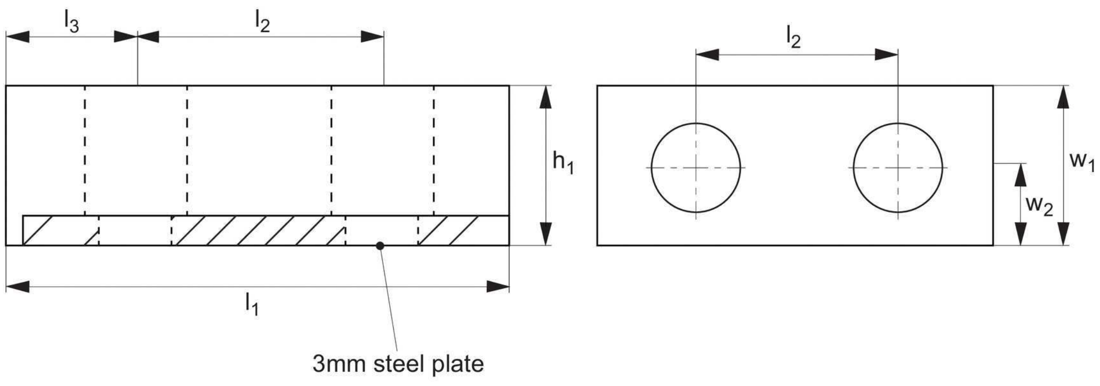
Bumpers are moulded to solid steel cores. They are used to guard, stop, align, position, or protect parts through stages of manufacturing.

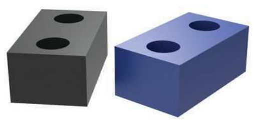
Tips

All dimensions metric.

Metric Bumpers - Rectangular and Square

60900





Order No. Urethane	Order No. Neoprene	l_1	w_1	h_1	l_2	w_2	l_3	d_1	Duro.	No. of holes
-	60900.W0701	19,0	19,0	16,0	-	9,5	9,5	6	60	1
-	60900.W0702	63,5	16,0	16,0	38,1	7,9	12,7	6	60	2
-	60900.W0703	44,45	25,4	9,5	25,4	12,7	9,5	6	60	2
-	60900.W0704	44,45	25,4	12,7	25,4	12,7	9,5	6	60	2
-	60900.W0705	44,45	25,4	19,0	25,4	12,7	9,5	6	60	2
60900.W0511	60900.W0711	19,0	19,0	16,0	-	9,5	9,5	6	80	1
60900.W0512	60900.W0712	63,5	16,0	16,0	38,1	7,9	12,7	6	80	2
-	60900.W0713	44,45	25,4	9,5	25,4	12,7	9,5	6	80	2
-	60900.W0714	44,45	25,4	12,7	25,4	12,7	9,5	6	80	2
60900.W0510	-	44,45	25,4	19,0	25,4	12,7	9,5	6	35	2
60900.W0515	60900.W0715	44,45	25,4	19,0	25,4	12,7	9,5	6	80	2
60900.W0516	60900.W0716	50,8	50,8	50,8	-	-	-	-	80	-

Material

Black Neoprene: flame and weather resistant. Resists: oil, ozone and gasoline. Temperature resistance: -5°C to +93°C (shortly +120°C).
Urethane: highly abrasion resistant, high strength and load bearing. High elongation and hardness. Resists ozone and oxygen. Temperature resistance: -18°C to +93°C (shortly +120°C).

Technical Notes

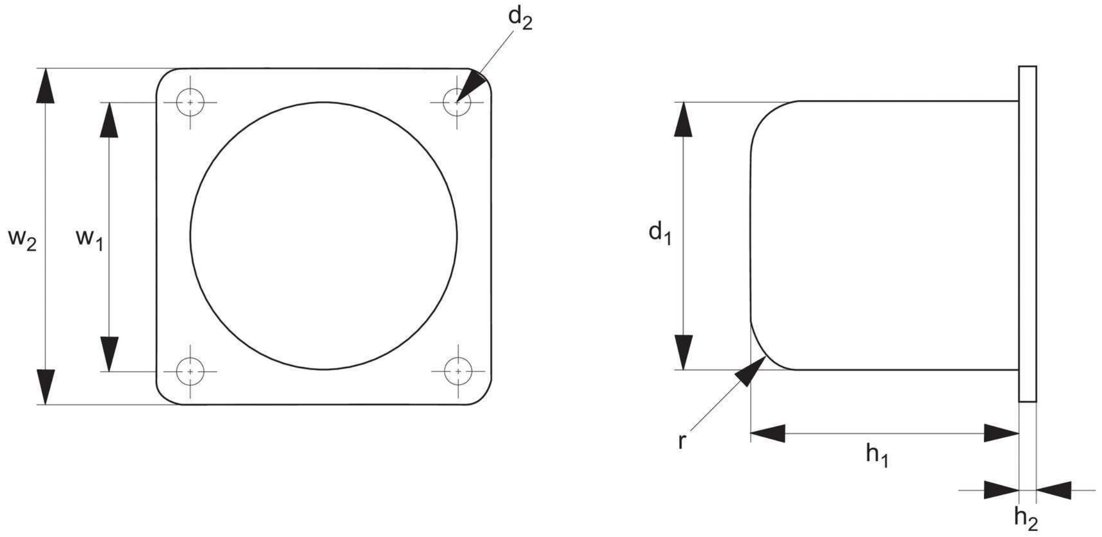
Bumpers bonded to steel plate. They are used to guard, stop, align, position, or protect parts through stages of manufacturing.

Tips

All dimensions metric. Special cut bumpers available on request.

Metric Bumpers - Round
with steel plates

60910



Order No.	d_1 Ø	h_1	l_2	w_1	w_2	d_2	r	Durometer
60910.W0701	50,8	50,8	4,76	50,8	63,50	7,13	9,53	60
60910.W0702	63,5	63,5	4,76	63,5	82,55	7,13	12,70	60
60910.W0703	76,2	76,2	6,35	76,2	101,60	10,31	15,88	60
60910.W0704	101,6	101,6	6,35	101,6	127,00	10,31	19,05	60
60910.W0711	50,8	50,8	4,76	50,8	63,50	7,13	9,53	80
60910.W0712	63,5	63,5	4,76	63,5	82,55	7,13	12,70	80
60910.W0713	76,2	76,2	6,35	76,2	101,60	10,31	15,88	80
60910.W0714	101,6	101,6	6,35	101,6	127,00	10,31	19,05	80

Material

Urethane: highly abrasion resistant, high strength and load bearing. High elongation and hardness. Resists ozone and oxygen. Temperature resistance: -18°C to +93°C (shortly +120°C).

Technical Notes

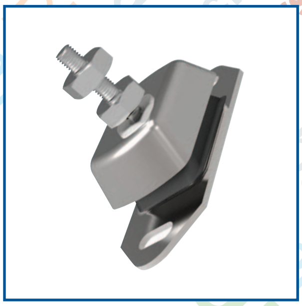
Used for stops, guides, bumpers and protection. Moulded urethane bonded to steel plate.

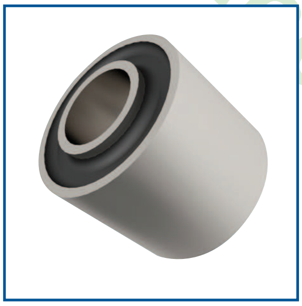
Tips

All dimensions metric.

Wixroyd

anti-vibration mounts



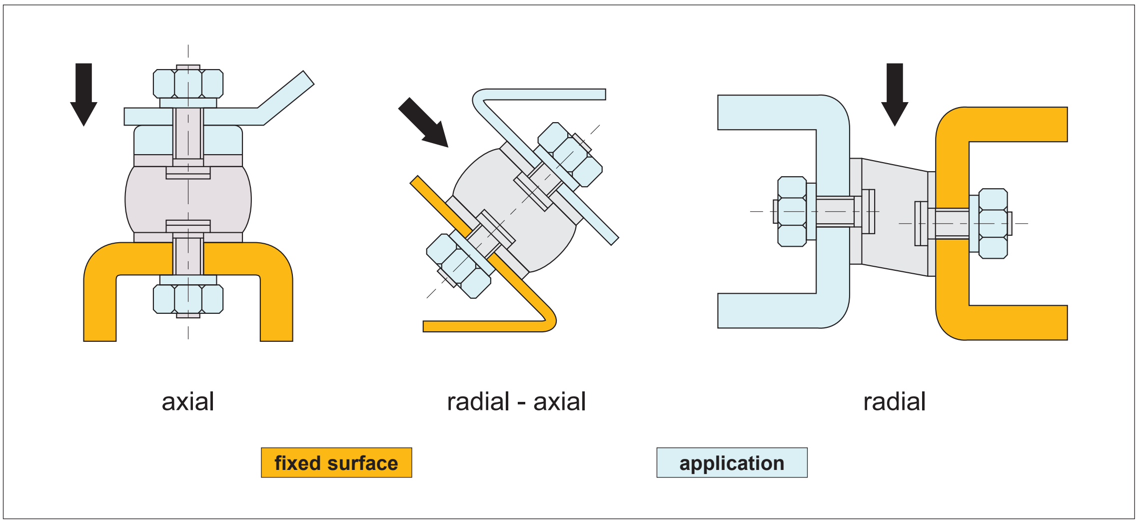


materials handling

Anti-Vibration Components

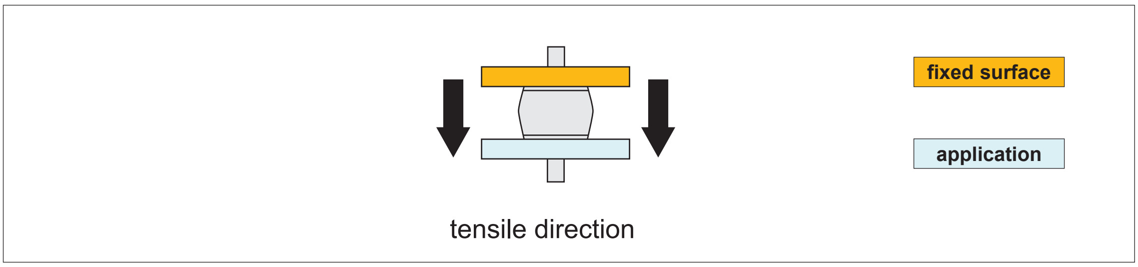
Acceptable loads

Cylindrical mounts are never to be used in tension, they should only be used in axial or radial. Radial loads are however considerably less than axial loads. Parts with small diameters (d_1) and relatively long lengths (h) cannot accept radial loads.

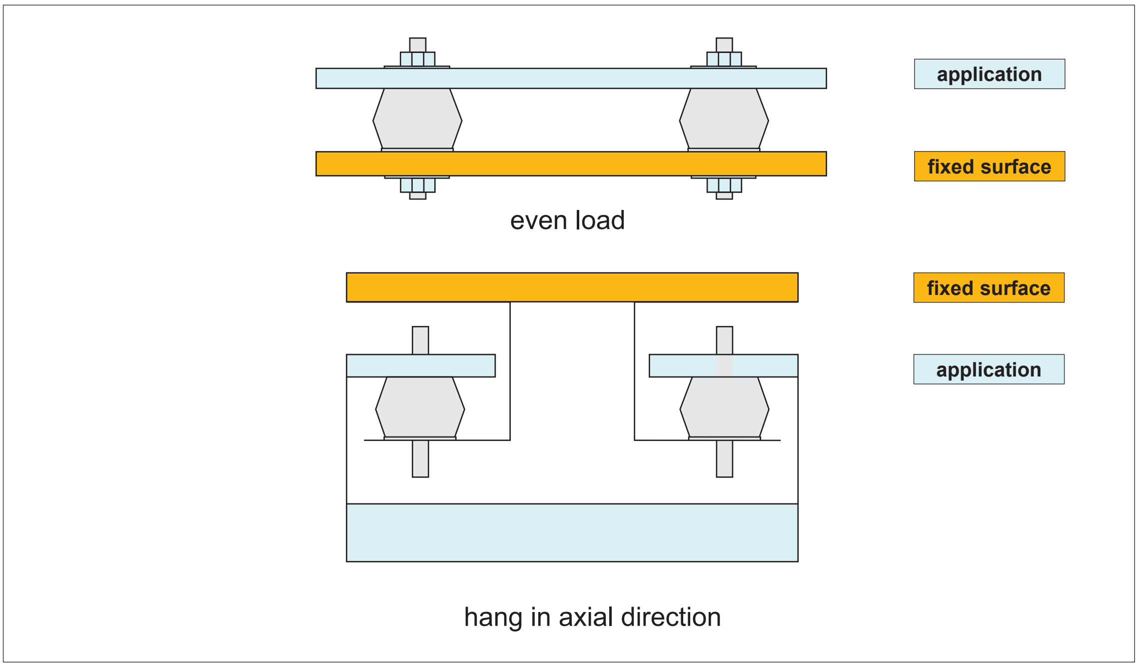


Installation

Incorrect installation



Correct installation



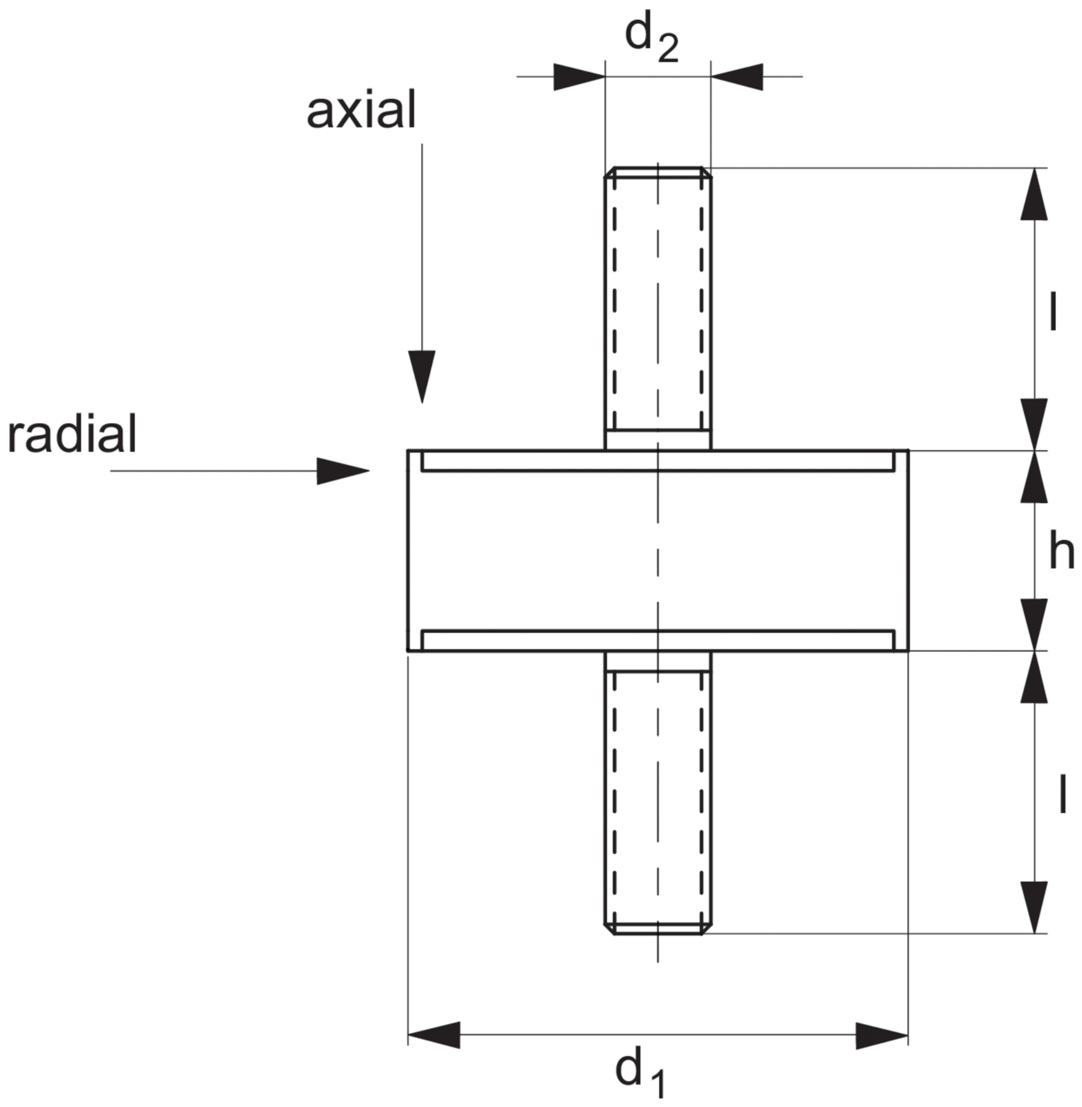
The height of the insulator may vary as the rubber is compressed under load.

Do not remove the rubber burr around the edge of the metal, this could cause detachment of rubber from the metal studs.

Anti-vibration cylinders

male:male

61040



Material

Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Technical Notes

Load tolerance ±10%.
(d_1) and relatively long length (h) cannot accept radial loads (as shown in table).
Different thread sizes on request.
For rubber mounted on stainless steel - see part no. 61042.

Tips

These cylinders are used to reduce vibration by allowing some movement (in axial and radial as shown).
Typically used in machinery, compressors, air conditioning units, light engineering equipment etc.

Order No.	d_1	h	d_2	l	Max. axial load Kgf	Max. radial load Kgf
61040.W0061	6	7,0	M 3	10	3	-
61040.W0081	8	8,0	M 3	10	3	-
61040.W0091	9	12,0	M 4	10	6	1,5
61040.W0101	10	8,0	M 4	10	8	1,5
61040.W0102	10	10,0	M 4	10	10	1,5
61040.W0151	15	8,0	M 4	14	15	2,4
61040.W0152	15	10,0	M 4	14	13	2,4
61040.W0153	15	15,0	M 4	14	13	3,0
61040.W0154	15	20,0	M 4	14	10	-
61040.W0155	15	22,0	M 4	14	10	-
61040.W0156	15	25,0	M 4	14	9	-
61040.W0157	15	28,0	M 4	14	9	-
61040.W0161	16	15,0	M 4	14	13	2,4
61040.W0181	18	7,5	M 6	16	20	3,0
61040.W0182	18	8,5	M 6	16	20	3,0
61040.W0183	18	12,0	M 6	16	18	3,0
61040.W0202	20	9,0	M 6	16	27	5,0
61040.W0203	20	10,0	M 6	16	30	5,0
61040.W0204	20	15,0	M 6	16	25	5,0
61040.W0205	20	20,0	M 6	16	21	4,5
61040.W0206	20	25,0	M 6	16	20	4,0
61040.W0207	20	30,0	M 6	16	18	3,5
61040.W0251	20	35,0	M 6	16	18	3,5
61040.W0252	25	10,0	M 6	18	46	9,0
61040.W0253	25	15,0	M 6	18	44	8,5
61040.W0254	25	20,0	M 6	18	41	8,0
61040.W0255	25	25,0	M 6	18	40	7,5
61040.W0256	25	30,0	M 6	18	40	7,0

Anti-vibration cylinders

male:male

61040

Order No.	d_1	h	d_2	l	Max. axial load Kgf	Max. radial load Kgf
61040.W0258	25	40,0	M 6	18	36	4,0
61040.W0303	30	15,0	M 8	20	90	12,0
61040.W0304	30	20,0	M 8	20	90	10,5
61040.W0305	30	25,0	M 8	20	85	10,5
61040.W0306	30	30,0	M 8	20	80	10,5
61040.W0351	35	40,0	M 8	23	54	13,0
61040.W0401	40	12,0	M 8	23	120	20,0
61040.W0402	40	20,0	M 8	20	160	20,0
61040.W0403	40	25,0	M 8	20	155	18,0
61040.W0404	40	28,0	M 8	20	155	16,0
61040.W0405	40	30,0	M 8	23	150	21,0
61040.W0406	40	40,0	M 8	23	120	22,0
61040.W0407	40	50,0	M 8	23	80	19,0
61040.W0451	45	30,0	M 8	23	112	24,0

Material

Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Technical Notes

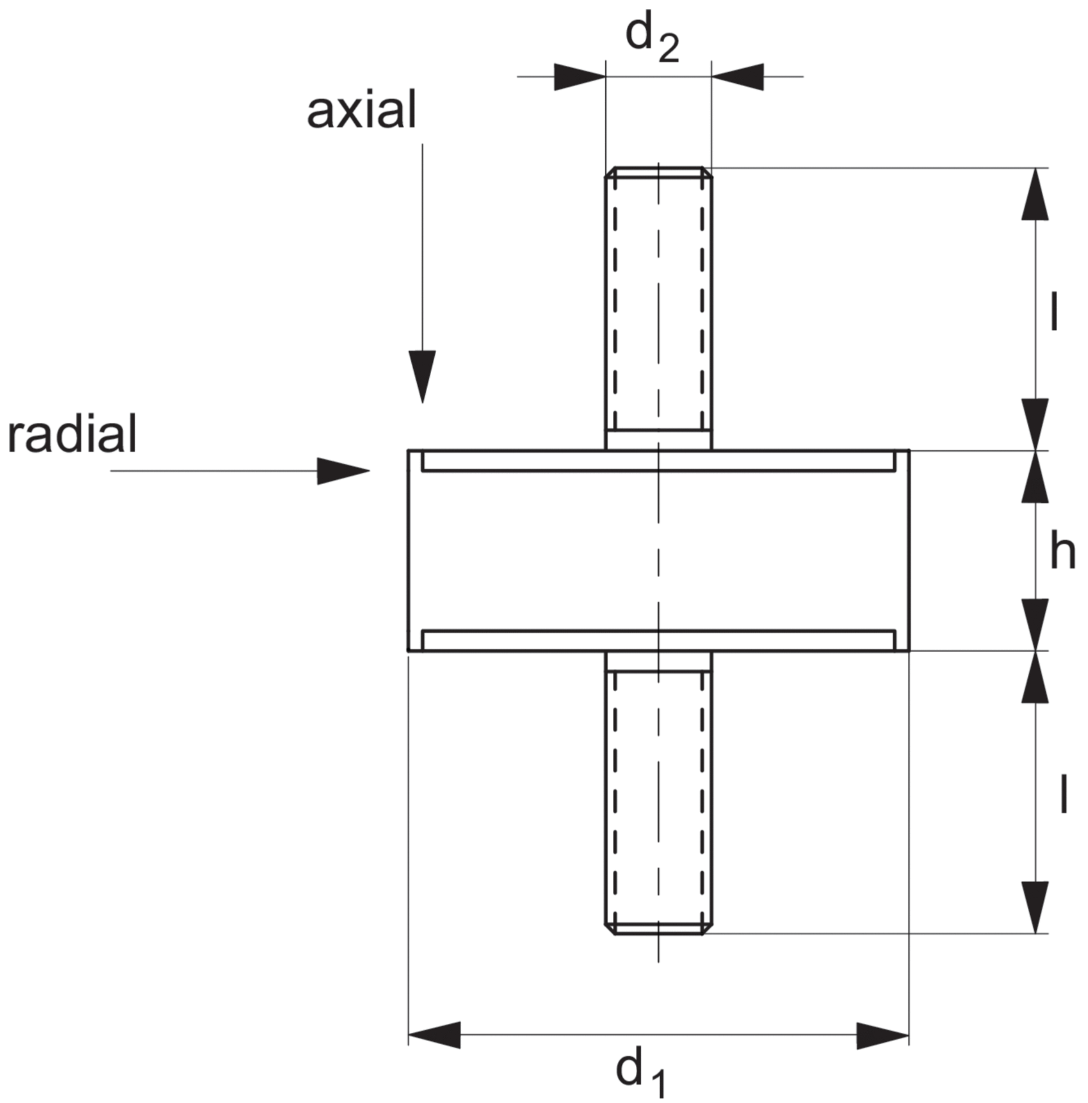
Load tolerance ±10%.
(d_1) and relatively long length (h) cannot accept radial loads (as shown in table).
Different thread sizes on request.
For rubber mounted on stainless steel - see part no. 61042.

Tips

These cylinders are used to reduce vibration by allowing some movement (in axial and radial as shown).
Typically used in machinery, compressors, air conditioning units, light engineering equipment etc.

Anti-vibration cylinders

male:male



Material
Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Technical Notes
Load tolerance ±10%.
(d_1) and relatively long length (h) cannot accept radial loads (as shown in table).
Different thread sizes on request.
For rubber mounted on stainless steel - see part no. 61042.

Tips
These cylinders are used to reduce vibration by allowing some movement (in axial and radial as shown).
Typically used in machinery, compressors, air conditioning units, light engineering equipment etc.

Order No.	d_1	h	d_2	l	Max. axial load Kgf	Max. radial load Kgf
61040.W0501	50	20	M10	25	250	30
61040.W0503	50	30	M10	25	250	29
61040.W0504	50	40	M10	25	220	29
61040.W0505	50	50	M10	25	200	29
61040.W0601	60	20	M10	28	285	35
61040.W0602	60	30	M10	28	200	37
61040.W0603	60	35	M10	30	350	39
61040.W0604	60	45	M10	30	300	42
61040.W0605	60	50	M10	37	185	42
61040.W0701	70	45	M10	35	270	55
61040.W0702	70	50	M10	30	350	52
61040.W0751	75	25	M12	35	650	75
61040.W0752	75	30	M12	37	350	75
61040.W0753	75	40	M12	35	500	75
61040.W0754	75	50	M12	37	330	65
61040.W0755	75	55	M12	35	450	60
61040.W0801	80	30	M14	35	900	75
61040.W0802	80	40	M14	35	600	50
61040.W0803	80	50	M14	35	750	65
61040.W0804	80	80	M14	51	280	60
61040.W0951	95	40	M16	45	1200	70
61040.W0952	95	55	M16	45	1000	70
61040.W0953	95	60	M16	45	800	70
61040.W0954	95	75	M16	45	800	70
61040.W1001	100	40	M16	45	1200	95
61040.W1002	100	60	M16	45	1100	90
61040.W1003	100	75	M16	45	1000	90
61040.W1201	120	50	M16	45	1500	100

Anti-vibration cylinders

male:male

61040

Order No.	d_1	h	d_2	l	Max. axial load Kgf	Max. radial load Kgf
61040.W1202	120	75	M16	45	1200	100
61040.W1203	120	100	M16	45	1000	100
61040.W1301	130	40	M16	45	1900	110
61040.W1302	130	50	M16	45	1600	110
61040.W1303	130	75	M16	45	1450	100
61040.W1304	130	100	M16	45	1200	120
61040.W1501	150	50	M20	50	1800	150
61040.W1502	150	60	M20	50	2200	150
61040.W1503	150	75	M20	50	2000	150
61040.W1504	150	100	M20	50	1400	150
61040.W1505	150	120	M20	50	1300	150
61040.W1506	150	140	M20	50	1200	150

Material

Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Technical Notes

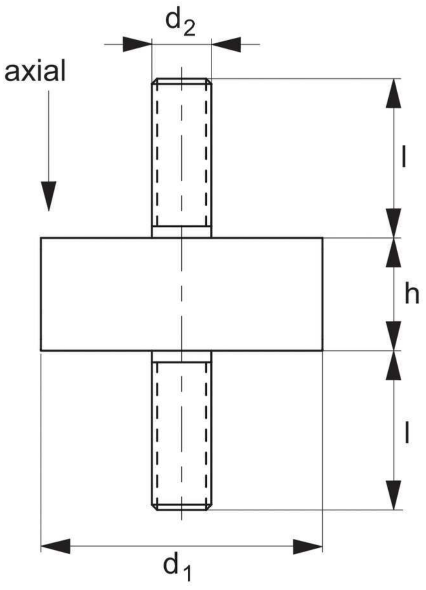
Load tolerance ±10%.
(d_1) and relatively long length (h) cannot accept radial loads (as shown in table).
Different thread sizes on request.
For rubber mounted on stainless steel - see part no. 61042.

Tips

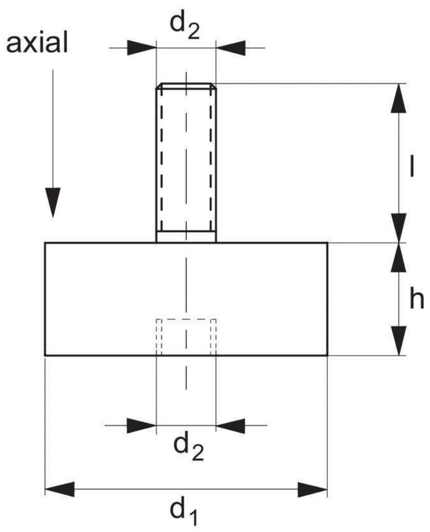
These cylinders are used to reduce vibration by allowing some movement (in axial and radial as shown).
Typically used in machinery, compressors, air conditioning units, light engineering equipment etc.

Anti-vibration Cylinders

very light duty



type 1



type 2

Material
Sorbathane on silver zinc plated steel.

Technical Notes
These cylinders provide high performance damping, isolation and shock motion control in more demanding electronic environments.

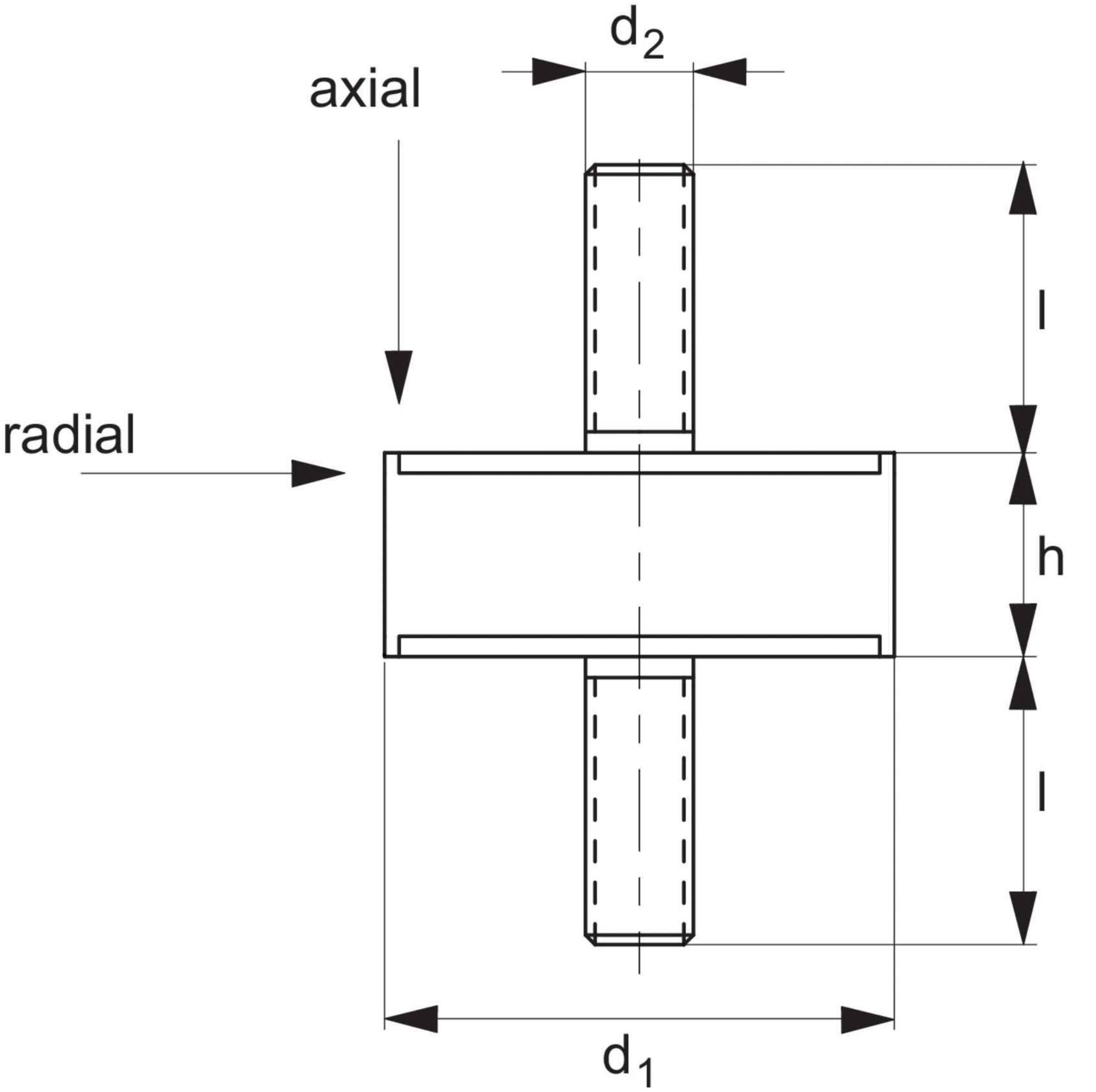
Tips
They are commonly used for larger PCBs, disk drives, optical drives, small motors, small pumps and lightweight electronic 'boxes'.

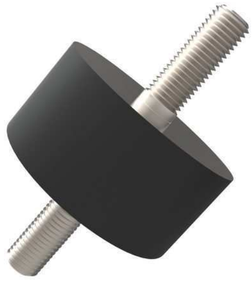
Order No.	Type	d_1	h	d_2	l	Max. axial load Kgf
61041.W0010	Type 1	10,0	8,0	M 3	7	0,5-1,0
61041.W0038	Type 1	38,1	25,4	M 6	12	8,0-12,0
61041.W0044	Type 1	44,5	21,6	M 6	12	16,0-34,0
61041.W0338	Type 2	38,1	25,4	M 6	12	8,0-13,0
61041.W0344	Type 2	44,5	21,6	M 6	12	16,0-34,0

Anti-vibration Cylinders

stainless male:male

61042





Material
Rubber on stainless steel, A2 (rubber hardness - 55 Shore A).

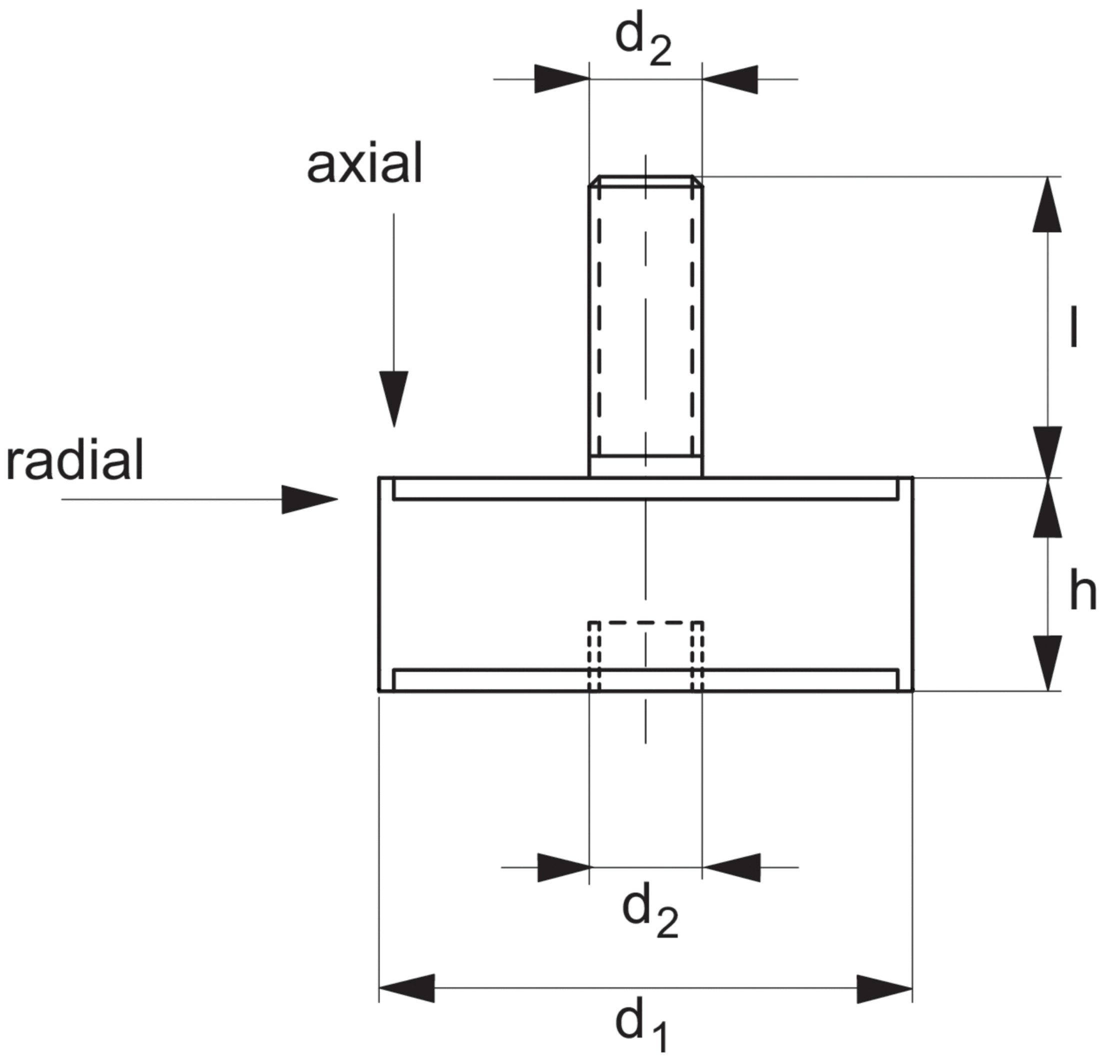
Technical Notes
For rubber mounted on silver zinc plated steel - see part no. 61040.

Tips
These cylinders are used to reduce vibration by allowing some movement (in axial and radial as shown).
Typically used in machinery, compressors, air conditioning units, light engineering equipment etc.

Order No.	d_1	h	d_2	l	Compression max.	Max. axial load Kgf	Max. radial load Kgf
61042.W0200	20	20	M 6	18	4	25	4,5
61042.W0201	20	25	M 6	18	5	25	4,0
61042.W0250	25	25	M 8	18	5	40	7,5
61042.W0251	25	30	M 8	18	6	35	7,0
61042.W0300	30	30	M 8	18	6	80	10,5
61042.W0301	30	40	M 8	18	8	60	13,0
61042.W0302	35	35	M 8	18	8	90	13,0
61042.W0400	40	30	M10	27	8	150	21,0
61042.W0401	40	40	M10	27	10	120	22,0
61042.W0500	50	30	M10	27	8	250	29,0
61042.W0501	50	40	M10	27	10	220	29,0
61042.W0502	50	50	M10	27	12	200	29,0
61042.W0600	60	45	M10	27	10	300	42,0
61042.W0601	60	60	M10	27	12	250	44,0

Anti-vibration Cylinders
male:female

61060



Material
Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Technical Notes
Load tolerance parts with small diameters (d_1) and relatively long length (h) cannot accept radial loads (as shown in table).

Tips
These cylinders are used to reduce vibration by allowing some movement (in axial and radial as shown).
Typically used in machinery, compressors, air conditioning units, light engineering equipment etc.

Order No.	d_1	h	d_2	l	Compression max.	Max. axial load Kgf	Max. radial load Kgf
61060.W0081	8	8	M 3	10	1,5	3,5	-
61060.W0101	10	10	M 4	10	2,0	10	1,2
61060.W0121	12	31	M 5	20	3,5	6	1,3
61060.W0151	15	15	M 4	14	3,0	13	2,0
61060.W0152	15	20	M 4	14	4,0	10	2,0
61060.W0153	15	22	M 4	14	4,5	10	2,5
61060.W0154	15	25	M 4	14	5,0	9,5	2,0
61060.W0201	20	15	M 6	13	3,0	25	5,0
61060.W0202	20	20	M 6	18	4,0	25	4,0
61060.W0203	20	25	M 6	18	5,0	25	4,0
61060.W0204	20	30	M 6	18	7,0	25	3,0
61060.W0205	20	35	M 6	16	8,0	18	2,0
61060.W0251	25	15	M 6	16	3,0	50	8,0
61060.W0252	25	20	M 6	16	4,0	50	8,0
61060.W0253	25	25	M 6	18	5,0	40	7,0
61060.W0254	25	30	M 6	16	6,0	40	7,0
61060.W0255	25	35	M 6	18	8,0	36	6,0
61060.W0301	30	15	M 8	20	3,0	90	12,0
61060.W0302	30	20	M 8	20	4,0	90	11,0
61060.W0303	30	25	M 8	20	5,0	85	10,0
61060.W0304	30	30	M 8	20	6,0	80	10,0
61060.W0351	35	40	M 8	20	8,5	60	13,0
61060.W0401	40	30	M 8	20	8,0	150	21,0
61060.W0402	40	40	M 8	20	10,0	120	22,0
61060.W0403	40	50	M 8	23	13,0	80	18,0
61060.W0451	45	30	M 8	23	9,0	112	24,0
61060.W0500	50	30	M10	25	8,0	250	29,0
61060.W0501	50	40	M10	25	10,0	220	29,0
61060.W0502	50	45	M10	25	11,0	210	28,0
61060.W0503	50	50	M10	25	12,0	200	28,0

Anti-vibration Cylinders

male:female

61060

Order No.	d_1	h	d_2	l	Compression max.	Max. axial load Kgf	Max. radial load Kgf
61060.W0504	50	60	M10	28	13,5	110	28,0
61060.W0601	60	30	M10	28	6,0	200	37,0
61060.W0602	60	35	M10	30	7,0	350	39,0
61060.W0603	60	45	M10	30	10,0	300	42,0
61060.W0604	60	50	M10	37	11,0	185	42,0
61060.W0701	70	45	M10	35	8,5	270	55,0
61060.W0702	70	50	M10	30	10,0	350	52,0
61060.W0703	70	55	M10	35	10,5	240	49,0
61060.W0751	75	25	M12	35	5,0	350	75,0
61060.W0752	75	30	M12	37	7,0	345	72,0
61060.W0753	75	40	M12	35	9,0	500	65,0
61060.W0755	75	55	M12	35	13,0	450	65,0
61060.W0801	80	30	M14	35	5,5	900	75,0
61060.W0802	80	40	M14	35	9,0	600	72,0
61060.W0803	80	50	M14	35	10,0	750	65,0
61060.W0804	80	70	M14	35	15,0	550	65,0
61060.W0951	95	40	M14	45	8,0	1200	70,0
61060.W0952	95	55	M14	45	11,0	1000	70,0
61060.W0953	95	60	M16	45	12,0	800	70,0
61060.W0954	95	75	M16	45	13,0	700	70,0
61060.W1001	100	40	M16	45	8,0	1200	95,0
61060.W1002	100	60	M16	45	15,0	1100	90,0
61060.W1003	100	75	M16	45	17,0	1000	80,0
61060.W1201	120	50	M16	45	9,0	1500	100,0
61060.W1202	120	75	M16	45	13,0	1500	100,0
61060.W1203	120	100	M16	45	16,0	1000	100,0
61060.W1301	130	40	M16	45	16,0	1900	120,0
61060.W1302	130	50	M16	45	9,0	1600	120,0
61060.W1303	130	75	M16	45	13,0	1450	120,0
61060.W1304	130	100	M16	45	16,0	1200	120,0
61060.W1501	150	50	M20	20	9,0	1800	150,0
61060.W1502	150	60	M20	20	14,0	1800	150,0
61060.W1503	150	75	M20	20	16,0	2000	150,0
61060.W1504	150	100	M20	20	16,0	1400	150,0
61060.W1505	150	120	M20	20	16,0	1300	150,0
61060.W1506	150	140	M20	20	16,0	1200	150,0

Material

Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

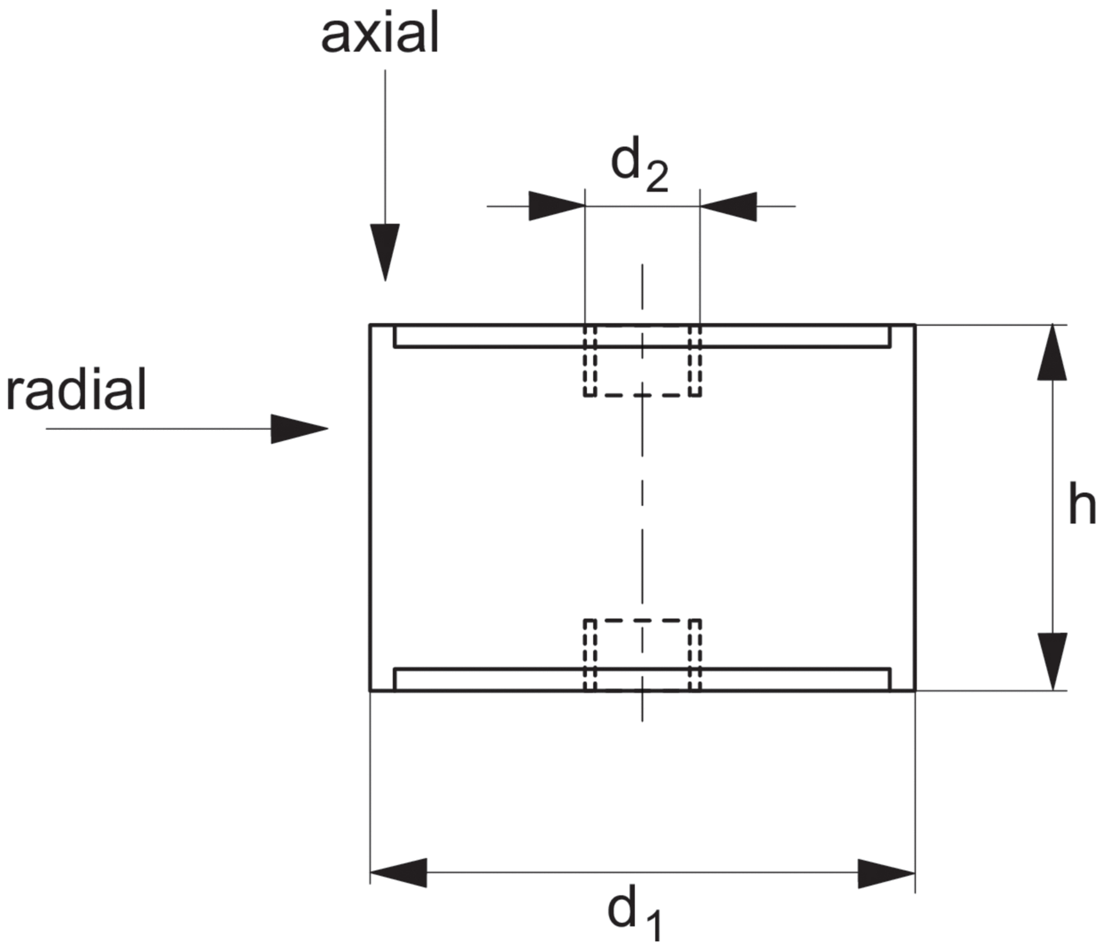
Technical Notes

Load tolerance parts with small diameters (d_1) and relatively long length (h) cannot accept radial loads (as shown in table).

Tips

These cylinders are used to reduce vibration by allowing some movement (in axial and radial as shown).
Typically used in machinery, compressors, air conditioning units, light engineering equipment etc.

61080



Material
Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Tips
These cylinders are used to reduce vibration by allowing some movement (in axial and radial as shown).
Typically used in machinery, compressors, air conditioning units, light engineering equipment etc.

Order No.	d_1	h	d_2	Compression max.	Max. axial load Kgf	Max. radial load Kgf
61080.W0151	15	15	M 4	3,0	13	3,0
61080.W0152	15	20	M 4	4,0	10	3,0
61080.W0153	15	22	M 4	4,5	10	2,5
61080.W0154	15	25	M 4	5,0	9	2,0
61080.W0155	15	28	M 4	5,5	9	2,0
61080.W0201	20	20	M 6	4,0	25	4,0
61080.W0202	20	25	M 6	5,0	25	5,0
61080.W0203	20	30	M 6	7,0	25	3,0
61080.W0204	20	35	M 6	8,0	16	2,0
61080.W0251	25	20	M 6	4,0	50	8,0
61080.W0252	25	25	M 6	5,0	40	8,0
61080.W0253	25	30	M 6	6,0	30	8,0
61080.W0254	25	35	M 6	8,0	35	9,0
61080.W0301	30	20	M 8	4,0	90	11,0
61080.W0302	30	25	M 8	5,0	85	10,0
61080.W0303	30	30	M 8	6,0	80	10,0
61080.W0351	35	40	M 8	8,5	60	13,0
61080.W0401	40	30	M 8	8,0	150	18,0
61080.W0402	40	40	M 8	10,0	120	18,0
61080.W0403	40	50	M 8	12.5	80	18,0
61080.W0501	50	30	M10	8,0	250	29,0
61080.W0502	50	40	M10	10,0	220	29,0
61080.W0503	50	50	M10	12,0	200	28,0
61080.W0601	60	35	M10	7,0	350	39,0
61080.W0602	60	45	M10	10,0	300	42,0
61080.W0603	60	50	M10	11,0	285	42,0
61080.W0751	75	40	M12	9,0	500	72,0
61080.W0702	70	50	M10	10,0	350	52,0
61080.W0703	70	55	M10	10,5	230	52,0
61080.W0752	75	50	M12	11,5	330	65,0
61080.W0753	75	55	M12	13,0	450	65,0
61080.W0801	80	70	M14	15,0	550	65,0
61080.W0901	100	40	M16	8,0	1200	95,0
61080.W0902	100	55	M16	16,0	775	97,0

Anti-vibration Cylinders

female:female

61080

Order No.	d_1	h	d_2	Compression max.	Max. axial load Kgf	Max. radial load Kgf
61080.W0903	100	60	M16	15,0	1100	97,0
61080.W0904	100	100	M16	16,0	500	80,0
61080.W0931	130	40	M16	6,0	1900	120,0
61080.W0932	130	60	M16	11,0	680	100,0

Material

Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Tips

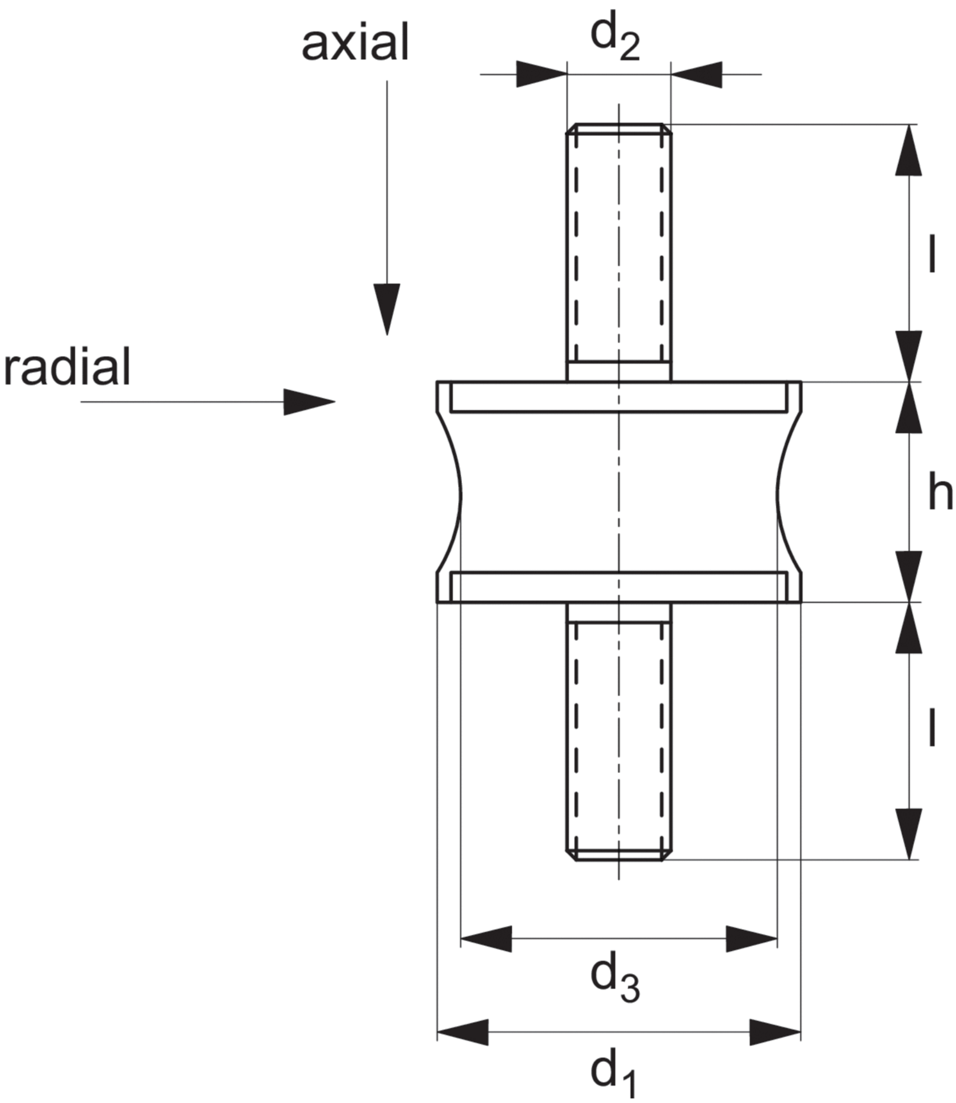
These cylinders are used to reduce vibration by allowing some movement (in axial and radial as shown).

Typically used in machinery, compressors, air conditioning units, light engineering equipment etc.

Anti-vibration Cylinders Waisted

male:male

61100



Material
Rubber on silver zinc plated steel (rubber hardness - 55 Shore A). Available in stainless steel on request.

Technical Notes
For rubber mounted on silver zinc plated steel see part no. 61102 (female:female) or 61110 (male:female).

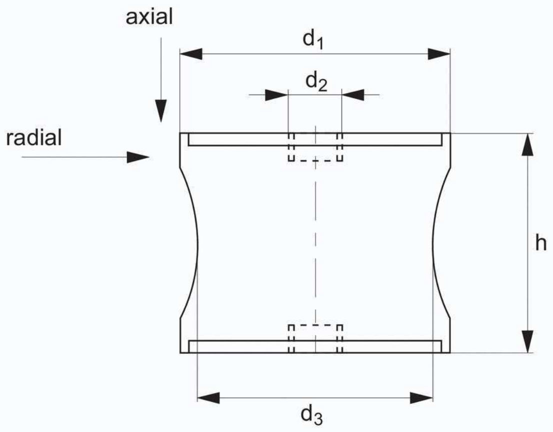
Tips
These cylinders are used to reduce vibration by allowing some movement (in axial and radial as shown in drawing).
Typically used in machinery, compressors, air conditioning units, light engineering equipment etc.

Order No.	d_1	h	d_2	d_3	l	Max. axial load Kgf	Max. radial load Kgf
61100.W0012	12	14	M 4	7	10	2,5	1,0
61100.W0020	20	15	M 6	14	15	10	2,5
61100.W0021	20	20	M 6	12	18	15	2,5
61100.W0025	25	20	M 6	18	18	25	6,0
61100.W0030	30	20	M 8	25	23	35	6,0
61100.W0031	30	25	M 8	24	20	40	6,0
61100.W0040	40	28	M10	22	25	60	12,0
61100.W0045	45	50	M 8	25	23	60	-
61100.W0050	50	30	M10	42	28	120	25,0
61100.W0057	57	44	M 8	25	20	40	-
61100.W0060	60	36	M10	37	30	90	-
61100.W0061	60	43	M10	35	30	70	12,0
61100.W0062	60	60	M10	51	30	150	30,0
61100.W0070	70	56	M12	50	35	220	-
61100.W0080	80	70	M14	70	50	170	55,0
61100.W0090	90	77	M16	79	45	500	-
61100.W0095	95	76	M16	80	46	250	-
61100.W0108	108	85	M16	95	45	800	-
61100.W0130	130	96	M16	115	45	1400	-

Anti-vibration Cylinders Waisted

female:female

61102



Order no.	d_1	h	d_2	d_3	Compression max.	Max. axial load Kgf	Max. radial load Kgf
61102.W0200	20	20	M 6	12	2,5	12	3,0
61102.W0300	30	25	M 8	24	4,0	40	4,0
61102.W0400	40	28	M10	22	5,0	30	2,5
61102.W0600	60	36	M10	37	5,0	40	7,0
61102.W0601	60	43	M10	35	4,0	75	12,0
61102.W0602	60	60	M10	51	6,0	150	30,0
61102.W0700	70	56	M12	50	6,0	220	45,0
61102.W0800	80	65	M12	70	8,0	400	55,0
61102.W0900	90	50	M12	80	4,0	800	65,0
61102.W0950	95	76	M12	80	9,5	400	70,0
61102.W0901	90	77	M12	79	7,0	500	70,0
61102.W1080	108	85	M16	95	10,0	800	75,0
61102.W1300	130	96	M16	115	13,0	1400	70,0

Material

Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Technical Notes

For rubber mounted on stainless steel see part no. 61104.

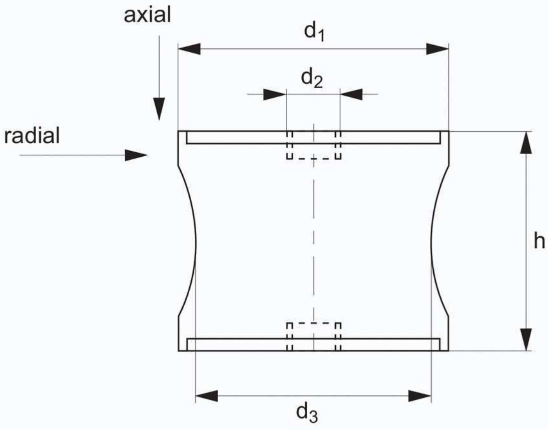
Tips

These cylinders are used to reduce vibration by allowing some movement (in axial and radial as shown in drawing).
Typically used in machinery, compressors, air conditioning units, light engineering equipment etc.

Anti-vibration Cylinders Waisted

stainless steel-female:female

61104



Material

Rubber on A2 stainless steel (rubber hardness - 55 Shore A).

Tips

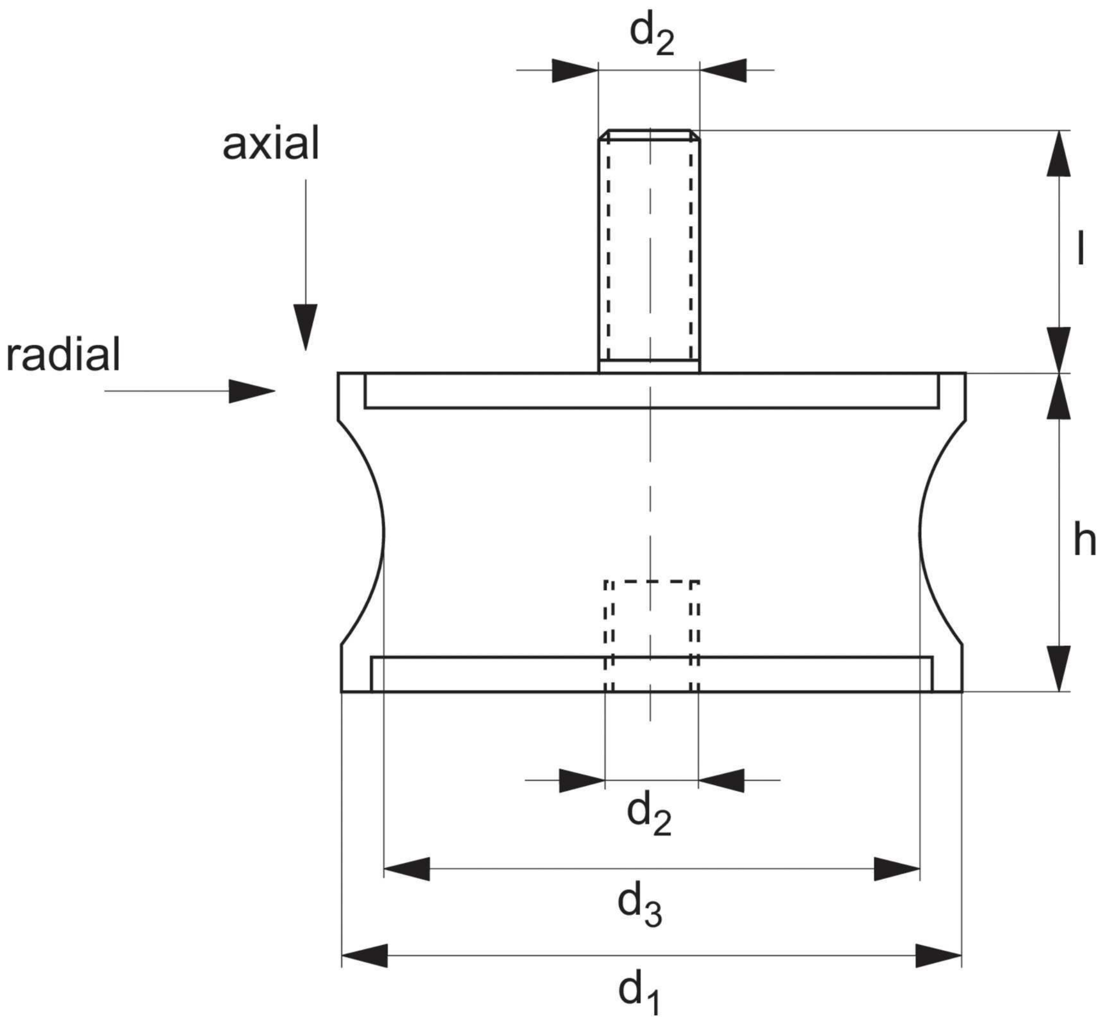
These cylinders are used to reduce vibration by allowing some movement (in axial and shear as shown in drawing).
Typically used in machinery, compressors, air conditioning units, light engineering equipment etc.

Order No.	d_1	h	d_2	d_3	Compression max.	Max. axial load Kgf	Max. radial load Kgf
61104.W0600	60	36	M10	37	5	90	7
61104.W0601	60	60	M10	51	6	150	30
61104.W0700	70	56	M12	50	6	220	45
61104.W0900	90	77	M12	79	7	500	70
61104.W1080	108	85	M16	95	10	800	75

Anti-vibration Cylinders Waisted

male:female

61110



Material

Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

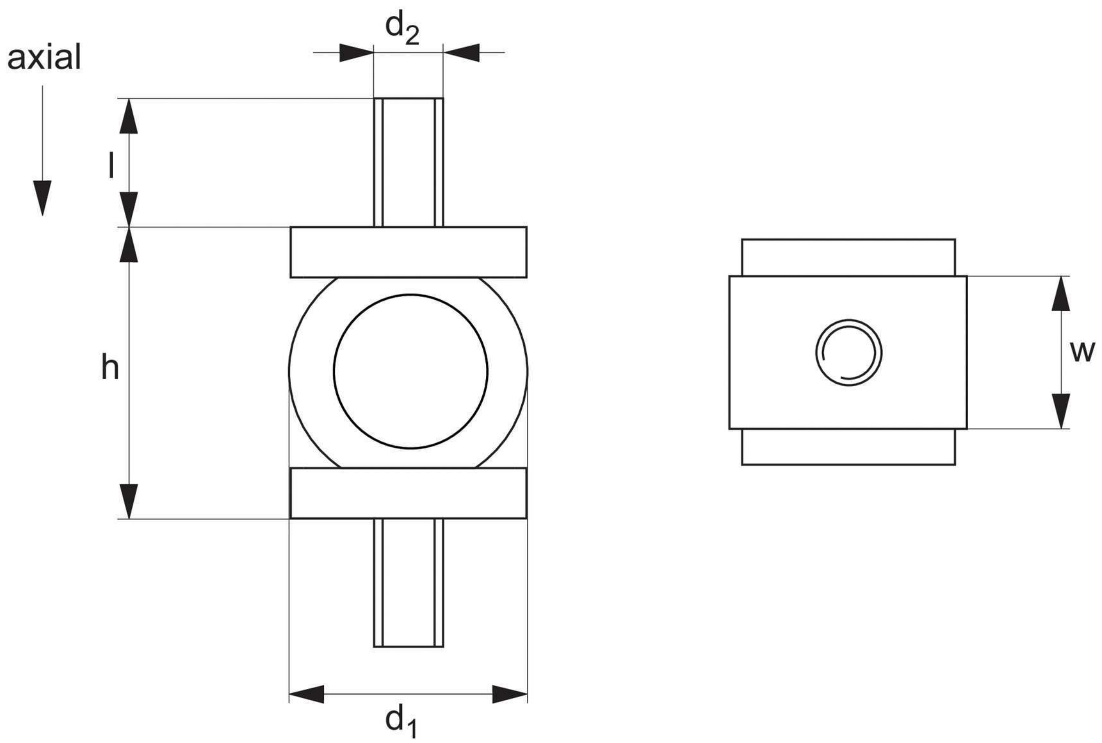
Tips

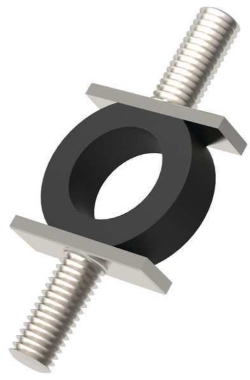
These cylinders are used to reduce vibration by allowing some movement (in axial and radial as shown).
Typically used in machinery, compressors, air conditioning units, light engineering equipment etc.

Order no.	d_1	h	d_2	d_3	l	Compression max.	Max. axial load Kgf	Max. radial load Kgf
61110.W0200	20	20	M 6	12	18	2,5	15	3,0
61110.W0250	30	25	M 8	24	20	4,0	40	4,0
61110.W0400	40	28	M10	22	25	5,0	60	2,5
61110.W0600	60	36	M10	37	30	5,0	90	7,0
61110.W0601	60	43	M10	35	30	4,0	70	12,0
61110.W0602	60	60	M10	51	30	6,0	150	30,0
61110.W0700	70	56	M12	50	35	6,0	220	45,0
61110.W0800	80	65	M12	70	35	8,0	400	55,0
61110.W0900	90	50	M12	80	45	4,0	800	65,0
61110.W1300	130	96	M16	115	45	13,0	1400	70,0

Anti-vibration Cylinders

spherical



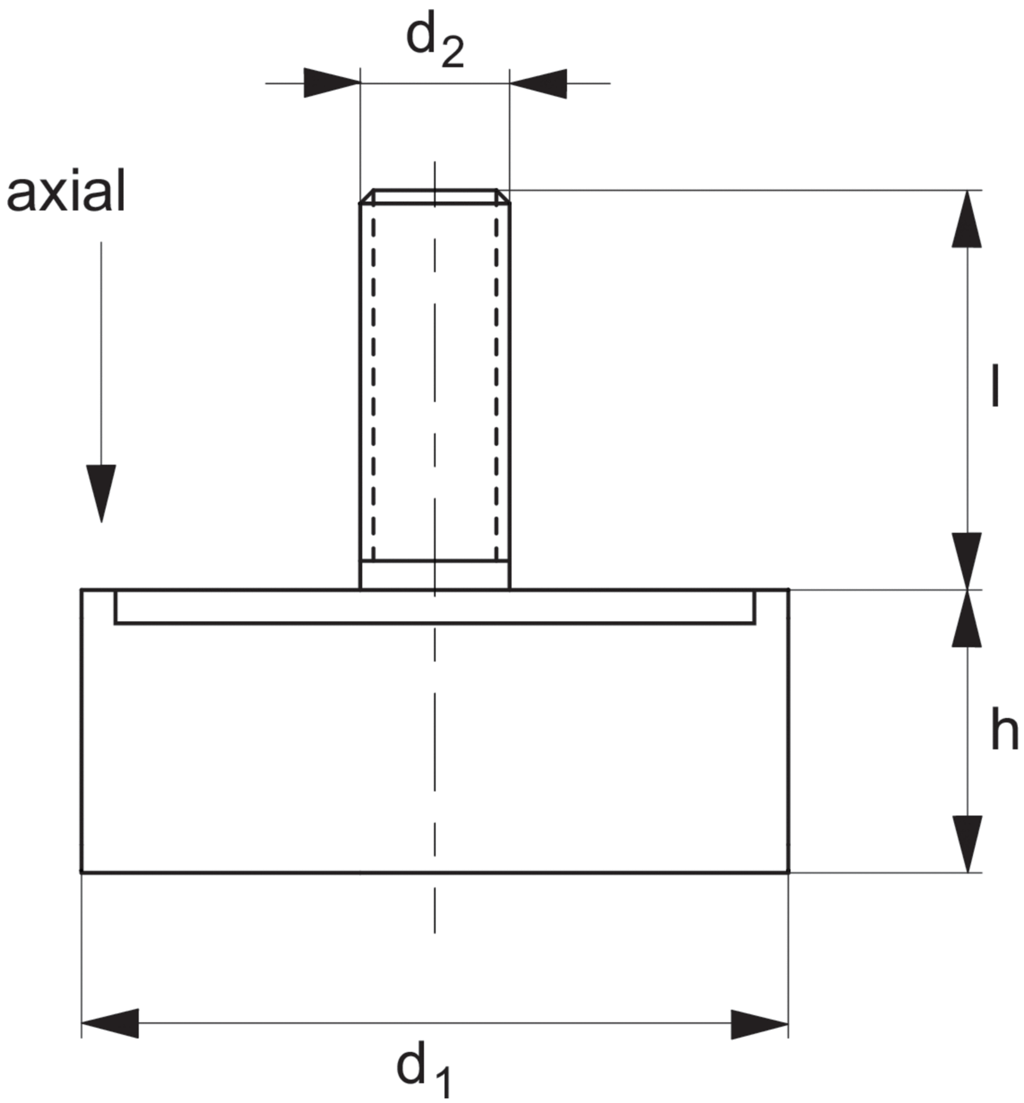


Order No.	d_1	l	d_2	h	w	Compression max.	Max. axial load Kgf
61115.W0150	15	17	M4	14	8	5	1,25
61115.W0151	15	17	M4	14	8	5	2,50
61115.W0300	30	30	M8	29	20	11	5,00

Material
Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Technical Notes
The spherical mounts are designed for low frequencies with low loads as little as 0.5 kg.

Tips
These mounts are not to be used for radial loads.



Material
Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Tips
These feet or bumpers reduce shock and vibration.
Used widely as shock absorbers and feet for machine elements.

Order No.	d_1	h	d_2	l	Compression max.	Max. axial load Kgf
61200.W0091	9	12	M 4	14	2,0	6
61200.W0151	15	10	M 4	14	1,5	13
61200.W0152	15	15	M 4	14	3,0	13
61200.W0153	15	20	M 4	14	4,0	10
61200.W0154	15	25	M 4	14	5,0	9
61200.W0201	20	10	M 6	13	2,0	30
61200.W0202	20	20	M 6	13	4,0	25
61200.W0251	25	10	M 6	18	1,5	50
61200.W0252	25	13	M 6	18	3,0	46
61200.W0253	25	15	M 6	18	3,0	44
61200.W0254	25	17	M 6	18	3,0	42
61200.W0255	25	20	M 6	18	4,0	41
61200.W0256	25	25	M 6	18	5,0	40
61200.W0257	25	30	M 6	18	6,0	35
61200.W0302	30	12	M 8	23	2,0	58
61200.W0303	30	15	M 8	20	3,0	58
61200.W0304	30	20	M 8	20	4,0	55
61200.W0305	30	25	M 8	20	5,0	50
61200.W0306	30	30	M 8	20	6,0	47
61200.W0351	35	11,5	M10	48	3,0	80
61200.W0352	35	40	M 8	23	8,0	68
61200.W0401	40	12	M 8	23	3,0	120
61200.W0402	40	20	M 8	23	4,0	117
61200.W0403	40	25	M 8	20	6,0	117
61200.W0404	40	30	M 8	20	8,0	100
61200.W0405	40	40	M 8	20	10,0	85
61200.W0406	40	45	M 8	20	12,0	85
61200.W0451	45	30	M 8	23	8,0	110

Anti-vibration Feet

male

61200

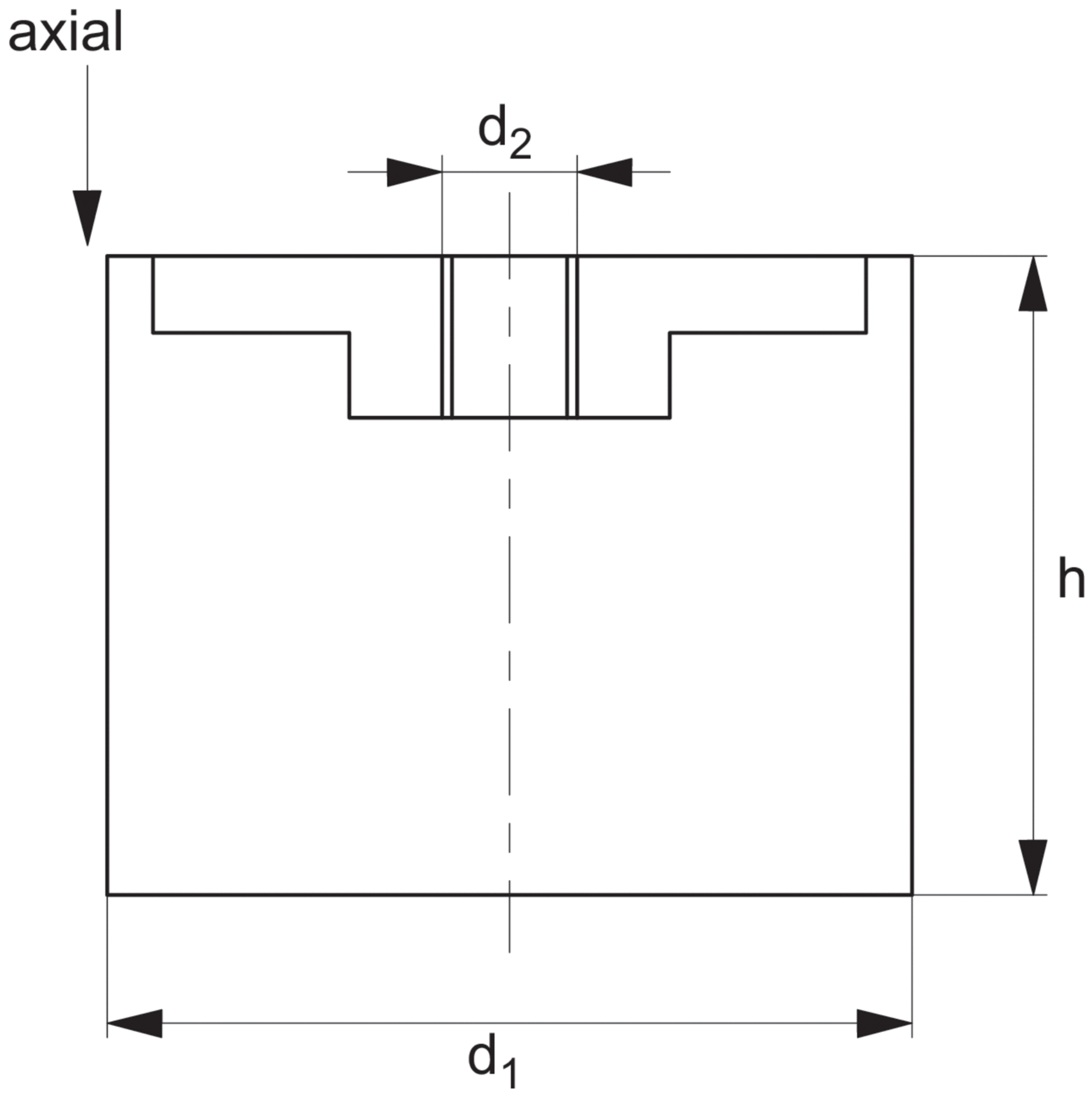
Order No.	d_1	h	d_2	l	Compression max.	Max. axial load Kgf
61200.W0452	45	50	M 8	35	12,0	85
61200.W0501	50	10	M10	28	2,0	230
61200.W0502	50	20	M10	25	4,0	250
61200.W0503	50	25	M10	25	5,5	250
61200.W0504	50	30	M10	25	8,0	150
61200.W0505	50	35	M10	25	9,0	230
61200.W0506	50	45	M10	25	11,0	130
61200.W0507	50	50	M10	25	12,0	125
61200.W0508	50	60	M10	28	14,0	110
61200.W0601	60	20	M10	28	4,0	280
61200.W0602	60	30	M10	28	8,0	280
61200.W0603	60	45	M10	30	10,0	190
61200.W0604	60	50	M12	37	11,0	185
61200.W0605	60	60	M10	30	12,0	185
61200.W0701	70	45	M12	35	9,0	270
61200.W0702	70	50	M12	35	10,0	250
61200.W0703	70	55	M12	35	12,0	240
61200.W0704	70	70	M10	30	13,0	300
61200.W0751	75	25	M12	35	5,0	295
61200.W0752	75	30	M12	37	8,0	320
61200.W0753	75	40	M12	35	9,0	320
61200.W0754	75	45	M12	35	10,0	500
61200.W0755	75	55	M12	35	13,0	450
61200.W0801	80	30	M14	35	5,5	900
61200.W0802	80	40	M14	35	9,0	600
61200.W0803	80	50	M14	35	10,0	750
61200.W0804	80	70	M14	35	15,0	550
61200.W0805	80	80	M14	50	18,0	370
61200.W0951	95	40	M16	45	8,0	1200
61200.W0952	95	55	M16	45	11,0	1000
61200.W0953	95	60	M16	45	12,0	800
61200.W0954	95	75	M16	45	13,0	700
61200.W1001	100	40	M16	45	8,0	660
61200.W1002	100	50	M16	56	10,0	550
61200.W1003	100	55	M16	56	11,0	520
61200.W1004	100	60	M16	45	15,0	515
61200.W1005	100	100	M16	56	19,0	500
61200.W1101	110	124	M16	37	19,0	550
61200.W1301	130	40	M16	45	6,0	550
61200.W1302	130	50	M16	45	9,0	550
61200.W1303	130	60	M16	56	14,0	680
61200.W1304	130	75	M16	45	13,0	1450
61200.W1305	130	100	M16	45	16,0	1200
61200.W1501	150	50	M20	20	9,0	1800
61200.W1502	150	60	M20	20	14,0	2200
61200.W1503	150	75	M20	20	16,0	2000
61200.W1504	150	100	M20	20	16,0	1400
61200.W1505	150	120	M20	20	16,0	1300
61200.W1506	150	140	M20	20	16,0	1200

Material

Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Tips

These feet or bumpers reduce shock and vibration.
Used widely as shock absorbers and feet for machine elements.



Material
Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Tips
These feet or bumpers reduce shock and vibration.
Used widely as shock absorbers and feet for machine elements.

Order No.	d_1	h	d_2	Compression max.	Max. axial load Kgf
61202.W0100	10	10	M 4	2	10
61202.W0101	10	15	M 4	3	8
61202.W0130	13	10	M 5	1,5	12
61202.W0131	13	15	M 5	3	10
61202.W0132	13	20	M 5	3,5	20
61202.W0160	16	8	M 5	1,5	15
61202.W0161	16	10	M 5	1,5	20
61202.W0162	16	15	M 5	3	20
61202.W0163	16	20	M 5	4	20
61202.W0164	16	25	M 5	5	15
61202.W0200	20	10	M 6	2	30
61202.W0201	20	15	M 6	3	25
61202.W0202	20	20	M 6	4	25
61202.W0203	20	25	M 6	5	25
61202.W0204	20	30	M 6	7	25
61202.W0250	25	10	M 6	1,5	50
61202.W0251	25	15	M 6	3	50
61202.W0252	25	20	M 6	4	50
61202.W0253	25	22	M 6	4	45
61202.W0254	25	25	M 6	5	40
61202.W0256	25	30	M 6	6	35
61202.W0300	30	10	M 8	2	90
61202.W0301	30	15	M 8	3	90
61202.W0302	30	20	M 8	4	90
61202.W0303	30	22	M 8	4	90
61202.W0304	30	25	M 8	5	85
61202.W0305	30	30	M 8	6	80
61202.W0306	30	40	M 8	8	60

Anti-vibration Feet

female

61202

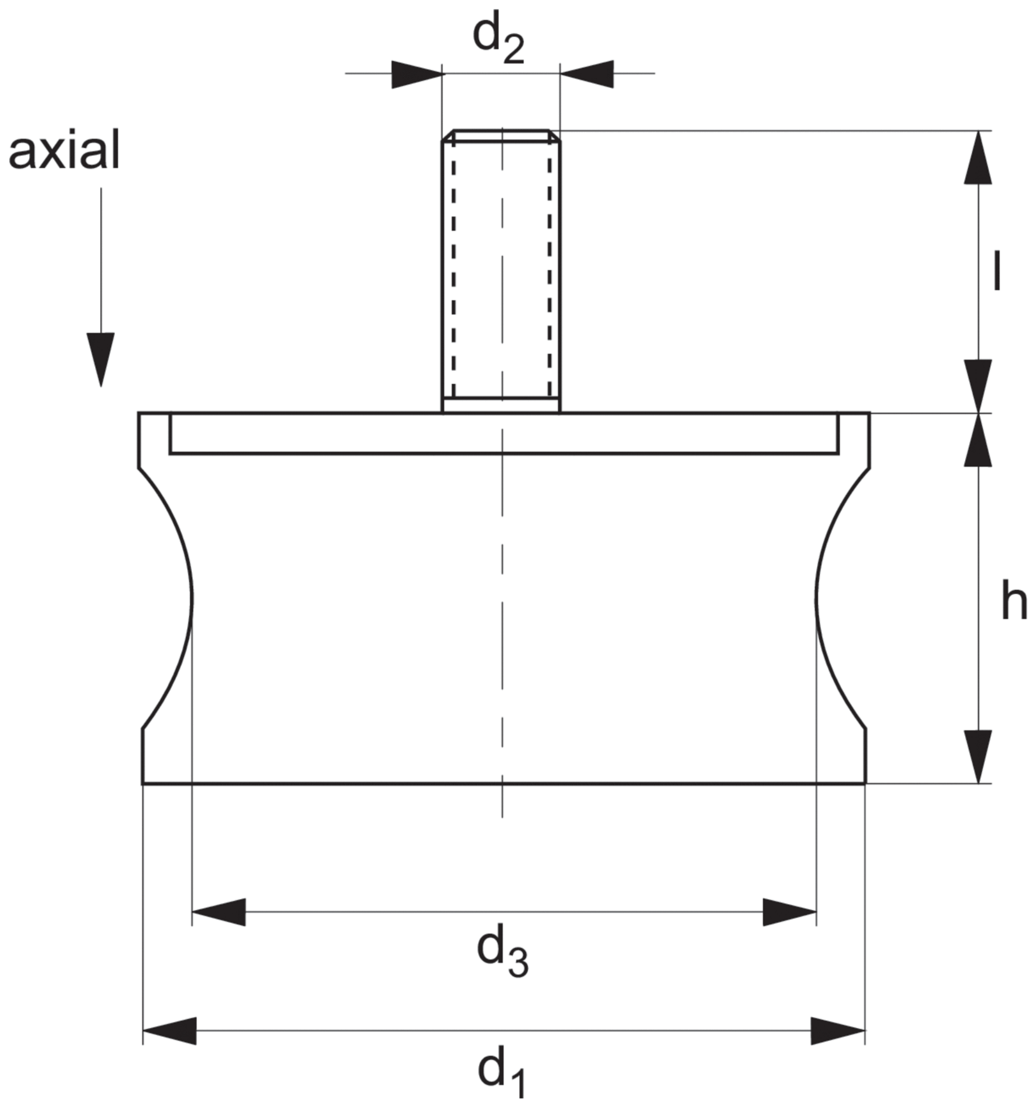
Order No.	d_1	h	d_2	Compression max.	Max. axial load Kgf
61202.W0350	35	35	M 8	8	90
61202.W0400	40	20	M 8	4	160
61202.W0401	40	25	M 8	6	155
61202.W0402	40	28	M 8	6	150
61202.W0403	40	30	M 8	8	150
61202.W0404	40	35	M 8	8	120
61202.W0405	40	40	M 8	10	120
61202.W0406	40	45	M 8	12	110
61202.W0500	50	20	M10	4	250
61202.W0501	50	25	M10	5,5	250
61202.W0502	50	30	M10	8	250
61202.W0503	50	35	M10	9	230
61202.W0504	50	40	M10	10	220
61202.W0505	50	45	M10	11	210
61202.W0506	50	50	M10	12	200
61202.W0507	50	55	M10	13	200
61202.W0600	60	25	M10	5	400
61202.W0601	60	35	M10	7	350
61202.W0602	60	45	M10	10	300
61202.W0603	60	60	M10	12	250
61202.W0700	70	35	M10	7	450
61202.W0701	70	50	M10	10	350
61202.W0702	70	70	M10	13	300
61202.W0750	75	25	M12	5	650
61202.W0751	75	40	M12	9	500
61202.W0752	75	45	M12	10	500
61202.W0753	75	55	M12	13	450
61202.W0800	80	30	M14	5,5	900
61202.W0801	80	40	M14	9	600
61202.W0802	80	50	M14	10	750
61202.W0803	80	70	M14	15	550
61202.W0950	95	40	M16	8	1200
61202.W0951	95	55	M16	11	1000
61202.W0952	95	60	M16	12	800
61202.W0953	95	75	M16	13	700
61202.W1000	100	40	M16	8	1200
61202.W1001	100	60	M16	15	1100
61202.W1002	100	75	M16	17	1000
61202.W1200	120	50	M16	9	1500
61202.W1201	120	75	M16	13	1200
61202.W1202	120	100	M16	16	1000
61202.W1300	130	40	M16	6	1900
61202.W1301	130	50	M16	9	1600
61202.W1302	130	75	M16	13	1450
61202.W1303	130	100	M16	16	1200
61202.W1500	150	40	M20	9	1800
61202.W1501	150	60	M20	14	2200
61202.W1502	150	75	M20	16	2000
61202.W1503	150	100	M20	16	1400
61202.W1504	150	120	M20	16	1300
61202.W1505	150	140	M20	16	1200

Material
Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Tips
These feet or bumpers reduce shock and vibration.
Used widely as shock absorbers and feet for machine elements.

Anti-vibration Cylinders Waisted
foot

61206



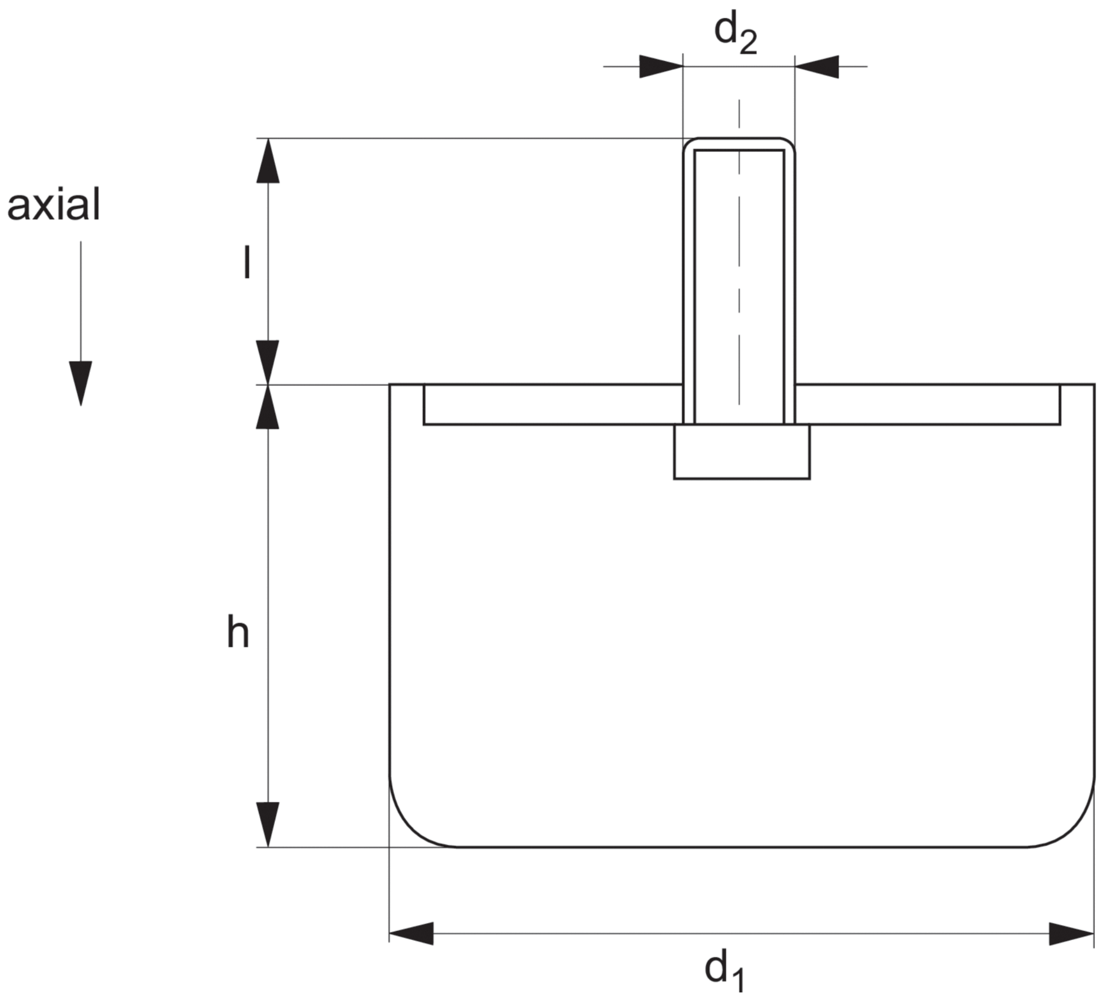
Material
Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Tips
These cylinders are used to reduce vibration by allowing some movement (in axial and radial as shown in drawing).
Typically used in machinery, compressors, air conditioning units, light engineering equipment etc.

Order no.	d_1	h	d_2	d_3	l	Compression max.	Max. axial load Kgf
61206.W0200	20	20	M 6	12	18	2,5	15
61206.W0300	30	25	M 8	24	20	4,0	40
61206.W0400	40	28	M10	22	25	5,0	60
61206.W0600	60	36	M10	37	30	5,0	90
61206.W0601	60	43	M10	35	30	4,0	70
61206.W0602	60	60	M10	51	30	6,0	150
61206.W0700	70	56	M12	50	35	6,0	220
61206.W0800	80	65	M12	70	35	8,0	400
61206.W0900	90	50	M12	80	45	4,0	800
61206.W0950	95	76	M16	80	45	9,5	400
61206.W0901	90	77	M12	79	45	7,0	500
61206.W1080	108	85	M16	95	45	10,0	800
61206.W1300	130	96	M16	115	45	13,0	1400

Anti-vibration Bumpers
male

61210



Material
Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

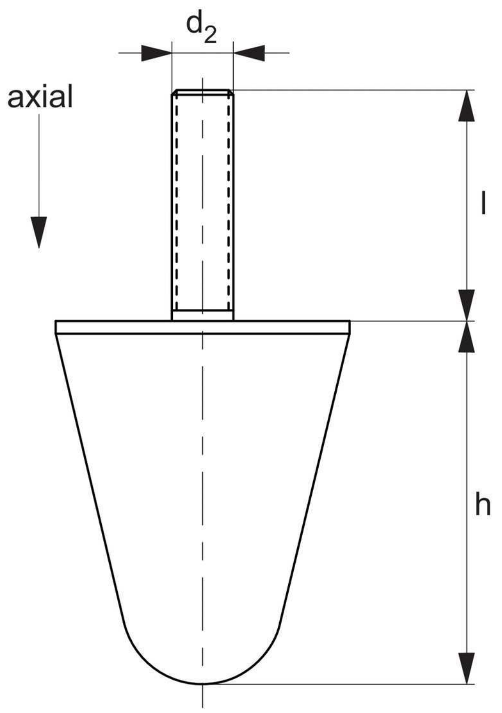
Tips
These anti-vibration bumpers are used to reduce vibration and shock. Their cylindrical shape ensures that when used in a row, the buffers spread the loads over a number of buffers - reducing the chances of possible overloading.

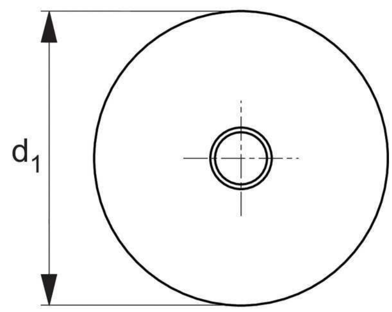
Order No.	d_1	h	d_2	l	Compression max.	Max. axial load Kgf
61210.W0040	40	32	M 8	30	14	850
61210.W0050	50	40	M10	25	17	1270
61210.W0063	63	50	M10	25	20	1950
61210.W0080	80	63	M12	24	25	3250
61210.W1000	100	80	M12	27	30	4900
61210.W1250	125	100	M16	25	40	7800
61210.W1500	150	125	M16	45	52	12300
61210.W1600	160	125	M16	45	52	12300
61210.W2000	200	160	M20	49	65	19100
61210.W2500	250	200	M20	49	80	30500

Anti-vibration Cones

male

61240





Material

Rubber on silver zinc plated steel (rubber hardness - 65 Shore A).

Tips

These anti-vibration cones or bumpers are used to reduce vibration and shock. Their conical shape ensures that, when used in a row, the buffers spread loads over a number of cones - reducing the chances of possible overloading.

Important Notes

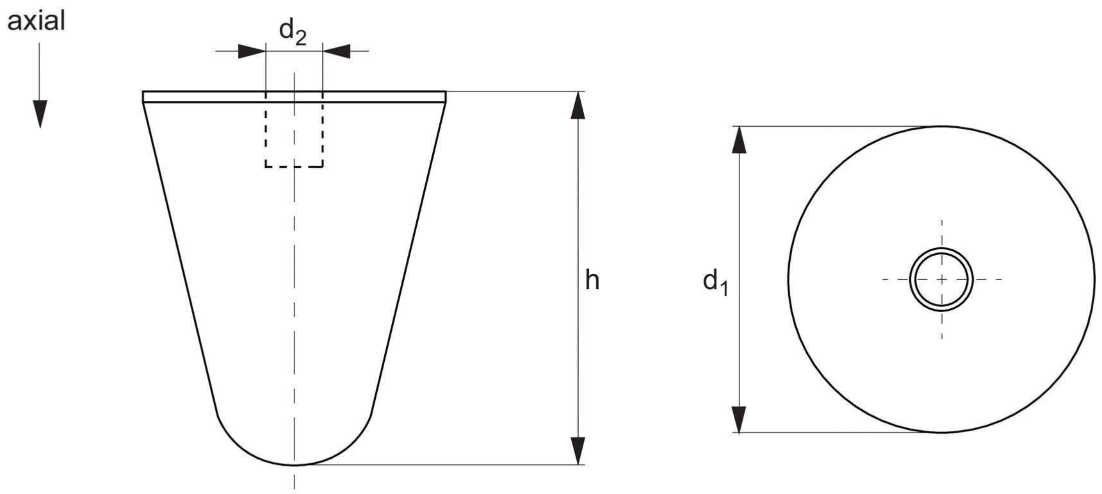
The working load should not exceed 65% of the maximum load.

Order No.	d_1	h	d_2	l	Max. axial load Kgf
61240.W0200	20	20	M 6	18	70
61240.W0250	25	20	M 8	20	100
61240.W0300	30	30	M 6	17	150
61240.W0301	30	30	M 8	20	150
61240.W0400	40	30	M 8	23	240
61240.W0401	40	50	M 8	23	200
61240.W0500	50	48	M10	25	380
61240.W0501	50	58	M 8	20	400
61240.W0502	50	64	M 8	35	370
61240.W0630	63	60	M12	37	440
61240.W0750	75	90	M12	37	520
61240.W0900	90	74	M16	45	1100
61240.W0950	95	82	M16	45	1100

Anti-vibration Cones

female

61242



Order no.	d_1	h	d_2	Max. axial load Kgf
61242.W0200	20	20	M 6	70
61242.W0250	25	20	M 8	100
61242.W0300	30	30	M 6	150
61242.W0500	50	48	M10	380
61242.W0700	70	60	M12	550
61242.W0900	90	74	M16	1100
61242.W0950	95	82	M16	1100

Material
Rubber on silver zinc plated steel (rubber hardness - 65 Shore A).

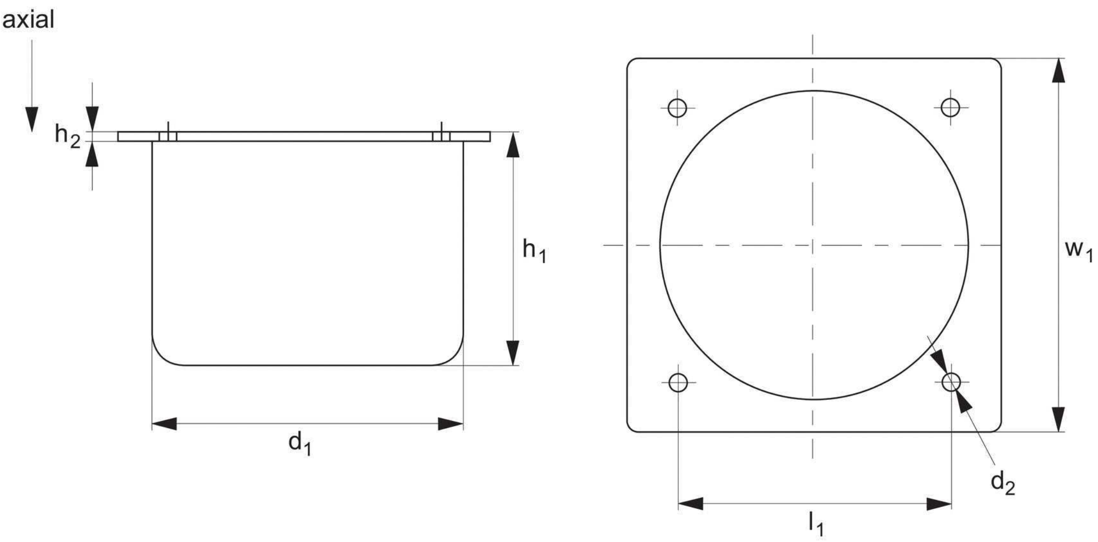
Tips
These anti-vibration cones or bumpers are used to reduce vibration and shock. Their conical shape ensures that when used in a row, the buffers spread loads over a number of cones - reducing the chances of possible overloading.

Important Notes
The working load should not exceed 65% of the maximum load.

Anti-vibration Bumpers

flanged

61250



Material

Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Tips

These anti-vibration bumpers are used to reduce vibration and shock. Their cylindrical shape ensures that, when used in a row, the buffers spread loads over a number of buffers - reducing the chances of possible overloading.

Order No.	d_1	h_1	d_2	h_2	w_1	l_1	Max. axial load Kgf	Momentum Kg. m/s	Max deflection m/m
61250.W0400	40	32	5,5	3	50	40	850	5	14
61250.W0500	50	40	6,5	4	63	50	1270	10	17
61250.W0630	63	50	6,5	6	80	63	1950	20	20
61250.W0800	80	63	9,0	6	100	80	3250	40	25
61250.W1000	100	80	9,0	8	125	100	4900	80	30
61250.W1250	125	100	11,0	8	160	125	7800	160	40
61250.W1600	160	125	11,0	10	200	160	15000	320	52
61250.W2000	200	160	13,0	10	250	200	19100	630	65
61250.W2500	250	200	13,0	12	315	250	30500	1250	80

Recommendations for machine mounts

Machine mounts should be installed between two parallel and perfectly flat surfaces. Mounts operating tilted or twisted do not work properly. This may be due to incorrect alignment, tolerances in the building of the structure or over-tightened torque during the installation of the anti-vibration mounts.

incorrect ✗

correct ✓

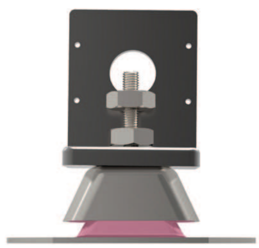
incorrect ✗

correct ✓

incorrect ✗

correct ✓

incorrect ✗

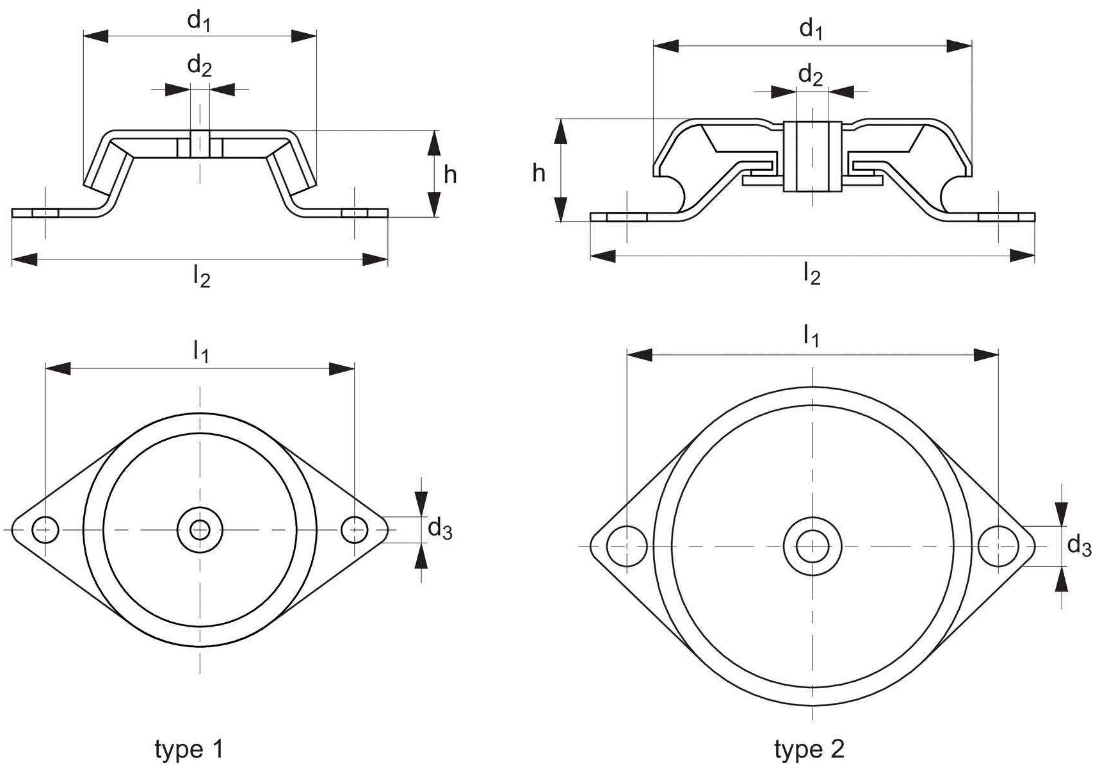


correct ✓

incorrect ✗

correct ✓

61280



Order No.	Type	d_1	d_2	d_3	h	l_1	l_2	Max. axial load Kgf
61280.W0507	1	50	M 8	6,2	25	68	85	100
61280.W0504	2	50	M 8	6,5	25	63-70	85	20
61280.W0505	2	50	M 8	6,5	25	63-70	85	40
61280.W0506	2	50	M 8	6,5	25	63-70	85	50
61280.W0604	2	60	M10	9,0	35	76-91	105	30
61280.W0605	2	60	M10	9,0	35	76-91	105	40
61280.W0606	2	60	M10	9,0	35	76-91	105	65
61280.W0607	1	60	M10	8,2	35	85	105	200
61280.W0907	1	90	M12	10,2	45	110	139	300
61280.W1057	1	105	M12	12,4	38	140	173	400
61280.W1567	2	156	M16	20,0	53	182	218	1300

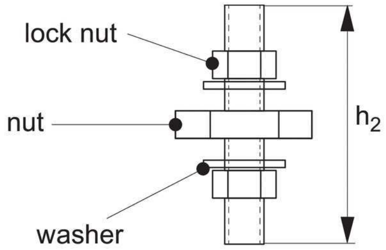
Material
Rubber on silver zinc plated steel (rubber hardness - 60 Shore A).

Technical Notes
Provides an elastic support mechanism for equipment isolation. Used in generator sets, motors, pumps and most other machine parts.
Please note for marine applications or very demanding use we recommend the mounts with 'fail-safe' features part numbers 61290, 61292 and 61294.

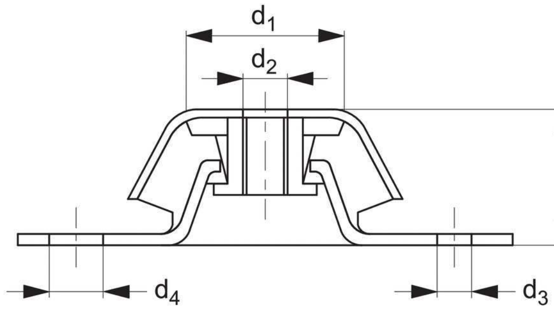
Tips
These are a very popular anti-vibration mount for light to heavy duty applications.
Take the total weight of the load to be supported, divide it by the number of mounts to be used and select an appropriate mount from the above table. Type 2 is 'fail-safe'.

Anti-vibration Fail Safe Mounts

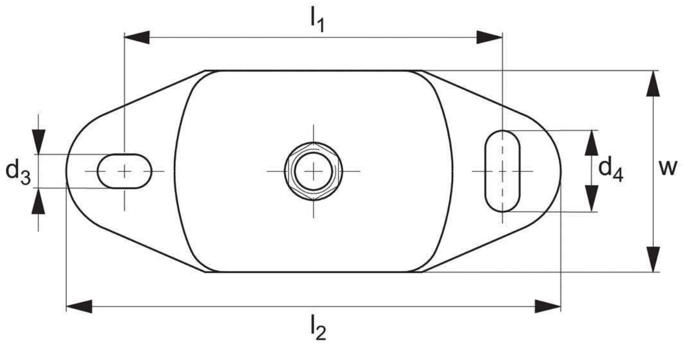
steel



removable stud



side view



top view

Material

Rubber on silver zinc plated steel (rubber hardness - 45-75 Shore A).

Technical Notes

These mounts control vibration in three axes. Primarily used for marine applications, engines, compressors, pumps, generators etc.
Fitted with a mechanical fail-safe stop. They are very robust to cope with high start/stop forces and vibrations from marine and other engines. For stainless steel versions please see part nos. 61292 and 61294. Stud and nuts on request.

Tips

Take the total weight of the load to be supported, divide it by the number of mounts to be used and select an appropriate mount from the table.

Order No.	d_1	d_2	l_1	l_2	w	d_3	d_4	h_1	h_2	Max. load Kgf
61290.W0010	60	M12	100	120	60	11	14	40	95	50
61290.W0011	60	M12	100	120	60	11	14	40	95	65
61290.W0012	60	M12	100	120	60	11	14	40	95	100
61290.W0014	75	M16	140	183	75	13	20	50	110	150
61290.W0015	75	M16	140	183	75	13	20	50	110	200
61290.W0016	75	M16	140	183	75	13	20	50	110	300
61290.W0017	75	M16	140	183	75	13	20	50	110	550
61290.W0020	80	M20	182	230	112	18	25	70	110	750

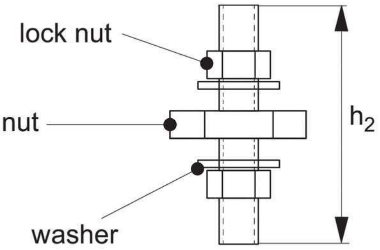
Anti-vibration Fail Safe Mounts
steel

61290

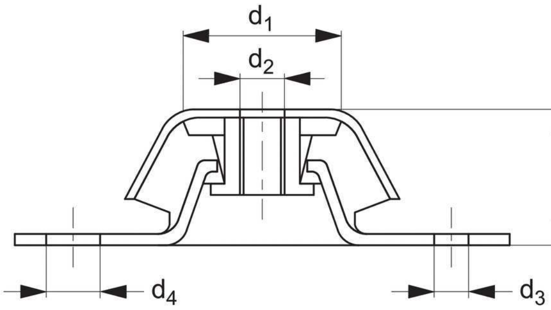
Material
Rubber on silver zinc plated steel (rubber hardness - 45-75 Shore A).

Technical Notes
These mounts control vibration in three axes. Primarily used for marine applications, engines, compressors, pumps, generators etc.
Fitted with a mechanical fail-safe stop. They are very robust to cope with high start/stop forces and vibrations from marine and other engines. For stainless steel versions please see part nos. 61292 and 61294. Stud and nuts on request.

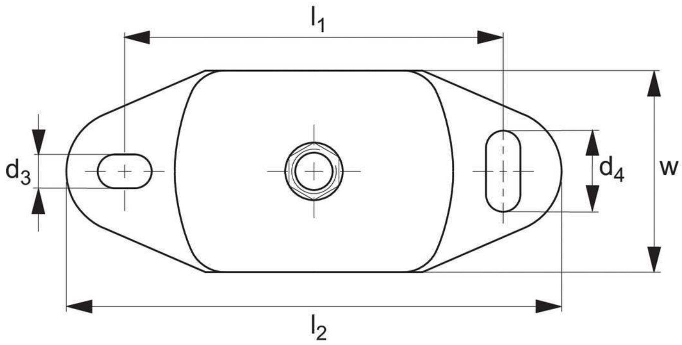
Tips
Take the total weight of the load to be supported, divide it by the number of mounts to be used and select an appropriate mount from the table.



removable stud



side view



top view

Order No.	d_1	d_2	l_1	l_2	w	d_3	d_4	h_1	h_2	Max. load Kgf
61292.W0602	60	M12	100	120	60	11	14	40	95	100
61292.W0752	75	M16	140	183	75	13	20	50	110	300
61292.W0601	60	M12	100	120	60	11	14	40	95	50
61292.W0600	60	M12	100	120	60	11	14	40	95	65
61292.W0750	75	M16	140	183	75	13	20	50	110	150
61292.W0751	75	M16	140	183	75	13	20	50	110	200

Material
Stainless steel (AISI 304), (rubber hardness 45-65 Shore A).

Technical Notes
These mounts control vibration in three axes.
Primarily used for marine applications, engines, compressors, pumps, generators etc.
Fitted with a mechanical fail-safe stop. They are very robust to cope with high start/stop forces and vibrations from marine and other engines.

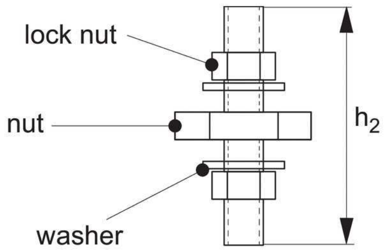
The stainless steel versions are widely used for marine engine mounts or outdoor applications. For offshore or highly corrosive enviroments use part no. 61294.
Stud and nuts on request.

Tips
These are a very popular anti-vibration mount for light to heavy duty applications.
Take the total weight of the load to be supported, divide it by the number of mounts to be used and select an appropriate mount from the table.

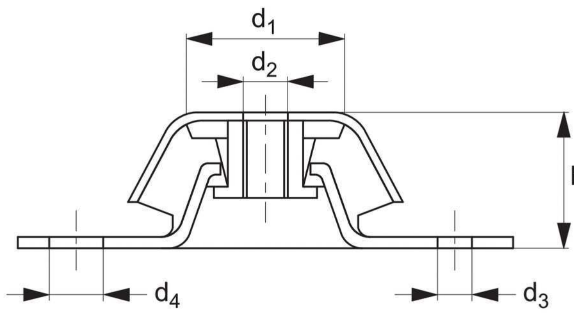
Anti-vibration Fail Safe Mounts

316 stainless

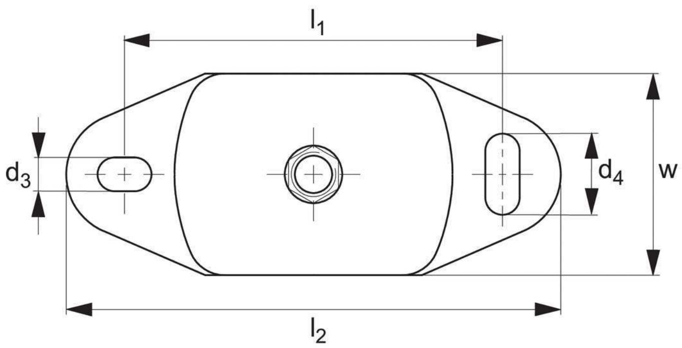
61294



removable stud



side view



top view

Material

Stainless steel (A4, 316) - rubber hardness 65-75 Shore A.

Technical Notes

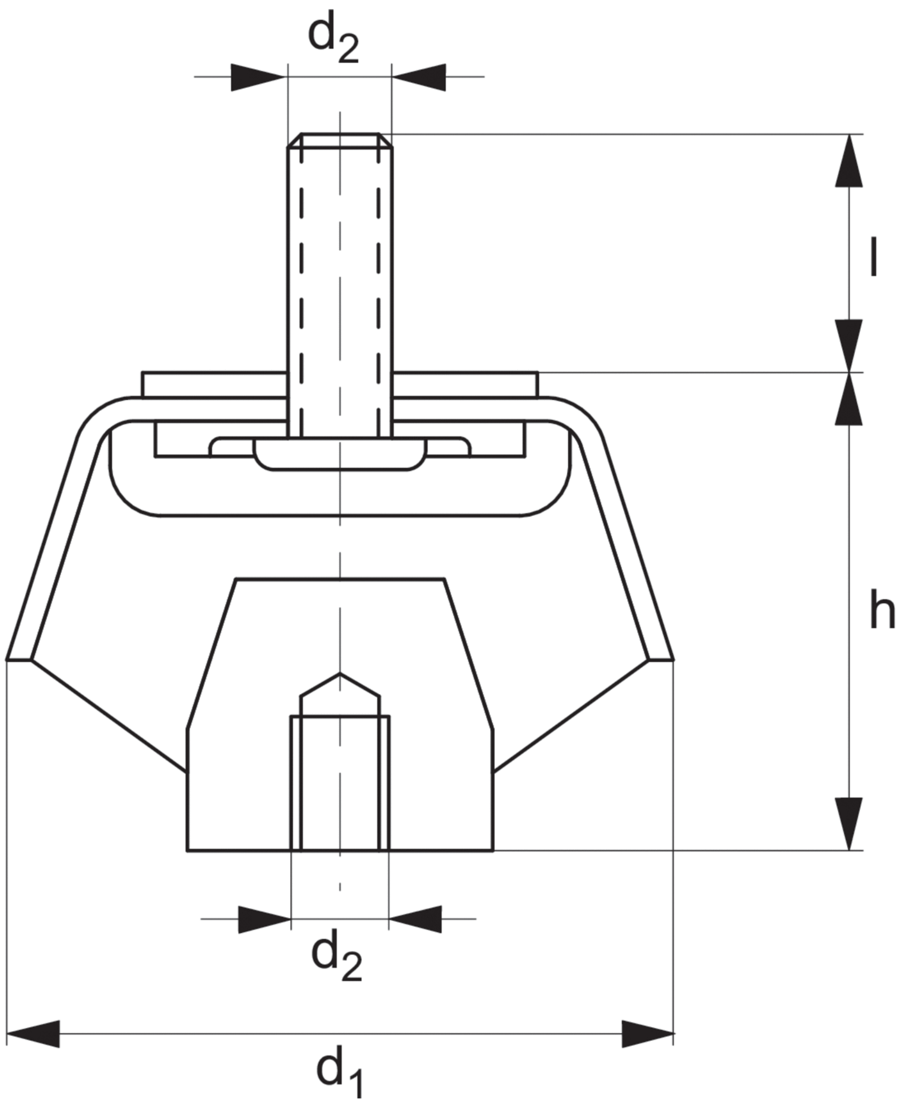
These mounts control vibration in three axes.
Primarily used for marine applications, engines, compressors, pumps, generators etc.
Fitted with a mechanical fail-safe stop. They are very robust to cope with high start/stop forces and vibrations from marine and other engines.

These stainless steel versions are widely used for marine engine mounts or applications that are either offshore or have a very high corrosion level. Stud and nuts on request.

Tips

These are a very popular anti-vibration mount for light to heavy duty applications.
Take the total weight of the load to be supported, divide it by the number of mounts to be used and select an appropriate mount from the table.

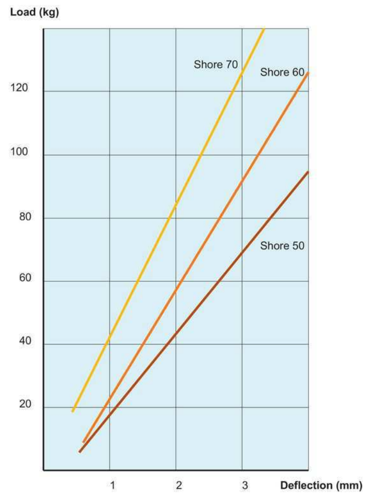
Order No.	d_1	d_2	l_1	l_2	w	d_3	d_4	h_1	h_2	Max. load Kgf
61294.W0600	60	M12	100	120	60	11	14	40	95	100
61294.W0750	75	M16	140	183	75	13	20	50	110	550



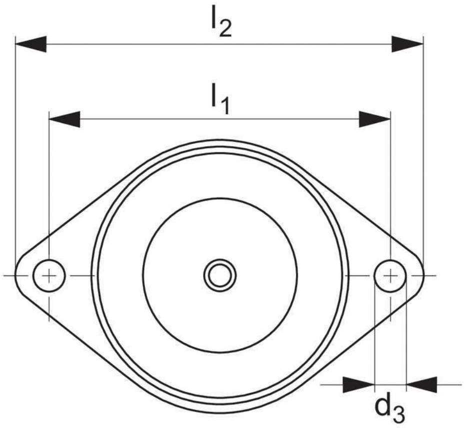
Material
Rubber on silver zinc plated steel.

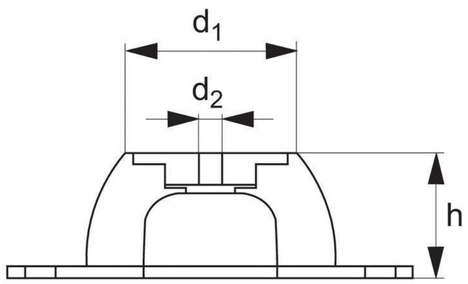
Technical Notes
With a bell-like base this unit is suitable for supporting most applications, such as engine suspensions.
It can also be used to carry horizontal loads.

Order No.	Shore hardness A	d_1	h	d_2	l	Max. load Kgf
61340.W0050	50	55	40	M10	23	30
61340.W0060	60	55	40	M10	23	60
61340.W0070	70	55	40	M10	23	120

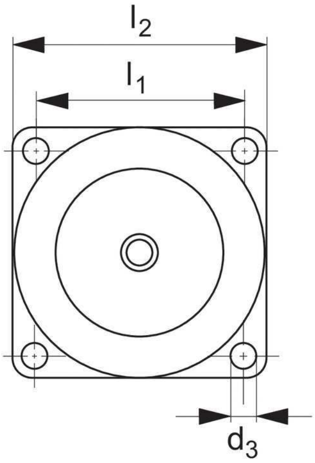


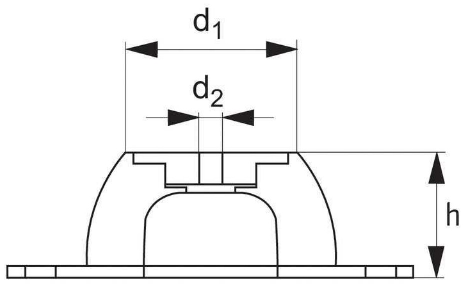
61345





type 1





type 2

Material
Rubber on yellow zinc plated steel (rubber hardness 45-65 Shore A).

Technical Notes
The design of the mount makes them ideal for machines that move in three directions.

Tips
These mounts are found on compressors, air conditioners, ventilators and vibrating tables.

Order No.	Type	d_1	h	d_2	l_1	l_2	d_3	Max. load Kgf
61345.W0450	1	33	25	M 8	66	85	8,0	20
61345.W0451	1	33	25	M 8	66	85	8,0	50
61345.W0650	1	48	35	M10	92	114	10,0	40
61345.W0651	1	48	35	M10	92	114	10,0	75
61345.W0850	1	48	38	M10	110	136	11,5	75
61345.W0851	1	48	38	M10	110	136	11,5	120
61345.W0900	1	57	45	M10	124	151	11,5	130
61345.W0901	1	57	45	M10	124	151	11,5	220
61345.W1300	2	76	63	M12	120	150	14,5	280
61345.W1301	2	76	63	M12	120	150	14,5	500
61345.W1700	2	93	85	M16	160	200	14,5	380
61345.W1701	2	93	85	M16	160	200	14,5	750
61345.W2500	2	187	160	M24	250	310	18,0	1400
61345.W2501	2	187	160	M24	250	310	18,0	2500

61345

Material
Rubber on yellow zinc plated steel (rubber hardness 45-65 Shore A).

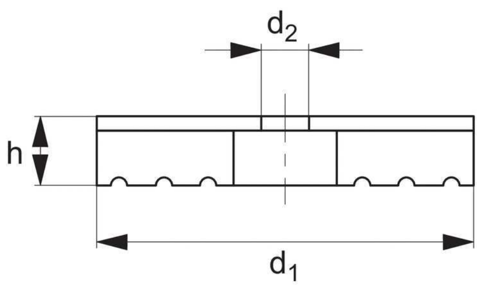
Technical Notes
The design of the mount makes them ideal for machines that move in three directions.

Tips
These mounts are found on compressors, air conditioners, ventilators and vibrating tables.

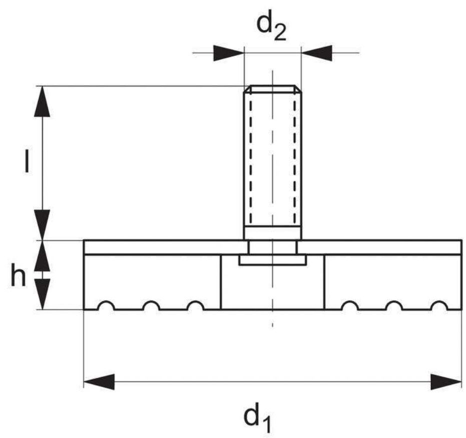
Anti-vibration Mounts

ribbed pads

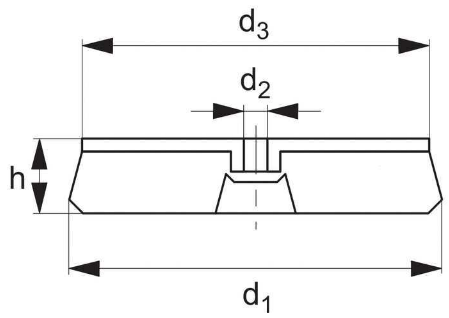
Material
Rubber on zinc plated steel.



type 1

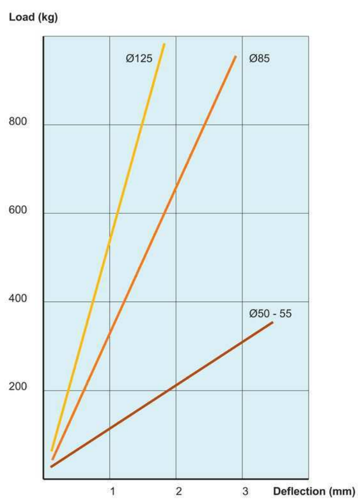


type 2



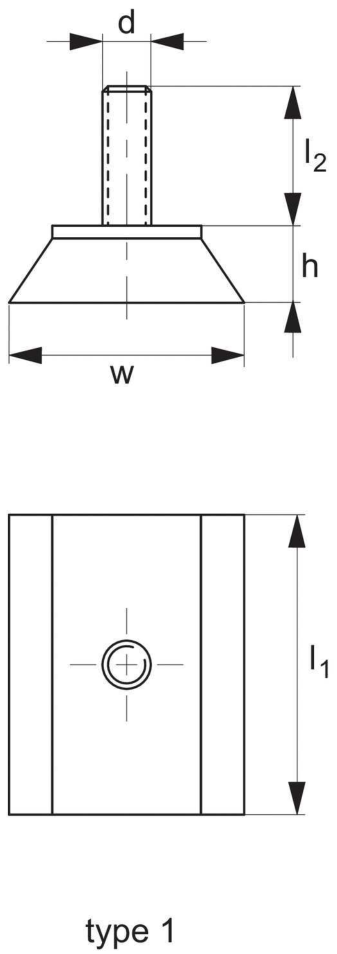
type 3

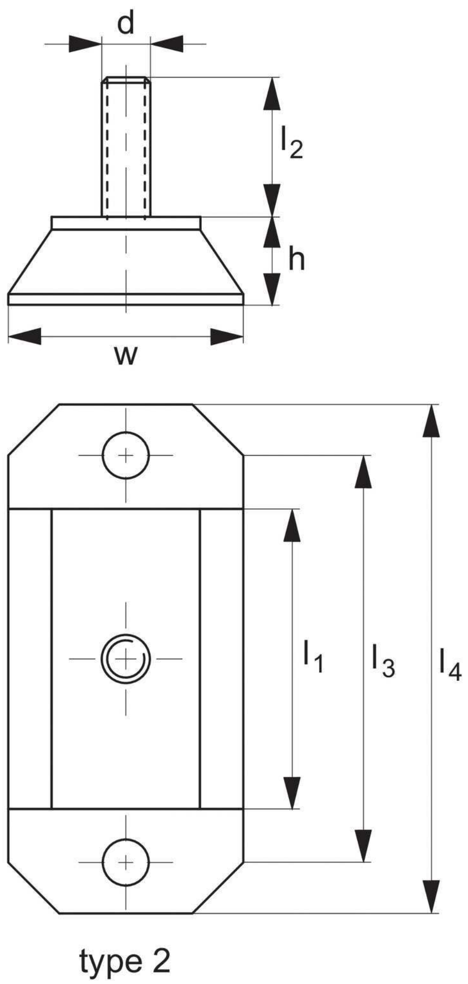
Order No.	Type	d_1	d_2	d_3	l	h	Compression max.	Max. static load Kgf
61350.W0105	1	50	10,5	-	-	15	2,2	180
61350.W0108	1	85	10,5	-	-	15	1,6	450
61350.W0205	2	55	M12	-	25	16	2,2	180
61350.W0208	2	85	M12	-	25	16	1,6	450
61350.W0212	2	125	M12	-	25	16	2,2	800
61350.W0305	3	50	6,0	45	-	18	2,0	50
61350.W0309	3	91	6,5	86	-	18	2,0	350
61350.W0313	3	138	10,5	130	-	25	2,6	900



Anti-vibration Mounts
rectangular

61460





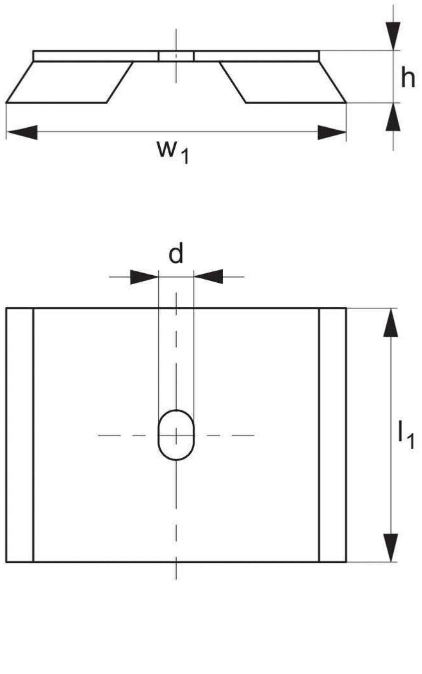
Material
Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

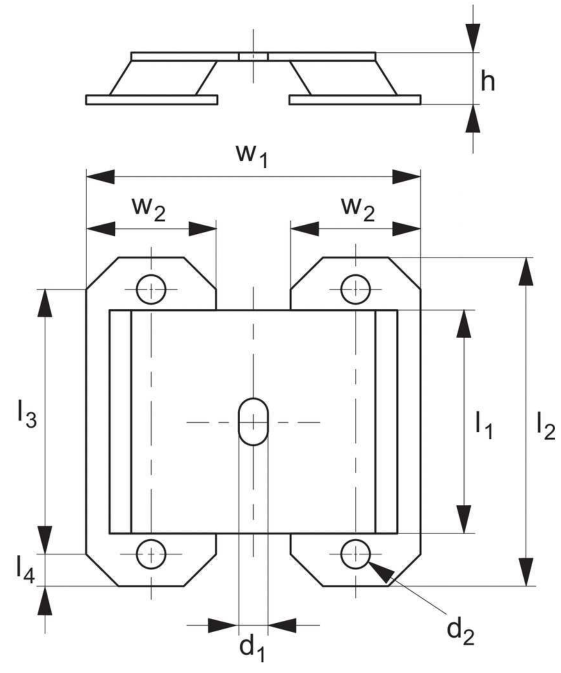
Technical Notes
Used to support machine tools and packaging machinery.
Provides vibration isolation for frequencies higher than 20Hz.

Order No.	Type	l_1	w	h	l_2	l_3	l_4	d	Compression max.	Max. axial load Kgf
61460.W0105	1	50	60	20	37	-	-	M12	2	250
61460.W0110	1	100	60	20	37	-	-	M12	2	500
61460.W0115	1	150	60	20	37	-	-	M12	2	750
61460.W0120	1	200	60	20	37	-	-	M12	2	1000
61460.W0205	2	50	60	23	37	85	115	M12	2	250
61460.W0210	2	100	60	23	37	135	165	M12	2	500
61460.W0215	2	150	60	23	37	185	215	M12	2	750
61460.W0220	2	200	60	23	37	235	265	M12	2	1000

Anti-vibration Mounts
rectangular

61470

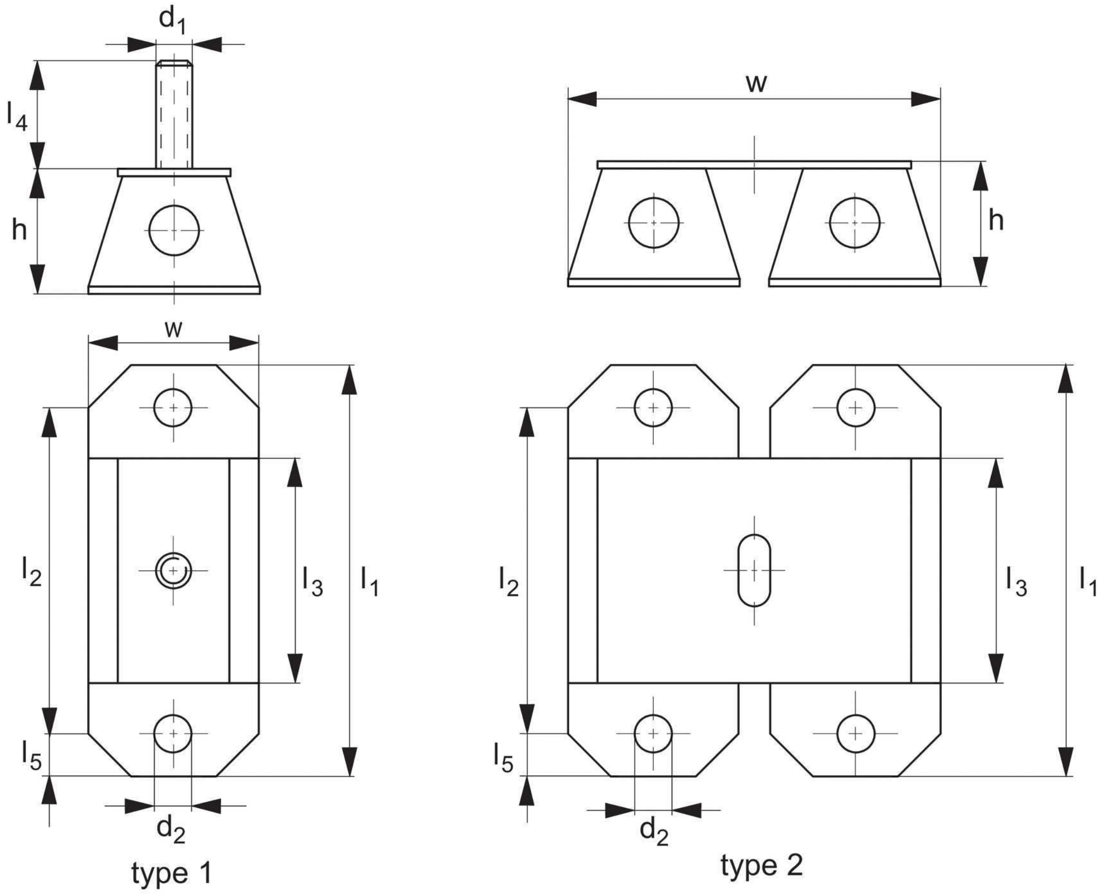




Material
Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Technical Notes
Used where transverse loads are present.

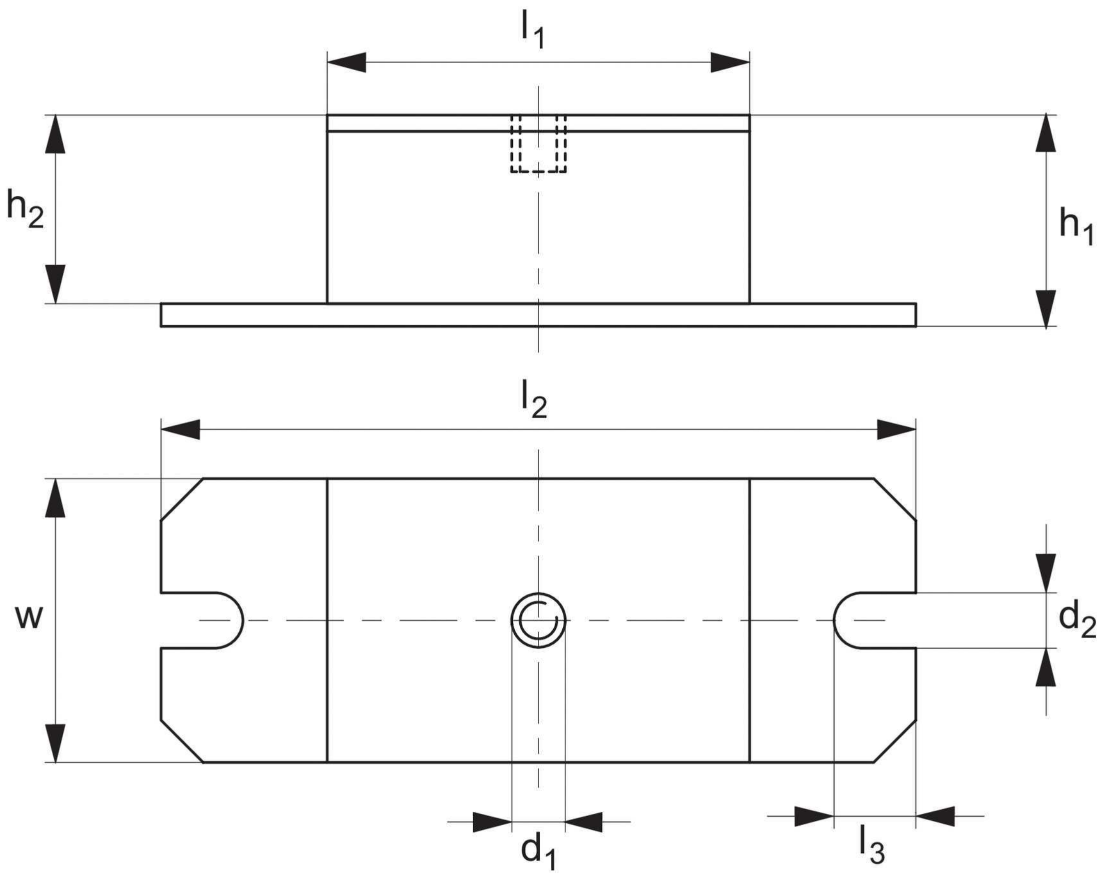
Order No.	Type	l_1	h	w_1	w_2	l_2	l_3	l_4	d	Compression max.	Max.static load Kgf
61470.W0100	1	100	20	130	-	-	-	-	13	2	850
61470.W0150	2	150	23	145	60	215	185	15	13	2	1300
61470.W0200	2	200	23	145	60	265	235	15	13	2	1700



Material
Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Technical Notes
Type 1: M12 thread supplied as separate item to be screwed in if required.
Type 2: A twin version of type 1 and so therefore take heavier loads.
The central hole in the rubber pad increases the flexibility of the unit - improving anti-vibration properties.
Used where good deflection properties are needed and for isolating of frequencies higher than 10Hz.

Order No.	Type	l_1	w	l_2	l_3	l_4	l_5	d_1	d_2	h	Compression max.	Max.axial load Kgf
61480.W0001	1	115	60	85	50	37	15	M12	13	45	8	120
61480.W0002	1	165	60	135	100	37	15	M12	13	45	8	250
61480.W0003	1	215	60	185	150	37	15	M12	13	45	8	350
61480.W0004	1	265	60	235	200	37	15	M12	13	45	8	500
61480.W0005	2	165	130	135	100	-	15	-	13	45	8	500
61480.W0006	2	215	130	185	150	-	15	-	13	45	8	700
61480.W0007	2	265	130	235	200	-	15	-	13	45	8	1000



Material
Rubber on silver zinc plated steel.

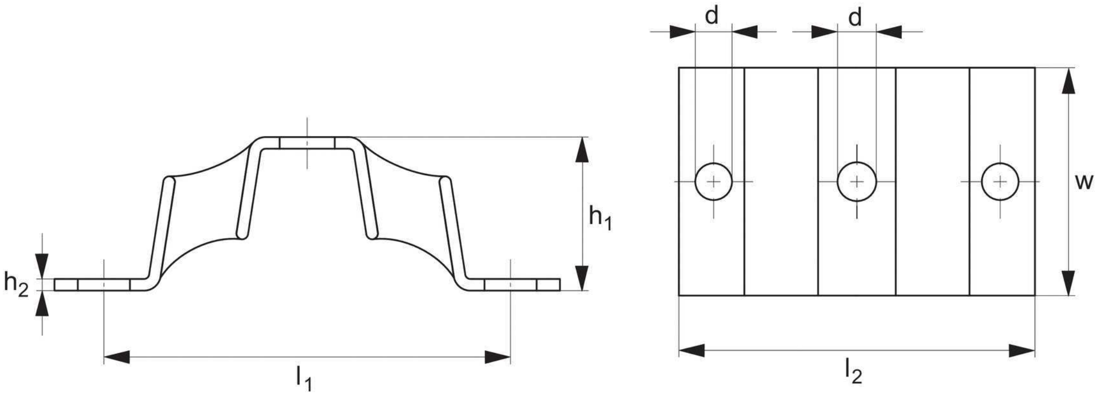
Tips
Particularly useful for fans, generators, motors etc.

Order No.	Shore hardness A	d_1	l_1	l_2	l_3	w	h_1	h_2	d_2	Max. load Kgf
61500.W0070	70	M12	100	180	25	70	50	45	13	1000
61500.W0055	55	M12	100	180	25	70	50	45	13	500
61500.W0080	80	M12	100	180	25	70	50	45	13	1200

Anti vibration Mounts

v shaped

61510



Order No.	Shore hardness A	d	h_1	h_2	l_1	l_2	w	Compression max.	Max. axial load Kgf	Max. radial load Kgf
61510.W0045	45	12	35	3	90	112	73	2,5	60	60
61510.W0055	55	12	35	3	90	112	73	3,5	65	65
61510.W0065	65	12	35	3	90	112	73	6,0	70	70

Material

Rubber on silver zinc plated steel (rubber hardness 45-65 Shore A).

Technical Notes

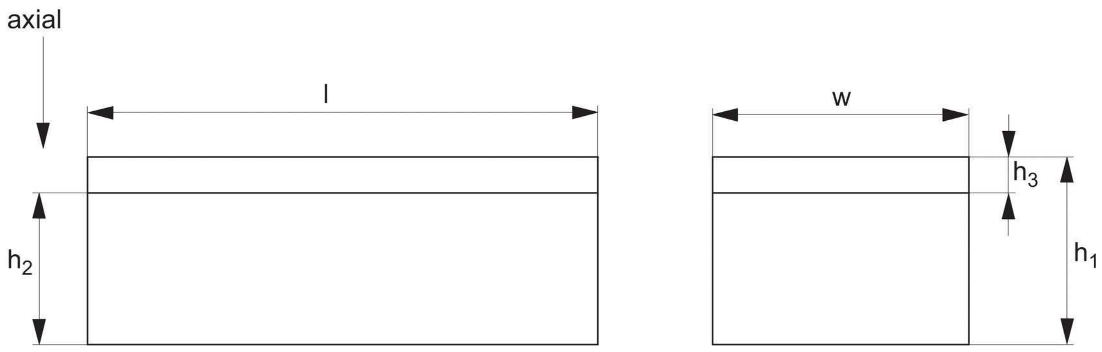
Has a three point anchorage, two to a base and one to the piece of equipment. Very good as a shock/isolating mount for oscillations higher than 15Hz.

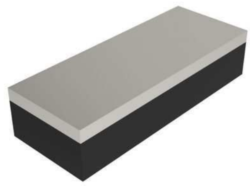
Tips

Can be used to hang compressers, speakers and air conditioning units from the wall.

Anti-vibration Impact Plates

61600





Order No.	l	w	h_1	h_2	h_3	Compression max.	Max. axial load Kgf
61600.W0035	1250	35	40	30	10	2,0	2500
61600.W0070	180	70	40	30	10	2,8	1000
61600.W0071	245	70	40	30	10	3,7	1300
61600.W0072	285	70	40	30	10	3,6	2000
61600.W0073	320	70	40	30	10	3,5	2700
61600.W0120	250	120	40	28	12	3,3	5000
61600.W0125	500	125	30	15	15	4,0	10000

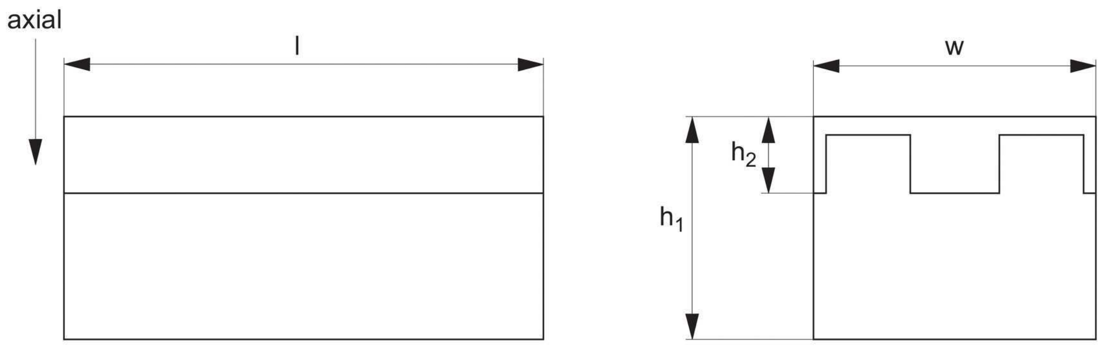
Material
Rubber on silver zinc plated steel (rubber hardness - 60 Shore A).

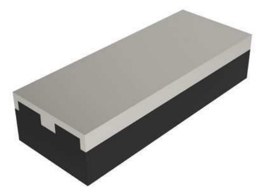
Technical Notes
The metal plate is provided blank so it can be drilled to suit the number of threads, thread sizes and the pitch you require.

Part no. 61600.W0120 has a ribbed base. Other sizes can be supplied on request.

Anti-vibration Impact Plates

61610

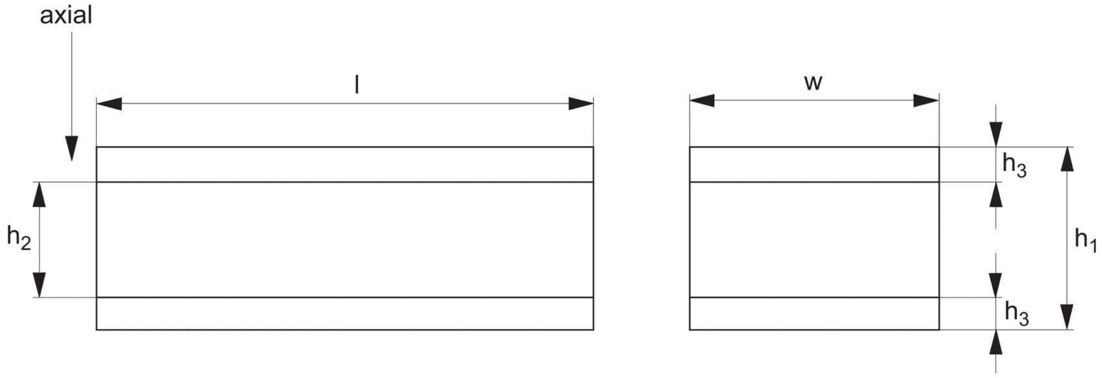


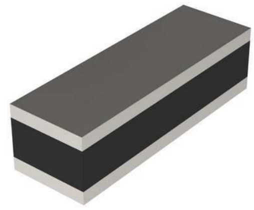


Order No.	l	w	h_1	h_2	Max. axial load Kgf
61610.W0060	350	60	40	13	1000
61610.W0061	450	60	40	13	1500
61610.W0062	550	60	40	13	2000

Material
Rubber on silver zinc plated steel (rubber hardness - 60 Shore A).

Technical Notes
The metal plate is provided blank so it can be drilled to suit the number of threads, thread sizes and the pitch you require. Other sizes can be supplied on request.





Order No.	l	w	h_1	h_2	h_3	Max. axial load Kgf
61620.W0040	550	40	40	24	8	2200
61620.W0050	515	50	40	20	10	2800
61620.W0051	515	50	50	30	10	2570
61620.W0060	650	60	50	30	10	3900
61620.W0061	650	60	60	40	10	3500
61620.W0070	600	70	50	30	10	4200
61620.W0171	600	70	55	35	10	4000
61620.W0180	600	80	80	50	15	4320
61620.W0100	415	100	60	30	15	4150
61620.W0101	415	100	80	50	15	3740
61620.W0150	500	150	80	50	15	6750

Material

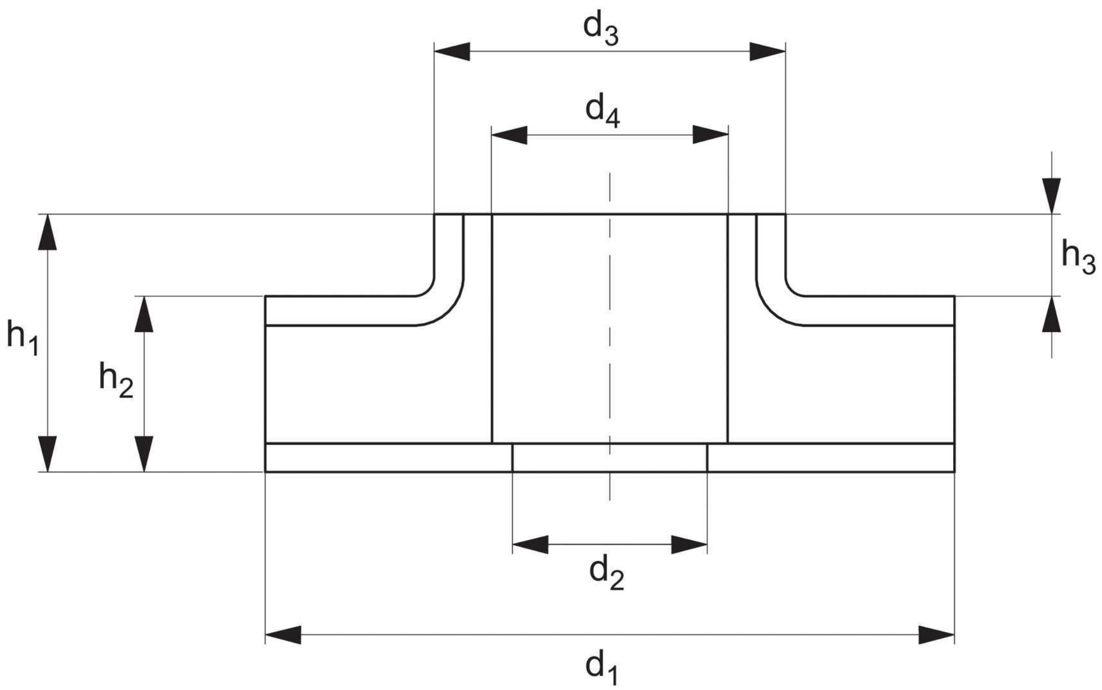
Rubber on silver zinc plated steel (rubber hardness - 60Shore A).

Technical Notes

The metal plates are provided blank so they can be drilled to suit the number of threads, thread sizes and the pitch you require. Other sizes can be supplied on request. Suitable for very heavy loads.

Anti-vibration Washers
with collar

61640



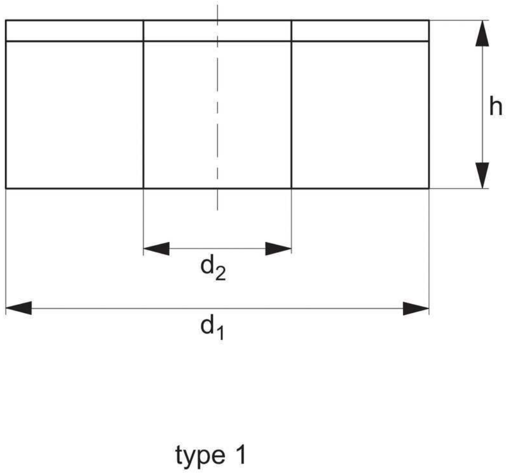
Material
Rubber on silver zinc plated steel.

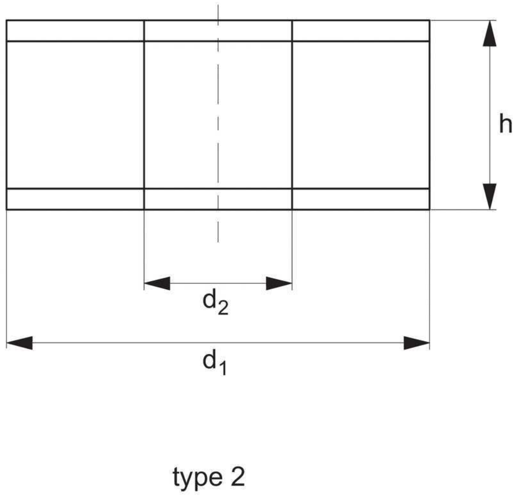
Technical Notes
Static load relates to the load the unit can withstand under compression.
Used where axial and radial loads are present. For frequencies higher than 20Hz.

Order No.	d_1	d_2	d_3	d_4	h_1	h_2	h_3	Max. static load Kgf
61640.W0036	36	8,5	18	12,0	14,0	10,0	4,0	100
61640.W0032	36	16,5	20	16,5	11,5	8,5	3,0	120
61640.W0050	50	16,5	23	20,0	22,0	13,5	8,5	150
61640.W0051	50	28,0	34	28,0	18,0	10,5	7,5	100
61640.W0055	55	24,0	31	28,0	15,0	11,5	3,5	175
61640.W0060	60	20,5	27	24,0	22,0	13,0	9,0	240
61640.W0075	75	24,5	33	29,5	27,0	20,0	8,0	300

Anti-vibration Washers

61650



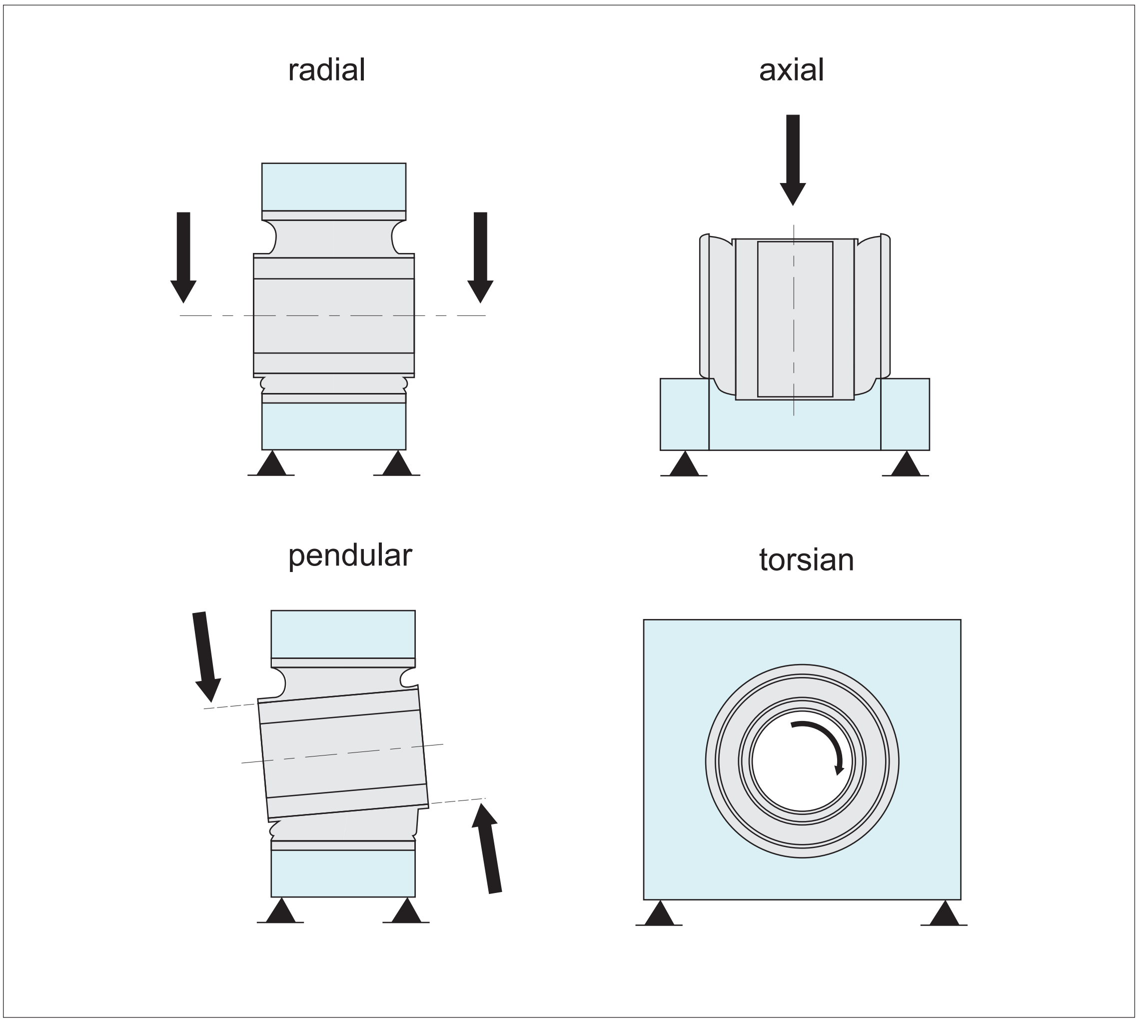


Material
Rubber on silver zinc plated steel.

Technical Notes
Static load relates to the load the unit can withstand under compression. Used where axial and radial loads are present.
For frequencies higher than 20Hz.

Order No.	Type	d_1	d_2	h
61650.W0140	1	40	12	20
61650.W0141	1	40	14	15
61650.W0150	1	50	16	20
61650.W0160	1	60	22	30
61650.W0175	1	75	25	25
61650.W0199	1	100	32	60
61650.W0250	2	50	15	30
61650.W0260	2	60	20	30
61650.W0270	2	70	20	30
61650.W0299	2	100	41	35

Range of movement

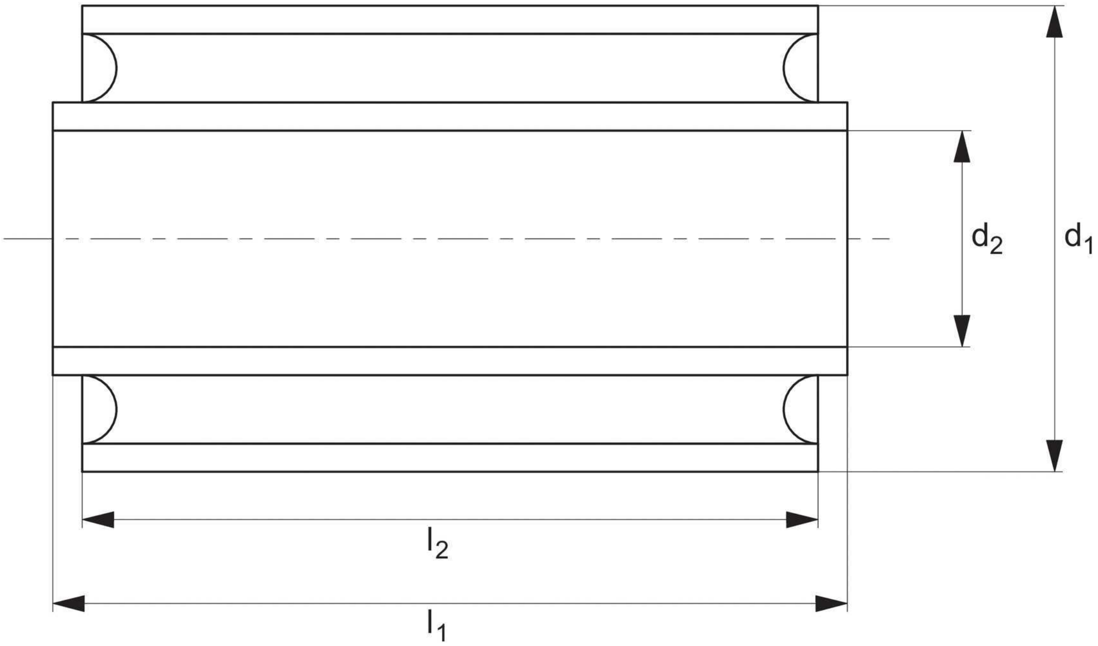


Inside diameter (d_2)	Tolerances	Inside diameter (d_1)	Tolerances
From 8mm to 15mm	-0 / + 0,15	From 16mm to 30mm	-0 / + 0,10
From 16mm to 25mm	-0 / + 0,30	From 31mm to 70mm	-0 / + 0,15
From 26mm to 50mm	-0 / + 0,30	From 71mm to 100mm	-0 / + 0,10

Anti-vibration Bushes

metal-rubber

61700



Material
Rubber on zinc plated steel.

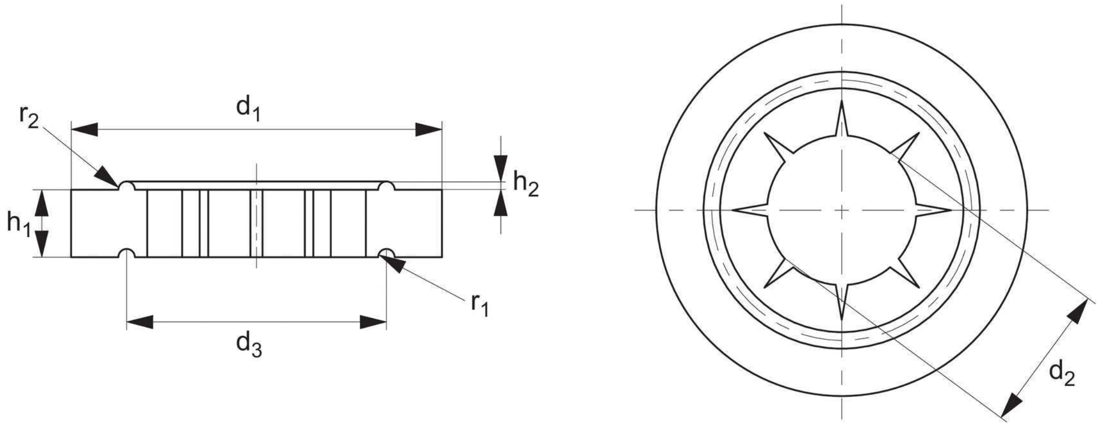
Technical Notes
Useful to isolate vibration and reduce noise. The internal bush can move axially, radially, torsionally and pendular.

Tips
Install by only pushing on external ring when putting into place.

Order No.	d_1	d_2	l_1	l_2	Max. radial load Kgf	Radial compressi on mm	Max. axial load Kgf	Axial compressi on mm
61700.W0081	16,0	8,0	15,0	15,0	30	0,2	15	0,8
61700.W0091	20,5	9,5	15,0	13,0	35	0,2	15	1,0
61700.W0101	21,0	10,0	26,0	24,0	70	0,4	25	1,5
61700.W0102	27,0	10,0	20,0	20,0	80	0,2	25	1,0
61700.W0111	24,0	11,0	18,0	16,0	90	0,3	24	0,8
61700.W0121	26,0	12,0	24,0	20,0	70	0,5	27	1,7
61700.W0123	50,0	12,0	50,0	45,0	200	1,1	60	2,1
61700.W0124	54,0	12,8	44,5	40,0	180	1,0	50	2,0
61700.W0141	27,0	14,0	54,0	48,0	330	0,4	95	1,5
61700.W0142	30,0	14,0	28,0	25,0	120	0,3	40	2,0
61700.W0144	31,0	14,0	35,0	33,0	170	0,3	70	2,0
61700.W0145	30,0	14,5	42,0	38,0	150	0,2	48	1,8
61700.W0146	50,0	14,5	24,0	20,0	70	0,9	45	2,0
61700.W0161	44,0	16,0	32,0	28,0	88	0,7	47	1,6
61700.W0163	54,0	16,0	28,0	22,0	80	1,5	40	3,4
61700.W0181	35,0	18,0	40,0	40,0	190	0,3	80	2,0
61700.W0182	43,5	18,0	42,0	35,0	200	0,8	85	3,8
61700.W0201	40,0	20,0	46,0	40,0	250	0,4	80	1,2
61700.W0202	41,0	20,0	20,5	20,5	100	0,4	40	1,0
61700.W0251	45,0	20,0	62,5	59,5	300	0,5	160	1,1
61700.W0221	40,0	22,0	45,0	40,0	850	0,5	115	2,2
61700.W0222	63,0	22,0	72,0	65,0	670	0,6	265	4,0
61700.W0241	42,0	24,0	55,0	50,0	550	0,5	150	1,8
61700.W0242	50,0	24,0	71,0	65,0	750	0,7	220	2,4
61700.W0251	45,0	25,0	50,0	50,0	550	0,5	150	1,8
61700.W0253	65,0	25,0	55,0	45,0	450	0,6	180	3,8
61700.W0254	83,0	25,0	100,0	90,0	400	2,0	130	5,0
61700.W0281	48,0	28,0	36,0	34,0	210	0,7	100	2,5
61700.W0283	65,0	28,0	70,0	65,0	600	1,7	280	4,8
61700.W0284	75,0	28,0	135,0	125,0	1600	0,5	480	2,3
61700.W0381	64,0	38,0	76,0	70,0	860	0,4	380	2,6
61700.W0401	75,0	40,0	70,0	57,0	600	0,6	350	2,8
61700.W0421	78,0	42,0	86,0	80,0	1100	0,5	350	2,4
61700.W0481	93,0	48,0	80,0	76,0	1500	0,6	800	5,3
61700.W0501	90,0	50,0	100,0	86,0	1500	0,5	800	5,1
61700.W0581	85,0	58,0	142,0	90,0	1800	0,5	350	1,6
61700.W0601	110,0	60,0	182,0	170,0	3000	0,6	800	1,8
61700.W0701	120,0	70,0	115,0	110,0	3500	1,0	800	3,5
61700.W0801	140,0	80,0	180,0	170,0	7500	0,5	1500	2,5
61700.W0901	145,0	100,0	120,0	110,0	2700	0,4	850	2,2
61700.W0961	222,0	160,0	158,0	158,0	6000	1,0	1600	2,3

Anti-vibration Rings

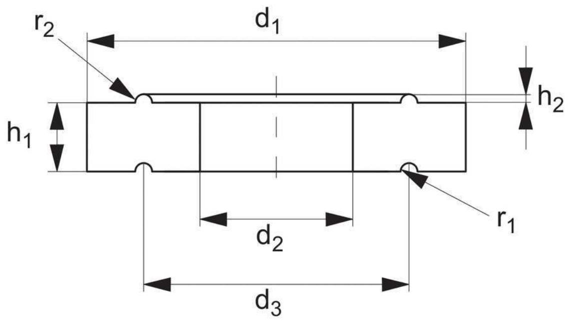
internal star design

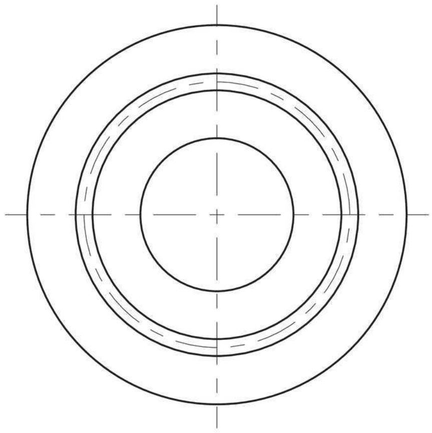


Material

Rubber on silver zinc plated steel (rubber hardness - 65 Shore A).

Order No.	d_1	d_2	d_3	h_1	h_2	r_1	r_2	Compression max.	Max. axial load Kgf
61730.W0001	162	66	114	30	2,5	4,5	2,5	5,0	2000
61730.W0002	170	95	125	23	2,5	5,0	2,5	4,0	2000
61730.W0003	210	88	164	24	2,0	4,0	2,0	4,5	6000

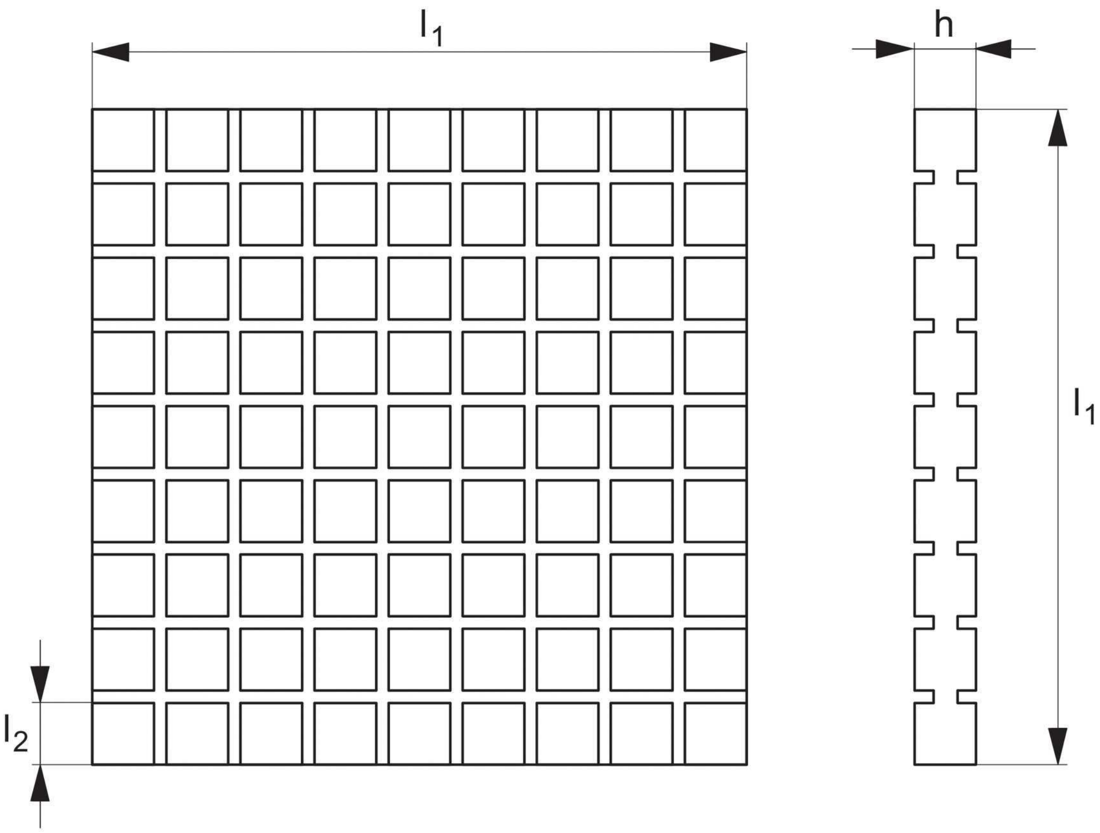




Material
Rubber hardness 70 Shore A.

Order No.	d_1	d_2	h_1	d_3	h_2	r_1	r_2	Compression max.	Max. axial load Kgf
61760.W0010	70	30	14,0	50	2,0	7,0	4,0	2,0	200
61760.W0020	72	32	23,0	52	2,0	2,0	2,0	7,0	400
61760.W0021	72	32	23,0	52	2,0	2,0	2,0	8,5	900
61760.W0022	76	37	12,5	58	3,5	2,5	2,5	2,0	550
61760.W0023	114	66	15,0	90	3,0	3,0	3,0	3,2	500
61760.W0024	114	66	15,0	90	3,0	3,0	3,0	5,0	1500
61760.W0030	116	52	23,5	84	2,5	3,5	2,5	3,5	800
61760.W0031	116	52	23,5	84	2,5	3,5	2,5	3,5	1000
61760.W0040	120	50	27,5	85	2,5	2,5	2,5	3,5	1000
61760.W0050	174	126	15,0	150	3,0	3,0	3,0	2,0	2000
61760.W0065	192	55	31,0	122	3,0	4,0	3,0	3,1	4340
61760.W0070	207	108	28,0	160	2,0	4,0	4,0	2,5	3000

61780



Material
Rubber hardness - 55 Shore A.

Technical Notes
The pad can be cut to suit the application as required.
Differs from a plain rubber mat as the squared units can deform - improving its anti-vibration features.

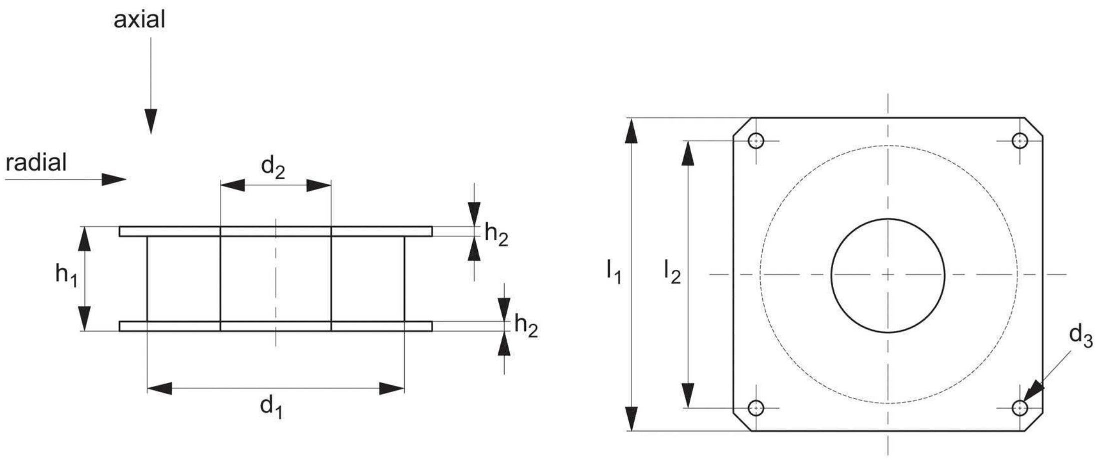
Tips
High frequency isolation (30-40Hz).
Own frequency 18Hz.

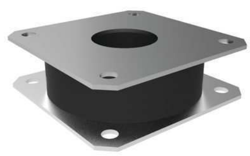
Order No.	l_1	h	l_2	Compression max.	Max. load Kgf/cm²
61780.W0210	210	14	10	2,0	8
61780.W0302	300	5	10	1,0	8
61780.W0301	300	7	10	1,6	8
61780.W0500	500	7	10	1,0	8

Anti-vibration Pads

flanged

61800



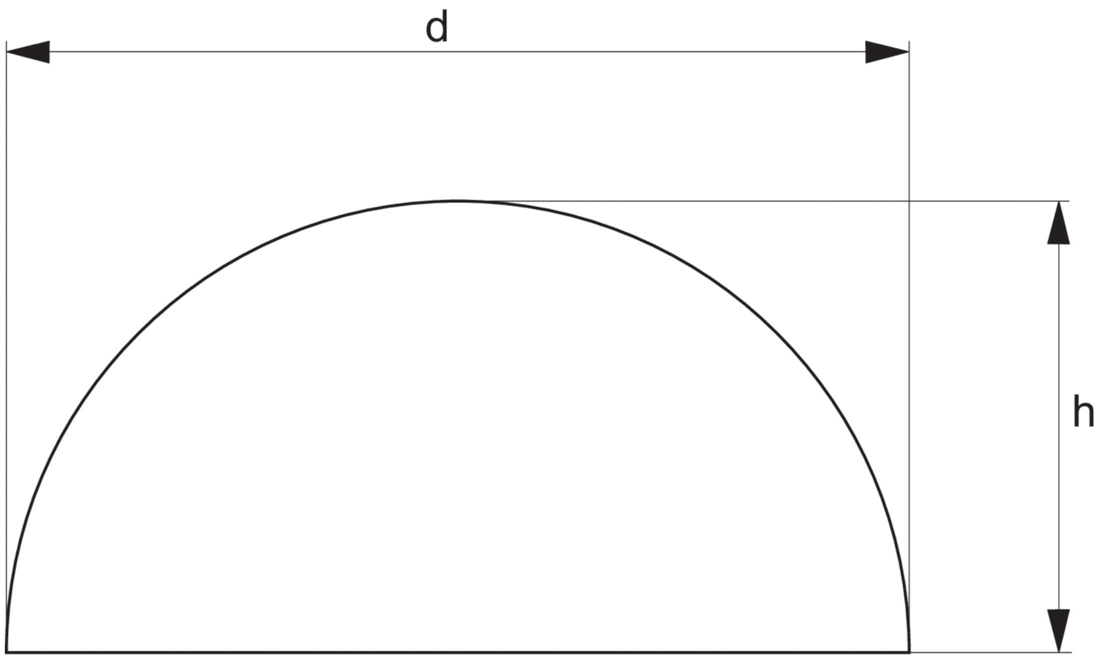


Material
Rubber on silver zinc plated steel (rubber hardness - 65 Shore A).

Order No.	l_1	l_2	h_1	h_2	d_1	d_2	d_3	Max. axial compression	Max. radial compression	Max. axial load Kgf	Max. radial load Kgf
61800.W0135	135	105	42	3	120	50	9	15	10	2500	300
61800.W0170	170	145	100	4	140	65	15	15	10	2500	300
61800.W0180	180	140	46	4	160	60	9	15	10	2500	300
61800.W0210	210	165	55	5	185	70	11	15	10	2500	300
61800.W0250	250	215	48	4	230	100	16	15	10	2500	300

Anti-vibration Bushes
hemisphere

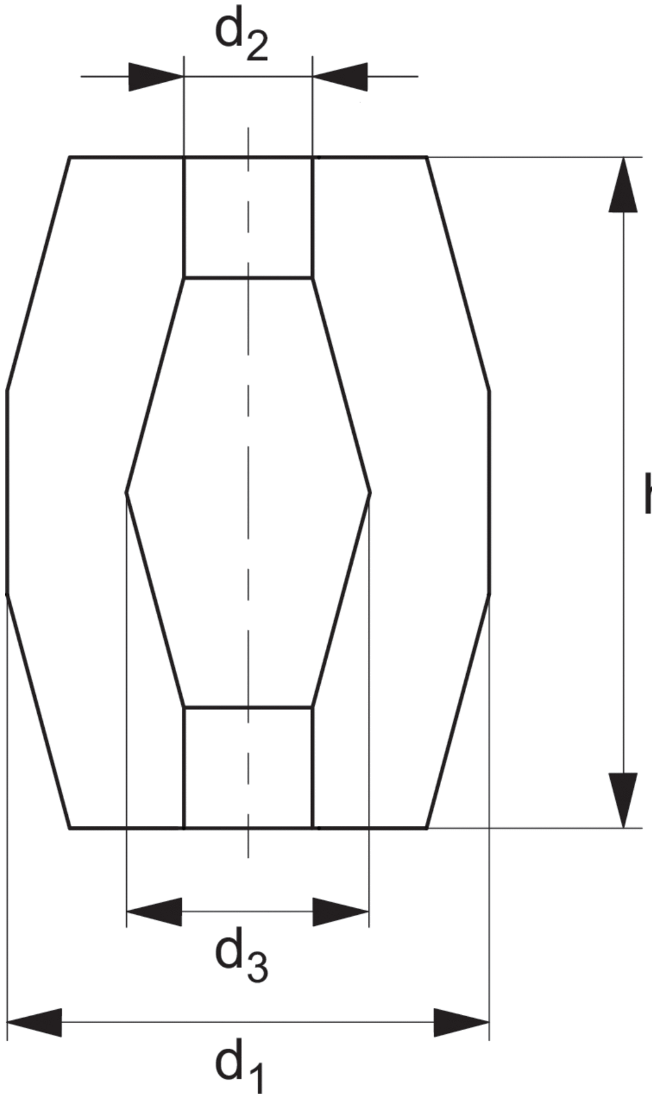
61820



Material
Sorbothane.

Technical Notes
Sorbothane hemisphere mounts provide a quick, cost effective method of isolating bench equipment and small machinery. Simply place the hemisphere under the unit to be isolated with the curved surface up. Expect a 25-30% deflection when statically loaded.

Order No.	Type	d	h	Max. load Kgf
61820.W0001	Without adhesive	19,0	9,5	2,5
61820.W0002	Without adhesive	31,8	15,8	5,0
61820.W0003	Without adhesive	50,8	25,5	8,5
61820.W0201	With adhesive	19,0	9,5	2,5
61820.W0202	With adhesive	31,8	15,8	5,0
61820.W0203	With adhesive	50,8	25,5	8,5

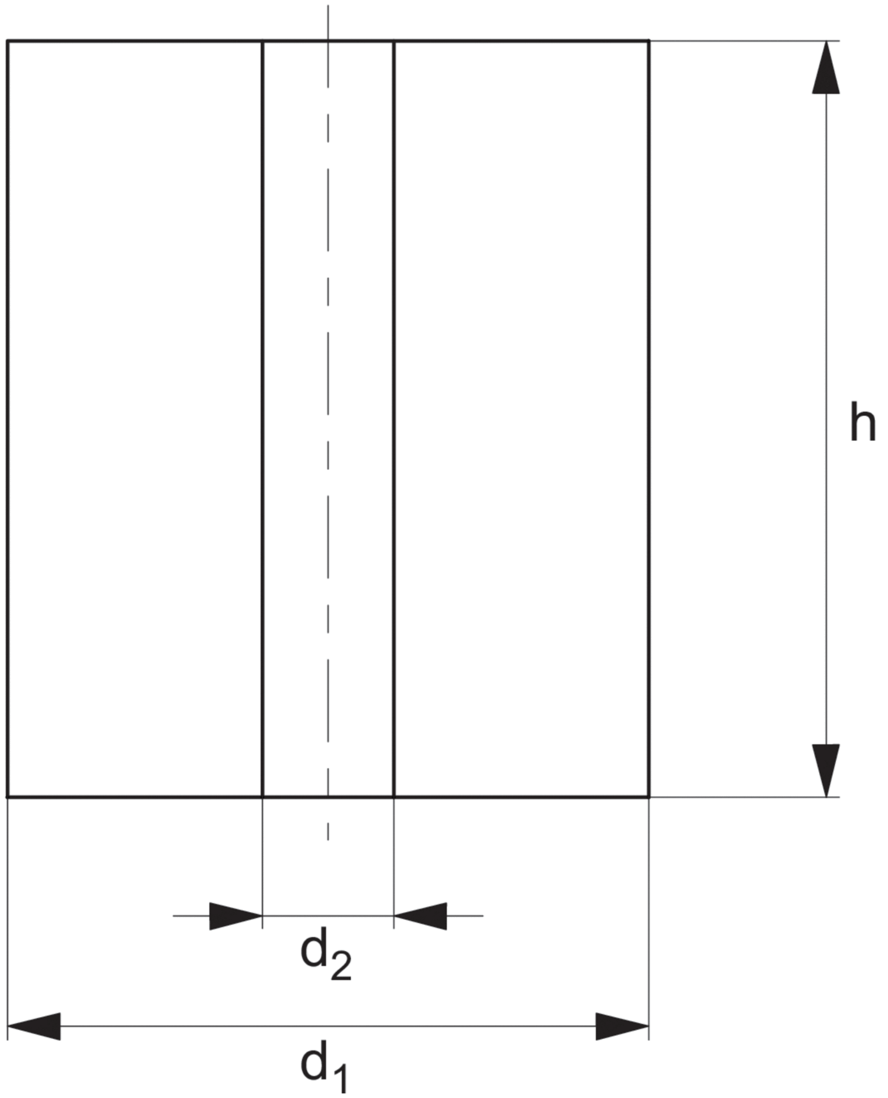


Material
Rubber hardness - 55 Shore A.

Technical Notes
Used in a wide range of vibrating machines.
Allows high deformation with excellent spring back characteristics.
Supports axial and radial loads but not designed for traction or tension loads. For radial loads please contact our Technical Department.

Order No.	d_1	h	d_2	d_3	Compression max.	Max. axial load Kgf
61830.W0001	95	88	23	30	28	200
61830.W0002	100	110	20	30	36	500
61830.W0003	144	122	40	23	48	1000
61830.W0004	150	90	35	35	24	2000
61830.W0005	155	150	30	25	64	2500
61830.W0006	188	180	41	41	80	3500

61850



Material

Rubber hardness - Shore 55 A.

Technical Notes

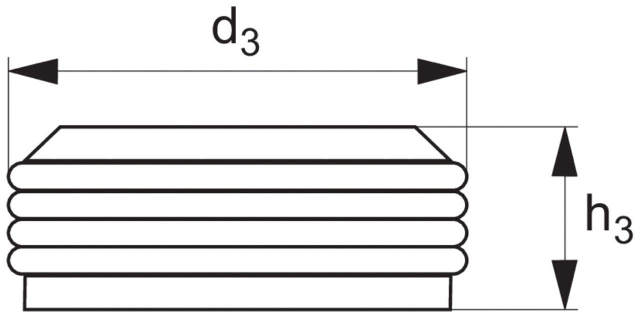
Used in a wide range of vibrating machines.
Allows high deformation with excellent spring back characteristics.
Supports axial and radial loads but not designed for traction or tension loads. For radial loads please contact our technical team.

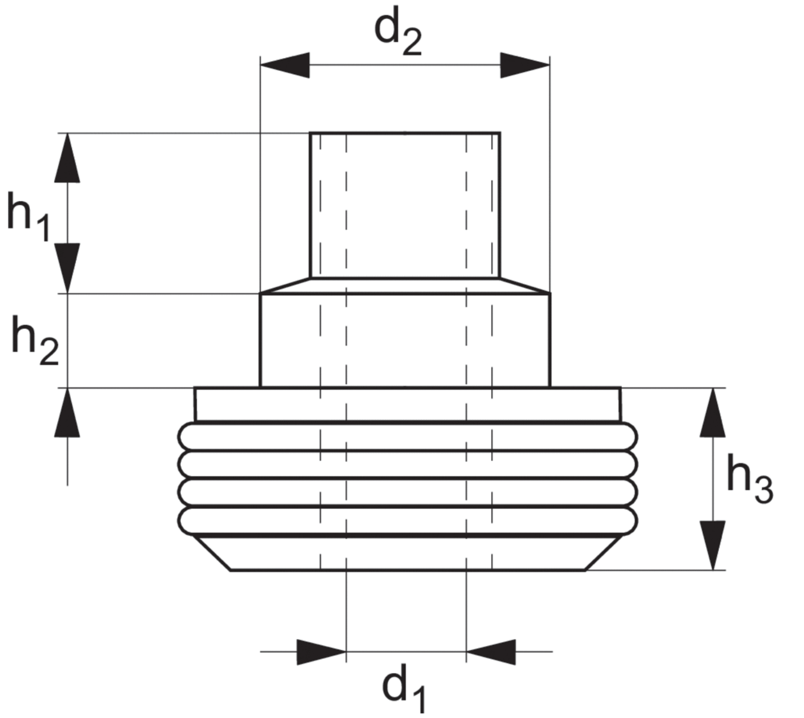
Order No.	d_1	d_2	h
61850.W0020	20	6	15
61850.W0030	30	8	20
61850.W0031	30	8	22
61850.W0035	35	12	30
61850.W0036	35	12	40
61850.W0040	40	10	30
61850.W0045	45	10	35
61850.W0046	45	10	45
61850.W0050	50	10	45
61850.W0060	60	12	40
61850.W0070	70	14	45
61850.W0080	80	16	50
61850.W0081	80	20	80
61850.W0093	93	20	120
61850.W0100	100	20	60
61850.W0102	100	20	147
61850.W0110	110	22	70
61850.W0130	130	25	60
61850.W0148	148	50	190
61850.W0160	160	30	100
61850.W0170	170	31	110
61850.W0200	200	70	125
61850.W0250	250	60	300

Anti-vibration Bushes

rubber, two-piece

61855





Material
Rubber on silver zinc plated steel

Technical Notes
This anti-vibration mount is ideal for applications of major dynamic loads where movement control is necessary,
such as in the cabin of all types of mobile vehicles. It also offers optimal stability, as well as good attenuation of impacts and vibrations.

Important Notes
The double washer mounts are made of two parts of rubber, one of which bears an inside metal bushing which acts as a guide through the machine anchoring screw.

Order no.	d_1	h_1	d_2	d_3	h_2	h_3	Plate min.	Plate max.	Max. load Kgf
61855.W0500	13,5	18,1	32,5	48	10,5	21,4	12,5	14	80
61855.W0501	13,5	18,1	32,5	48	10,5	21,4	12,5	14	130
61855.W0650	16,5	24,0	39,5	64	15,0	23,0	19,0	22	120
61855.W0651	16,5	24,0	39,5	64	15,0	23,0	19,0	22	260
61855.W0900	22,5	29,0	58,0	90	19,0	25,0	25,0	29	260
61855.W0901	22,5	29,0	58,0	90	19,0	25,0	25,0	29	450

Anti-vibration Bushes

rubber, two-piece

61855

Material

Rubber on silver zinc plated steel

Technical Notes

This anti-vibration mount is ideal for applications of major dynamic loads where movement control is necessary,
such as in the cabin of all types of mobile vehicles. It also offers optimal stability, as well as good attenuation of impacts and vibrations.

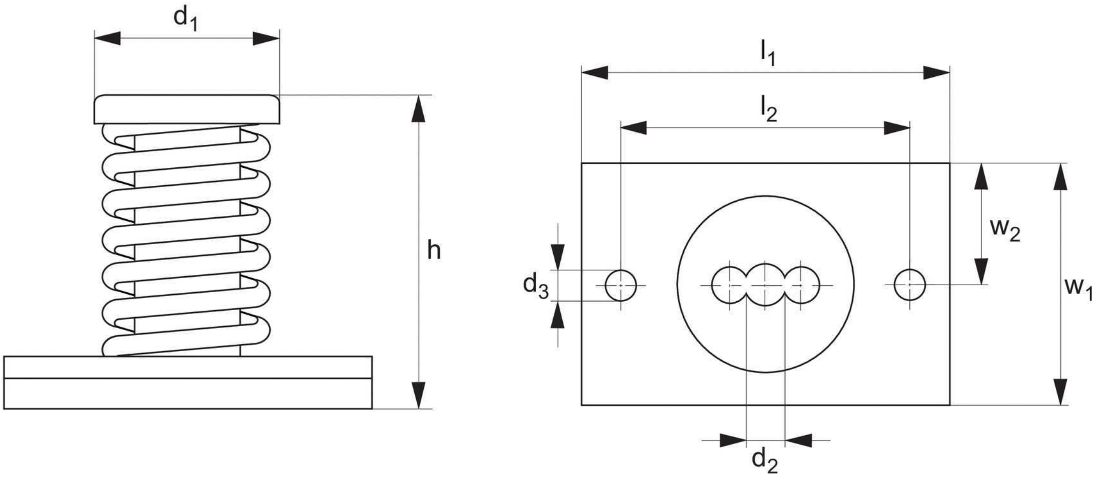
Important Notes

The double washer mounts are made of two parts of rubber, one of which bears an inside metal bushing which acts as a guide through the machine anchoring screw.

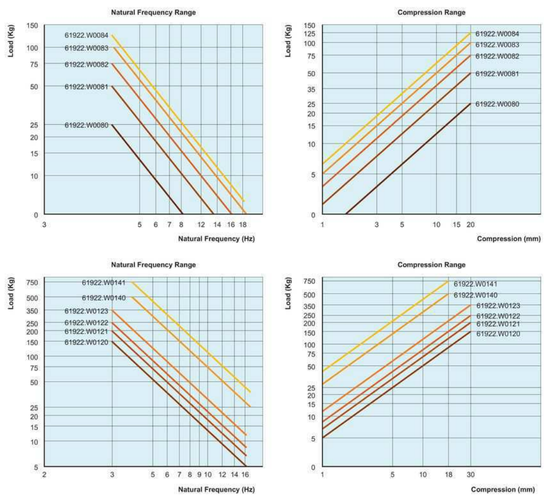
Spring Vibration Damper

one spring

61922



Order No.	d_1	h	d_2	w_1	w_2	l_1	l_2	d_3	Compression max.	Max. load Kgf
61922.W0120	75	132	M12	75	37,5	150	87	10	30	150
61922.W0080	54	95	M 8	65	32,5	110	80	8	20	25
61922.W0081	54	95	M 8	65	32,5	110	80	8	20	50
61922.W0082	54	95	M 8	65	32,5	110	80	8	20	75
61922.W0083	54	95	M 8	65	32,5	110	80	8	20	100
61922.W0084	54	95	M 8	65	32,5	110	80	8	20	125
61922.W0121	75	132	M12	75	37,5	150	87	10	30	200
61922.W0122	75	132	M12	75	37,5	150	87	10	30	250
61922.W0123	75	132	M12	75	37,5	150	87	10	30	350
61922.W0140	90	132	M14	100	50,0	150	120	12	18	500
61922.W0141	90	132	M14	100	50,0	150	120	12	18	750



Material

High tensile steel with sylomer anti-slide base.

Technical Notes

The sylomer mat that these dampers incorporate, isolates the mid-high frequency vibrations which are transmitted through the coils of the metal springs.

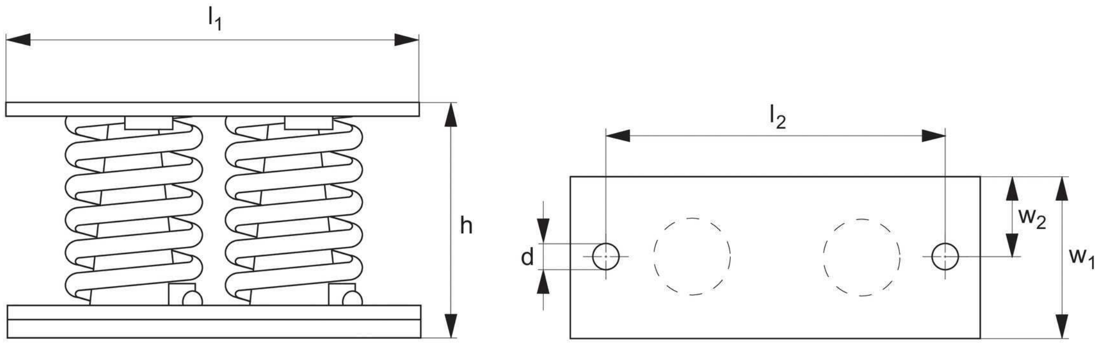
Tips

These are used in sectors such as air compressors, pump and pumping equipment and acoustic isolation of premises.

Spring Vibration Damper

two spring

61923



Order No.	l_1	h	w_1	w_2	d	l_2	Compression max.	Max. load Kgf
61923.W0120	200	136	75	37,5	12	170	30	300
61923.W0121	200	136	75	37,5	12	170	30	400
61923.W0122	200	136	75	37,5	12	170	30	500
61923.W0123	200	136	75	37,5	12	170	30	700
61923.W0140	250	136	100	50,0	14	210	17	1000
61923.W0141	250	136	100	50,0	14	210	17	1500

Material

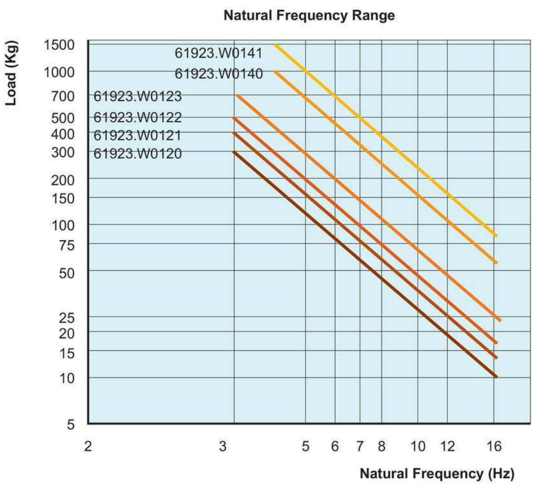
High tensile steel with sylomer anti-slide base

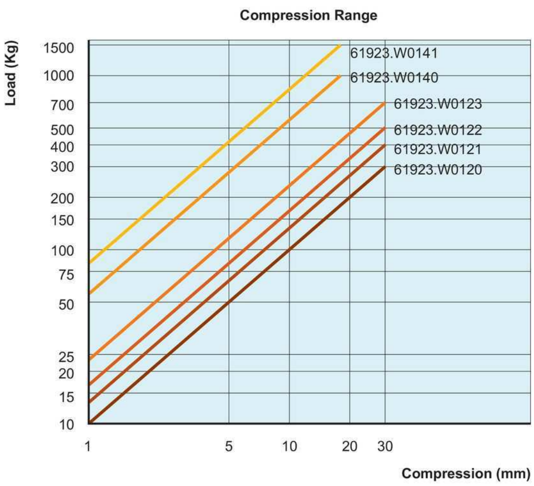
Technical Notes

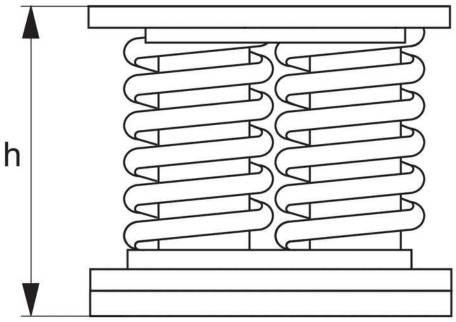
The sylomer mat that these dampers incorporate, isolates the mid-high frequency vibrations which are transmitted through the coils of the metal springs.

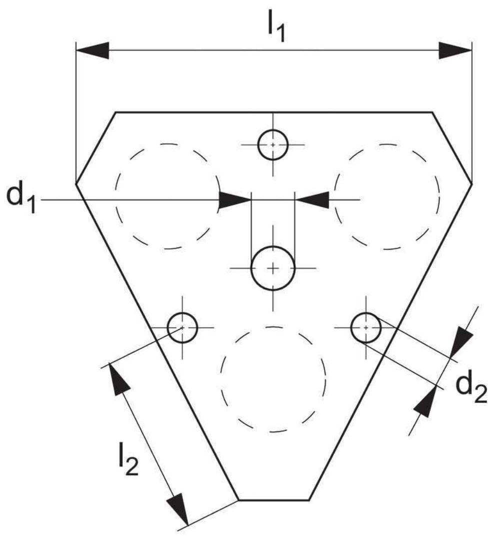
Tips

These are used in sectors such as air compressors, pump and pumping equipment and acoustic isolation of premises.







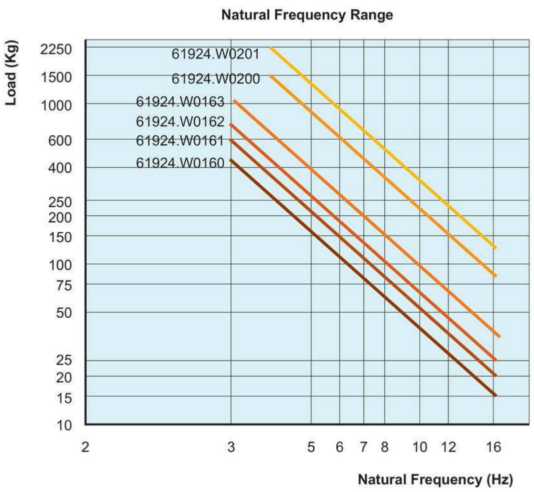


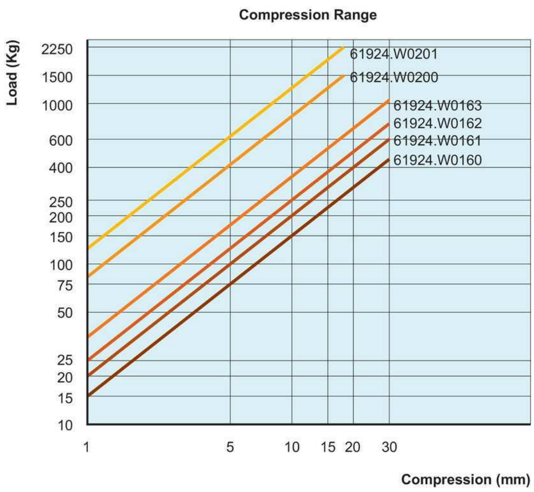
Order No.	l_1	h	l_2	d_1	d_2	Compression max.	Max. load Kgf
61924.W0160	190	136	80	M16	12	30	450
61924.W0161	190	136	80	M16	12	30	600
61924.W0162	190	136	80	M16	12	30	750
61924.W0163	190	136	80	M16	12	30	1050
61924.W0200	242	136	80	M20	14	17	1500
61924.W0201	242	136	80	M20	14	17	2250

Material
High tensile steel with sylomer anti-slide base

Technical Notes
The sylomer mat that these dampers incorporate, isolates the mid-high frequency vibrations which are transmitted through the coils of the metal springs.

Tips
These are used in sectors such as air compressors, pump and pumping equipment and acoustic isolation of premises.

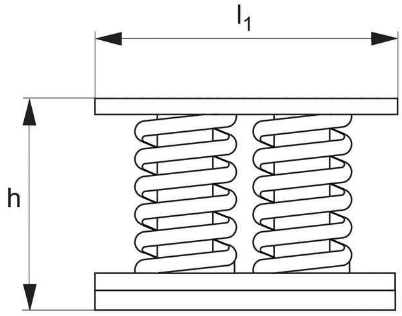


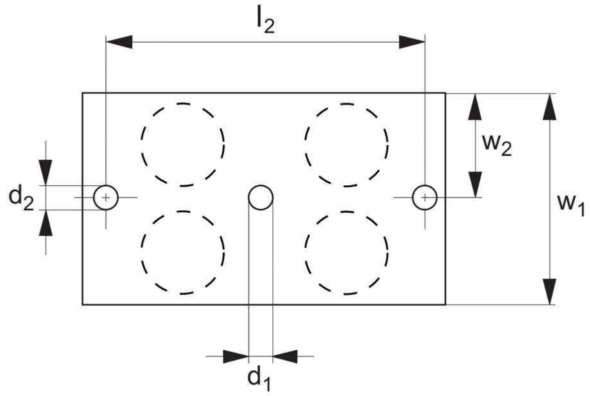


Spring Vibration Damper

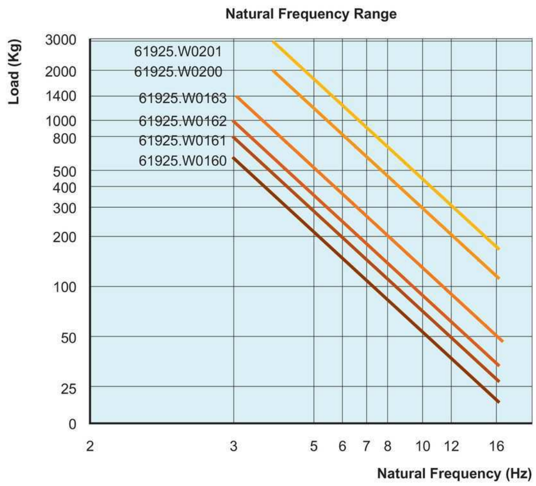
four spring

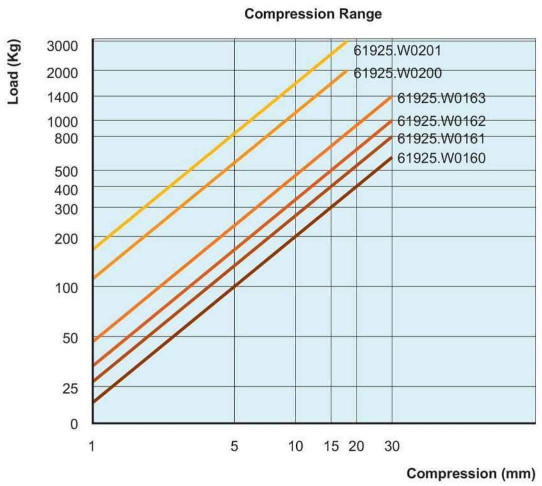
61925





Order No.	l_1	h	d_1	w_1	w_2	d_2	l_2	Compression max.	Max. load Kgf
61925.W0160	200	136	M16	150	75	12	170	30	600
61925.W0161	200	136	M16	150	75	12	170	30	800
61925.W0162	200	136	M16	150	75	12	170	30	1000
61925.W0163	200	136	M16	150	75	12	170	30	1400
61925.W0200	250	136	M20	200	100	14	210	18	2000
61925.W0201	250	136	M20	200	100	14	210	18	3000





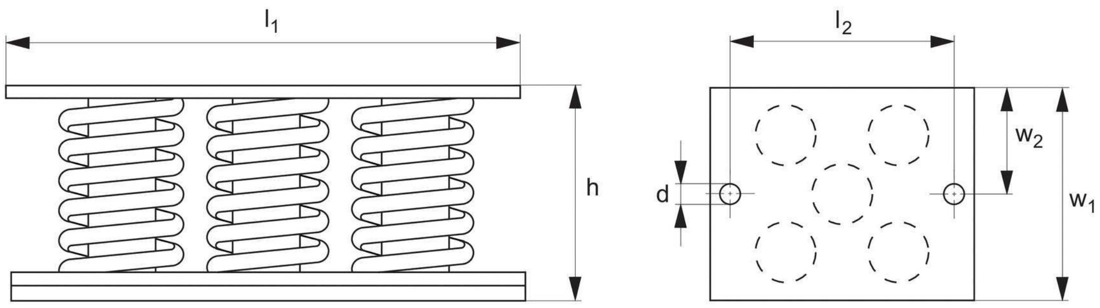
Material
High tensile steel with sylomer anti-slide base.

Technical Notes
The sylomer mat that these dampers incorporate, isolates the mid-high frequency vibrations which are transmitted through the coils of the metal springs.

Tips
These are used in sectors such as air compressors, pump and pumping equipment and acoustic isolation of premises.

Spring Vibration Damper
five spring

61926

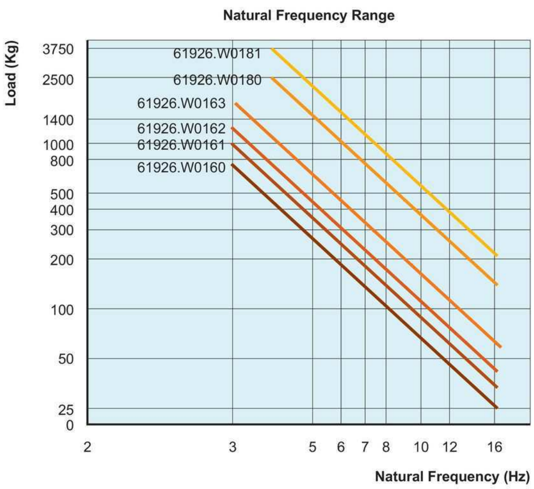


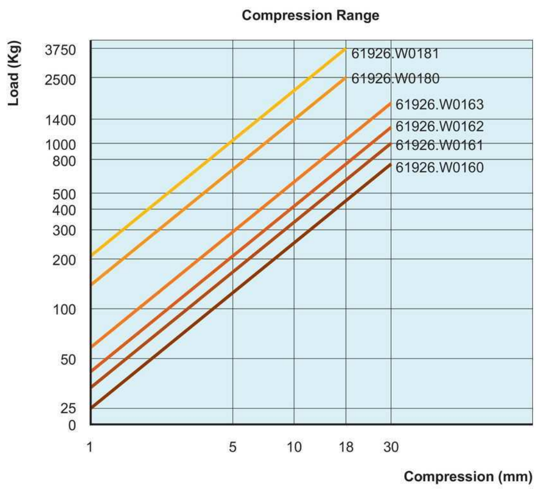
Order No.	l_1	h	d	w_1	w_2	l_2	Compression max.	Max. load Kgf
61926.W0160	280	136	16	150	75	248	30	750
61926.W0161	280	136	16	150	75	248	30	1000
61926.W0162	280	136	16	150	75	248	30	1250
61926.W0163	280	136	16	150	75	248	30	1750
61926.W0180	350	136	18	200	150	300	18	2500
61926.W0181	350	136	18	200	150	300	18	3750

Material
High tensile steel with sylomer anti-slide base.

Technical Notes
The sylomer mat that these dampers incorporate, isolates the mid-high frequency vibrations which are transmitted through the coils of the metal springs.

Tips
These are used in sectors such as air compressors, pump and pumping equipment and acoustic isolation of premises.

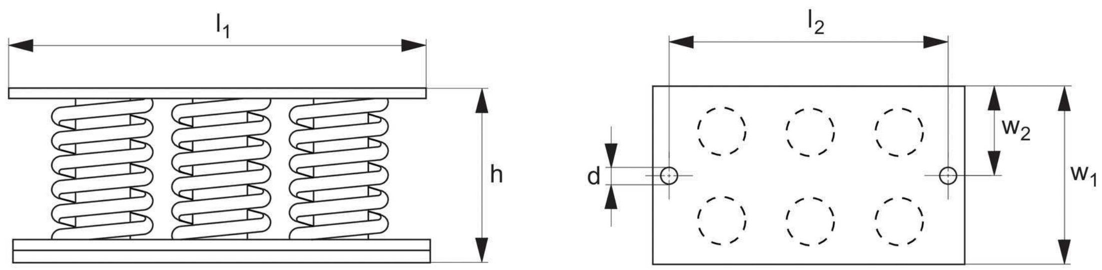




Spring Vibration Damper

six spring

61927



Material

High tensile steel with sylomer anti-slide base.

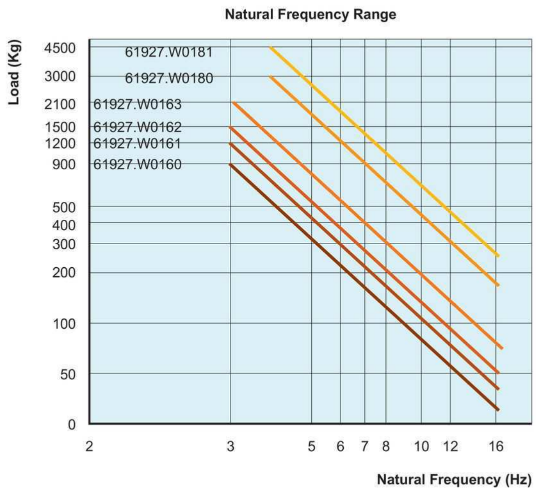
Technical Notes

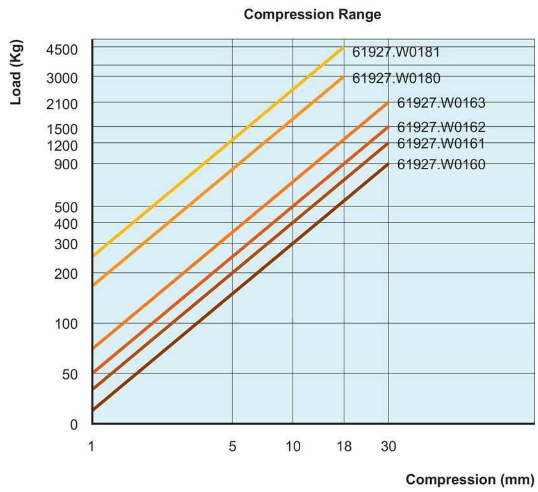
The sylomer mat that these dampers incorporate, isolates the mid-high frequency vibrations which are transmitted through the coils of the metal springs.

Tips

These are used in sectors such as air compressors, pump and pumping equipment and acoustic isolation of premises.

Order No.	l_1	h	d	w_1	w_2	l_2	Compression max.	Max. load Kgf
61927.W0160	280	136	16	150	75	248	30	900
61927.W0161	280	136	16	150	75	248	30	1200
61927.W0162	280	136	16	150	75	248	30	1500
61927.W0163	280	136	16	150	75	248	30	2100
61927.W0180	350	136	18	200	100	300	18	3000
61927.W0181	350	136	18	200	100	300	18	4500

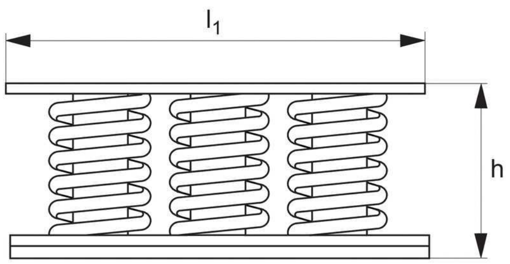


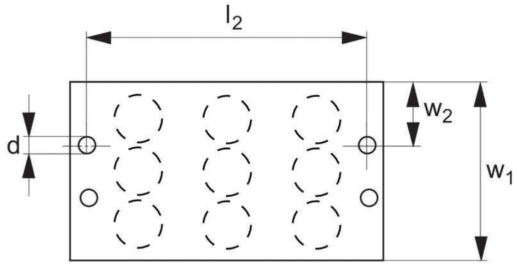


Spring Vibration Damper

nine spring

61928





Material

High tensile steel with sylomer anti-slide base.

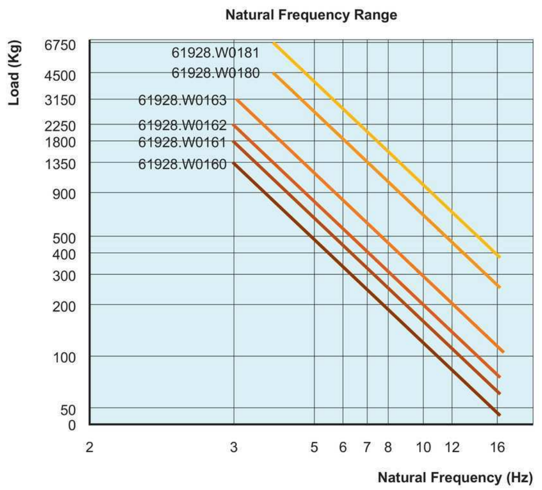
Technical Notes

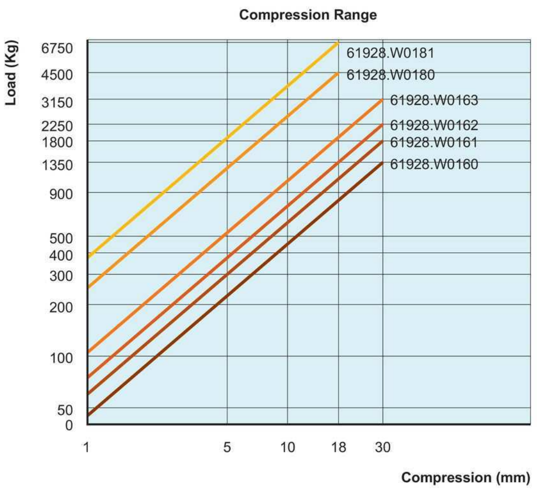
The sylomer mat that these dampers incorporate, isolates the mid-high frequency vibrations which are transmitted through the coils of the metal springs.

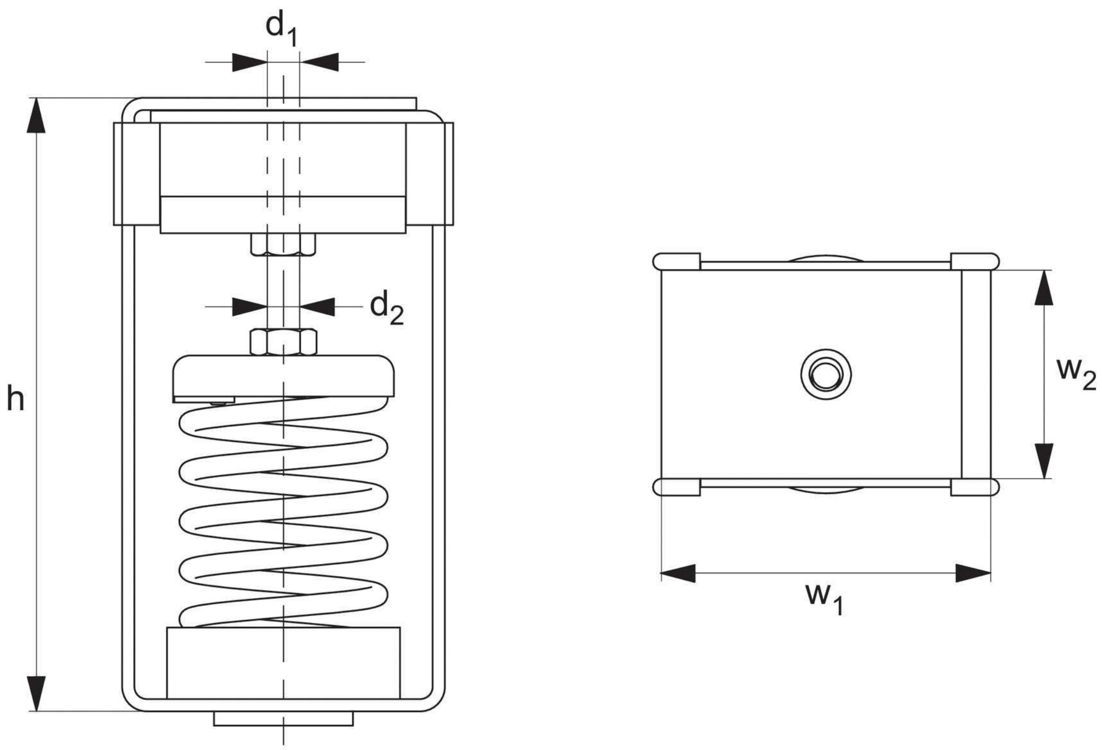
Tips

These are used in sectors such as air compressors, pump and pumping equipment and acoustic isolation of premises.

Order No.	l_1	h	d	w_1	w_2	l_2	Compression max.	Max. load Kgf
61928.W0160	280	136	16	226	75	248	30	1350
61928.W0161	280	136	16	226	75	248	30	1800
61928.W0162	280	136	16	226	75	248	30	2250
61928.W0163	280	136	16	226	75	248	30	3150
61928.W0180	350	136	18	300	75	300	18	4500
61928.W0181	350	136	18	300	75	300	18	6750







Material
Zinc plated steel (anti-corrosive treatment) with Sylomer® pad and steel spring.

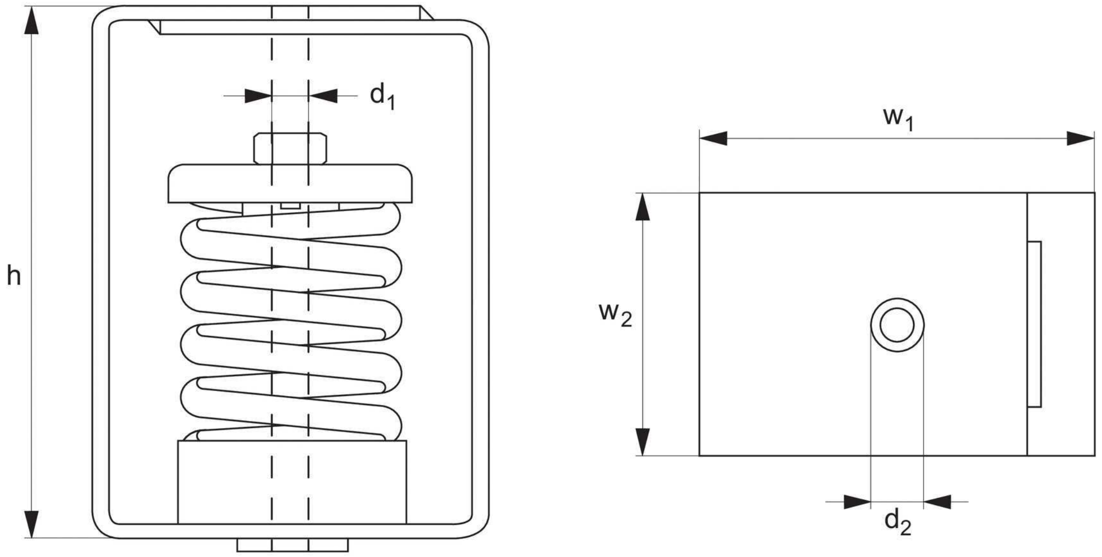
Technical Notes
These hangers come in six different steel spring strengths for increasing loads.
The metal housing has an anti-corrosive treatment, which can with stand very harsh conditions and also resist high tensile stresses up to 1000kg.

Order No.	h	d_1	d_2	w_1	w_2	Compression max.	Max. load Kgf.
61930.W0025	150	12	M 8	79	50	18	25
61930.W0050	150	12	M 8	79	50	18	50
61930.W0075	150	12	M 8	79	50	18	75
61930.W0100	150	12	M 8	79	50	18	100
61930.W0125	150	12	M 8	79	50	20	125
61930.W0150	150	12	M 8	79	50	20	150

Acoustic Suspension Hanger

spring

61931



Material

Steel anti-corrosive zinc plated.

Technical Notes

These units are designed for installations where objects are suspended from ceilings. The spring in the body provides good anti-vibration properties.

Tips

Select the damper corresponding to the load to be carried per unit. These hanger can be used for fans, distribution pipes, ducts and acoustic ceilings.

Order No.	w_1	h	d_1	d_2	w_2	Max. load Kgf.
61931.W0025	75	120	M 8	12	50	25
61931.W0050	75	120	M 8	12	50	50
61931.W0075	75	120	M 8	12	50	75
61931.W0100	75	120	M 8	12	50	100
61931.W0125	75	120	M 8	12	50	125
61931.W0150	120	160	M12	16	80	150
61931.W0200	120	160	M12	16	80	200
61931.W0250	120	160	M12	16	80	250
61931.W0350	120	160	M12	16	80	350
61931.W0500	140	180	M12	18	100	500
61931.W0750	140	180	M12	18	100	750

Material
Steel anti-corrosive zinc plated.

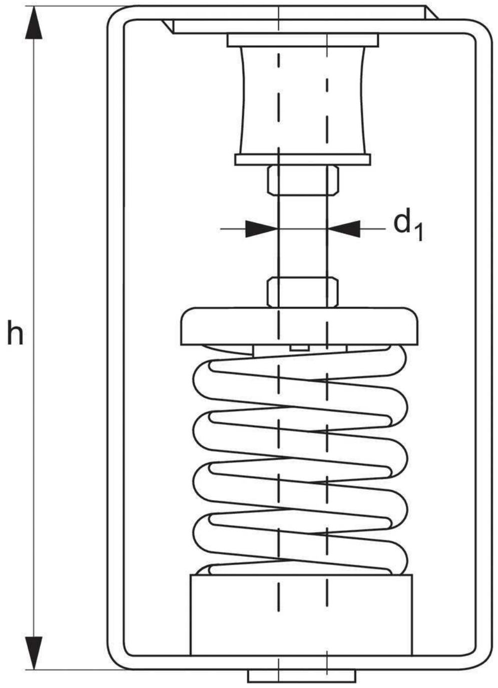
Technical Notes
These units are designed for installations where objects are suspended from ceilings. The spring in the body provides good anti-vibration properties.

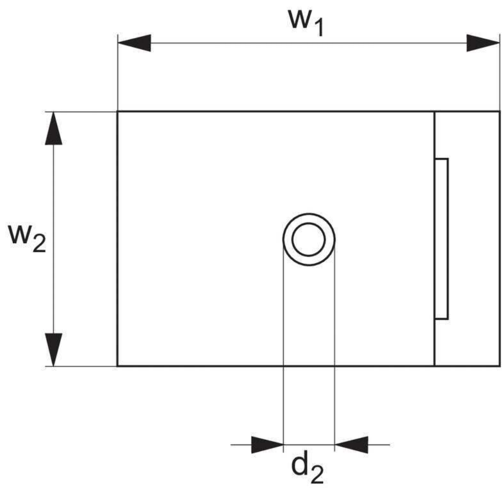
Tips
Select the damper corresponding to the load to be carried per unit. These hanger can be used for fans, distribution pipes, ducts and acoustic ceilings.

Acoustic Suspension Hanger

top mount

61932





Material
Steel zinc plated steel and rubber.

Technical Notes
These units are designed for installations where objects are suspended from ceilings. The spring in the body provides good anti-vibration properties.

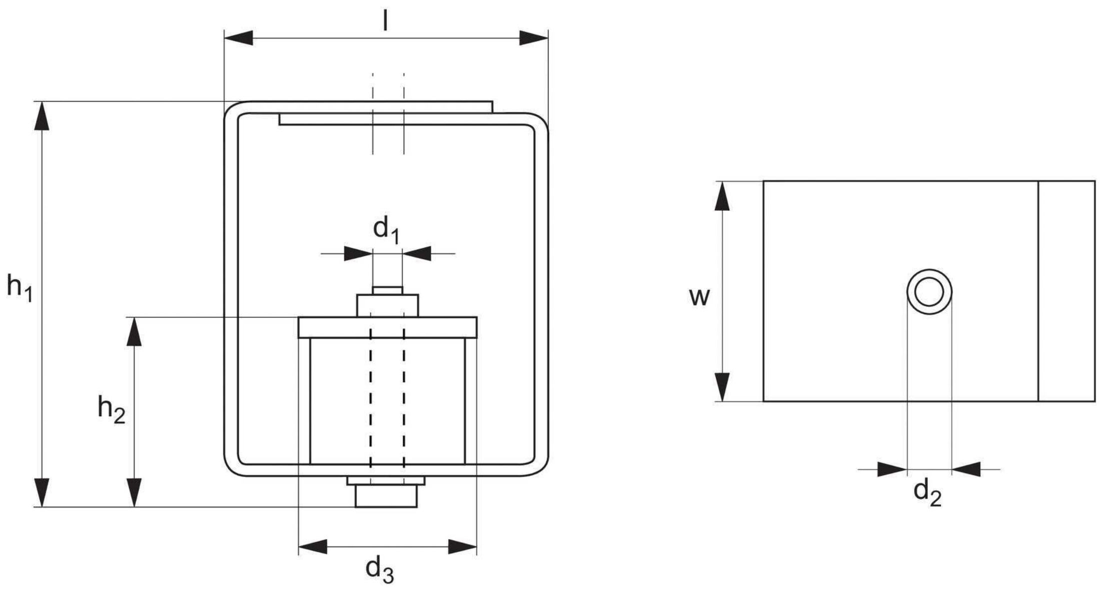
Tips
Select the damper corresponding to the load to be carried per unit. These hanger can be used for fans, distribution pipes, ducts and acoustic ceilings.

Order No.	w_1	h	d_1	d_2	w_2	Max. load Kgf.
61932.W0025	75	150	M 8	12	50	25
61932.W0050	75	150	M 8	12	50	50
61932.W0075	75	150	M 8	12	50	75
61932.W0100	75	150	M 8	12	50	100

Acoustic Suspension Hanger

without nut

61933



Order No.	d_1	h_1	l	d_2	d_3	h_2	w	Max. load Kgf.
61933.W0030	M 6	50	40	7	30	30	46	30
61933.W0060	M 6	50	40	7	30	30	46	60

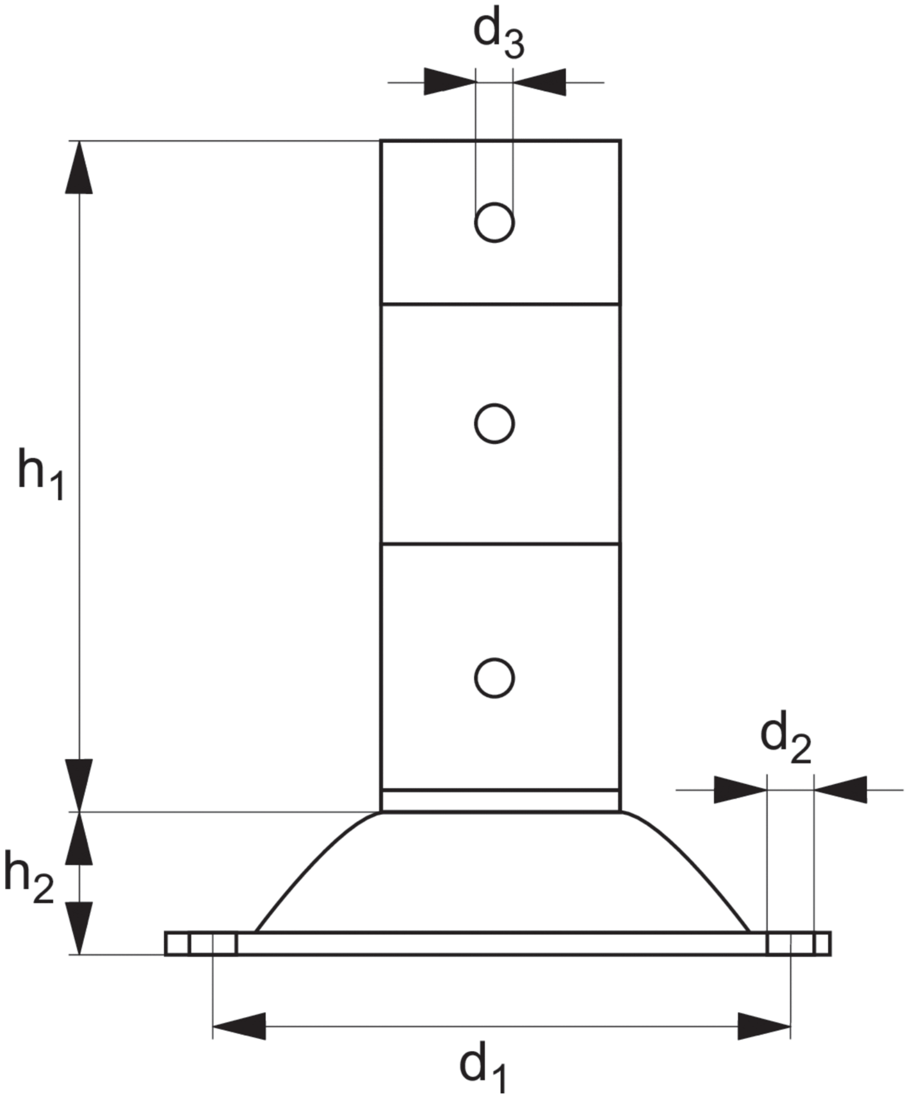
Material
Steel anti-corrosive zinc plated, with rubber 50 shore A cylinder.

Technical Notes
These units are designed for installations where objects are suspended from ceilings. The spring in the body provides good anti-vibration properties.

Tips
Select the damper corresponding to the load to be carried per unit. These hanger can be used for fans, distribution pipes, ducts and acoustic ceilings.

Acoustic Wall Damper
right angle fixing

61936

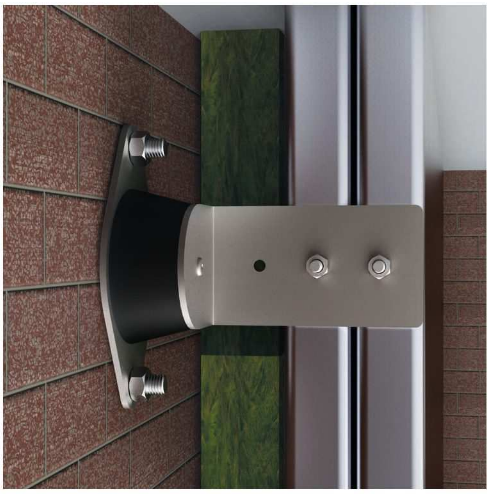


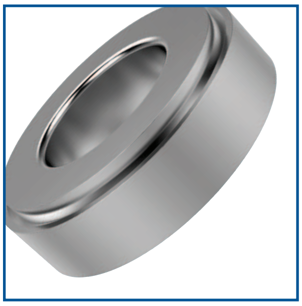
Material
Rubber on steel zinc plated.

Technical Notes
These units are designed for installations where objects are suspended from the ceiling or the wall. The spring in the body provides good anti-vibration properties.

Tips
Select the damper corresponding to the load to be carried per unit. These hanger can be used for fans, distribution pipes, ducts and acoustic ceilings.

Order No.	d_1	h_1	d_2	d_3	h_2	Max. load Kgf.
61936.W0076	76	70	9	4	24	10





Precision Levelling Adjusters

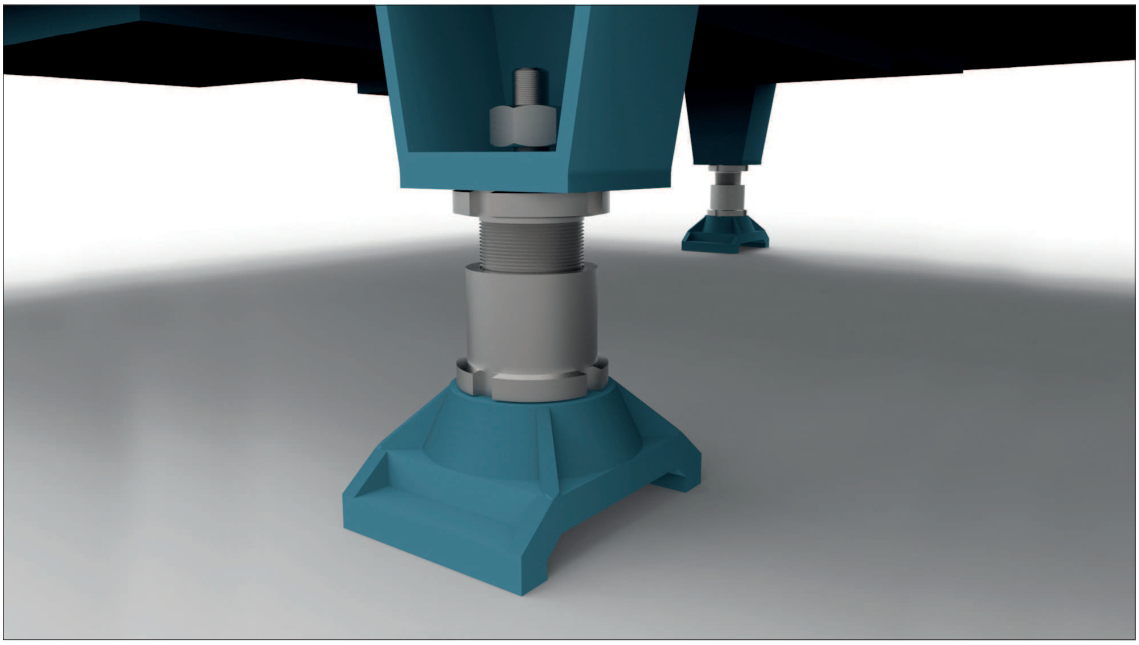
62000 -62160

Wixroyd Precision Levelling Adjusters

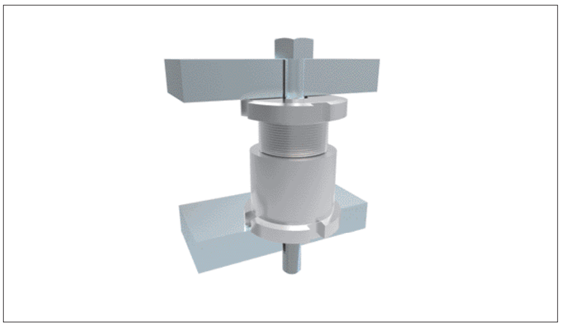
Advantages

- Precision adjusting and re-adjusting.
- Operational under heavy loads.
- Fast installation.
- Greater vertical alignment (from 4 to 105mm).
- Compensation for non-parallel bearing surfaces.
- Suitable for static and dynamic loads.
- Can be anchored to foundation.

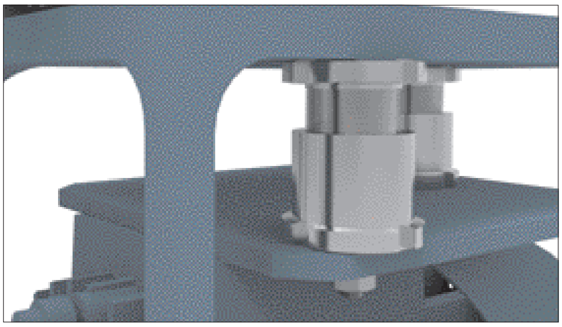
Applications



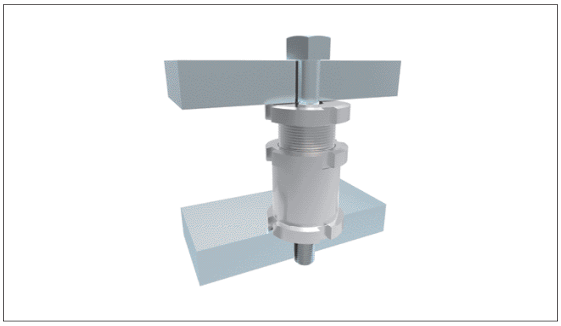
Grounded field mount - Precision Leveller no. 62060 in use on a fully metal encapsulated gas-insulated high voltage switch.



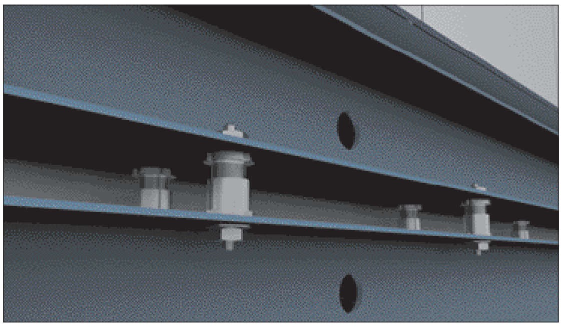
Test stand - Precision Levellers provide adjustment for the connection shaft between motor and transmission.



Drive train application - in this application Wixroyd Precision Levellers are used to adjust the rig to ensure correct tension of the V-belt, and to provide full support of the top mounted electric drive motor.



Plummer blocks - even multiple bearings can be levelled easily and precisely, here part no. 62000 is in use.



Extruder - precision adjustment of an extruder with leveller no. 62008.

ov-62000-62160-a - Updated - 20-12-2016

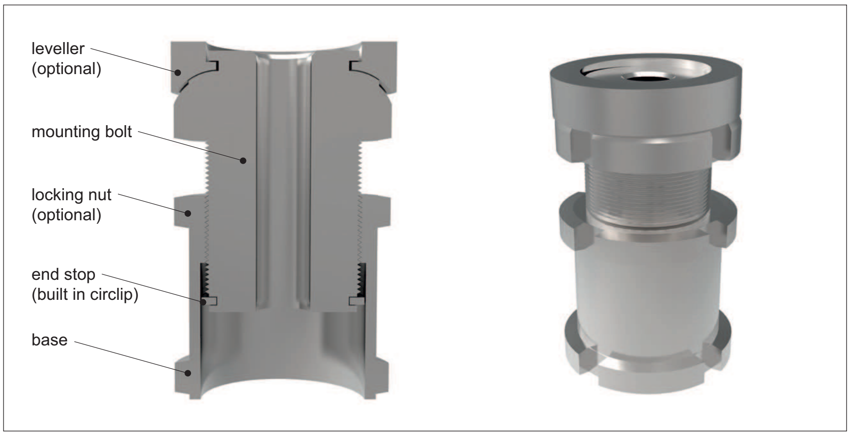
Precision Levelling Adjusters

62000 -62160

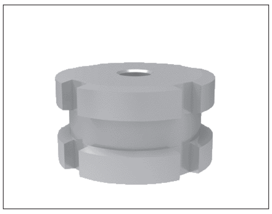
Design features

Wixroyd Precision Levelling Adjusters enable accurate levelling, locating and adjusting of motors, machinery and much more, under heavy loads.

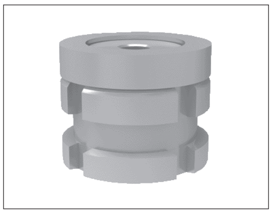
There are three key features to the design, firstly the fine threaded mounting bolt, secondly the threaded nut base and thirdly the end-stop. The fine thread of the mounting bolt and base provides precise adjustment, as well as easy re-adjustment by means of a hook spanner to DIN 1810A, see part no. 95400.



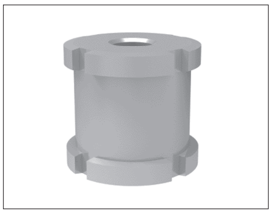
Product range



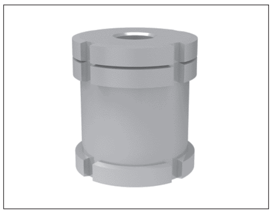
62000 - Designed for applications with limited space - height adjustment is between 4 and 14mm.



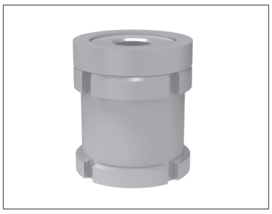
62040 - Designed for applications requiring both height adjustment (from 4 to 14mm) and precise adjustment of non-parallel surfaces, with a maximum angle of tilt 4°.



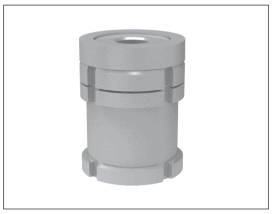
62060 - Designed for applications where a wide adjustment range is required - height adjustment equal to 15 to 55mm.



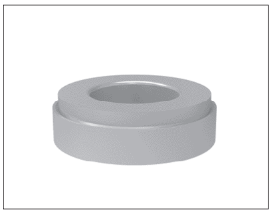
62080 - Designed for applications with a dynamic load, or where no fasteners are used. The locknut enables locking of the adjuster in the pre-set position.



62100 - For applications requiring both height adjustment (from 15 to 55mm) and precise adjustment of non-parallel surfaces, with a max. angle of tilt 4°.



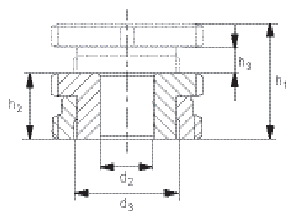
62120 - The same features as part number 62100, but with the added feature of a locknut to fix adjuster in any position.



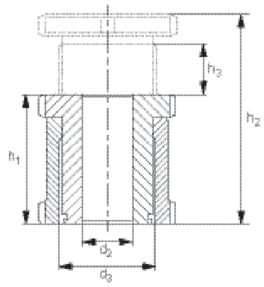
62140/62160 - Designed for applications requiring precise adjustment of non-parallel surfaces, with a maximum angle tilt 4°. The ball shim has no height adjustment feature.

Adjusters vs. levellers

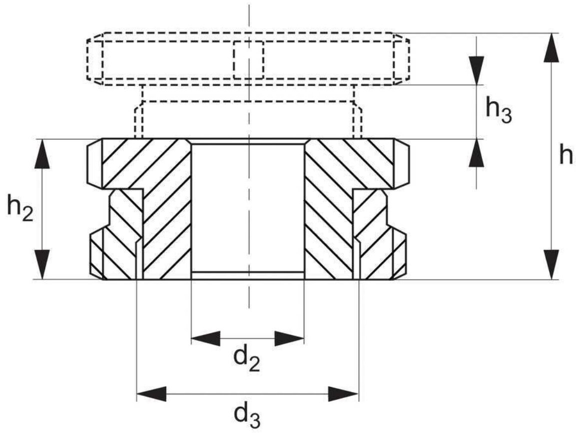
Precision adjusters

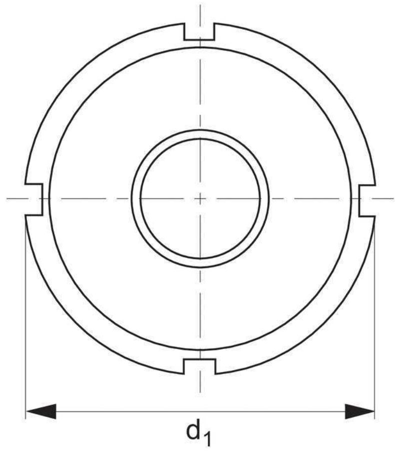


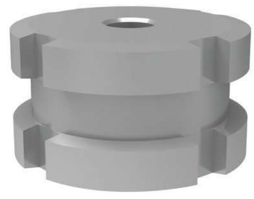
Precision levellers



Features	62000	62002	62040	62042	62060	62080	62100	62120
Adjustment travel 4-14mm	3	3	3	3				
Adjustment travel 15-55mm					3	3	3	3
Lock nut		3		3		3		3
Slope adjustment up to 4°			3	3			3	3
Captive screw feature	3	3	3	3	3	3	3	3







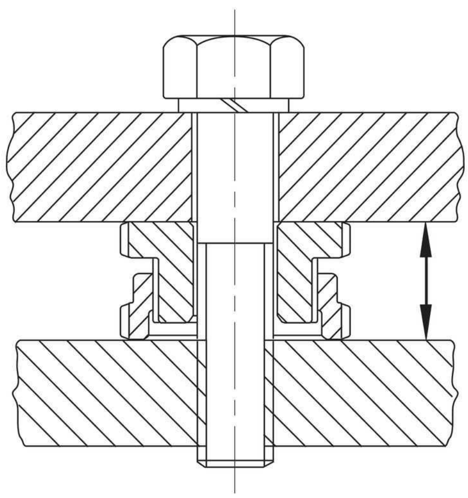
Order No.	Material	For bolt	h_1	h_2	h_3	d_1	d_2	d_3	Max. load with bolt kN	Max. load w/o bolt kN
62000.W0038	Steel	M 4	19	15	4	25	4,5	M15x1,0	36,00	40,0
62000.W0039	Steel	M 5	19	15	4	25	5,5	M15x1,0	33,40	40,0
62000.W0040	Steel	M 6	19	15	4	25	6,6	M15x1,0	30,70	40,0
62000.W0050	Steel	M 6	23	18	5	32	6,6	M20x1,0	55,70	65,0
62000.W0051	Steel	M 8	23	18	5	32	9,0	M20x1,0	48,00	65,0
62000.W0052	Steel	M10	23	18	5	32	11,0	M20x1,0	37,90	65,0
62000.W0070	Steel	M10	29	22	7	45	11,0	M30x1,5	92,90	120,0
62000.W0071	Steel	M12	29	22	7	45	13,5	M30x1,5	80,40	120,0
62000.W0072	Steel	M16	29	22	7	45	17,5	M30x1,5	45,50	120,0
62000.W0090	Steel	M16	37	28	9	58	17,5	M40x1,5	136,00	210,0
62000.W0091	Steel	M20	37	28	9	58	22,0	M40x1,5	90,00	210,0
62000.W0092	Steel	M24	37	28	9	58	26,0	M40x1,5	37,00	210,0
62000.W0100	Steel	M20	43	33	10	70	22,0	M50x1,5	210,00	330,0
62000.W0101	Steel	M24	43	33	10	70	26,0	M50x1,5	157,00	330,0
62000.W0102	Steel	M30	43	33	10	70	33,0	M50x1,5	53,00	330,0
62000.W0502	Stainless steel	M 4	19	15	4	25	4,5	M15x1,0	24,14	27,1
62000.W0503	Stainless steel	M 5	19	15	4	25	5,5	M15x1,0	22,24	27,1
62000.W0504	Stainless steel	M 6	19	15	4	25	6,6	M15x1,0	20,26	27,1
62000.W0550	Stainless steel	M 6	23	18	5	32	6,6	M20x1,0	36,56	43,4
62000.W0551	Stainless steel	M 8	23	18	5	32	9,0	M20x1,0	30,86	43,4
62000.W0552	Stainless steel	M10	23	18	5	32	11,0	M20x1,0	23,41	43,4
62000.W0570	Stainless steel	M10	29	22	7	45	11,0	M30x1,5	64,01	84,0
62000.W0571	Stainless steel	M12	29	22	7	45	13,5	M30x1,5	54,82	84,0
62000.W0572	Stainless steel	M16	29	22	7	45	17,5	M30x1,5	28,90	84,0
62000.W0590	Stainless steel	M16	37	28	9	58	17,5	M40x1,5	92,90	148,0
62000.W0591	Stainless steel	M20	37	28	9	58	22,0	M40x1,5	59,08	148,0
62000.W0592	Stainless steel	M24	37	28	9	58	26,0	M40x1,5	20,30	148,0
62000.W0600	Stainless steel	M20	43	33	10	70	22,0	M50x1,5	136,08	225,0
62000.W0601	Stainless steel	M24	43	33	10	70	26,0	M50x1,5	97,30	225,0
62000.W0602	Stainless steel	M30	43	33	10	70	33,0	M50x1,5	20,60	225,0

Material

Steel (type 42 CrMo4 V, 1.7225) zinc plated or stainless steel A1 (A4 on request).

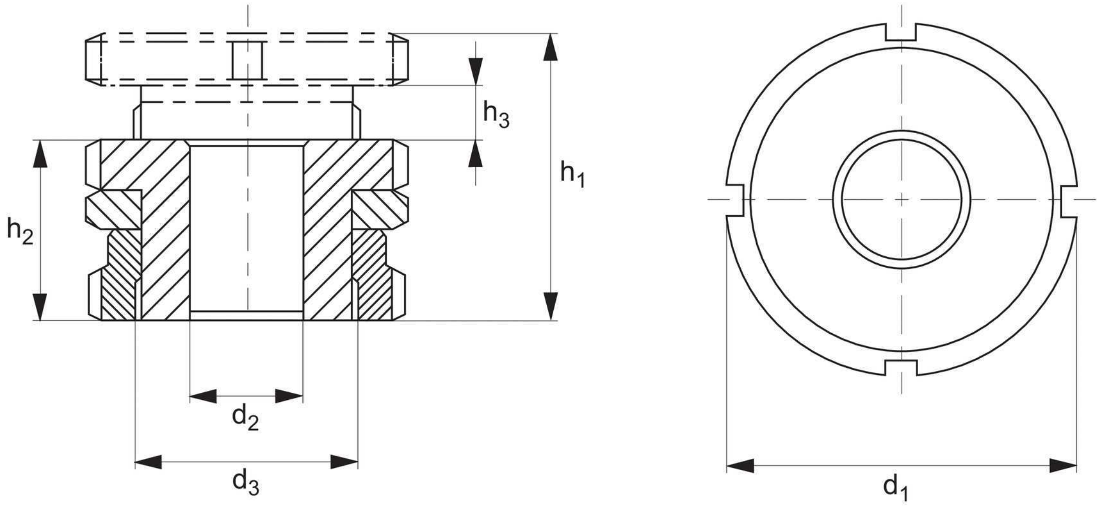
Technical Notes

After setting the height, the structure can be bolted down using a suitable 8,8 strength bolt.
The net load that the unit can carry is the maximum load less the tightening torque recommended for the bolt. Designed for applications with limited space. Height adjustment is between 4 and 10mm.



Precision Adjuster

with locking nut



Order No.	Material	For bolt	h_1	h_2	h_3	d_1	d_2	d_3	Max. load with bolt kN	Max. load w/o bolt kN
62002.W0038	Steel	M 4	24	20	4	25	4,5	M15x1,0	36,00	40,00
62002.W0039	Steel	M 5	24	20	4	25	5,5	M15x1,0	33,40	40,00
62002.W0040	Steel	M 6	24	20	4	25	6,6	M15x1,0	30,70	40,00
62002.W0050	Steel	M 6	29	24	5	32	6,6	M20x1,0	55,70	65,00
62002.W0051	Steel	M 8	29	24	5	32	9,0	M20x1,0	48,00	65,00
62002.W0052	Steel	M10	29	24	5	32	11,0	M20x1,0	37,90	65,00
62002.W0070	Steel	M10	36	29	7	45	11,0	M30x1,5	92,90	120,00
62002.W0071	Steel	M12	36	29	7	45	13,5	M30x1,5	80,40	120,00
62002.W0072	Steel	M16	36	29	7	45	17,5	M30x1,5	45,50	120,00
62002.W0090	Steel	M16	46	37	9	58	17,5	M40x1,5	136,00	210,00
62002.W0091	Steel	M20	46	37	9	58	22,0	M40x1,5	90,00	210,00
62002.W0092	Steel	M24	46	37	9	58	26,0	M40x1,5	37,00	210,00
62002.W0100	Steel	M20	54	44	10	70	22,0	M50x1,5	210,00	330,00
62002.W0101	Steel	M24	54	44	10	70	26,0	M50x1,5	157,00	330,00
62002.W0102	Steel	M30	54	44	10	70	33,0	M50x1,5	53,00	330,00
62002.W0538	Stainless Steel	M 4	24	20	4	25	4,5	M15x1,0	24,14	27,10
62002.W0539	Stainless Steel	M 5	24	20	4	25	5,5	M15x1,0	24,14	27,10
62002.W0540	Stainless Steel	M 6	24	20	4	25	6,6	M15x1,0	20,26	27,10
62002.W0550	Stainless Steel	M 6	29	24	5	32	6,6	M20x1,0	36,56	43,40
62002.W0551	Stainless Steel	M 8	29	24	5	32	9,0	M20x1,0	30,86	43,40
62002.W0552	Stainless Steel	M10	29	24	5	32	11,0	M20x1,0	23,41	43,40
62002.W0570	Stainless Steel	M10	36	29	7	45	11,0	M30x1,5	64,01	84,00
62002.W0571	Stainless Steel	M12	36	29	7	45	13,5	M30x1,5	54,82	84,00
62002.W0572	Stainless Steel	M16	36	29	7	45	17,5	M30x1,5	28,90	84,00
62002.W0590	Stainless Steel	M16	46	37	9	58	17,5	M40x1,5	92,90	148,00
62002.W0591	Stainless Steel	M20	46	37	9	58	22,0	M40x1,5	59,08	148,00
62002.W0592	Stainless Steel	M24	46	37	9	58	26,0	M40x1,5	20,30	148,00
62002.W0600	Stainless Steel	M20	54	44	10	70	22,0	M50x1,5	136,08	225,00
62002.W0601	Stainless Steel	M24	54	44	10	70	26,0	M50x1,5	59,08	225,00
62002.W0602	Stainless Steel	M30	54	44	10	70	33,0	M50x1,5	20,60	225,00

Material

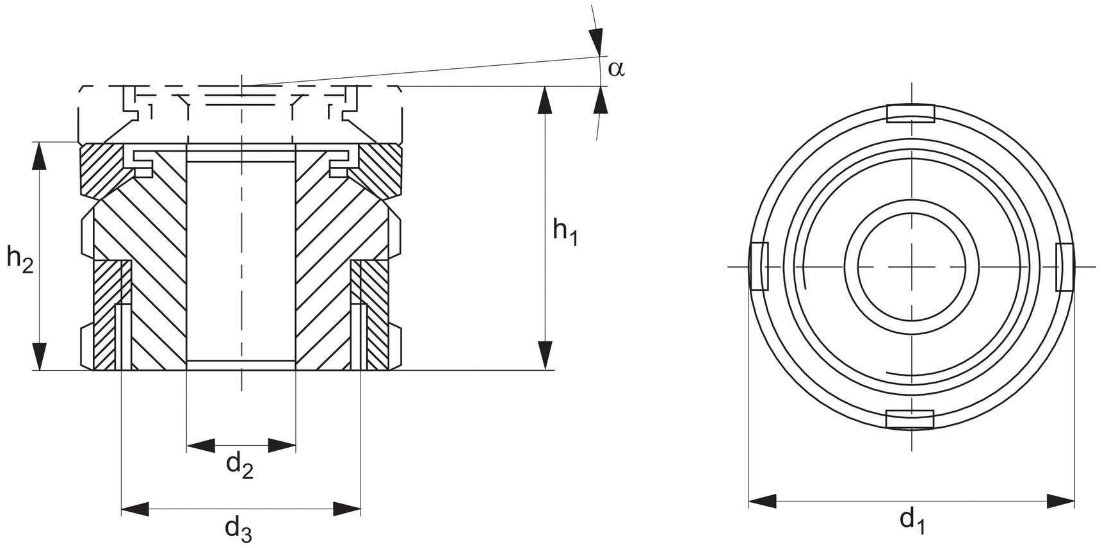
Steel (type 42 CrMo4 V, 1.7225) zinc plated or stainless steel A1 (A4 on request).

Technical Notes

After setting the height, the structure can be bolted down using a suitable 8,8 strength bolt.
The net load that the unit can carry is the maximum load less the tightening torque recommended for the bolt. Designed for applications with limited space. Height adjustment is between 4 and 10mm.
The lock nut included enables the adjuster to be secured in a present position and is recommended for use on applications with a dynamic load or where fasteners are not used.

Tilt Head Precision Adjuster

62040



Order No.	Material	For bolt	h_1	h_2	d_1	d_2	d_3	α	Max. load with bolt kN	Max. load w/o bolt kN
62040.W0038	Steel	M 4	26	22	25	4,5	M15x1,0	4°	36,00	40,0
62040.W0039	Steel	M 5	26	22	25	5,5	M15x1,0	4°	33,40	40,0
62040.W0040	Steel	M 6	26	22	25	6,6	M15x1,0	4°	30,70	40,0
62040.W0050	Steel	M 6	31	26	32	6,6	M20x1,0	4°	55,70	65,0
62040.W0051	Steel	M 8	31	26	32	9,0	M20x1,0	4°	48,00	65,0
62040.W0052	Steel	M10	31	26	32	11,0	M20x1,0	4°	37,90	65,0
62040.W0070	Steel	M10	41	34	45	11,0	M30x1,5	4°	92,90	120,0
62040.W0071	Steel	M12	41	34	45	13,5	M30x1,5	4°	80,40	120,0
62040.W0072	Steel	M16	41	34	45	17,5	M30x1,5	4°	45,50	120,0
62040.W0090	Steel	M16	53	44	58	17,5	M40x1,5	4°	136,00	210,0
62040.W0091	Steel	M20	53	44	58	22,0	M40x1,5	4°	90,00	210,0
62040.W0092	Steel	M24	53	44	58	26,0	M40x1,5	4°	37,00	210,0
62040.W0100	Steel	M20	60	50	70	22,0	M50x1,5	4°	210,00	330,0
62040.W0101	Steel	M24	60	50	70	26,0	M50x1,5	4°	157,00	330,0
62040.W0102	Steel	M30	60	50	70	33,0	M50x1,5	4°	53,00	330,0
62040.W0538	Stainless steel	M 4	26	22	25	4,5	M15x1,0	4°	24,14	27,1
62040.W0539	Stainless steel	M 5	26	22	25	5,5	M15x1,0	4°	24,24	27,1
62040.W0540	Stainless steel	M 6	26	22	25	6,6	M15x1,0	4°	20,26	27,1
62040.W0550	Stainless steel	M 6	31	26	32	6,6	M20x1,0	4°	36,56	43,4
62040.W0551	Stainless steel	M 8	31	26	32	9,0	M20x1,0	4°	30,86	43,4
62040.W0552	Stainless steel	M10	31	26	32	11,0	M20x1,0	4°	23,41	43,4
62040.W0570	Stainless steel	M10	41	34	45	11,0	M30x1,5	4°	64,01	84,0
62040.W0571	Stainless steel	M12	41	34	45	13,5	M30x1,5	4°	54,82	84,0
62040.W0572	Stainless steel	M16	41	34	45	17,5	M30x1,5	4°	28,90	84,0
62040.W0590	Stainless steel	M16	53	44	58	17,5	M40x1,5	4°	92,90	148,0
62040.W0591	Stainless steel	M20	53	44	58	22,0	M40x1,5	4°	59,08	148,0
62040.W0592	Stainless steel	M24	53	44	58	26,0	M40x1,5	4°	20,30	148,0
62040.W0600	Stainless steel	M20	60	50	70	22,0	M50x1,5	4°	136,08	225,0
62040.W0601	Stainless steel	M24	60	50	70	26,0	M50x1,5	4°	97,30	225,0
62040.W0602	Stainless steel	M30	60	50	70	33,0	M50x1,5	4°	20,60	225,0

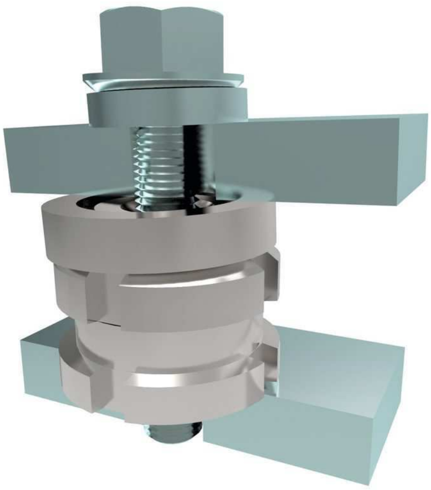
Material

Steel (type 42 CrMo4 V, 1.7225) zinc plated or stainless steel A1 (A4 on request).

Technical Notes

After setting the height, the structure can be bolted down using a suitable 8,8 strength bolt.
The net load that the unit can carry is the maximum load less the tightening torque recommended for the bolt. Please see useful info tab. Designed for applications with limited space. Height adjustment is between 4 and 10mm. Designed for applications requiring both height adjustment and precise adjustment of non-parallel surfaces, with a maximum angle of tilt 4°. For adjustment of non-parallel surfaces without height adjustment, see part no. 62140.

62040



Material

Steel (type 42 CrMo4 V, 1.7225) zinc plated or stainless steel A1 (A4 on request).

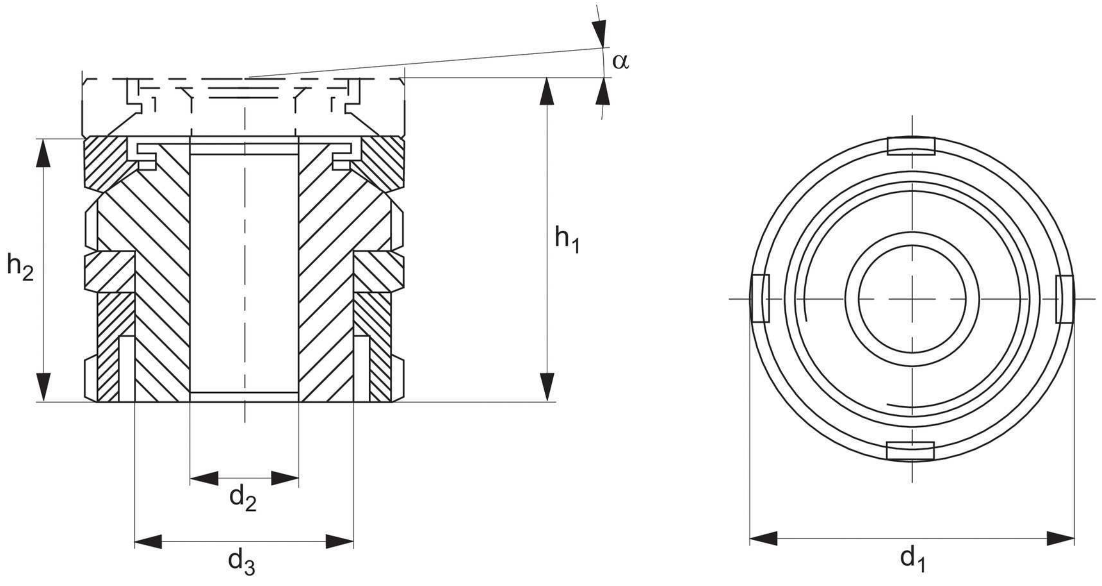
Technical Notes

After setting the height, the structure can be bolted down using a suitable 8,8 strength bolt.
The net load that the unit can carry is the maximum load less the tightening torque recommended for the bolt. Please see useful info tab.
Designed for applications with limited space. Height adjustment is between 4 and 10mm. Designed for applications requiring both height adjustment and precise adjustment of non-parallel surfaces, with a maximum angle of tilt 4°. For adjustment of non-parallel surfaces without height adjustment, see part no. 62140.

Tilt Head Precision Adjuster

short with locking nut

62042



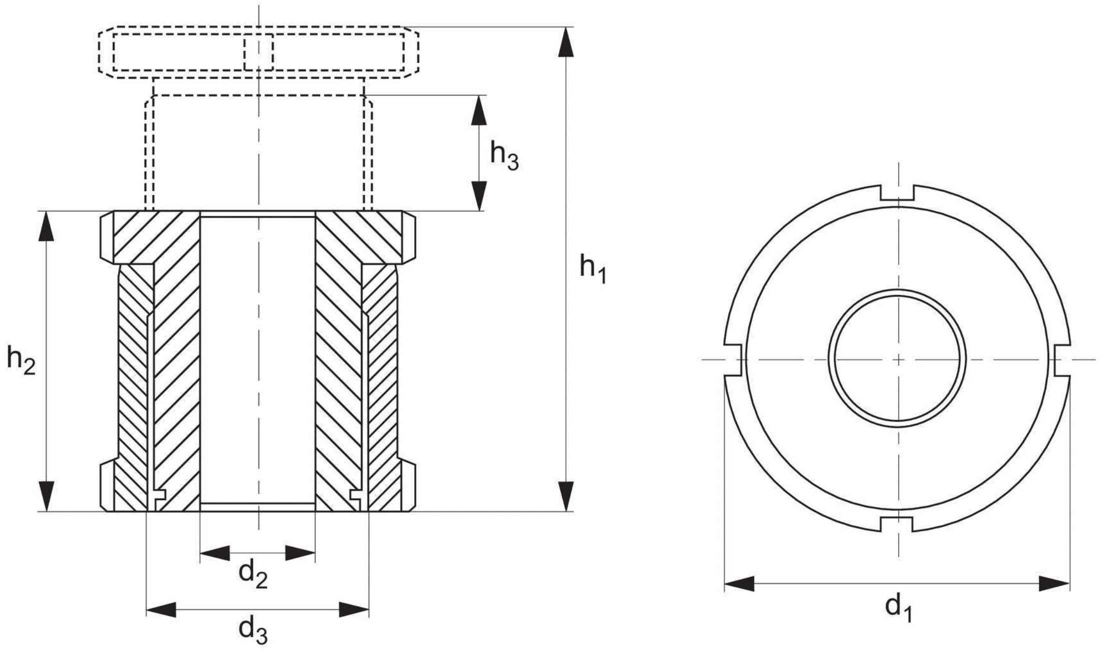
Order No.	Material	For bolt	h_1 min.	h_2 max.	d_1	d_2	d_3	α° app	Max. load with bolt kN	Max. load w/o bolt kN
62042.W0038	Steel	M 4	31	27	25	4,5	M15x1,0	4°	36,00	40,00
62042.W0039	Steel	M 5	31	27	25	5,5	M15x1,0	4°	33,40	40,00
62042.W0040	Steel	M 6	31	27	25	6,6	M15x1,0	4°	30,70	40,00
62042.W0050	Steel	M 6	37	32	32	6,6	M20x1,0	4°	55,70	65,00
62042.W0051	Steel	M 8	37	32	32	9,0	M20x1,0	4°	48,00	65,00
62042.W0052	Steel	M10	37	32	32	11,0	M20x1,0	4°	37,90	65,00
62042.W0070	Steel	M10	48	41	45	11,0	M30x1,5	4°	92,90	120,00
62042.W0071	Steel	M12	48	41	45	13,5	M30x1,5	4°	80,40	120,00
62042.W0072	Steel	M16	48	41	45	17,5	M30x1,5	4°	45,50	120,00
62042.W0090	Steel	M16	62	53	58	17,5	M40x1,5	4°	136,00	210,00
62042.W0091	Steel	M20	62	53	58	22,0	M40x1,5	4°	90,00	210,00
62042.W0092	Steel	M24	62	53	58	26,0	M40x1,5	4°	37,00	210,00
62042.W0100	Steel	M20	71	61	70	26,0	M50x1,5	4°	136,00	330,00
62042.W0101	Steel	M24	71	61	70	33,0	M50x1,5	4°	157,00	330,00
62042.W0102	Steel	M30	71	61	70	39,0	M50x1,5	4°	53,00	330,00
62042.W0538	Stainless Steel	M 4	31	27	25	4,5	M15x1,0	4°	36,00	27,10
62042.W0539	Stainless Steel	M 5	31	27	25	5,5	M15x1,0	4°	33,40	27,10
62042.W0540	Stainless Steel	M 6	31	27	25	6,6	M15x1,0	4°	30,70	27,10
62042.W0550	Stainless Steel	M 6	37	32	32	6,6	M20x1,0	4°	36,56	43,40
62042.W0551	Stainless Steel	M 8	37	32	32	9,0	M20x1,0	4°	30,86	43,40
62042.W0552	Stainless Steel	M10	37	32	32	11,0	M20x1,0	4°	23,41	43,40
62042.W0570	Stainless Steel	M10	48	41	45	11,0	M30x1,5	4°	64,01	84,00
62042.W0571	Stainless Steel	M12	48	41	45	13,5	M30x1,5	4°	54,82	84,00
62042.W0572	Stainless Steel	M16	48	41	45	17,5	M30x1,5	4°	28,90	84,00
62042.W0590	Stainless Steel	M16	62	53	58	17,5	M40x1,5	4°	92,90	148,00
62042.W0591	Stainless Steel	M20	62	53	58	22,0	M40x1,5	4°	59,08	148,00
62042.W0592	Stainless Steel	M24	62	53	58	26,0	M40x1,5	4°	20,30	148,00
62042.W0600	Stainless Steel	M20	71	61	70	26,0	M50x1,5	4°	136,08	225,00
62042.W0601	Stainless Steel	M24	71	61	70	33,0	M50x1,5	4°	97,30	225,00
62042.W0602	Stainless Steel	M30	71	61	70	39,0	M50x1,5	4°	20,60	225,00

Material

Steel (type 42 CrMo4 V, 1.7225) zinc plated or stainless steel A1 (A4 on request).

Technical Notes

The application of the ball head precision adjuster with lock nut facilitates precise adjustment of non-parallel surfaces with a maximum adjustment angle of α 4°. The lock nut included enables the adjuster to be secured in a present position. The static net load is calculable after subtracting the pre-load (bolt strength class 8.8) from the total load.
The lock nut included enables the adjuster to be secured in a preset position.

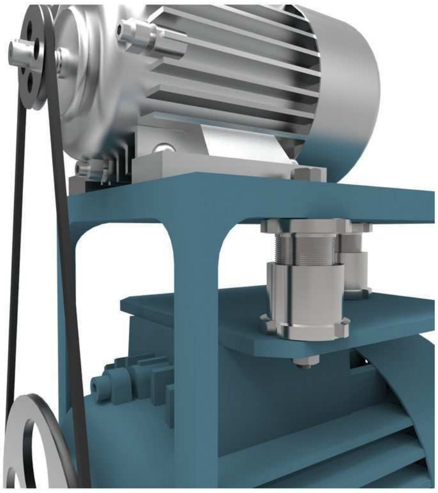


Material
Steel (type 42 CrMo4 V, 1.7225) zinc plated or stainless steel A1 (A4 on request).

Technical Notes
After setting the height, the structure can be bolted down using a suitable 8,8 strength bolt.
The net load that the unit can carry is the maximum load less the tightening torque recommended for the bolt. Designed for applications where a wide adjustment range is required - height adjustment is equal to 15 to 40mm.

Order No.	Material	For bolt	h_1	h_2	h_3	d_1	d_2	d_3	Max. load with bolt kN	Max. load w/o bolt kN
62060.W0013	Steel	M 4	43	28	15	25	4,5	M15x1,0	36,00	40,00
62060.W0014	Steel	M 5	43	28	15	25	5,5	M15x1,0	33,40	40,00
62060.W0015	Steel	M 6	43	28	15	25	6,6	M15x1,0	30,70	40,00
62060.W0021	Steel	M 6	55	35	20	32	6,6	M20x1,0	55,70	65,00
62060.W0022	Steel	M 8	55	35	20	32	9,0	M20x1,0	48,00	65,00
62060.W0023	Steel	M10	55	35	20	32	11,0	M20x1,0	37,90	65,00
62060.W0025	Steel	M10	67	42	25	45	11,0	M30x1,5	92,90	120,00
62060.W0026	Steel	M12	67	42	25	45	13,5	M30x1,5	80,40	120,00
62060.W0027	Steel	M16	67	42	25	45	17,5	M30x1,5	45,50	120,00
62060.W0030	Steel	M16	86	54	32	58	17,5	M40x1,5	136,00	210,00
62060.W0031	Steel	M20	86	54	32	58	22,0	M40x1,5	90,00	210,00
62060.W0032	Steel	M24	86	54	32	58	26,0	M40x1,5	37,00	210,00
62060.W0040	Steel	M20	106	66	40	70	22,0	M50x1,5	210,00	330,00
62060.W0041	Steel	M24	106	66	40	70	26,0	M50x1,5	157,00	330,00
62060.W0042	Steel	M30	106	66	40	70	33,0	M50x1,5	53,00	330,00
62060.W0513	Stainless steel	M 4	43	28	15	25	4,5	M15x1,0	24,14	27,10
62060.W0514	Stainless steel	M 5	43	28	15	25	5,5	M15x1,0	22,24	27,10
62060.W0515	Stainless steel	M 6	43	28	15	25	6,6	M15x1,0	20,26	27,10
62060.W0521	Stainless steel	M 6	55	35	20	32	6,6	M20x1,0	36,56	43,40
62060.W0522	Stainless steel	M 8	55	35	20	32	9,0	M20x1,0	30,86	43,40
62060.W0523	Stainless steel	M10	55	35	20	32	11,0	M20x1,0	23,41	43,40
62060.W0525	Stainless steel	M10	67	42	25	45	11,0	M30x1,5	64,01	84,00
62060.W0526	Stainless steel	M12	67	42	25	45	13,5	M30x1,5	54,82	84,00
62060.W0527	Stainless steel	M16	67	42	25	45	17,5	M30x1,5	28,90	84,00
62060.W0530	Stainless steel	M16	86	54	32	58	17,5	M40x1,5	92,90	148,00
62060.W0531	Stainless steel	M20	86	54	32	58	22,0	M40x1,5	59,08	148,00
62060.W0532	Stainless steel	M24	86	54	32	58	26,0	M40x1,5	20,30	148,00
62060.W0540	Stainless steel	M20	106	66	40	70	22,0	M50x1,5	136,08	225,00
62060.W0541	Stainless steel	M24	106	66	40	70	26,0	M50x1,5	97,30	225,00
62060.W0542	Stainless steel	M30	106	66	40	70	33,0	M50x1,5	20,60	225,00

62060



Material

Steel (type 42 CrMo4 V, 1.7225) zinc plated or stainless steel A1 (A4 on request).

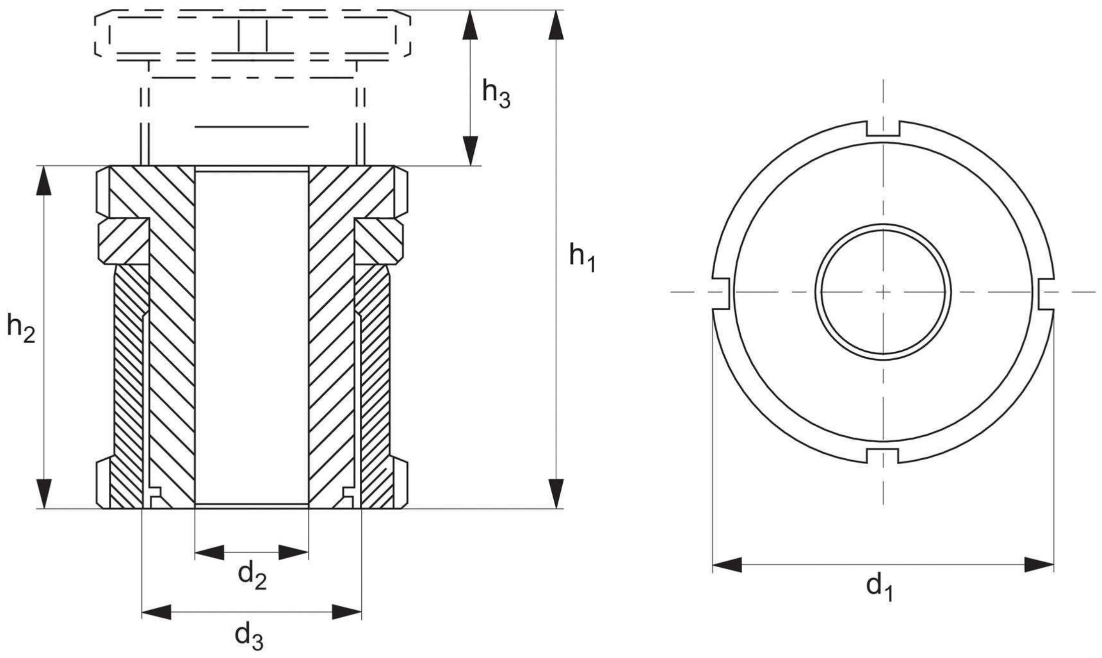
Technical Notes

After setting the height, the structure can be bolted down using a suitable 8,8 strength bolt.
The net load that the unit can carry is the maximum load less the tightening torque recommended for the bolt. Designed for applications where a wide adjustment range is required - height adjustment is equal to 15 to 40mm.

Precision Adjuster

with locking nut

62080



Order No.	Material	For bolt	h_1	h_2	h_3	d_1	d_2	d_3	Max. load with bolt kN	Max. load w/o bolt kN
62080.W0008	Steel	M 4	43	33	10	25	4,5	M15x1,0	36,00	40,00
62080.W0009	Steel	M 5	43	33	10	25	5,5	M15x1,0	33,40	40,00
62080.W0010	Steel	M 6	43	33	10	25	6,6	M15x1,0	30,70	40,00
62080.W0014	Steel	M 6	55	41	14	32	6,6	M20x1,0	55,70	65,00
62080.W0015	Steel	M 8	55	41	14	32	9,0	M20x1,0	48,00	65,00
62080.W0016	Steel	M10	55	41	14	32	11,0	M20x1,0	37,90	65,00
62080.W0017	Steel	M10	67	49	18	45	11,0	M30x1,5	92,90	120,00
62080.W0018	Steel	M12	67	49	18	45	13,5	M30x1,5	80,40	120,00
62080.W0019	Steel	M16	67	49	18	45	17,5	M30x1,5	45,50	120,00
62080.W0020	Steel	M16	86	63	23	58	17,5	M40x1,5	136,00	210,00
62080.W0021	Steel	M20	86	63	23	58	22,0	M40x1,5	90,00	210,00
62080.W0023	Steel	M24	86	63	23	58	26,0	M40x1,5	37,00	210,00
62080.W0030	Steel	M20	106	77	29	70	22,0	M50x1,5	210,00	330,00
62080.W0031	Steel	M24	106	77	29	70	26,0	M50x1,5	157,00	330,00
62080.W0032	Steel	M30	106	77	29	70	33,0	M50x1,5	53,00	330,00
62080.W0508	Stainless steel	M 4	43	33	10	25	4,5	M15x1,0	24,14	27,10
62080.W0509	Stainless steel	M 5	43	33	10	25	5,5	M15x1,0	22,24	27,10
62080.W0510	Stainless steel	M 6	43	33	10	25	6,6	M15x1,0	20,26	27,10
62080.W0514	Stainless steel	M 6	55	41	14	32	6,6	M20x1,0	36,56	43,40
62080.W0515	Stainless steel	M 8	55	41	14	32	9,0	M20x1,0	30,86	43,40
62080.W0516	Stainless steel	M10	55	41	14	32	11,0	M20x1,0	23,41	43,40
62080.W0517	Stainless steel	M10	67	49	18	45	11,0	M30x1,5	64,01	84,00
62080.W0518	Stainless steel	M12	67	49	18	45	13,5	M30x1,5	54,82	84,00
62080.W0519	Stainless steel	M16	67	49	18	45	17,5	M30x1,5	28,90	84,00
62080.W0520	Stainless steel	M16	86	63	23	58	17,5	M40x1,5	92,90	148,00
62080.W0521	Stainless steel	M20	86	63	23	58	22,0	M40x1,5	59,08	148,00
62080.W0523	Stainless steel	M24	86	63	23	58	26,0	M40x1,5	20,30	148,00
62080.W0530	Stainless steel	M20	106	77	29	70	22,0	M50x1,5	136,08	225,00
62080.W0531	Stainless steel	M24	106	77	29	70	26,0	M50x1,5	97,30	225,00
62080.W0532	Stainless steel	M30	106	77	29	70	33,0	M50x1,5	20,60	225,00

Material

Steel (type 42 CrMo4 V, 1.7225) zinc plated or stainless steel A1 (A4 on request).

Technical Notes

After setting the height, the structure can be bolted down using a suitable 8,8 strength bolt.
The net load that the unit can carry is the maximum load less the tightening torque recommended for the bolt.
Designed for applications with a dynamic load, or where no fasteners are used. The locknut enables locking of the adjuster in a pre-set position.

Precision Adjuster
with locking nut

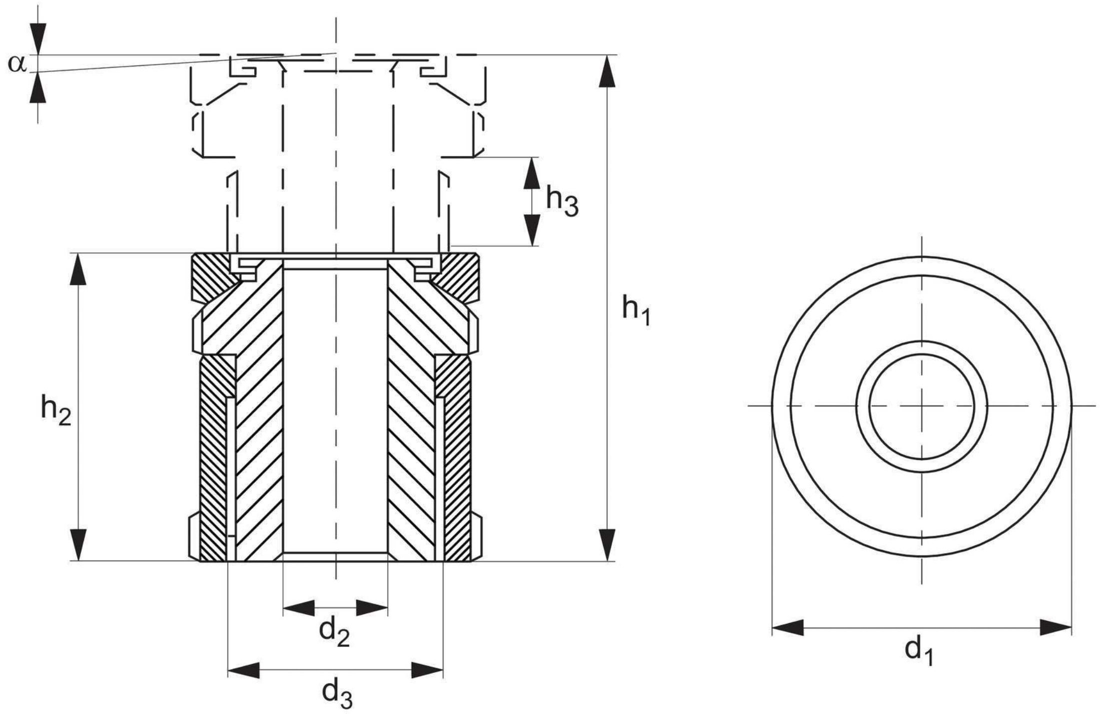
62080

Material
Steel (type 42 CrMo4 V, 1.7225) zinc plated or stainless steel A1 (A4 on request).

Technical Notes
After setting the height, the structure can be bolted down using a suitable 8,8 strength bolt.
The net load that the unit can carry is the maximum load less the tightening torque recommended for the bolt.
Designed for applications with a dynamic load, or where no fasteners are used. The locknut enables locking of the adjuster in a pre-set position.

Tilt Head Precision Adjuster

62100



Material
Steel (type 42 CrMo4 V, 1.7225) zinc plated or stainless steel A1 (A4 on request).

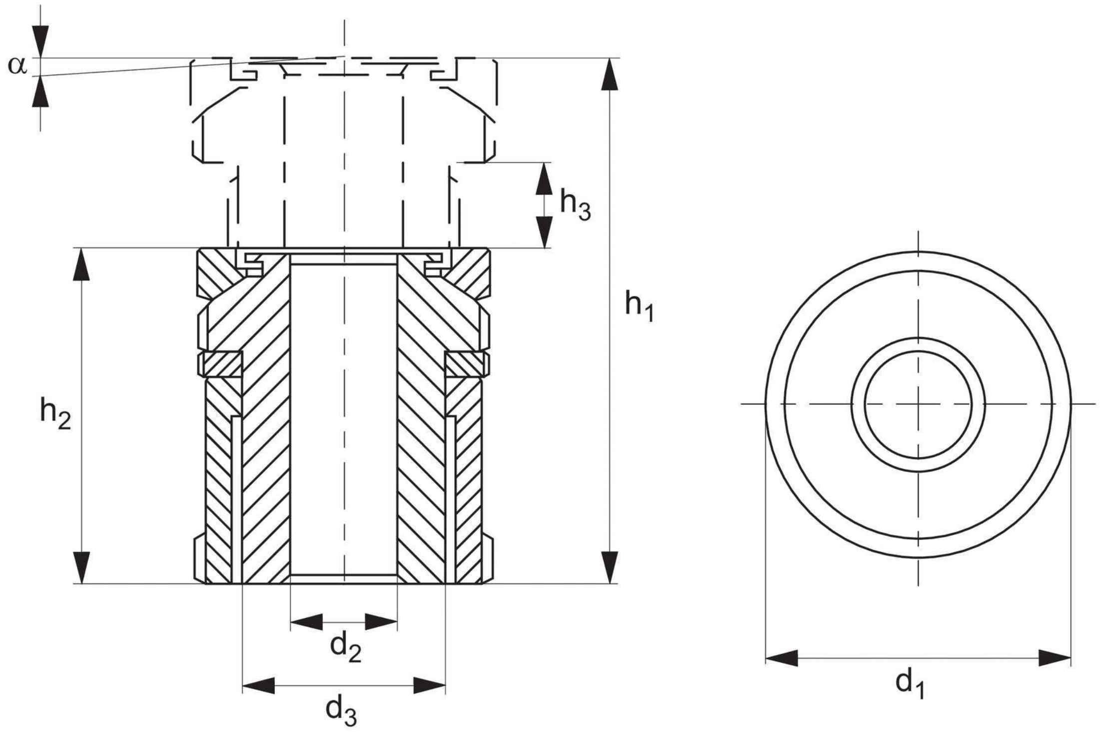
Technical Notes
After setting the height, the structure can be bolted down using a suitable 8,8 strength bolt.
The net load that the unit can carry is the maximum load less the tightening torque recommended for the bolt. Designed for applications where a wide adjustment range is required - height adjustment is equal to 15 to 40mm.

Order No.	Material	For bolt	h_1 min.	h_2 max.	d_1	d_2	d_3	α° app	Max. load with bolt kN	Max. load w/o bolt kN
62100.W0008	Steel	M 4	35	50	25	4,5	M15x1,0	4°	36,00	40,00
62100.W0009	Steel	M 5	35	50	25	5,5	M15x1,0	4°	33,40	40,00
62100.W0010	Steel	M 6	35	50	25	6,6	M15x1,0	4°	30,70	40,00
62100.W0014	Steel	M 6	43	63	32	6,6	M20x1,0	4°	56,70	65,00
62100.W0015	Steel	M 8	43	63	32	9,0	M20x1,0	4°	48,90	65,00
62100.W0016	Steel	M10	43	63	32	11,0	M20x1,0	4°	37,90	65,00
62100.W0017	Steel	M10	54	79	45	11,0	M30x1,5	4°	92,90	120,00
62100.W0018	Steel	M12	54	79	45	13,5	M30x1,5	4°	80,40	120,00
62100.W0019	Steel	M16	54	79	45	17,5	M30x1,5	4°	45,50	120,00
62100.W0020	Steel	M16	70	102	58	22,0	M40x1,5	4°	136,00	210,00
62100.W0021	Steel	M20	70	102	58	26,0	M40x1,5	4°	90,80	210,00
62100.W0023	Steel	M24	70	102	58	26,0	M40x1,5	4°	37,00	210,00
62100.W0030	Steel	M20	83	123	70	22,0	M50x1,5	4°	210,00	330,00
62100.W0031	Steel	M24	83	123	70	26,0	M50x1,5	4°	157,00	330,00
62100.W0032	Steel	M30	83	123	70	33,0	M50x1,5	4°	53,00	330,00
62100.W0508	Stainless Steel	M 4	35	50	25	4,5	M15x1,0	4°	24,14	27,10
62100.W0509	Stainless Steel	M 5	35	50	25	5,5	M15x1,0	4°	22,24	27,10
62100.W0510	Stainless Steel	M 6	35	50	25	6,6	M15x1,0	4°	20,26	27,10
62100.W0514	Stainless Steel	M 6	43	63	32	6,6	M20x1,0	4°	36,56	43,40
62100.W0515	Stainless Steel	M 8	43	63	32	9,0	M20x1,0	4°	30,86	43,40
62100.W0516	Stainless Steel	M10	43	63	32	11,0	M20x1,0	4°	23,41	43,40
62100.W0517	Stainless Steel	M10	54	79	45	11,0	M30x1,5	4°	64,01	84,00
62100.W0518	Stainless Steel	M12	54	79	45	13,5	M30x1,5	4°	54,52	84,00
62100.W0519	Stainless Steel	M16	54	79	45	17,5	M30x1,5	4°	28,90	84,00
62100.W0520	Stainless Steel	M16	70	102	58	22,0	M40x1,5	4°	92,90	148,00
62100.W0521	Stainless Steel	M20	70	102	58	26,0	M40x1,5	4°	59,08	148,00
62100.W0523	Stainless Steel	M24	70	102	58	26,0	M40x1,5	4°	20,30	148,00
62100.W0530	Stainless Steel	M20	83	123	70	22,0	M50x1,5	4°	136,08	225,00
62100.W0531	Stainless Steel	M24	83	123	70	26,0	M50x1,5	4°	97,30	225,00
62100.W0532	Stainless Steel	M30	83	123	70	33,0	M50x1,5	4°	20,60	225,00

Tilt Head Precision Adjuster

tall with locking nut

62120



Material

Steel (type 42 CrMo4 V, 1.7225) zinc plated or stainless steel A1 (A4 on request).

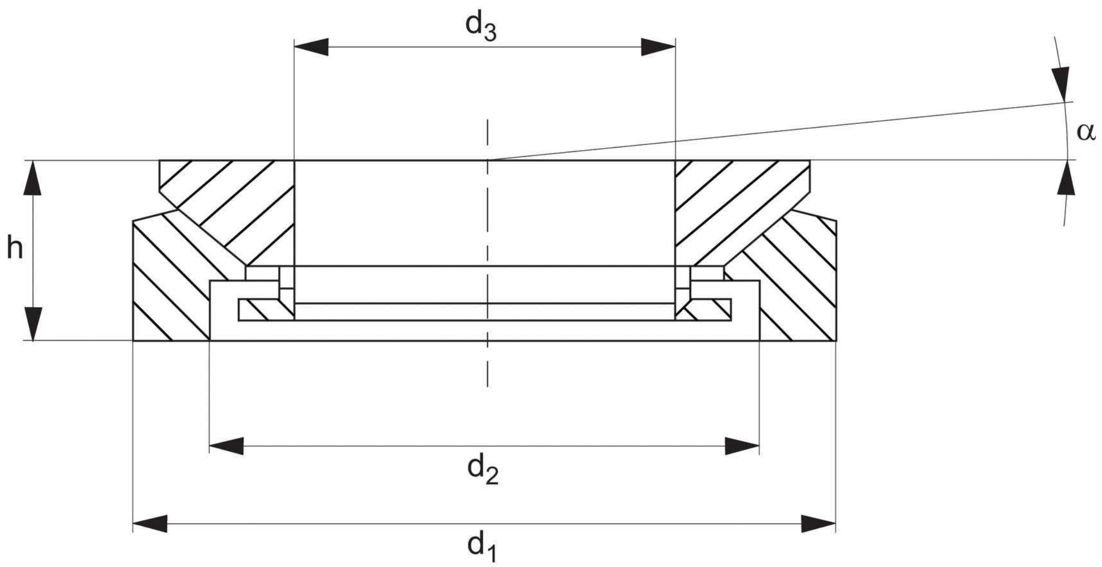
Technical Notes

After setting the height, the structure can be bolted down using a suitable 8,8 strength bolt.
The net load that the unit can carry is the maximum load less the tightening torque recommended for the bolt.
Designed for applications where a wide adjustment range is required - height adjustment is equal to 15 to 40mm.

Order No.	Material	For bolt	h_1	h_2	h_3	d_1	d_2	d_3	α° app.	Max. load with bolt kN	Max. load w/o bolt kN
62120.W0008	Steel	M 4	50	35	15	25	4,5	M15x1,0	4°	36,00	40,00
62120.W0009	Steel	M 5	50	35	15	25	5,5	M15x1,0	4°	33,40	40,00
62120.W0010	Steel	M 6	50	35	15	25	6,5	M15x1,0	4°	30,70	40,00
62120.W0014	Steel	M 6	63	43	20	32	6,6	M20x1,0	4°	55,70	65,00
62120.W0015	Steel	M 8	63	43	20	32	9,0	M20x1,0	4°	48,00	65,00
62120.W0016	Steel	M10	63	43	20	32	11,0	M20x1,0	4°	37,90	65,00
62120.W0017	Steel	M10	79	54	25	45	11,0	M30x1,5	4°	92,90	120,00
62120.W0018	Steel	M12	79	54	25	45	13,5	M30x1,5	4°	80,40	120,00
62120.W0019	Steel	M16	79	54	25	45	17,5	M30x1,5	4°	45,50	120,00
62120.W0020	Steel	M16	102	70	32	58	17,5	M40x1,5	4°	136,00	210,00
62120.W0021	Steel	M20	102	70	32	58	22,0	M40x1,5	4°	90,00	210,00
62120.W0023	Steel	M24	102	70	32	58	26,0	M40x1,5	4°	37,00	210,00
62120.W0030	Steel	M20	123	80	43	70	22,0	M50x1,5	4°	210,00	330,00
62120.W0031	Steel	M24	123	80	43	70	26,0	M50x1,5	4°	157,00	330,00
62120.W0032	Steel	M30	123	80	43	70	33,0	M50x1,5	4°	53,00	330,00
62120.W0508	Stainless steel	M 4	50	35	15	25	4,5	M15x1,0	4°	24,14	27,10
62120.W0509	Stainless steel	M 5	50	35	15	25	5,5	M15x1,0	4°	22,24	27,10
62120.W0510	Stainless steel	M 6	50	35	15	25	6,5	M15x1,0	4°	20,26	27,10
62120.W0514	Stainless steel	M 6	63	43	20	32	6,6	M20x1,0	4°	36,56	43,40
62120.W0515	Stainless steel	M 8	63	43	20	32	9,0	M20x1,0	4°	30,86	43,40
62120.W0516	Stainless steel	M10	63	43	20	32	11,0	M20x1,0	4°	23,14	43,40
62120.W0517	Stainless steel	M10	79	54	25	45	11,0	M30x1,5	4°	64,01	84,00
62120.W0518	Stainless steel	M12	79	54	25	45	13,5	M30x1,5	4°	54,82	84,00
62120.W0519	Stainless steel	M16	79	54	25	45	17,5	M30x1,5	4°	28,90	84,00
62120.W0520	Stainless steel	M16	102	70	32	58	17,5	M40x1,5	4°	92,90	148,00
62120.W0521	Stainless steel	M20	102	70	32	58	22,0	M40x1,5	4°	59,08	148,00
62120.W0523	Stainless steel	M24	102	70	32	58	26,0	M40x1,5	4°	20,30	148,00
62120.W0530	Stainless steel	M20	123	80	43	70	22,0	M50x1,5	4°	136,08	225,00
62120.W0531	Stainless steel	M24	123	80	43	70	26,0	M50x1,5	4°	97,30	225,00
62120.W0532	Stainless steel	M30	123	80	43	70	33,0	M50x1,5	4°	20,60	225,00

Ball Shim Leveller

62140



Material
Steel (type 42 CrMo4 V, 1.7225) zinc plated or stainless steel A1 (A4 on request).

Technical Notes
Compensates for non-level surfaces with a maximum angle of tilt 4°. Please remember that the fixing screw and washer may also require support if the bearing surface is out of parallel by more than 1°.
The ball shim has no height adjustment feature.

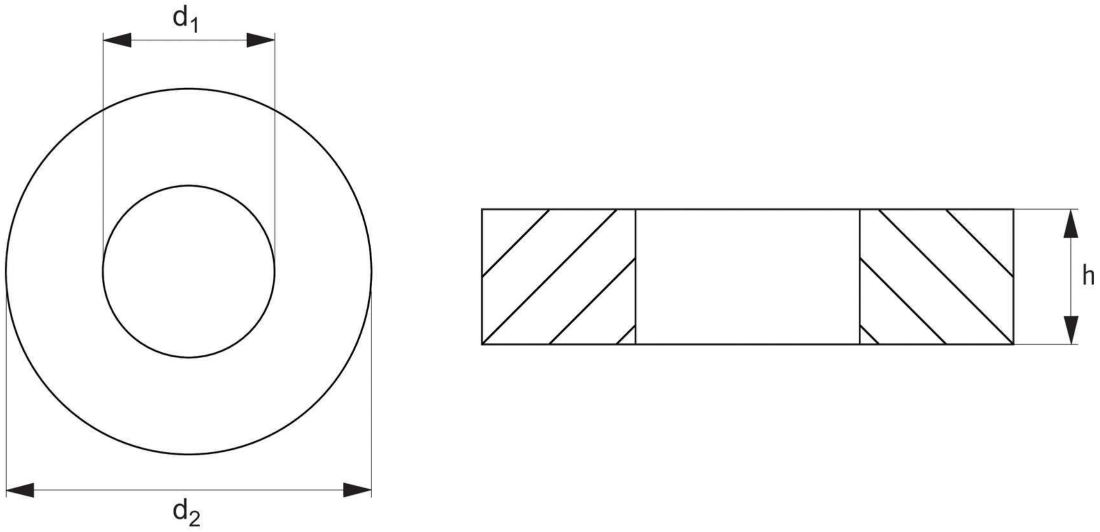
STAINLESS AVAILABLE

Order No.	Material	For bolt	h	d_1	d_2	d_3	α° app
62140.W0015	Steel	M 6	8,0	25	15	8,5	4°
62140.W0020	Steel	M10	10,0	32	20	13,0	4°
62140.W0030	Steel	M16	12,5	45	30	20,0	4°
62140.W0040	Steel	M24	16,0	58	38	29,0	4°
62140.W0050	Steel	M30	20,0	70	48	36,0	4°
62140.W0060	Steel	M36	20,0	80	61	44,0	4°
62140.W0080	Steel	M48	25,0	105	78	58,0	4°
62140.W0515	Stainless steel	M 6	8,0	25	15	8,5	4°
62140.W0520	Stainless steel	M10	10,0	32	20	13,0	4°
62140.W0530	Stainless steel	M16	12,5	45	30	20,0	4°
62140.W0540	Stainless steel	M24	16,0	58	38	29,0	4°
62140.W0550	Stainless steel	M30	20,0	70	48	36,0	4°
62140.W0560	Stainless steel	M36	20,0	80	61	44,0	4°
62140.W0580	Stainless steel	M48	25,0	105	78	58,0	4°

Spacers

for part nos. 62000 to 62140

62160



Material

Steel (type 42 CrMo4 V, 1.7225) zinc plated or stainless steel A1 (A4 on request).

Technical Notes

Used to bridge gaps on applications where the height adjustment of an adjuster is insufficient.

Order No.	Material	For bolt	d_1	d_2	h
62160.W0015	Steel	M 6	6,6	25	4
62160.W0020	Steel	M10	11,0	32	5
62160.W0030	Steel	M16	17,5	45	6
62160.W0040	Steel	M24	26,0	58	8
62160.W0050	Steel	M30	33,0	70	10
62160.W0060	Steel	M36	39,0	80	12
62160.W0080	Steel	M48	52,0	105	16
62160.W0515	Stainless steel	M 6	6,6	25	4
62160.W0520	Stainless steel	M10	11,0	32	5
62160.W0530	Stainless steel	M16	17,5	45	6
62160.W0540	Stainless steel	M24	26,0	58	8
62160.W0550	Stainless steel	M30	33,0	70	10
62160.W0560	Stainless steel	M36	39,0	80	12
62160.W0580	Stainless steel	M48	52,0	105	16

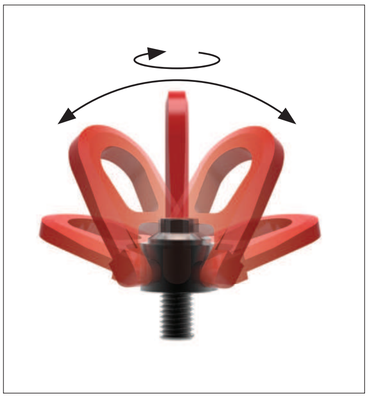
Swivel Lifting Rings

Swivel lifting rings

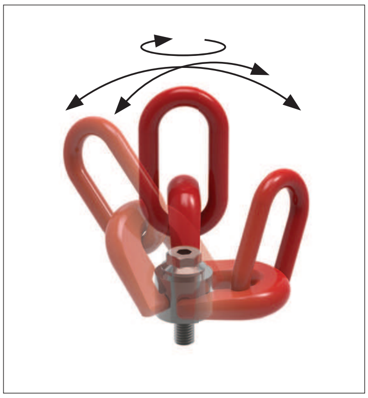
Our swivel lifting rings fully comply with the EC directive 2006/42/EC. They are CE marked and are supplied with a Certificate of Conformity. There is a 100% check on anti-cracking, a proof load test of 2.5 x load limit and a safety factor of 5 on most parts. Each ring is individually marked to ensure full product traceability.

The Swivel Lifting Rings come in three main forms – depending on the number of axis required to swivel. The most popular type is the double swivel rings.

Single swivel - threads M8 – M48 loads 0,3 tons – 15 tons

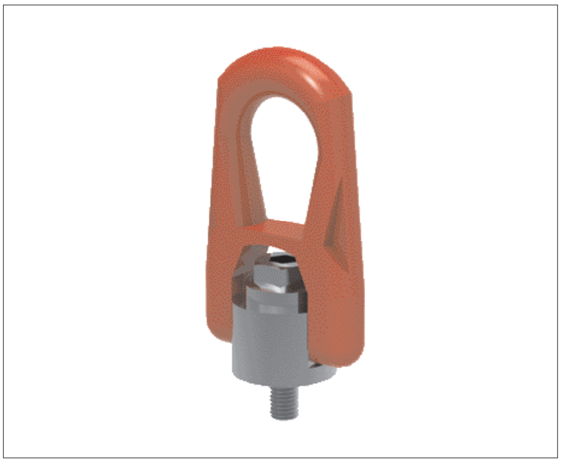


Double swivel - threads M4 – M100 loads 0,05 tons – 50 tons



Triple swivel - threads M8 – M56 loads 0,3 tons – 22 tons

Steel and stainless steel (316) versions

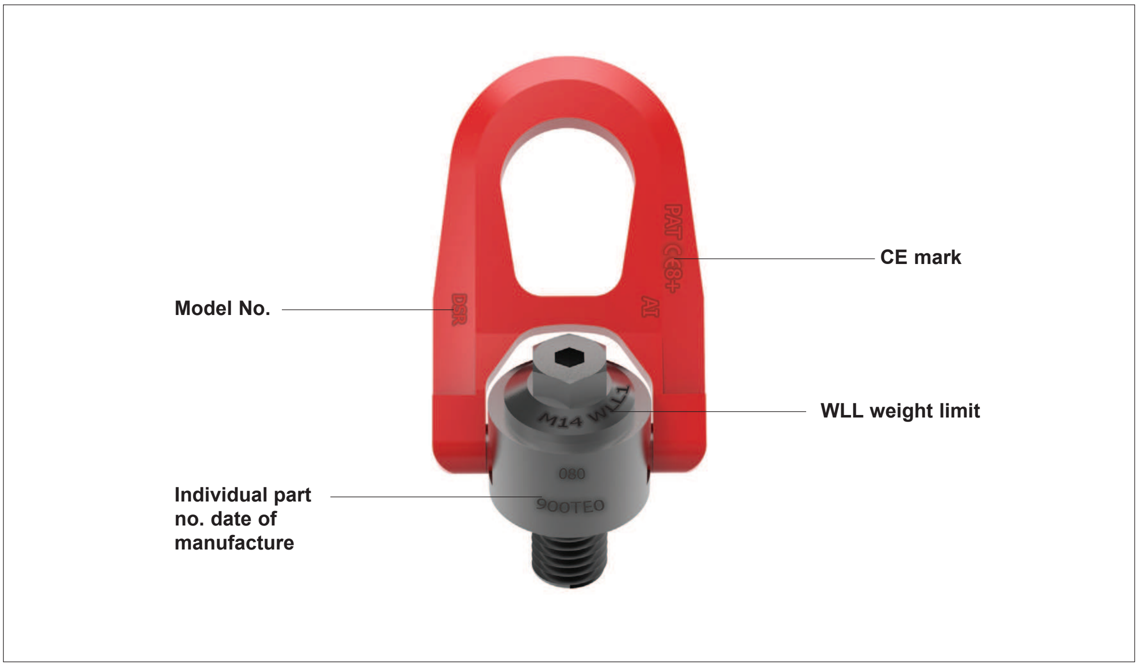


Steel

Stainless (316L)

Product marking

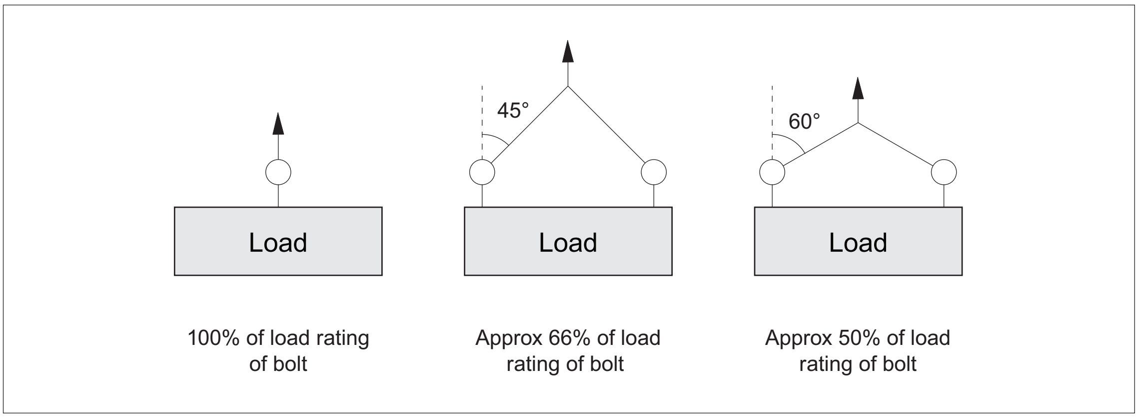
Compliant with 2006/42/EC, and with individual date of manufacture and batch number.



A swivel lifting rings that complies with 2006/42/CE

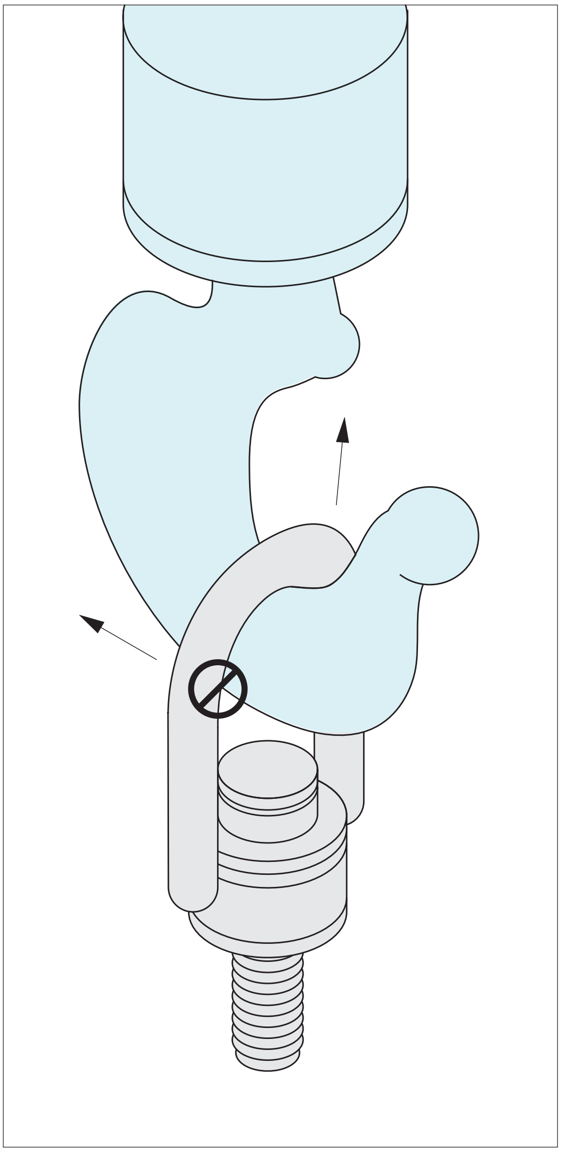
General product information

Lifting angles

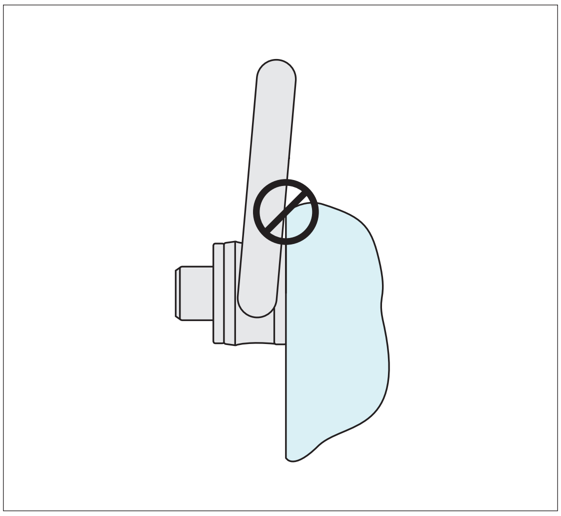


For full information on lifting arrangements see technical pages

Installation information

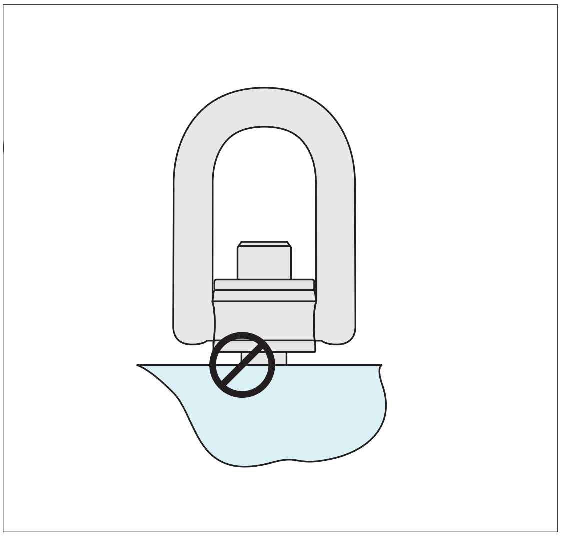


Never use an oversized hook or other lifting device which will pry or tend to open the "U" shaped bar on centre pull hoist rings.



After installation, check the hoist ring to be sure it swivels and pivots freely in all directions.

The side of the ring must not contact anything.



Always ensure full thread engagement when installing hoist rings.

ov-63020-63210-a - Updated - 20-12-2016

Instructional Overview

Operating instructions

Note: The full thread must be engaged. Longer thread lengths can be supplied on request or a bolt and washer/nut combination can be used.

- Ensure all lifting bolts are CE marked.
- Ensure they are handled by qualified personnel.
- Refer to the operating instructions particularly with regards to product selection, any possibility of the load swivelling, the effect of lifting angles on the load capacity (see relevant tables), etc.
- Never allow any personnel underneath a suspended load.
- Always heed the load rating of the lifting bolt.
- Always perform a visual inspection of the lifting rings prior to use. Checking for any damage to thread and/or swivelling system. Check for wear or corrosion, signs of stress or bending.
- Ensure a yearly full service inspection is performed.
- Always ensure the full bottom face of the lifting bolts is in contact with a smooth, square surface.
- Ensure bolt is tightened to the correct torque.
- Ensure full and unrestricted movement of the lifting ring in all directions.
- Before each lift ensure the correct orientation of the shackle in the lift direction.
- Avoid using our standard steel lifting rings in corrosive environments eg. sandy, chemical, acid, moisture etc. In this case consider using our stainless steel lifting rings.
- Note the thread length requirements:
  - 1 x thread diameter for steel (ST37 min.).
  - 1.25 x thread diameter for cast iron.
  - 2 x thread diameter for aluminium.
  - 2.5 x thread diameter for other light metals.
  - If fixing into low resistance material it is better to allow for a bigger diameter thread to compensate for the lower material resistance.

Temperature extremes

-40°C to -20°C	Load rating reduces by 20%.
+200°C to +300°C	Load rating reduces by 10%.
+300°C to +400°C	Load rating reduces by 25%.

Rugged environments

For harsh environments we recommend the use of our stainless steel lifting rings.


Wixroyd

CE CERTIFICATE — CERTIFICATE OF CONFORMITY

Name and address of manufacturer or their representative	Wixroyd International Ltd Alexia House, Little Mead Industrial Estate Cranleigh, Surrey GU6 8NE (UK)
Description of the part	Lifting equipment
The part is in compliance with the European directive	2006/42/CE
European standards used	EN ISO 12100 1 & 2, EN ISO 13852, EN 1677-1
Certificate of conformity no.	No 090311/160-164
Ringtype and dimension	P4020 – DS 20
Standard ring?	Yes
Quantity	
Colour	Red
Material	Treated, forged steel alloy, hardened, tempered, fatigue resistance
Manu	Shackle: AR. Bolt: RI 05
WLL = Working Load Limit (max load - refer to tables)	2,5 tons
Magnetic testing	Yes – 100%
Testing to breaking load by sampling from production batch	WLL x 5
Customer	John Doe Ltd
Order	SOR0099999

The swivel rings must be used in accordance with our recommendations explained in the technical literature. As all tests have procuced satisfactory results, we have considered these parts to be "good for utilisation".

Signature: Date:

SPECIMEN

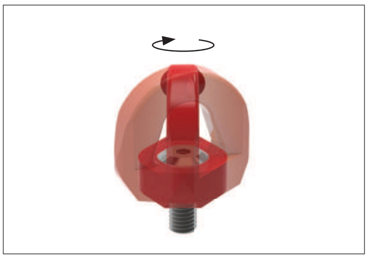
Certificate of Conformity

63210 - Threads M30 – M45Loads 3,5 tons – 6 tons.

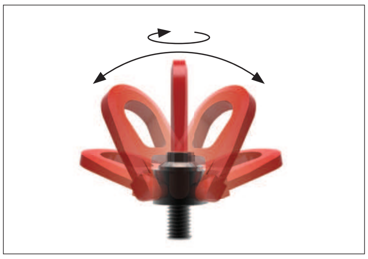
Loads 0,3 tons – 3 tons.

ov-63020-63210-b - Updated - 20-12-2016

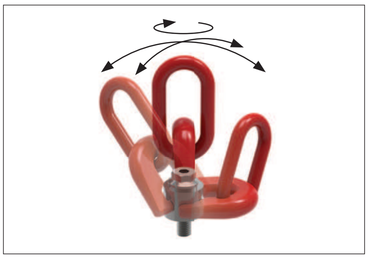
Benefits of Swivel Lifting Rings Over Lifting Rings



Single swivel - threads M8 – M48
loads 0,3 tons – 15 tons



Double swivel - threads M4 – M100
loads 0,05 tons – 50 tons



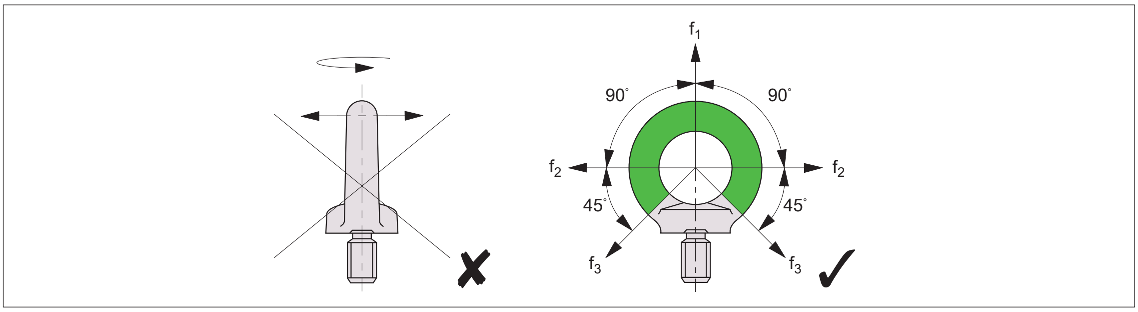
Triple swivel - threads M8 – M56
loads 0,3 tons – 22 tons

	Pros		Cons
3	Individual CE certification		
3	CE marked		
3	100% physical check		
3	Proof load test of 2.5 x load limit		
3	Safety factor 5x stated load		
3	100% traceability with individual marking		
3	Complies with 2006/42/CE		
3	Axial load		
3	Max. load bearing 90°		
3	Max. lateral load 90°		
3	Swivel loads		
3	Forces across lifting ring plane (double and triple swivel type)		

Swivel lifting rings

Our swivel lifting rings fully comply with the EC directive 2006/42/EC. They are CE marked and are supplied with a Certificate of Conformity. There is a 100% check on anti-cracking, a proof load test of 2.5 x load limit and a safety factor of 5 on most parts. Each ring is individually marked to ensure full product traceability.

The Swivel Lifting Rings come in three main forms – depending on the number of axis required to swivel. The most popular type is the double swivel rings.

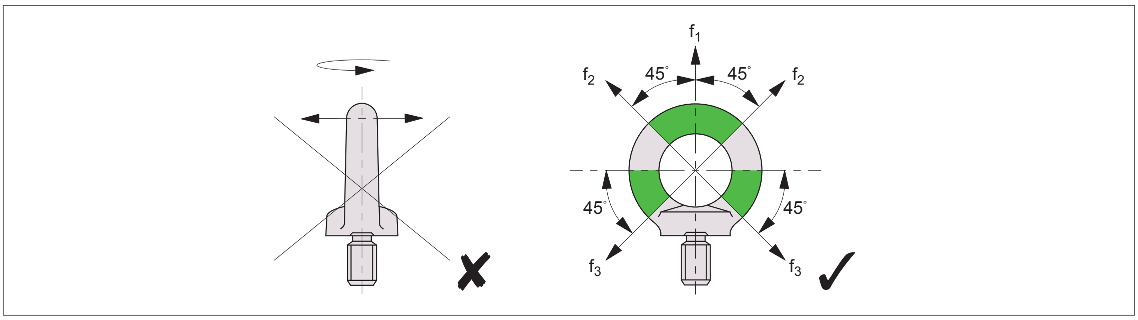


	Pros		Cons
3	CE marked	8	Individual CE certification
3	Axial load	8	Shear tension
3	Max. load bearing 90°	8	Swivel loads
3	Max. laterial load 90°	8	Forces across lifting ring plane

High tensile lifting rings

The High-tensile lifting bolts are similar to the standard lifting bolts but are rated at higher loads and can lift loads at up to 90° from the thread. They are not meant for loads that might swivel.

Important Note: Forces must act in the direction of the lifting ring plane.



	Pros		Cons
3	CE marked	8	Individual CE certification
3	Axial load	8	Shear tension
3	Max. load bearing 45°	8	Swivel loads
3	Max. laterial load 45°	8	Forces across lifting ring plane

Standard lifting rings DIN580 and DIN582

These are CE marked and are available with male or female threads in either steel or stainless steel (A4 AISI 316). They are meant only for axial loads, or load bearing or lateral loads at a maximum of 45° from the thread. They are not for use under shear tension or loads (across the thread), nor for loads likely to swivel.

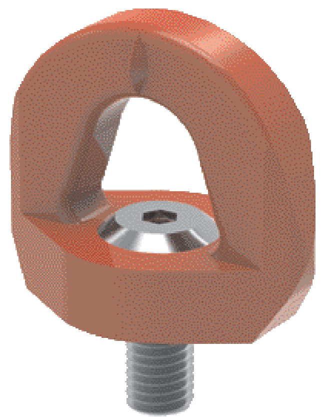
Applied forces must act in the direction fo the eye bolt plane, do not apply forces across the eye bolt plane.

Important Note: Forces must act in the direction of the lifting ring plane.

ov-63020-63210-c - Updated - 20-12-2016

Single Swivel Lifting Rings

max. load rating - per lifting configuration



63020 Male

Lifting configuration									
		P	P	P	P	P α max. = 60°		P α max. = 60°	
No. of rings		1	2	1	2	2	2	4	4
Lifting angle		0°	0°	90°	90°	45°	60°	45°	60°
Thread		**Maximum load rating for given lifting configuration**							
M8	tons	0,30	0,60	0,30	0,60	0,40	0,30	0,60	0,30
M10	tons	0,60	1,20	0,60	1,20	0,80	0,60	1,30	0,60
M12	tons	1,00	2,00	1,00	2,00	1,40	1,00	2,10	1,00
M16	tons	1,60	3,20	1,60	3,20	2,20	1,60	3,40	1,60
M20	tons	2,50	5,00	2,50	5,00	3,50	2,50	5,30	2,50
M24	tons	4,00	8,00	4,00	8,00	5,60	4,00	8,40	4,00
M30	tons	6,30	12,60	6,30	12,60	8,80	6,30	13,20	6,30
M36	tons	10,00	20,00	10,00	20,00	14,00	10,00	21,00	10,00
M42	tons	12,50	25,00	12,50	25,00	17,50	12,50	26,30	12,50
M48	tons	15,00	30,00	15,00	30,00	21,00	15,00	31,50	15,00

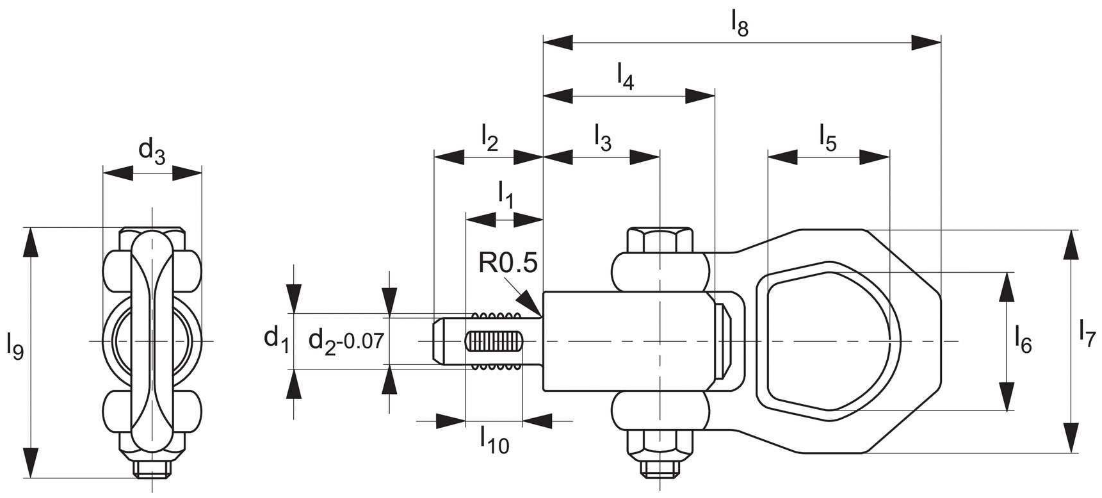
Important Note: Table shows the maximum load rating for a given lifting configuration (NOT maximum load rating per individual lifting ring).

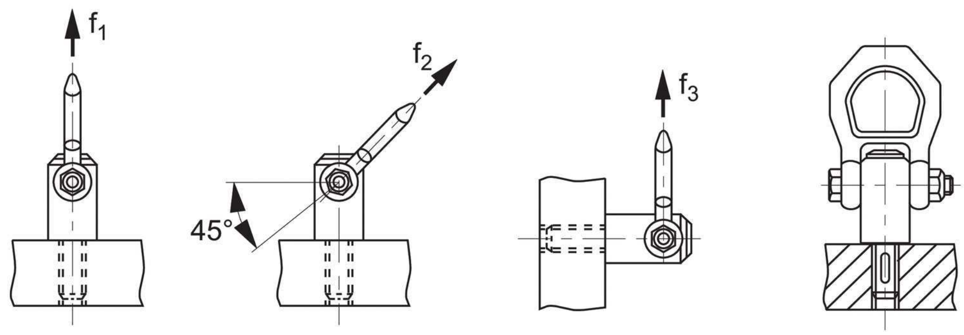
ov-63020-63210-d - Updated - 20-12-2016

Quick Lift Pins -Threaded

metric coarse threads

63001





Order No.	Type	d_1	l_1	d_2 -0.07	d_3	l_2	l_3	l_4	l_5	g
63001.W0010	Steel	M10	14	8,35	21,5	20	25,7	36	27	218
63001.W0012	Steel	M12	17	10,07	21,5	24	25,7	36	27	220
63001.W0016	Steel	M16	17	13,80	21,5	24	25,7	36	27	223
63001.W1010	Stainless	M10	14	8,35	21,5	20	25,7	36	27	218
63001.W1012	Stainless	M12	17	10,07	21,5	24	25,7	36	27	220
63001.W1016	Stainless	M16	17	13,80	21,5	24	25,7	36	27	223

Order No.	l_5	l_5	l_6	l_7	l_7	l_8	f_1* kN	f_2* kN	f_3* kN
63001.W0010	27	30	49	87,5	21,5	10	3,9	1,5	1,5
63001.W0012	27	30	49	87,5	21,5	12	6,2	2,5	2,3
63001.W0016	27	30	49	87,5	21,5	12	8,4	4,5	4,2
63001.W1010	27	30	49	87,5	21,5	10	3,9	1,5	1,5
63001.W1012	27	30	49	87,5	21,5	12	6,2	2,5	2,3
63001.W1016	27	30	49	87,5	21,5	12	8,4	4,5	4,2

Material

Steel

Pin: Heat-treated steel, tempered, manganese phosphated.
Threaded element: Stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: Steel, heat-treated, tempered, manganese phosphated.
Press button: Aluminium, orange anodised.
Spring: Stainless Steel.

Stainless steel

Pin: Stainless steel 1.4542, (AISI 630) precipitation hardened.
Threaded element: Stainless steel 1.4542, (AISI 630) precipitation hardened.
Shackle: Stainless steel 1.45471.
Press button: Aluminium, orange anodised.
Spring: Stainless Steel.

Technical Notes

Both types are corrosion protected, stainless steel pin is resistant to corrosion and weathering, so suitable for external use.
Included: Instruction manual and CE Declaration of Conformity.
Depress button: unlock.
Release button: lock.

Tips

Before use: Read instruction manual, data sheets and follow standard safe lifting procedures.

Important Notes

f_1*, f_2*, and f_3* values calculated on 5 x safety factor.

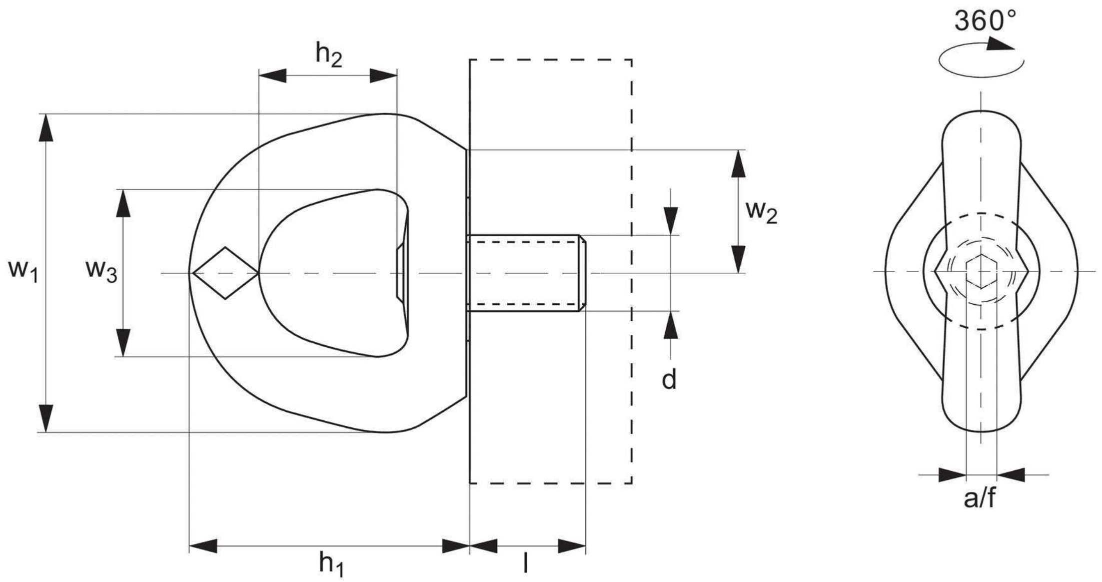
STAINLESS STEEL 630

HIGH LIFTING FORCE

Swivel Lifting Rings - Eye Bolt - Swivel - Male

metric - coarse

63020



Order No.	Max. load tons	d tol. 6H	l	w_1	h_1	h_2	w_2	w_3	a/f	Safety factor	Torque to Nm	Kg
63020.W0008	0,5	M 8x 1,25	14	60	57	30	20	34	6	4	6	0,24
63020.W0010	0,7	M10x1,50	17	60	57	30	20	34	6	4	10	0,24
63020.W0012	0,9	M12x1,75	21	60	57	30	20	34	6	4	15	0,24
63020.W0016	1,8	M16x2,00	27	88	80	38	35	45	8	4	50	0,80
63020.W0020	2,7	M20x2,50	30	88	80	38	35	45	8	4	100	0,80
63020.W0024	4,2	M24x3,00	36	115	106	58	50	70	14	4	160	2,60
63020.W0030	6,3	M30x3,50	45	115	106	58	50	70	14	4	250	2,70
63020.W0036	11,0	M36x4,00	54	168	155	83	70	94	14	4	320	7,00
63020.W0042	15,0	M42x4,50	63	168	155	83	70	94	14	4	400	7,00
63020.W0048	16,0	M48x5,00	68	168	155	88	70	94	19	4	600	7,00

Material

High tensile steel, strength class >8.
Supplied with CE certificate.

Technical Notes

Single articulation, 360°.
Very low overhang for improved safety.
Large support surface.
Longer or shorter thread lengths can be supplied but please consult our technical department for this information if required.
For use in temperatures from -20°C to +200°C. Can be used in lower or higher temperatures but this affects the load rating - please ask for more information.
Please refer to our technical information pages when specifying and/or using.

Tips

Allows swivelling under load.
Swivel eye bolt with "automatic" position recovery system for best orientation to sling direction.

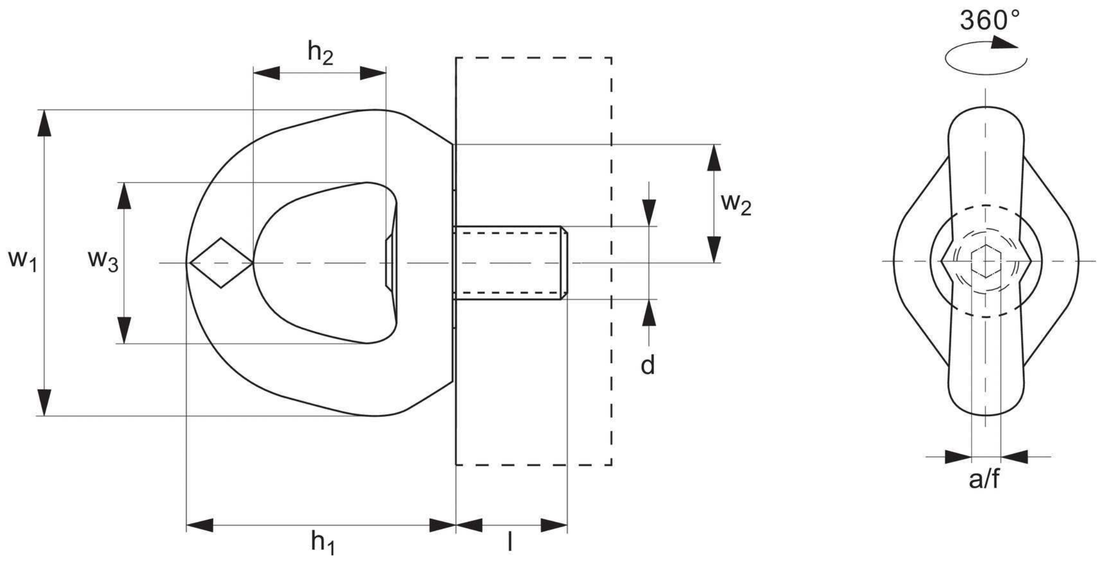
Important Notes

The thread diameter and depth must be appropriate to the material into which it will be installed:
Steel (min. ST37) - 1 x thread dia.
Cast iron - 1.25 x thread dia.
Aluminium - 2 x thread dia.
Other light metals - 2.5 x thread dia.
Tolerance of female thread to be 6H (metric).
Please refer to the safety documentation before using this part.
Supplied with certificate and operating instructions.

Swivel Eye Bolts

male: stainless steel 316L

63022



Order No.	Max. load tons	$d_{tol. 6G}$	l	w_1	h_1	h_2	w_2	w_3	A/F	Safety factor	Torque to Nm	Kg
63022.W0012	1,0	M12x1,75	21	90	80	38	20	45	8	4	15	0,80
63022.W0016	1,6	M16x2,00	27	90	80	38	35	45	8	4	50	0,82
63022.W0020	2,5	M20x2,50	30	90	80	38	35	45	8	4	100	0,84
63022.W0024	4,0	M24x3,00	36	90	80	38	50	45	8	4	100	0,90

Material
Stainless steel 316L.
Supplied with CE certificate.

Technical Notes
Single articulation, 360°, very low overhang for improved safety, large support surface.
Longer or shorter thread lengths can be supplied but please consult our technical department for this information if required.
For use in temperatures from -20°C to +200°C. Can be used in lower or higher temperatures but, this affects the load rating - please ask for more information.
Please refer to our technical information pages when specifying and/or using.

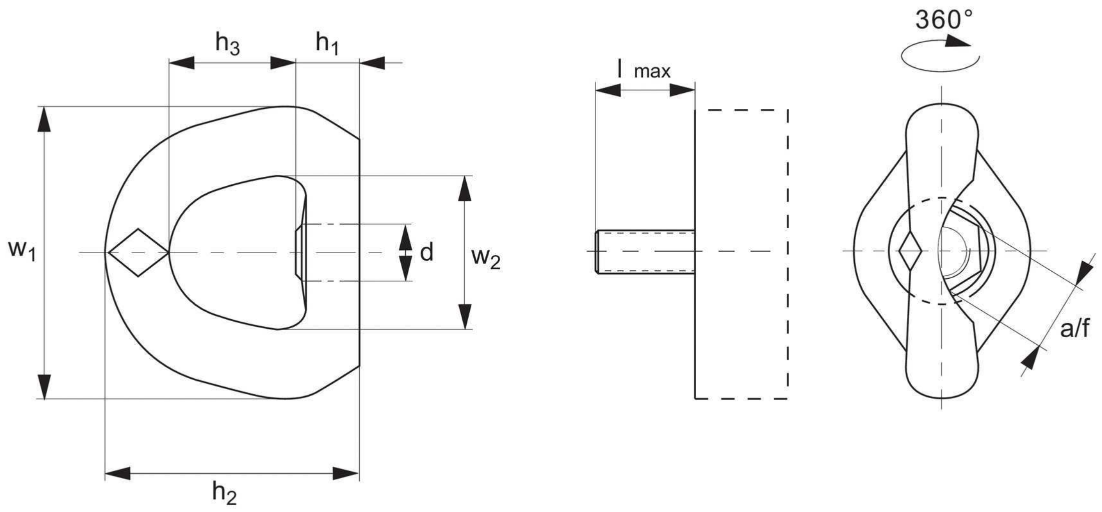
Tips
Allows swivelling under load.
Swivel eye bolt with "automatic" position recovery system for best orientation to sling direction.

Important Notes
The thread diameter and depth must be appropriate to the material into which it will be installed:
Steel (min. ST37) - 1 x thread dia.
Cast iron - 1.25 x thread dia.
Aluminium - 2 x thread dia.
Other light metals - 2.5 x thread dia.
Tolerance of female thread to be 6H (metric).
Please refer to the safety documentation before using this part.
Supplied with certificate and operating instructions.

Swivel Lifting Rings - Eye Nut - Swivel - Female

metric - coarse

63024



Order No.	Max. load tons	d tol. 6H	h_1 & l max.	h_2	w_1	h_3	w_2	a/f	Safety factor	Torque to Nm	Kg
63024.W0008	0,5	M 8x 1,25	22	80	88	38	45	21	4	6	0,8
63024.W0010	0,7	M10x1,50	22	80	88	38	45	21	4	10	0,8
63024.W0012	0,9	M12x1,75	22	80	88	38	45	21	4	15	0,8
63024.W0016	1,8	M16x2,00	22	80	88	38	45	21	4	50	0,8
63024.W0020	2,7	M20x2,50	35	106	115	55	70	36	4	100	2,5
63024.W0024	4,2	M24x3,00	48	155	168	77	94	40	4	160	6,3
63024.W0030	6,3	M30x3,50	48	155	168	77	94	40	4	250	6,3
63024.W0036	11,0	M36x4,00	48	155	168	77	94	40	4	320	6,3

Material
High tensile steel, strength class >8.
Supplied with CE certificate.

Technical Notes
Single articulation.
Very low overhang for improved safety.
Large support surface.
For use in temperatures from -20°C to +200°C. Can be used in lower or higher temperatures but this affects the load rating - please ask for more information.
Please refer to our technical information pages when specifying and/or using.

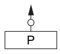
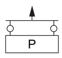
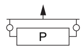
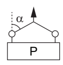
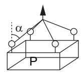
Tips
Allows swivelling under load.
Swivel eye bolt with "automatic" position recovery system for best orientation to sling direction.
Permits the hook to move parallel to the supporting face of the ring when being pulled at 90° angle.

Important Notes
Tolerance of male thread to be 6H (metric).
Please refer to the safety documentation before using this part.
Supplied with certificate and operating instructions.

Swivel Lifting Rings

max. load rating - per lifting configuration

63050 Male

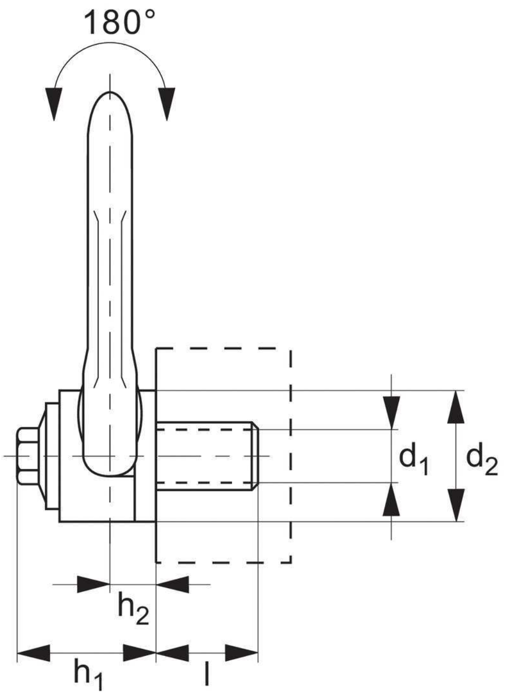
Lifting configuration						 α max. = 60°		 α max. = 60°	
No. of rings		1	2	1	2	2	2	4	4
Lifting angle		0°	0°	90°	90°	45°	60°	45°	60°
Thread		**Maximum load rating for given lifting configuration**							
M4	tons	0,050	0,100	0,050	0,100	0,070	0,050	0,100	0,050
M5	tons	0,075	0,150	0,075	0,150	0,100	0,075	0,150	0,075
M6	tons	0,100	0,200	0,100	0,200	0,140	0,100	0,200	0,100
M8	tons	0,30	0,60	0,30	0,60	0,40	0,30	0,60	0,30
M10	tons	0,60	1,20	0,60	1,20	0,80	0,60	1,30	0,60
M12	tons	1,00	2,00	1,00	2,00	1,40	1,00	2,10	1,00
M14	tons	1,30	2,60	1,30	2,60	1,80	1,30	2,70	1,30
M16	tons	1,60	3,20	1,60	3,20	2,20	1,60	3,40	1,60
M18	tons	2,00	4,00	2,00	4,00	2,80	2,00	4,20	2,00
M20	tons	2,50	5,00	2,50	5,00	3,50	2,50	5,30	2,50
M22	tons	3,00	6,00	3,00	6,00	4,20	3,00	6,30	3,00
M24	tons	4,00	8,00	4,00	8,00	5,60	4,00	8,40	4,00
M27	tons	5,00	10,00	5,00	10,00	7,00	5,00	10,50	5,00
M30	tons	6,30	12,6	6,30	12,600	8,8	6,30	13,200	6,30
(UNC 5/16”-18)	lbs	650	1,300	650	1,300	910	650	1,365	650
(UNC 3/8”-16)	lbs	1,200	2,400	1,200	2,400	1,680	1,200	2,520	1,200
(UNC 1/2”-13)	lbs	2,200	4,400	2,200	4,400	3,080	2,200	4,620	2,200
(UNC 5/8”-11)	lbs	3,800	7,600	3,800	7,600	5,320	3,800	7,980	3,800
(UNC 3/4”-10)	lbs	5,500	11,000	5,500	11,000	7,700	5,500	11,550	5,500
(UNC 7/8”-9)	lbs	6,600	13,200	6,600	13,200	9,240	6,600	13,860	6,600

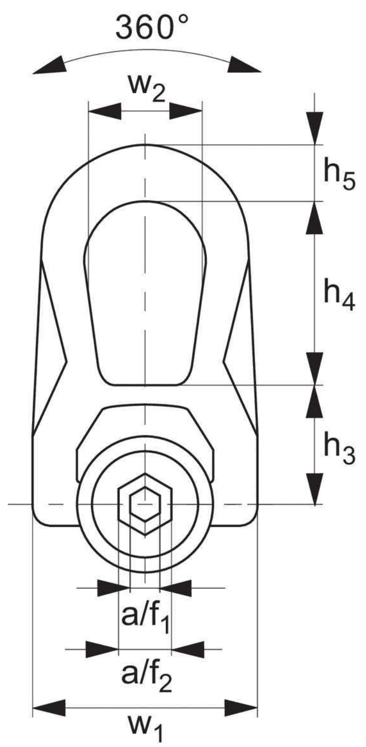
Important Note: Table shows the maximum load rating for a given lifting configuration (NOT maximum load rating per individual lifting ring).

Swivel Lifting Rings - Double Swivel - Male

metric - coarse and UNC

63050





Order No.	Max. load tons (lbs)	d_1 tol. 6H (tol. 2B)	l	w_1	h_1	h_2	h_3	h_4	h_5	d_2	w_2	a/f_1	a/f_2	Safety factor	Torque to Nm (ft lbs)	Kg
63050.W0005	0,1	M 5x 0,80	15	53	33	9,5	30	38	14	30	27	8	16	4	3	0,3
63050.W0006	0,2	M 6x 1,00	15	53	33	9,5	30	38	14	30	27	8	16	4	4	0,3
63050.W0008	0,5	M 8x 1,25	15	53	33	9,5	30	38	14	30	27	8	16	4	6	0,3
63050.W0010	0,9	M10x1,50	18	53	33	9,5	30	38	14	30	27	8	16	4	10	0,3
63050.W0012	1,3	M12x1,75	21	53	33	9,5	30	38	14	30	27	8	16	4	15	0,3
63050.W0014	1,8	M14x2,00	23	76	45	13,0	40	53	17	45	38	8	20	4	30	0,9
63050.W0016	2,3	M16x2,00	27	76	45	13,0	40	53	17	45	38	8	20	4	50	0,9
63050.W0018	2,3	M18x2,50	27	76	45	13,0	40	53	17	45	38	8	20	4	70	0,9
63050.W0020	2,5	M20x2,50	30	76	45	13,0	40	53	17	45	38	8	20	4	100	0,9
63050.W0022	4,5	M22x2,50	33	115	115	19,0	55	83	25	60	55	14	24	4	120	2,6
63050.W0024	5,5	M24x3,00	36	115	115	19,0	55	83	25	60	55	14	24	4	160	2,6
63050.W0027	6,0	M27x3,00	40	115	115	19,0	55	83	25	60	55	14	24	4	200	2,7
63050.W0030	6,3	M30x3,50	45	115	115	19,0	55	83	25	60	55	14	24	4	250	2,7
63050.W0031	(1,200)	(UNC 5/16"-18)	15	53	33	9,5	30	38	14	30	27	8	16	4	(5)	0,3
63050.W0038	(1,600)	(UNC 3/8"-16)	17	53	33	9,5	30	38	14	30	27	8	16	4	(8)	0,3
63050.W0050	(2,800)	(UNC 1/2"13)	21	53	33	9,5	30	38	14	30	27	8	16	4	(12)	0,3
63050.W0058	(4,900)	(UNC 5/8"-11)	27	76	45	13,0	40	53	17	45	38	8	20	4	(40)	0,9
63050.W0075	(5,250)	(UNC 3/4"-10)	30	76	45	13,0	40	53	17	45	38	8	20	4	(80)	0,9
63050.W0088	(9,800)	(UNC 7/8"-9)	33	115	62	19,0	55	83	25	60	55	14	24	4	(90)	2,5
63050.W0100	(12,500)	(UNC 1"-8)	36	115	62	19,0	55	83	25	60	55	14	24	4	(125)	2,6

Material

High tensile steel, strength class >8.
Supplied with CE certificate.

Technical Notes

Double articulation.
Very low overhang for improved safety.
Large support surface.
Longer or shorter thread lengths can be supplied but please consult our technical department for this information if required.
For use in temperatures from -20°C to +200°C. Can be used in lower or higher temperatures but this affects the load rating - please ask for more information.
Please refer to our technical information pages when specifying and/or using.

Tips

Double articulation allows perfect alignment with the sling if the part rotates during the lift.
With "automatic" position recovery system for best orientation to sling direction.
Tighten by hex. key or spanner.

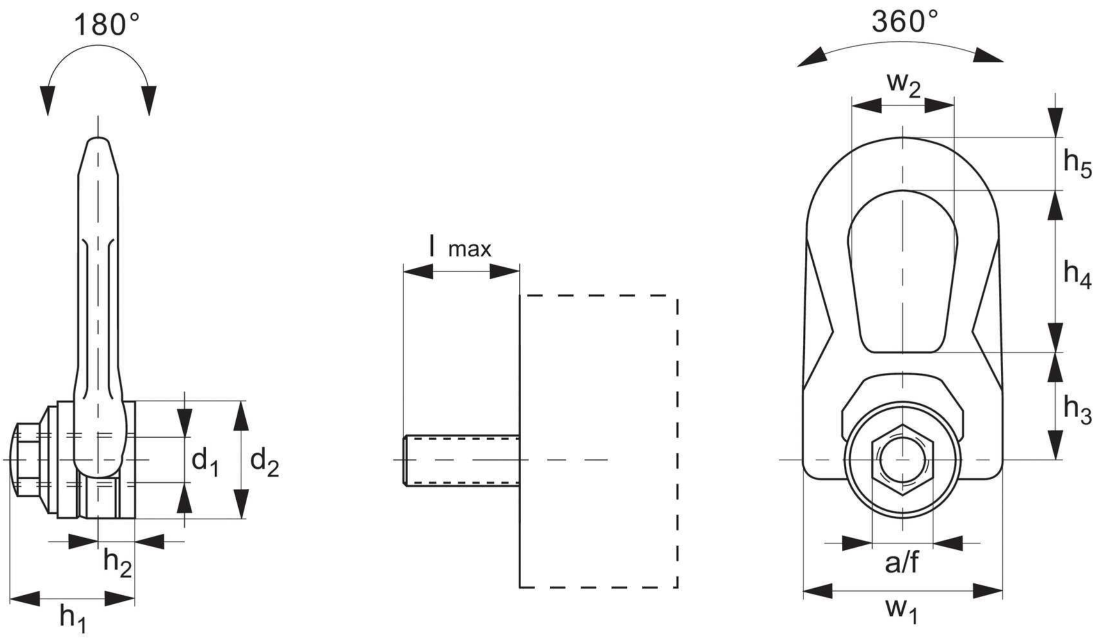
Important Notes

The thread diameter and depth must be appropriate to the material into which it will be installed:
Steel (min. ST37) - 1 x thread dia.
Cast iron - 1.25 x thread dia.
Aluminium - 2 x thread dia.
Other light metals - 2.5 x thread dia.
Tolerance of female thread to be 6H (metric) or UNC-2B (inch).
Please refer to the safety documentation before using this part.
Supplied with certificate and operating instructions.

Swivel Lifting Rings - Double Swivel - Female

metric - coarse and UNC

63054



Order No.	Max. load tons (lbs)	d_1 tol. 6H (tol. 2A)	h_1 & l max.	w_1	h_2	h_3	h_4	h_5	d_2	w_2	a/f	Safety factor	Torque to Nm (ft lbs)	Kg
63054.W0008	0,5	M 8x 1,25	45	76	13	40	53	17	45	38	20	4	6	0,9
63054.W0010	0,9	M10x1,50	45	76	13	40	53	17	45	38	20	4	10	0,9
63054.W0012	1,3	M12x1,75	45	76	13	40	53	17	45	38	20	4	15	0,9
63054.W0014	1,8	M14x2,00	45	76	13	40	53	17	45	38	20	4	30	0,9
63054.W0016	2,3	M16x2,00	45	76	13	40	53	17	45	38	20	4	50	0,9
63054.W0018	2,3	M18x2,50	62	115	19	55	83	25	60	55	24	4	70	2,6
63054.W0020	2,5	M20x2,50	62	115	19	55	83	25	60	55	24	4	100	2,6
63054.W0022	4,5	M22x2,50	62	115	19	55	83	25	60	55	24	4	120	2,6
63054.W0031	(1,200)	(UNC 5/16"-18)	45	76	13	45	53	17	45	38	20	4	(5)	0,9
63054.W0038	(1,600)	(UNC 3/8"-16)	45	76	13	45	53	17	45	38	20	4	(8)	0,9
63054.W0050	(2,800)	(UNC 1/2"-13)	45	76	13	45	53	17	45	38	20	4	(12)	0,9
63054.W0058	(4,900)	(UNC 5/8"-11)	45	76	13	45	53	17	45	38	20	4	(40)	0,9
63054.W0075	(5,250)	(UNC 3/4"-10)	62	115	19	60	83	25	60	55	24	4	(80)	2,6
63054.W0088	(9,800)	(UNC 7/8"-9)	62	115	19	60	83	25	60	55	24	4	(90)	2,6

Material

High tensile steel, strength class >8.
Supplied with CE certificate.

Technical Notes

Double articulation.
Very low overhang for improved safety.
Large support surface.
For use in temperatures from -20°C to +200°C. Can be used in lower or higher temperatures but this affects the load rating - please ask for more information.
Please refer to our technical information pages when specifying and/or using.

Tips

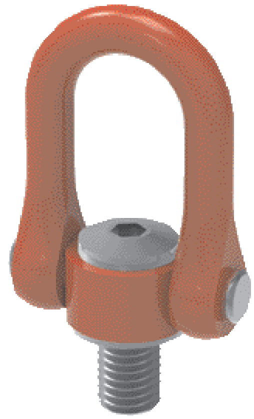
Double articulation allows perfect alignment with the sling if the part rotates during the lift.
With "automatic" position recovery system for best orientation to sling direction.
Tighten by hex. key or spanner.

Important Notes

Please refer to the safety documentation before using this part.
Supplied with certificate and operating instructions.

Swivel Lifting Rings

max. load rating - per lifting configuration



63080 Male **63084 Female**

Lifting configuration						α max. = 60°		α max. = 60°	
No. of rings		1	2	1	2	2	2	4	4
Lifting angle		0°	0°	90°	90°	45°	60°	45°	60°
Thread		Maximum load rating for given lifting configuration							
M24	tons	4,50	9,00	4,50	9,00	6,30	4,50	9,50	4,50
M27	tons	5,00	10,00	5,00	10,00	7,00	5,00	10,50	5,00
M30	tons	7,30	14,60	7,30	14,60	10,20	7,30	15,30	7,30
M33	tons	8,00	16,00	8,00	16,00	11,20	8,00	16,80	8,00
M36	tons	10,00	20,00	10,00	20,00	14,00	10,00	21,00	10,00
M36*	tons	10,00	20,00	10,00	20,00	14,00	10,00	21,00	10,00
M39	tons	10,00	20,00	10,00	20,00	14,00	10,00	21,00	10,00
M42	tons	12,50	25,00	12,50	25,00	17,50	12,50	26,30	12,50
M42*	tons	12,50	25,00	12,50	25,00	17,50	12,50	26,30	12,50
M45	tons	15,00	30,00	15,00	30,00	21,00	15,00	31,50	15,00
M48	tons	20,00	40,00	20,00	40,00	28,00	20,00	42,00	20,00
M48*	tons	20,00	40,00	20,00	40,00	28,00	20,00	42,00	20,00
M50	tons	20,00	40,00	20,00	40,00	28,00	20,00	42,00	20,00
M52	tons	20,00	40,00	20,00	40,00	28,00	20,00	42,00	20,00
M56	tons	25,00	50,00	25,00	50,00	35,00	25,00	52,50	25,00
M56*	tons	25,00	50,00	25,00	50,00	35,00	25,00	52,50	25,00
M64	tons	32,10	64,20	32,10	64,20	44,90	32,10	67,40	32,10
M65	tons	32,10	64,20	32,10	64,20	44,90	32,10	67,40	32,10
M72	tons	25,00	50,00	25,00	50,00	35,00	25,00	52,50	25,00
M72*	tons	25,00	50,00	25,00	50,00	35,00	25,00	52,50	25,00
M80	tons	32,10	64,20	32,10	64,20	44,90	32,10	67,40	32,10
M90	tons	32,10	64,20	32,10	64,20	44,90	32,10	67,40	32,10
M100	tons	32,10	64,20	32,10	64,20	44,90	32,10	67,40	32,10
(UNC 1”-8)	lbs	10,000	20,000	10,000	20,000	14,000	10,000	21,000	10,000
(UNC 1 1/4”-7)	lbs	14,000	28,000	14,000	28,000	19,600	14,000	29,400	14,000
(UNC 1 3/8”-6*)	lbs	20,000	40,000	20,000	40,000	28,000	20,000	42,000	20,000
(UNC 1 1/2”-6)	lbs	20,000	40,000	20,000	40,000	28,000	20,000	42,000	20,000
(UNC 2”-4 1/2)	lbs	50,000	100,000	50,000	100,000	70,000	50,000	105,000	50,000

***Fine Thread**

Important Note: Table shows the maximum load rating for a given lifting configuration (NOT maximum load rating per individual lifting ring).

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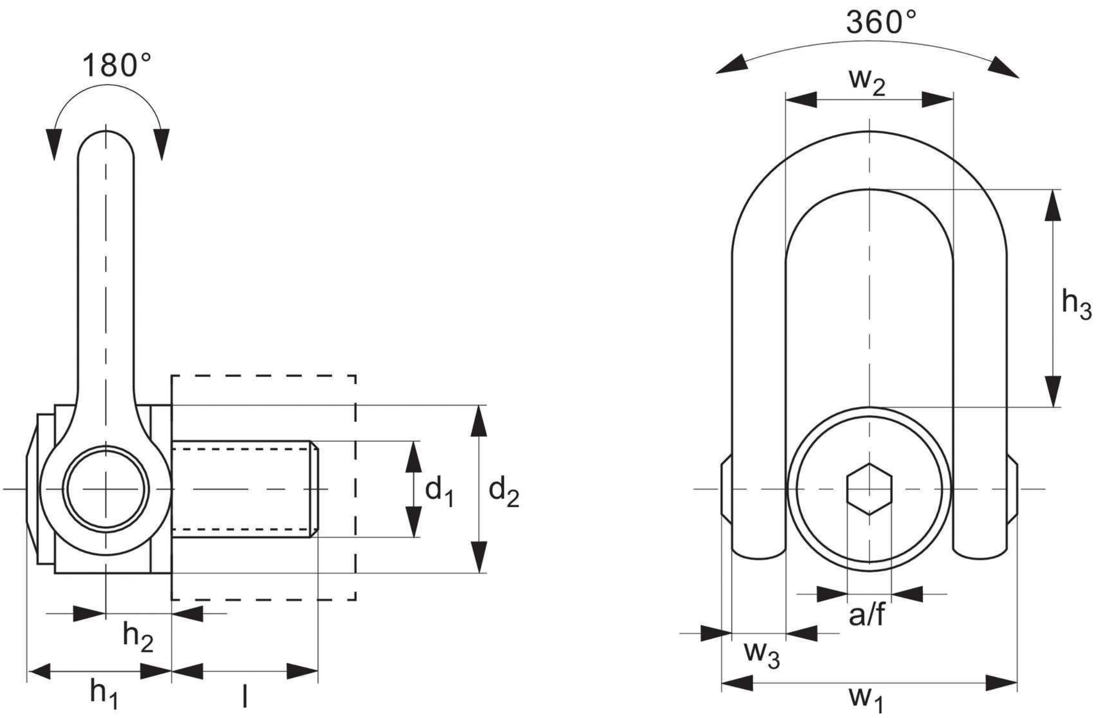
Swivel Lifting Rings - Double Swivel - Male

metric - coarse and UNC

63080



Order No	max load	d1	l	w1	h1	h2	h3	d2	w2	w3	a/f1	Safety factor	Kg
63080.W0024	5,5	M24x3,0	36	149	61	31	104	70	73	33	19	4	5,4
63080.W0030	8,5	M30x3,5	45	149	61	31	104	70	73	33	19	4	5,5
63080.W0033	10,5	M33x3,5	50	149	61	31	104	70	73	33	19	4	5,5
63080.W0036	12,0	M36x4,0	54	149	61	31	104	70	73	33	19	4	5,5
63080.W0037	12,0	M36x3,0*	54	149	61	31	104	70	73	33	19	4	5,5
63080.W0039	14,0	M39X4,0	58	149	61	31	104	70	73	33	19	4	5,7
63080.W0042	15,0	M42X4,5	63	149	61	31	104	70	73	33	19	4	5,8
63080.W0043	15,0	M42X3,0*	63	149	61	31	104	70	73	33	19	4	5,8
63080.W0045	16,0	M45X4,5	63	149	61	31	104	70	73	33	19	4	5,9
63080.W0048	20,0	M48X5,0	68	182	79	38	125	90	91	45	19	4	11,0
63080.W0049	20,0	M48X3,0*	68	182	79	38	125	90	91	45	19	4	11,0
63080.W0050	20,0	M48X4,0*	68	182	79	38	125	90	91	45	19	4	11,0
63080.W0052	21,0	M52X5,0	68	182	79	38	125	90	91	45	19	4	11,2
63080.W0056	25,0	M56X5,5	78	182	79	38	125	90	91	45	19	4	11,3
63080.W0057	25,0	M56X4,0*	78	182	79	38	125	90	91	45	19	4	11,4
63080.W0064	32,1	M64X6,0	90	182	79	38	125	95	91	45	19	4	12,2
63080.W0065	32,1	M64X4,0*	90	182	79	38	125	95	91	45	19	4	12,2
63080.W0072	25,0	M72X6,0	90	182	79	38	125	95	91	45	19	4	14,0
63080.W0073	25,0	M72X4,0*	90	182	79	38	125	95	91	45	19	4	14,0
63080.W0080	32,1	M80X6,0	90	182	79	38	125	100	91	45	19	4	15,0
63080.W0090	32,1	M90X6,0	90	182	79	38	125	100	91	45	19	4	15,5
63080.W0100	32,1	M100X6,0*	90	182	79	38	125	110	91	45	19	4	16,5
63080.W0325	(19,000)	(UNC 1 1/4"-7)	45	149	61	31	98	70	73	33	19	4	5,4
63080.W0337	(22,000)	(UNC 1 3/8"-6*)	54	149	61	31	98	70	73	33	19	4	5,4
63080.W0350	(27,000)	(UNC 1 1/2"-6)	54	149	61	31	98	70	73	33	19	4	5,4
63080.W0400	(50000)	(UNC 2"-4 1/2)	76	182	79	38	123	90	91	45	19	4	11,1

Material

High tensile steel, strength class >8.
Supplied with CE certificate.

Technical Notes

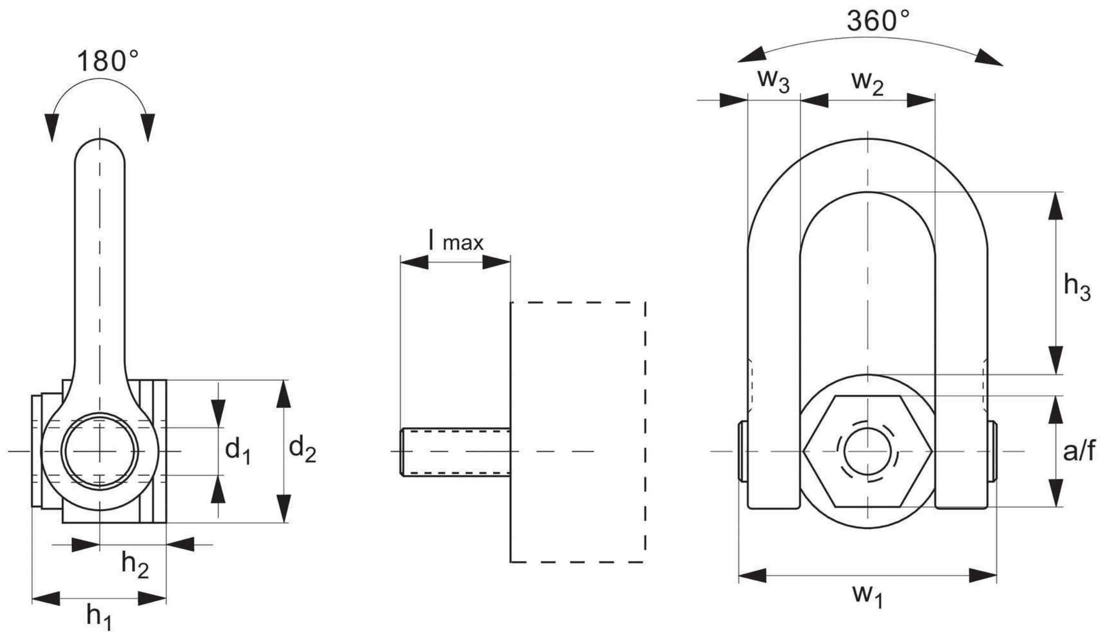
Double articulation.
Low overhang for improved safety.
*=non standard thread pitch.
For use in temperatures from -20°C to +200°C. Can be used in lower or higher temperatures but this affects the load rating - please ask for more information.
Please refer to our technical information pages when specifying and/or using.

Tips

Double articulation allows perfect alignment with the sling if the part rotates during the lift.
With "automatic" position recovery system for best orientation to sling direction.
Tighten by hex. key or spanner.

Important Notes

The thread diameter and depth must be appropriate to the material into which it will be installed:
Steel (min. ST37) - 1 x thread dia.
Cast iron - 1.25 x thread dia.
Aluminium - 2 x thread dia.
Other light metals - 2.5 x thread dia.
Tolerance of female thread to be 6H (metric) or UNC-2B (inch).
Please refer to the safety documentation before using this part.
Supplied with certificate and operating instructions.



Order No.	Max. load tons (lbs)	d_1	h_1 & l max.	w_1	h_2	h_3	d_2	w_2	w_3	a/f	Safety factor	Torque to Nm.	Kg
63084.W0325	(19,000)	(UNC 1" 1/4-7)	66	149	31	98	70	73	33	50	4	(200)	5,1
63084.W0337	(22,000)	(UNC 1" 3/8-6)1/4-7)	66	149	31	98	70	73	33	50	4	(240)	5,1
63084.W0350	(27,000)	(UNC 1"1/2-6)	89	182	38	123	95	91	45	60	4	(240)	10,0
63084.W0400	(50,000)	(UNC 2"-4 1/2)	89	182	38	123	95	91	45	60	4	(450)	10,0

Material

High tensile steel, strength class >8.
Supplied with CE certificate.

Technical Notes

Designed to be used directly with the hook of the crane. Load ratings clearly marked.
For use in temperatures from -20°C to +200°C. Can be used in lower or higher temperatures but this affects the load rating - please ask for more information.
Please refer to our technical information pages when specifying and/or using.

Tips

Double articulation allows perfect alignment with the sling if the part rotates during the lift.
With "automatic" position recovery system for best orientation to sling direction.
Tighten by hex. key or spanner.

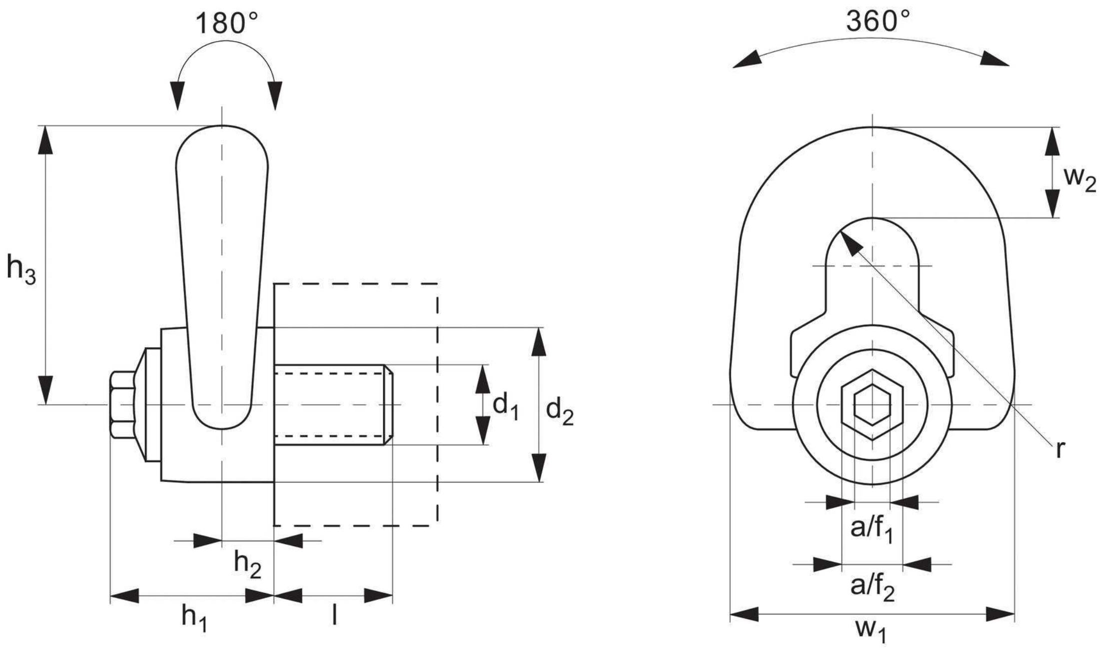
Important Notes

Tolerance of male thread to be 6G (metric) or UNC-2B (inch).
Please refer to the safety documentation before using this part.
Supplied with certificate and operating instructions.

Swivel Lifting Rings - Double Swivel - Male

for wire rope - metric coarse and UNC

63120



Order No.	Max. load tons (lbs)	d_1 tol. 6g (tol. 2A)	l	w_1	h_1	h_2	h_3	d_2	w_2	r	a/f_1	a/f_2	Safety factor	Torque to Nm (ft lbs)	Kg
63120.W0008	0,4	M8x 1,25	15	58	33	9,5	56	30	19	9,5	8	16	5	6	0,3
63120.W0010	0,7	M10x1,50	18	58	33	9,5	56	30	19	9,5	8	16	5	10	0,3
63120.W0012	1,0	M12x1,75	21	58	33	9,5	56	30	19	9,5	8	16	5	15	0,3
63120.W0014	1,4	M14x2,00	23	79	45	13,0	81	45	27	12,5	8	20	5	30	0,9
63120.W0016	2,0	M16x2,00	27	79	45	13,0	81	45	27	12,5	8	20	5	50	0,9
63120.W0018	2,3	M18x2,50	27	79	45	13,0	81	45	27	12,5	8	20	5	70	1,0
63120.W0020	2,5	M20x2,50	30	79	45	13,0	81	45	27	12,5	8	20	5	100	1,0
63120.W0231	(1,000)	(UNC 5/16"-18)	15	58	33	9,5	56	30	19	9,5	8	16	5	(7)	0,3
63120.W0238	(1,300)	(UNC 3/8"-16)	17	58	33	9,5	56	30	19	9,5	8	16	5	(8)	0,3
63120.W0250	(2,400)	(UNC 1/2"-13)	21	58	33	9,5	56	30	19	9,5	8	16	5	(12)	0,3
63120.W0258	(3,900)	(UNC 5/8"-11)	27	79	45	13,0	81	45	27	12,5	8	16	5	(40)	1,0
63120.W0275	(5,250)	(UNC 3/4"-10)	30	79	45	13,0	81	45	27	12,5	8	16	5	(80)	1,0

Material

High tensile steel, strength class >8.
Supplied with CE certificate.

Technical Notes

Double articulation.
Low overhang for improved safety.
For use in temperatures from -20°C to +200°C. Can be used in lower or higher temperatures but this affects the load rating - please ask for more information.
Please refer to our technical information pages when specifying and/or using.

Tips

Double articulation allows perfect alignment with the sling if the part rotates during the lift.
With "automatic" position recovery system for best orientation to sling direction.
Tighten by hex. key or spanner.

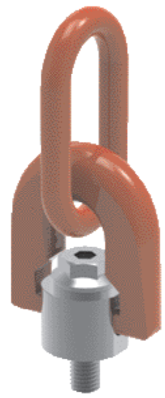
Important Notes

The thread diameter and depth must be appropriate to the material into which it will be installed:
Steel (min. ST37) - 1 x thread dia.
Cast iron - 1.25 x thread dia.
Aluminium - 2 x thread dia.
Other light metals - 2.5 x thread dia.
Tolerance of female thread to be 6H (metric) or UNC-2B (inch).
Please refer to the safety documentation before using this part.
Supplied with certificate and operating instructions.

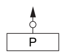
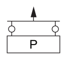
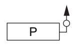
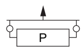
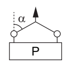
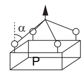
63150

Swivel Lifting Rings

max. load rating - per lifting configuration



63150 Male

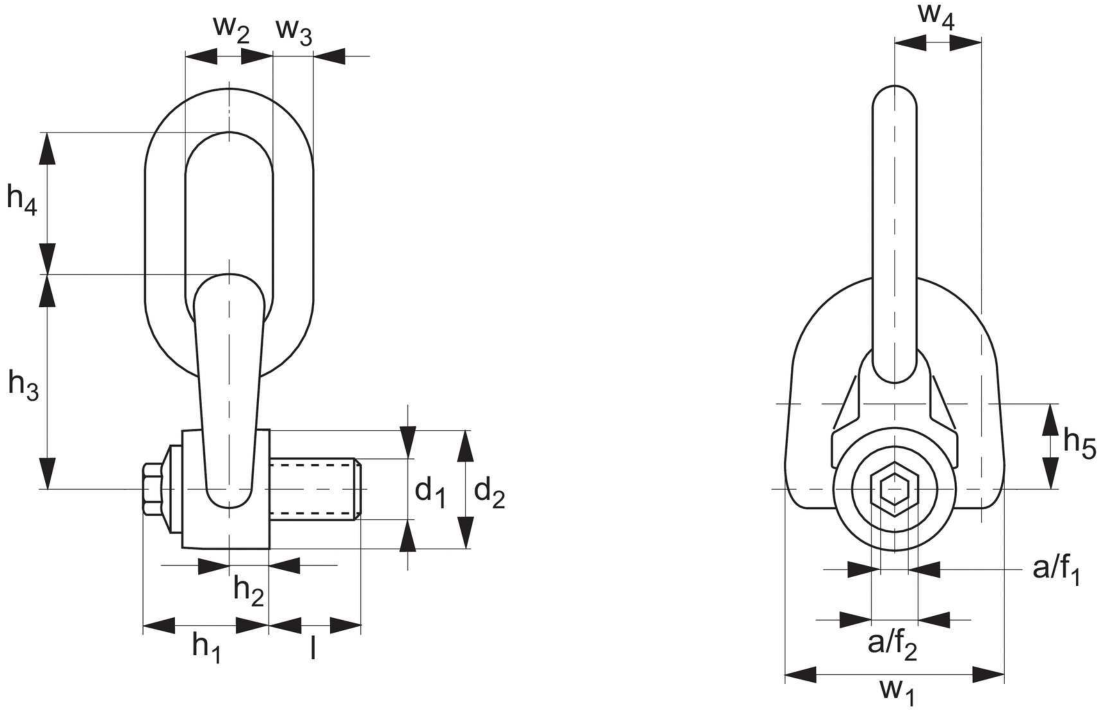
Lifting configuration						 α max. = 60°		 α max. = 60°	
No. of rings		1	2	1	2	2	2	4	4
Lifting angle		0°	0°	90°	90°	45°	60°	45°	60°
Thread		**Maximum load rating for given lifting configuration**							
M 8	tons	0,30	0,60	0,30	0,60	0,40	0,30	0,60	0,30
M10	tons	0,60	1,20	0,60	1,20	0,80	0,60	1,30	0,60
M12	tons	1,00	2,00	1,00	2,00	1,40	1,00	2,10	1,00
M14	tons	1,30	2,60	1,30	2,60	1,80	1,30	2,70	1,30
M16	tons	1,60	3,20	1,60	3,20	2,20	1,60	3,40	1,60
M18	tons	2,00	4,00	2,00	4,00	2,80	2,00	4,20	2,00
M20	tons	2,50	5,00	2,50	5,00	3,50	2,50	5,30	2,50
M22	tons	3,00	6,00	3,00	6,00	4,20	3,00	6,30	3,00
M24	tons	4,00	8,00	4,00	8,00	5,60	4,00	8,40	4,00
M27	tons	5,00	10,00	5,00	10,00	7,0	5,00	10,50	5,00
M30	tons	6,30	12,60	6,30	12,60	8,80	6,30	13,20	6,30
M36	tons	10,00	20,00	10,00	20,00	14,00	10,00	21,00	10,00
M42	tons	12,50	25,00	12,50	25,00	17,50	12,50	26,30	12,50
M48	tons	20,00	40,00	20,00	40,00	28,00	20,00	42,00	20,00
M56	tons	22,00	44,00	22,00	44,00	30,80	22,00	46,20	22,00
(UNC 5/16”-18)	lbs	650	1,300	650	1,300	910	650	1,365	650
(UNC 3/8”-16)	lbs	1,200	2,400	1,200	2,400	1,680	1,200	2,520	1,200
(UNC 1/2”-13)	lbs	2,200	4,400	2,200	4,400	3,080	2,200	4,620	2,200
(UNC 5/8”-11)	lbs	3,800	7,600	3,800	7,600	5,320	3,800	7,980	3,800
(UNC 3/4”-10)	lbs	5,500	11,000	5,500	11,000	7,700	5,500	11,550	5,500
(UNC 7/8”-9)	lbs	6,600	13,200	6,600	13,200	9,240	6,600	13,860	6,600
(UNC 1”-8)	lbs	10,000	20,000	10,000	20,000	14,000	10,000	21,000	10,000

Important Note: Table shows the maximum load rating for a given lifting configuration (NOT maximum load rating per individual lifting ring).

Swivel Lifting Rings - Triple Swivel - Male

ring conncection - metric - coarse and UNC

63150



Order No	max load	d1	l	h1	w1	d2	h2	h3	Kg
63150.W0008	0,40	M 8x1,25	14	33	58	30	9.5	56	0,4
63150.W0010	0,70	M10x1,50	17	33	58	30	9.5	56	0,4
63150.W0012	1,05	M12x1,75	21	33	58	30	9.5	56	0,4
63150.W0014	1,40	M14x2,00	23	45	79	45	13.0	81	1,1
63150.W0016	2,00	M16x2,00	27	45	79	45	13.0	81	1,2
63150.W0018	2,30	M18x2,50	27	45	79	45	13.0	81	1,2
63150.W0020	2,50	M20x2,50	30	45	79	45	13.0	81	1,2
63150.W0022	3,00	M22x2,50	33	62	106	60	19.0	105	2,8
63150.W0024	4,00	M24x3,00	36	62	106	60	19.0	105	2,9
63150.W0027	5,00	M27x3,00	36	62	106	60	19.0	105	2,9
63150.W0030	6,30	M30x3,50	45	62	106	60	19.0	105	3,0
63150.W0036	10,00	M36x4,00	54	81	148	80	26.5	140	7,6
63150.W0042	12,50	M42x4,50	63	84	148	80	26.5	146	7,8
63150.W0048	20,00	M48x5,00	68	100	180	110	33.0	178	17,5
63150.W0056	22,00	M56x5,50	78	104	190	110	33.0	184	18,0
63150.W0231	(1,000)	(UNC 5/16"-18)	15	33	58	30	9.5	56	0,4
63150.W0238	(1,300)	(UNC 3/8"-16)	17	33	58	30	9.5	56	0,4
63150.W0250	(2,400)	(UNC 1/2"-13)	21	33	58	30	9.5	56	0,4
63150.W0258	(3,900)	(UNC 5/8"-11)	27	45	79	45	13.0	81	1,1
63150.W0275	(5,250)	(UNC 3/4"-10)	30	45	79	45	13.0	81	1,2
63150.W0288	(6,600)	(UNC 7/8"-9)	33	62	106	60	19.0	84	2,7
63150.W0300	(10,000)	(UNC 1"-8)	36	62	106	60	19.0	84	2,8
63150.W0325	(14,000)	(UNC 1 1/4"-7)	46	84	106	80	26.5	146	7,1
63150.W0350	(20,000)	UNC 1 1/2"-6)	61	84	148	80	26.5	146	7,7
63150.W0400	(50,000)	(UNC 2" 41/2)	76	104	190	110	33.0	184	17,7

Order No.	h_4	h_5 & w_4	w_2	w_3	a/f_1	a/f_2	Safety factor	Torque to Nm (ft lbs)
63150.W0008	41	18	25	10	8	16	5	6
63150.W0010	41	18	25	10	8	16	5	10
63150.W0012	41	18	25	10	8	16	5	15
63150.W0014	56	24	37	14	8	20	5	30
63150.W0016	56	24	37	14	8	20	5	50
63150.W0018	56	24	37	14	8	20	5	70
63150.W0020	56	24	37	14	8	20	5	100
63150.W0022	80	45	45	20	14	24	5	120
63150.W0024	80	45	45	20	14	24	5	160
63150.W0027	80	45	45	20	14	24	5	200
63150.W0030	80	45	45	20	14	24	5	250
63150.W0036	111	54	71	30	19	30	5	320
63150.W0042	111	58	71	30	19	30	5	400
63150.W0048	135	69	90	42	19	30	4	600

Material

High tensile steel, strength class >8.
Supplied with CE certificate.

Technical Notes

Three articulations.
Very low overhang for improved safety.
For use in temperatures from -20°C to +200°C. Can be used in lower or higher temperatures but this affects the load rating - please ask for more information.
Longer or shorter thread lengths can be supplied but please consult our technical department for this information if required.
Please refer to our technical information pages when specifying and/or using.

Tips

Tighten by hex. key or spanner.

Important Notes

The thread diameter and depth must be appropriate to the material into which it will be installed:
Steel (min. ST37) - 1 x thread dia.
Cast iron - 1.25 x thread dia.
Aluminium - 2 x thread dia.
Other light metals - 2.5 x thread dia.
Tolerance of female thread to be 6H (metric) or UNC-2B (inch).
Please refer to the safety documentation before using this part.
Supplied with certificate and operating instructions.

Swivel Lifting Rings - Triple Swivel - Male

ring conncection - metric - coarse and UNC

63150

Order No.	h_4	h_5 & w_4	w_2	w_3	a/f_1	a/f_2	Safety factor	Torque to Nm (ft lbs)
63150.W0056	135	73	90	42	19	30	4	600
63150.W0231	41	18	25	10	8	16	5	(7)
63150.W0238	41	18	25	10	8	16	5	(8)
63150.W0250	41	18	25	10	8	16	5	(12)
63150.W0258	56	24	37	14	8	20	5	(40)
63150.W0275	56	24	37	14	8	20	5	(80)
63150.W0288	80	41	45	20	14	24	5	(90)
63150.W0300	80	41	45	20	14	24	5	(125)
63150.W0325	111	41	71	30	14	24	5	(200)
63150.W0350	111	54	71	30	19	30	5	(240)
63150.W0400	135	66	90	42	19	30	5	(450)

Material

High tensile steel, strength class >8.
Supplied with CE certificate.

Technical Notes

Three articulations.
Very low overhang for improved safety.
For use in temperatures from -20°C to +200°C. Can be used in lower or higher temperatures but this affects the load rating - please ask for more information.
Longer or shorter thread lengths can be supplied but please consult our technical department for this information if required.
Please refer to our technical information pages when specifying and/or using.

Tips

Tighten by hex. key or spanner.

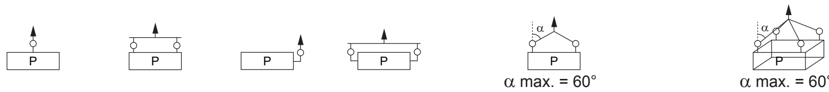
Important Notes

The thread diameter and depth must be appropriate to the material into which it will be installed:
Steel (min. ST37) - 1 x thread dia.
Cast iron - 1.25 x thread dia.
Aluminium - 2 x thread dia.
Other light metals - 2.5 x thread dia.
Tolerance of female thread to be 6H (metric) or UNC-2B (inch).
Please refer to the safety documentation before using this part.
Supplied with certificate and operating instructions.

Stainless Steel Double Swivel Lifting Rings

max. load rating - per lifting configuration

63200 Male



Lifting configuration									
No. of rings		1	2	1	2	2	2	4	4
Lifting angle		0°	0°	90°	90°	45°	60°	45°	60°
Thread		Maximum load rating for given lifting configuration							
M8	tons	0,30	0,60	0,30	0,60	0,40	0,30	0,60	0,30
M8*	tons	0,30	0,60	0,30	0,60	0,40	0,30	0,60	0,30
M10	tons	0,50	1,00	0,50	1,00	0,70	0,50	1,10	0,50
M10*	tons	0,50	1,00	0,50	1,00	0,70	0,50	1,10	0,50
M12	tons	0,80	1,60	0,80	1,60	1,10	0,80	1,70	0,80
M12*	tons	0,80	1,60	0,80	1,60	1,10	0,80	1,70	0,80
M14	tons	1,00	2,00	1,00	2,00	1,40	1,00	2,10	1,00
M16	tons	1,50	3,00	1,50	3,00	2,10	1,50	3,20	1,50
M18	tons	1,50	3,00	1,50	3,00	2,10	1,50	3,20	1,50
M20	tons	1,60	3,20	1,60	3,20	2,20	1,60	3,40	1,60
M22	tons	2,00	4,00	2,00	4,00	2,80	2,00	4,20	2,00
M24	tons	2,70	5,40	2,70	5,40	3,80	2,70	5,70	2,70
M27	tons	2,80	5,60	2,80	5,60	3,90	2,80	5,90	2,80
M30	tons	3,00	6,00	3,00	6,00	4,20	3,00	6,30	3,00

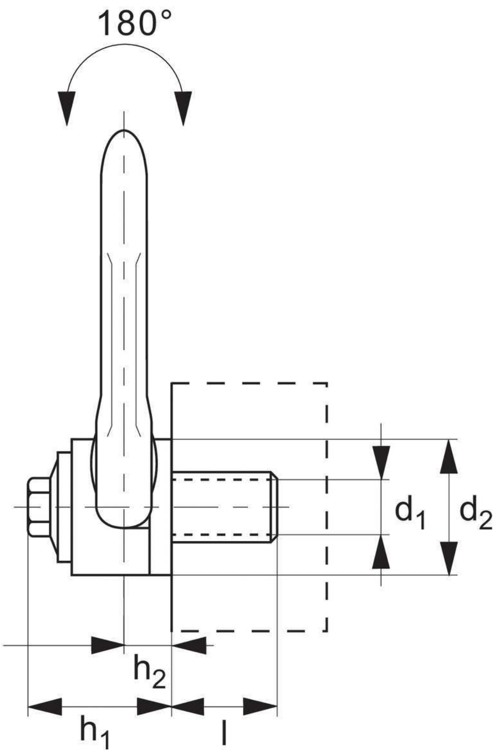
***Fine Thread.**

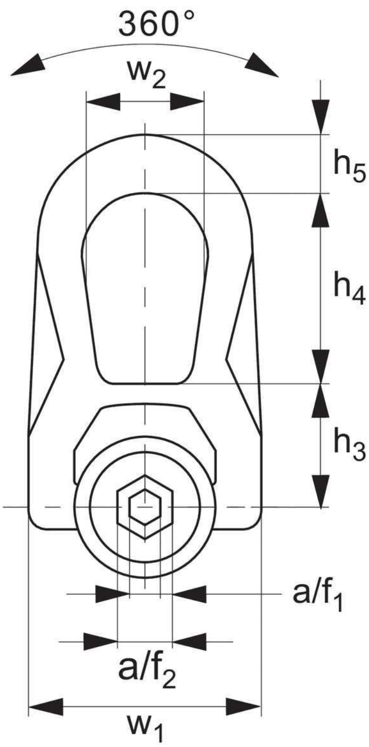
Important Note: Table shows the maximum load rating for a given lifting configuration (NOT maximum load rating per individual lifting ring).

Swivel Lifting Rings - Double Swivel - Male

metric - coarse - stainless steel

63200





Order No.	Max. load tons	d_1 tol. 6g	l	w_1	h_1	h_2	h_3	h_4	h_5	d_2	w_2	a/f_1	a/f_2	Safety factor	Torque to Nm	Kg
63200.W0008	0,3	M 8x 1,25	16	53	32	9,5	30	39	13	30	28	8	16	4	6	0,3
63200.W0010	0,5	M10x1,50	16	53	32	9,5	30	39	13	30	28	8	16	4	10	0,3
63200.W0012	0,8	M12x1,75	19	53	32	9,5	30	39	13	30	28	8	16	4	15	0,3
63200.W0014	1,0	M14x2,00	29	76	44	13	40	53	17	45	38	8	20	4	30	0,9
63200.W0016	1,5	M16x2,00	26	76	44	13	40	53	17	45	38	8	20	4	50	0,9
63200.W0018	1,5	M18x2,50	30	76	44	13	40	53	17	45	38	8	20	4	70	1,0
63200.W0020	1,6	M20x2,50	30	76	44	13	40	53	17	45	38	8	20	4	100	1,0
63200.W0022	2,2	M22x2,50	42	115	62	19	55	83	25	58	56	14	24	4	120	2,5
63200.W0024	2,7	M24x3,00	42	115	62	19	55	83	25	58	56	14	24	4	160	2,6
63200.W0027	2,9	M27x3,00	42	115	62	19	55	83	25	58	56	14	24	4	200	2,7
63200.W0030	3,5	M30x3,50	47	115	62	19	55	83	25	58	56	14	24	4	250	2,8

Material

High tensile stainless steel (316L), strength class >8.
Supplied with CE certificate.

Technical Notes

Double articulation.
Very low overhang for improved safety.
Large support surface.
For use in temperatures from -20°C to +200°C. Can be used in lower or higher temperatures but this affects the load rating - please ask for more information.
Longer or shorter thread lengths can be supplied but please consult our technical department for this information if required.
Please refer to our technical information pages when specifying and/or using.

Tips

Double articulation allows perfect alignment with the sling.
With "automatic" position recovery system for best orientation to sling direction.
Tighten by hex. key or spanner.

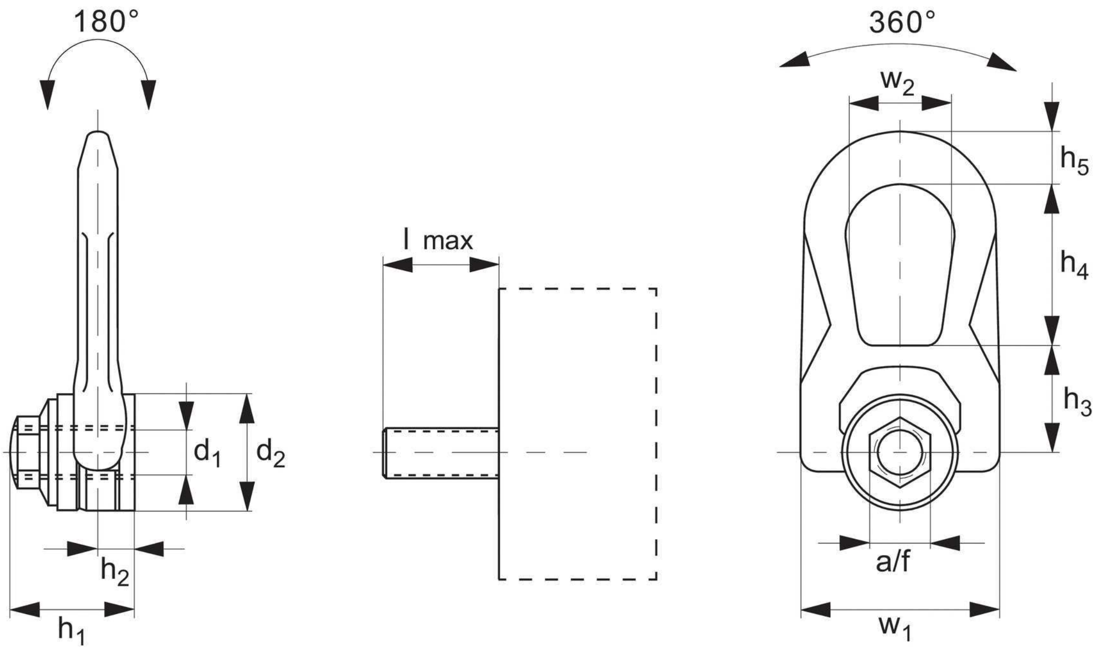
Important Notes

The thread diameter and depth must be appropriate to the material into which it will be installed:
Steel (min. ST37) - 1 x thread dia.
Cast iron - 1.25 x thread dia.
Aluminium - 2 x thread dia.
Other light metals - 2.5 x thread dia.
Tolerance of female thread to be 6H (metric) or UNC-2B (inch).
Please refer to the safety documentation before using this part.
Supplied with certificate and operating instructions.

Swivel Lifting Rings - Double Swivel - Female

metric - coarse - stainless steel

63204



Order No.	Max. load tons	d_1 tol.6g	h_1 & l max.	w_1	h_2	h_3	h_4	h_5	d_2	w_2	a/f	Safety factor	Torque to Nm	Kg.
63204.W0008	0,3	M 8x 1,25	43	76	13	40	53	17	45	38	20	4	6	0,9
63204.W0010	0,5	M10x1,50	43	76	13	40	53	17	45	38	20	4	10	0,9
63204.W0012	0,8	M12x1,75	43	76	13	40	53	17	45	38	20	4	15	0,9
63204.W0014	1,0	M14x2,00	43	76	13	40	53	17	45	38	20	4	30	0,9
63204.W0016	1,5	M16x2,00	43	76	13	40	53	17	45	38	20	4	50	0,9
63204.W0018	1,5	M18x2,50	62	115	19	55	83	25	58	56	24	4	70	2,6
63204.W0020	1,6	M20x2,50	62	115	19	55	83	25	58	56	24	4	100	2,6
63204.W0022	2,2	M22x2,50	62	115	19	55	83	25	58	56	24	4	120	2,6

Material
High tensile stainless steel (316L), strength class >8.
Supplied with CE certificate.

Technical Notes
Double articulation.
Very low overhang for improved safety.
Large support surface.
For use in temperatures from -20°C to +200°C. Can be used in lower or higher temperatures but this affects the load rating - please ask for more information.
Please refer to our technical information pages when specifying and/or using.

Tips
Double articulation allows perfect alignment with the sling.
With "automatic" position recovery system for best orientation to sling direction.
Tighten by hex. key or spanner.

Important Notes
The thread diameter and depth must be appropriate to the material into which it will be installed:
Steel (min. ST37) - 1 x thread dia.
Cast iron - 1.25 x thread dia.
Aluminium - 2 x thread dia.
Other light metals - 2.5 x thread dia.
Tolerance of male thread to be 6G (metric) or UNC-2B (inch).
Please refer to the safety documentation before using this part.
Supplied with certificate and operating instructions.

63210 Stainless Steel Double Swivel Lifting Rings

max. load rating - per lifting configuration

63210 Male

Lifting configuration						α max. = 60°		α max. = 60°	
No. of rings		1	2	1	2	2	2	4	4
Lifting angle		0°	0°	90°	90°	45°	60°	45°	60°
Thread		**Maximum load rating for given lifting configuration**							
M24	tons	2,70	5,40	2,70	5,40	3,80	2,70	5,70	2,70
M27	tons	2,80	5,60	2,80	5,60	3,90	2,80	5,90	2,80
M30	tons	3,50	7,00	3,50	7,00	4,90	3,50	7,30	3,50
M33	tons	3,50	7,00	3,50	7,00	4,90	3,50	7,30	3,50
M36	tons	5,00	10,00	5,00	10,00	7,00	5,00	10,50	5,00
M36*	tons	5,00	10,00	5,00	10,00	7,00	5,00	10,50	5,00
M39	tons	5,00	10,00	5,00	10,00	7,00	5,00	10,50	5,00
M42	tons	6,00	12,00	6,00	12,00	8,40	6,00	12,60	6,00
M42*	tons	6,00	12,00	6,00	12,00	8,40	6,00	12,60	6,00
M45	tons	6,00	12,00	6,00	12,00	8,40	6,00	12,60	6,00
(UNC 1”-8)	lbs	6,000	12,000	6,000	12,000	8,400	6,000	12,600	6,000
(UNC 1 1/4”-7)	lbs	7,500	15,000	7,500	15,000	10,500	7,500	15,750	7,500
(UNC 1 3/8”-6)	lbs	7,500	15,000	7,500	15,000	10,500	7,500	15,750	7,500
(UNC 1 1/2”-6)	lbs	11,000	22,000	11,000	22,000	15,400	11,000	23,100	11,000

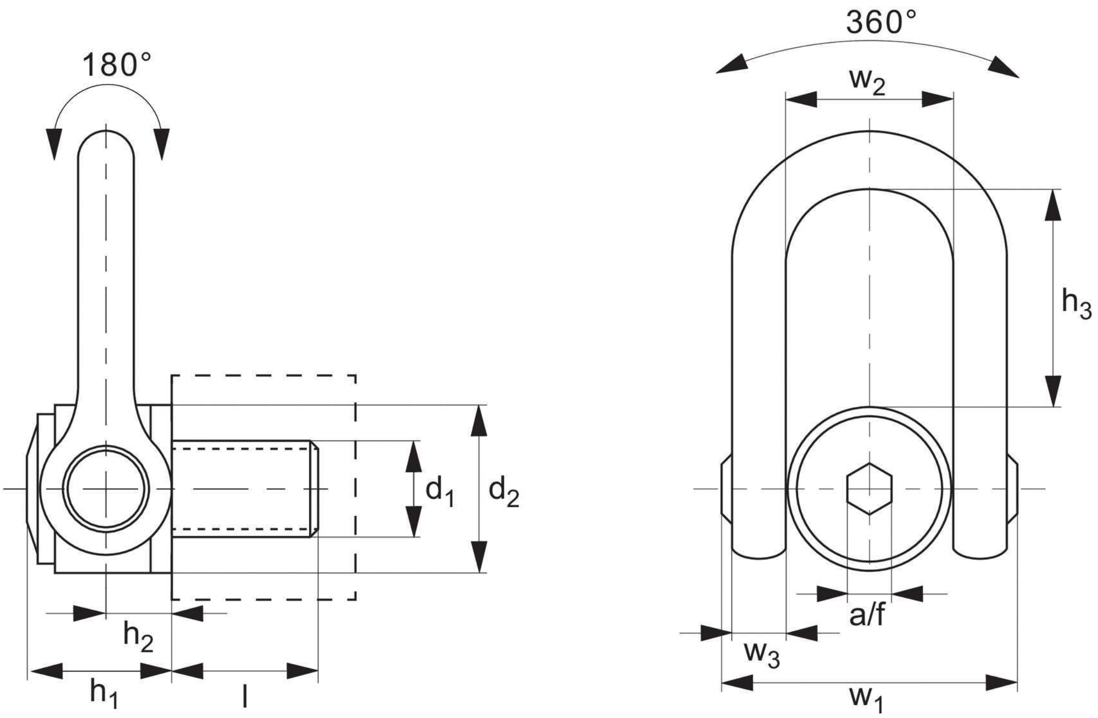
***Fine Thread**

Important Note: Table shows the maximum load rating for a given lifting configuration (NOT maximum load rating per individual lifting ring).

Swivel Lifting Rings - Double Swivel - Male

metric - coarse and UNC - stainless steel

63210



Order no.	max. load tons (llbs)	d1	l1	w1	h1	h2	d2	w2	h3	w3	a/f	Safety factor	Torque to Nm (ft ibs)	Kg
63210.W0030	3,5	M30x3,5	45	149	61	31	70	73	98	30	19	4	250	5,2
63210.W0033	3,5	M33x3,5	50	149	61	31	70	73	98	30	19	4	250	5,2
63210.W0036	5,0	M36x4,0	54	149	61	31	70	73	98	30	19	4	320	5,2
63210.W0037	5,0	M36x3,0*	54	149	61	31	70	73	98	30	19	4	320	5,2
63210.W0039	5,0	M39x4,0	54	149	61	31	70	73	98	30	19	4	320	5,4
63210.W0042	6,0	M42x4,5	63	149	61	31	70	73	98	30	19	4	400	5,4
63210.W0043	6,0	M42x3,0*	63	149	61	31	70	73	98	30	19	4	400	5,4
63210.W0045	6,0	M45x4,5	63	149	61	31	70	73	98	30	19	4	400	5,7
63210.W0100	(6,000)	(UNC 1"-8)	40	149	61	31	70	73	98	30	3/4"	4	(125)	5,2
63210.W0125	(7,500)	(UNC 1 1/4"-7)	45	149	61	31	70	73	98	30	3/4"	4	(200)	5,2
63210.W0137	(7,500)	(UNC 1 3/8"-6)	54	149	61	31	70	73	98	30	3/4"	4	(240)	5,2
63210.W0150	(11,000)	(UNC 1 1/2"-6)	61	149	61	31	70	73	98	30	3/4"	4	(240)	5,4

Material
High tensile stainless steel (316L), strength class >8.
Supplied with CE certificate.

Technical Notes
Double articulation.
Very low overhang for improved safety.
Large support surface.
*=non standard thread pitch.
For use in temperatures from -20°C to +200°C. Can be used in lower or higher temperatures but this affects the load rating - please ask for more information.
Longer or shorter thread lengths can be supplied but please consult our technical department for this information if required.
Please refer to our technical information pages when specifying and/or using.

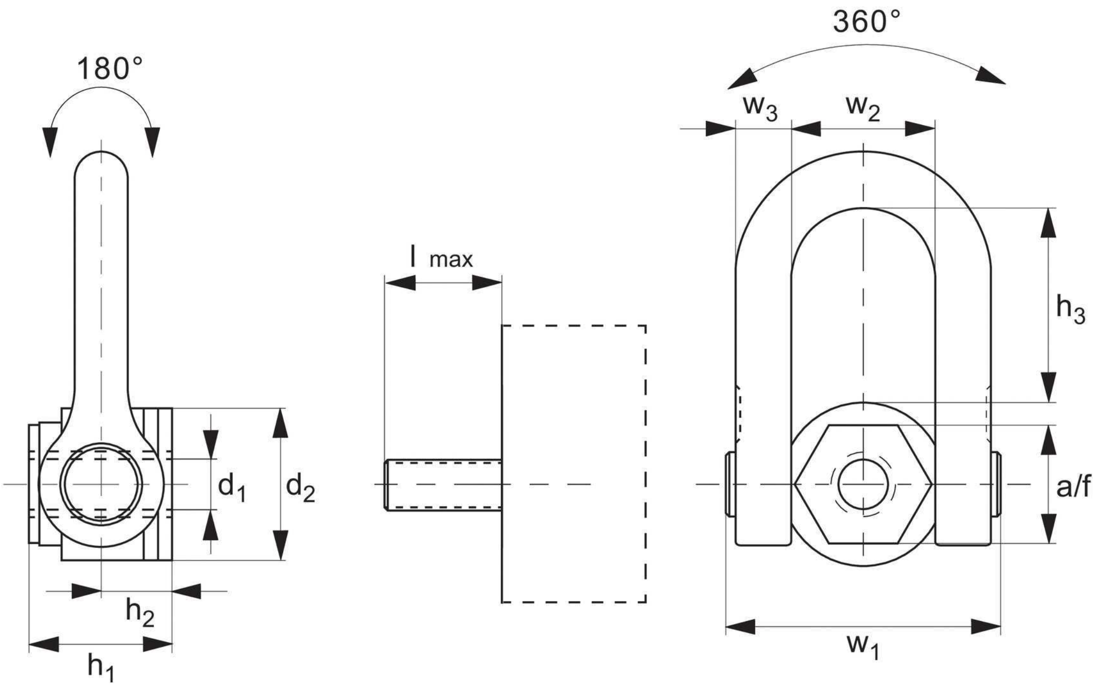
Tips
Double articulation allows perfect alignment with the sling.
With "automatic" position recovery system for best orientation to sling direction.
Tighten by hex. key or spanner.

Important Notes
The thread diameter and depth must be appropriate to the material into which it will be installed:
Steel (min. ST37) - 1 x thread dia.
Cast iron - 1.25 x thread dia.
Aluminium - 2 x thread dia.
Other light metals - 2.5 x thread dia.
Tolerance of female thread to be 6H (metric) or UNC-2B (inch).
Please refer to the safety documentation before using this part.
Supplied with certificate and operating instructions.

Lifting Points - Double Swivel - Female

metric - coarse and UNC

63214



Order No	max load	d1	h1 l1 max	w1	h2	h3	d2	w2	w3	a/f	Safety	Torque	Kg
63214.W0024	2,7	M24x3,0	66	149	31	98	70	73	30	50	4	160	5,8
63214.W0027	2,8	M27x3,0	66	149	31	98	70	73	30	50	4	200	5,8
63214.W0030	3,5	M30x3,5	66	149	31	98	70	73	30	50	4	250	5,8
63214.W0033	3,5	M33x3,5	66	149	31	98	70	73	30	50	4	250	5,8
63214.W0036	5,0	M36x4,0	66	149	31	98	70	73	30	50	4	320	5,8
63214.W0100	(6,000)	(UNC 1"-8)	66	149	31	98	70	73	30	50	4	(125)	5,4
63214.W0125	(7,500)	(UNC 1 1/4"-7)	66	149	31	98	70	73	30	50	4	(200)	5,4
63214.W0135	(7,500)	(UNC 1 3/8"-6)	66	149	31	98	70	73	30	50	4	(300)	5,4

Material
High tensile stainless steel (316L), strength class >8.
Supplied with CE certificate.

Technical Notes
Double articulation.
Very low overhang for improved safety.
Large support surface.
For use in temperatures from -20°C to +200°C. Can be used in lower or higher temperatures but this affects the load rating - please ask for more information.
Please refer to our technical information pages when specifying and/or using.

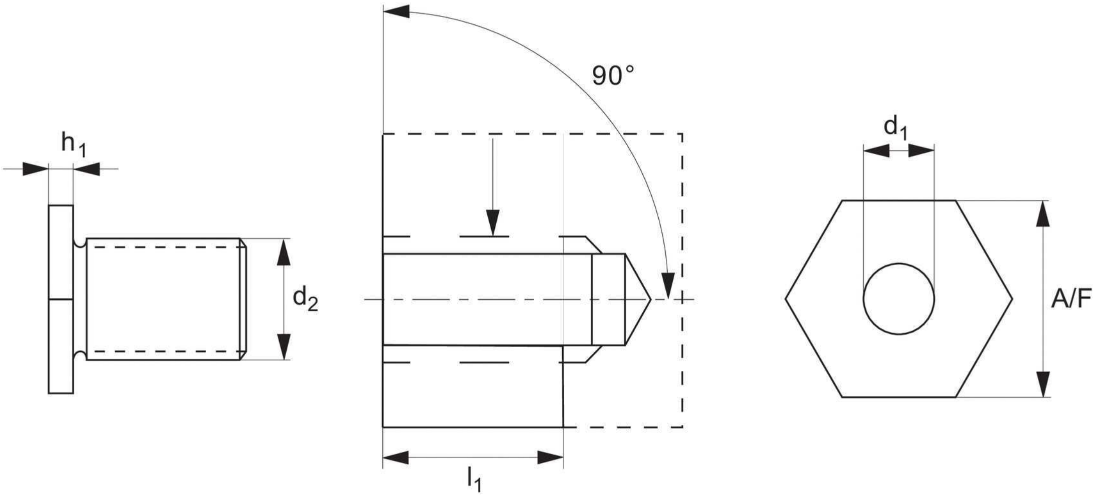
Tips
Double articulation allows perfect alignment with the sling.
With "automatic" position recovery system for best orientation to sling direction.
Tighten by hex. key or spanner.

Important Notes
The thread diameter and depth must be appropriate to the material into which it will be installed:
Steel (min. ST37) - 1 x thread dia.
Cast iron - 1.25 x thread dia.
Aluminium - 2 x thread dia.
Other light metals - 2.5 x thread dia.
Tolerance of male thread to be 6G (metric) or UNC-2B (inch).
Please refer to the safety documentation before using this part.
Supplied with certificate and operating instructions.

Thread Adapter

for male lifting points

63302



Order Example

63302.W0030 - M20x2.5

M30 x 3.5 external thread as supplied

internal thread as customer specified

Material

High tensile steel, strength class >8.

Technical Notes

The internal portion of the adaptor can be machined (by us) to suit the required lifting bolt thread. Allowing differing sized lifting bolts to be used.

XX - Advise the internal thread size and pitch required e.g. 63020.W0030 - M20x2,5.

Female thread tolerances required to be 6H (metric) or UNC-2B (inch).

Tips

Not suitable/rated for customers to machine internal threads themselves.

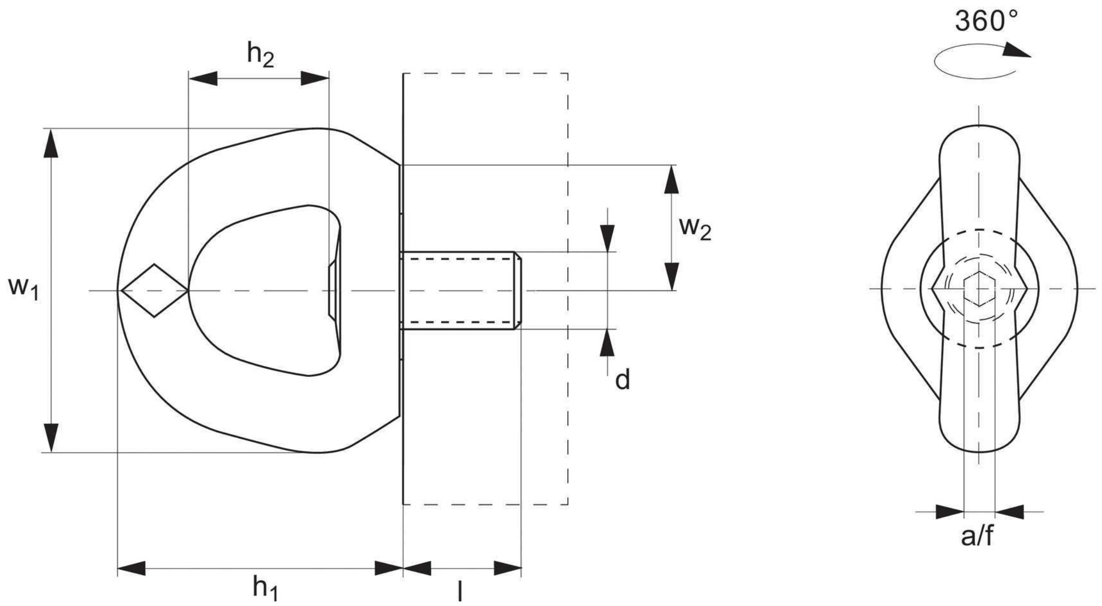
Only to be used with lifting bolts 63020 to 63150.

Order No.	d_2 tol. 6g (tol. 2A)	d_1 mm max.	d_1 inch max.	l_1	h_1	A/F	Torque to Nm (ft lbs)
63302.W0024-xx	M24 x 3,0	18	5/8"	36	10	50	160
63302.W0030-xx	M30 x 3,5	20	7/8"	45	10	50	250
63302.W0036-xx	M36 x 4,0	27	1"	54	10	65	320
63302.W0040-xx	M42 x 4,5	33	1" 1/4	63	10	75	400
63302.W0048-xx	M48 x 5,0	39	1" 1/2	68	10	75	600
63302.W0056-xx	M56 x 5,5	42	1" 3/4	78	10	95	600
63302.W0064-xx	M64 x 6,0	52	2"	90	10	95	600
63302.W0100-xx	M100 x 6,0	80	3" 1/2	100	15	155	600
63302.W5088-xx	UNC 7/8"-9	16	5/8"	33	10	50	(100)
63302.W5100-xx	UNC 1"-8	18	3/4"	36	10	50	(125)
63302.W5125-xx	UNC 1"1/4-7	24	7/8"	45	10	50	(200)
63302.W5138-xx	UNC 1"3/8-6	27	1"	54	10	65	(300)
63302.W5150-xx	UNC 1"1/2-6	30	1" 1/8	61	10	75	(300)
63302.W5200-xx	UNC 2"-4 1/2	39	1" 1/2	76	10	95	(450)
63302.W5275-xx	UNC 2"3/4-4	56	2" 1/4	105	10	155	(600)
63302.W5400-xx	UNC 4"-4	80	3" 1/4	150	15	155	(800)

Eye Bolt - Fall Arrest - Male

metric - coarse

63350



Order No.	Max. no. of persons	d tol. 6g	l	w_1	h_1	h_2	w_2	w_3	a/f	Torque to Nm	Kg
63350.W0012	1	M12x1,75	21	60	57	30	20	34	6	15	0,24
63350.W0016	1	M16x2,00	27	88	80	38	35	45	8	50	0,80
63350.W0020	1	M20x2,50	30	88	80	38	35	45	8	100	0,80

Material

High tensile corrosion resistant steel, strength class >8.
Coloured yellow to indicate personnel safety.
Supplied with CE certificate.

Technical Notes

Conforms to EN795:1996.
Single articulation, 360°.
Clearly marked with maximum number of persons. The yellow colour indicates the personnel safety use.

Tips

Marked with the number of persons the ring is certified to support. For use by personnel wearing safety harnesses. Suitable for 1 or 2 persons as marked.
Typically used in building maintenance, wind power and offshore industries.

Important Notes

The thread diameter and depth must be appropriate to the material into which it will be installed:
Steel (min. ST37) - 1 x thread dia.
Cast iron - 1.25 x thread dia.
Aluminium - 2 x thread dia.
Other light metals - 2.5 x thread dia.
Tolerance of female thread to be 6H (metric).
Please refer to the safety documentation before using this part.
Supplied with certificate and operating instructions.

63501 -63700

Heavy Duty Safety Hoist Rings

Heavy duty safety hoist rings are stronger than competitive lifting devices, providing better value while delivering the quality and safety only the best design and manufacture can achieve.

- Manufactured from high strength alloy steel.
- One piece body and shouldered d-ring element.
- Just 6 component parts for increased safety.

The patented shoulder pin used in our heavy duty safety hoist rings allows for rotation of the pin, without shearing of any retaining dowel pin which is so often used in the construction of other competitive hoist rings. This unique design element enables disassembly of our hoist rings for inspection, compliance testing and reassembly.

General maintenance and care

Improper maintenance and inspection of your hoist ring could result in damaged equipment, personal injury or even death. In order to ensure maximum safety please read, understand and follow these maintenance and inspection guidelines prior to using any lifting hoist ring.

Maintenance

- When not in use, store hoist rings carefully to prevent corrosion or accidental damage.
- Do not remove the installation and safety tag from the lifting device. Ensure the identification tag remains legible during the life to the lifting device.

Inspection

Visually inspect the lifting device prior to any use. Frequency of inspection should increase with the frequency of use, severity of service conditions and the more safety critical the use of the device.

Discontinue use of any lifting device if inspection identifies any of the following:

- Missing identification tags.
- Indications of heat damage.
- Excessive corrosion or pitting.
- Damaged or missing load bearing components.
- Excessive nicks or gouges.
- Excessive thread damage.
- Evidence of unauthorised welding or modification.
- Lack of ability to swivel 360º or pivot 180º.

Important installation and operation instructions

It is very important for you to read and comply with these installation and safety notes prior to use or any lifting device.

Installation

- Ensure thread has been tapped perpendicular to the mounting surface. Mounting surface should be flat to provide full 360º flush seating for the hoist ring.
- For installation in ferrous metal ensure bolt is tightened to the full torque load +0-20% (as specified on the product data sheet).
- To ensure the 5:1 design safety factor we recommend the ultimate tensile strength of the mating material to be min. 80,000 psi.
- For weaker mating material consider using longer bolts or through hole mounting with a nut and washer on the back side. To prevent stripping the mating thread, lower torque values (down to half the stated value) may be considered in temporary installations.
- On completion of installation check the lifting ring can swivel and pivot freely in all directions.
- Use at temperatures between -30°C and +200°C

Safety notes

- Never exceed the working load limit.
- Visually inspect the hoist ring for damage before each use.
- Loosening of the a bolt may develop after prolonged service, it is advisable to periodically retighten to the specified torque value.
- Apply lifting loads gradually to avoid shock loads.
- Use of free fit spacers between the lifting ring bush flange and the mounting surface is not recommended.
- Do not over size hooks nor use attachment methods which spread the ring.
- It is important to align the lifting ring with the direction of the load.
- Do not attach guidelines to hoist rings.
- Do not leave a gap between lifting ring bushing and mounting surface.
- Never allow personnel to walk underneath a suspended load.

ov-63501-63700-heavy-duty-safety-hoist-rings - Updated - 20-12-2016

Formula to calculate the load per lifting ring

$$F = \frac{W}{N \sin A}$$

F = force on each hoist ring
N = number of hoist rings
A = lifting angle
W = total weight

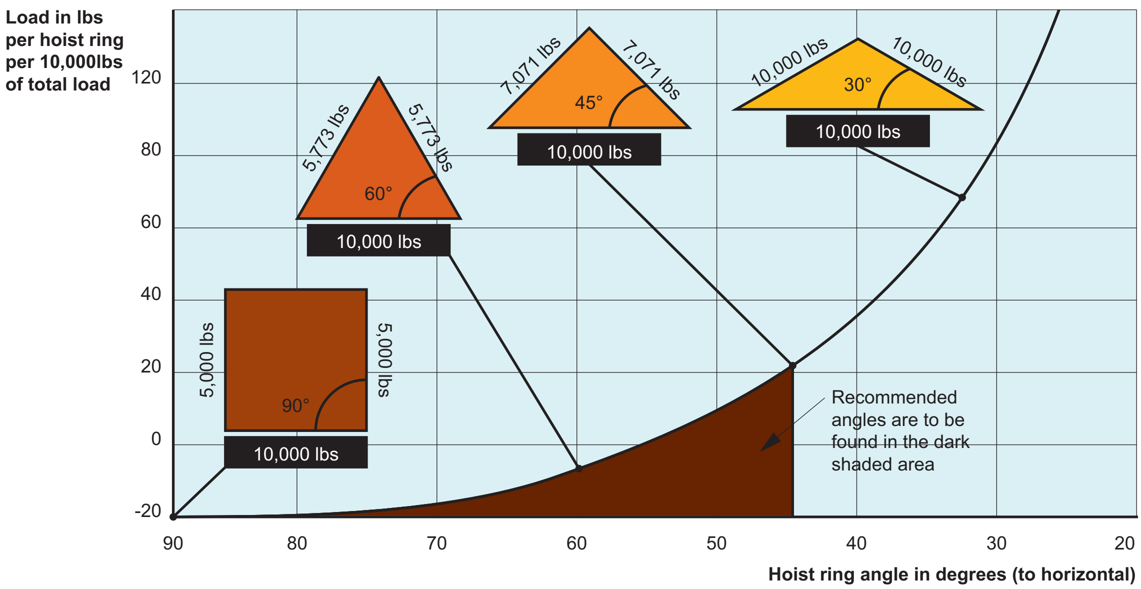
For example:

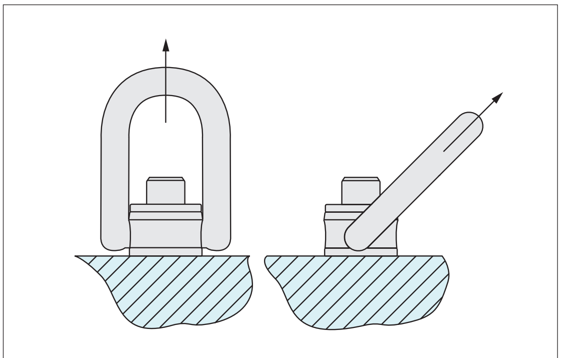
If A = 65° $\quad F = \frac{4000}{4 \sin 65°} = 1103$ lbs.

If A = 14° $\quad F = \frac{4000}{4 \sin 14°} = 4134$ lbs.

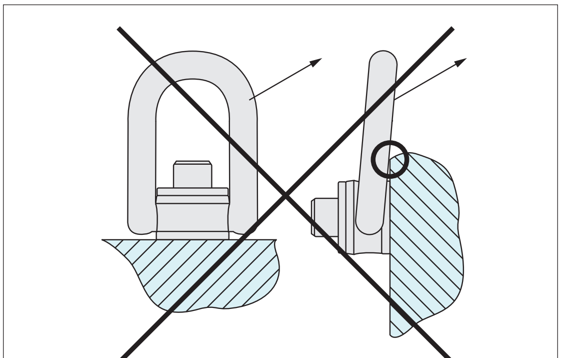
Important note: The force exerted on each hoist ring is not simply a function of the total weight divided by the number of hoist rings, but is critically reliant upon the lifting angle, greater forces are present the lower the lifting angle. See example below.

Angular lifting



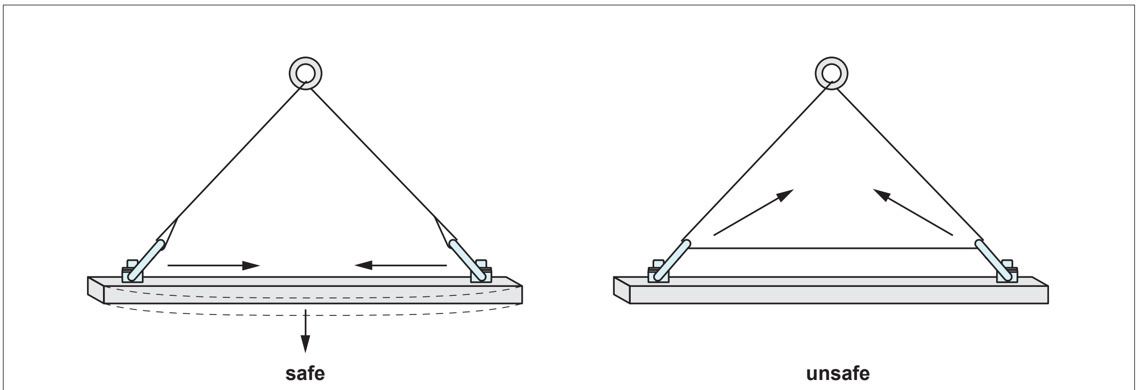


correct



incorrect

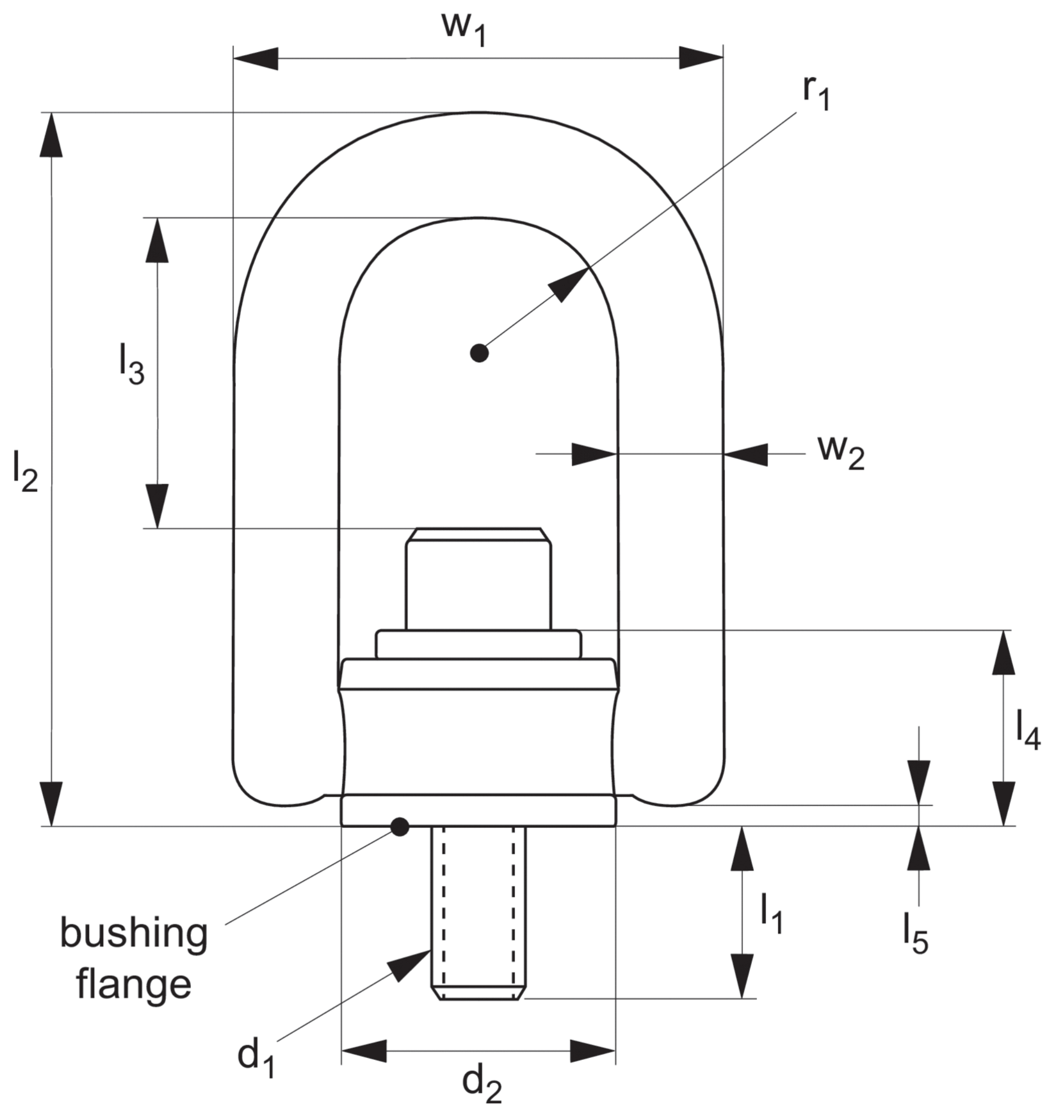
Do not allow the lifting ring to bind/stick and hence apply side loads to the bail. Ensure loads applied are in the same direction of the bail. If necessary use a spreader bar to avoid binding.



Lifting Points - Double Swivel - Male

standard bar - metric - coarse

63501



Material
Forged alloy steel (4140), min. tensile strength 180,000psi. Black oxide coated.

Technical Notes
Meets manufacturing and design requirements of ASME -B30.26 and MIL-STD 209. Magnetic particle inspected per ASTM 1444.

Tips
Min. design safety factor 5:1. 360° swivel and 180° pivot underload. Each part individually serial numbered.
tl = recommended torque load (Nm).

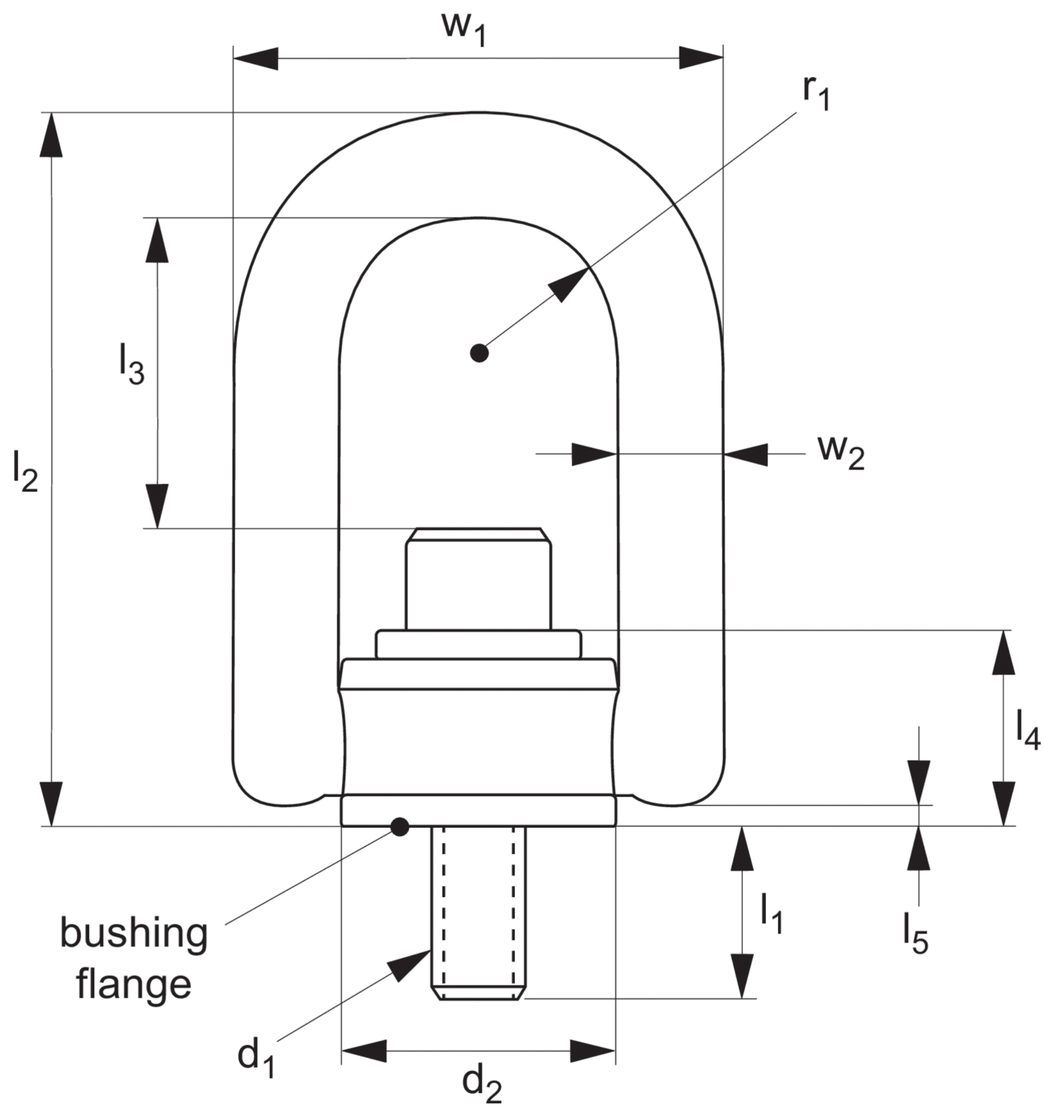
Important Notes
Always follow safety instructions.

Order No.	Rated load tons	d_1	l_1	d_2	l_2	l_3	l_4	l_5	w_1	w_2	r_1	tl Nm.	kg
63501.W0081	0,40	M 8x1,25	16	31,8	82,0	38,5	24,4	4,0	58,2	11,1	16,5	9,5	0,24
63501.W0082	0,40	M 8x1,25	21	31,8	82,0	38,5	24,4	4,0	58,2	11,1	16,5	9,5	0,25
63501.W0101	0,45	M10x1,50	16	31,8	82,0	36,5	24,4	4,0	58,2	11,1	16,5	16,0	0,25
63501.W0102	0,45	M10x1,50	26	31,8	82,0	36,5	24,4	4,0	58,2	11,1	16,5	16,0	0,26
63501.W0121	1,05	M12x1,75	25	48,0	134,9	65,0	38,1	4,4	88,9	19,1	25,4	37,0	0,78
63501.W0122	1,05	M12x1,75	32	48,0	134,9	65,0	38,1	4,4	88,9	19,1	25,4	37,0	0,83
63501.W0141	1,50	M14x2,00	25	48,0	135,2	65,0	38,1	4,4	88,9	19,1	25,4	45,0	0,79
63501.W0142	1,50	M14x2,00	32	48,0	135,2	65,0	38,1	4,4	88,9	19,1	25,4	45,0	0,84
63501.W0161	1,90	M16x2,00	25	48,0	134,9	62,0	38,1	4,4	88,9	19,1	25,4	80,0	0,81
63501.W0162	1,90	M16x2,00	32	48,0	134,9	62,0	38,1	4,4	88,9	19,1	25,4	80,0	0,85
63501.W0201	2,20	M20x2,50	25	48,0	134,9	58,7	38,1	4,4	88,9	19,1	25,4	135,0	0,86
63501.W0202	2,20	M20x2,50	38	48,0	134,9	58,7	38,1	4,4	88,9	19,1	25,4	135,0	0,92
63501.W0203	3,00	M20x2,50	28	71,4	187,2	89,7	52,1	4,6	129,5	25,4	35,6	135,0	3,14
63501.W0241	4,20	M24x3,00	28	71,4	187,2	85,7	52,1	4,6	129,5	25,4	35,6	311,0	3,29
63501.W0242	4,20	M24x3,00	38	71,4	187,2	85,7	52,1	4,6	129,5	25,4	35,6	311,0	3,30
63501.W0301	4,50	M30x3,50	38	71,4	187,2	79,7	52,1	4,6	129,5	25,4	35,6	311,0	3,44
63501.W0302	4,50	M30x3,50	48	71,4	187,2	79,7	52,1	4,6	129,5	25,4	35,6	311,0	3,55
63501.W0303	7,00	M30x3,50	67	98,5	234,2	92,5	72,9	8,2	171,5	31,8	50,8	637,2	7,26
63501.W0361	11,00	M36x4,00	67	98,5	234,2	98,5	72,9	8,2	171,5	31,8	50,8	88,6	8,21
63501.W0421	12,50	M42x4,50	80	98,5	234,2	98,5	72,9	8,2	171,5	31,8	50,8	88,6	10,14
63501.W0481	13,50	M48x5,00	80	98,5	234,2	98,5	72,9	8,2	171,5	31,8	50,8	88,6	10,59
63501.W0561	13,50	M56x5,50	88	98,5	234,2	98,5	72,9	8,2	171,5	31,8	50,8	88,6	11,03

Lifting Points - Double Swivel - Male

long bar - metric - coarse

63502



Material
Forged alloy steel (4140), min. tensile strength 180,000psi. Black oxide coated.

Technical Notes
Meets manufacturing and design requirements of ASME -B30.26 and MIL-STD 209. Magnetic particle inspected per ASTM 1444.

Tips
Min. design safety factor 5:1. 360° swivel and 180° pivot underload. Each part individually serial numbered.
tl = recommended torque load (Nm).

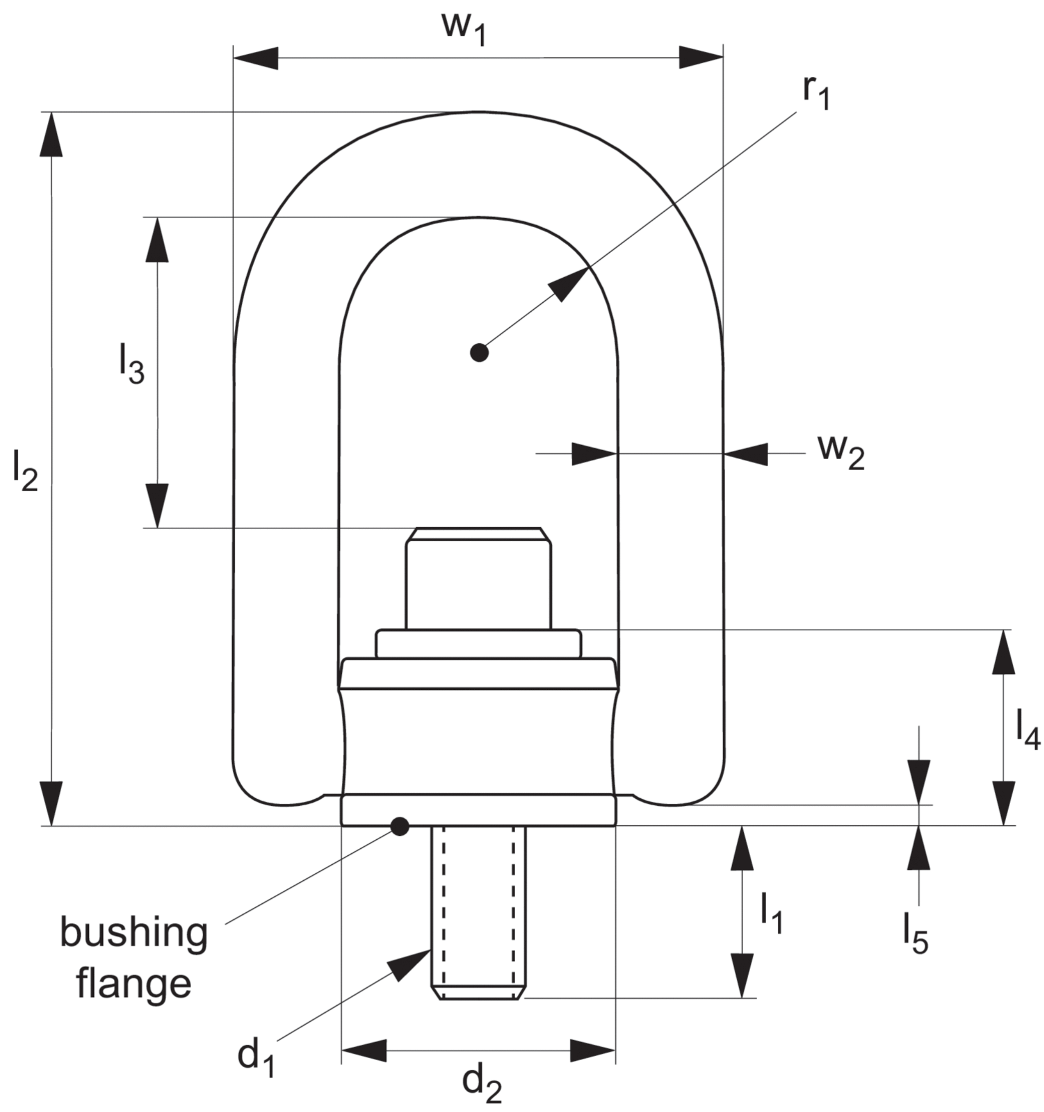
Important Notes
Always follow safety instructions.

Order No.	Rated load tons	d_1	l_1	d_2	l_2	l_3	l_4	l_5	w_1	w_2	r_1	tl Nm.	kg
63502.W0121	1,05	M12x1,75	25	48,0	174,6	104,7	38,1	4,4	88,9	19,1	25,4	37	0,93
63502.W0122	1,05	M12x,175	32	48,0	174,6	104,7	38,1	4,4	88,9	19,1	25,4	37	0,98
63502.W0141	1,50	M14x2,00	25	48,0	174,9	105,0	38,1	4,4	88,9	19,1	25,4	45	0,95
63502.W0142	1,50	M14x2,00	32	48,0	174,9	105,0	38,1	4,4	88,9	19,1	25,4	45	0,98
63502.W0161	1,90	M16x2,00	25	48,0	174,6	101,7	38,1	4,4	88,9	19,1	25,4	80	0,96
63502.W0162	1,90	M16x2,00	32	48,0	174,6	101,7	38,1	4,4	88,9	19,1	25,4	80	1,00
63502.W0201	2,20	M20x2,50	25	48,0	174,6	98,4	38,1	4,4	88,9	19,1	25,4	135	1,01
63502.W0202	2,20	M20x2,50	38	48,0	174,6	98,4	38,1	4,4	88,9	19,1	25,4	135	1,07
63502.W0203	3,00	M20x2,50	28	71,4	187,2	131,1	52,1	4,6	129,5	25,4	35,6	135	3,47
63502.W0241	4,20	M24x3,00	28	71,4	187,2	127,1	52,1	4,6	129,5	25,4	35,6	311	3,62
63502.W0242	4,20	M24x3,00	38	71,4	187,2	127,1	52,1	4,6	129,5	25,4	35,6	311	3,63
63502.W0301	4,50	M30x3,50	38	71,4	187,2	79,7	52,1	4,6	129,5	25,4	35,6	311	3,55

Lifting Points - Double Swivel - Male

standard bar - UNC - thread

63511



Material
Forged alloy steel (4140), min. tensile strength 180,000psi. Black oxide coated.

Technical Notes
Meets manufacturing and design requirements of ASME -B30.26 and MIL-STD 209. Magnetic particle inspected per ASTM 1444.

Tips
Min. design safety factor 5:1. 360° swivel and 180° pivot underload. Each part individually serial numbered.
tl = recommended torque load (ft - lbs).

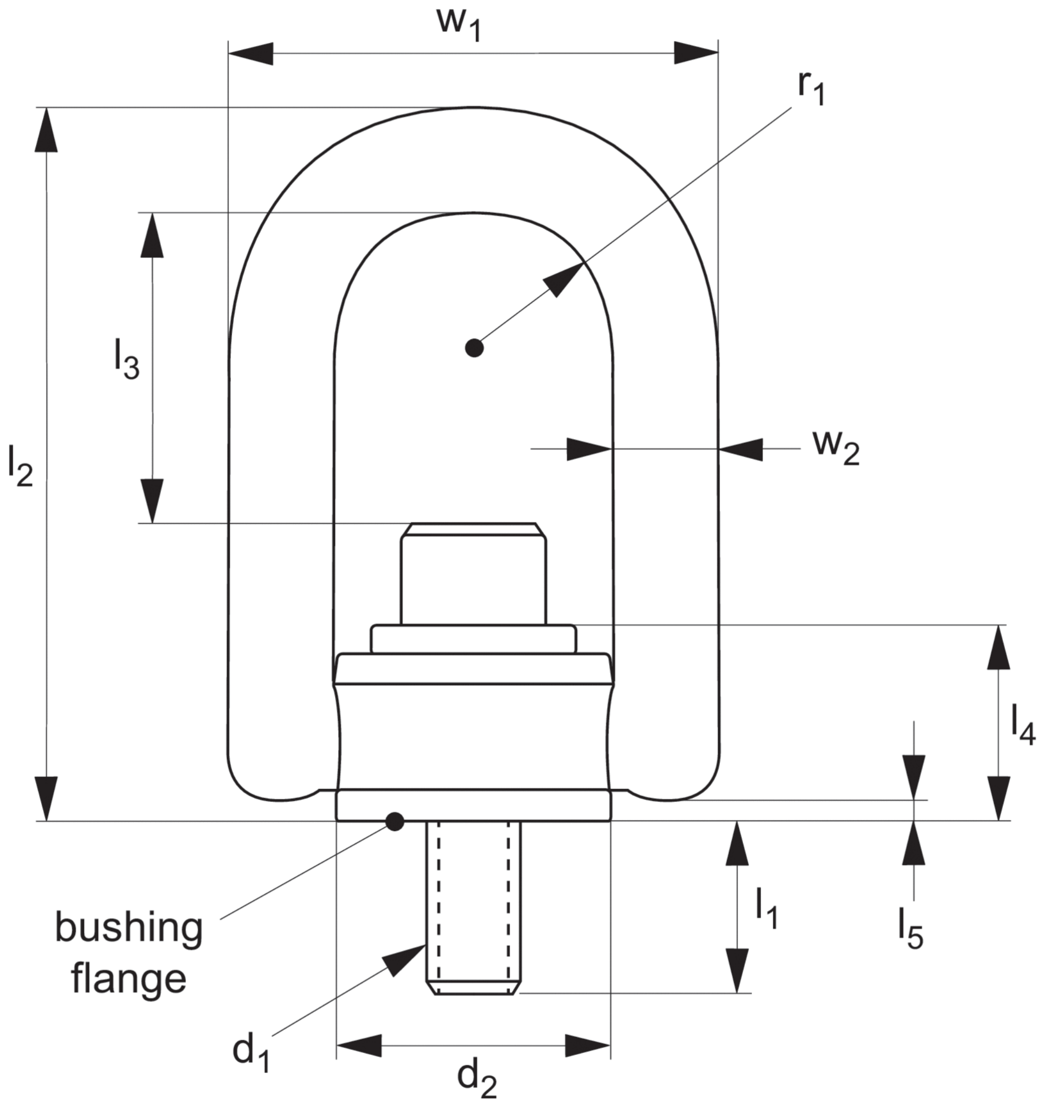
Important Notes
All dimensions in imperial.
Always follow safety instructions.

Order No.	Rated load lbs.	d_1 UNC	l_1	d_2	l_2	l_3	l_4	l_5	r_1	w_1	w_2	tl ft - lbs.	lbs.
63511.W0251I	550	1/4-20	0,56	1,25	3,23	1,57	0,96	0,15	0,65	2,29	0,44	5	0,50
63511.W0311I	800	5/16-18	0,56	1,25	3,23	1.51	0,96	0,15	0,65	2,29	0,44	7	0,52
63511.W0312I	800	5/16-18	1,06	1,25	3,23	1.51	0,96	0,15	0,65	2,29	0,44	7	0,54
63511.W0371I	1000	3/8-16	0,56	1,25	3,23	1.45	0,96	0,15	0,65	2,29	0,44	12	0,56
63511.W0342I	1000	3/8-16	1,06	1,25	3,23	1,45	0,96	0,15	0,65	2,29	0,44	12	0,58
63511.W0501I	2250	1/2-13	1,06	1,25	3,23	1,45	0,96	0,15	0,65	2,29	0,44	25	0,60
63511.W0502I	2500	1/2-13	0,75	1,89	5,31	2,56	1,50	0,17	1,00	3,50	0,75	28	1,71
63511.W0503I	2500	1/2-13	1,00	1,89	5,31	2,56	1,50	0,17	1,00	3,50	0,75	28	1,72
63511.W0504I	2500	1/2-13	1,25	1,89	5,31	2,56	1,50	0,17	1,00	3,50	0,75	28	1,82
63511.W0631I	4000	5/8-11	0,75	1,89	5,31	2,44	1,50	0,17	1,00	3,50	0,75	60	1,76
63511.W0632I	4000	5/8-11	1,00	1,89	5,31	2,44	1,50	0,17	1,00	3,50	0,75	60	1,78
63511.W0633I	4000	5/8-11	1,25	1,89	5,31	2,44	1,50	1,89	1,00	3,50	0,75	60	1,88
63511.W0751I	5000	3/4-10	1,00	1,89	5,31	2,31	1,50	0,17	1,00	3,50	0,75	100	1,89
63511.W0752I	5000	3/4-10	1,50	1,89	5,31	2,31	1,50	0,17	1,00	3,50	0,75	100	2,02
63511.W0754I	7000	3/4-10	1,20	2,81	7,37	3,57	2,05	0,18	1,40	5,10	1,00	100	7,23
63511.W0755I	7000	3/4-10	1,45	2,81	7,37	3,57	2,05	0,18	1,40	5,10	1,00	100	7,25
63511.W0881I	8000	7/8-9	0,95	2,81	7.37	3,32	2,05	0,18	1,40	5,10	1,00	160	7,33
63511.W0882I	8000	7/8-9	1,20	2,81	7,37	3,32	2,05	0,18	1,40	5,10	1,00	160	7,33
63511.W1001I	10000	1-8	1,45	2,81	7,37	3,20	2,05	0,18	1,40	5,10	1,00	230	7,57
63511.W1002I	10000	1-8	1,20	2,81	7,37	3,20	2,05	0,18	1,40	5,10	1,00	230	7,63
63511.W1003I	10000	1-8	2,20	2,81	7,37	3,20	2,05	0,18	1,40	5,10	1,00	230	7,81
63511.W1251I	15000	1-1/4-7	1,88	3,88	9,22	3,74	2,87	0,18	2,00	6,75	1,25	470	15,74
63511.W1252I	15000	1-1/4-7	2,63	3,88	9,22	3,74	2,87	0,18	2,00	6,75	1,25	470	16,00
63511.W1501I	24000	1-1/2-6	2,63	3.88	9,22	3,49	2,87	0,32	2,00	6,75	1,25	800	18,10
63511.W2001I	30000	2-4-1/2	2,96	3,88	9,22	3,49	2,87	0,32	2,00	6,75	1,25	1100	22,90
63511.W2002I	30000	2-8	2,96	3,88	9,22	3,49	2,87	0,32	2,00	6,75	1,25	1100	22,90

Lifting Points - Double Swivel - Male

long bar - UNC thread

63512



Order No.	Rated load lbs.	d_1 UNC	l_1	d_2	l_2	l_3	l_4	l_5	r_1	w_1	w_2	tl ft - lbs.	lbs.
63512.W0501I	2500	1/2-13	0,75	1,89	6,87	4,12	1,50	0,17	1,0	3,5	0,75	28	2,04
63512.W0502I	2500	1/2-13	1,00	1,89	6,87	4,12	1,50	0,17	1,0	3,5	0,75	28	2,05
63512.W0503I	2500	1/2-13	1,25	1,89	6,87	4,12	1,50	0,17	1,0	3,5	0,75	28	2,15
63512.W0631I	4000	5/8-11	0,75	1,89	6,87	4,00	1,50	0,17	1,0	3,5	0,75	60	2,09
63512.W0632I	4000	5/8-11	1,00	1,89	6,87	4,00	1,50	0,17	1,0	3,5	0,75	60	2,11
63512.W0633I	4000	5/8-11	1,25	1,89	6,87	4,00	1,50	0,17	1,0	3,5	0,75	60	2,21
63512.W0751I	5000	3/4-10	1,00	1,89	6,87	3,87	1,50	0,17	1,0	3,5	0,75	100	2,22
63512.W0752I	5000	3/4-10	1,50	1,89	6,87	3,87	1,50	0,17	1,0	3,5	0,75	100	2,35
63512.W0753I	7000	3/4-10	0,95	2,81	9,00	5,20	2,05	0,18	1,4	5,1	1,00	100	7,93
63512.W0754I	7000	3/4-10	1,20	2,81	9,00	5,20	2,05	0,18	1,4	5,1	1,00	100	7,96
63512.W0755I	7000	3/4-10	1,45	2,81	9,00	5,20	2,05	0,18	1,4	5,1	1,00	100	7,98
63512.W0881I	8000	7/8-9	0,95	2,81	9,00	4,95	2,05	0,18	1,4	5,1	1,00	160	8,06
63512.W0882I	8000	7/8-9	1,20	2,81	9,00	4,82	2,05	0,18	1,4	5,1	1,00	160	8,06
63512.W1001I	10000	1-8	1,45	2,81	9,00	4,82	2,05	0,18	1,4	5,1	1,00	230	8,30
63512.W1002I	10000	1-8	1,20	2,81	9,00	4,82	2,05	0,18	1,4	5,1	1,00	230	8,36
63512.W1003I	10000	1-8	2,20	2,81	9,00	4,82	2,05	0,18	1,4	5,1	1,00	230	8,54

Material

Forged alloy steel (4140), min. tensile strength 180,000psi. Black oxide coated.

Technical Notes

Meets manufacturing and design requirements of ASME -B30.26 and MIL-STD 209. Magnetic particle inspected per ASTM 1444.

Tips

Min. design safety factor 5:1. 360° swivel and 180° pivot underload. Each part individually serial numbered.
tl = recommended torque load (ft - lbs.)

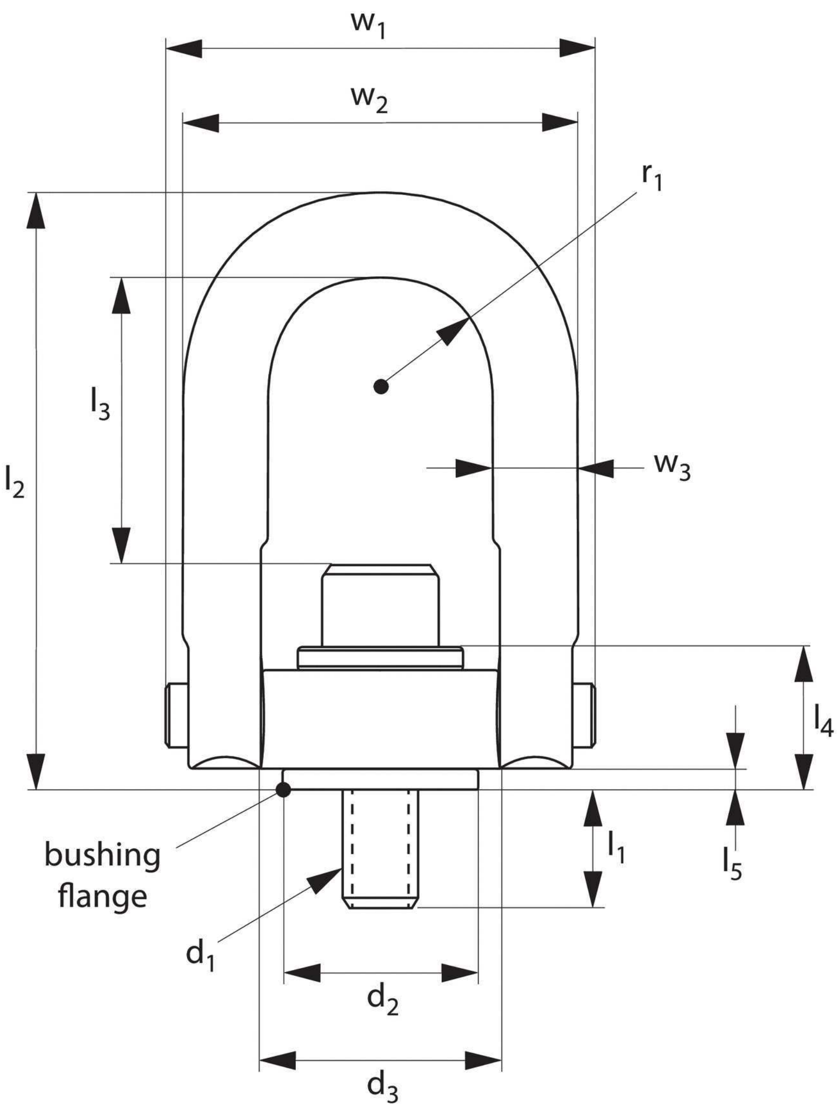
Important Notes

All dimensions in imperial.
Always follow safety instructions.

Lifting Points - Double Swivel - Male

standard bar - metric - coarse

63521



Material
Forged alloy steel (4140), min. tensile strength 180,000psi. Black oxide coated.

Technical Notes
Meets manufacturing and design requirements of ASME -B30.26 and MIL-STD 209. Magnetic particle inspected per ASTM 1444.

Tips
Min. design safety factor 5:1. 360° swivel and 180° pivot underload. Each part individually serial numbered.
tl = recommended torque load (Nm).

Important Notes
Always follow safety instructions.

Order No.	Rated load tons	d_1	l_1	d_2	d_3	l_2	l_3	l_4	kg
63521.W0081	0,40	M 8x1,25	17	19,10	25,40	67,80	32,10	18,0	0,14
63521.W0101	0,45	M10x1,50	17	19,10	25,40	67,80	30,20	18,0	0,14
63521.W0121	1,05	M12x1,75	19	38,00	50,50	121,40	59,40	31,0	1,05
63521.W0161	1,90	M16x2,00	24	38,00	50,50	121,40	55,40	31,0	1,11
63521.W0201	2,20	M20x2,50	30	38,00	50,50	121,40	51,40	31,0	1,16
63521.W0202	3,00	M20x2,50	29	58,70	76,20	165,80	77,00	43,4	3,06
63521.W0241	4,20	M24x3,00	34	58,70	76,20	165,80	73,00	43,4	3,18
63521.W0301	4,50	M30x3,50	54	58,70	76,20	165,80	67,00	43,4	3,30
63521.W0302	7,00	M30x3,50	46	81,30	95,50	221,70	106,30	53,6	6,36
63521.W0303	7,00	M30x3,50	66	81,30	95,50	221,70	106,30	53,6	6,70
63521.W0361	11,00	M36x4,00	69	106,70	123,70	316,70	164,80	71,4	15,34
63521.W0421	12,50	M42x4,50	79	106,70	123,70	316,70	158,80	71,4	15,91
63521.W0481	13,50	M48x5,00	79	106,70	123,70	316,70	152,80	71,4	16,36
63521.W0641	22,00	M64x6,00	102	146,10	165,60	428,50	230,30	104,0	39,77
63521.W0721	31,50	M72x6,00	132	184,15	205,74	495,30	215,39	133,9	75,45
63521.W0901	51,00	M90x6,00	178	196,85	218,44	561,09	235,71	153,9	109,09

Order No.	l_5	r_1	w_1	w_2	w_3	tl Nm.
63521.W0081	4,30	10,90	46,70	40,9	9,50	9,5
63521.W0101	4,30	10,90	46,70	40,9	9,50	16,0
63521.W0121	4,10	22,40	89,40	82,5	19,00	37,0
63521.W0161	4,10	22,40	89,40	82,5	19,00	80,0
63521.W0201	4,10	22,40	89,40	82,5	19,00	135,0
63521.W0202	6,10	35,60	130,50	121,2	25,40	135,0
63521.W0241	6,10	35,60	130,50	121,2	25,40	311,0
63521.W0301	6,10	35,60	130,50	121,2	25,40	311,0

Lifting Points - Double Swivel - Male

standard bar - metric - coarse

63521

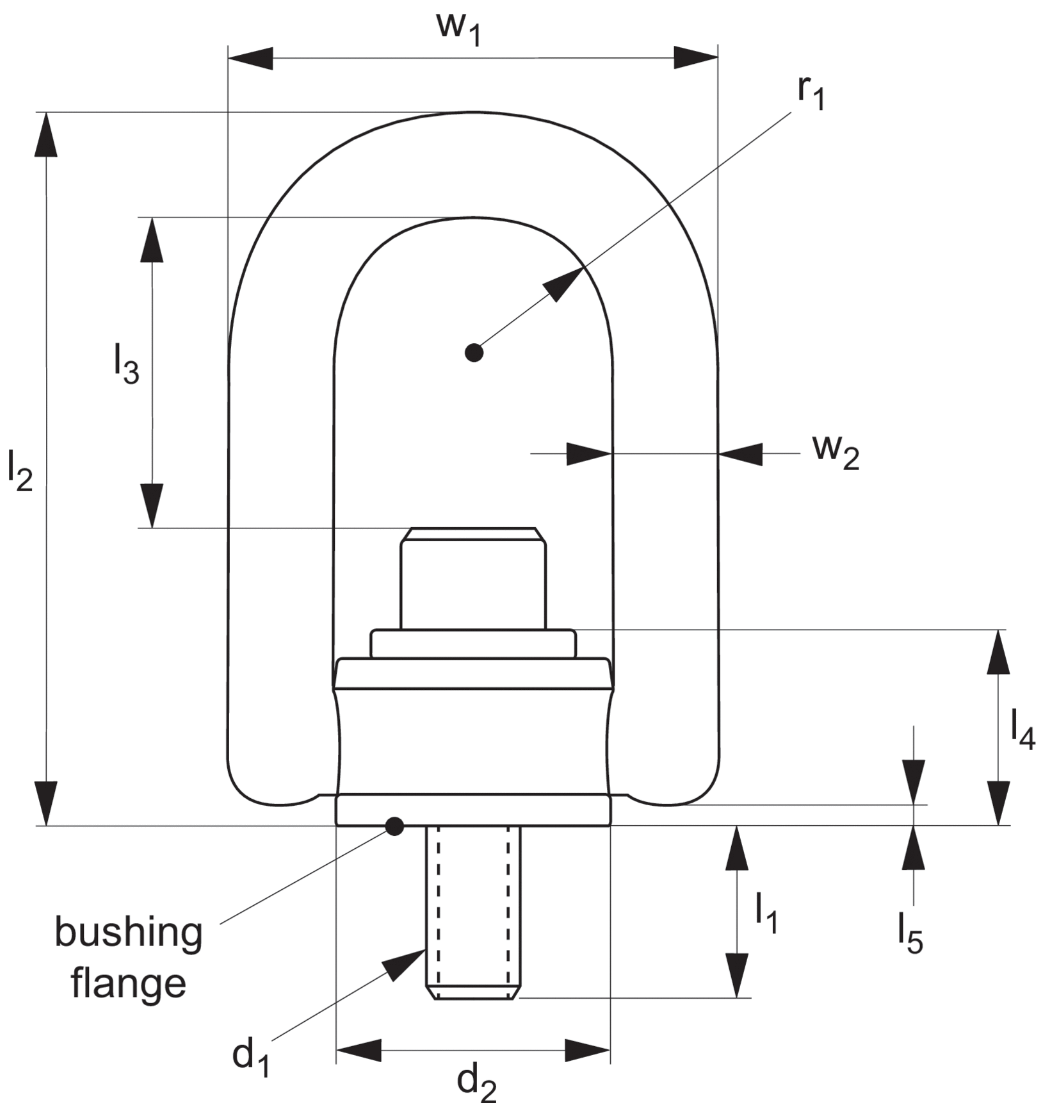
Order No.	l_5	r_1	w_1	w_2	w_3	tl Nm.
63521.W0302	8,90	44,50	165,10	152,4	31,80	637,2
63521.W0303	8,90	44,50	165,10	152,4	31,80	637,2
63521.W0361	11,90	57,20	217,20	203,2	44,50	1085,5
63521.W0421	11,90	57,20	217,20	203,2	44,50	1085,5
63521.W0481	11,90	57,20	217,20	203,2	44,50	1085,5
63521.W0641	28,40	76,20	296,40	266,7	57,20	2847,5
63521.W0721	25,40	95,25	368,30	330,2	69,85	5670,0
63521.W0901	27,69	101,60	403,86	368,3	82,55	9560,0

Material
Forged alloy steel (4140), min. tensile strength 180,000psi. Black oxide coated.

Technical Notes
Meets manufacturing and design requirements of ASME -B30.26 and MIL-STD 209. Magnetic particle inspected per ASTM 1444.

Tips
Min. design safety factor 5:1. 360° swivel and 180° pivot underload. Each part individually serial numbered.
tl = recommended torque load (Nm).

Important Notes
Always follow safety instructions.



Material
Forged alloy steel (4140), min. tensile strength 180,000psi. Black oxide coated.

Technical Notes
Meets manufacturing and design requirements of ASME -B30.26 and MIL-STD 209. Magnetic particle inspected per ASTM 1444.

Tips
Min. design safety factor 5:1. 360° swivel and 180° pivot underload. Each part individually serial numbered.
tl = recommended torque load (Nm.)

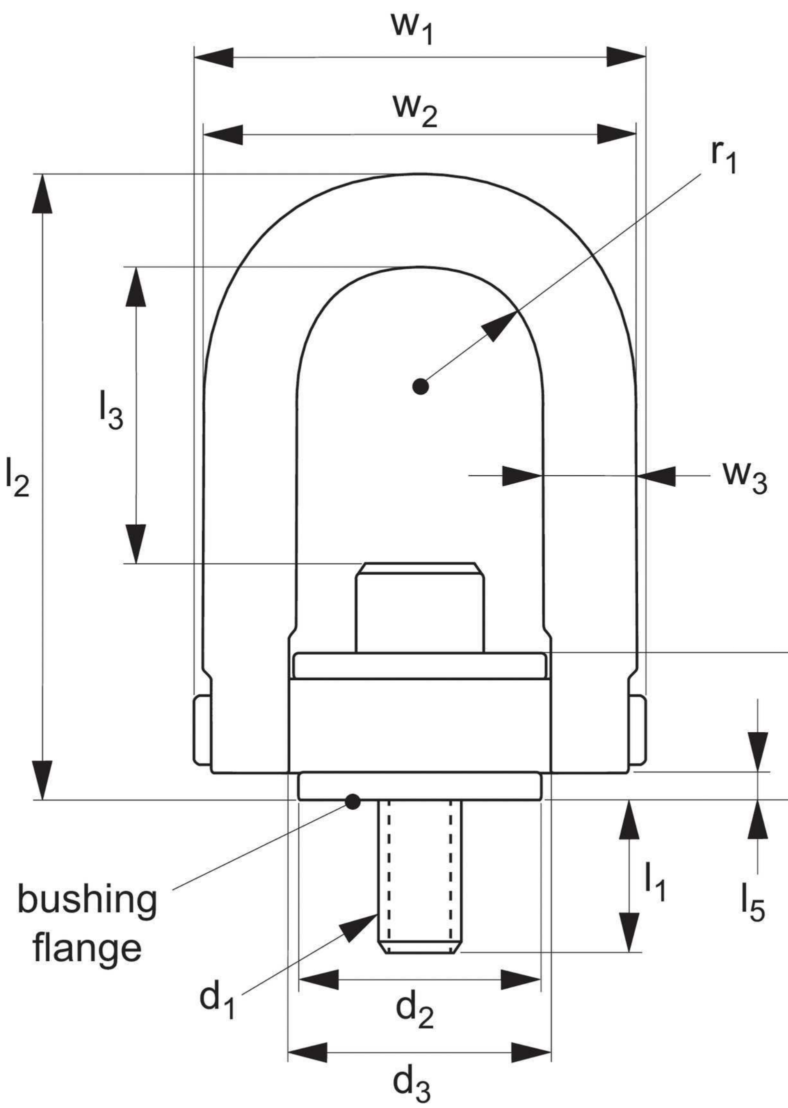
Important Notes
Always follow safety instructions.

Order No.	Rated load tons	d_1	l_1	d_2	d_3	l_2	l_3	l_4	l_5	r_1	w_1	w_2	w_3	tl Nm.	kg
63522.W0121	1,05	M12x1,75	19	38,0	50,5	121,4	108,6	31,0	4,1	22,4	89,4	82,5	19,0	37	1,27
63522.W0161	1,90	M16x2,00	24	38,0	50,5	121,4	104,8	31,0	4,1	22,4	89,4	82,5	19,0	80	1,33
63522.W0201	2,20	M20x2,50	30	38,0	50,5	121,4	100,6	31,0	4,1	22,4	89,4	82,5	19,0	135	1,38
63522.W0202	3,00	M20x2,50	29	58,7	76,2	165,8	177,9	43,4	6,1	35,6	160,5	121,2	25,4	135	3,77
63522.W0241	4,20	M24x3,00	34	58,7	76,2	165,8	113,9	43,4	6,1	35,6	160,5	121,2	25,4	311	3,89
63522.W0301	4,50	M30x3,50	54	58,7	76,2	165,8	109,9	43,4	6,1	35,6	160,5	121,2	25,4	311	4,01

Lifting Points - Double Swivel - Male

standard bar - UNC thread

63531



Material
Forged alloy steel (4140), min. tensile strength 180,000psi. Black oxide coated.

Technical Notes
Meets manufacturing and design requirements of ASME -B30.26 and MIL-STD 209. Magnetic particle inspected per ASTM 1444.

Tips
Min. design safety factor 5:1. 360° swivel and 180° pivot underload. Each part individually serial numbered.
tl = recommended torque load (ft - lbs)

Important Notes
All dimensions in imperial.
Always follow safety instructions.

Order No.	Rated load lbs.	d_1	l_1	d_2	d_3	l_2	lbs.
63531.W0251I	550	1/4-20	0,54	0,75	1,00	2,67	0,31
63531.W0311I	800	5/16-18	0,29	0,75	1,00	2,67	0,31
63531.W0312I	800	5/16-18	0,54	0,75	1,00	2,67	0,31
63531.W0371I	1000	3/8-16	0,54	0,75	1,00	2,67	0,31
63531.W0501I	2500	1/2-13	1,07	1,25	1,49	3,77	0,31
63531.W0502I	2500	1/2-13	0,78	1,50	1,99	4,78	2,31
63531.W0503I	2500	1/2-13	1,03	1,50	1,99	4,78	2,31
63531.W0504I	2500	1/2-13	1,28	1,50	1,99	4,78	2,31
63531.W0631I	4000	5/8-11	0,78	1,50	1,99	4,78	2,43
63531.W0632I	4000	5/8-11	1,03	1,50	1,99	6,72	2,43
63531.W0634I	4000	5/8-11	1,28	1,50	1,99	6,72	2,43
63531.W0751I	5000	3/4-10	1,03	1,50	1,99	6,72	2,56
63531.W0752I	5000	3/4-10	1,53	1,50	1,99	6,72	2,56
63531.W0753I	7000	3/4-10	1,04	2,37	3,00	6,52	6,62
63531.W0754I	7000	3/4-10	1,54	2,37	3,00	6,52	6,62
63531.W0881I	8000	7/8-9	1,04	2,37	3,00	6,52	6,75
63531.W1001I	10000	1-8	1,29	2,37	3,00	6,52	7,00
63531.W1002I	10000	1-8	1,54	2,37	3,00	6,52	7,00
63531.W1003I	10000	1-8	2,29	2,37	3,00	6,52	7,00
63531.W1251I	15000	1-1/4-7	1,89	3,20	3,76	8,73	7,00
63531.W1501I	24000	1-1/2-6	2,70	4,20	4,87	12,47	33,75
63531.W2001I	30000	2-4-1/4	2.96	4,20	4,87	12,47	36,00
63531.W2002I	30000	2-4-1/2	2.96	4,20	4,87	12,47	36,00
63531.W2501I	50000	2-1/2-8	4,00	5,75	6,52	16,87	87,50
63531.W2502I	50000	2-1/2-4	4,00	5,75	6,52	16,87	87,50
63531.W3001I	75000	3-4	5,20	7,25	8,10	19,50	166,00
63531.W3501I	100000	3-1/2-4	7,00	7,75	8,60	22,09	240,00
63531.W4251I	150000	4-1/4-4	8,50	9,87	10,75	27,38	525,00

Lifting Points - Double Swivel - Male

standard bar - UNC thread

63531

Order No.	Rated load lbs.	d_1	l_1	d_2	d_3	l_2	lbs.
63531.W5001I	200000	5-4	9,00	12,38	13,00	33,00	760,00
63531.W6001I	250000	6-4	9,00	12,38	13,00	33,00	841,00

Order No.	l_3	l_4	l_5	r_1	w_1	w_2	w_3	tl ft - lbs.
63531.W0251I	1,33	0,71	0,17	0,43	1,84	1,61	3/8	5
63531.W0311I	1,27	0,71	0,17	0,43	1,84	1,61	3/8	7
63531.W0312I	1,27	0,71	0,17	0,43	1,84	1,61	3/8	7
63531.W0371I	1,21	0,71	0,17	0,43	1,84	1,61	3/8	12
63531.W0501I	1,84	0,93	0,20	0,70	2,58	2,40	1/2	28
63531.W0502I	2,31	1,22	0,16	0,88	3,52	3,25	3/4	28
63531.W0503I	2,31	1,22	0,16	0,88	3,52	3,25	3/4	28
63531.W0504I	2,31	1,22	0,16	0,88	3,52	3,25	3/4	28
63531.W0631I	2,18	1,22	0,16	0,88	3,52	3,25	3/4	60
63531.W0632I	2,18	1,22	0,16	0,88	3,52	3,25	3/4	60
63531.W0634I	2,18	1,22	0,16	0,88	3,52	3,25	3/4	60
63531.W0751I	2,06	1,22	0,16	0,88	3,52	3,25	3/4	100
63531.W0752I	2,06	1,22	0,16	0,88	3,52	3,25	3/4	100
63531.W0753I	3,06	1,71	0,24	1,40	5,14	4,80	1	100
63531.W0754I	3,06	1,71	0,24	1,40	5,14	4,80	1	100
63531.W0881I	2,93	1,71	0,24	1,40	5,14	4,80	1	160
63531.W1001I	2,81	1,71	0,24	1,40	5,14	4,80	1	230
63531.W1002I	2,81	1,71	0,24	1,40	5,14	4,80	1	230
63531.W1003I	2,81	1,71	0,24	1,40	5,14	4,80	1	230
63531.W1141I	2,81	1,71	0,24	1,40	5,14	4,80	1	250
63531.W1251I	4,12	2,11	0,35	1,75	6,50	6,00	1-1/4	470
63531.W1252I	4,12	2,11	0,35	1,75	6,50	6,00	1-1/4	470
63531.W1501I	6,41	2,81	0,47	2,25	8,55	8,00	1-3/4	800
63531.W1502I	6,41	2,81	0,47	2,25	8,55	8,00	1-3/4	800
63531.W2001I	5,41	2,81	0,47	2,25	8,55	8,00	1-3/4	1100
63531.W2002I	5,41	2,81	0,47	2,25	8,55	8,00	1-3/4	1100
63531.W2501I	8,03	4,09	1,12	3,00	11,67	10,50	2-1/4	2100
63531.W2502I	8,03	4,09	1,12	3,00	11,67	10,50	2-1/4	2100
63531.W3001I	8,48	5,27	1,00	3,75	14,15	13,00	2-3/4	4300
63531.W3501I	9,28	6,06	1,09	4,00	15,90	14,50	3-1/4	6600
63531.W4251I	12,13	7,50	1,33	5,00	19,69	18,00	4	12000
63531.W5001I	14,50	9,00	1,38	6,00	24,00	22,00	5	19800
63531.W6001I	14,00	9,00	1,88	6,00	24,00	22,00	5	29000

Material

Forged alloy steel (4140), min. tensile strength 180,000psi. Black oxide coated.

Technical Notes

Meets manufacturing and design requirements of ASME -B30.26 and MIL-STD 209. Magnetic particle inspected per ASTM 1444.

Tips

Min. design safety factor 5:1. 360° swivel and 180° pivot underload. Each part individually serial numbered.
tl = recommended torque load (ft - lbs)

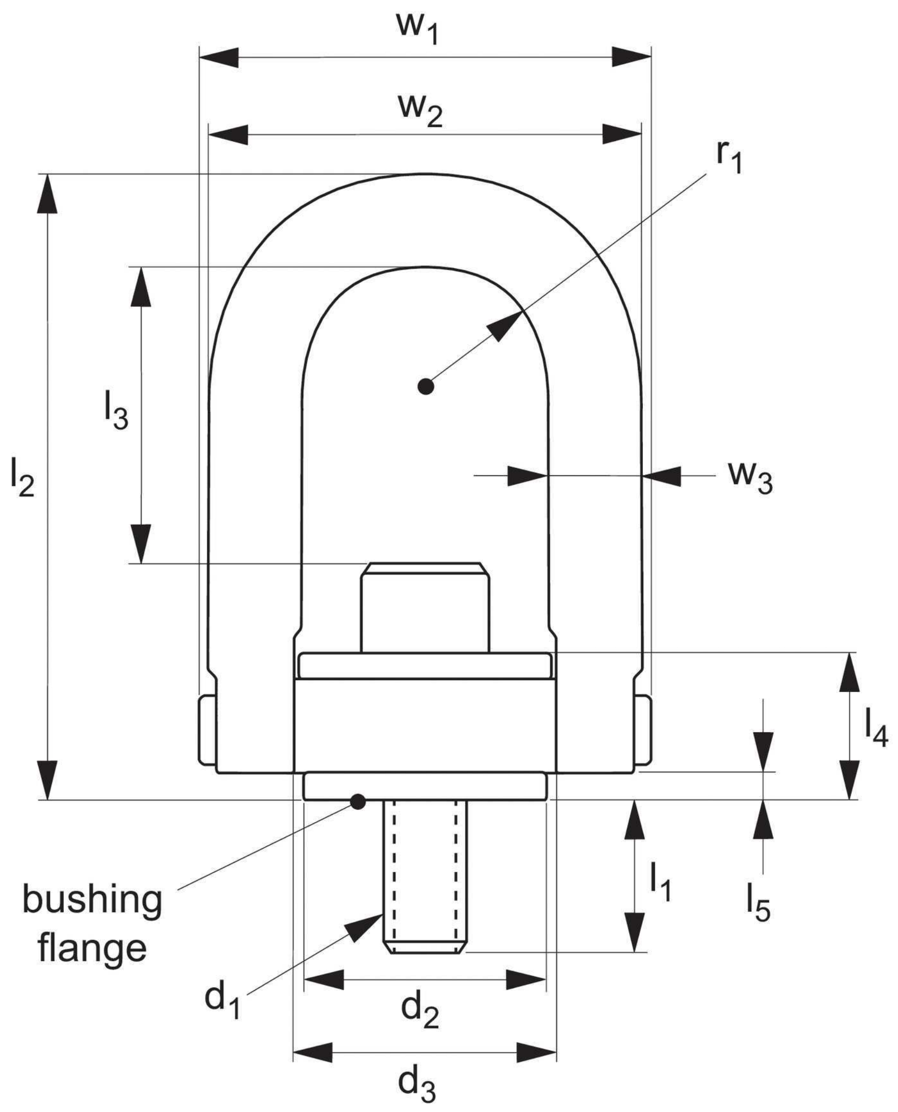
Important Notes

All dimensions in imperial.
Always follow safety instructions.

Lifting Points - Double Swivel - Male

long bar - UNC thread

63532



Material
Forged alloy steel (4140), min. tensile strength 180,000psi. Black oxide coated.

Technical Notes
Meets manufacturing and design requirements of ASME -B30.26 and MIL-STD 209. Magnetic particle inspected per ASTM 1444.

Tips
Min. design safety factor 5:1. 360° swivel and 180° pivot underload. Each part individually serial numbered.
tl = recommended torque load (ft - lbs)

Important Notes
All dimensions in imperial.
Always follow safety instructions.

Order No.	Rated load lbs.	d_1	l_1	d_2	d_3	l_2	l_3	lbs.
63532.W0501I	2500	1/2-13	0,780	1,50	1,99	6,72	4,25	2,75
63532.W0502I	2500	1/2-13	0,103	1,50	1,99	6,72	4,25	2,00
63532.W0503I	2500	1/2-13	1,280	1,50	1,99	6,72	4,25	2,75
63532.W0631I	4000	5/8-11	1,030	1,50	1,99	4,38	4,12	2,87
63532.W0632I	4000	5/8-11	1,280	1,50	1,99	4,38	4,12	2,87
63532.W0751I	5000	3/4-10	1,030	1,50	1,99	4,38	4,00	3,00
63532.W0752I	5000	3/4-10	1,530	1,50	1,99	4,38	4,00	3,00
63532.W0753I	7000	3/4-10	1,040	2,37	3,00	8,11	4,65	7,25
63532.W0754I	7000	3/4-10	1,540	2,37	3,00	8,11	4,65	6,62
63532.W0881I	8000	7/8-9	1,040	2,37	3,00	8,11	4,52	6,75
63532.W1001I	10000	1-8	1,290	2,37	3,00	8,11	4,40	7,00
63532.W1002I	10000	1-8	1,540	2,37	3,00	8,11	4,40	7,00
63532.W1003I	10000	1-8	2,290	2,37	3,00	8,11	4,40	7,00

Order No.	l_4	l_5	r_1	w_1	w_2	w_3	tl ft - lbs.
63532.W0501I	1,22	0,16	0,88	3,52	3,25	3/4	28
63532.W0502I	1,22	0,16	0,88	3,52	3,25	3/4	28
63532.W0503I	1,22	0,16	0,88	3,52	3,25	3/4	28
63532.W0631I	1,22	0,16	0,88	3,52	3,25	3/4	60
63532.W0632I	1,22	0,16	0,88	3,52	3,25	3/4	60
63532.W0751I	1,22	0,16	0,88	3,52	3,25	3/4	100
63532.W0752I	1,22	0,16	0,88	3,52	3,25	3/4	100
63532.W0753I	1,71	0,24	1,40	5,14	4,80	1	100
63532.W0754I	1,71	0,24	1,40	5,14	4,80	1	100
63532.W0881I	1,71	0,24	1,40	5,14	4,80	1	160
63532.W1001I	1,71	0,24	1,40	5,14	4,80	1	230
63532.W1002I	1,71	0,24	1,40	5,14	4,80	1	230

Lifting Points - Double Swivel - Male

long bar - UNC thread

63532

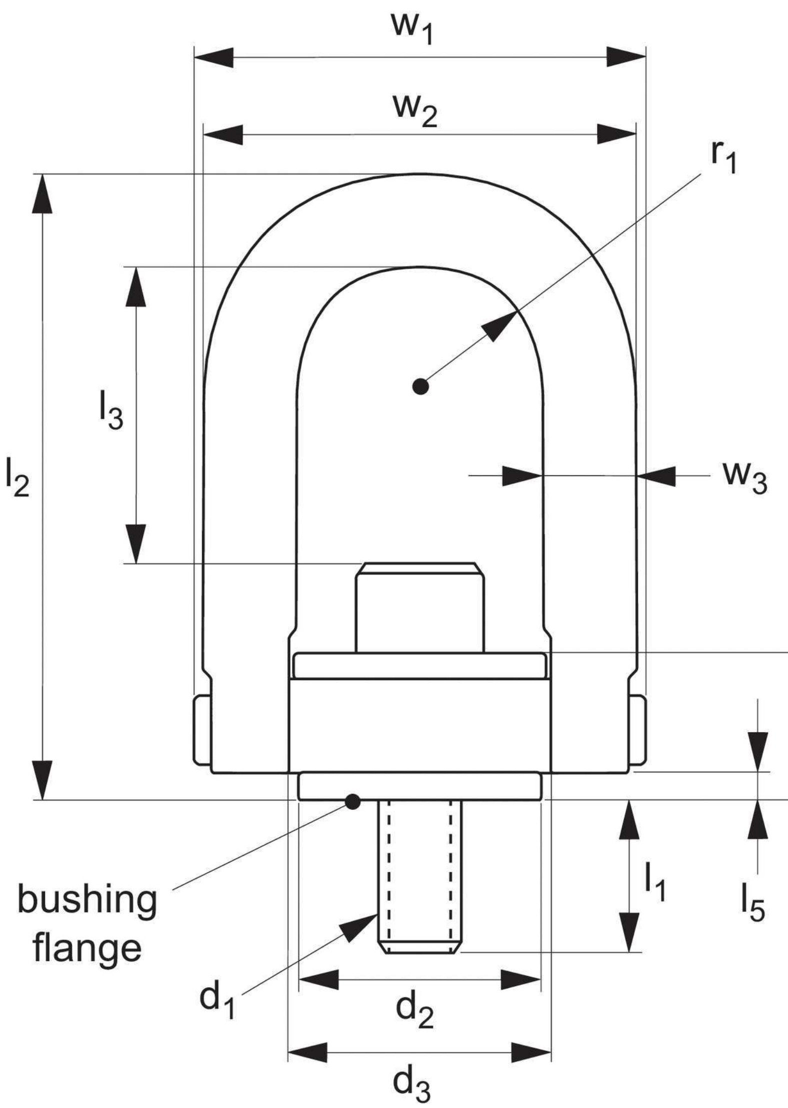
Order No.	l_4	l_5	r_1	w_1	w_2	w_3	tl ft - lbs.
63532.W1003I	1,71	0,24	1,40	5,14	4,80	1	230

Material
Forged alloy steel (4140), min. tensile strength 180,000psi. Black oxide coated.

Technical Notes
Meets manufacturing and design requirements of ASME -B30.26 and MIL-STD 209. Magnetic particle inspected per ASTM 1444.

Tips
Min. design safety factor 5:1. 360° swivel and 180° pivot underload. Each part individually serial numbered.
tl = recommended torque load (ft - lbs)

Important Notes
All dimensions in imperial.
Always follow safety instructions.



Material
Stainless steel, 300 series.

Technical Notes
Min. design safety factor 5:1. 360° swivel and 180° pivot under load. Each part individually numbered. tl= recommended torque load (Nm.)

Tips
Liquid penetrant tested as ASTM-E1417. Purification process, clean and passivate as ASTM-A967.

Important Notes
Always follow safety instructions.

Order No.	Rated load tons	d_1	l_1	d_2	d_3	l_2	l_3	kg
63571.W0081	0,200	M 8x1,25	17	19,1	25,4	67,8	32,1	0,14
63571.W0101	0,225	M10x1,50	17	19,1	25,4	67,8	30,2	0,14
63571.W0121	0,525	M12x1,75	19	38,0	50,5	121,4	59,4	1,05
63571.W0161	0,950	M16x2,00	24	38,0	50,5	121,4	55,4	1,11
63571.W0201	1,100	M20x2,50	30	38,0	50,5	121,4	51,4	1,16
63571.W0202	1,500	M20x2,50	29	58,7	76,2	165,8	77,0	3,06
63571.W0241	2,100	M24x3,00	34	58,7	76,2	165,8	73,0	3,18
63571.W0301	3,500	M30x3,50	46	81,3	95,5	221,7	106,3	3,36
63571.W0302	3,500	M30x3,50	66	81,3	95,5	221,7	106,3	6,70
63571.W0362	5,500	M36x4,00	69	106,7	123,7	316,7	164,8	15,34
63571.W0421	6,250	M42x4,50	79	106,7	123,7	316,7	158,8	15,91
63571.W0481	7,250	M48x5,00	79	106,7	123,7	316,7	152,8	16,36
63571.W0641	11,000	M64x6,00	102	146,1	165,6	428,5	203,3	39,77

Order No.	l_4	l_5	r_1	w_1	w_2	w_3	tl Nm.
63571.W0081	18,0	4,3	10,9	46,7	40,9	9,5	4,75
63571.W0101	18,0	4,3	10,9	46,7	40,9	9,5	8,00
63571.W0121	31,0	4,1	24,4	89,4	82,5	19,0	18,50
63571.W0161	31,0	4,1	24,4	89,4	82,5	19,0	40,00
63571.W0201	31,0	4,1	24,4	89,4	82,5	19,0	67,50
63571.W0202	43,4	6,1	35,6	130,5	121,2	25,4	67,50
63571.W0241	43,4	6,1	35,6	130,5	121,2	25,4	155,50
63571.W0300	43,4	6,1	35,6	130,5	121,2	25,4	155,50
63571.W0301	53,6	8,9	44,5	165,1	52,4	31,8	318,60
63571.W0302	53,6	8,9	44,5	165,1	52,4	31,8	318,60
63571.W0362	71,4	11,9	57,2	217,2	203,2	44,5	542,70
63571.W0421	71,4	11,9	57,2	217,2	203,2	44,5	542,70

Lifting Points - Double Swivel - Male

standard bar - metric - coarse - stainless steel

63571

Order No.	l_4	l_5	r_1	w_1	w_2	w_3	tl Nm.
63571.W0481	71,4	11,9	57,2	217,2	203,2	44,5	542,70
63571.W0641	104,0	28,4	76,2	269,4	266,7	57,2	1423,70

Material
Stainless steel, 300 series.

Technical Notes
Min. design safety factor 5:1. 360° swivel and 180° pivot under load. Each part individually numbered. tl= recommended torque load (Nm.)

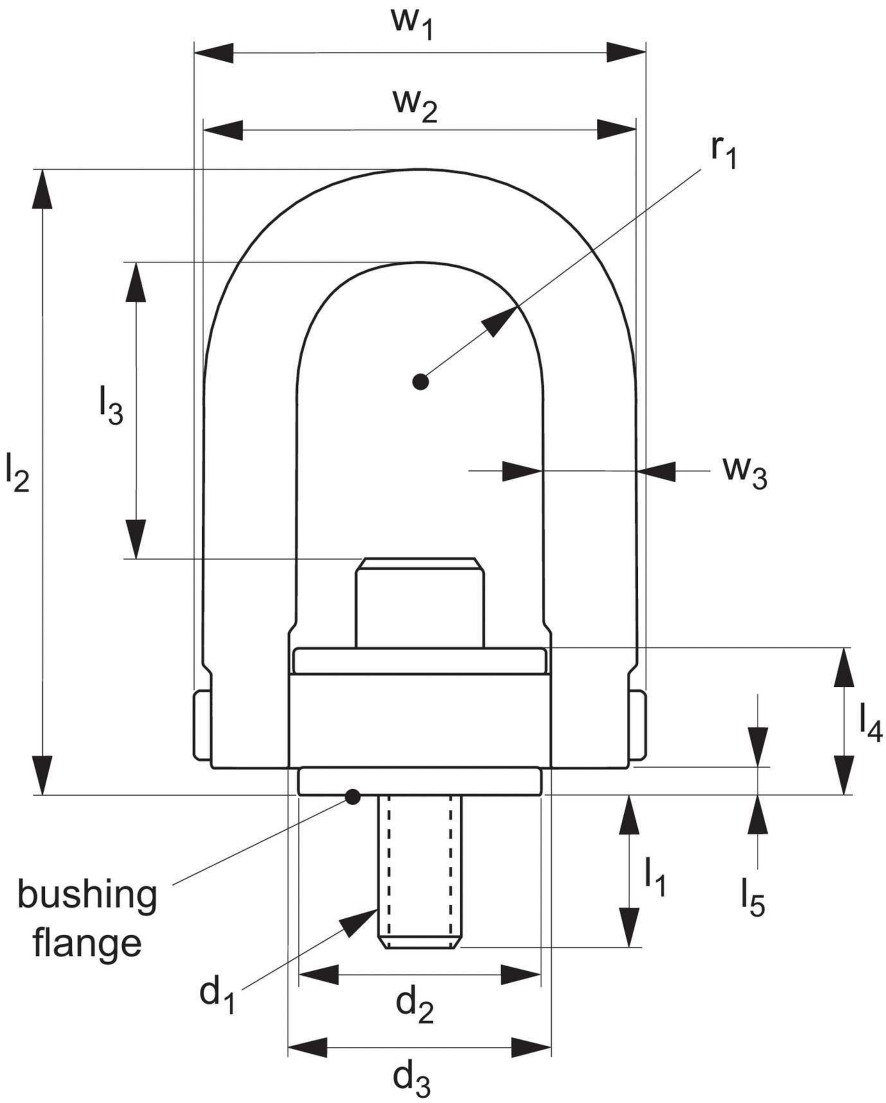
Tips
Liquid penetrant tested as ASTM-E1417. Purification process, clean and passivate as ASTM-A967.

Important Notes
Always follow safety instructions.

Lifting Points - Double Swivel - Male

long bar - metric - coarse - stainless steel

63572



Material
Stainless steel, 300 series.

Technical Notes
Min. design safety factor 5:1. 360° swivel and 180° pivot under load. Each part individually numbered. tl = recommended torque load (Nm.)

Tips
Liquid penetrant tested as ASTM-E1417. Purification process, clean and passivate as ASTM-A967.

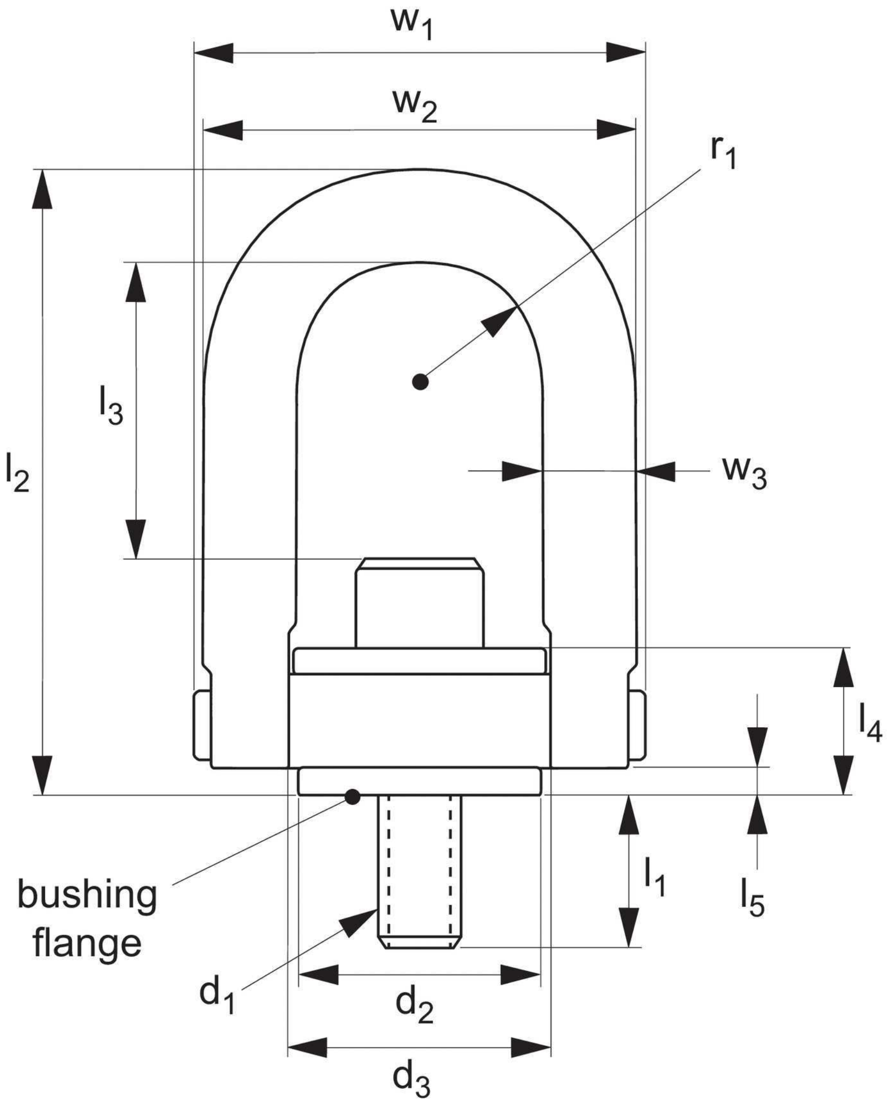
Important Notes
Always follow safety instructions.

Order No.	Rated load tons	d_1	d_2	d_3	l_1	l_2	l_3	l_4	l_5	r_1	w_1	w_2	tl Nm.	kg
63572.W0121	0,525	M12x1,75	38,0	50,5	19	121,4	108,6	31,0	4,1	22,4	89,4	82,5	18,5	1,27
63572.W0161	0,950	M16x2,00	38,0	50,5	24	121,4	104,6	31,0	4,1	22,4	89,4	82,5	40,0	1,33
63572.W0201	1,100	M20x2,50	38,0	50,5	30	121,4	100,6	31,0	4,1	22,4	89,4	82,5	67,5	1,38
63572.W0202	1,500	M20x2,50	58,7	76,2	29	165,8	117,9	43,4	5,1	35,6	130,5	121,2	67,5	3,77
63572.W0241	2,100	M24x3,00	58,7	76,2	34	165,8	113,9	43,4	6,1	35,6	130,5	121,2	155,5	3,89
63572.W0301	2,250	M30x3,50	58,7	76,2	54	165,8	109,0	43,4	6,1	35,6	130,5	121,2	155,5	4,01

Lifting Points - Double Swivel - Male

standard bar - UNC thread - stainless steel

63581



Material
Stainless steel, 300 series.

Technical Notes
Min. design safety factor 5:1. 360° swivel and 180° pivot under load. Each part individually numbered. tl = recommended torque load (ft - lbs)

Tips
Liquid penetrant tested as ASTM-E1417. Purification process, clean and passivate as ASTM-A967.

Important Notes
All dimensions in imperial.
Always follow safety instructions.

Order No.	Rated load lbs.	d_1	l_1	d_2	d_3	l_2	l_3	l_4	lbs.
63581.W0251I	275	1/4-20	0,54	0,75	1,00	2,67	1,33	0,71	0,31
63581.W0311I	400	5/16-18	0,29	0,75	1,00	2,67	1,27	0,71	0,31
63581.W0312I	400	5/16-18	0,54	0,75	1,00	2,67	1,27	0,71	0,31
63581.W0371I	500	3/8-16	0,54	0,75	1,00	2,67	1,21	0,71	0,31
63581.W0501I	1250	1/2-13	1,07	1,25	1,49	3,77	1,84	0,93	1,00
63581.W0502I	1250	1/2-13	0,78	1,50	1,99	4,78	2,31	1,22	2,31
63581.W0503I	1250	1/2-13	1,03	1,50	1,99	4,78	2,31	1,22	2,31
63581.W0504I	1250	1/2-13	1,28	1,50	1,99	4,78	2,31	1,22	2,31
63581.W0631I	2000	5/8-11	0,78	1,50	1,99	4,78	2,18	1,22	2,43
63581.W0632I	2000	5/8-11	1,03	1,50	1,99	6,72	2,18	1,22	2,43
63581.W0634I	2000	5/8-11	1,28	1,50	1,99	6,72	2,18	1,22	2,43
63581.W0751I	2500	3/4-10	1,03	1,50	1,99	6,72	2,06	1,22	2,56
63581.W0752I	2500	3/4-10	1,53	1,50	1,99	6,72	2,06	1,22	2,56
63581.W0753I	3500	3/4-10	1,04	2,37	3,00	6,52	3,06	1,71	6,62
63581.W0754I	3500	3/4-10	1,54	2,37	3,00	6,52	3,06	1,71	6,62
63581.W0881I	4000	7/8-9	1,04	2,37	3,00	6,52	2,93	1,71	6,75
63581.W1001I	5000	1-8	1,29	2,37	3,00	6,52	2,81	1,71	7,00
63581.W1002I	5000	1-8	1,54	2,37	3,00	6,52	2,81	1,71	7,00
63581.W1003I	5000	1-8	2,29	2,37	3,00	6,52	2,81	1,71	7,00
63581.W1251I	7500	1-1/4-7	1,89	3,20	3,76	8,73	4,12	2,11	14,00
63581.W1501I	12000	1-1/2-6	2,70	4,20	4,87	12,47	6,41	2,81	33,75
63581.W2001I	15000	2-4-1/4	2,96	4,20	4,87	12,47	5,41	2,81	36,00
63581.W2501I	25000	2-1/2-8	4,00	5,75	6,52	16,87	8,03	4,09	87,50
63581.W2502I	25000	2-1/2-4	4,00	5,75	6,52	16,87	8,03	4,09	87,50
63581.W3001I	37500	3-4	5,20	7,25	8,10	19,50	8,48	5,27	166,00
63581.W3501I	50000	3-1/2-4	7,00	7,75	8,60	22,09	9,28	6,06	240,00

Lifting Points - Double Swivel - Male

standard bar - UNC thread - stainless steel

63581

Order No.	l_5	r_1	w_1	w_2	w_3	tl ft - lbs.
63581.W0251I	0,17	0,43	1,84	1,61	3/8	2,5
63581.W0311I	0,17	0,43	1,84	1,61	3/8	3,5
63581.W0312I	0,17	0,43	1,84	1,61	3/8	3,5
63581.W0371I	0,17	0,43	1,84	1,61	3/8	6,0
63581.W0501I	0,20	0,70	2,58	2,40	1/2	14,0
63581.W0502I	0,16	0,88	3,52	3,25	3/4	14,0
63581.W0503I	0,16	0,88	3,52	3,25	3/4	14,0
63581.W0504I	0,16	0,88	3,52	3,25	3/4	14,0
63581.W0631I	0,16	0,88	3,52	3,25	3/4	30,0
63581.W0632I	0,16	0,88	3,52	3,25	3/4	30,0
63581.W0634I	0,16	0,88	3,52	3,25	3/4	30,0
63581.W0751I	0,16	0,88	3,52	3,25	3/4	50,0
63581.W0752I	0,16	0,88	3,52	3,25	3/4	50,0
63581.W0753I	0,24	1,40	5,14	4,80	1	50,0
63581.W0754I	0,24	1,40	5,14	4,80	1	50,0
63581.W0881I	0,24	1,40	5,14	4,80	1	80,0
63581.W1001I	0,24	1,40	5,14	4,80	1	115,0
63581.W1002I	0,24	1,40	5,14	4,80	1	115,0
63581.W1003I	0,24	1,40	5,14	4,80	1	115,0
63581.W1251I	0,35	1,75	6,50	6,00	1-1/4	235,0
63581.W1501I	0,47	2,25	8,55	8,00	1-3/4	400,0
63581.W2001I	0,47	2,25	8,55	8,00	1-3/4	400,0
63581.W2501I	1,12	3,00	11,67	10,50	2-1/4	1050,0
63581.W2502I	1,12	3,00	11,67	10,50	2-1/4	1050,0
63581.W3001I	1,00	3,75	14,15	13,00	2-3/4	2150,0
63581.W3501I	1,09	4,00	15,90	14,50	3-1/4	3300,0

Material
Stainless steel, 300 series.

Technical Notes
Min. design safety factor 5:1. 360° swivel and 180° pivot under load. Each part individually numbered. tl = recommended torque load (ft - lbs)

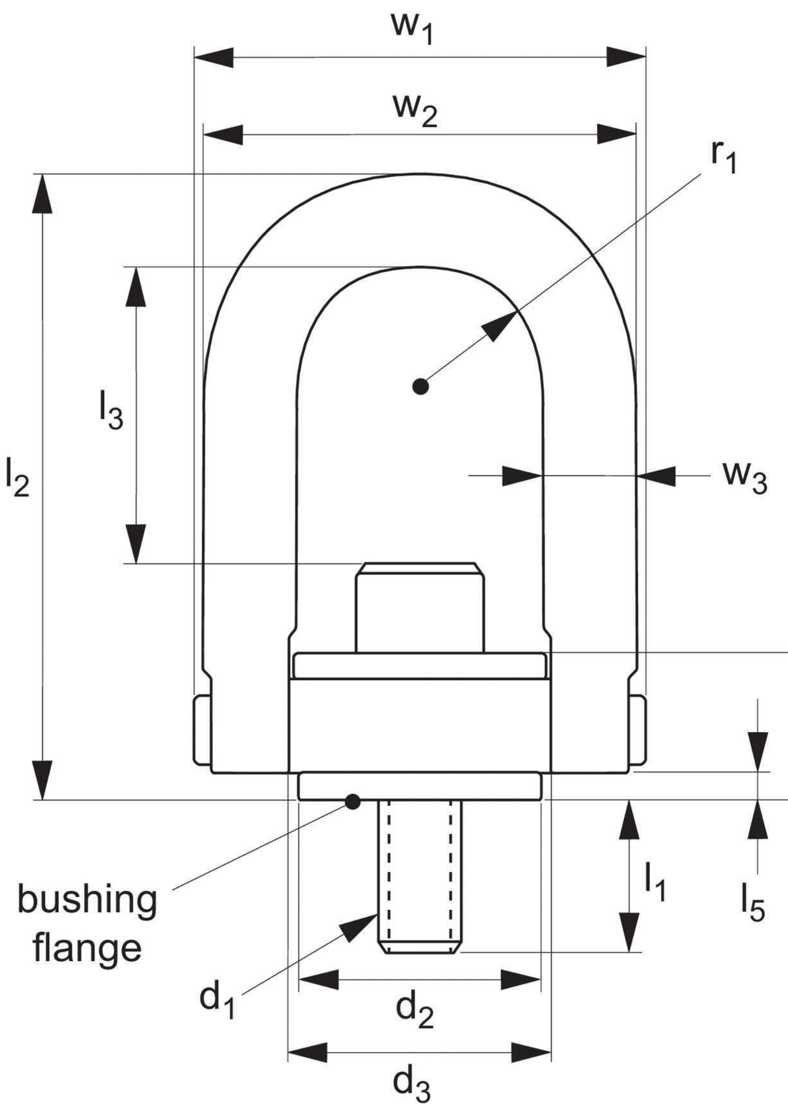
Tips
Liquid penetrant tested as ASTM-E1417. Purification process, clean and passivate as ASTM-A967.

Important Notes
All dimensions in imperial.
Always follow safety instructions.

Lifting Points - Double Swivel - Male

long bar - UNC thread - stainless steel

63582



Material
Stainless steel, 300 series.

Technical Notes
Min. design safety factor 5:1. 360° swivel and 180° pivot under load. Each part individually numbered. tl = recommended torque load (ft - lbs).

Tips
Liquid penetrant tested as ASTM-E1417. Purification process, clean and passivate as ASTM-A967.

Important Notes
All dimensions in imperial.
Always follow safety instructions.

Order No.	Rated load lbs.	d_1 UNC	l_1	d_2	d_3	l_2	l_3	lbs.
63582.W0501I	1250	1/2-13	0,78	1,50	1,99	6,72	4,25	2,75
63582.W0502I	1250	1/2-13	1,03	1,50	1,99	6,72	4,25	2,00
63582.W0503I	1250	1/2-13	1,28	1,50	1,99	6,72	4,25	2,75
63582.W0631I	2000	5/8-11	1,03	1,50	1,99	4,38	4,12	2,87
63582.W0632I	2000	5/8-11	1,28	1,50	1,99	4,38	4,12	2,75
63582.W0751I	2500	3/4-10	1,03	1,50	1,99	4,38	4,00	3,00
63582.W0752I	2500	3/4-10	1,53	2,37	1,99	4,38	4,00	3,00
63582.W0753I	3500	3/4-10	1,04	2,37	3,00	8,11	4,65	7,25
63582.W0754I	3500	3/4-10	1,54	2,37	3,00	8,11	4,65	6,62
63582.W0881I	4000	7/9-9	1,04	2,37	3,00	8,11	4,52	6,75
63582.W1001I	5000	1-8	1,29	2,37	3,00	8,11	4,40	7,00
63582.W1002I	5000	1-8	1,54	2,37	3,00	8,11	4,40	7,00
63582.W1003I	5000	1-8	2,29	2,37	3,00	8,11	4,40	7,00

Order No.	l_4	l_5	r_1	w_1	w_2	w_3	tl ft - lbs
63582.W0501I	1,22	0,16	0,88	3,52	3,25	3/4	14
63582.W0502I	1,22	0,16	0,88	3,52	3,25	3/4	14
63582.W0503I	1,22	0,16	0,88	3,52	3,25	3/4	14
63582.W0631I	1,22	0,16	0,88	3,52	3,25	3/4	30
63582.W0632I	1,22	0,16	0,88	3,52	3,25	3/4	30
63582.W0751I	1,22	0,16	0,88	3,52	3,25	3/4	50
63582.W0752I	1,22	0,16	0,88	3,52	3,25	3/4	50
63582.W0753I	1,71	0,24	1,40	5,14	4,80	1	50
63582.W0754I	1,71	0,24	1,40	5,14	4,80	1	50
63582.W0881I	1,71	0,24	1,40	5,14	4,80	1	80
63582.W1001I	1,71	0,24	1,40	5,14	4,80	1	115
63582.W1002I	1,71	0,24	1,40	5,14	4,80	1	115

Lifting Points - Double Swivel - Male

long bar - UNC thread - stainless steel

Order No.	l_4	l_5	r_1	w_1	w_2	w_3	tl ft - lbs
63582.W1003I	1,71	0,24	1,40	5,14	4,80	1	115

63582

Material
Stainless steel, 300 series.

Technical Notes
Min. design safety factor 5:1. 360° swivel and 180° pivot under load. Each part individually numbered. tl = recommended torque load (ft - lbs).

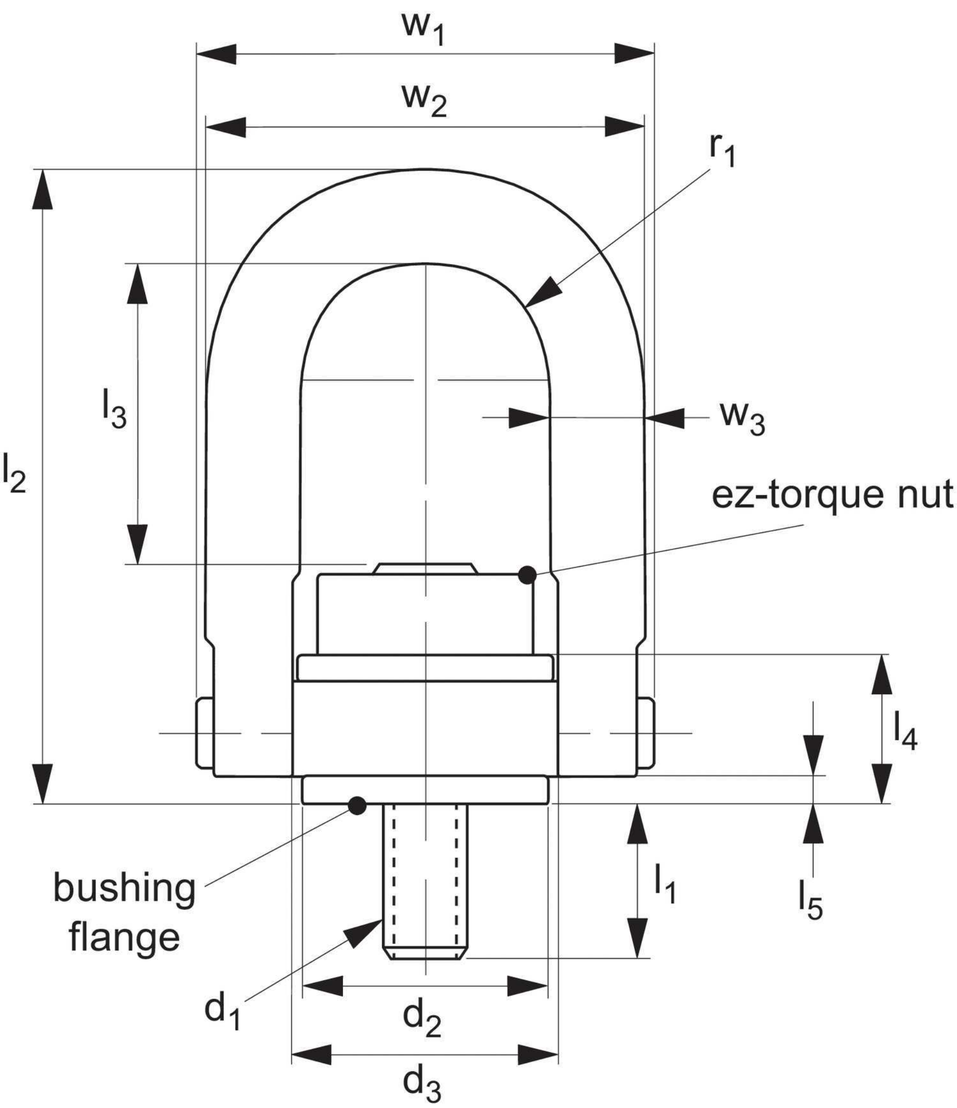
Tips
Liquid penetrant tested as ASTM-E1417. Purification process, clean and passivate as ASTM-A967.

Important Notes
All dimensions in imperial.
Always follow safety instructions.

Lifting Points - Double Swivel - Male

easy torque - metric - coarse

63591



Material
Forged alloy steel (4140) min. tensile strength 180,000 psi. Black oxide coated.

Tips
EZ-torque hoist rings greatly reduce the required torque load (tl) for installation. Unique EZ-torque nut means hoist ring requires only a standard torque wrench for installation, e.g EZ-torque hoist ring M30x3.5 requires only 13,5 Nm of torque, while a comparable standard hoist ring would require over 637 Nm.

Important Notes
Min. design safety factor 5:1. 360° swivel 180° pivot under load.
Individually serial numbered.
tl- recommended torque load (Nm.) for installation.
Always follow safety instructions.

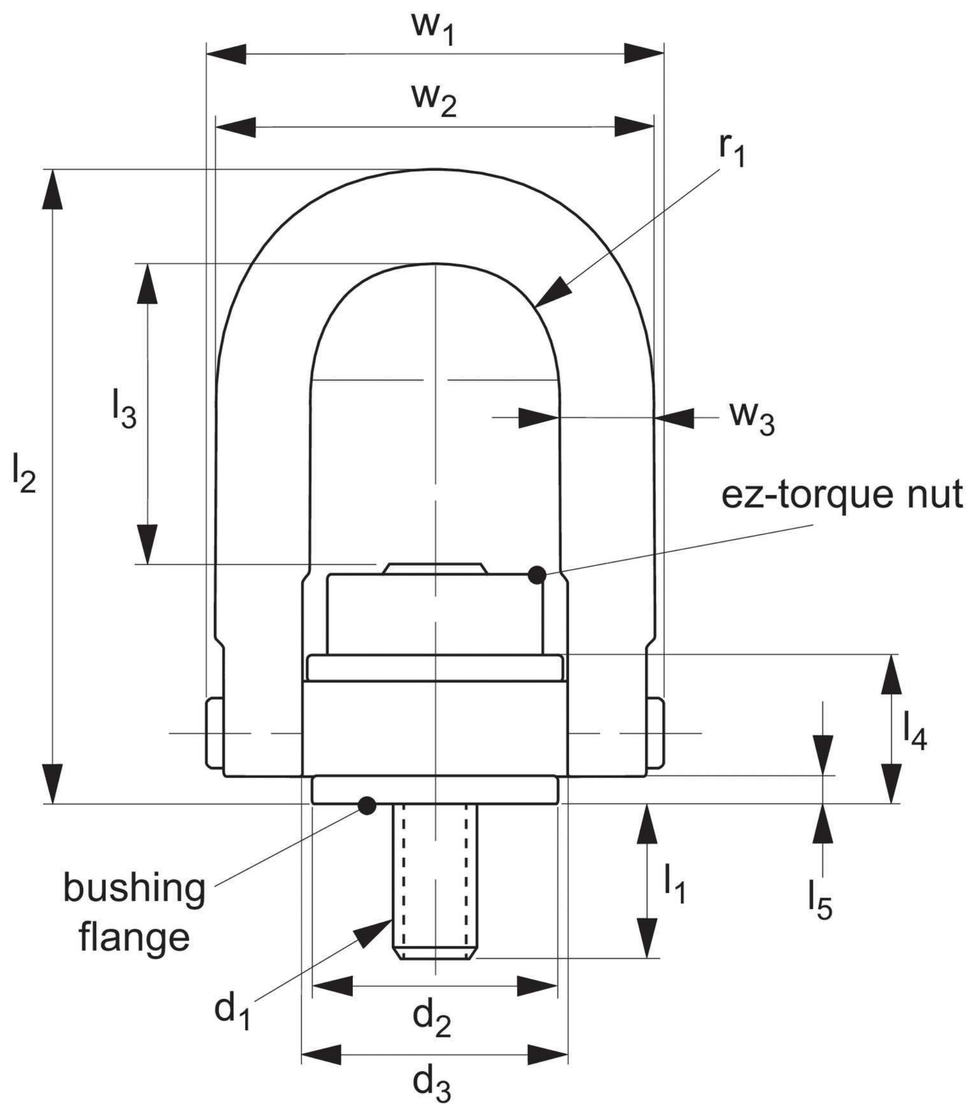
Order No.	Rated load tons	d_1	l_1	d_2	d_3	l_2	l_3	kg
63591.W0301	7,00	M30x3,5	66	81,3	95,5	221,7	106,3	7,26
63591.W0361	11,00	M36x4,0	69	106,7	123,7	316,7	164,8	17,13
63591.W0421	12,50	M42x4,5	79	106,7	123,7	316,7	158,8	17,13
63591.W0481	13,50	M48x5,0	79	106,7	123,7	316,7	152,8	17,69
63591.W0641	22,00	M64x6,0	102	146,1	165,6	428,5	203,3	41,73
63591.W0721	31,50	M72x6,0	132	184,1	205,7	495,3	215,4	79,20
63591.W0901	51,00	M90x6,0	178	196,8	218,4	651,1	235,7	112,01

Order No.	l_4	l_5	r_1	w_1	w_2	w_3	tl Nm.
63591.W0301	53,6	8,9	44,5	165,1	152,4	31,8	23,5
63591.W0361	71,4	11,9	57,2	217,2	203,2	44,5	20,8
63591.W0421	71,4	11,9	57,2	217,2	203,2	44,5	21,6
63591.W0481	71,4	11,9	57,2	217,2	203,2	44,5	21,3
63591.W0641	104,0	28,4	76,2	296,4	266,7	57,2	53,9
63591.W0721	133,9	25,4	95,2	368,3	330,2	69,8	124,7
63591.W0901	153,9	27,7	101,6	403,9	368,3	82,5	132,8

Lifting Points - Double Swivel - Male

easy torque - UNC thread

63592



Material

Forged alloy steel (4140) min. tensile strength 180,000 psi. Black oxide coated.

Technical Notes

Min. design safety factor 5:1. 360° swivel 180° pivot under load. Individually serial numbered.
tl- recommended torque load (Nm) for installation.

Tips

EZ-torque hoist rings greatly reduce the required torque load (tl) for installation. Unique EZ-torque nut means hoist ring requires only a standard torque wrench for installation, e.g EZ-torque hoist ring M30x3,5 requires only 13,5 ft - lbs of torque, while a comparable standard hoist ring would require over 637 ft - lbs.

Important Notes

All dimensions in imperial.
Always follow safety instructions.

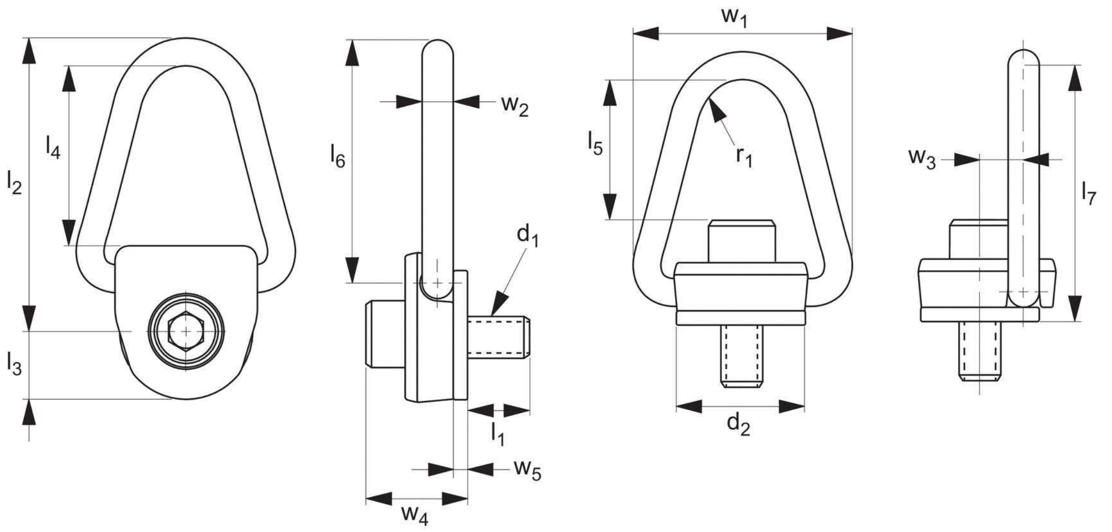
Order No.	Rated load lbs.	d_1 UNC	l_1	d_2	d_3	l_2	l_3	lbs.
63592.W1251I	15000	1-1/4-7	1,89	3,20	3,76	8,73	3,88	16,00
63592.W1501I	24000	1-1/2-6	2,70	4,20	4,87	12,47	6,12	37,37
63592.W2001I	30000	2-4-1/2	2,96	4,20	4,87	12,47	6,12	39,00
63592.W2501I	50000	2-1/2-8	4,00	5,75	6,52	16,87	7,73	92,00
63592.W2502I	50000	2-1/2-4	4,00	5,75	6,52	16,87	7,73	92,00
63592.W3001I	75000	3-4	5,20	7,25	8,10	19,50	8,53	174,60
63592.W3501I	100000	3-1/2-4	7,00	7,75	8,60	22,09	9,28	246,94
63592.W4251I	150000	4 1/4-4	8,50	9,87	10,75	27,38	12,93	527,00
63592.W5001I	200000	5-4	9,00	12,38	13,00	33,00	15,00	763,00
63592.W6001I	250000	6-4	9,00	12,38	13,00	33,00	15,00	841,00

Order No.	l_4	l_5	r_1	w_1	w_2	w_3	tl ft - lbs.
63592.W1251I	2,11	0,35	1,75	6,50	6,0	1-1/4	10
63592.W1501I	2,81	0,47	2,25	8,55	8,0	1-3/4	18
63592.W2001I	2,81	0,47	2,25	8,55	8,0	1-3/4	23
63592.W2501I	4,09	1,12	3,00	11,67	10,5	2-1/4	49
63592.W2502I	4,09	1,12	3,00	11,67	10,5	2-1/4	49
63592.W3001I	5,27	1,00	3,75	14,15	13,0	2-3/4	92
63592.W3501I	6,06	1,09	4,00	15,90	14,5	3-1/4	98
63592.W4251I	7,50	1,33	5,00	19,69	18,0	4	123
63592.W5001I	9,00	1,88	6,00	24,00	22,0	5	193
63592.W6001I	9,00	1,88	6,00	24,00	22,0	5	207

Load Rings - Side Pull - Male

metric - coarse

63601



Order No.	Rated load tons	d_1	l_1	d_2	l_2	l_3	l_4	l_5	kg
63601.W0081	0,40	M 8x1,25	14	56	130	32	81	73	0,93
63601.W0101	0,45	M10x1,50	24	56	130	32	81	71	0,96
63601.W0121	1,05	M12x1,75	37	56	130	32	81	69	0,96
63601.W0161	1,90	M16x2,00	37	56	130	32	81	65	1,01
63601.W0200	2,20	M20x2,50	37	56	130	32	81	61	1,07
63601.W0201	3,00	M20x2,50	39	79	171	41	106	83	2,73
63601.W0241	4,20	M24x3,00	43	79	171	41	106	79	2,78

Order No.	l_6	l_7	r_1	w_1	w_2	w_3	w_4	w_5	tl Nm.
63601.W0081	108	120	19	99	13	22	34	5	9,5
63601.W0101	108	120	19	99	13	22	36	5	16,0
63601.W0121	108	120	19	99	13	22	38	5	37,0
63601.W0161	108	120	19	99	13	22	42	5	80,0
63601.W0200	108	120	19	99	13	22	46	5	135,0
63601.W0201	143	159	22	133	19	32	57	8	135,0
63601.W0241	143	159	22	133	19	32	61	8	311,0

Material

Alloy steel, black oxide finish.

Technical Notes

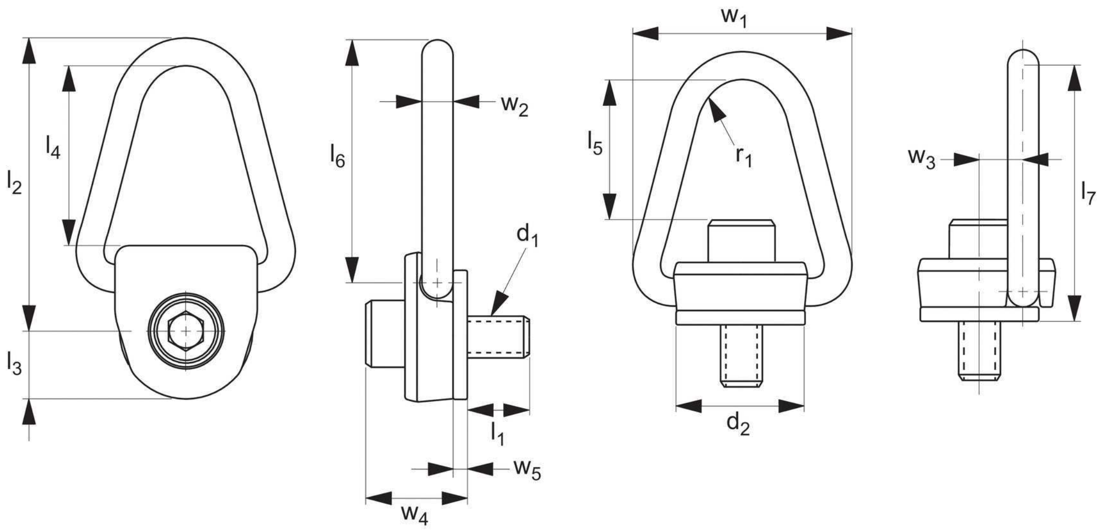
Magnetic particles inspected per ASTM1444.

Important Notes

Min. design safety factor 5:1, any direction. Self aligning direction of load. Rotates 360° under load.
tl= recommended torque load (Nm).
Always follow safety instructions.

Load Rings - Side Pull - Male

UNC thread



Order No.	Rated load lbs.	d_1 UNC	l_1	d_2	l_2	l_3	l_4	l_5	lbs.
63602.W0311I	800	5/16-18	0,479	2-3/16	5-1/8	1-1/4	3-3/16	2-57/64	2,05
63602.W0371I	1000	3/8-16	0,479	2-3/16	5-1/8	1-1/4	3-3/16	2-27/32	2,12
63602.W0501I	2500	1/2-13	0,979	2-3/16	5-1/8	1-1,4	3-3/16	2-45/64	2,12
63602.W0631I	4000	5/8-11	0,979	2-3/16	5-1/8	1-1/4	3-3/16	2-59/64	2,22
63602.W0751I	5000	3/4-10	1,229	2-3/16	5-1/8	1-1/4	3-3/16	2-15/16	2,34
63602.W0752I	7000	3/4-10	1-1/4	2-3/16	6-3/4	1-5/8	4-3/16	4	6,01
63602.W0881I	8000	7/8-9	1-1/4	2-3/16	6-3/4	1-5/8	4-3/16	3-7/8	6,13
63602.W1001I	10000	1-8	1-1/2	2-3/16	6-3/4	1-5/8	4-3/16	3-3/4	6,20

Order No.	l_6	l_7	r_1	w_1	w_2	w_3	w_4	w_5	tl ft - lbs.
63602.W0311I	4-1/4	4-23/32	3/4	3-7/8	1/2	7/8	1-21/64	7/32	7
63602.W0371I	4-1/4	4-23/32	3/4	3-7/8	1/2	7/8	1-25/64	7/32	12
63602.W0501I	4-1/4	4-23/32	3/4	3-7/8	1/2	7/8	1-17/32	7/32	28
63602.W0631I	4-1/4	4-23/32	3/4	3-7/8	1/2	7/8	1-41/64	7/32	60
63602.W0751I	4-1/4	4-23/32	3/4	3-7/8	1/2	7/8	1-25/32	7/32	100
63602.W0752I	5-5/8	6-1/4	7/8	5-1/4	3/4	1-1/4	2-1/4	5/16	100
63602.W0881I	5-5/8	6-1/4	7/8	5-1/4	3/4	1-1/4	2-3/8	5/16	160
63602.W1001I	5-5/8	6-1/4	7/8	5-1/4	3/4	1-1/4	2-1/2	5/16	230

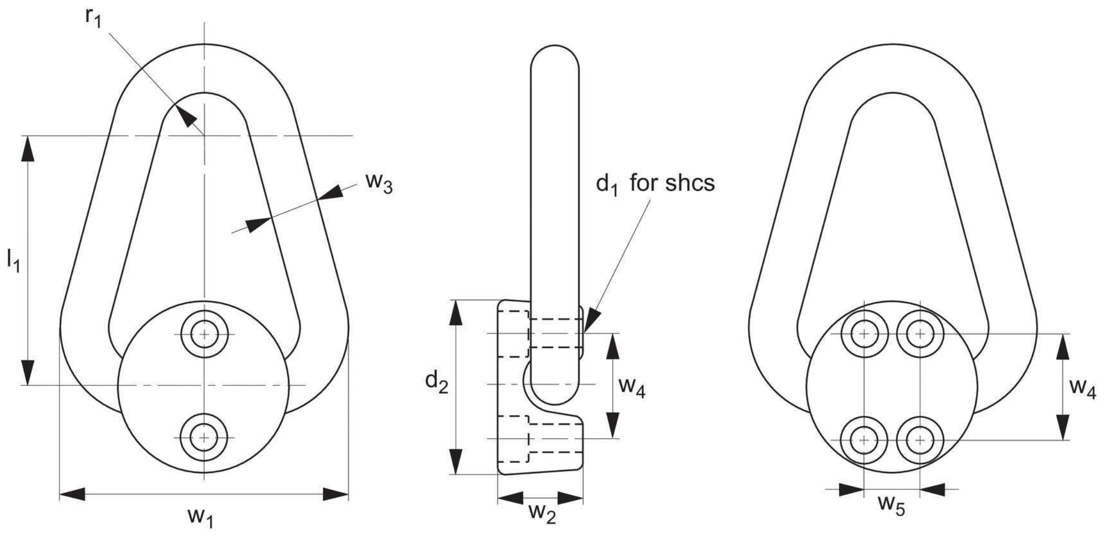
Material
Alloy steel, black oxide finish.

Technical Notes
Magnetic particles inspected per ASTM1444.

Tips
Min. design safety factor 5:1, any direction. Self aligning direction of load. Rotates 360° under load.
tl= recommended torque load (ft - lbs).

Important Notes
All dimensions in imperial.
Always follow safety instructions.

63621



type one

type two

Order No.	Type	Rated loads lbs.	d_1	r_1	l_1	d_2	w_1	lbs.
63621.W0311I	One	2000	5/16 (x2)	1/2	2	1-3/4	2-1/2	0,58
63621.W0371I	One	2500	3/8 (x2)	5/8	2-1/2	2-1/4	3-3/16	1,07
63621.W0501I	One	5000	1/2 (x2)	3/4	3	2-5/8	3-7/8	2,06
63621.W0502I	Two	12000	1/2 (x4)	7/8	4	3-1/8	5-1/4	4,10
63621.W0631I	Two	20000	5/8 (x4)	1	5	3-5/8	6-3/16	7,94

Order No.	w_2	w_3	w_4	w_5	tl ft - lbs.	Recom'd Screw thread	Recom'd Screw length
63621.W0311I	3/4	5/16	1	0	4-7	5/16-18	1-1/4
63621.W0371I	7/8	3/8	1-1/8	0	7-10	3/8-16	1-1/4
63621.W0501I	1-1/8	1/2	1-1/2	0	20-25	1/2-13	2
63621.W0502I	1-3/8	3/4	1-5/8	1-1/4	20-25	1/2-13	2-1/4
63621.W0631I	1-7/8	1	2-1/16	1-1/4	42-50	5/8-11	2-3/4

Material
Forged chrome moly steel, heat treated and black oxide coated.

Technical Notes
Magnaflux tested for ASTM 1444.

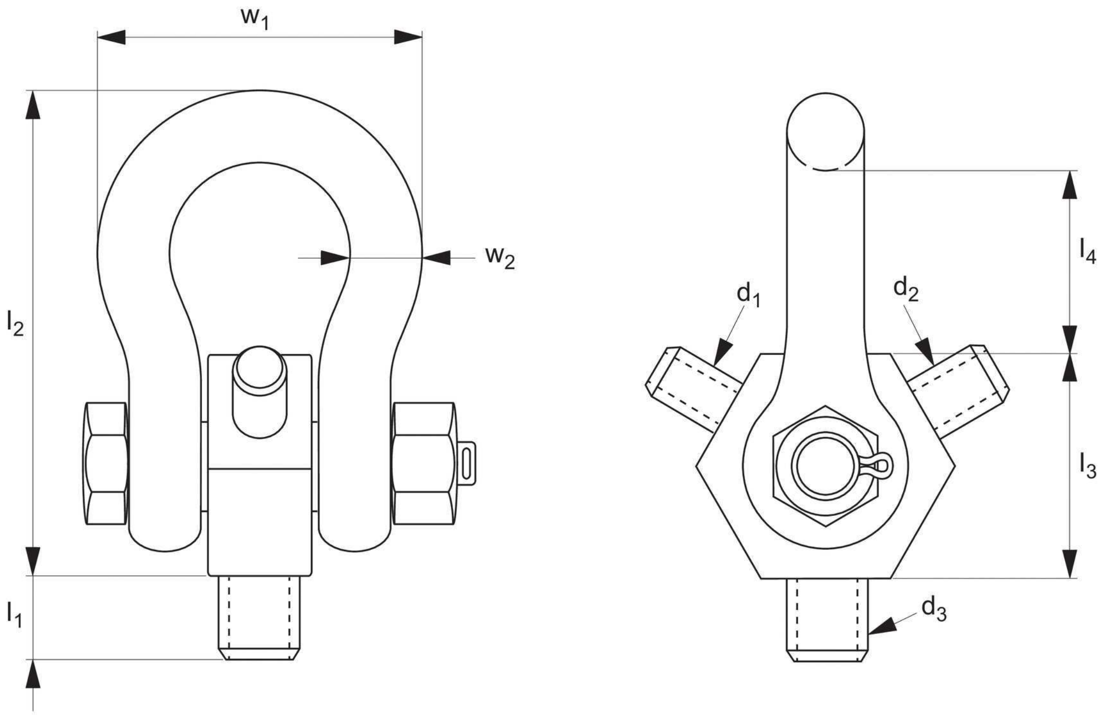
Tips
Min. design safety factor 6:1. 180° pivot under load.

Important Notes
All dimensions in imperial.
Always follow safety instructions.

Lifting Shackle - Tri-Thread - Male

metric - coarse

63651



Material
Forged alloy steel.

Technical Notes
Flexible lifting ring with three threads in one - vertical lifting only.

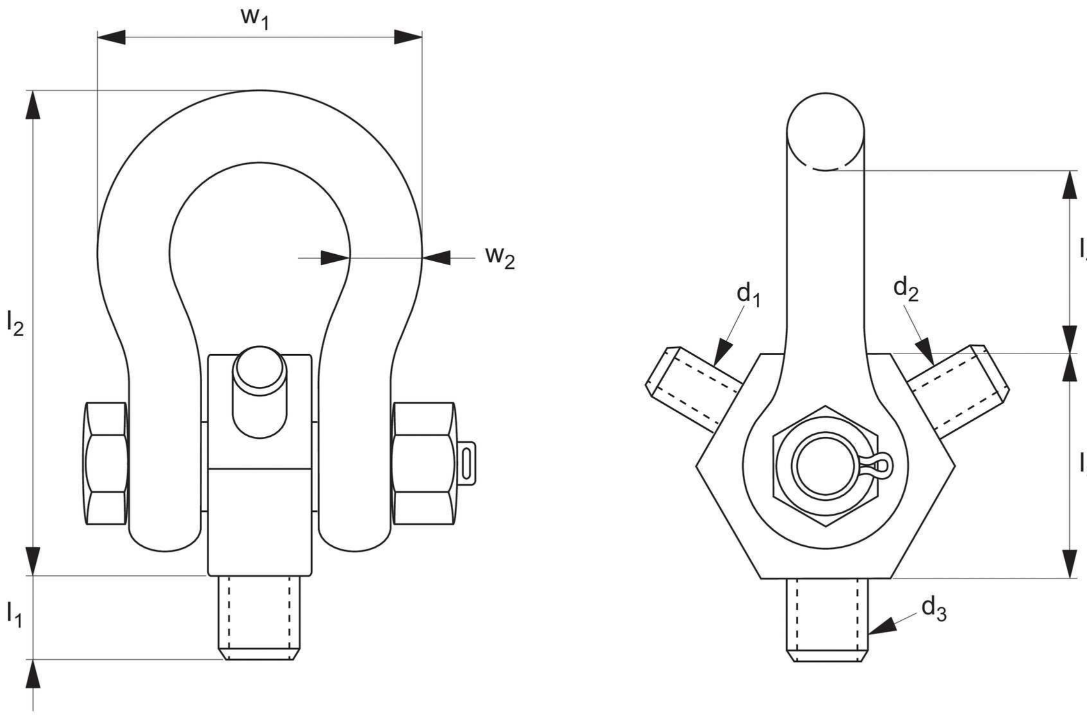
Important Notes
For straight/vertical lifting only - do not apply side load.
Always follow safety instructions.

Order No.	Thread	Thread size	Load capacity tons	l_1	l_2	l_3	l_4	w_1	w_2	kg
63651.W0812I	d1	M 8x1,25	0,40	13	77,80	34,93	31,8	53,98	11,11	0,36
	d2	M10x1,50	0,45	13	77,80	34,93	31,8	53,98	11,11	0,36
	d3	M12x1,75	1,05	13	77,80	34,93	31,8	53,98	11,11	0,36
63651.W1420I	d1	M14x2,00	1,05	19	111,13	50,80	44,5	76,20	15,90	1,13
	d2	M16x2,00	1,90	19	111,13	50,80	44,5	76,20	15,90	1,13
	d3	M20x2,50	2,20	19	111,13	50,80	44,5	76,20	15,90	1,13

Lifting Shackle - Tri-Thread - Male

UNC thread

63652

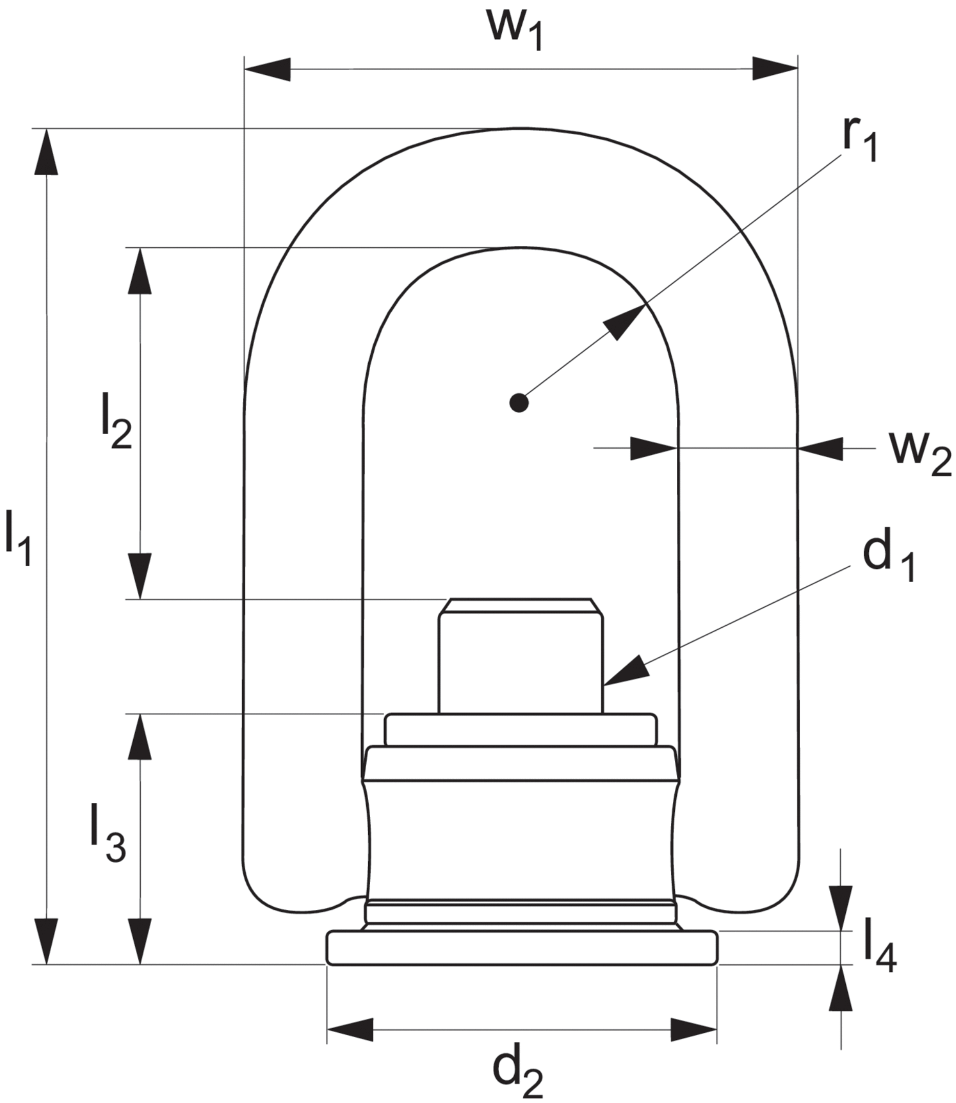


Material
Forged alloy steel.

Technical Notes
Flexible lifting ring with three threads in one - vertical lifting only.

Important Notes
For straight/vertical lifting only - do not apply side load.
Always follow safety instructions.

Order No.	Thread	Type	Screw size UNC	Load capacity lbs.	l_1	l_2	l_3	l_4	w_1	w_2	kg
63652.W2537I	d_1	Standard	1/4-20	400	1/2	3-1/16	1-3/8	1-1/4	2-1/8	7/16	0,8
	d_2	Standard	5/16-18	800	1/2	3-1/16	1-3/8	1-1/4	2-1/8	7/16	0,8
	d_3	Standard	3/8-16	1400	1/2	3-1/16	1-3/8	1-1/4	2-1/8	7/16	0,8
63652.W5075I	d_1	Standard	1/2-13	2600	3/4	4-3/8	2	1-3/4	3	5/8	2,5
	d_2	Standard	5/8-11	4000	3/4	4-3/8	2	1-3/4	3	5/8	2,5
	d_3	Standard	3/4-10	6000	3/4	4-3/8	2	1-3/4	3	5/8	2,5
63652.W2537F	d_1	Fine	1/4-28	400	1/2	3-1/16	1-3/8	1-1/4	2-1/8	7/16	0,8
	d_2	Fine	5/16-24	800	1/2	3-1/16	1-3/8	1-1/4	2-1/8	7/16	0,8
	d_3	Fine	3/8-24	1400	1/2	3-1/16	1-3/8	1-1/4	2-1/8	7/16	0,8
63652.W5075F	d_1	Fine	1/2-20	2600	3/4	4-3/8	2	1-3/4	3	5/8	2,5
	d_2	Fine	5/8-18	4000	3/4	4-3/8	2	1-3/4	3	5/8	2,5
	d_3	Fine	3/4-16	6000	3/4	4-3/8	2	1-3/4	3	5/8	2,5



Material
Forged alloy steel, min. tensile strength 180,000 psi, black oxide coated.

Technical Notes
Magnetic particle inspected.

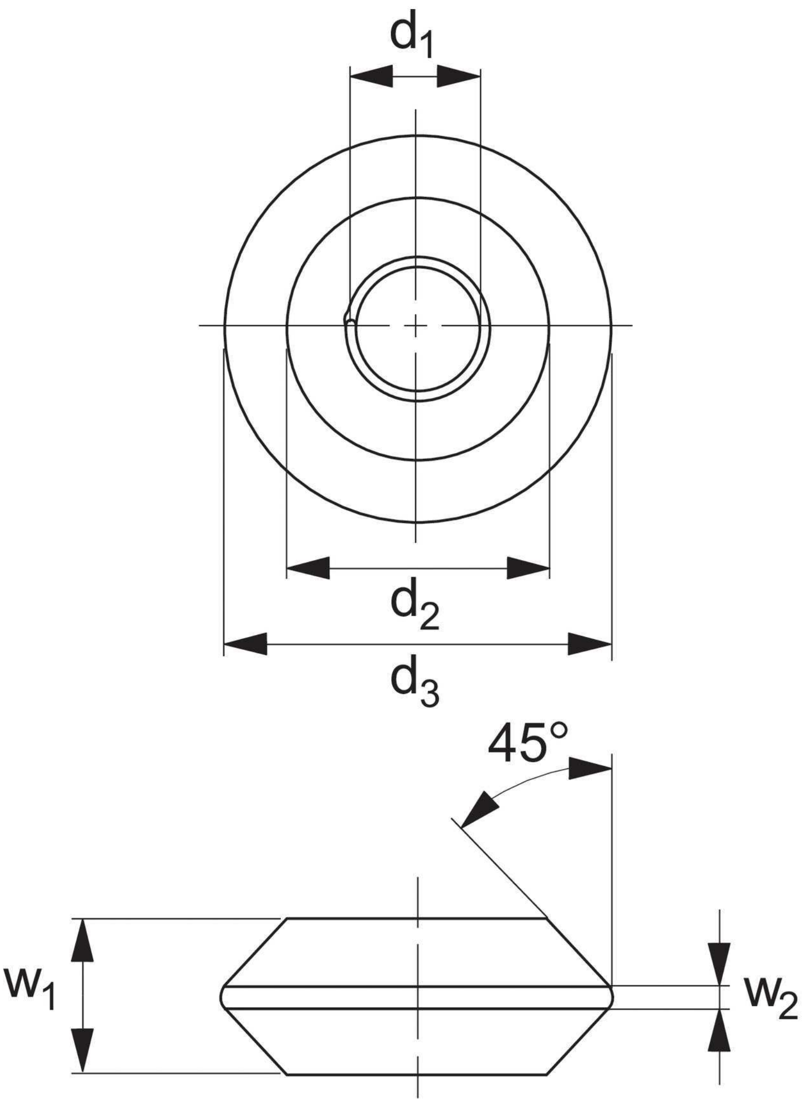
Tips
Min design safety factor 5:1. *Rated load relates to components of weld mount lifting ring 63700 only. The workpiece material and weld must be capable of supporting a similar weight - please make your own appropriate checks and calculations.
360° swivel and 180° load.

Important Notes
All dimensions in imperial.
Always follow safety instructions.

Order No.	Rated load* lbs.	d_1	d_2	l_1	l_2	l_3	l_4	r_1	w_1	w_2
63700.W0251I	5000	5/8-11	2,45	5,47	2,46	1,63	1/4	1,00	3,50	0,75
63700.W0371I	10000	1-8	3,51	7,64	3,22	2,30	3/8	1,50	5,10	1,00
63700.W0501I	24000	1-1/4-7	4,70	9,50	3,63	3,12	1/2	2,00	6,75	1,25

Thread Washer - Weld

63712



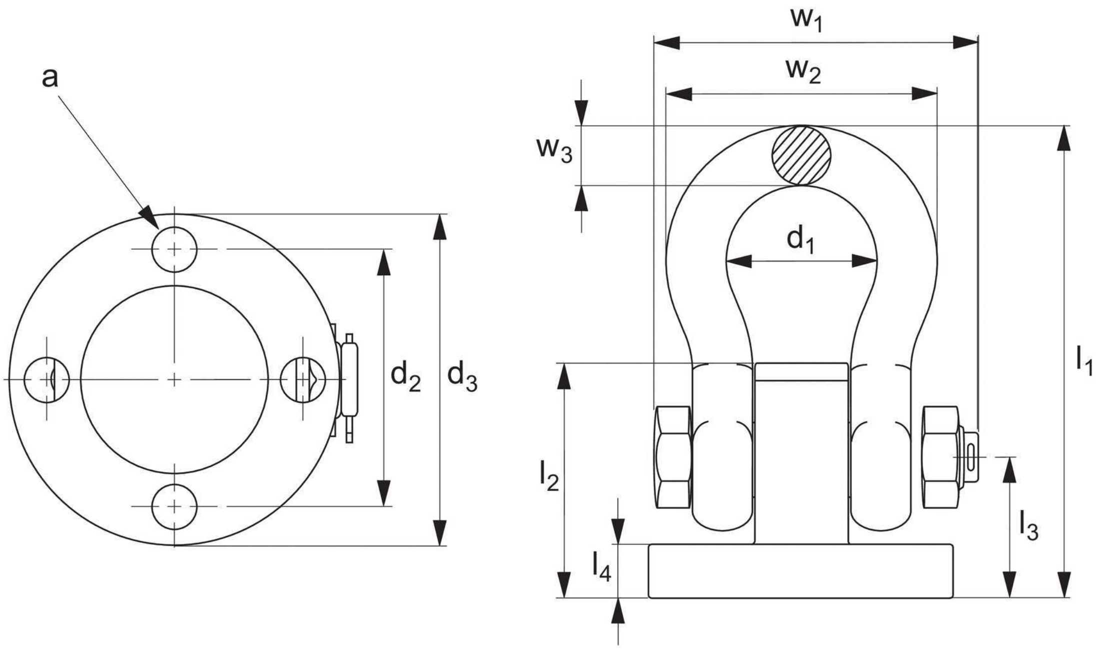
Material
High tensile steel alloy, heat treated.

Important Notes
All dimensions in imperial.

Order No.	Thread type	d_1	d_2	d_3	w_1	w_2
63712.W125I1	COIL	1-1/4	2-1/8	3	1	1/8
63712.W150I1	COIL	1-1/2	2-3/8	3-1/2	1-1/2	3/8

Lifting Shackle - Bolt-Down

63750



Order No.	Working load lbs.	a For screw size	d_1	d_2	d_3	l_1	l_2	l_3	l_4	w_1	w_2	w_3
63750.W0251I	2000	1/4-20x1/2	1,03	1,56	2,1	2,96	1,43	0,91	0,40	2,17	1,78	0,38
63750.W0311I	3000	5/16-18x1/2	1,16	1,76	2,4	3,55	1,76	1,16	0,52	2,51	2,03	0,44
63750.W0371I	4000	3/8-16x5/8	1,31	2,10	2,9	3,91	1,91	1,21	0,52	2,80	2,31	0,50
63750.W0431I	6500	7/16-14x3/4	1,69	2,56	3,5	4,97	2,41	1,51	0,64	3,53	2,94	0,69
63750.W0631I	13000	5/8-11x1	2,28	3,40	4,6	6,85	3,31	2,06	0,90	4,71	4,03	0,97
63750.W0751I	19000	3/4-10x1 1/4	2,91	4,00	5,4	8,75	4,01	2,61	1,14	5,09	5,16	1,25
63750.W0881I	24000	7/8-9x2	3,25	4,50	6,1	9,68	4,51	2,91	1,30	6,51	5,75	1,38

Material
Alloy steel, black oxide coated.

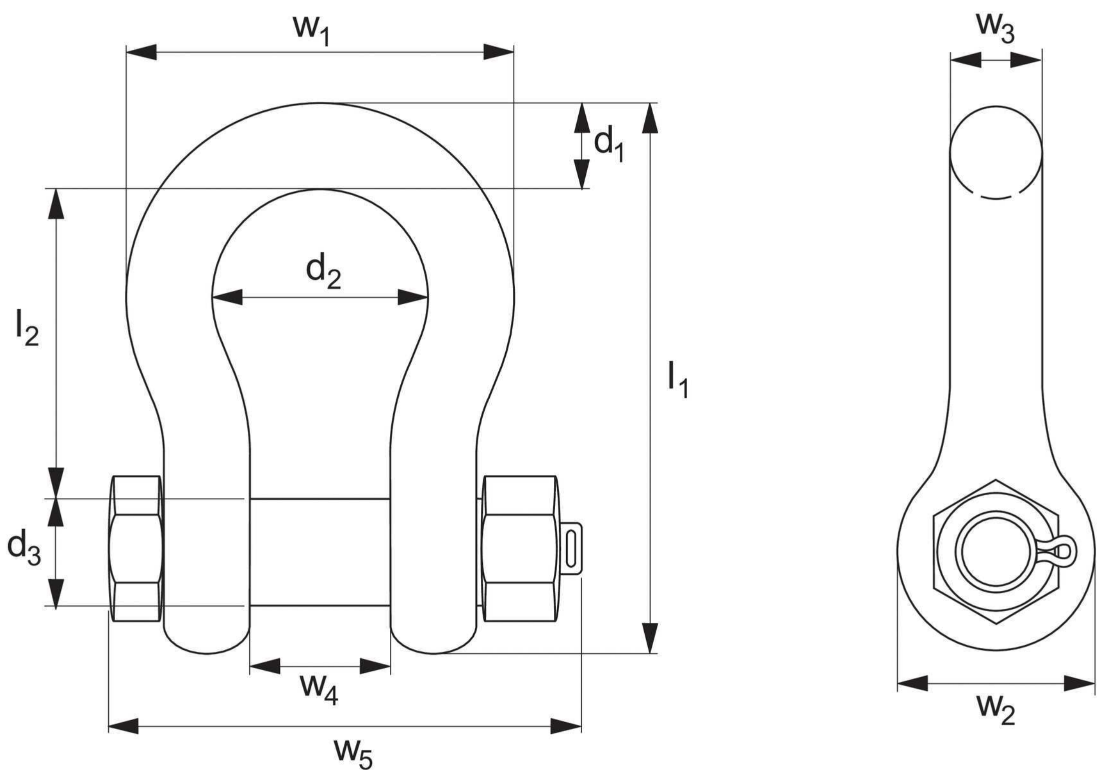
Technical Notes
Magnetic particle inspected as per ASTM 1444.

Tips
Min design factor 5:1. 360° swivel and 180° pivot under load. Particularly suited for lifting of large and heavy structures. Can be bolted or welded in place.

Important Notes
All dimensions in imperial.

Lifting Shackle

63752



Order No.	Working load lbs.	d_1	d_2	d_3	l_1	l_2	w_1	w_2	w_3	w_4	w_5
63752.W0371I	2000	3/8	1,03	0,44	2,49	1,44	1,78	0,91	0,38	0,66	2,17
63752.W0431I	3000	7/16	1,16	0,50	2,91	1,69	2,03	1,06	0,44	0,75	2,51
63752.W0501I	4000	1/2	1,31	0,63	3,28	1,88	2,31	1,19	0,50	0,81	2,80
63752.W0631I	6500	5/8	1,69	0,75	4,19	2,38	2,94	1,50	0,63	1,06	3,53
63752.W0881I	13000	7/8	2,28	1,00	5,83	3,31	4,03	2,09	0,88	1,44	4,71
63752.W1141I	19000	1-1/8	2,91	1,25	7,47	4,25	5,16	2,69	1,13	1,81	6,00
63752.W1251I	24000	1-1/4	3,25	1,38	8,25	4,69	5,75	3,00	1,25	2,03	6,51

Material
Forged alloy steel, black oxide coated.

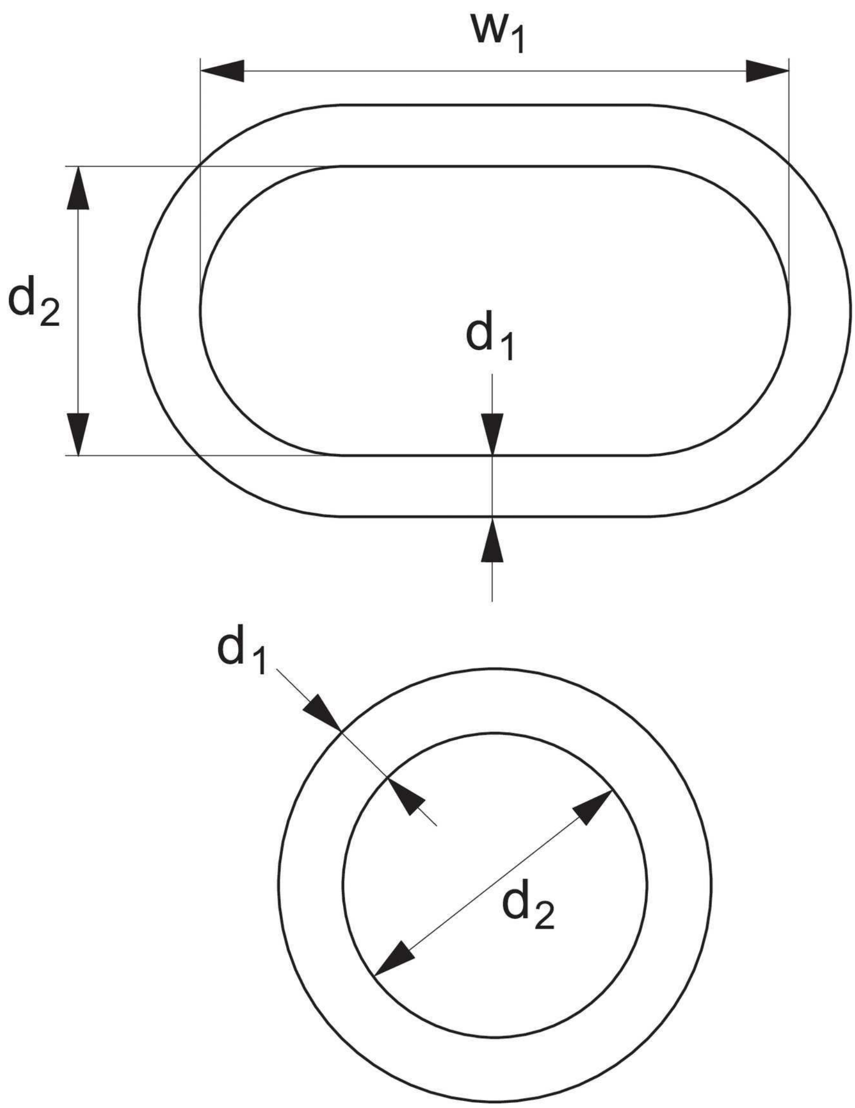
Technical Notes
Supplied with thin head bolt, nut and cotter pin.

Tips
Min. design safety factor 6:1.

Important Notes
All dimensions in imperial.

Chain Ring - Weld

63760

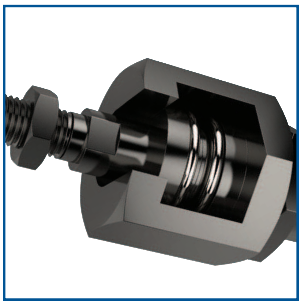


Material
Forged alloy steel, black oxide coated.

Tips
Min. design safety factor 6:1.

Important Notes
All dimensions in imperial.

Order No.	Working load lbs.	d_1	d_2	w_1	lbs.
63760.W0371I	3800	3/8	2,00	-	0,23
63760.W0631I	6100	5/8	3,00	-	1,00
63760.W1371I	30000	1-3/8	6,00	-	10,38
63760.W1501I	49000	1-1/2	5,25	10,5	15,70

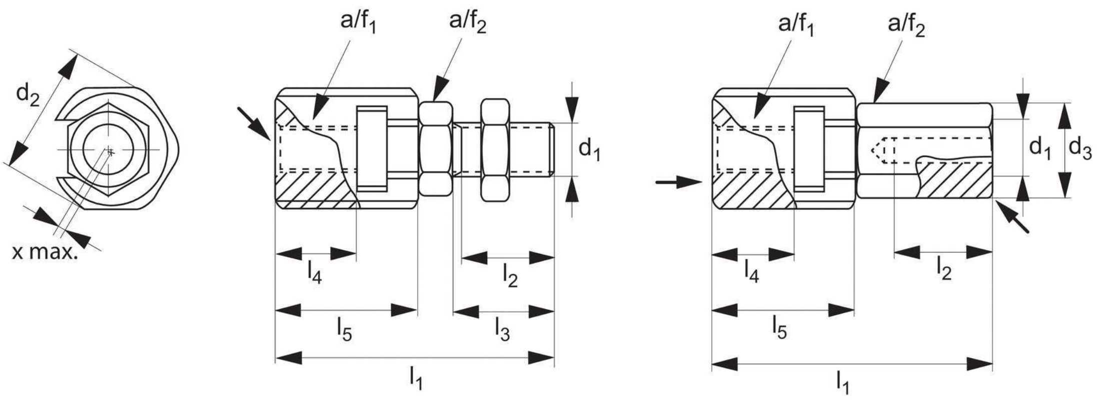


Quick Plug Couplings

Quick Plug Couplings

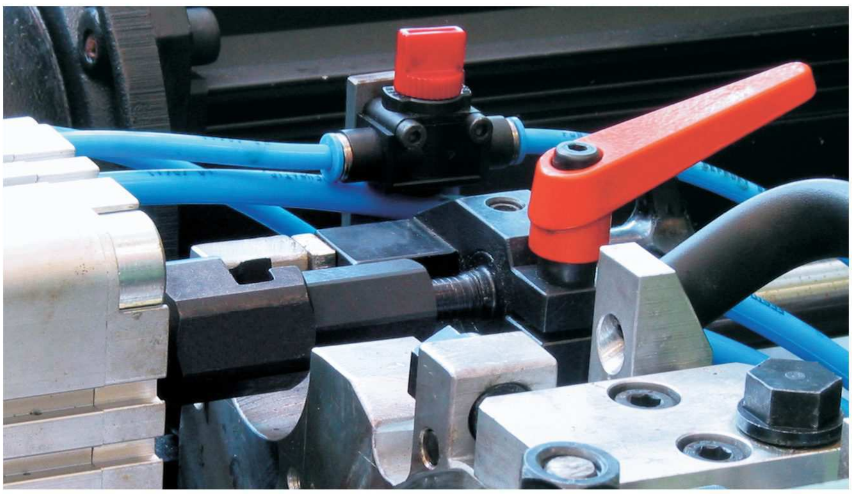
with radial offset compensation

64500



with coupling screw   with coupling nut

Order No.	Coupling Type	d_1	d_2	d_3	$l_1 \approx$	l_2 min.	l_3	l_4 min.	l_5	a/f_1	a/f_2	Axial offset x max.	Max. tensile & compression load max. kN	g
64500.W0006	Screw	M 6	21,0	-	37,5	11,0	14	9,0	18,0	19	10	0,6	2,5	44
64500.W0008	Screw	M 8	26,0	-	45,0	13,5	17	11,5	22,5	24	13	0,7	4,5	86
64500.W0010	Screw	M10	30,0	-	56,2	16,0	20	16,0	29,0	27	17	0,7	6,5	147
64500.W0012	Screw	M12	32,5	-	66,7	21,0	25	17,0	34,0	30	19	0,8	10,0	208
64500.W0016	Screw	M16	39,0	-	83,0	25,0	30	23,0	42,0	36	24	1,0	18,0	383
64500.W0020	Screw	M20	44,0	-	93,5	29,0	35	23,5	45,5	41	30	1,0	30,0	571
64500.W0030	Screw	M10 x 1,25	30,0	-	56,2	16,0	20	16,0	29,0	27	17	0,7	6,5	147
64500.W0032	Screw	M12 x 1,25	32,5	-	66,7	21,0	25	17,0	34,0	30	19	0,8	10,0	207
64500.W0036	Screw	M16 x 1,50	39,0	-	83,0	25,0	30	23,0	42,0	36	24	1,0	18,0	384
64500.W0040	Screw	M20 x 1,50	44,0	-	93,5	29,0	35	23,5	45,5	41	30	1,0	30,0	576
64500.W0056	Nut	M 6	21,0	11,0	37,5	11,0	-	9,0	18,0	19	10	0,6	2,5	47
64500.W0058	Nut	M 8	26,0	14,4	45,0	13,5	-	11,5	22,5	24	13	0,7	4,0	91
64500.W0060	Nut	M10	30,0	19,0	56,2	15,0	-	16,0	29,0	27	17	0,7	6,5	160
64500.W0062	Nut	M12	32,5	21,2	66,7	17,5	-	17,0	34,0	30	19	0,8	10,0	223
64500.W0066	Nut	M16	39,0	27,0	83,0	22,0	-	23,0	42,0	36	24	1,0	18,0	401
64500.W0070	Nut	M20	44,0	34,0	93,5	25,0	-	23,5	45,5	41	30	1,0	30,0	606
64500.W0080	Nut	M10 x 1,25	30,0	19,0	56,2	15,0	-	16,0	29,0	27	17	0,7	6,5	159
64500.W0082	Nut	M12 x 1,25	32,5	21,2	66,7	17,5	-	17,0	34,0	30	19	0,8	10,0	221
64500.W0086	Nut	M16 x 1,50	39,0	27,0	83,0	22,0	-	23,0	42,0	36	24	1,0	18,0	400
64500.W0090	Nut	M20 x 1,50	44,0	34,0	93,5	25,0	-	23,5	45,5	41	30	1,0	30,0	601



Material

Body: steel, heat-treated, phosphated. Lock nut: steel, blackened (ISO 4035/8675).

Technical Notes

For quick coupling/uncoupling of components within a linear movement application, with the additional advantage of compensating for radial off-set between the components. In built adjustment feature of the quick plug coupling means manual adjustment of the coupled units is unnecessary. Coupling via means of a t-slot channel within the coupling nut.

Tips

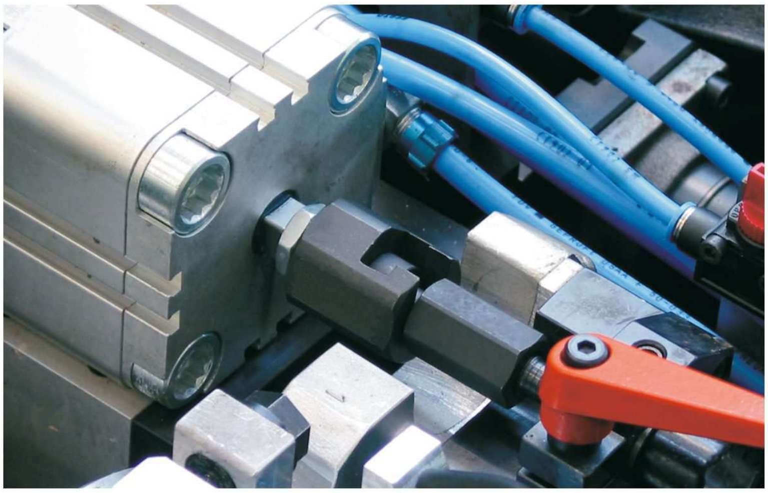
Can be linked to pneumatic and hydraulic lifting cylinders in many different applications.

Important note: suitable for linear movement applications, does not transmit any torque.

Quick Plug Couplings

with radial offset compensation

64500



Material

Body: steel, heat-treated, phosphated. Lock nut: steel, blackened (ISO 4035/8675).

Technical Notes

For quick coupling/uncoupling of components within a linear movement application, with the additional advantage of compensating for radial off-set between the components. In built adjustment feature of the quick plug coupling means manual adjustment of the coupled units is unnecessary. Coupling via means of a t-slot channel within the coupling nut.

Tips

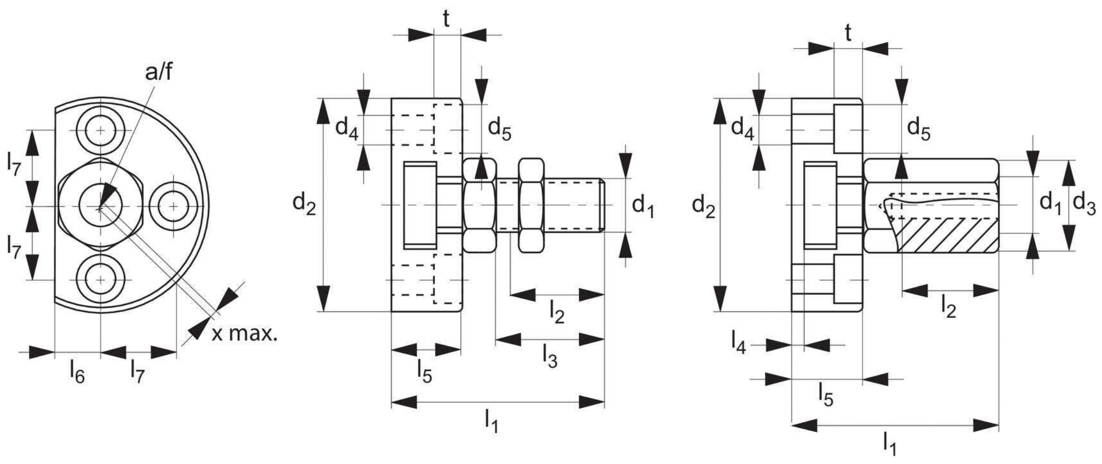
Can be linked to pneumatic and hydraulic lifting cylinders in many different applications.

Important note: suitable for linear movement applications, does not transmit any torque.

Quick Plug Couplings

with radial offset compensation and screwed flange

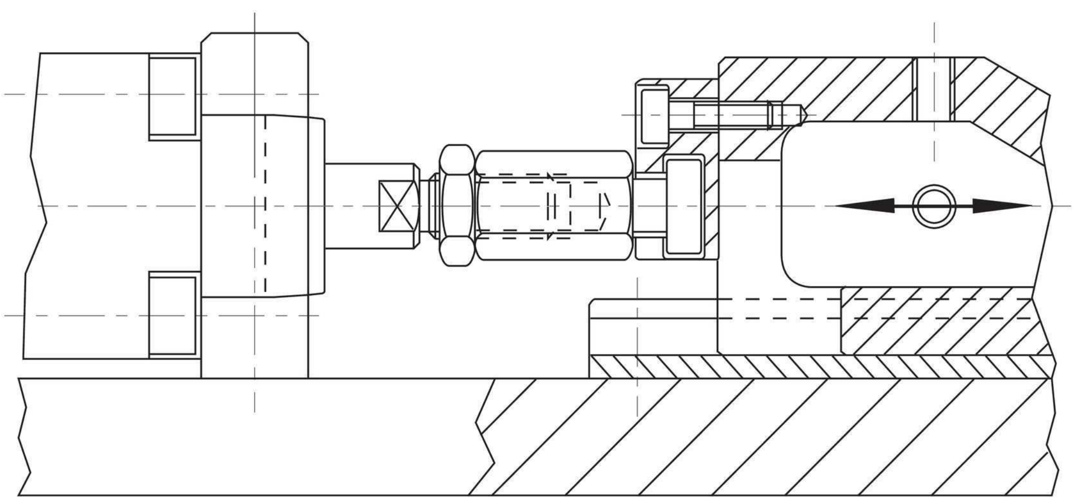
64600



with coupling screw

with coupling nut

Order No.	Coupling Type	d_1	d_2	d_3	d_4	d_5	$l_1 \approx$	l_2 min.	l_3	l_4	l_5	l_6	l_7	a/f	t	Axial offset x max.	g
64600.W0206	Screw	M 6	42	-	5,5	10	30,5	11,0	14	3,0	11,0	7,0	14,0	10	5,4	0,6	75
64600.W0208	Screw	M 8	48	-	6,6	11	35,5	13,5	17	3,0	13,0	8,0	16,0	13	6,4	0,7	116
64600.W0210	Screw	M10	50	-	6,6	11	43,2	16,0	20	4,2	16,0	9,0	17,0	17	6,4	0,7	175
64600.W0212	Screw	M12	55	-	6,6	11	53,2	21,0	25	4,2	20,5	10,0	19,0	19	6,4	0,8	281
64600.W0216	Screw	M16	65	-	9,0	15	64,0	25,0	30	5,0	23,0	12,5	22,5	24	8,5	1,0	458
64600.W0220	Screw	M20	80	-	11,0	18	74,0	29,0	35	5,0	26,0	17,0	28,0	30	10,4	1,0	817
64600.W0230	Screw	M10x1,25	50	-	6,6	11	43,2	16,0	20	4,2	16,0	9,0	17,0	17	6,4	0,7	176
64600.W0232	Screw	M12x1,25	55	-	6,6	11	53,2	21,0	25	4,2	20,5	10,0	19,0	19	6,4	0,8	280
64600.W0236	Screw	M16x1,50	65	-	9,0	15	64,0	25,0	30	5,0	23,0	12,5	22,5	24	8,5	1,0	454
64600.W0240	Screw	M20x1,50	80	-	11,0	18	74,0	29,0	35	5,0	26,0	17,0	28,0	30	10,0	1,0	850
64600.W0256	Nut	M 6	42	11,0	5,5	10	30,5	11,0	-	3,0	11,0	7,0	14,0	10	5,4	0,6	77
64600.W0258	Nut	M 8	48	14,4	6,6	11	35,5	13,5	-	3,0	13,0	8,0	16,0	13	6,4	0,7	123
64600.W0260	Nut	M10	50	19,0	6,6	11	43,2	15,0	-	4,2	16,0	9,0	17,0	17	6,4	0,7	187
64600.W0262	Nut	M12	55	21,2	6,6	11	53,2	17,5	-	4,2	20,5	10,0	19,0	19	6,4	0,8	295
64600.W0266	Nut	M16	65	27,0	9,0	15	64,0	22,0	-	5,0	23,0	12,5	22,5	24	8,5	1,0	472
64600.W0270	Nut	M20	80	34,0	11,0	18	74,0	25,0	-	5,0	26,0	17,0	28,0	30	10,0	1,0	849
64600.W0280	Nut	M10x1,25	50	19,0	6,6	11	43,2	15,0	-	4,2	16,0	9,0	17,0	17	6,4	0,7	187
64600.W0282	Nut	M12x1,25	55	21,2	6,6	11	53,2	17,5	-	4,2	20,5	10,0	19,0	19	6,4	0,8	298
64600.W0286	Nut	M16x1,50	65	27,0	9,0	15	64,0	22,0	-	5,0	23,0	12,5	22,5	24	8,5	1,0	477
64600.W0290	Nut	M20x1,50	80	34,0	11,0	18	74,0	25,0	-	5,0	26,0	17,0	28,0	30	10,0	1,0	852



Material

Body: steel, heat-treated, tempered, phosphated.
Lock nut: steel, blackened (ISO 4035/8675).

Technical Notes

For quick coupling/uncoupling of components within a linear movement application, with the additional advantage of compensating for radial off-set between the components. In built adjustment feature of the quick plug coupling means manual adjustment of the coupled units is unnecessary. Coupling via means of a t-slot channel within the coupling nut.
*kN max is the maximum tensile and compression load.

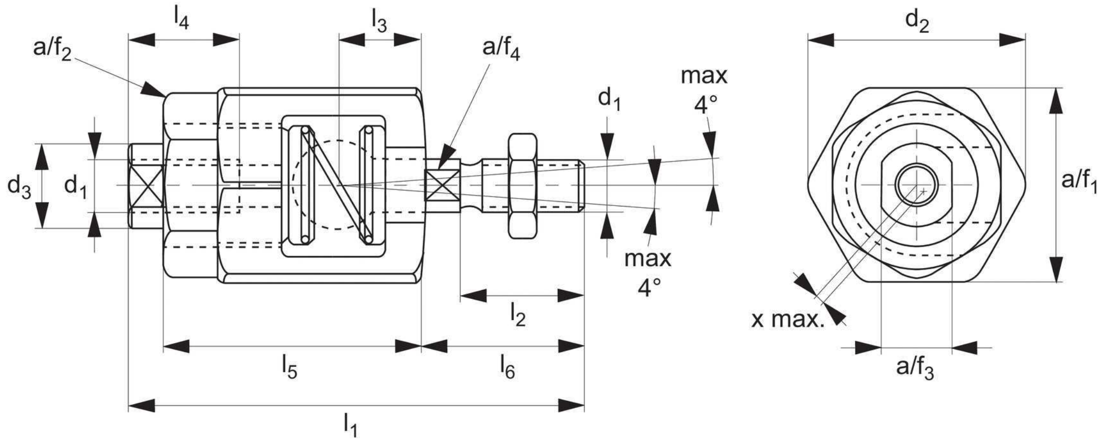
Tips

Ideal quick coupler where space is limited. Can be linked to pneumatic and hydraulic lifting cylinders in many different applications.
Important note: suitable for linear movement applications, does not transmit any torque.

Quick Plug Couplings

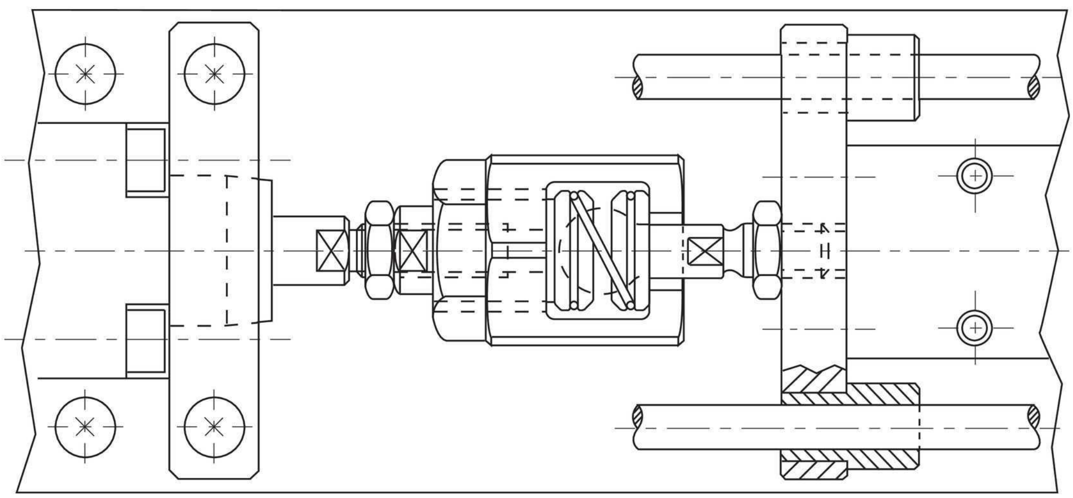
with angular radial offset compensation

64700



Order	d_1	d_2	d_3	$l_1 \approx$	l_2	l_3	g
64700.W0406	M 6	24,5	9,6	52	14	9,5	75
64700.W0408	M 8	30,0	15,0	63	18	11,5	137
64700.W0410	M10	44,0	21,0	81	22	16,0	401
64700.W0412	M12	44,0	21,0	85	26	16,0	405
64700.W0416	M16	60,0	32,0	121	34	26,0	1127
64700.W0420	M20	60,0	32,0	129	42	26,0	1152
64700.W0430	M10x1,25	44,0	21,0	81	22	16,0	403
64700.W0432	M12x1,25	44,0	21,0	85	26	16,0	406
64700.W0436	M16x1,50	60,0	32,0	121	34	26,0	1128
64700.W0440	M20x1,50	60,0	32,0	129	42	26,0	1155

Order	l_4 min.	l_5	l_6	a/f_1	a/f_2	a/f_3	a/f_4	Radial offset comp-ensation max.
64700.W0406	13	29	18,5	22	19	8	5	0,6
64700.W0408	16	33	23,5	27	24	13	7	0,6
64700.W0410	24	43	30,5	41	36	18	12	0,7
64700.W0412	24	43	34,5	41	36	18	12	0,7
64700.W0416	34	62	45,0	55	46	27	18	1,0
64700.W0420	34	62	53,0	55	46	27	18	1,0
64700.W0430	24	43	30,5	41	36	18	12	0,7
64700.W0432	24	43	34,5	41	36	18	12	0,7
64700.W0436	34	62	45,0	55	46	27	18	1,0
64700.W0440	34	62	53,0	55	46	27	18	1,0



Material

Body: steel, heat-treated, tempered, phosphated.
Nut: steel, heat-treated, phosphated.
Spring: stainless steel.
Coupling part: steel, heat-treated, nitrided, blackened.
Lock nut: steel, blackened (ISO 4035/8675).

Technical Notes

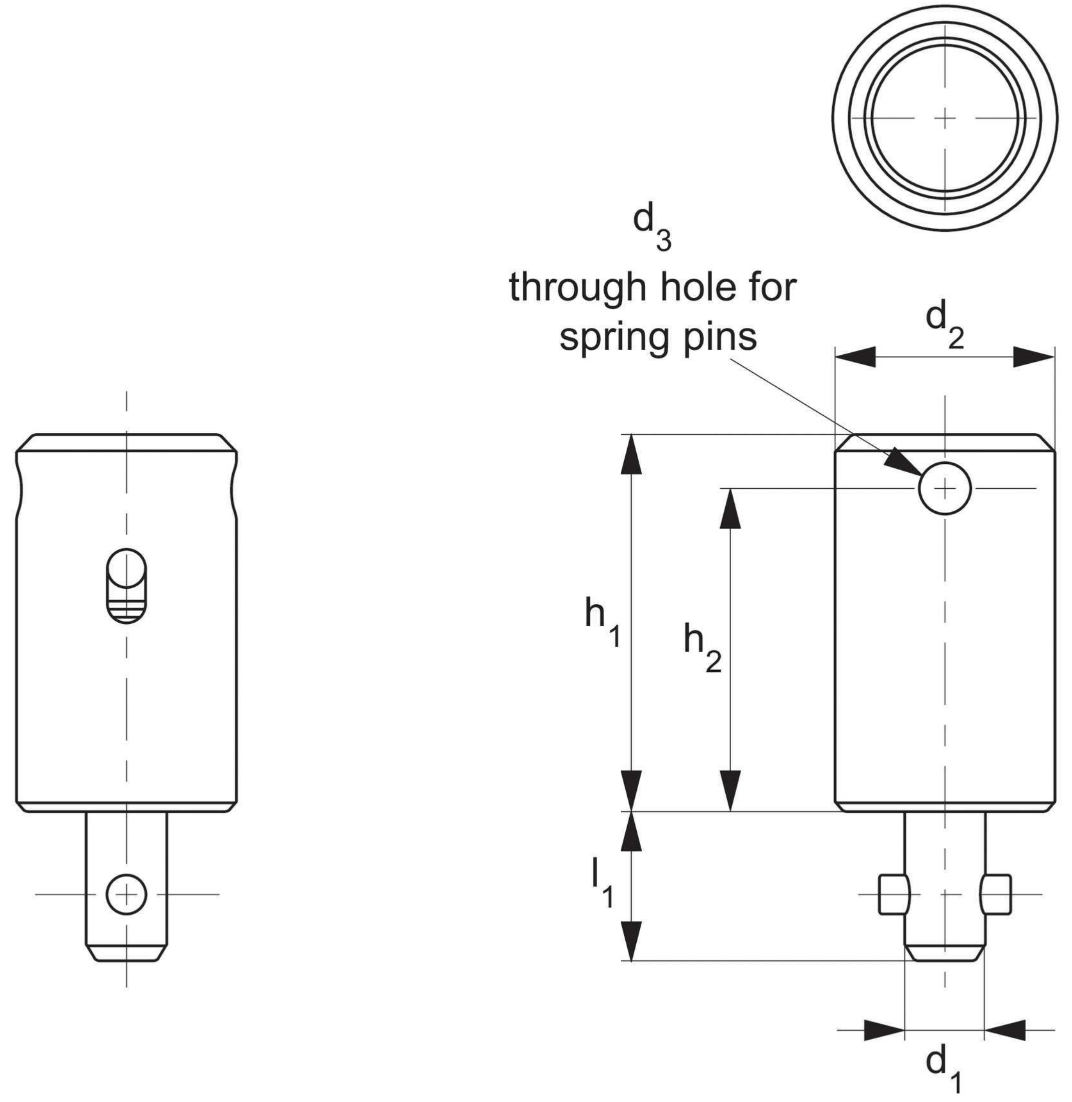
Compensates for both radial off-set and angular off-set between the components, making it ideal for applications with non-aligned linear components. Inbuilt adjustment feature of the quick plug coupling means manual adjustment of the coupled units is unnecessary. Coupling via means of a t-slot channel within the coupling nut.

Tips

Solid and compact design, no loose elements. Can be linked to pneumatic and hydraulic lifting cylinders in many different applications.
Important note: suitable for linear movement applications, does not transmit any torque.

Quick Plug Coupling - Cam Locking

64775



Order No.	d_1 -0,04 - 0,08	d_2 -0,04 - 0,08	d_3	h_1	h_2	l_1	Max. clamping force (N)	Shear strength N	Tensile strength N	g
64775.W0514	5	14	3	23,5	20	9,5	30	1800	1200	25

Material
Body: steel S45C, nickel plated.
Pin and Spring: stainless steel, SUS304

Technical Notes
For quick coupling/uncoupling of components within a linear movement application. Coupling via means of a 90°C turn of coupling into the cam locking receiver.
Please order receivers separately, see part nos. 64780 and 64782.
Temperature resistant to 200 °C

Tips
Can be linked to pneumatic and hydraulic lifting cylinders in many different applications.

Important Notes
Suitable only for linear movement applications, does not transmit any torque.

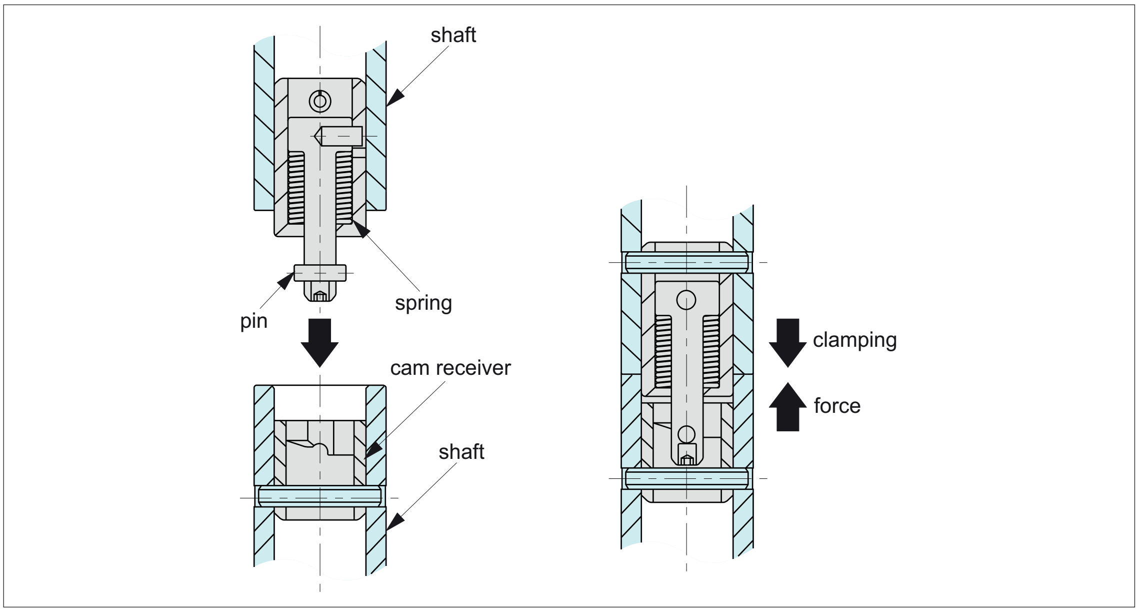
Actuation:
- Following installation dimensions for both coupling and receiver in introductory pages.
- Once coupling and receiver are correctly installed, align male coupling to female receiver, paying attention to correctly alight pins on the coupling's shaft to holes in receiver.
- Engage coupling and receiver, to lock turn shaft or block 90 degrees to clamp.
- When properly locked an audible "click" is heard.
- When properly installed, repeatability of upto +/- 0.08mm is achievable.
- To release, reverse steps described above.

Quick Plug Coupling - Cam Locking

overview

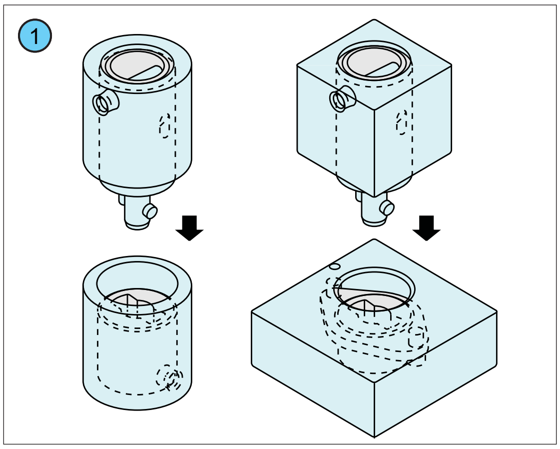
Operating Principle

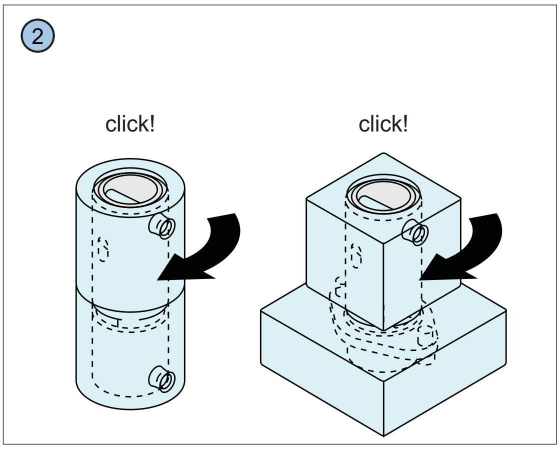
When the male quick plug coupling is fully inserted into the receiver and actuated, the internal spring is compressed to clamp the shaft.



Operating Instructions

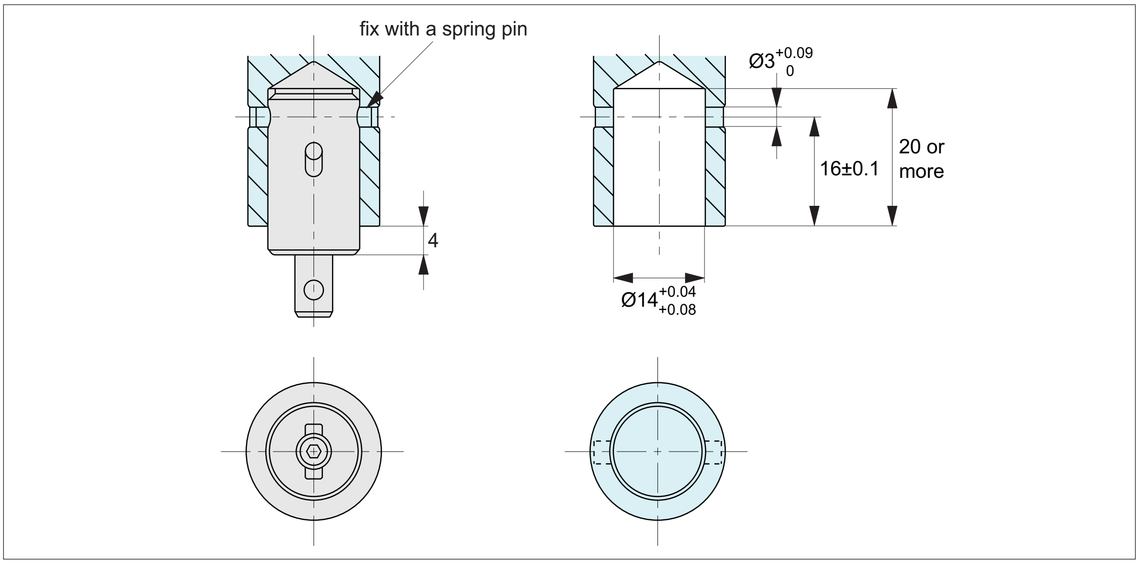
1. Insert the shaft into the keyway of cam receiver.
2. Rotate the shaft block 90° to clamp the element. An audible click can be heard when clamped. For unclamping, reverse these steps.



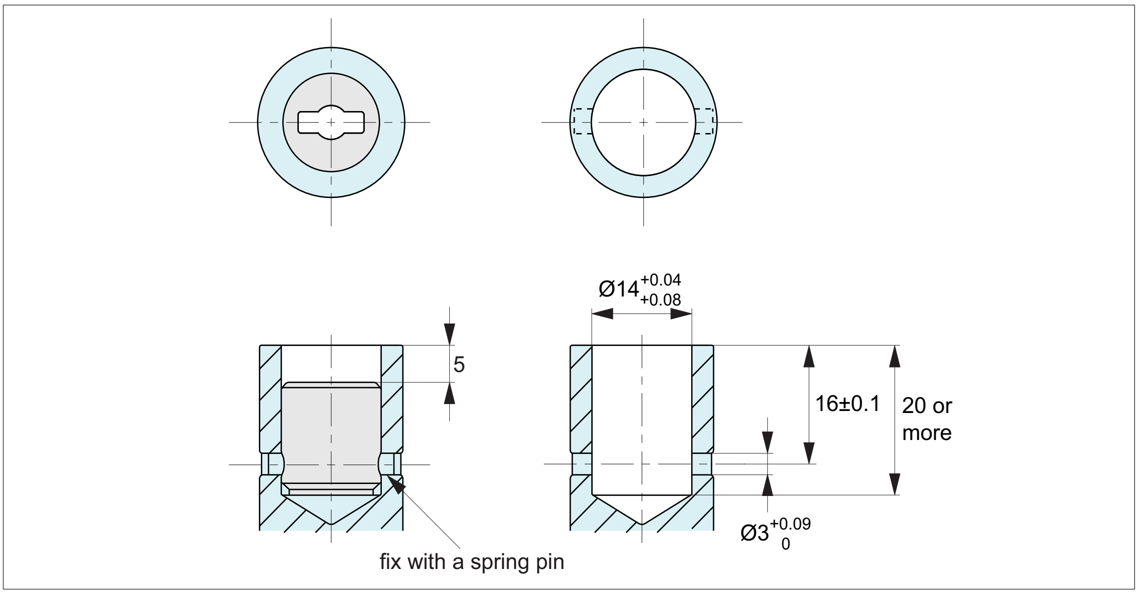


Operating Dimensions

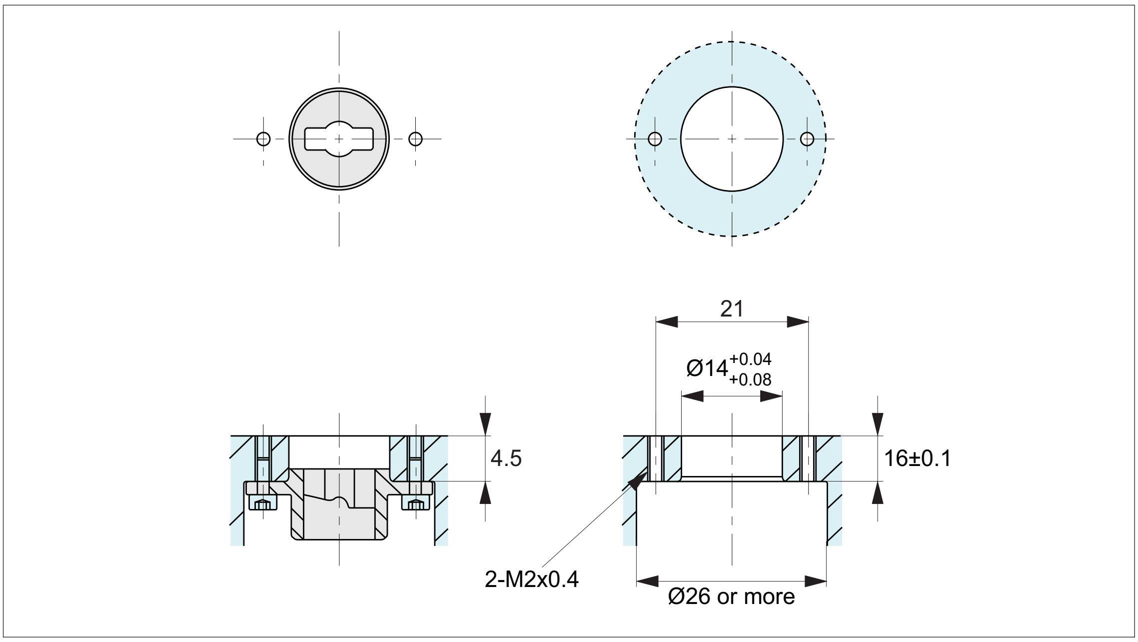
How to mount shaft coupling clamp



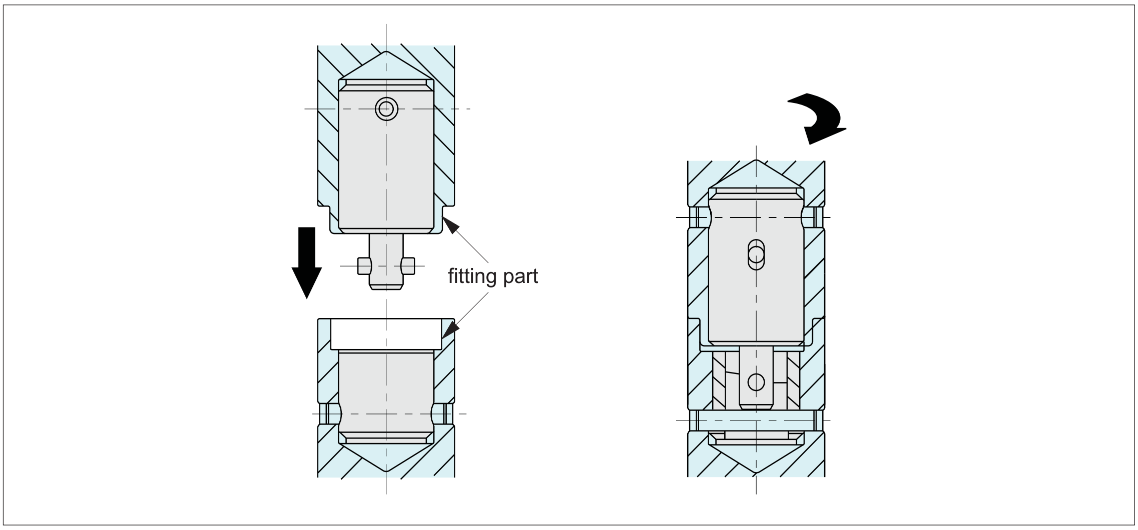
How to mount receiver (shaft mount)



How to mount receiver (plate mount)



Repeatability



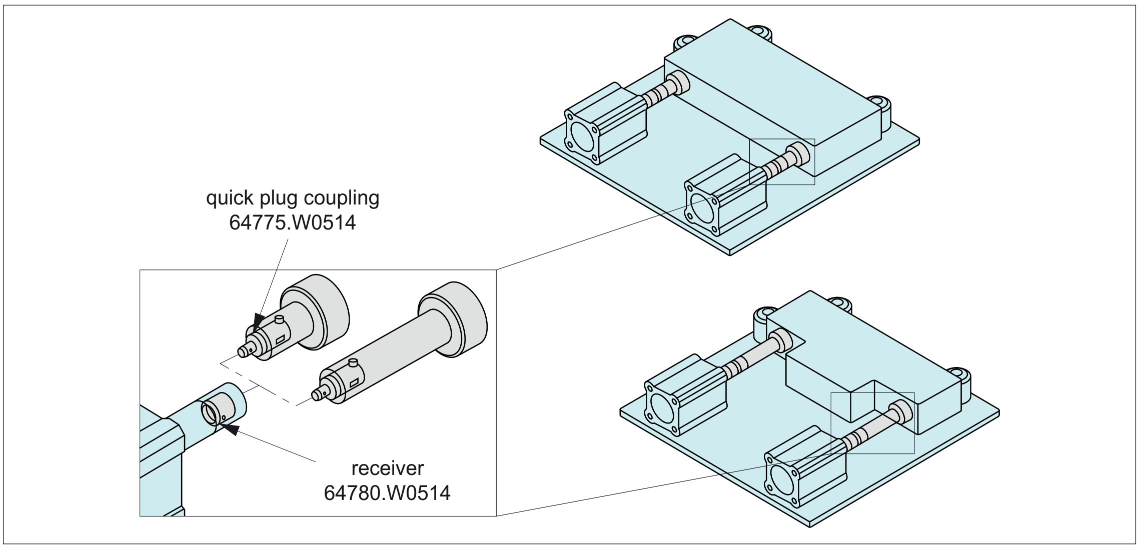
Prepare male and female fittings for highly accurate locating. Repeatability of ±0.08 is achievable.

Quick Plug Coupling - Cam Locking

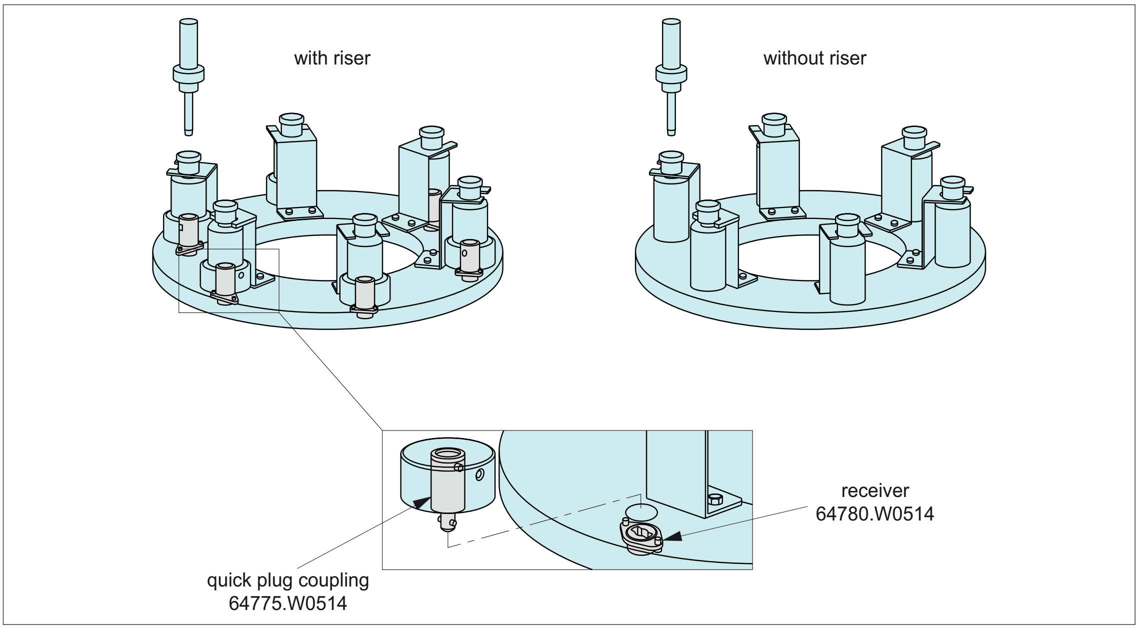
overview

Applications

Changes of thrust pads

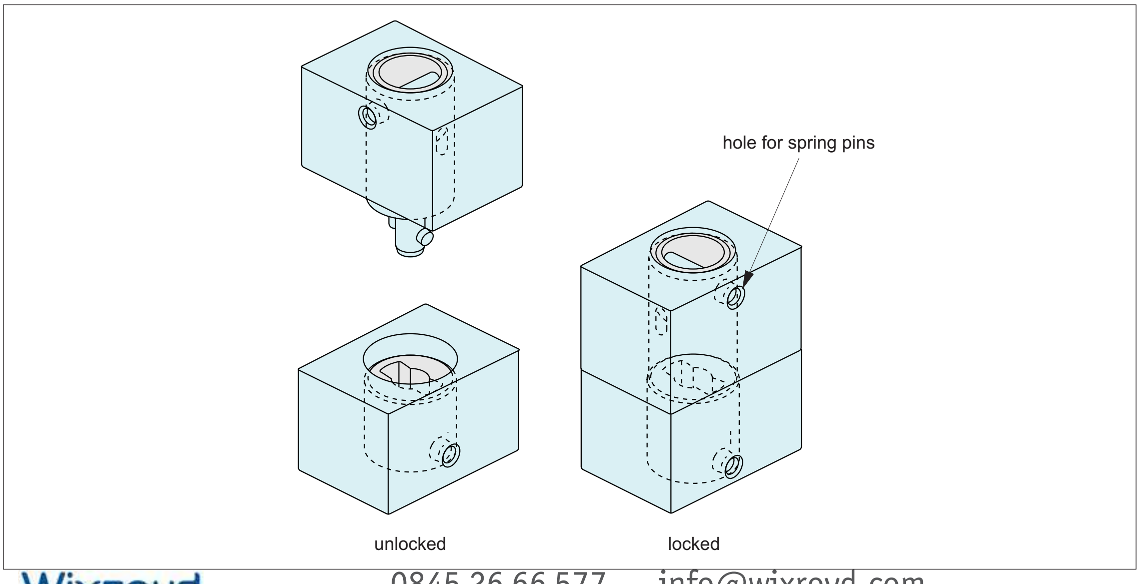


Changes of riser



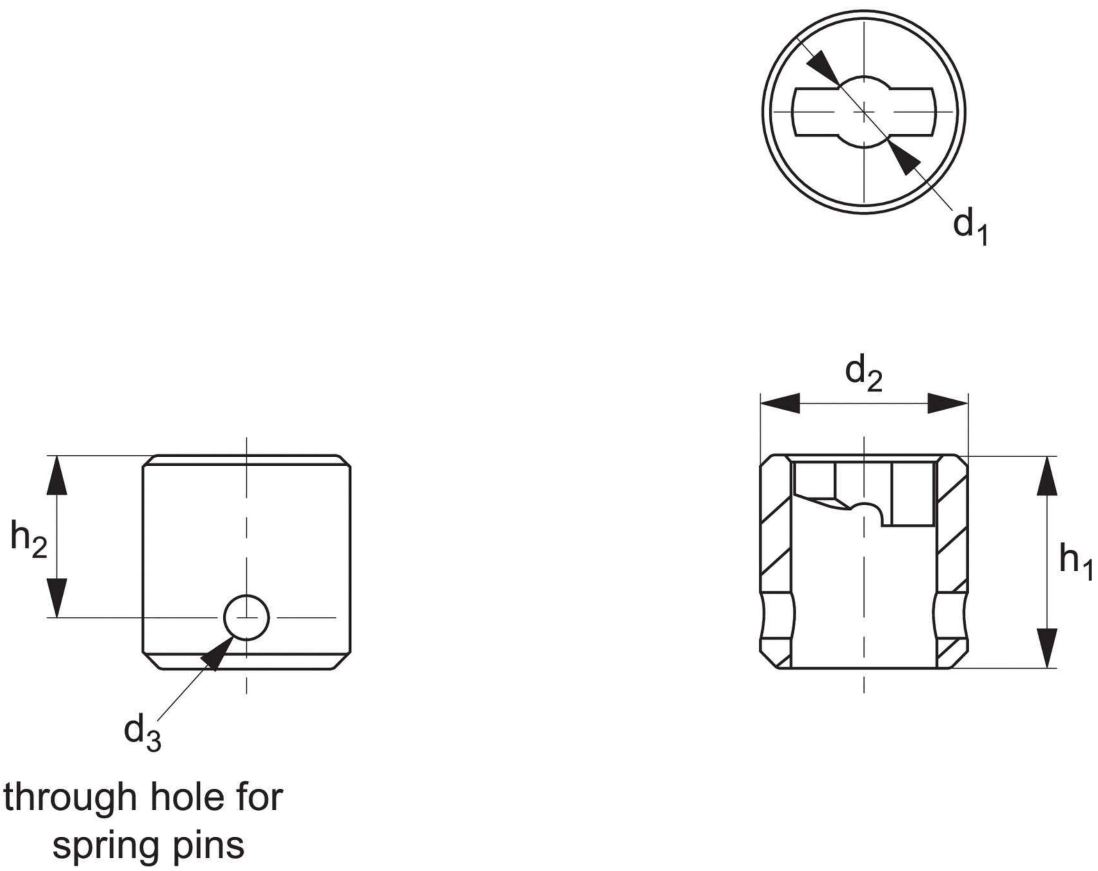
Notes

Pay attention to the direction of holes for spring pins.



Receiver - Shaft Mount - Cam Locking

for Quick Plug Coupling no. 64775



Material
Body: tempered steel SCM440, nickel plated.

Technical Notes
Receiver for use with quick plug coupling, cam locking no. 64775.
Shaft mount version suited to installation on shafts; such as the end of pneumatic or hydraulic cylinders.
Temperature resistant to 200° C

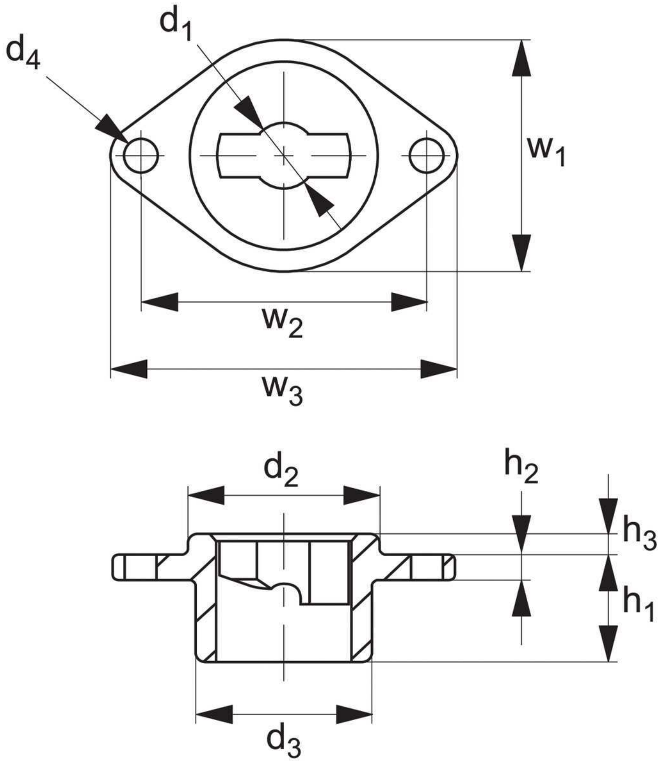
Important Notes
Suitable only for linear movement applications, does not transmit any torque.

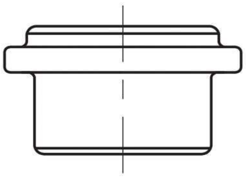
Order No.	d_1 +0,08 +0,04	d_2 h9	d_3	h_1	h_2	g
64780.W0514	5	14	3	14,5	11	10

Receiver - Plate Mount - Cam Locking

for Quick Plug Coupling no. 64775

64782





Material

Body: tempered steel SCM440, nickel plated.

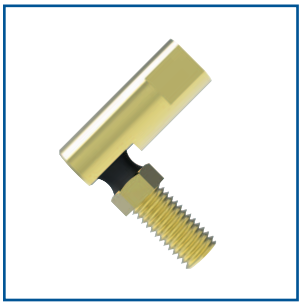
Technical Notes

Receiver for use with quick plug coupling, cam locking no. 64775. Plate mount version suited to installation in thin walled parts, and sub-flush to the mounting surface. Temperature resistant to 200° C

Suitable only for linear movement applications, does not transmit any torque.

Order No.	d_1 +0,08 +0,04	d_2 h9	d_3	d_4	h_1	h_2	h_3	w_1	w_2	w_3	g
64782.W0514	5	14	13	2,4	8	2	1,5	17	21	25	8

Wixroyd

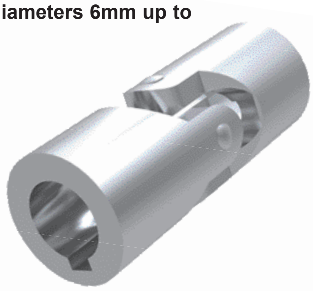


Ball & Socket Joints

Parts overview

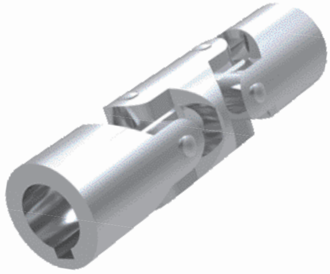
Single Universal Joints

Available with plain bearings or needle roller bearings. Plain bore and keyed bores stocked as standard, hex or square shaped bores on request. Bore diameters 6mm up to 50mm.



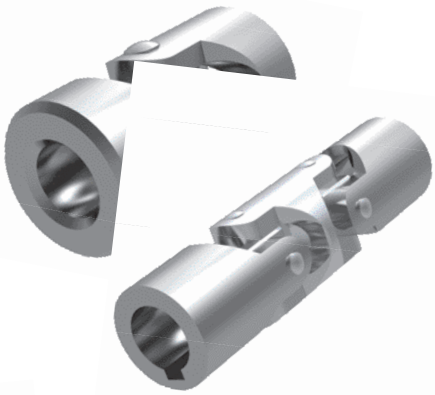
Double Universal Joints

Available with plain bearings or needle roller bearings. Plain bore and keyed bores stocked as standard, hex or square shaped bores on request. Bore diameters 6mm up to 50mm.



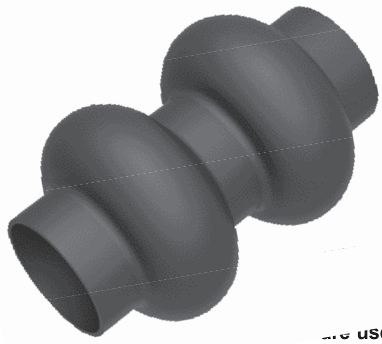
Stainless Steel Universal Joints

Single and double universal joints with plain bearings and plain bores. Keyed, hex or square shaped bores available on request. Bore diameters 6mm up to 30mm.



Quick Release Universal Joints

Quick change mechanism one end of the joint to allow rapid connection and release of the shaft, ideal when time is critical. Bore diameters 8mm up to 30mm.



'oint Bellows

both single and rsal joints, bellows ..e used to cover and protect the joints. Available to protect joints up to 58mm outside diameter.

Telescopic Universal Joints

Two universal joints connected by a sliding splined shaft with the ability to extend, allowing adjustments in length during installation. Bore diameters 10mm up to 30mm.

ov-65142-65282-a - Updated - 20-12-2016

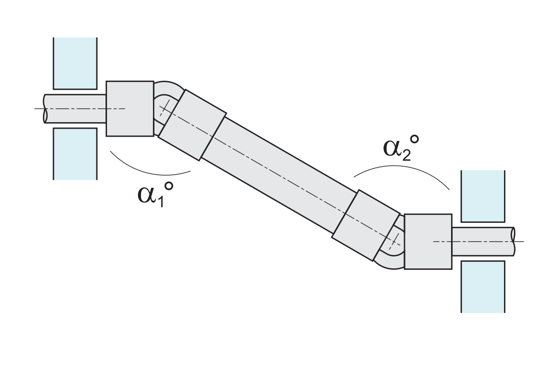
When one single joint is coupled with two shafts (of which the driving one is rotating at a constant speed) forming an angle, a periodic variation of the driven shaft is caused with exactly four fluctuations per revolution.

The difference between the maximum and the minimum speed of the driven shaft depends on the angle formed by the two shafts. The difference grows with the an increase of the angle a°. To have a homokinetic transmission, either two opposite single joints (ensuing that that the two central yokes lie on the same plane and the angles are equal) or a double joint need to be fitted. The irregularity caused by the former articulation is cancelled by the latter. The overall length resulting from the coupling of the two single joints can be reduced by using a double joint. In other words, the double joint is to be considered as the shortest homokinetic transmission.

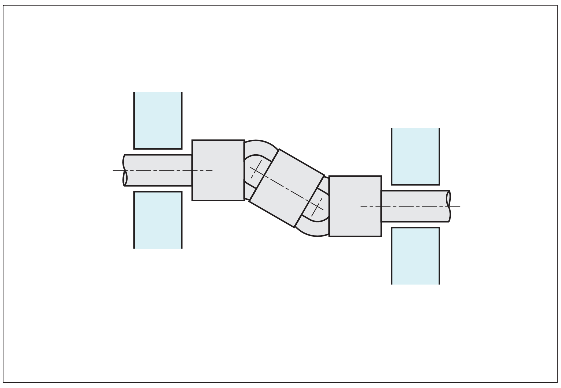
For low speed applications (Max. 1000 rpm), joints with plain bearings (rubbing bearings) are suggested. They are able to support shock loads, motion reversals, irregular runnings and relatively high torques. The working angles must be be restricted when using at speeds between 500 - 1000 rpm. Please consult our technical department if you have such an application.

For high rotation speeds, relatively low torques or wide angles, joints with needle roller bearings are preferred. They can reach 4000 RPM dependent on the angle.

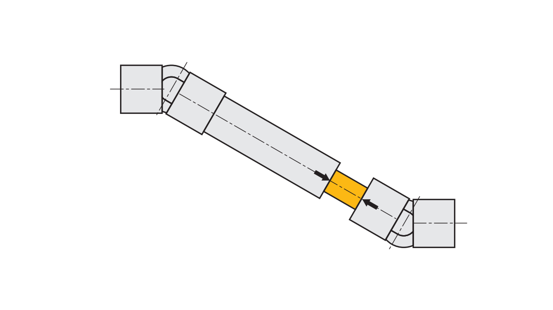
Dynamic basic load ratings of plain bearing rod ends



To obtain a uniform rotary motion always use either two opposite single joints or one double joints. $\alpha_1 = \alpha_2$.

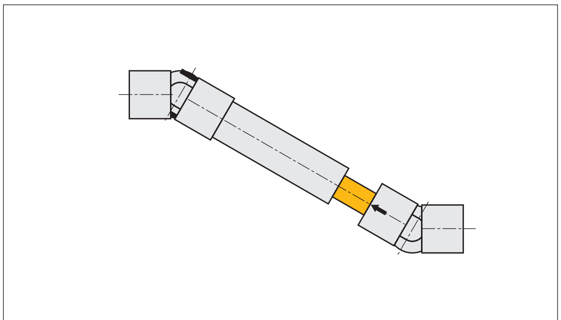


The pillow block supports should be positioned as close as possible to the joints.



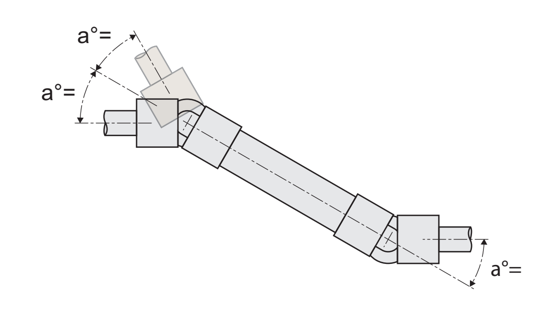
correct 3

When using two opposite single joints ensure the alignment of the inside yokes.

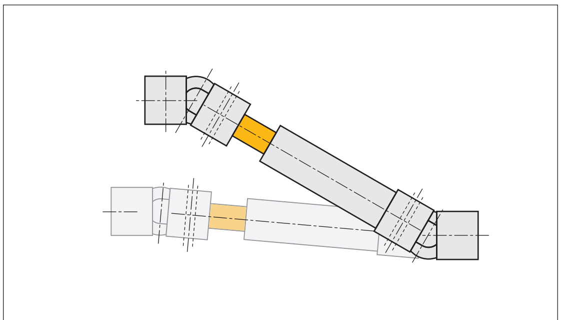


incorrect 8

In extensible transmissions make sure that the arrows are perfectly aligned.



correct 3



correct 3

It is essential that the two bending angles a° are equal.

How to read diagrams

The joint capacity to transmit a regular torque at a constant load with no shocks, for a long period, mainly depends on the number of revolutions per minute and the inclination angle a° of the two axes. The diagrams on the following pages are based on this. Each curve corresponds to the joint size (outside diameter "D") and represents the torque that the joint can transmit depending on speed and working angle a°.

The diagrams can be directly read if angle (a°) is 10°. For wider angles, torques are reduced, therefore these are to be corrected using the correction vales (F) relating to the angle shown in the table.

Important Note: Diagrams' values are merely indicative and refer to the single joints only. When choosing a double joint, you have to consider that they can transmit a torque about 10% lower than the same sized single joints. Each application has its own particular motion characteristics, such as: shock loads, motion reversals, connected masses, kind of starting, presence of elastic joints, stops and starts, etc., that have to be considered when choosing the joint.

Working angle a°	Correction value F
5°	1,25
10°	1,00
15°	0,80
20°	0,65
25°	0,55
30°	0,45
35°	0,38
40°	0,30
45°	0,25

Example

Known: Power = 0,65 kW
RPM = 230

With working angle a 10°, F = 1, we get point P. Torque = 27 Nm corresponding to joint size "D" = 25/26mm = Types **65170.W0016** and **65172.W0012**

With working angle a 30°, F = 0,45 (kW 0,65: 0,45 = 1,44 kW) we get point P1 Torque = 60 Nm corresponding to joint size "D" = 32mm = Types **65170.W0020** and **65172.W0016**

Consider that:

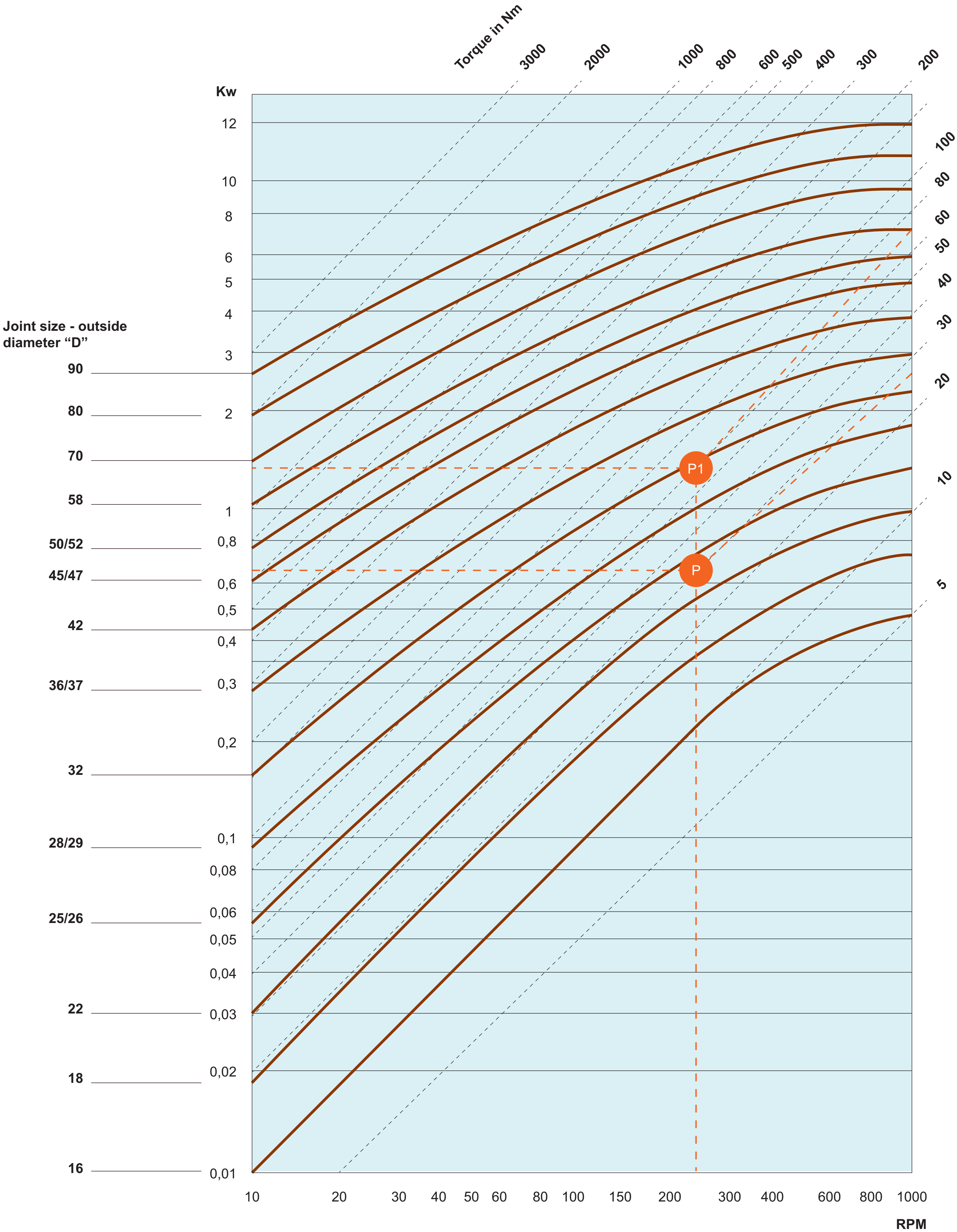
$$\text{Torque in Nm} = 9550 \times \frac{\text{Power (kW)}}{\text{RPM}}$$

$$\text{Torque in Nm} = 7020 \times \frac{\text{Power (HP)}}{\text{RPM}}$$

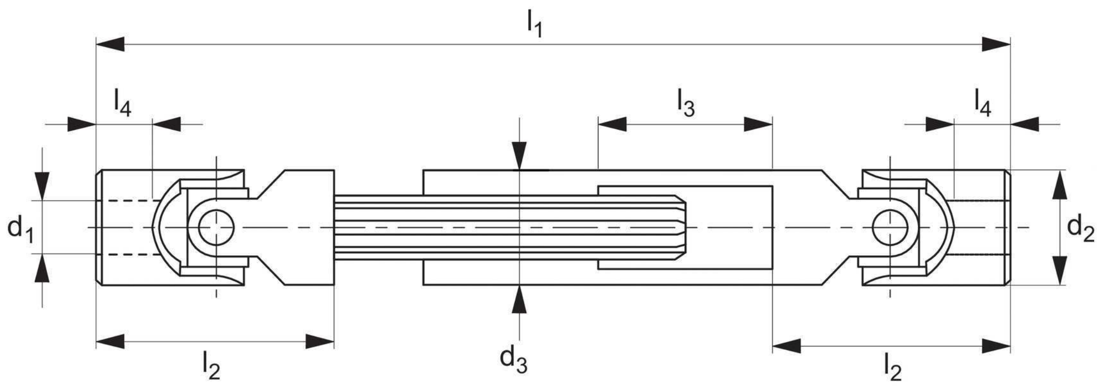
1 kW = 1,35 HP
1 HP = 0,736 kW
1 Kgm = 9,81 Nm
1 Nm = 0,102 Kgm

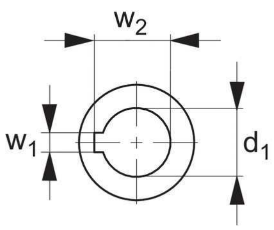
ov-65142-65282-c - Updated - 20-12-2016

Torque Ratings for Plain Bearing Universal Joints



ov-65142-65282-d - Updated - 20-12-2016





Material
Free cutting steel (9SMnPb28k, no. 10718, greased).
Bearing type: plain bearing.

Technical Notes
To DIN 808. Keyway both ends. Maximum bending angle 45° per joint. The drive speed of universal joints with journal bearings must not exceed 1000 rpm.

Tips
Double universal joints are used where large bending angles are required or where two shafts offset in relation to each other.
Zinc plated available on request.

Important Notes
This product is not designed for use as a part operating within cars or other vehicles.

Larger sizes on next page

Order No.	d_1 H7	d_2	l_1 min.	l_1 max.	l_2	l_3 stroke	l_4	w_1 JS9	w_2	shaft	d_3	g
65142.W2100	10	22	140	170	48	30	12	3	11,4	11x14x6	22	310
65142.W2101	10	22	160	200	48	40	12	3	11,4	11x14x6	22	360
65142.W2102	10	22	180	240	48	60	12	3	11,4	11x14x6	22	380
65142.W2103	10	22	230	330	48	100	12	3	11,4	11x14x6	22	500
65142.W2120	12	25	160	190	56	30	13	4	13,8	13x16x6	26	500
65142.W2121	12	25	180	225	56	45	13	4	13,8	13x16x6	26	560
65142.W2122	12	25	200	270	56	70	13	4	13,8	13x16x6	26	620
65142.W2123	12	25	220	300	56	80	13	4	13,8	13x16x6	26	670
65142.W2124	12	25	250	355	56	105	13	4	13,8	13x16x6	26	760
65142.W2125	12	25	280	420	56	140	13	4	13,8	13x16x6	26	840
65142.W2126	12	25	300	450	56	150	13	4	13,8	13x16x6	26	900
65142.W2140	14	28	170	200	60	30	14	5	16,3	13x16x6	29	620
65142.W2141	14	28	180	220	60	40	14	5	16,3	13x16x6	29	640
65142.W2142	14	28	200	260	60	60	14	5	16,3	13x16x6	29	720
65142.W2143	14	28	220	300	60	80	14	5	16,3	13x16x6	29	780
65142.W2144	14	28	250	350	60	100	14	5	16,3	13x16x6	29	870
65142.W2145	14	28	280	420	60	140	14	5	16,3	13x16x6	29	960
65142.W2146	14	28	300	450	60	150	14	5	16,3	13x16x6	29	1030
65142.W2147	14	28	350	550	60	200	14	5	16,3	13x16x6	29	1170
65142.W2148	14	28	400	650	60	250	14	5	16,3	13x16x6	29	1330
65142.W2160	16	32	190	220	68	30	16	5	18,3	16x20x6	32	900
65142.W2161	16	32	210	250	68	40	16	5	18,3	16x20x6	32	980
65142.W2162	16	32	240	320	68	80	16	5	18,3	16x20x6	32	1100
65142.W2163	16	32	250	350	68	100	16	5	18,3	16x20x6	32	1140
65142.W2164	16	32	275	390	68	115	16	5	18,3	16x20x6	32	1240
65142.W2165	16	32	300	430	68	130	16	5	18,3	16x20x6	32	1330
65142.W2166	16	32	380	590	68	210	16	5	18,3	16x20x6	32	1600
65142.W2167	16	32	400	630	68	230	16	5	18,3	16x20x6	32	1730
65142.W2180	18	36	230	280	74	50	17	6	20,8	18x22x6	37	1350
65142.W2181	18	36	250	320	74	70	17	6	20,8	18x22x6	37	1460
65142.W2182	18	36	270	370	74	100	17	6	20,8	18x22x6	37	1550
65142.W2183	18	36	290	400	74	110	17	6	20,8	18x22x6	37	1660
65142.W2184	18	36	300	415	74	115	17	6	20,8	18x22x6	37	1710
65142.W2185	18	36	400	620	74	220	17	6	20,8	18x22x6	37	2230
65142.W2186	18	36	500	820	74	320	17	6	20,8	18x22x6	37	2750
65142.W2184	18	36	300	415	74	115	17	6	20,8	18x22x6	37	1710
65142.W2185	18	36	400	620	74	220	17	6	20,8	18x22x6	37	2230
65142.W2186	18	36	500	820	74	320	17	6	20,8	18x22x6	37	2750
65142.W2200	20	42	250	300	82	50	18	6	22,8	21x25x6	42	1990
65142.W2201	20	42	270	340	82	70	18	6	22,8	21x25x6	42	2120
65142.W2202	20	42	290	380	82	90	18	6	22,8	21x25x6	42	2250
65142.W2203	20	42	320	440	82	120	18	6	22,8	21x25x6	42	2460
65142.W2204	20	42	380	560	82	180	18	6	22,8	21x25x6	42	2860
65142.W2205	20	42	420	640	82	220	18	6	22,8	21x25x6	42	3130

Telescopic Universal Joints

Order No.	d_1 H7	d_2	l_1 min.	l_1 max.	l_2	l_3 stroke	l_4	w_1 JS9	w_2	shaft	d_3	g
65142.W2206	20	42	500	800	82	300	18	6	22,8	21x25x6	42	3660
65142.W2220	22	45	250	280	95	30	22	6	24,8	23x28x6	47	2350
65142.W2221	22	45	270	320	95	50	22	6	24,8	23x28x6	47	2510
65142.W2222	22	45	290	350	95	60	22	6	24,8	23x28x6	47	2670
65142.W2223	22	45	330	430	95	100	22	6	24,8	23x28x6	47	3000
65142.W2224	22	45	350	470	95	120	22	6	24,8	23x28x6	47	3160
65142.W2225	22	45	470	710	95	240	22	6	24,8	23x28x6	47	4130
65142.W2250	25	50	295	345	108	50	26	8	28,3	26x32x6	52	3390
65142.W2251	25	50	310	375	108	65	26	8	28,3	26x32x6	52	3520
65142.W2252	25	50	350	450	108	100	26	8	28,3	26x32x6	52	3920
65142.W2253	25	50	380	500	108	120	26	8	28,3	26x32x6	52	4200
65142.W2254	25	50	420	590	108	170	26	8	28,3	26x32x6	52	4590
65142.W2255	25	50	460	660	108	200	26	8	28,3	26x32x6	52	4980
65142.W2256	25	50	500	745	108	245	26	8	28,3	26x32x6	52	5370
65142.W2300	30	58	330	380	122	50	29	8	33,3	32x38x8	58	4900
65142.W2301	30	58	350	420	122	70	29	8	33,3	32x38x8	58	5170
65142.W2302	30	58	370	455	122	85	29	8	33,3	32x38x8	58	5420
65142.W2303	30	58	400	510	122	110	29	8	33,3	32x38x8	58	5850
65142.W2304	30	58	450	620	122	170	29	8	33,3	32x38x8	58	6480
65142.W2305	30	58	500	720	122	220	29	8	33,3	32x38x8	58	7140
65142.W2306	30	58	540	795	122	255	29	8	33,3	32x38x8	58	7690

Material
Free cutting steel (9SMnPb28k, no. 10718, greased).
Bearing type: plain bearing.

Technical Notes
To DIN 808. Keyway both ends. Maximum bending angle 45° per joint. The drive speed of universal joints with journal bearings must not exceed 1000 rpm.

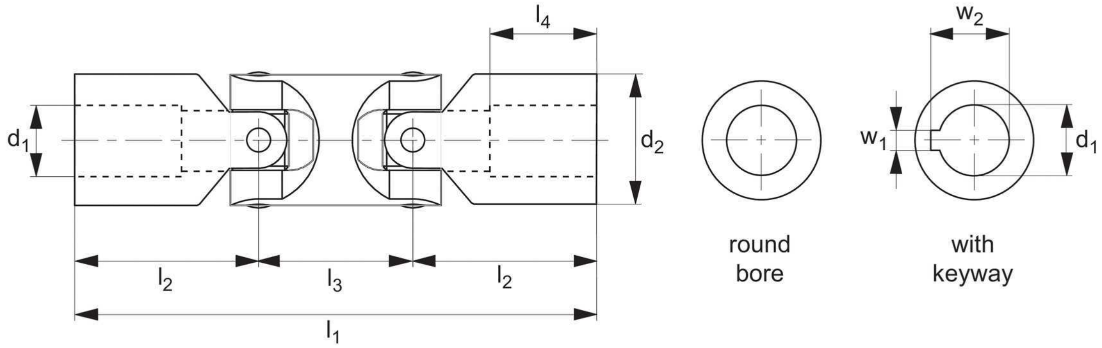
Tips
Double universal joints are used where large bending angles are required or where two shafts offset in relation to each other.
Zinc plated available on request.

Important Notes
This product is not designed for use as a part operating within cars or other vehicles.

Larger sizes on next page

Double Universal Joint

65160



Order No.	Bore	d_1 H7	d_2	l_1	l_2	l_3	l_4	w_1 JS9	w_2	g
65160.W0010	Round Bore	10	16	74	26	22	15	-	-	80
65160.W0012	Round Bore	12	22	88	31	26	18	-	-	200
65160.W0020	Round Bore	20	32	124	43	38	24	-	-	500
65160.W0025	Round Bore	25	42	156	54	48	31	-	-	1200
65160.W0030	Round Bore	30	50	188	66	56	38	-	-	1700
65160.W0040	Round Bore	40	70	238	83	72	47	-	-	4300
65160.W0016	Round Bore	16	25	104	37	30	21	-	-	300
65160.W0210	With keyway	10	16	74	26	22	15	3	11,4	80
65160.W0212	With keyway	12	22	88	31	26	18	4	13,8	200
65160.W0216	With keyway	16	25	104	37	30	21	5	18,3	300
65160.W0220	With keyway	20	32	124	43	38	24	6	22,8	500
65160.W0225	With keyway	25	42	156	54	48	31	8	28,3	1200
65160.W0230	With keyway	30	50	188	66	56	38	8	33,3	1700
65160.W0240	With keyway	40	70	238	83	72	47	12	43,3	4300

Material
Free cutting steel (9 SMnPb28k, no. 10718).
Bearing type: Plain bearing.

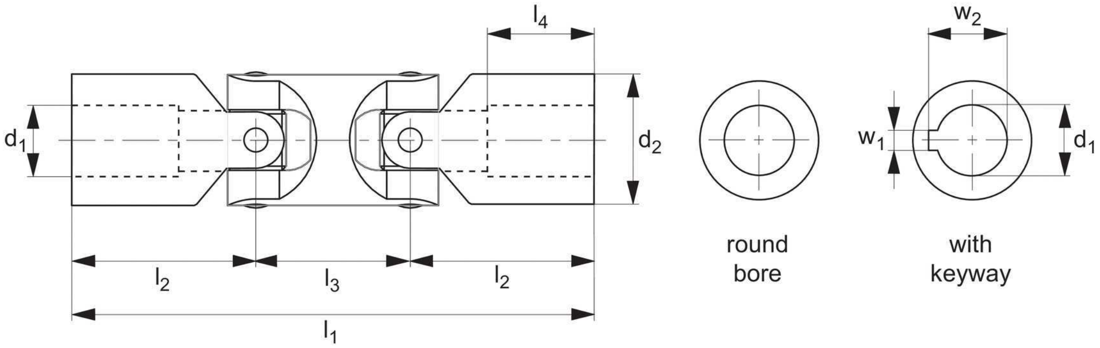
Technical Notes
To DIN 808/7551.
Maximum bending angle 45° per joint.
Max. drive speed of joints with journal bearings 1000 rpm.

Tips
Double universal joints are used where large bending angles are required or where two shafts offset in relation to each other.
Product variations available on request: needle bearings, square bores and hex bores. For stainless steel see 65166.

Important Notes
This product is not designed for use as a part operating within cars or other vehicles.

Double Universal Joint

65162



Order No.	Bore	d_1 H7	d_2	l_1	l_2	l_3	l_4	w_1 JS9	w_2	g
65162.W0006	Round Bore	6	16	56	17,0	22	8	-	-	80
65162.W0206	With Keyway	6	16	56	17,0	22	8	2	7	80
65162.W0008	Round Bore	8	16	62	20,0	22	11	-	-	80
65162.W0208	With Keyway	8	16	62	20,0	22	11	2	9	80
65162.W0010	Round Bore	10	22	74	24,0	26	12	-	-	150
65162.W0210	With Keyway	10	22	74	24,0	26	12	3	11,4	150
65162.W0012	Round Bore	12	25	86	28,0	30	13	-	-	250
65162.W0212	With Keyway	12	25	86	28,0	30	13	4	13,8	250
65162.W0014	Round Bore	14	28	96	30,0	36	14	-	-	400
65162.W0214	With Keyway	14	28	96	30,0	36	14	5	16,3	400
65162.W0016	Round Bore	16	32	104	34,0	36	16	-	-	450
65162.W0216	With Keyway	16	32	104	34,0	36	16	5	18,3	450
65162.W0018	Round Bore	18	36	114	37,0	40	17	-	-	700
65162.W0218	With Keyway	18	36	114	37,0	40	17	6	20,8	700
65162.W0020	Round Bore	20	42	128	41,0	46	18	-	-	1000
65162.W0220	With Keyway	20	42	128	41,0	46	18	6	22,8	1000
65162.W0022	Round Bore	22	45	145	47,5	50	22	-	-	1550
65162.W0222	With Keyway	22	45	145	47,5	50	22	6	24,8	1550
65162.W0025	Round Bore	25	50	163	54,0	55	26	-	-	2000
65162.W0225	With Keyway	25	50	163	54,0	55	26	8	28,3	2000
65162.W0030	Round Bore	30	58	190	61,0	68	29	-	-	2900
65162.W0230	With Keyway	30	58	190	61,0	68	29	8	33,3	2900
65162.W0032	Round Bore	32	58	198	65,0	68	33	-	-	3000
65162.W0232	With Keyway	32	58	198	65,0	68	33	10	35,3	3000
65162.W0035	Round Bore	35	70	212	70,0	72	35	-	-	4750
65162.W0235	With Keyway	35	70	212	70,0	72	35	10	38,3	4750
65162.W0040	Round Bore	40	80	245	80,0	85	39	-	-	7200
65162.W0240	With Keyway	40	80	245	80,0	85	39	12	43,3	7200
65162.W0050	Round Bore	50	95	290	95,0	100	46	-	-	12,000
65162.W0250	With Keyway	50	95	290	95,0	100	46	14	53,8	12,000

Material

Free cutting steel (9SMnPb28k, no. 10718).
Bearing type: Plain bearing.

Technical Notes

To DIN 808.
Maximum bending angle 45° per joint.
Max. drive speed of joints with journal bearings 1000 rpm.

Tips

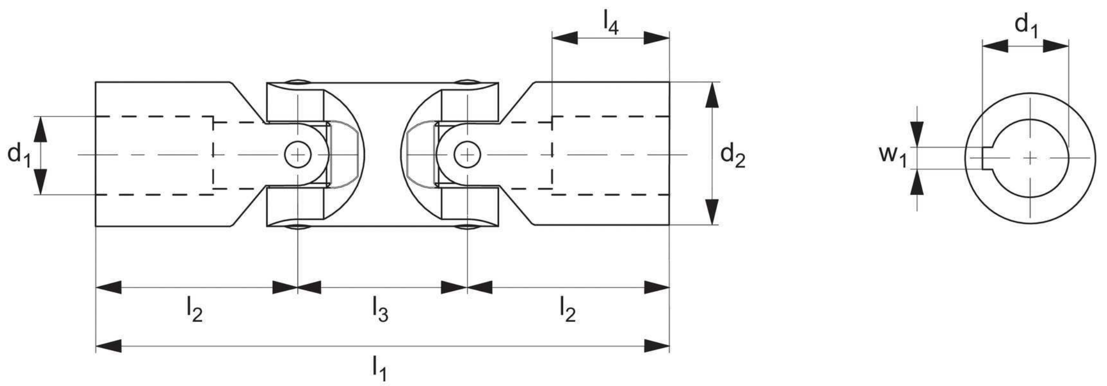
Double universal joints are used where large bending angles are required or where two shafts offset in relation to each other.
Product variations available on request: square bores and hex bores.
Similar to prt no. 65160 but with increased external diameters d_2 for corresponding internal bores.
For stainless steel see part number 65166.

Important Notes

This product is not designed for use as a part operating within cars or other vehicles.

Stainless Double Universal Joint

65166



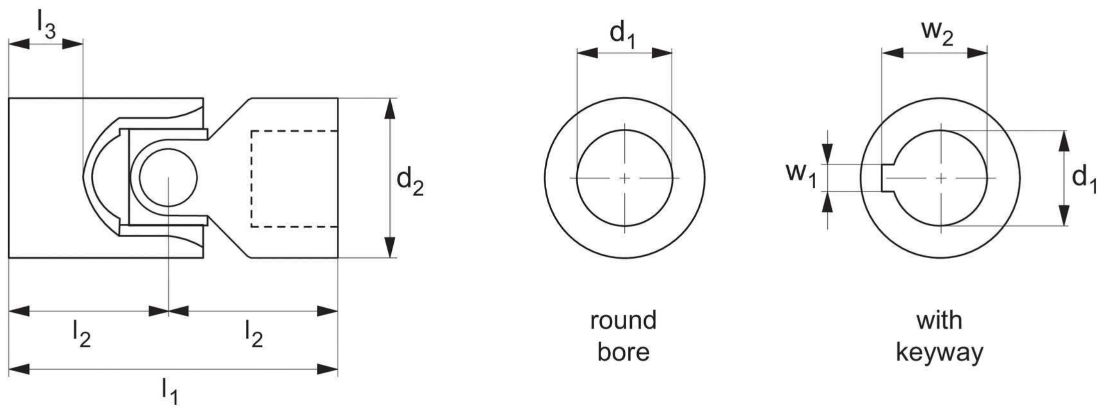
Material
Stainless steel (AISI 304).

Technical Notes
To DIN 808.
Maximum bending angle 45° per joint.

Tips
Product variations available on request: Keyways, square bores and hexshaped bores.

Important Notes
This product is not designed for use as a part operating within cars or other vehicles.

Order No.	Bore	$d_{1\ H7}$	d_2	l_1	l_2	l_3	l_4	w_1	w_2	g
65166.W0006	Round Bore	6	16	56	17	22	8	-	-	80
65166.W0008	Round Bore	8	16	62	20	22	11	-	-	80
65166.W0010	Round Bore	10	22	74	24	26	12	-	-	150
65166.W0012	Round Bore	12	25	86	28	30	13	-	-	250
65166.W0016	Round Bore	16	32	104	34	36	16	-	-	450
65166.W0020	Round Bore	20	42	128	41	46	18	-	-	1000
65166.W0025	Round Bore	25	50	163	54	55	26	-	-	2000
65166.W0030	Round Bore	30	58	190	61	68	29	-	-	2900
65166.W0206	Keyway	6	16	56	17	22	8	2	7,0	80
65166.W0208	Keyway	8	16	62	20	22	11	2	9,0	80
65166.W0210	Keyway	10	22	74	24	26	12	3	11,4	150
65166.W0212	Keyway	12	25	86	28	30	13	4	13,8	250
65166.W0216	Keyway	16	32	104	34	36	16	5	18,3	450
65166.W0220	Keyway	20	42	128	41	46	18	6	22,8	1000
65166.W0225	Keyway	25	50	163	54	55	26	8	28,3	2000
65166.W0230	Keyway	30	58	190	61	68	29	8	33,3	2900



Order No.	Bore	d_1 H7	d_2	l_1	l_2	l_3	w_1 JS9	w_2	g
65170.W0010	Round Bore	10	16	52	26	15	-	-	50
65170.W0210	With keyway	10	16	52	26	15	3	11,4	50
65170.W0012	Round Bore	12	22	62	31	18	-	-	120
65170.W0016	Round Bore	16	25	74	37	21	-	-	200
65170.W0020	Round Bore	20	32	86	43	24	-	-	350
65170.W0025	Round Bore	25	42	108	54	31	-	-	800
65170.W0030	Round Bore	30	50	132	66	38	-	-	1200
65170.W0040	Round Bore	40	70	166	83	47	-	-	2900
65170.W0212	With keyway	12	22	62	31	18	4	13,8	120
65170.W0216	With keyway	16	25	74	37	21	5	18,3	200
65170.W0220	With keyway	20	32	86	43	24	6	22,8	350
65170.W0225	With keyway	25	42	108	54	31	8	28,3	800
65170.W0230	With keyway	30	50	132	66	38	8	33,3	1200
65170.W0240	With keyway	40	70	166	83	47	12	43,3	2900

Material
Free cutting steel (9SMnPb28k, no. 10718).
Bearing type: plain bearing.

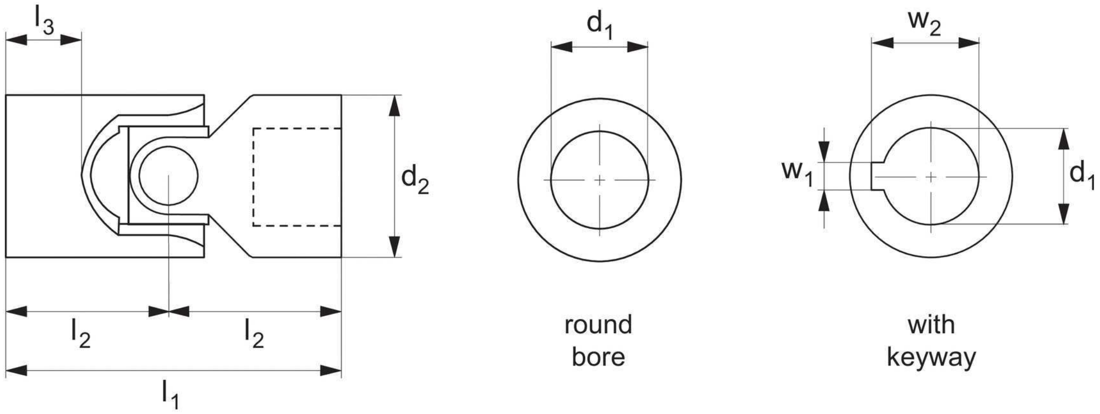
Technical Notes
To DIN 808/7551.
Maximum bending angle 45° per joint. Max. drive speed of joints with journal bearings 1000 rpm.

Tips
Single universal joints are used where shafts off-set towards each other. Product variations available on request: square bores and hex bores. For stainless steel see 65186.

Important Notes
This product is not designed for use as a part operating within cars or other vehicles.

Single Universal Joint

65172



Order No.	Bore	d_1 H7	d_2	l_1	l_2	l_3	w_1 JS9	w_2	g
65172.W0006	Round Bore	6	16	34	17	8	-	-	50
65172.W0206	With Keyway	6	16	34	17	8	2	7,0	50
65172.W0008	Round Bore	8	16	40	20	11	-	-	50
65172.W0208	With Keyway	8	16	40	20	11	2	9,0	50
65172.W0010	Round Bore	10	22	48	24	12	-	-	100
65172.W0210	With Keyway	10	22	48	24	12	3	11,4	100
65172.W0012	Round Bore	12	25	56	28	13	-	-	160
65172.W0212	With Keyway	12	25	56	28	13	4	13,8	160
65172.W0014	Round Bore	14	28	60	30	14	-	-	200
65172.W0214	With Keyway	14	28	60	30	14	5	16,3	200
65172.W0016	Round Bore	16	32	68	34	16	-	-	300
65172.W0216	With Keyway	16	32	68	34	16	5	18,3	300
65172.W0018	Round Bore	18	36	74	37	17	-	-	450
65172.W0218	With Keyway	18	36	74	37	17	6	20,8	450
65172.W0020	Round Bore	20	42	82	41	18	-	-	600
65172.W0220	With Keyway	20	42	82	41	18	6	22,8	600
65172.W0022	Round Bore	22	45	95	47,5	22	-	-	950
65172.W0222	With Keyway	22	45	95	47,5	22	6	24,8	950
65172.W0025	Round Bore	25	50	108	54	26	-	-	1200
65172.W0225	With Keyway	25	50	108	54	26	8	28,3	1200
65172.W0030	Round Bore	30	58	122	61	29	-	-	1850
65172.W0230	With Keyway	30	58	122	61	29	8	33,3	1850
65172.W0032	Round Bore	32	58	130	65	33	-	-	2000
65172.W0232	With Keyway	32	58	130	65	33	10	35,3	2000
65172.W0035	Round Bore	35	70	140	70	35	-	-	3150
65172.W0235	With Keyway	35	70	140	70	35	10	38,3	3150
65172.W0040	Round Bore	40	80	160	80	39	-	-	4600
65172.W0240	With Keyway	40	80	160	80	39	12	43,3	4600
65172.W0050	Round Bore	50	95	190	95	46	-	-	7600
65172.W0250	With Keyway	50	95	190	95	46	14	53,8	7600

Material

Free cutting steel (9SMnPb28k, no. 10718).
Bearing type: plain bearing.

Technical Notes

To DIN 808.
Maximum bending angle 45° per joint.
Max. drive speed of joints with journal bearings 1000 rpm.

Tips

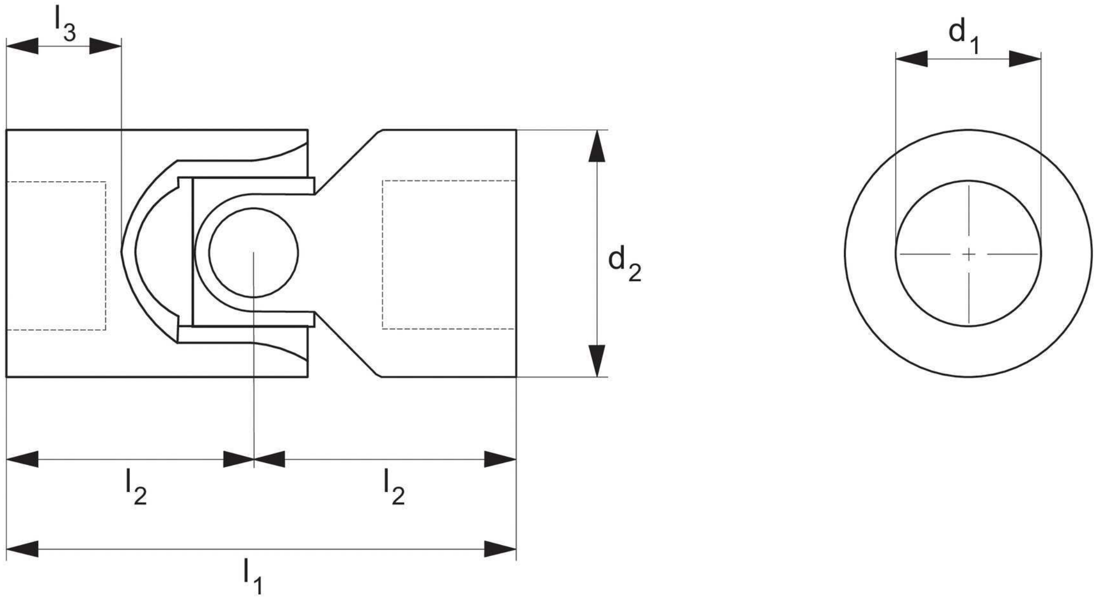
Single universal joints are used where shafts off-set toward each other.
Product variations available on request: square bores and hex bores.
For stainless steel see 65186.

Important Notes

This product is not designed for use as a part operating within cars or other vehicles.

Stainless Single Universal Joint

65186



Order No.	d_1 H7	d_2	l_1	l_2	l_3	g
65186.W0006	6	16	34	17	8	50
65186.W0008	8	16	40	20	11	50
65186.W0010	10	22	48	24	12	100
65186.W0012	12	25	56	28	13	160
65186.W0016	16	32	68	34	16	300
65186.W0020	20	42	82	41	18	600
65186.W0025	25	50	108	54	26	1200
65186.W0030	30	58	122	61	29	1850

Material
Stainless steel (AISI 304)

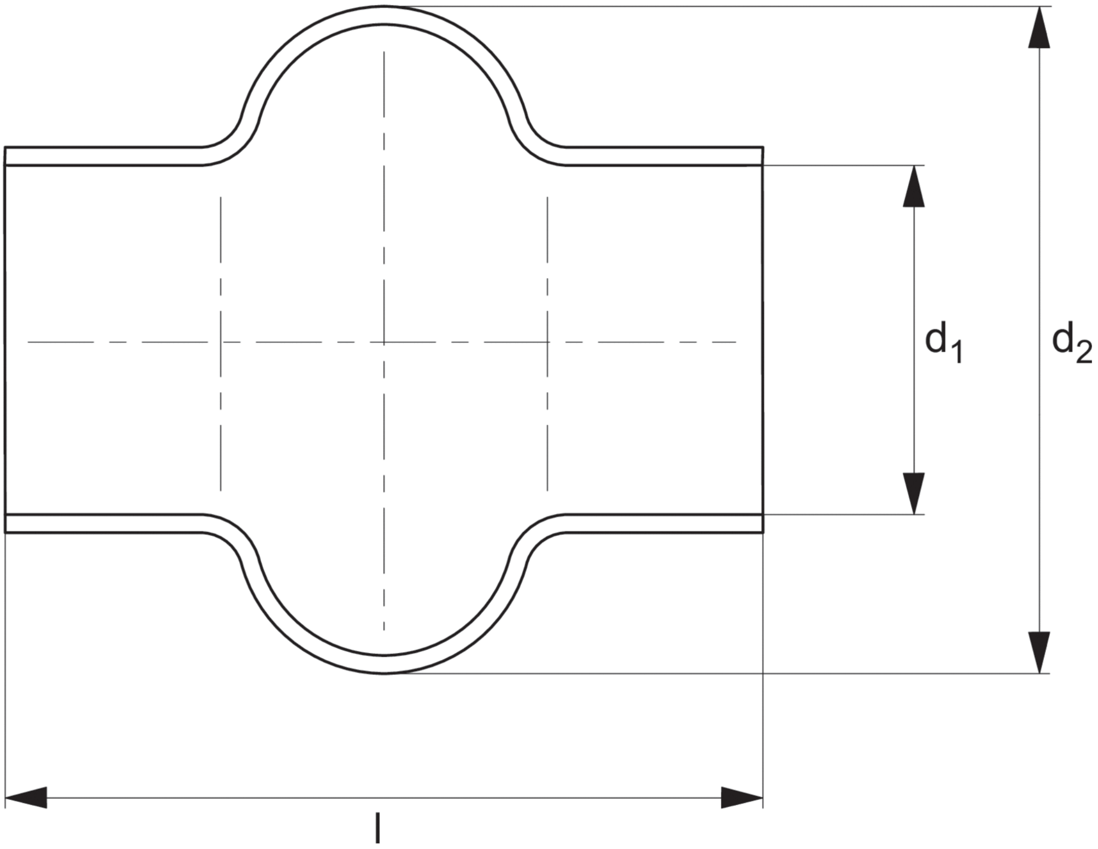
Technical Notes
To DIN 808.
Maximum bending angle 45° per joint.

Tips
Product variations available on request: Keyways, square bores and hexshaped bores.

Important Notes
This product is not designed for use as a part operating within cars or other vehicles.

Bellows

for single universal joints



Material

Rubber.

Tips

Bellows give universal joints full protection against ingress of dirt. They can be filled with grease which gives long term lubrication for friction bearings. Bellows should be secured at each end with two cable ties (not supplied).

Important Notes

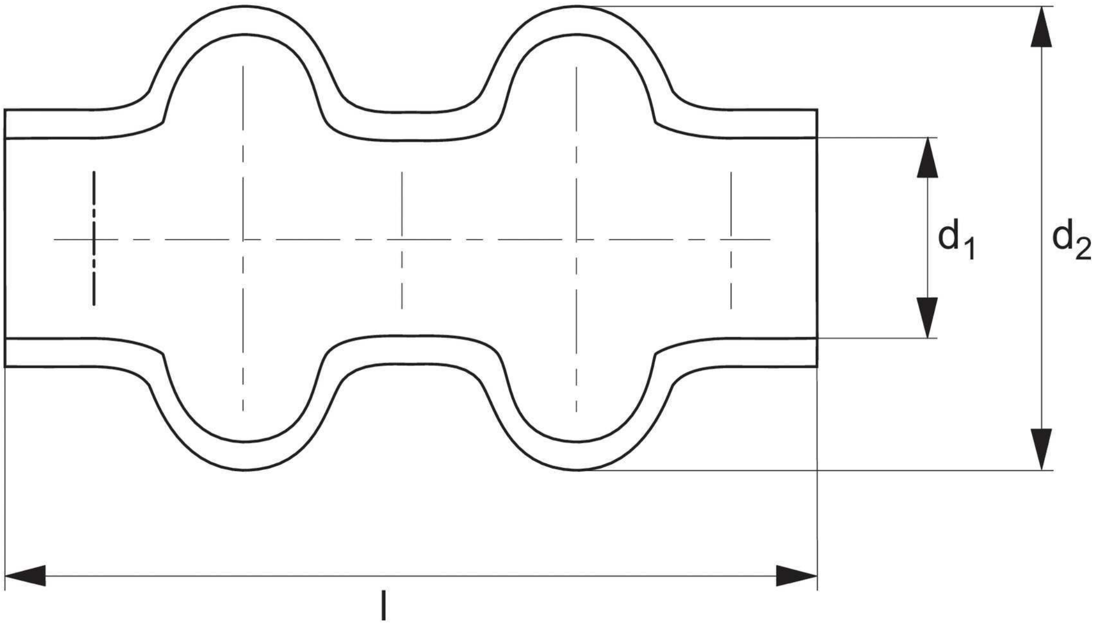
This product is not designed for use as a part operating within cars or other vehicles.

Order No.	To suit joint of o.d	d_1	d_2	l
65280.W0016	16	15,0	28	34
65280.W0018	18	16,5	32	40
65280.W0022	22	20,5	40	45
65280.W0025	25/26	24,5	48	50
65280.W0028	28/29	27,5	52	56
65280.W0032	32	30,5	56	65
65280.W0036	36/37	35,5	66	72
65280.W0042	42	40,0	75	82
65280.W0045	45/47	45,0	84	95
65280.W0050	50/52	50,0	92	108
65280.W0058	58	56,0	100	122

Bellows

for double universal joints

65282



Material

Black elastomer plastic (smooth PVC)

Tips

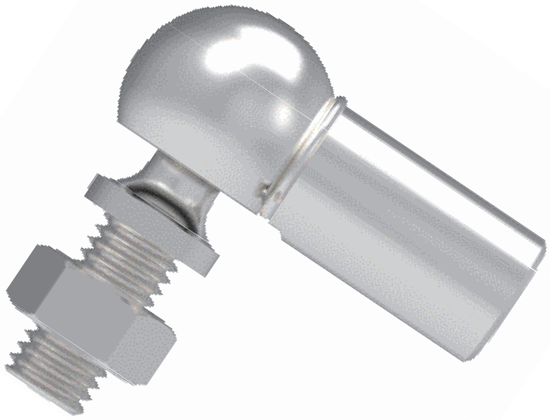
Bellows give universal joints full protection against ingress of dirt. They can be filled with grease which gives long term lubrication for friction bearings. Bellows should be secured at each end with two cable ties (not supplied).

Important Notes

This product is not designed for use as a part operating within cars or other vehicles.

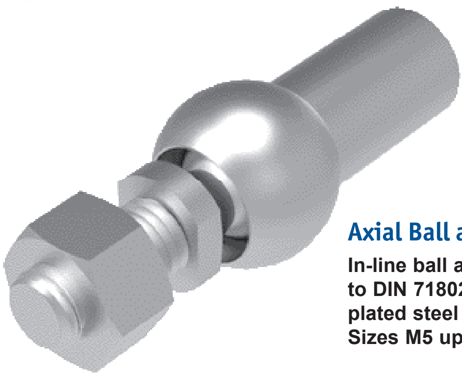
Order No.	To suit joint of o.d	d_1	d_2	l
65282.W0016	16	16	35	55
65282.W0022	22	20	36	65
65282.W0025	25	24	44	70
65282.W0028	28	28	51	80
65282.W0032	32	32	62	90
65282.W0042	42	40	73	120
65282.W0050	50	50	90	155

Parts overview



Ball and Socket Joints

Ball and socket joints to DIN 71802 available in zinc plated s and stainless steel. Right and left hand threads available. Sizes M5 up to M16.

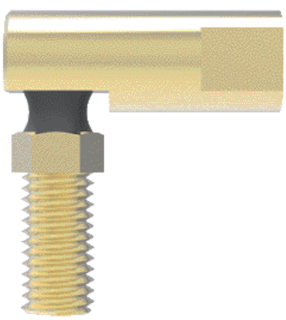


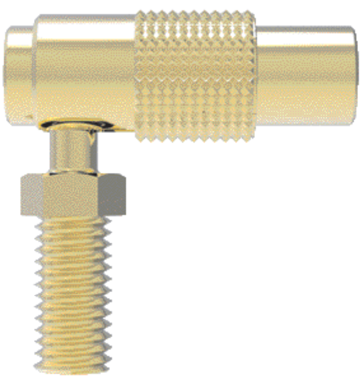
Axial Ball and Socket Joints

In-line ball and socket joints to DIN 71802 available in zinc plated steel and stainless steel. Sizes M5 up to M14 x 1,5.

Ball and Socket Joints with sealing caps and spanner flats

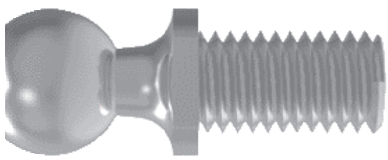
Ball and socket joints to DIN 71802 available in zinc plated steel and stainless steel. Right and left hand threads available. Spanner flats on housing to aid installation. Sizes M5 up to M16.





Quick Release plus other ball and socket joints

Quick release ball joints allow rapid release and reconnection of ball stud for easy installation. DMG6 and male:male ball joints and lockable also available. Sizes M5 up to M10.



Threaded Ball Studs

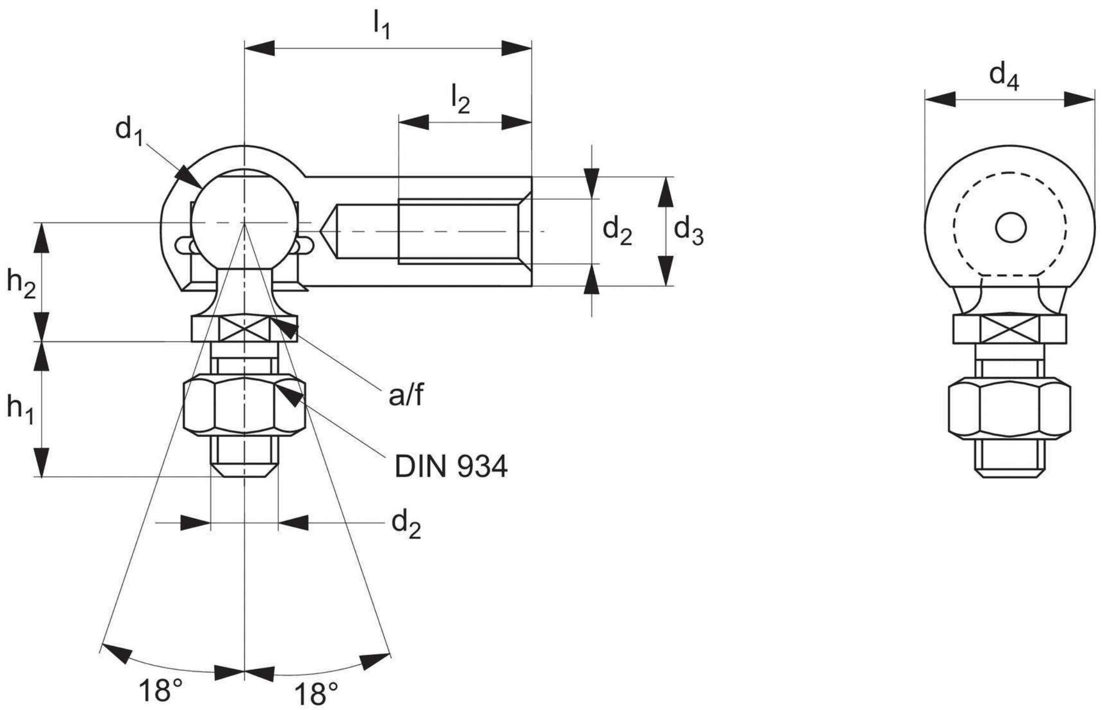
Threaded ball studs to DIN71803 form C available in zinc plated steel. Sizes M5 up to M14.

see our website for our full range:
wixroyd.com

ov-65500-65506-a - Updated - 20-12-2016

Ball and Socket Joints

65500



Material
Steel, silver zinc plated.
Ball stud: minimum tensile strength Rm=600N/mm².
Housing: minimum tensile strength Rm=500N/mm².

Technical Notes
To DIN 71802 form CS.
Supplied with hexagon nut.
Safety ring aids the retention of the ball stud in the housing.
*M14x1,5 is a fine pitch thread.

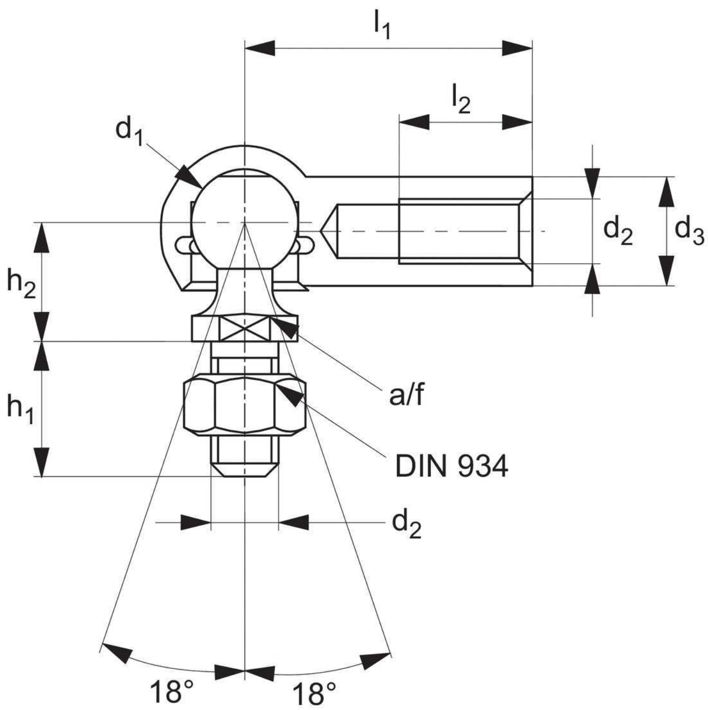
Tips
Standard thread is right hand, (for left hand thread see 65502).

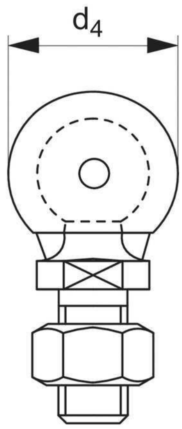
Order No.	Thread (hand)	d_1	d_2	l_1 ±0.3	d_3	d_4	l_2 min.	g
65500.W0105	Right	8	M 5	22	8	12,8	10,2	15,2
65500.W0106	Right	10	M 6	25	10	14,8	11,5	25,2
65500.W0108	Right	13	M 8	30	13	19,3	14,0	53,1
65500.W0110	Right	16	M10	35	16	24,0	15,5	103,8
65500.W0112	Right	16	M12	35	16	24,0	15,5	103,8
65500.W0114	Right	22	M14x1,5*	45	22	30,0	21,5	220,9
65500.W0115	Right	22	M14	45	22	30,0	21,5	220,9
65500.W0116	Right	22	M16	45	22	30,0	21,5	220,9

Order No.	h_1 ±0.3	h_2 ±0.3	a/f h14	Min. extraction force Kg	Max. static load Kg	Max. dynamic load Kg	Max. force required for movement Kg
65500.W0105	10,2	9	7	3	50	20	3
65500.W0106	12,5	11	8	4	100	40	4
65500.W0108	16,5	13	11	6	200	80	6
65500.W0110	20,0	16	13	8	400	160	8
65500.W0112	20,0	16	13	8	400	160	8
65500.W0114	28,0	22	16	10	800	320	10
65500.W0115	28,0	22	16	10	800	320	10
65500.W0116	28,0	22	16	10	800	320	10

Ball and Socket Joints

left hand thread





Material

Steel, silver zinc plated.
Ball stud: minimum tensile strength Rm=600N/mm².
Housing: minimum tensile strength Rm=500N/mm².

Technical Notes

To DIN 71802 form CS.
Supplied with hexagon nut.
Safety ring aids the retention of the ball stud in the housing.
*M14x1,5 is a fine pitch thread.

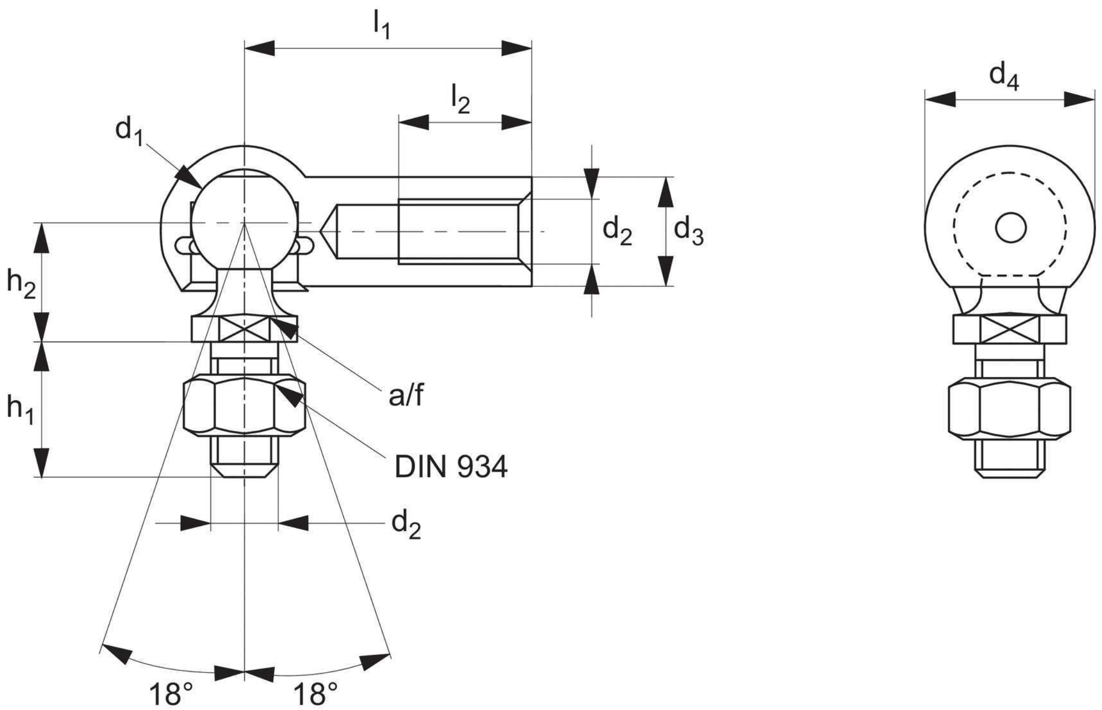
Tips

Stud: right hand thread.
Housing: left hand thread.

Order No.	Thread (hand)	d_1	d_2	l_1 ±0.3	d_3	d_4	l_2 min.	g
65502.W0005	Left	8	M 5	22	8	12,8	10,2	15,2
65502.W0006	Left	10	M 6	25	10	14,8	11,5	25,2
65502.W0008	Left	13	M 8	30	13	19,3	14,0	53,1
65502.W0010	Left	16	M10	35	16	24,0	15,5	103,8
65502.W0012	Left	16	M12	35	16	24,0	15,5	103,8
65502.W0014	Left	22	M14x1,5*	45	22	30,0	21,5	220,9
65502.W0015	Left	22	M14	45	22	30,0	21,5	220,9
65502.W0016	Left	22	M16	45	22	30,0	21,5	220,9

Order No.	h_1 ±0.3	h_2 ±0.3	a/f h14	Min. extraction force Kg	Max. static load Kg	Max. dynamic load Kg	Max. force required for movement Kg
65502.W0005	10,2	9	7	3	50	20	3
65502.W0006	12,5	11	8	4	100	40	4
65502.W0008	16,5	13	11	6	200	80	6
65502.W0010	20,0	16	13	8	400	160	8
65502.W0012	20,0	16	13	8	400	160	8
65502.W0014	28,0	22	16	10	800	320	10
65502.W0015	28,0	22	16	10	800	320	10
65502.W0016	28,0	22	16	10	800	320	10

65504



Material
Stainless steel (1.4305).

Technical Notes
To DIN 71802 form CS.
Supplied with hexagon nut.
Safety ring aids the retention of the ball stud in the housing.
*M14x1,5 is a fine pitch thread.

Tips
Standard thread is right hand, (for left hand thread see 65506).

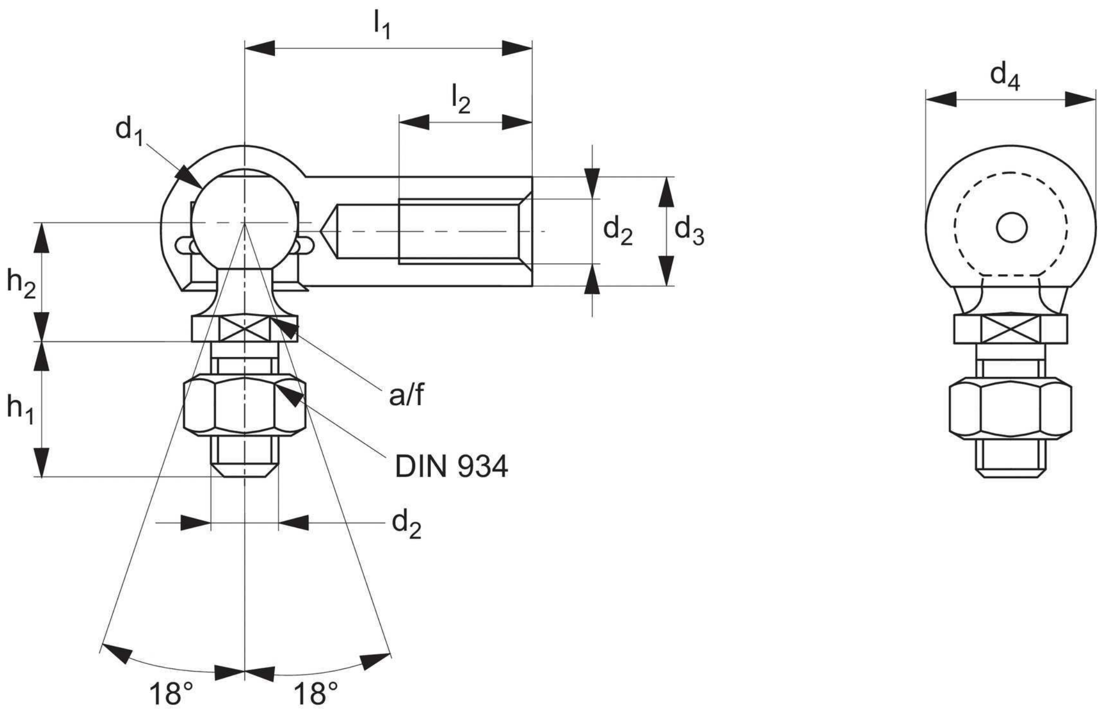
Order No.	Thread (hand)	d_1	d_2	l_1 ±0.3	d_3	d_4	l_2 min.	g
65504.W0005	Right	8	M 5	22	8	12,8	10,2	15,2
65504.W0006	Right	10	M 6	25	10	14,8	11,5	25,2
65504.W0008	Right	13	M 8	30	13	19,3	14,0	53,1
65504.W0010	Right	16	M10	35	16	24,0	15,5	103,8
65504.W0012	Right	16	M12	35	16	24,0	15,5	103,8
65504.W0014	Right	22	M14x1,5*	45	22	30,0	21,5	220,9
65504.W0015	Right	22	M14	45	22	30,0	21,5	220,9
65504.W0016	Right	22	M16	45	22	30,0	21,5	220,9

Order No.	h_1 ±0.3	h_2 ±0.3	a/f h14	Min. extraction force Kg	Max. static load Kg	Max. dynamic load Kg	Max. force required for movement Kg
65504.W0005	10,2	9	7	3	50	20	3
65504.W0006	12,5	11	8	4	100	40	4
65504.W0008	16,5	13	11	6	200	80	6
65504.W0010	20,0	16	13	8	400	160	8
65504.W0012	20,0	16	13	8	400	160	8
65504.W0014	28,0	22	16	10	800	320	10
65504.W0015	28,0	22	16	10	800	320	10
65504.W0016	28,0	22	16	10	800	320	10

Stainless Ball and Socket Joints

left hand thread

65506



Material

Stainless steel (1.4305).

Technical Notes

To DIN 71802 form CS.
Supplied with hexagon nut.
Safety ring aids the retention of the ball stud in the housing.
*M14x1,5 is a fine thread pitch.

Tips

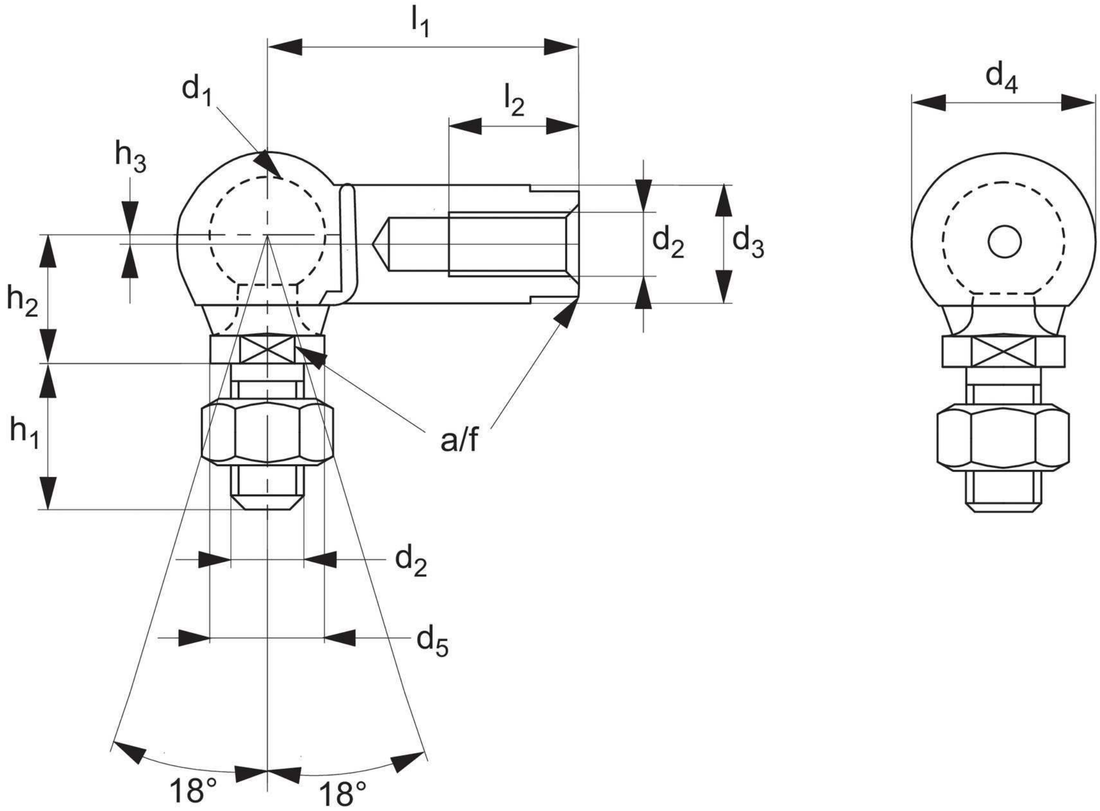
Stud: right hand thread.
Housing: left hand thread

Order No.	Thread (hand)	d_1	d_2	l_1 ±0.3	d_3	d_4	l_2 min.	g
65506.W0005	Left	8	M 5	22	8	12,8	10,2	15,2
65506.W0006	Left	10	M 6	25	10	14,8	11,5	25,2
65506.W0008	Left	13	M 8	30	13	19,3	14,0	53,1
65506.W0010	Left	16	M10	35	16	24,0	15,5	103,8
65506.W0012	Left	16	M12	35	16	24,0	15,5	103,8
65506.W0014	Left	22	M14x1,5*	45	22	30,0	21,5	220,9
65506.W0015	Left	22	M14	45	22	30,0	21,5	220,9
65506.W0016	Left	22	M16	45	22	30,0	21,5	220,9

Order No.	h_1 ±0.3	h_2 ±0.3	a/f h14	Min. extraction force Kg	Max. static load Kg	Max. dynamic load Kg	Max. force required for movement Kg
65506.W0005	10,2	9	7	3	50	20	3
65506.W0006	12,5	11	8	4	100	40	4
65506.W0008	16,5	13	11	6	200	80	6
65506.W0010	20,0	16	13	8	400	160	8
65506.W0012	20,0	16	13	8	400	160	8
65506.W0014	28,0	22	16	10	800	320	10
65506.W0015	28,0	22	16	10	800	320	10
65506.W0016	28,0	22	16	10	800	320	10

Ball and Socket Joint
with flats on housing

65508



Material
Stud: carbon steel.
Housing: steel (9sMnPb28), silver zinc plated.
Sealing cap: neoprene.

Technical Notes
To DIN 71802 form CS. Supplied with hexagon nut.
Safety ring aids the retention of the ball stud in the housing.
*M14x1,5 is a fine pitch thread.

Tips
Standard thread is right hand, (for left hand thread see 65510).

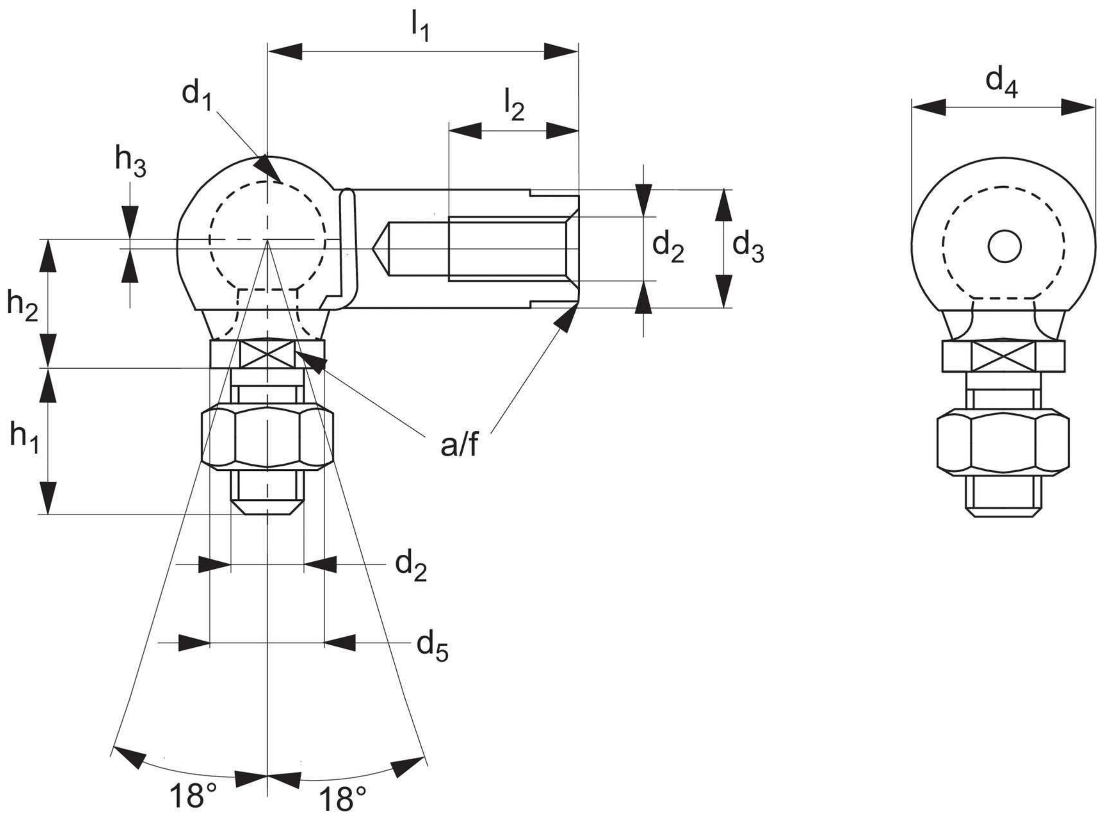
Order No.	Thread (hand)	d_1	d_2	l_1 ±0.3	d_3 ±0.5	d_4 ±0.5	d_5 ±0.5	h_1 ±0.3	h_2 ±0.3	l_2 min.	g
65508.W0105	Right	8	M 5	22	8	12,8	8	10,0	9	10,2	15,2
65508.W0106	Right	10	M 6	25	10	14,8	10	12,5	11	11,5	25,2
65508.W0108	Right	13	M 8	30	13	19,3	13	16,5	13	14,0	53,1
65508.W0110	Right	16	M10	35	16	24,0	16	20,0	16	15,5	103,8
65508.W0112	Right	16	M12	35	16	24,0	16	20,0	16	15,5	103,8
65508.W0114	Right	22	M14x1,5*	45	22	30,0	22	28,0	20	21,5	220,9
65508.W0115	Right	22	M14	45	22	30,0	22	28,0	20	21,5	220,9
65508.W0116	Right	22	M16	45	22	30,0	22	28,0	20	21,5	220,9

Order No.	h_3	a/f h14	Min. extraction force Kg	Max. static load Kg	Max. dynamic load Kg	Max. force required for movement Kg
65508.W0105	0,65	7	3	50	20	3
65508.W0106	0,70	8	4	100	40	4
65508.W0108	1,15	11	6	200	80	6
65508.W0110	1,15	13	8	400	160	8
65508.W0112	1,15	13	8	400	160	8
65508.W0114	0,50	17	10	800	320	10
65508.W0115	0,50	17	10	800	320	10
65508.W0116	0,50	17	10	800	320	10

Ball and Socket Joint

left hand thread- with flats on housing

65510



Material
Stud: carbon steel.
Housing: steel (9sMnPb28), silver zinc plated.
Sealing cap: neoprene.

Technical Notes
To DIN 71802 form CS.
Supplied with hexagon nut.
Safety ring aids the retention of the ball stud in the housing.
*M14x1,5 is a fine pitch thread.

Tips
Stud: right hand thread.
Housing: left hand thread

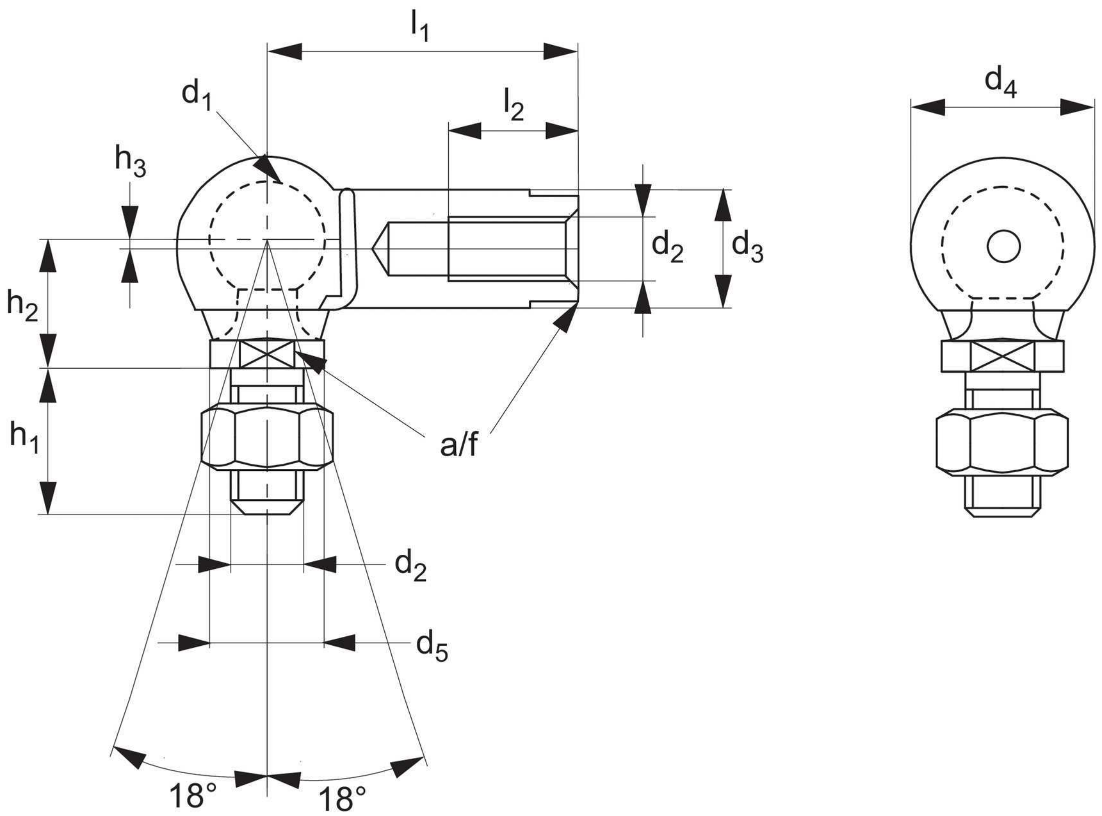
Order No.	Thread (hand)	d_1	l_1 ±0.3	d_2	d_3 ±0.5	d_4 ±0.5	d_5 ±0.5	h_1 ±0.3	h_2 ±0.3	l_2 min.	g
65510.W0005	Left	8	22	M 5	8	12,8	8	10,0	9	10,2	15,2
65510.W0006	Left	10	25	M 6	10	14,8	10	12,5	11	11,5	25,2
65510.W0008	Left	13	30	M 8	13	19,3	13	16,5	13	14,0	53,1
65510.W0010	Left	16	35	M10	16	24,0	16	20,0	16	15,5	103,8
65510.W0012	Left	16	35	M12	16	24,0	16	20,0	16	15,5	103,8
65510.W0014	Left	22	45	M14x1,5	22	30,0	22	28,0	20	21,5	220,9
65510.W0015	Left	22	45	M14	22	30,0	22	28,0	20	21,5	220,9
65510.W0016	Left	22	45	M16	22	30,0	22	28,0	20	21,5	220,9

Order No.	h_3	a/f h14	Min. extraction force Kg	Max. static load Kg	Max. dynamic load Kg	Max. force required for movement Kg
65510.W0005	0,65	7	3	50	20	3
65510.W0006	0,70	8	4	100	40	4
65510.W0008	1,15	11	6	200	80	6
65510.W0010	1,15	13	8	400	160	8
65510.W0012	1,15	13	8	400	160	8
65510.W0014	0,50	17	10	800	320	10
65510.W0015	0,50	17	10	800	320	10
65510.W0016	0,50	17	10	800	320	10

Stainless Ball and Socket Joint

with flats on housing

65512



Material
Stainless steel (AISI 303).
Sealing cap: neoprene.

Technical Notes
To DIN 71802 form CS. Supplied with hexagon nut.
Safety ring aids the retention of the ball stud in the housing.
*M14x1,5 is a fine pitch thread.

Tips
Standard thread is right hand, (for left hand thread see 65514).

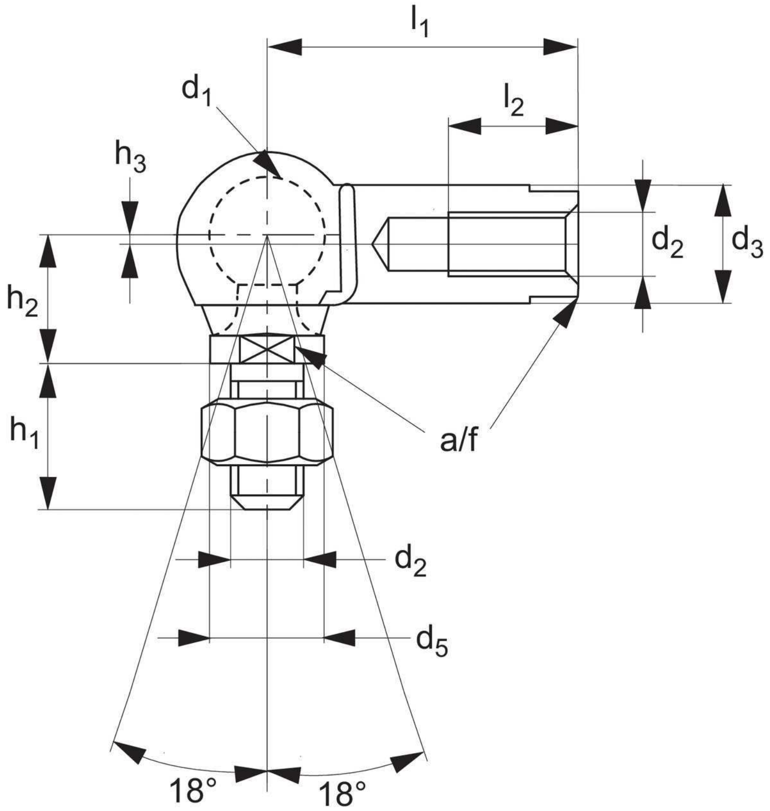
Order No.	Thread (hand)	d_1	l_1 ±0.3	d_2	d_3 ±0.5	d_4 ±0.5	d_5 ±0.5	h_1 ±0.3	h_2 ±0.3	l_2 min.	g
65512.W0105	Right	8	22	M 5	8	12,8	8	10,0	9	10,2	15,2
65512.W0106	Right	10	25	M 6	10	14,8	10	12,5	11	11,5	25,2
65512.W0108	Right	13	30	M 8	13	19,3	13	16,5	13	14,0	53,1
65512.W0110	Right	16	35	M10	16	24,0	16	20,0	16	15,5	103,8
65512.W0112	Right	16	35	M12	16	24,0	16	20,0	16	15,5	103,8
65512.W0114	Right	22	45	M14x1,5*	22	30,0	22	28,0	20	21,5	220,9
65512.W0115	Right	22	45	M14	22	30,0	22	28,0	20	21,5	220,9
65512.W0116	Right	22	45	M16	22	30,0	22	28,0	20	21,5	220,9

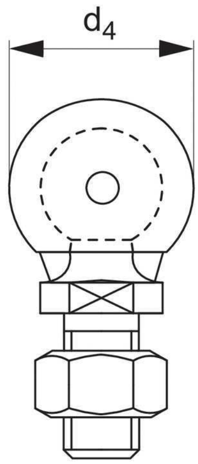
Order No.	h_3	A/F h14	Min. extraction force Kg	Max. static load Kg	Max. dynamic load Kg	Max. force required for movement Kg
65512.W0105	0,65	7	3	50	20	3
65512.W0106	0,70	8	4	100	40	4
65512.W0108	1,15	11	6	200	80	6
65512.W0110	1,15	13	8	400	160	8
65512.W0112	1,15	13	8	400	160	8
65512.W0114	0,50	17	10	800	320	10
65512.W0115	0,50	17	10	800	320	10
65512.W0116	0,50	17	10	800	320	10

Stainless Ball and Socket Joint

left hand thread - with flats on housing

65514





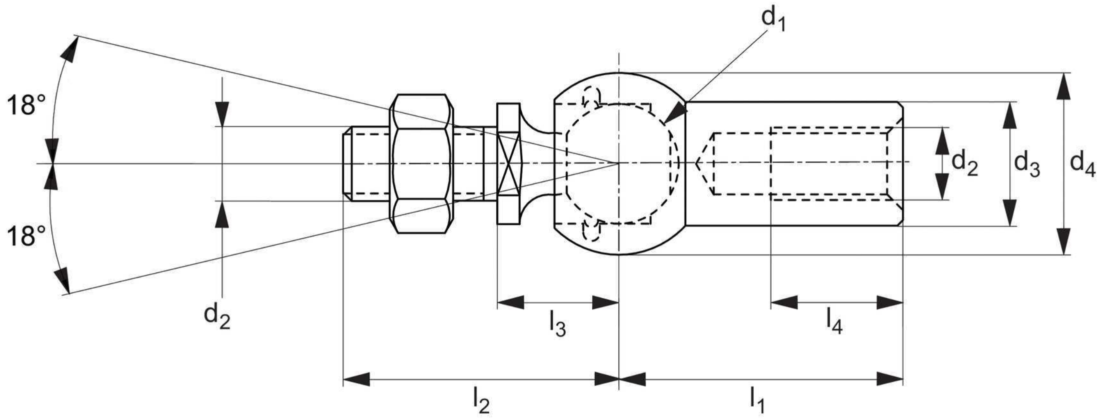
Material
Stainless steel (AISI 303).
Sealing cap: neoprene.

Technical Notes
To DIN 71802 form CS. Supplied with hexagon nut.
Safety ring aids the retention of the ball stud in the housing.
*M14x1,5 is a fine pitch thread.

Tips
Stud: right hand thread.
Housing: left hand thread

Order No.	Thread (hand)	d_1	l_1 ±0.3	d_2	d_3 ±0.5	d_4 ±0.5	d_5 ±0.5	h_1 ±0.3	h_2 ±0.3	l_2 min.	g
65514.W0005	Left	8	22	M 5	8	12,8	8	10,0	9	10,2	15,2
65514.W0006	Left	10	25	M 6	10	14,8	10	12,5	11	11,5	25,2
65514.W0008	Left	13	30	M 8	13	19,3	13	16,5	13	14,0	53,1
65514.W0010	Left	16	35	M10	16	24,0	16	20,0	16	15,5	103,8
65514.W0012	Left	16	35	M12	16	24,0	16	20,0	16	15,5	103,8
65514.W0014	Left	22	45	M14x1,5*	22	30,0	22	28,0	20	21,5	220,9
65514.W0015	Left	22	45	M14	22	30,0	22	28,0	20	21,5	220,9
65514.W0016	Left	22	45	M16	22	30,0	22	28,0	20	21,5	220,9

Order No.	h_3	a/f h14	Min extraction force Kg	Max static load Kg	Max dynamic load Kg	Max force required for movement Kg
65514.W0005	0,65	7	3	50	20	3
65514.W0006	0,70	8	4	100	40	4
65514.W0008	1,15	11	6	200	80	6
65514.W0010	1,15	13	8	400	160	8
65514.W0012	1,15	13	8	400	160	8
65514.W0014	0,50	17	10	800	320	10
65514.W0015	0,50	17	10	800	320	10
65514.W0016	0,50	17	10	800	320	10



Order No.	Thread (hand)	d_1 h9	d_2	l_1	d_3 ±0.5	d_4 ±0.5	l_2	l_3	l_4	Extraction force N	g
65520.W0005	Right	8	M 5	22	8	12,8	19,2	9	10,2	30	15,2
65520.W0006	Right	10	M 6	25	10	14,8	23,5	11	11,5	40	25,2
65520.W0008	Right	13	M 8	30	13	19,3	29,5	13	14,0	60	53,1
65520.W0010	Right	16	M10	35	16	24,0	36,0	16	15,5	80	103,8
65520.W0014	Right	19	M14x1,5*	45	22	30,0	48,0	20	21,5	100	220,9

Material
Steel, silver zinc plated.
Ball stud: minimum tensile strength Rm=600N/mm².
Housing: minimum tensile strength Rm=500N/mm².

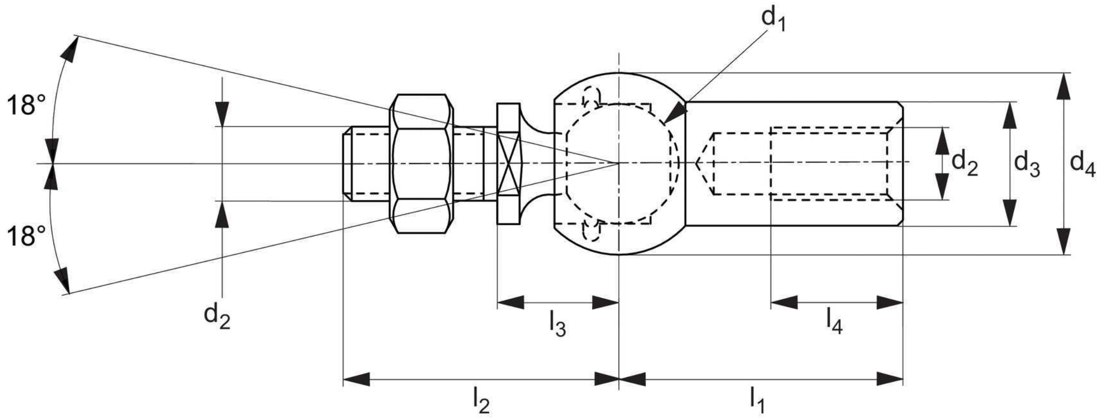
Technical Notes
Similar to DIN 71802
*M14x1,5 is a fine pitch thread.

Tips
Standard thread is right hand, (for left hand thread see 65522).
For stainless steel version see 65524.

Axial Ball and Socket Joints

left hand thread

65522

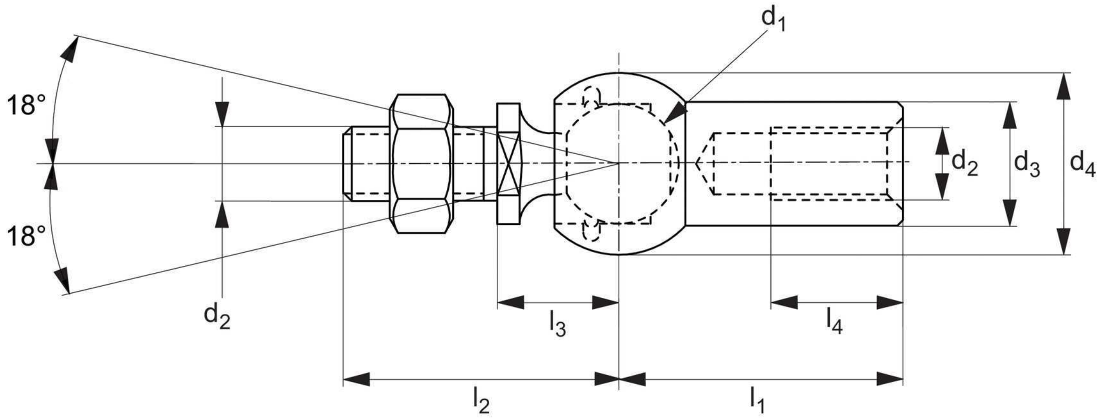


Order No.	Thread (hand)	d_1 h9	d_2	l_1	d_3 ±0.5	d_4 ±0.5	l_2	l_3	l_4	Extraction force N	g
65522.W0005	Left	8	M 5	22	8	12,8	19,2	9	10,2	30	15,2
65522.W0006	Left	10	M 6	25	10	14,8	23,5	11	11,5	40	25,2
65522.W0008	Left	13	M 8	30	13	19,3	29,5	13	14,0	60	53,1
65522.W0010	Left	16	M10	35	16	24,0	36,0	16	15,5	80	103,8
65522.W0014	Left	19	M14x1,5*	45	22	30,0	48,0	20	21,5	100	220,9

Material
Steel, silver zinc plated.
Ball stud: minimum tensile strength Rm=600N/mm².
Housing: minimum tensile strength Rm=500N/mm².

Technical Notes
Similar to DIN 71802
*M14x1,5 is a fine pitch thread.

Tips
For stainless steel version see 65526.



Material
Stainless steel (AISI 303).

Technical Notes
Similar to DIN 71802
*M14x1,5 is a fine pitch thread.

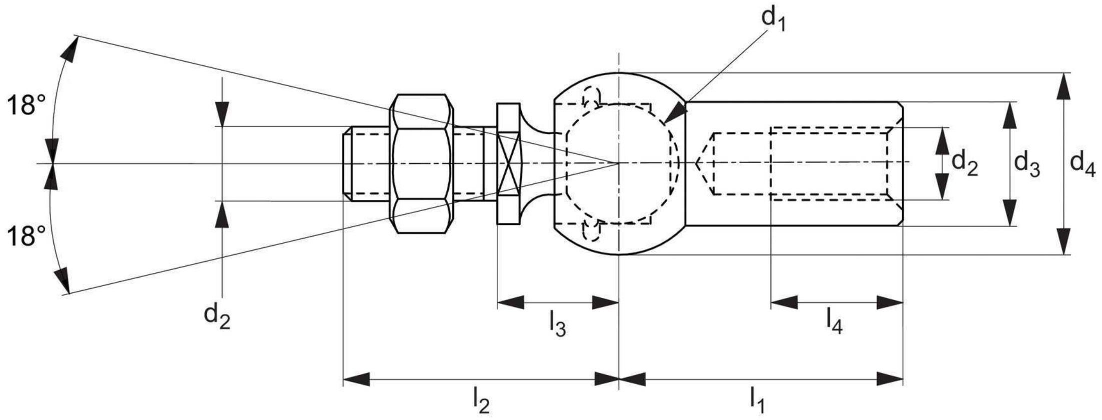
Tips
Standard thread is right hand, (for left hand thread see 65526).

Order No.	Thread (hand)	d_1 h9	d_2	l_1	d_3 ±0.5	d_4 ±0.5	l_2	l_3	l_4	Extraction force N	g
65524.W0005	Right	8	M5	22	8	12,8	19,2	9	10,2	30	15,2
65524.W0006	Right	10	M6	25	10	14,8	23,5	11	11,5	40	25,2
65524.W0008	Right	13	M8	30	13	19,3	29,5	13	14,0	60	53,1
65524.W0010	Right	16	M10	35	16	24,0	36,0	16	15,5	80	103,8
65524.W0014	Right	19	M14x1,5*	45	22	30,0	48,0	20	21,5	100	220,9

Stainless Axial Ball and Socket Joints

left hand thread

65526



Material

Stainless steel (AISI 303).

Technical Notes

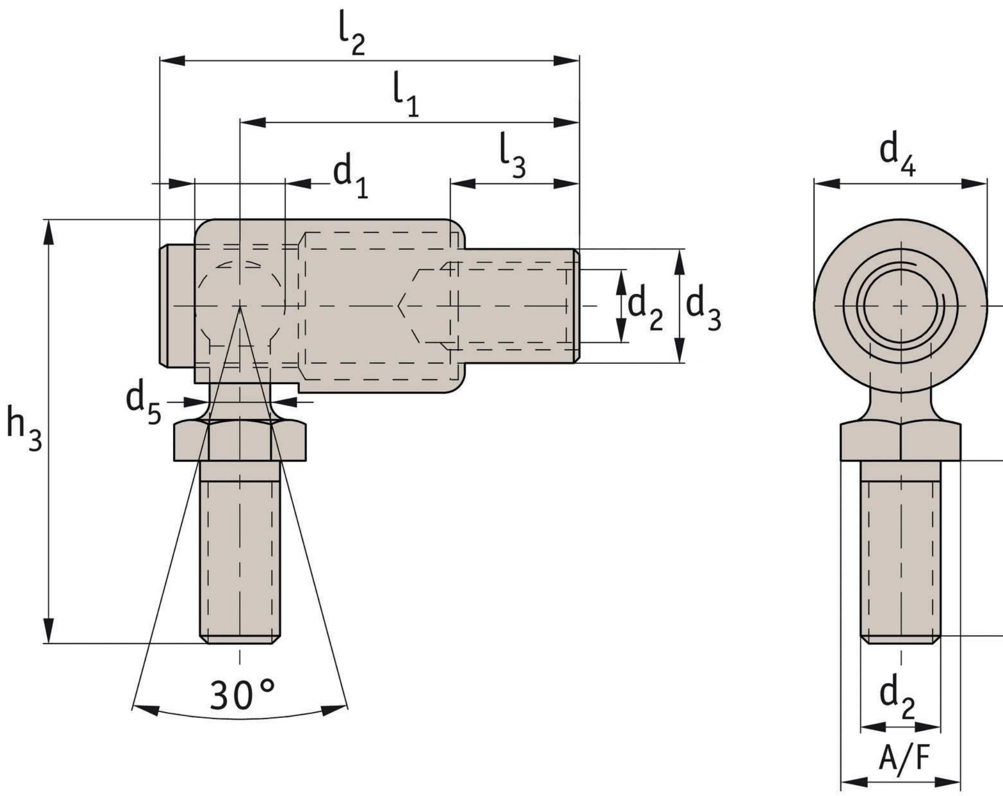
Similar to DIN 71802

*M14x1,5 is a fine pitch thread.

Order No.	Thread (hand)	d_1 h9	d_2	l_1	d_3 ±0.5	d_4 ±0.5	l_2	l_3	l_4	Extraction force N	g
65526.W0005	Left	8	M 5	22	8	12,8	19,2	9	10,2	30	15,2
65526.W0006	Left	10	M 6	25	10	14,8	23,5	11	11,5	40	25,2
65526.W0008	Left	13	M 8	30	13	19,3	29,5	13	14,0	60	53,1
65526.W0010	Left	16	M10	35	16	24,0	36,0	16	15,5	80	103,8
65526.W0014	Left	19	M14x1,5*	45	22	30,0	48,0	20	21,5	100	220,9

Quick Release Ball Joints

65542



Material

Body, shield and ball stud (BS. 970230M07Pb) leaded low carbon steel equivalent SAE 12L14. Body and ball stud are case hardened.
Spring: (302S26) stainless steel or equivalent.
Yellow zinc plated.

Technical Notes

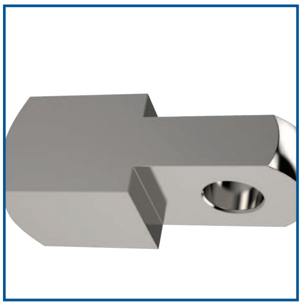
The spring loaded outer shield allows both rapid release and reconnection of the ball stud. Linkage assemblies can be installed or removed without disturbing pre-set centres. These are metric equivalents to SAE J 490 Style 1 quick release detachable ball joints.

Tips

Standard thread is right hand thread.

Order No.	Thread (hand)	d_1	d_2	l_1	l_2	l_3	h_1	h_2	h_3	d_3	d_4	d_5	a/f	g
65542.W0105	Right	6,35	M 5	23,0	28	11,1	11,1	11,9	28,6	7,9	11,1	4,35	8	17
65542.W0106	Right	7,90	M 6	24,6	30	13,0	12,6	12,6	33,4	9,4	13,0	4,95	10	25
65542.W0108	Right	8,60	M 8	31,7	40	14,3	15,2	15,2	40,6	11,1	16,0	5,80	11	48
65542.W0110	Right	10,70	M10	39,7	49	27,0	19,8	19,8	51,4	14,1	19,0	6,85	13	78

Wixroyd



Clevis Joints

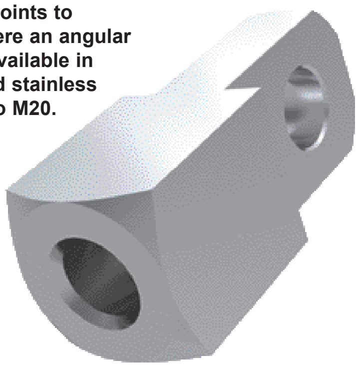
Parts overview

Clevis Joints

Stocked to DIN 71752 in steel and stainless steel. Plain clevis joints available in right and left hand threads zinc plated steel and stainless steel. Steel sizes from M4 up to M48. Stainless sizes from M4 up to M27.

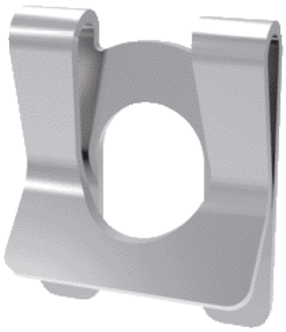
Clevis Mating Pieces

These are designed to fit in between our clevis joints to create a linkage where an angular offset is required. Available in zinc plated steel and stainless steel. Sizes M4 up to M20.



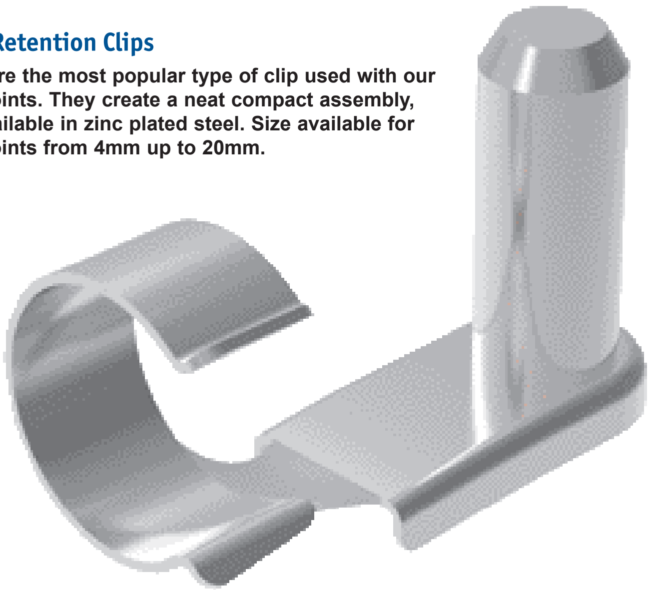
Clevis Pins and Clip

Various styles of |
and clips to suit c
joints in zinc plate
steel and stainles
steel. Sizes availa
suit all sizes of cl
joints that we offe



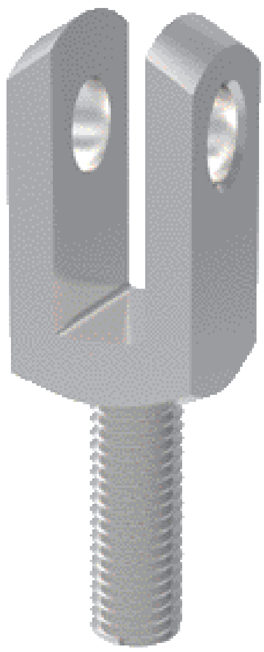
Clevis Retention Clips

These are the most popular type of clip used with our clevis joints. They create a neat compact assembly, only available in zinc plated steel. Size available for clevis joints from 4mm up to 20mm.



Male Clevis Join

Stocked in zinc pl
steel and stainles
steel, right and le
hand threads. Siz
up to M20.



Clevis Joints

set-up options

Zinc plated steel

Clevis with retention clip
65630 and 65684

Clevis with clevis pin 65664
Safety fastener 65680

Clevis with clevis pin, washer and cotter pin
65660 and 65674

Stainless steel

Clevis with clevis pin and circlips 65666 and 65678

Clevis with clevis pin, washer and cotter pin
65661 and 65675

Assembly options

Clevis with 65652 mating piece and 65684 clevis retention clip

Clevis with 65880 rod end and 65684 clevis retention clip

Tensile tests, statistically to failure (break)

Clevises M6 - M42

Clevis joints axially loaded.

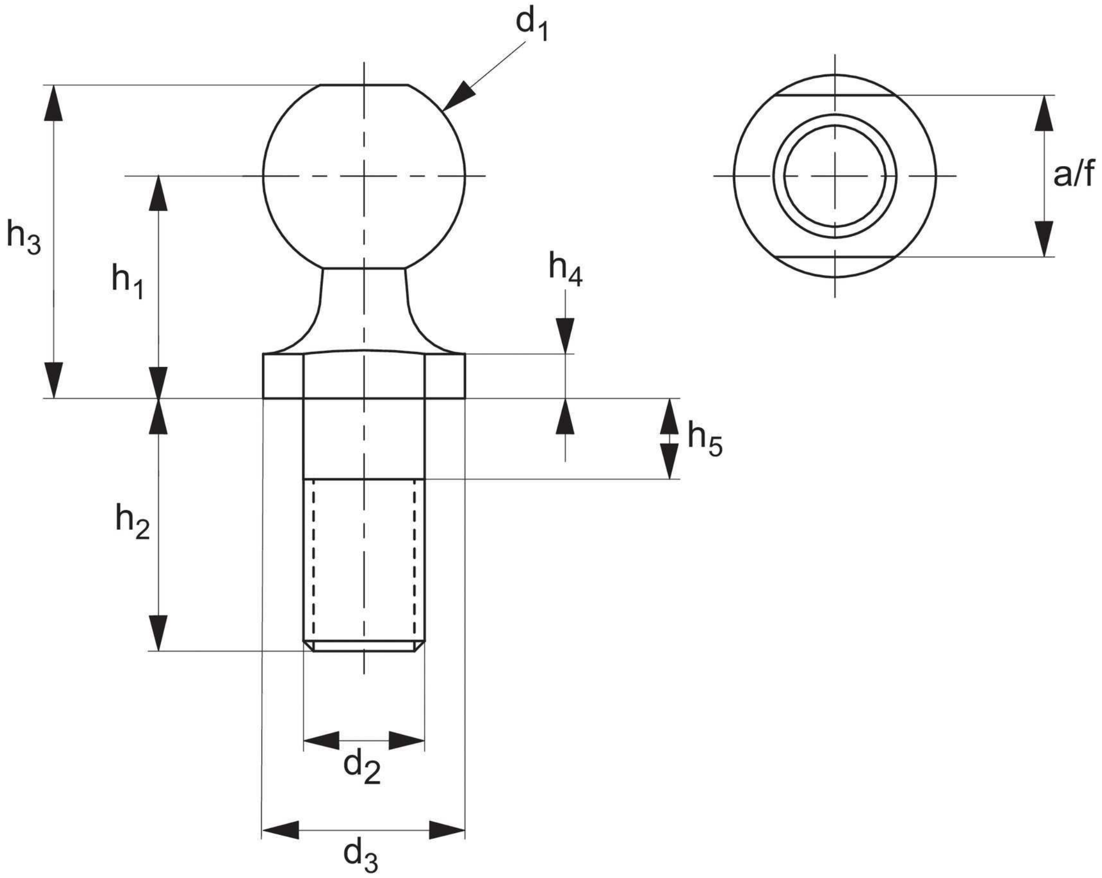
Material

Leaded low carbon steel (AISI 12L14, 1.0718).

Clevis size	F min (kN)	F max (kN)	F average value (kN)	Avg. force when clevis starts to deform (kN)
6 x 24 M 6	16,0	19,5	17,6	15,3
8 x 32 M 8	33,2	35,6	34,6	29,3
10 x 40 M10	42,0	52,0	47,5	41,3
12 x 48 M12	53,0	68,5	61,1	50,2
14 x 56 M14	60,5	64,5	63,0	48,8
16 x 64 M16	133,5	146,0	140,2	115
20 x 40 M20	194,5	234,0	213,5	176
25 x 50 M25	311,0	336,0	328,0	260
30 x 60 M30	428,0	450,0	440,6	343
36 x 72 M36	566,0	573,0	569,5	300
35 x 72 M36	561,2	567,9	564,6	370
42 x 84 M42	904,6	904,6	904,6	420

Important note: values in this table are indicative only and should only be used as a rough guide. The Company cannot foresee the intended applications of their products and we accept no liability for any actions taken by third parties. Customers are advised to use their own safety factors and/or perform their own testing on the clevis joint to ensure it meets requirements for their application.

ov-65630-65684-b - Updated - 22.01.2021



Material
Low carbon steel (1018), silver zinc plated.

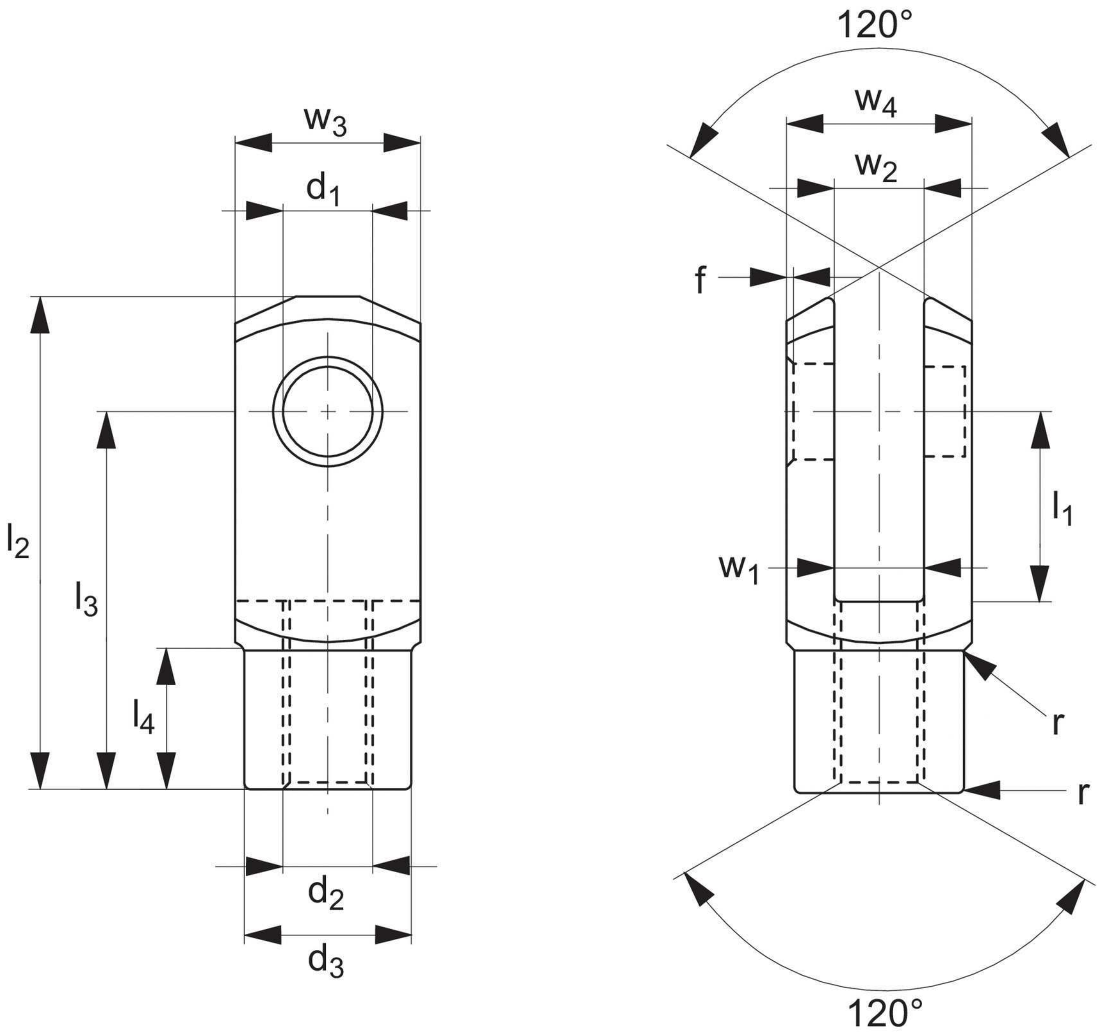
Technical Notes
To DIN 71803 Form C
*M14x1.5 is a fine pitch thread.

Order No.	d_1 h9	h_1 ±0,3	d_2	d_3 +0,0 -0,2	h_2 ±0,3	h_3 ±0,3	h_4 +0,4 -0,0	h_5 max.	a/f	g
65550.W0005	8,0	9,0	M 5	8,0	10,2	12,5	2,0	4,0	7,0	4,5
65550.W0006	10,0	11,0	M 6	10,0	12,5	15,5	2,2	4,0	8,0	8,5
65550.W0008	13,0	13,0	M 8	13,0	16,5	18,5	2,4	5,3	11,0	17,7
65550.W0010	16,0	16,0	M10	16,0	20,0	23,0	2,7	7,3	13,0	35,0
65550.W0012	16,0	16,0	M12	16,0	20,0	23,0	2,7	7,3	13,0	35,0
65550.W0014	19,0	20,0	M14 x 1.5*	19,0	28,0	28,5	3,0	10,8	16,0	71,2
65550.W0015	19,0	20,0	M14	19,0	28,0	28,5	3,0	10,8	16,0	71,2
65550.W0016	19,0	20,0	M16	19,0	28,0	28,5	3,0	10,8	16,0	71,2

Steel Clevis Joint with Pin

silver zinc plated

65600



Material
Steel 1.0718 (11SMnPb30k), silver zinc plated.

Technical Notes
M5-M16: DIN 71 752/DIN ISO 8140.
M18-M48: Similar to DIN 71 752/DIN ISO 8140 and according to CETOP standard.

Tips
Standard thread is right hand, (for left hand, see 65602).
Assembly is made up using 65630 clevis joint, 65660 clevis pin, 65670 washer, and 65674 split cotter pin.

Important Notes
For sizes M5-M12, f and r =0,5
For sizes M14-M16, f and r =1
For sizes M18-M20, f=1, r = 1,5
For M24 f and r = 1,5
For sizes M27-M30, f = 1,5, r = 2
For M36 f = 2, r = 3
For sizes M42-M48, f = 3, r = 5
For r, radius or 45° bevelling.

Other Tolerances:-
w_4: M4-M16 = +0,3 -0,16
M18-M48 = +0,5 -0,2
w_2: size 4x8-10x20 = B13
All others +0,7 +0,15
d_3: M4-M16 = ±0,3
l_2: size 4x8-6x12 = ±0,3
All others ±0,4
l_3: M4-M16 = ±0,2
M18-M48 = ±0,3
r: M18-M48 = ±0,5

Order No.	Size	Thread (hand)	Thread type	d_1 H9	l_1 ±0,5	d_2	d_3	l_2 ±0,5	l_3	l_4	w_1 B13	w_2	w_3 h11	w_4	g
65600.W0051	5x10	Right	Coarse	5	10	M 5	9	26	20	7,5	5	5	10	10	9
65600.W0052	5x20	Right	Coarse	5	20	M 5	9	36	30	7,5	5	5	10	10	13
65600.W0061	6x12	Right	Coarse	6	12	M 6	10	31	24	9,0	6	6	12	12	15
65600.W0062	6x24	Right	Coarse	6	24	M 6	10	43	36	9,0	6	6	12	12	21
65600.W0081	8x16	Right	Coarse	8	16	M 8	14	42	32	12,0	8	8	16	16	37
65600.W0082	8x16	Right	Fine	8	16	M 8x1,00	14	42	32	12,0	8	8	16	16	37
65600.W0083	8x32	Right	Coarse	8	32	M 8	14	58	48	12,0	8	8	16	16	54
65600.W0084	8x32	Right	Fine	8	32	M 8x1,00	14	58	48	12,0	8	8	16	16	54
65600.W0102	10x20	Right	Coarse	10	20	M10	18	52	40	15,0	10	10	20	20	74
65600.W0103	10x20	Right	Fine	10	20	M10x1,25	18	52	40	15,0	10	10	20	20	74
65600.W0104	10x40	Right	Coarse	10	40	M10	18	72	60	15,0	10	10	20	20	116
65600.W0105	10x40	Right	Fine	10	40	M10x1,25	18	72	60	15,0	10	10	20	20	116
65600.W0122	12x24	Right	Coarse	12	24	M12	20	62	48	18,0	12	12	24	24	121
65600.W0123	12x24	Right	Fine	12	24	M12x1,25	20	62	48	18,0	12	12	24	24	121
65600.W0124	12x48	Right	Coarse	12	48	M12	20	86	72	18,0	12	12	24	24	175
65600.W0125	12x48	Right	Fine	12	48	M12x1,25	20	86	72	18,0	12	12	24	24	175
65600.W0142	14x28	Right	Coarse	14	28	M14	24	72	56	22,5	14	14	27	27	178
65600.W0143	14x28	Right	Fine	14	28	M14x1,50	24	72	56	22,5	14	14	27	27	178
65600.W0145	14x56	Right	Coarse	14	56	M14	24	101	85	22,5	14	14	27	27	258
65600.W0146	14x56	Right	Fine	14	56	M14x1,50	24	101	85	22,5	14	14	27	27	258
65600.W0163	16x32	Right	Coarse	16	32	M16	26	83	64	24,0	16	16	32	32	282
65600.W0164	16x32	Right	Fine	16	32	M16x1,50	26	83	64	24,0	16	16	32	32	282
65600.W0166	16x64	Right	Coarse	16	64	M16	26	115	96	24,0	16	16	32	32	411
65600.W0167	16x64	Right	Fine	16	64	M16x1,50	26	115	96	24,0	16	16	32	32	411
65600.W0183	18x36	Right	Coarse	18	36	M18	30	94	72	27,0	18	18	36	36	390
65600.W0184	18x36	Right	Fine	18	36	M18x1,50	30	94	72	27,0	18	18	36	36	390
65600.W0204	20x40	Right	Coarse	20	40	M20	34	105	80	30,0	20	20	40	40	550
65600.W0205	20x40	Right	Fine	20	40	M20x1,50	34	105	80	30,0	20	20	40	40	550
65600.W0208	20x80	Right	Coarse	20	80	M20	34	145	120	30,0	20	20	40	40	800
65600.W0209	20x80	Right	Fine	20	80	M20x1,50	34	145	120	30,0	20	20	40	40	800
65600.W0255	25x50	Right	Coarse	25	50	M24	42	132	100	36,0	25	25	50	50	1100

Steel Clevis Joint with Pin

silver zinc plated

65600

Order No.	Size	Thread (hand)	Thread type	d_1 H9	l_1 ±0,5	d_2	d_3	l_2 ±0,5	l_3	l_4	w_1 B13	w_2	w_3 h11	w_4	g
65600.W0256	25x50	Right	Fine	25	50	M24x2,00	42	132	100	36,0	25	25	50	50	1100
65600.W0285	28x56	Right	Coarse	28	56	M27	48	148	112	40,0	28	28	55	55	1500
65600.W0286	28x56	Right	Fine	28	56	M27x2,00	48	148	112	40,0	28	28	55	55	1500
65600.W0305	30x54	Right	Fine	30	54	M27x2,00	48	148	110	40,0	30	30	55	55	1440
65600.W0306	30x60	Right	Coarse	30	60	M30	52	160	120	42,0	30	30	60	60	1970
65600.W0307	30x60	Right	Fine	30	60	M30x2,00	52	160	120	42,0	30	30	60	60	1970
65600.W0355	35x54	Right	Fine	35	54	M36x2,00	60	188	144	54,0	35	35	70	70	2930
65600.W0357	35x72	Right	Coarse	35	72	M36	60	188	144	54,0	35	35	70	70	2930
65600.W0358	35x72	Right	Fine	35	72	M36x2,00	60	188	144	54,0	35	35	70	70	2930
65600.W0367	36x72	Right	Coarse	35	72	M36	60	188	144	54,0	36	36	70	70	2930
65600.W0368	36x72	Right	Fine	35	72	M36x2,00	60	188	144	54,0	36	36	70	70	2930
65600.W0408	40x84	Right	Fine	40	84	M42x2,00	70	232	168	63,5	40	40	85	85	5640
65600.W0428	42x84	Right	Coarse	42	84	M42	70	232	168	63,5	42	42	85	85	5340
65600.W0429	42x84	Right	Fine	42	84	M42x2,00	70	232	168	63,5	42	42	85	85	5340
65600.W0509	50x96	Right	Coarse	50	96	M48	82	265	192	73,0	50	50	96	96	7860
65600.W0510	50x96	Right	Fine	50	96	M48x2,00	82	265	192	73,0	50	50	96	96	7860

Material

Steel 1.0718 (11SMnPb30k), silver zinc plated.

Technical Notes

M5-M16: DIN 71 752/DIN ISO 8140.
M18-M48: Similar to DIN 71 752/DIN ISO 8140 and according to CETOP standard.

Tips

Standard thread is right hand, (for left hand, see 65602).
Assembly is made up using 65630 clevis joint, 65660 clevis pin, 65670 washer, and 65674 split cotter pin.

Important Notes

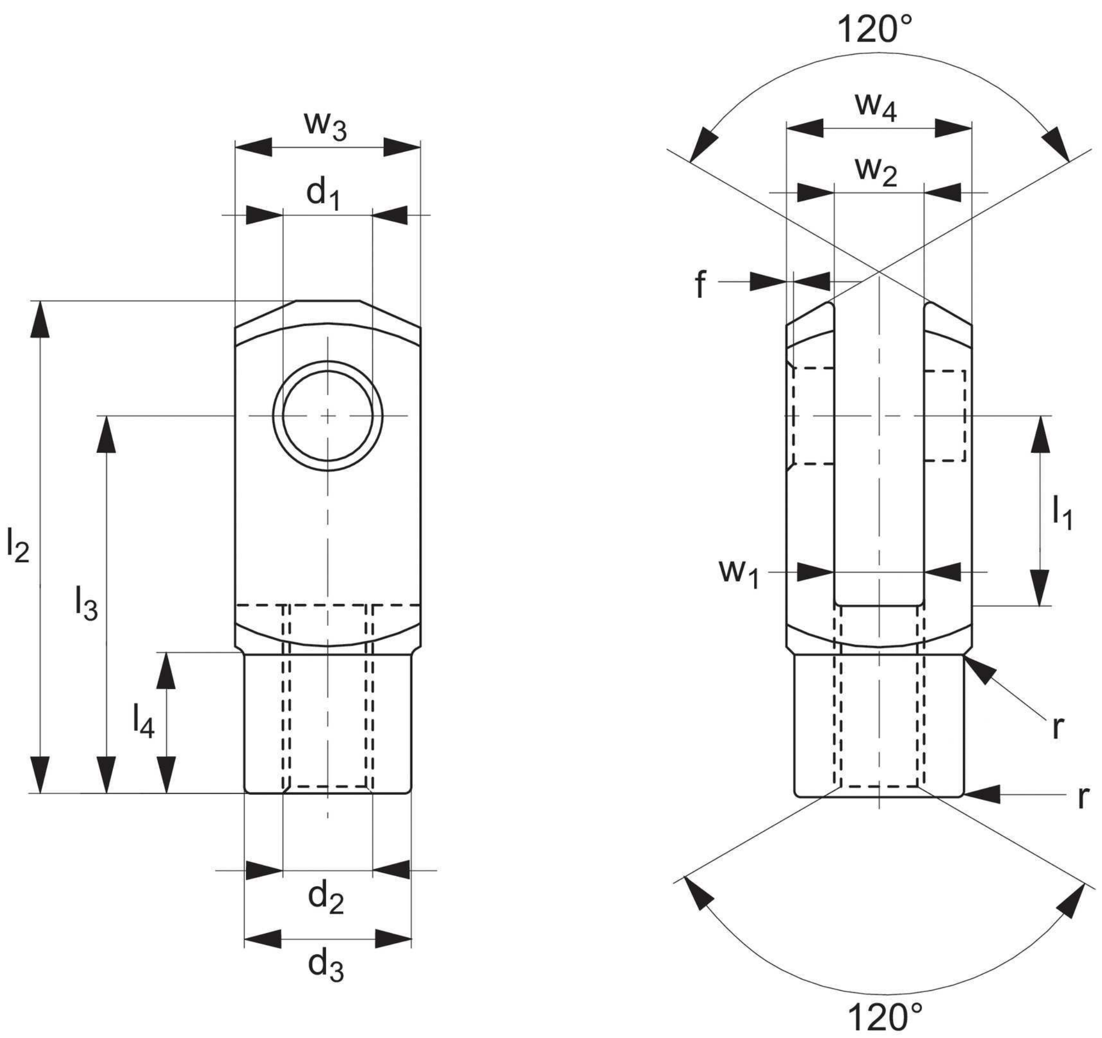
For sizes M5-M12, f and r =0,5
For sizes M14-M16, f and r =1
For sizes M18-M20, f=1, r = 1,5
For M24 f and r = 1,5
For sizes M27-M30, f = 1,5, r = 2
For M36 f = 2, r = 3
For sizes M42-M48, f = 3, r = 5
For r, radius or 45° bevelling.

Other Tolerances:-
w_4: M4-M16 = +0,3 -0,16
M18-M48 = +0,5 -0,2
w_2: size 4x8-10x20 = B13
All others +0,7 +0,15
d_3: M4-M16 = ±0,3
l_2: size 4x8-6x12 = ±0,3
All others ±0,4
l_3: M4-M16 = ±0,2
M18-M48 = ±0,3
r: M18-M48 = ±0,5

Steel Clevis Joints with Pin

left hand thread - silver zinc plated

65602



Material

Steel 1.0718 (11SMnPb30k), silver zinc plated.

Technical Notes

M5-M16: DIN 71 752/DIN ISO 8140.
M18-M48: Similar to DIN 71 752/DIN ISO 8140 and according to CETOP standard.

Tips

Assembly is made up using the 65631 clevis joint, 65660 clevis pin, 65670 washer, and 65674 split cotter pin.

Important Notes

For sizes M5-M12, f and r =0,5
For sizes M14-M16, f and r =1
For sizes M18-M20, f=1, r = 1,5
For M24 f and r = 1,5
For sizes M27-M30, f = 1,5, r = 2
For M36 f = 2, r = 3
For sizes M42-M48, f = 3, r = 5
For r, radius or 45° bevelling.

Other Tolerances:-
w_4: M4-M16 = +0,3 -0,16
M18-M48 = +0,5 -0,2
w_2: size 4x8-10x20 = B13
All others +0,7 +0,15
d_3: M4-M16 = ±0,3
l_2: size4x8-6x12 = ±0,3
All others ±0,4
l_3: M4-M16 = ±0,2
M18-M48 = ±0,3
r: M18-M48 = ±0,5

Order No.	Size	Thread (hand)	Thread type	d_1 H9	l_1 ±0,5	d_2	d_3	l_2 ±0,5	l_3	l_4	w_1 B13	w_2	w_3 h11	w_4	g
65602.W0051	5x10	Left	Coarse	5	10	M 5	9	26	20	7,5	5	5	10	10	9
65602.W0052	5x20	Left	Coarse	5	20	M 5	9	36	30	7,5	5	5	10	10	13
65602.W0061	6x12	Left	Coarse	6	12	M 6	10	31	24	9,0	6	6	12	12	15
65602.W0062	6x24	Left	Coarse	6	24	M 6	10	43	36	9,0	6	6	12	12	21
65602.W0081	8x16	Left	Coarse	8	16	M 8	14	42	32	12,0	8	8	16	16	37
65602.W0082	8x16	Left	Fine	8	16	M8x1	14	42	32	12,0	8	8	16	16	37
65602.W0083	8x32	Left	Coarse	8	32	M 8	14	58	48	12,0	8	8	16	16	54
65602.W0084	8x32	Left	Fine	8	32	M 8x1	14	58	48	12,0	8	8	16	16	54
65602.W0102	10x20	Left	Coarse	10	20	M10	18	52	40	15,0	10	10	20	20	74
65602.W0103	10x20	Left	Fine	10	20	M10x1,25	18	52	40	15,0	10	10	20	20	74
65602.W0104	10x40	Left	Coarse	10	40	M10	18	72	60	15,0	10	10	20	20	116
65602.W0105	10x40	Left	Fine	10	40	M10x1,25	18	72	60	15,0	10	10	20	20	116
65602.W0122	12x24	Left	Coarse	12	24	M12	20	62	48	18,0	12	12	24	24	121
65602.W0123	12x24	Left	Fine	12	24	M12x1,25	20	62	48	18,0	12	12	24	24	121
65602.W0124	12x48	Left	Coarse	12	48	M12	20	86	72	18,0	12	12	24	24	175
65602.W0125	12x48	Left	Fine	12	48	M12x1,25	20	86	72	18,0	12	12	24	24	175
65602.W0142	14x28	Left	Coarse	14	28	M14	24	72	56	22,5	14	14	27	27	178
65602.W0143	14x28	Left	Fine	14	28	M14x1,50	24	72	56	22,5	14	14	27	27	178
65602.W0145	14x56	Left	Coarse	14	56	M14	24	101	85	22,5	14	14	27	27	258
65602.W0146	14x56	Left	Fine	14	56	M14x1,50	24	101	85	22,5	14	4	27	27	258
65602.W0163	16x32	Left	Coarse	16	32	M16	26	83	64	24,0	16	16	32	32	282
65602.W0164	16x32	Left	Fine	16	32	M16x1,50	26	83	64	24,0	16	16	32	32	282
65602.W0166	16x64	Left	Coarse	16	64	M16	26	115	96	24,0	16	16	32	32	411
65602.W0167	16x64	Left	Fine	16	64	M16x1,50	26	115	96	24,0	16	16	32	32	411
65602.W0183	18x36	Left	Coarse	18	36	M18	30	94	72	27,0	18	18	36	36	390
65602.W0184	18x36	Left	Fine	18	36	M18x1,50	30	94	72	27,0	18	18	36	36	390
65602.W0204	20x40	Left	Coarse	20	40	M20	34	105	80	30,0	20	20	40	40	550
65602.W0205	20x40	Left	Fine	20	40	M20x1,50	34	105	80	30,0	20	20	40	40	550
65602.W0208	20x80	Left	Coarse	20	80	M20	34	145	120	30,0	20	20	40	40	800

Steel Clevis Joints with Pin

left hand thread - silver zinc plated

65602

Order No.	Size	Thread (hand)	Thread type	d_1 H9	l_1 ±0,5	d_2	d_3	l_2 ±0,5	l_3	l_4	w_1 B13	w_2	w_3 h11	w_4	g
65602.W0209	20x80	Left	Fine	20	80	M20x1,5	34	145	120	30,0	20	20	40	40	800
65602.W0255	25x50	Left	Coarse	25	50	M24	42	132	100	36,0	25	25	50	50	1100
65602.W0256	25x50	Left	Fine	25	50	M24x2,00	42	132	100	36,0	25	25	50	50	1100
65602.W0285	28x56	Left	Coarse	28	56	M27	48	148	112	40,0	28	28	55	55	1500
65602.W0286	28x56	Left	Fine	28	56	M27x2,00	48	148	112	40,0	28	28	55	55	1500
65602.W0305	30x54	Left	Fine	30	54	M27x2,00	48	148	110	40,0	30	30	55	55	1440
65602.W0306	30x60	Left	Coarse	30	60	M30	52	160	120	42,0	30	30	60	60	1970
65602.W0307	30x60	Left	Fine	30	60	M30x2,00	52	160	120	42,0	30	30	60	60	1970
65602.W0355	35x54	Left	Fine	35	54	M36x2,00	60	188	144	54,0	35	35	70	70	2930
65602.W0357	35x72	Left	Course	35	72	M36	60	188	144	54,0	35	35	70	70	2930
65602.W0358	35x72	Left	Fine	35	72	M36x2,00	60	188	144	54,0	35	35	70	70	2930
65602.W0367	36x72	Left	Course	35	72	M36	60	188	144	54,0	36	36	70	70	2930
65602.W0368	36x72	Left	Fine	35	72	M36x2,00	60	188	144	54,0	36	36	70	70	2930
65602.W0408	40x84	Left	Fine	40	84	M42x2,00	70	232	168	63,5	40	40	85	85	5640
65602.W0428	42x84	Left	Coarse	42	84	M42	70	232	168	63,5	42	42	85	85	5340
65602.W0429	42x84	Left	Fine	42	84	M42x2,00	70	232	168	63,5	42	42	85	85	5340
65602.W0509	50x96	Left	Coarse	50	96	M48	82	265	192	73,0	50	50	96	96	7860
65602.W0510	50x96	Left	Fine	50	96	M48x2,00	82	265	192	73,0	50	50	96	96	7860

Material

Steel 1.0718 (11SMnPb30k), silver zinc plated.

Technical Notes

M5-M16: DIN 71 752/DIN ISO 8140. M18-M48: Similar to DIN 71 752/DIN ISO 8140 and according to CETOP standard.

Tips

Assembly is made up using the 65631 clevis joint, 65660 clevis pin, 65670 washer, and 65674 split cotter pin.

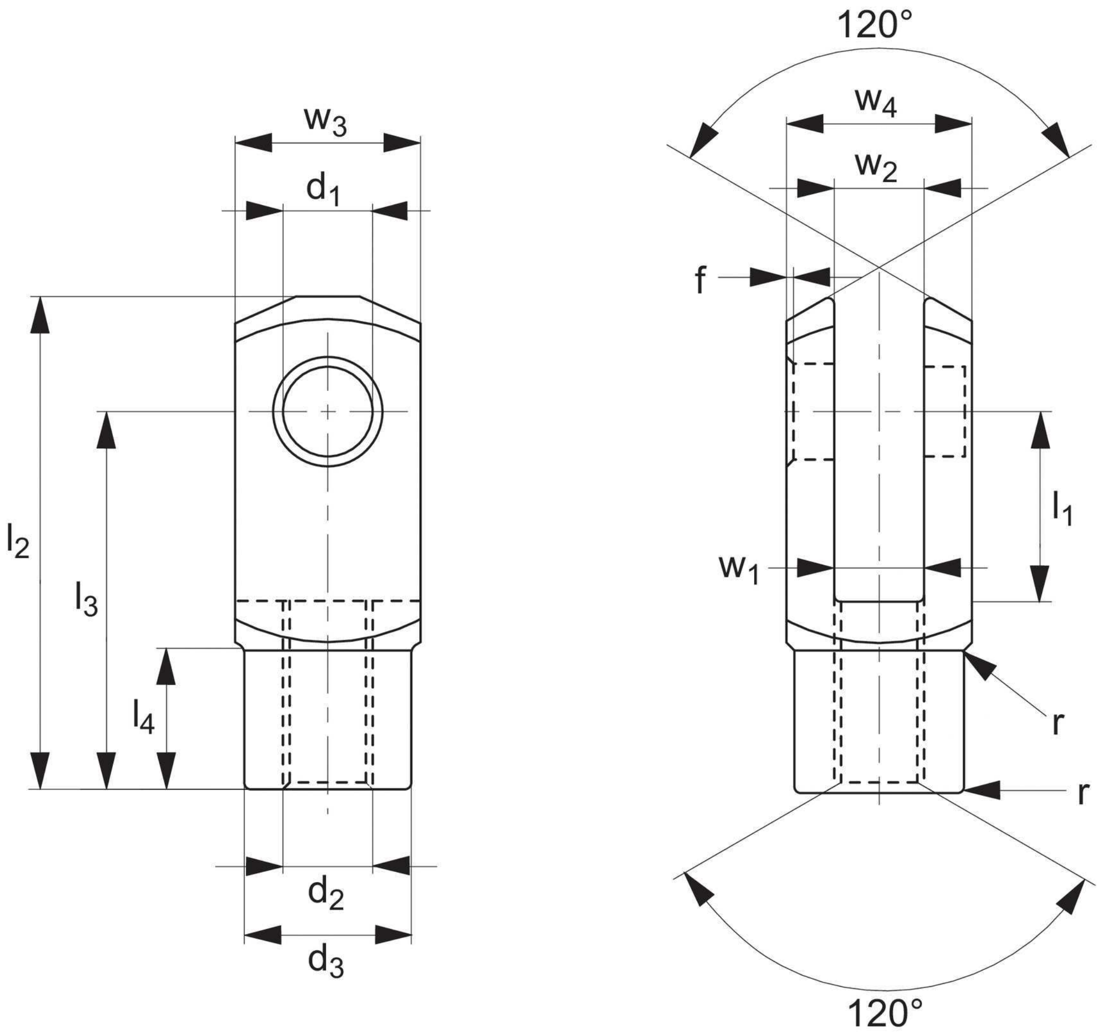
Important Notes

For sizes M5-M12, f and r =0,5
For sizes M14-M16, f and r =1
For sizes M18-M20, f=1, r = 1,5
For M24 f and r = 1,5
For sizes M27-M30, f = 1,5, r = 2
For M36 f = 2, r = 3
For sizes M42-M48, f = 3, r = 5
For r, radius or 45° bevelling.

Other Tolerances:-
w_4: M4-M16 = +0,3 -0,16
M18-M48 = +0,5 -0,2
w_2: size 4x8-10x20 = B13
All others +0,7 +0,15
d_3: M4-M16 = ±0,3
l_2: size4x8-6x12 = ±0,3
All others ±0,4
l_3: M4-M16 = ±0,2
M18-M48 = ±0,3
r: M18-M48 = ±0,5

Stainless Clevis Joint with Pin

65610



Material
Stainless steel (1.4305 AISI 303 X8CrNiS18-9)

Technical Notes
M5-M16: DIN 71 752/DIN ISO 8140.
M20-M24: Similar to DIN 71 752 and according to CETOP standard.

Tips
Standard thread is right hand (for left hand, see 65612).
Assembly is made up using 65635 clevis joint, 65661 pin, 65671 washer, and 65675 split cotter pin.

Important Notes
For sizes M5-M12, f and r = 0,5
For sizes M14-M16, f and r = 1
For size M20, f=1, r = 1,5
For M24, f and r = 1,5
For r, radius or 45° bevelling.

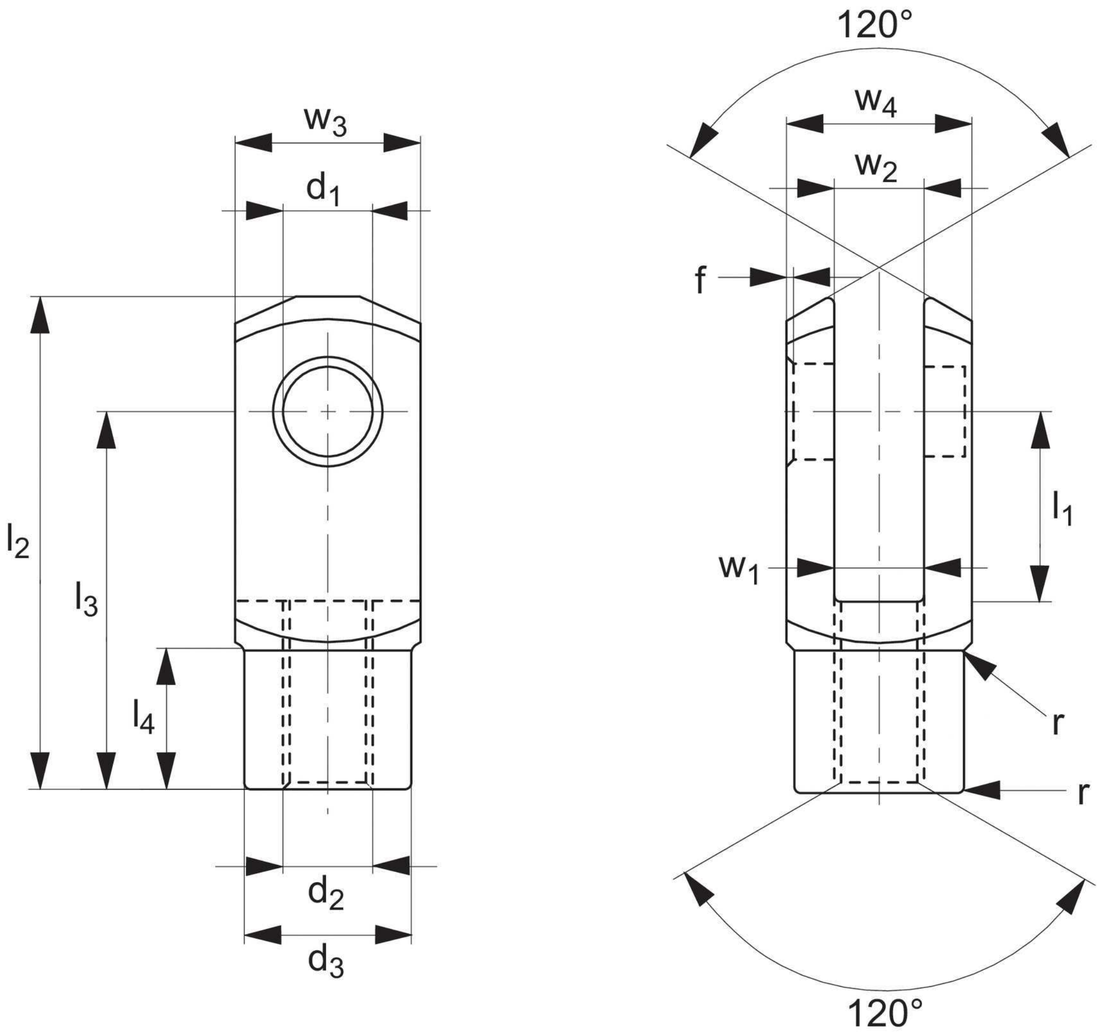
Other Tolerances:-
w_4: M4-M16 = +0,3 -0,16
M20-M24 = +0,5 - 0,2
w_2: Size 4x8-10x20 = B13
Size 10x40-25x50 = +0,7 +0,15
l_3: up to size 6x12 = ±0,3
From size 6x24 = ±0,4

Order No.	Size	Thread (hand)	Thread type	d_1 H9	l_1 ±0,5	d_2	d_3	l_2 ±0,5	l_3	l_4	w_1 ±0,5	w_2	w_3 h11	w_4	g
65610.W0051	5x10	Right	Coarse	5	10	M 5	9	26	20	7,5	5	5	10	10	9
65610.W0052	5x20	Right	Coarse	5	20	M 5	9	36	30	7,5	5	5	10	10	13
65610.W0061	6x12	Right	Coarse	6	12	M 6	10	31	24	9,0	6	6	12	12	15
65610.W0062	6x24	Right	Coarse	6	24	M 6	10	43	36	9,0	6	6	12	12	21
65610.W0081	8x16	Right	Coarse	8	16	M 8	14	42	32	12,0	8	8	16	16	37
65610.W0082	8x16	Right	Fine	8	16	M 8x1,00	14	42	32	12,0	8	8	16	16	37
65610.W0083	8x32	Right	Coarse	8	32	M 8	14	58	48	12,0	8	8	16	16	54
65610.W0084	8x32	Right	Fine	8	32	M 8x1,00	14	58	48	12,0	8	8	16	16	54
65610.W0102	10x20	Right	Coarse	10	20	M10	18	52	40	15,0	10	10	20	20	74
65610.W0103	10x20	Right	Fine	10	20	M10x1,25	18	52	40	15,0	10	10	20	20	74
65610.W0104	10x40	Right	Coarse	10	40	M10	18	72	60	15,0	10	10	20	20	116
65610.W0105	10x40	Right	Fine	10	40	M10x1,25	18	72	60	15,0	10	10	20	20	116
65610.W0122	12x24	Right	Coarse	12	24	M12	20	62	48	18,0	12	12	24	24	121
65610.W0123	12x24	Right	Fine	12	24	M12x1,25	20	62	48	18,0	12	12	24	24	121
65610.W0124	12x48	Right	Coarse	12	48	M12	20	86	72	18,0	12	12	24	24	175
65610.W0125	12x48	Right	Fine	12	48	M12x1,25	20	86	72	18,0	12	12	24	24	175
65610.W0142	14x28	Right	Coarse	14	28	M14	24	72	56	22,5	14	14	27	27	178
65610.W0143	14x28	Right	Fine	14	28	M14x1,50	24	72	56	22,5	14	14	27	27	178
65610.W0145	14x56	Right	Coarse	14	56	M14	24	101	85	22,5	14	14	27	27	258
65610.W0146	14x56	Right	Fine	14	56	M14x1,50	24	101	85	22,5	14	14	27	27	258
65610.W0163	16x32	Right	Coarse	16	32	M16	26	83	64	24,0	16	16	32	32	282
65610.W0164	16x32	Right	Fine	16	32	M16x1,50	26	83	64	24,0	16	16	32	32	282
65610.W0166	16x64	Right	Coarse	16	64	M16	26	115	96	24,0	16	16	32	32	411
65610.W0167	16x64	Right	Fine	16	64	M16x1,50	26	115	96	24,0	16	16	32	32	411
65610.W0204	20x40	Right	Coarse	20	40	M20	34	105	80	30,0	20	20	40	40	550
65610.W0205	20x40	Right	Fine	20	40	M20x1,50	34	105	80	30,0	20	20	40	40	550
65610.W0255	25x50	Right	Coarse	25	50	M24	42	132	100	36,0	25	25	50	50	1100
65610.W0256	25x50	Right	Fine	25	50	M24x2,00	42	132	100	36,0	25	25	50	50	1100

Stainless Clevis Joints with Pin

left hand thread

65612



Material

Stainless steel (1.4305 AISI 303 X8CrNiS18-9)

Technical Notes

M5-M16: DIN 71 752/DIN ISO 8140.
M20-M24: Similar to DIN 71 752 and according to CETOP standard.

Tips

Assembly is made up using 65636 clevis joint, 65661 pin, 65671 washer, and 65675 split cotter pin.

Important Notes

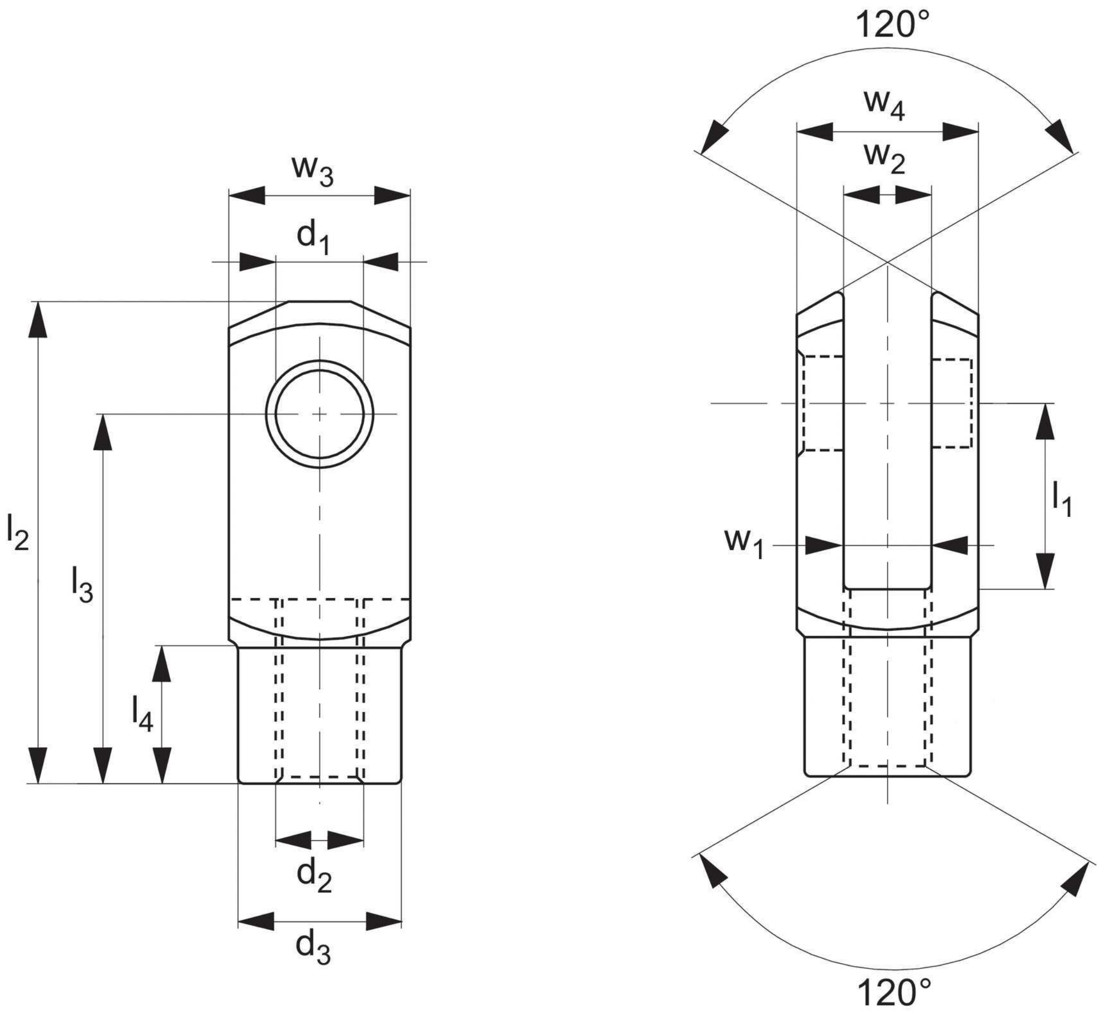
For sizes M5-M12, f and r = 0,5
For sizes M14-M16, f and r = 1
For size M20, f=1, r = 1,5
For M24, f and r = 1,5
For r, radius or 45° bevelling.

Other Tolerances:-
w_4: M4-M16 = +0,3 -0,16
M20-M27 = +0,5 - 0,2
w_2: Size 4x8-10x20 = B13
Size 10x40-30x54 = +0,7 +0,15
l_3: up to size 6x12 = ±0,3
From size 6x24 = ±0,4

Order No.	Size	Thread (hand)	Thread type	d_1 H9	l_1 ±0,5	d_2	d_3	l_2 ±0,5	l_3	l_4	w_1 B13	w_2	w_3 h11	w_4	g
65612.W0051	5x10	Left	Coarse	5	10	M 5	9	26	20	7,5	5	5	10	10	9
65612.W0052	5x20	Left	Coarse	5	20	M 5	9	36	30	7,5	5	5	10	10	13
65612.W0061	6x12	Left	Coarse	6	12	M 6	10	31	24	9,0	6	6	12	12	15
65612.W0062	6x24	Left	Coarse	6	24	M 6	10	43	36	9,0	6	6	12	12	21
65612.W0081	8x16	Left	Coarse	8	16	M 8	14	42	32	12,0	8	8	16	16	37
65612.W0082	8x16	Left	Fine	8	16	M 8x1,00	14	42	32	12,0	8	8	16	16	37
65612.W0083	8x32	Left	Coarse	8	32	M 8	14	58	48	12,0	8	8	16	16	54
65612.W0084	8x32	Left	Fine	8	32	M 8x1,00	14	58	48	12,0	8	8	16	16	54
65612.W0102	10x20	Left	Coarse	10	20	M10	18	52	40	15,0	10	10	20	20	74
65612.W0103	10x20	Left	Fine	10	20	M10x1,25	18	52	40	15,0	10	10	20	20	74
65612.W0104	10x40	Left	Coarse	10	40	M10	18	72	60	15,0	10	10	20	20	116
65612.W0105	10x40	Left	Fine	10	40	M10x1,25	18	72	60	15,0	10	10	20	20	116
65612.W0122	12x24	Left	Coarse	12	24	M12	20	62	48	18,0	12	12	24	24	121
65612.W0123	12x24	Left	Fine	12	24	M12x1,25	20	62	48	18,0	12	12	24	24	121
65612.W0124	12x48	Left	Coarse	12	48	M12	20	86	72	18,0	12	12	24	24	175
65612.W0125	12x48	Left	Fine	12	48	M12x1,25	20	86	72	18,0	12	12	24	24	175
65612.W0142	14x28	Left	Coarse	14	28	M14	24	72	56	22,5	14	14	27	27	178
65612.W0143	14x28	Left	Fine	14	28	M14x1,50	24	72	56	22,5	14	14	27	27	178
65612.W0145	14x56	Left	Coarse	14	56	M14	24	101	85	22,5	14	14	27	27	258
65612.W0146	14x56	Left	Fine	14	56	M14x1,50	24	101	85	22,5	14	14	27	27	258
65612.W0163	16x32	Left	Coarse	16	32	M16	26	83	64	24,0	16	16	32	32	282
65612.W0164	16x32	Left	Fine	16	32	M16x1,50	26	83	64	24,0	16	16	32	32	282
65612.W0166	16x64	Left	Coarse	16	64	M16	26	115	96	24,0	16	16	32	32	411
65612.W0167	16x64	Left	Fine	16	64	M16x1,50	26	115	96	24,0	16	16	32	32	411
65612.W0204	20x40	Left	Coarse	20	40	M20	34	105	80	30,0	20	20	40	40	550
65612.W0205	20x40	Left	Fine	20	40	M20x1,50	34	105	80	30,0	20	20	40	40	550
65612.W0255	25x50	Left	Coarse	25	50	M24	42	132	100	36,0	25	25	50	50	1100
65612.W0256	25x50	Left	Fine	25	50	M24x2,00	42	132	100	36,0	25	25	50	50	1100

Stainless Clevis Joints with Pin

65614



Order No.	Size	Thread (hand)	Thread type	d_1 H9	l_1 ±0,5	d_2	d_3	l_2 ±0,5	l_3	l_4	w_1 ±0,5	w_2	w_3 h11	w_4	g
65614.W0051	5x10	Right	Coarse	5	10	M 5	9	26	20	7,5	5	5	10	10	9
65614.W0052	5x20	Right	Coarse	5	20	M 5	9	36	30	7,5	5	5	10	10	13
65614.W0061	6x12	Right	Coarse	6	12	M 6	10	31	24	9,0	6	6	12	12	15
65614.W0062	6x24	Right	Coarse	6	24	M 6	10	43	36	9,0	6	6	12	12	21
65614.W0081	8x16	Right	Coarse	8	16	M 8	14	42	32	12,0	8	8	16	16	37
65614.W0082	8x16	Right	Fine	8	16	M 8x1,00	14	42	32	12,0	8	8	16	16	37
65614.W0083	8x32	Right	Coarse	8	32	M 8	14	58	48	12,0	8	8	16	16	54
65614.W0084	8x32	Right	Fine	8	32	M 8x1,00	14	58	48	12,0	8	8	16	16	54
65614.W0102	10x20	Right	Coarse	10	20	M10	18	52	40	15,0	10	10	20	20	74
65614.W0103	10x20	Right	Fine	10	20	M10x1,25	18	52	40	15,0	10	10	20	20	74
65614.W0104	10x40	Right	Coarse	10	40	M10	18	72	60	15,0	10	10	20	20	116
65614.W0105	10x40	Right	Fine	10	40	M10x1,25	18	72	60	15,0	10	10	20	20	116
65614.W0122	12x24	Right	Coarse	12	24	M12	20	62	48	18,0	12	12	24	24	121
65614.W0123	12x24	Right	Fine	12	24	M12x1,25	20	62	48	18,0	12	12	24	24	121
65614.W0124	12x48	Right	Coarse	12	48	M12	20	86	72	18,0	12	12	24	24	175
65614.W0125	12x48	Right	Fine	12	48	M12x1,25	20	86	72	18,0	12	12	24	24	175
65614.W0163	16x32	Right	Coarse	16	32	M16	26	83	64	24,0	16	16	32	32	282
65614.W0164	16x32	Right	Fine	16	32	M16x1,50	26	83	64	24,0	16	16	32	32	282
65614.W0166	16x64	Right	Coarse	16	64	M16	26	115	96	24,0	16	16	32	32	411
65614.W0167	16x64	Right	Fine	16	64	M16x1,50	26	115	96	24,0	16	16	32	32	411
65614.W0204	20x40	Right	Coarse	20	40	M20	34	105	80	30,0	20	20	40	40	550
65614.W0205	20x40	Right	Fine	20	40	M20x1,50	34	105	80	30,0	20	20	40	40	550

Material

Stainless steel (1.4305 AISI 303 X8CrNiS18-9)

Technical Notes

M5-M16: DIN 71 752/DIN ISO 8140.
M20: Similar to DIN 71 752 and according to CETOP standard.

Tips

Standard thread is right hand, (for left hand, see 65614).
Assembly is made up using 65635 clevis joint, 65666 pin, and 2 off 65678 circlips.

Important Notes

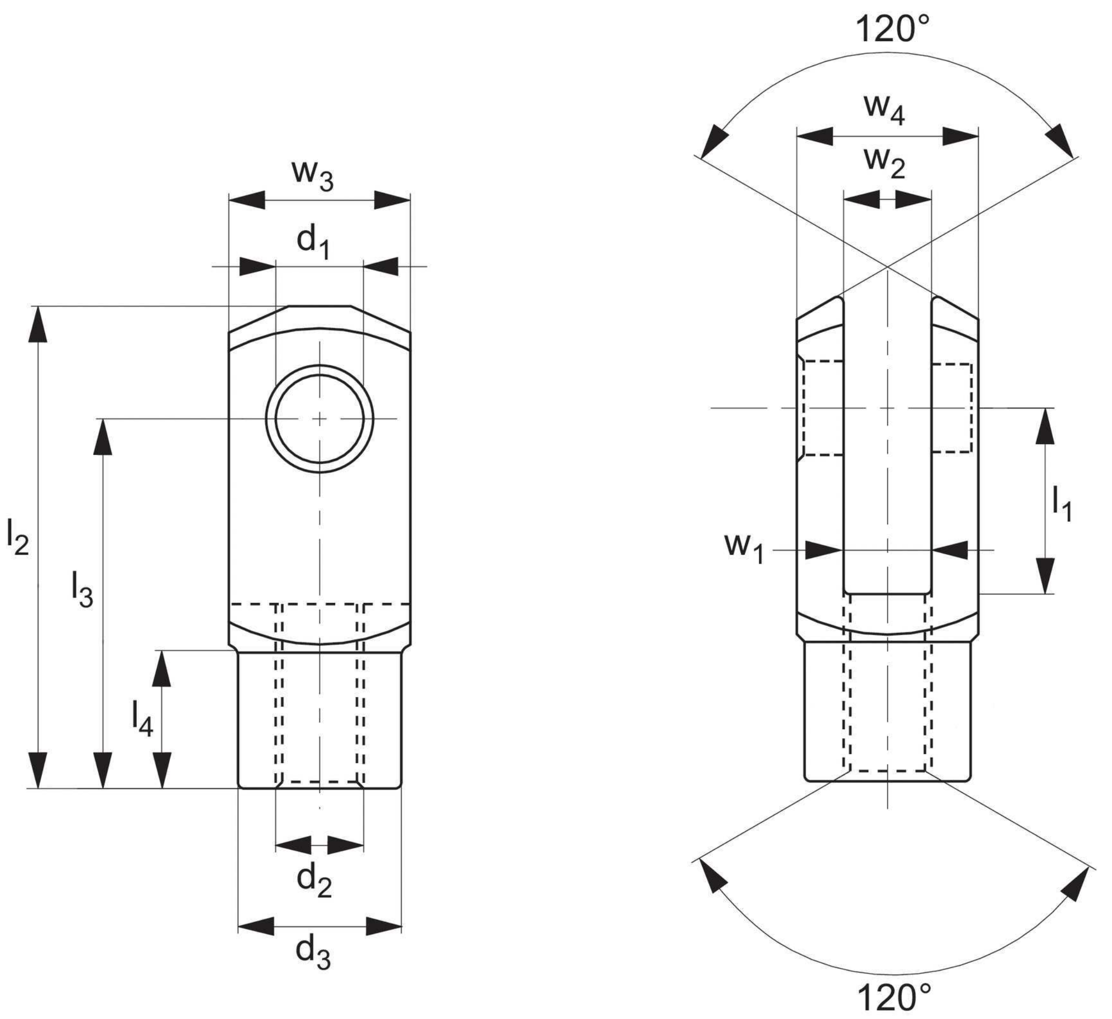
For sizes M5-M12, f and r = 0,5
For sizes M16, f and r = 1
For size M20, f=1, r = 1,5
For r, radius or 45° bevelling.

Other Tolerances:-
w_4: M4-M16 = +0,3 -0,16
M20 = +0,5 - 0,2
w_2: Size 4x8-10x20 = B13
Size 10x40-20x40 = +0,7 +0,15
l_3: up to size 6x12 = ±0,3
From size 6x24 = ±0,4

Stainless Clevis Joints with Pin

left hand thread

65616



Order No.	Size	Thread (hand)	Thread type	d_1 H9	l_1 ±0,5	d_2	d_3	l_2 ±0,5	l_3	l_4	w_1 B13	w_2	w_3 h11	w_4	g
65616.W0051	5x10	Left	Coarse	5	10	M 5	9	26	20	7,5	5	5	10	10	9
65616.W0052	5x20	Left	Coarse	5	20	M 5	9	36	30	7,5	5	5	10	10	13
65616.W0061	6x12	Left	Coarse	6	12	M 6	10	31	24	9,0	6	6	12	12	15
65616.W0062	6x24	Left	Coarse	6	24	M 6	10	43	36	9,0	6	6	12	12	21
65616.W0081	8x16	Left	Coarse	8	16	M 8	14	42	32	12,0	8	8	16	16	37
65616.W0082	8x16	Left	Fine	8	16	M 8x1,00	14	42	32	12,0	8	8	16	16	37
65616.W0083	8x32	Left	Coarse	8	32	M 8	14	58	48	12,0	8	8	16	16	54
65616.W0084	8x32	Left	Fine	8	32	M 8x1,00	14	58	48	12,0	8	8	16	16	54
65616.W0102	10x20	Left	Coarse	10	20	M10	18	52	40	15,0	10	10	20	20	74
65616.W0103	10x20	Left	Fine	10	20	M10x1,25	18	52	40	15,0	10	10	20	20	74
65616.W0104	10x40	Left	Coarse	10	40	M10	18	72	60	15,0	10	10	20	20	116
65616.W0105	10x40	Left	Fine	10	40	M10x1,25	18	72	60	15,0	10	10	20	20	116
65616.W0122	12x24	Left	Coarse	12	24	M12	20	62	48	18,0	12	12	24	24	121
65616.W0123	12x24	Left	Fine	12	24	M12x1,25	20	62	48	18,0	12	12	24	24	121
65616.W0124	12x48	Left	Coarse	12	48	M12	20	86	72	18,0	12	12	24	24	175
65616.W0125	12x48	Left	Fine	12	48	M12x1,25	20	86	72	18,0	12	12	24	24	175
65616.W0163	16x32	Left	Coarse	16	32	M16	26	83	64	24,0	16	16	32	32	282
65616.W0164	16x32	Left	Fine	16	32	M16x1,50	26	83	64	24,0	16	16	32	32	282
65616.W0166	16x64	Left	Coarse	16	64	M16	26	115	96	24,0	16	16	32	32	411
65616.W0167	16x64	Left	Fine	16	64	M16x1,50	26	115	96	24,0	16	16	32	32	411
65616.W0204	20x40	Left	Coarse	20	40	M20	34	105	80	30,0	20	20	40	40	550
65616.W0205	20x40	Left	Fine	20	40	M20x1,50	34	105	80	30,0	20	20	40	40	550

Material

Stainless steel (1.4305 AISI 303 X8CrNiS18-9)

Technical Notes

M5-M16: DIN 71 752/DIN ISO 8140. M20: Similar to DIN 71 752 and according to CETOP standard.

Tips

Assembly is made up using 65636 clevis joint, 65666 pin, and 2 off 65678 circlips.

Important Notes

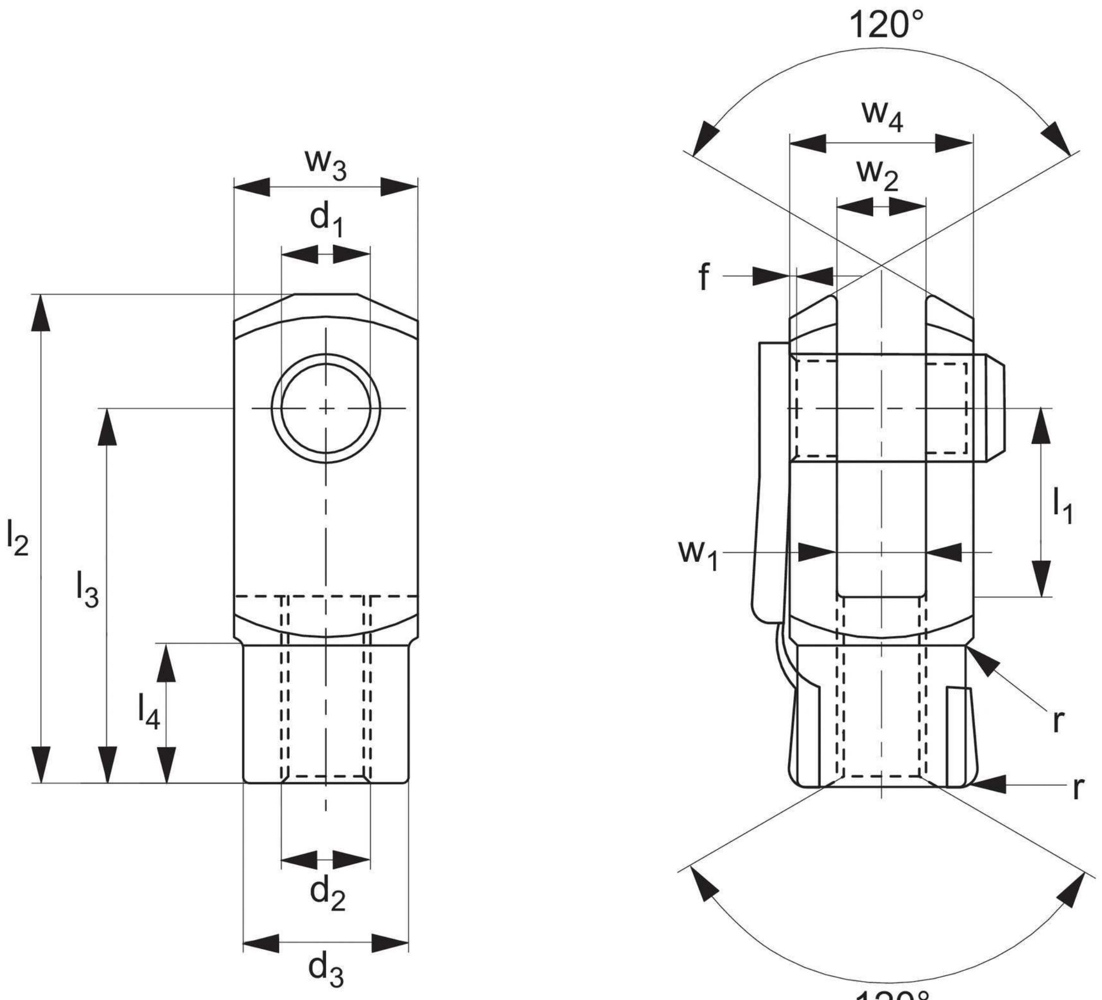
For sizes M5-M12, f and r = 0,5
For sizes M16, f and r = 1
For size M20, f=1, r = 1,5
For r, radius or 45° bevelling.

Other Tolerances:-
w_4: M4-M16 = +0,3 -0,16
M20 = +0,5 - 0,2
w_2: Size 4x8-10x20 = B13
Size 10x40-20x40 = +0,7 +0,15
l_3: up to size 6x12 = ±0,3
From size 6x24 = ±0,4

Steel Clevis Joints with Retention Clips

silver zinc plated

65618



Material
Steel 1.0718 (11SMnPb30k) silver zinc plated.

Technical Notes
M4-M16: DIN 71 752/DIN ISO 8140.
M20: Similar to DIN 71 752/DIN ISO 8140 and according to CETOP standard.

Tips
Standard thread is right hand, (for left hand, see 65620).
Assembly made up using 65630 clevis joint and 65684 clevis retention clip.

Important Notes
For sizes M4-M12, f and r =0,5
For sizes M14-M16, f and r =1
For sizes M20, f=1, r = 1,5
For r, radius or 45° bevelling.

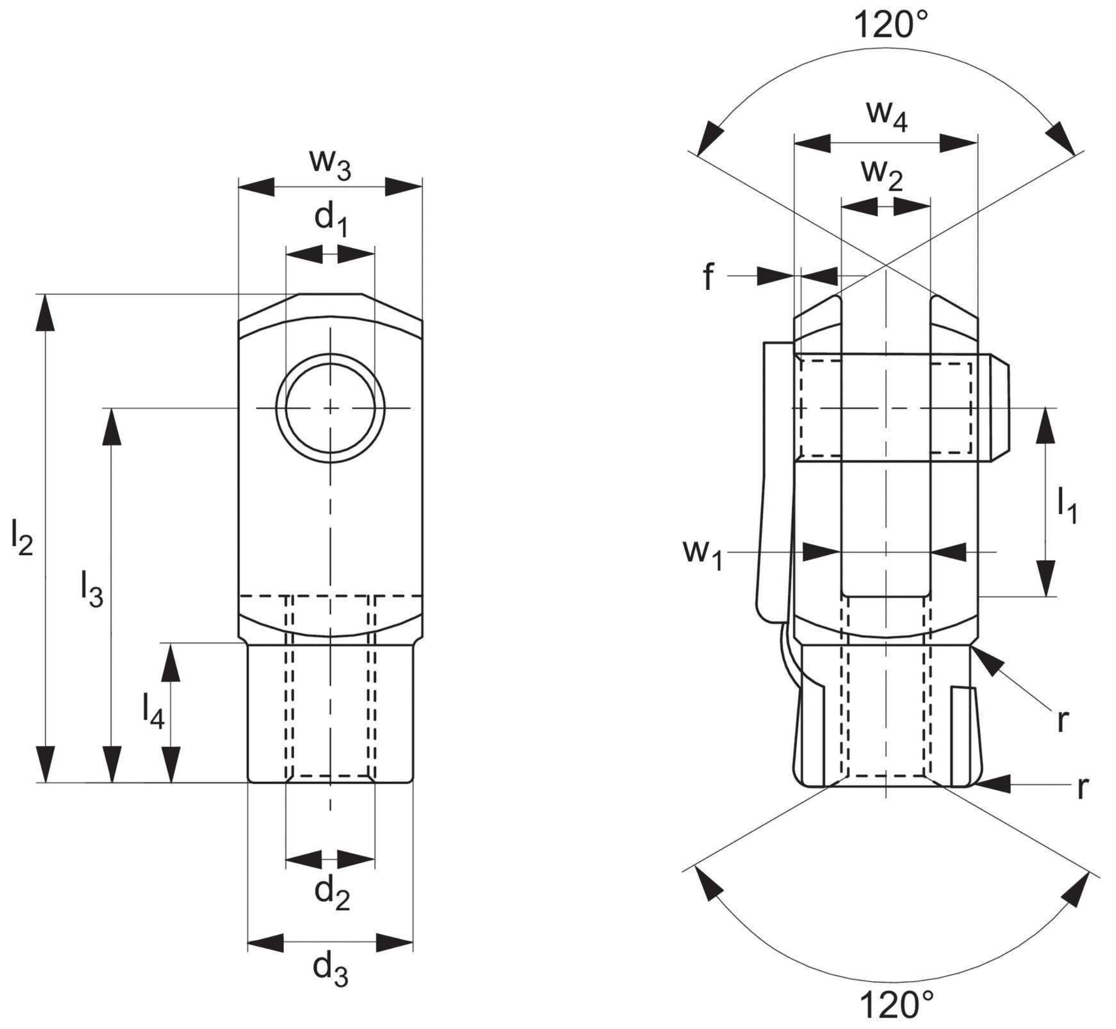
Other Tolerances:-
w_4: M4-M16 = +0,3 -0,16
M20 = +0,5 -0,2
w_2: size 4x8-10x20 = B13
All others +0,7 +0,15
d_3: M4-M16 = ±0,3
l_2: size 4x8-6x12 = ±0,3
All others ±0,4
l_3: M4-M16 = ±0,2
M20 = ±0,3
r: M20 = ±0,5

Order No.	Size	Thread (hand)	Thread type	d_1 H9	l_1 ±0,5	d_2	d_3	l_2 ±0,5	l_3	l_4	w_1 B13	w_2	w_3 h11	w_4	g
65618.W0040	4x8	Right	Coarse	4	8	M 4	8	21	16	6,0	4	4	8	8	5
65618.W0051	5x10	Right	Coarse	5	10	M 5	9	26	20	7,5	5	5	10	10	9
65618.W0052	5x20	Right	Coarse	5	20	M 5	9	36	30	7,5	5	5	10	10	13
65618.W0061	6x12	Right	Coarse	6	12	M 6	10	31	24	9,0	6	6	12	12	15
65618.W0062	6x24	Right	Coarse	6	24	M 6	10	43	36	9,0	6	6	12	12	21
65618.W0081	8x16	Right	Coarse	8	16	M 8	14	42	32	12,0	8	8	16	16	37
65618.W0082	8x16	Right	Fine	8	16	M 8x1,00	14	42	32	12,0	8	8	16	16	37
65618.W0083	8x32	Right	Coarse	8	32	M 8	14	58	48	12,0	8	8	16	16	54
65618.W0084	8x32	Right	Fine	8	32	M 8x1,00	14	58	48	12,0	8	8	16	16	54
65618.W0102	10x20	Right	Coarse	10	20	M10	18	52	40	15,0	10	10	20	20	74
65618.W0103	10x20	Right	Fine	10	20	M10x1,25	18	52	40	15,0	10	10	20	20	74
65618.W0104	10x40	Right	Coarse	10	40	M10	18	72	60	15,0	10	10	20	20	116
65618.W0105	10x40	Right	Fine	10	40	M10x1,25	18	72	60	15,0	10	10	20	20	116
65618.W0122	12x24	Right	Coarse	12	24	M12	20	62	48	18,0	12	12	24	24	121
65618.W0123	12x24	Right	Fine	12	24	M12x1,25	20	62	48	18,0	12	12	24	24	121
65618.W0124	12x48	Right	Coarse	12	48	M12	20	86	72	18,0	12	12	24	24	175
65618.W0125	12x48	Right	Fine	12	48	M12x1,25	20	86	72	18,0	12	12	24	24	175
65618.W0142	14x28	Right	Coarse	14	28	M14	24	72	56	22,5	14	14	27	27	178
65618.W0143	14x28	Right	Fine	14	28	M14x1,50	24	72	56	22,5	14	14	27	27	178
65618.W0145	14x56	Right	Coarse	14	56	M14	24	101	85	22,5	14	14	27	27	258
65618.W0146	14x56	Right	Fine	14	56	M14x1,50	24	101	85	22,5	14	14	27	27	258
65618.W0163	16x32	Right	Coarse	16	32	M16	26	83	64	24,0	16	16	32	32	282
65618.W0164	16x32	Right	Fine	16	32	M16x1,50	26	83	64	24,0	16	16	32	32	282
65618.W0166	16x64	Right	Coarse	16	64	M16	26	115	96	24,0	16	16	32	32	411
65618.W0167	16x64	Right	Fine	16	64	M16x1,50	26	115	96	24,0	16	16	32	32	411
65618.W0204	20x40	Right	Coarse	20	40	M20	34	105	80	30,0	20	20	40	40	550
65618.W0205	20x40	Right	Fine	20	40	M20x1,50	34	105	80	30,0	20	20	40	40	550

Steel Clevis Joints with Retention Clips

left hand thread - silver zinc plated

65620



Order No.	Size	Thread (hand)	Thread type	d_1 H9	l_1 ±0,5	d_2	d_3	l_2 ±0,5	l_3	l_4	w_1 B13	w_2	w_3 h11	w_4	g
65620.W0040	4x8	Left	Coarse	4	8	M 4	8	21	16	6,0	4	4	8	8	5
65620.W0051	5x10	Left	Coarse	5	10	M 5	9	26	20	7,5	5	5	10	10	9
65620.W0052	5x20	Left	Coarse	5	20	M 5	9	36	30	7,5	5	5	10	10	13
65620.W0061	6x12	Left	Coarse	6	12	M 6	10	31	24	9,0	6	6	12	12	15
65620.W0062	6x24	Left	Coarse	6	24	M 6	10	43	36	9,0	6	6	12	12	21
65620.W0081	8x16	Left	Coarse	8	16	M 8	14	42	32	12,0	8	8	16	16	37
65620.W0082	8x16	Left	Fine	8	16	M 8x1,00	14	42	32	12,0	8	8	16	16	37
65620.W0083	8x32	Left	Coarse	8	32	M 8	14	58	48	12,0	8	8	16	16	54
65620.W0084	8x32	Left	Fine	8	32	M 8x1,00	14	58	48	12,0	8	8	16	16	54
65620.W0102	10x20	Left	Coarse	10	20	M10	18	52	40	15,0	10	10	20	20	74
65620.W0103	10x20	Left	Fine	10	20	M10x1,25	18	52	40	15,0	10	10	20	20	74
65620.W0104	10x40	Left	Coarse	10	40	M10	18	72	60	15,0	10	10	20	20	116
65620.W0105	10x40	Left	Fine	10	40	M10x1,25	18	72	60	15,0	10	10	20	20	116
65620.W0122	12x24	Left	Coarse	12	24	M12	20	62	48	18,0	12	12	24	24	121
65620.W0123	12x24	Left	Fine	12	24	M12x1,25	20	62	48	18,0	12	12	24	24	121
65620.W0124	12x48	Left	Coarse	12	48	M12	20	86	72	18,0	12	12	24	24	175
65620.W0125	12x48	Left	Fine	12	48	M12x1,25	20	86	72	18,0	12	12	24	24	175
65620.W0142	14x28	Left	Coarse	14	28	M14	24	72	56	22,5	14	14	27	27	178
65620.W0143	14x28	Left	Fine	14	28	M14x1,50	24	72	56	22,5	14	14	27	27	178
65620.W0145	14x56	Left	Coarse	14	56	M14	24	101	85	22,5	14	14	27	27	258
65620.W0146	14x56	Left	Fine	14	56	M14x1,50	24	101	85	22,5	14	14	27	27	258
65620.W0163	16x32	Left	Coarse	16	32	M16	26	83	64	24,0	16	16	32	32	282
65620.W0164	16x32	Left	Fine	16	32	M16x1,50	26	83	64	24,0	16	16	32	32	282
65620.W0166	16x64	Left	Coarse	16	64	M16	26	115	96	24,0	16	16	32	32	411
65620.W0167	16x64	Left	Fine	16	64	M16x1,50	26	115	96	24,0	16	16	32	32	411
65620.W0204	20x40	Left	Coarse	20	40	M20	34	105	80	30,0	20	20	40	40	550
65620.W0205	20x40	Left	Fine	20	40	M20x1,50	34	105	80	30,0	20	20	40	40	550

Material

Steel 1.0718 (11SMnPb30k) silver zinc plated.

Technical Notes

M4-M16: DIN 71 752/DIN ISO 8140. M20: Similar to DIN 71 752/DIN ISO 8140 and according to CETOP standard.

Tips

Assembly made up using 65631 clevis joint and 65684 clevis retention clip.

Important Notes

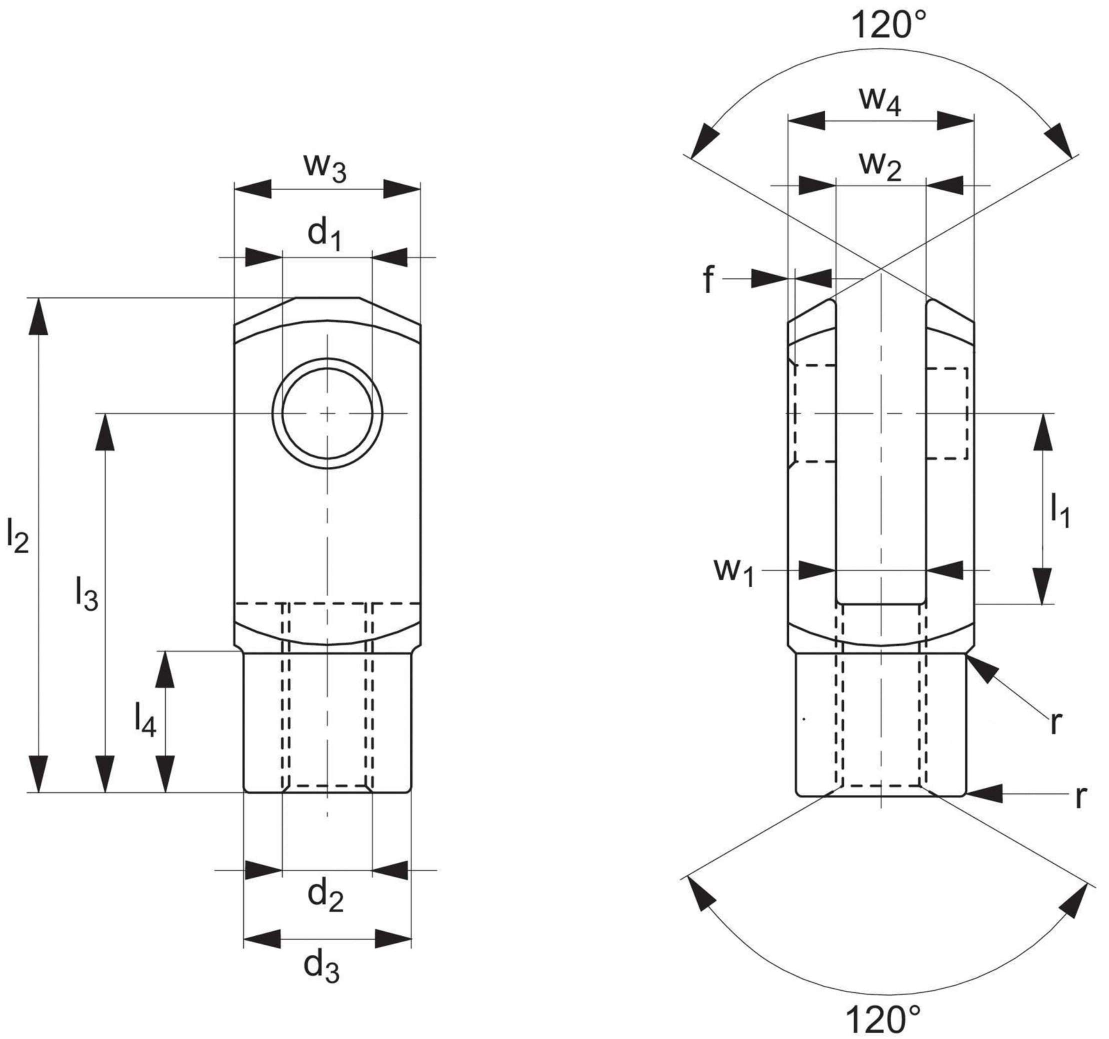
For sizes M4-M12, f and r =0,5
For sizes M4-M16, f and r =1
For sizes M20, f=1, r = 1,5
For r, radius or 45° bevelling.

Other Tolerances:-
w_4: M4-M16 = +0,3 -0,16
M20 = +0,5 -0,2
w_2: size 4x8-10x20 = B13
All others +0,7 +0,15
d_3: M4-M16 = ±0,3
l_2: size 4x8-6x12 = ±0,3
All others ±0,4
l_3: M4-M16 = ±0,2
M20 = ±0,3
r: M20 = ±0,5

Steel Clevis Joints

silver zinc plated

65630



Material

Steel 1.0718 (11SMnPb30k), silver zinc plated.

Technical Notes

M4-M16: DIN 71 752/DIN ISO 8140.
M18-M48: Similar to DIN 71 752/DIN ISO 8140 and according to CETOP standard.

Tips

Standard thread is right hand, (for left hand, see 65631).

Important Notes

For sizes M4-M12, f and r =0,5
For sizes M14-M16, f and r =1
For sizes M18-M20, f=1, r = 1,5
For M24 f and r = 1,5
For sizes M27-M30, f = 1,5, r = 2
For M36 f = 2, r = 3
For sizes M42-M48, f = 3, r = 5
For r, radius or 45° bevelling.

Other Tolerances:-
w_4: M4-M16 = +0,3 -0,16
M18-M48 = +0,5 -0,2
w_2: size 4x8-10x20 = B13
All others +0,7 +0,15
d_3: M4-M16 = ±0,3
l_2: size 4x8-6x12 = ±0,3
All others ±0,4
l_3: M4-M16 = ±0,2
M18-M48 = ±0,3
r: M18-M48 = ±0,5

Order No.	Size	Thread (hand)	Thread type	d_1 tol. H9	l_1 ±0,5	d_2	d_3	l_2 ±0,5	l_3	l_4	w_1 tol. B13	w_2	w_3 tol. h11	w_4	g
65630.W0040	4x8	Right	Coarse	4	8	M 4	8	21	16	6,0	4	4	8	8	5
65630.W0041	4x16	Right	Coarse	4	16	M 4	8	29	24	6,0	4	4	8	8	7
65630.W0051	5x10	Right	Coarse	5	10	M 5	9	26	20	7,5	5	5	10	10	9
65630.W0052	5x20	Right	Coarse	5	20	M 5	9	36	30	7,5	5	5	10	10	13
65630.W0061	6x12	Right	Coarse	6	12	M 6	10	31	24	9,0	6	6	12	12	15
65630.W0062	6x24	Right	Coarse	6	24	M 6	10	43	36	9,0	6	6	12	12	21
65630.W0081	8x16	Right	Coarse	8	16	M 8	14	42	32	12,0	8	8	16	16	37
65630.W0082	8x16	Right	Fine	8	16	M 8x1	14	42	32	12,0	8	8	16	16	37
65630.W0083	8x32	Right	Coarse	8	32	M 8	14	58	48	12,0	8	8	16	16	54
65630.W0084	8x32	Right	Fine	8	32	M 8x1,00	14	58	48	12,0	8	8	16	16	54
65630.W0102	10x20	Right	Coarse	10	20	M10	18	52	40	15,0	10	10	20	20	74
65630.W0103	10x20	Right	Fine	10	20	M10x1,25	18	52	40	15,0	10	10	20	20	74
65630.W0104	10x40	Right	Coarse	10	40	M10	18	72	60	15,0	10	10	20	20	116
65630.W0105	10x40	Right	Fine	10	40	M10x1,25	18	72	60	15,0	10	10	20	20	116
65630.W0122	12x24	Right	Coarse	12	24	M12	20	62	48	18,0	12	12	24	24	121
65630.W0123	12x24	Right	Fine	12	24	M12x1,25	20	62	48	18,0	12	12	24	24	121
65630.W0124	12x48	Right	Coarse	12	48	M12	20	86	72	18,0	12	12	24	24	175
65630.W0125	12x48	Right	Fine	12	48	M12x1,25	20	86	72	18,0	12	12	24	24	175
65630.W0142	14x28	Right	Coarse	14	28	M14	24	72	56	22,5	14	14	27	27	178
65630.W0143	14x28	Right	Fine	14	28	M14x1,50	24	72	56	22,5	14	14	27	27	178
65630.W0145	14x56	Right	Coarse	14	56	M14	24	101	85	22,5	14	14	27	27	258
65630.W0146	14x56	Right	Fine	14	56	M14x1,50	24	101	85	22,5	14	14	27	27	258
65630.W0163	16x32	Right	Coarse	16	32	M16	26	83	64	24,0	16	16	32	32	282
65630.W0164	16x32	Right	Fine	16	32	M16x1,50	26	83	64	24,0	16	16	32	32	282
65630.W0166	16x64	Right	Coarse	16	64	M16	26	115	96	24,0	16	16	32	32	411
65630.W0167	16x64	Right	Fine	16	64	M16x1,50	26	115	96	24,0	16	16	32	32	411
65630.W0183	18x36	Right	Coarse	18	36	M18	30	94	72	27,0	18	18	36	36	390
65630.W0184	18x36	Right	Fine	18	36	M18x1,50	30	94	72	27,0	18	18	36	36	390
65630.W0204	20x40	Right	Coarse	20	40	M20	34	105	80	30,0	20	20	40	40	550
65630.W0205	20x40	Right	Fine	20	40	M20x1,50	34	105	80	30,0	20	20	40	40	550

Steel Clevis Joints

silver zinc plated

65630

Order No.	Size	Thread (hand)	Thread type	d_1 tol. H9	l_1 ±0,5	d_2	d_3	l_2 ±0,5	l_3	l_4	w_1 tol. B13	w_2	w_3 tol. h11	w_4	g
65630.W0208	20x80	Right	Coarse	20	80	M20	34	145	120	30,0	20	20	40	40	800
65630.W0209	20x80	Right	Fine	20	80	M20x1,50	34	145	120	30,0	20	20	40	40	800
65630.W0255	25x50	Right	Coarse	25	50	M24	42	132	100	36,0	25	25	50	50	1100
65630.W0256	25x50	Right	Fine	25	50	M24x2,00	42	132	100	36,0	25	25	50	50	1100
65630.W0285	28x56	Right	Coarse	28	56	M27	48	148	112	40,0	28	28	55	55	1500
65630.W0286	28x56	Right	Fine	28	56	M27x2,00	48	148	112	40,0	28	28	55	55	1500
65630.W0305	30x54	Right	Fine	30	54	M27x2,00	48	148	110	40,0	30	30	55	55	1440
65630.W0306	30x60	Right	Coarse	30	60	M30	52	160	120	42,0	30	30	60	60	1970
65630.W0307	30x60	Right	Fine	30	60	M30x2,00	52	160	120	42,0	30	30	60	60	1970
65630.W0355	35x54	Right	Fine	35	54	M36x2,00	60	188	144	54,0	35	35	70	70	2930
65630.W0357	35x72	Right	Coarse	35	72	M36	60	188	144	54,0	35	35	70	70	2930
65630.W0358	35x72	Right	Fine	35	72	M36x2,00	60	188	144	54,0	35	35	70	70	2930
65630.W0367	36x72	Right	Coarse	35	72	M36	60	188	144	54,0	36	36	70	70	2930
65630.W0368	36x72	Right	Fine	35	72	M36x2,00	60	188	144	54,0	36	36	70	70	2930
65630.W0408	40x84	Right	Fine	40	84	M42x2,00	70	232	168	63,5	40	40	85	85	5640
65630.W0428	42x84	Right	Coarse	42	84	M42	70	232	168	63,5	42	42	85	85	5340
65630.W0429	42x84	Right	Fine	42	84	M42x2,00	70	232	168	63,5	42	42	85	85	5340
65630.W0509	50x96	Right	Coarse	50	96	M48	82	265	192	73,0	50	50	96	96	7860
65630.W0510	50x96	Right	Fine	50	96	M48x2,00	82	265	192	73,0	50	50	96	96	7860

Material

Steel 1.0718 (11SMnPb30k), silver zinc plated.

Technical Notes

M4-M16: DIN 71 752/DIN ISO 8140.
M18-M48: Similar to DIN 71 752/DIN ISO 8140 and according to CETOP standard.

Tips

Standard thread is right hand, (for left hand, see 65631).

Important Notes

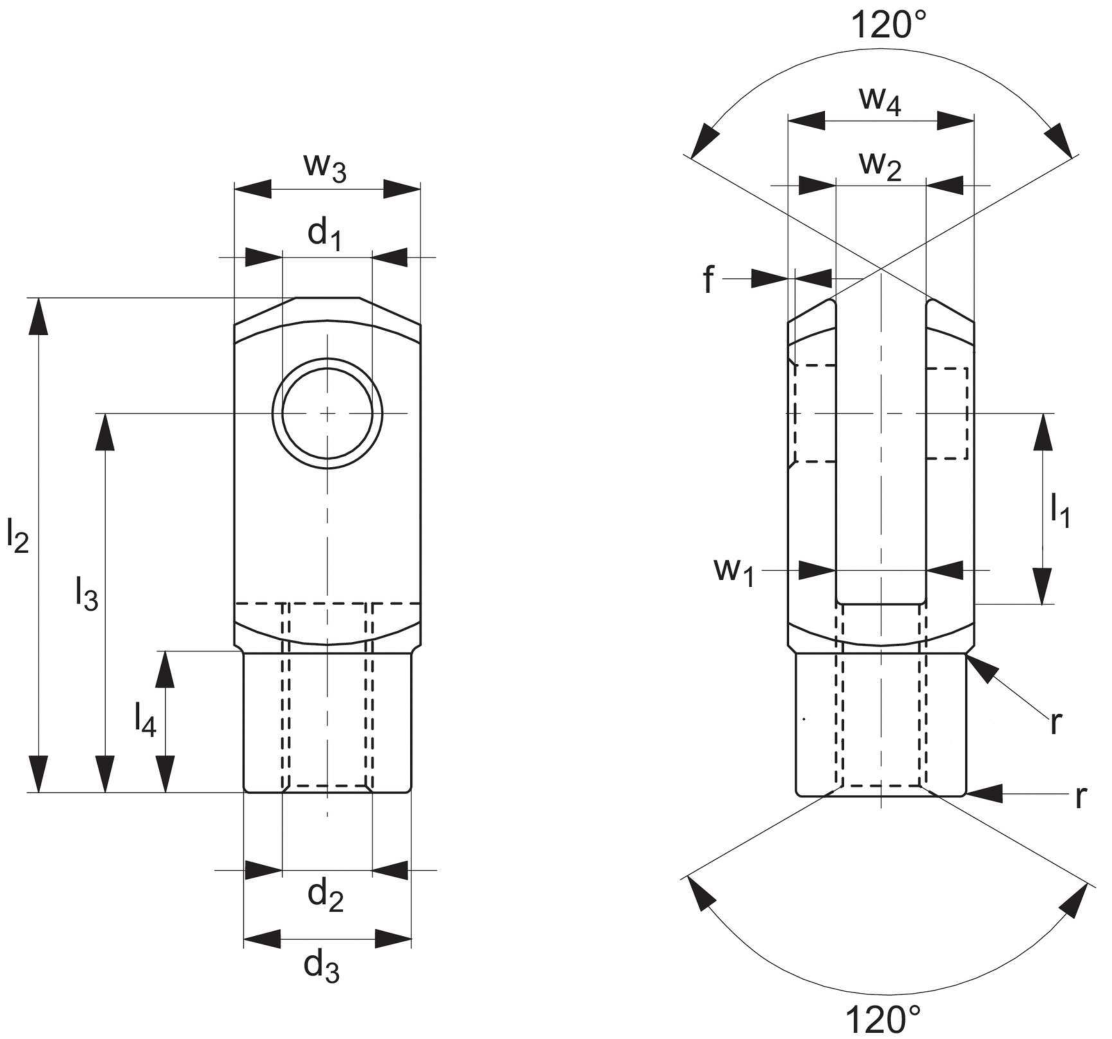
For sizes M4-M12, f and r =0,5
For sizes M14-M16, f and r =1
For sizes M18-M20, f=1, r = 1,5
For M24 f and r = 1,5
For sizes M27-M30, f = 1,5, r = 2
For M36 f = 2, r = 3
For sizes M42-M48, f = 3, r = 5
For r, radius or 45° bevelling.

Other Tolerances:-
w_4: M4-M16 = +0,3 -0,16
M18-M48 = +0,5 -0,2
w_2: size 4x8-10x20 = B13
All others +0,7 +0,15
d_3: M4-M16 = ±0,3
l_2: size 4x8-6x12 = ±0,3
All others ±0,4
l_3: M4-M16 = ±0,2
M18-M48 = ±0,3
r: M18-M48 = ±0,5

Steel Clevis Joints

left hand - silver zinc plated

65631



Material

Steel 1.0718 (11SMnPb30k)
silver zinc plated.

Technical Notes

M4-M16: DIN 71 752/DIN ISO 8140.
M18-M48: Similar to DIN 71 752/DIN ISO 8140 and according to CETOP standard.

Important Notes

For sizes M4-M12, f and r =0,5
For sizes M14-M16, f and r =1
For sizes M18-M20, f=1, r = 1,5
For M24 f and r = 1,5
For sizes M27-M30, f = 1,5, r = 2
For M36 f = 2, r = 3
For sizes M42-M48, f = 3, r = 5
For r, radius or 45° bevelling.

Other Tolerances
w_4: M4-M16 = +0,3 -0,16
M18-M48 = +0,5 -0.2
w_2: size 4x8-10x20 = B13
All others +0,7 +0,15
d_3: M4-M16 = ±0,3
l_2: size 4x8-6x12 = ±0,3
All others ±0,4
l_3: M4-M16 = ±0,2
M18-M48 = ±0,3
r: M18-M48 = ±0,5

Order No.	Size	Thread (hand)	Thread type	d_1 tol. H9	l_1 ±0,5	d_2	d_3	l_2 ±0,5	l_3	l_4	w_1 tol. B13	w_2	w_3 tol. h11	w_4	g
65631.W0040	4x8	Left	Coarse	4	8	M 4	8	21	16	6,0	4	4	8	8	5
65631.W0041	4x16	Left	Coarse	4	16	M 4	8	29	24	6,0	4	4	8	8	7
65631.W0051	5x10	Left	Coarse	5	10	M 5	9	26	20	7,5	5	5	10	10	9
65631.W0052	5x20	Left	Coarse	5	20	M 5	9	36	30	7,5	5	5	10	10	13
65631.W0061	6x12	Left	Coarse	6	12	M 6	10	31	24	9,0	6	6	12	12	15
65631.W0062	6x24	Left	Coarse	6	24	M 6	10	43	36	9,0	6	6	12	12	21
65631.W0081	8x16	Left	Coarse	8	16	M 8	14	42	32	12,0	8	8	16	16	37
65631.W0082	8x16	Left	Fine	8	16	M 8x1,00	14	42	32	12,0	8	8	16	16	37
65631.W0083	8x32	Left	Coarse	8	32	M 8	14	58	48	12,0	8	8	16	16	54
65631.W0084	8x32	Left	Fine	8	32	M 8x1,00	14	58	48	12,0	8	8	16	16	54
65631.W0102	10x20	Left	Coarse	10	20	M10	18	52	40	15,0	10	10	20	20	74
65631.W0103	10x20	Left	Fine	10	20	M10x1,25	18	52	40	15,0	10	10	20	20	74
65631.W0104	10x40	Left	Coarse	10	40	M10	18	72	60	15,0	10	10	20	20	116
65631.W0105	10x40	Left	Fine	10	40	M10x1,25	18	72	60	15,0	10	10	20	20	116
65631.W0122	12x24	Left	Coarse	12	24	M12	20	62	48	18,0	12	12	24	24	121
65631.W0123	12x24	Left	Fine	12	24	M12x1,25	20	62	48	18,0	12	12	24	24	121
65631.W0124	12x48	Left	Coarse	12	48	M12	20	86	72	18,0	12	12	24	24	175
65631.W0125	12x48	Left	Fine	12	48	M12x1,25	20	86	72	18,0	12	12	24	24	175
65631.W0142	14x28	Left	Coarse	14	28	M14	24	72	56	22,5	14	14	27	27	178
65631.W0143	14x28	Left	Fine	14	28	M14x1,50	24	72	56	22,5	14	14	27	27	178
65631.W0145	14x56	Left	Coarse	14	56	M14	24	101	85	22,5	14	14	27	27	258
65631.W0146	14x56	Left	Fine	14	56	M14x1,50	24	101	85	22,5	14	14	27	27	258
65631.W0163	16x32	Left	Coarse	16	32	M16	26	83	64	24,0	16	16	32	32	282
65631.W0164	16x32	Left	Fine	16	32	M16x1,50	26	83	64	24,0	16	16	32	32	282
65631.W0166	16x64	Left	Coarse	16	64	M16	26	115	96	24,0	16	16	32	32	411
65631.W0167	16x64	Left	Fine	16	64	M16x1,50	26	115	96	24,0	16	16	32	32	411
65631.W0183	18x36	Left	Coarse	18	36	M18	30	94	72	27,0	18	18	36	36	390
65631.W0184	18x36	Left	Fine	18	36	M18x1,50	30	94	72	27,0	18	18	36	36	390
65631.W0204	20x40	Left	Coarse	20	40	M20	34	105	80	30,0	20	20	40	40	550

Steel Clevis Joints

left hand - silver zinc plated

65631

Order No.	Size	Threaded (hand)	Thread type	d_1 tol. H9	l_1 ±0,5	d_2	d_3	l_2 ±0,5	l_3	l_4	w_1 tol. B13	w_2	w_3 tol. h11	w_4	g
65631.W0205	20x40	Left	Fine	20	40	M20x1,50	34	105	80	30,0	20	20	40	40	550
65631.W0208	20x80	Left	Coarse	20	80	M20	34	145	120	30,0	20	20	40	40	800
65631.W0209	20x80	Left	Fine	20	80	M20x1,50	34	145	120	30,0	20	20	40	40	800
65631.W0255	25x50	Left	Coarse	25	50	M24	42	132	100	36,0	25	25	50	50	1100
65631.W0256	25x50	Left	Fine	25	50	M24x2,00	42	132	100	36,0	25	25	50	50	1100
65631.W0285	28x56	Left	Coarse	28	56	M27	48	148	112	40,0	28	28	55	55	1500
65631.W0286	28x56	Left	Fine	28	56	M27x2,00	48	148	112	40,0	28	28	55	55	1500
65631.W0305	30x54	Left	Fine	30	54	M27x2,00	48	148	110	40,0	30	30	55	55	1440
65631.W0306	30x60	Left	Coarse	30	60	M30	52	160	120	42,0	30	30	60	60	1970
65631.W0307	30x60	Left	Fine	30	60	M30x2,00	52	160	120	42,0	30	30	60	60	1970
65631.W0355	35x54	Left	Fine	35	54	M36x2,00	60	188	144	54,0	35	35	70	70	2930
65631.W0357	35x72	Left	Coarse	35	72	M36	60	188	144	54,0	35	35	70	70	2930
65631.W0358	35x72	Left	Fine	35	72	M36x2,00	60	188	144	54,0	35	35	70	70	2930
65631.W0367	36x72	Left	Coarse	35	72	M36	60	188	144	54,0	36	36	70	70	2930
65631.W0368	36x72	Left	Fine	35	72	M36x2,00	60	188	144	54,0	36	36	70	70	2930
65631.W0408	40x84	Left	Fine	40	84	M42x2,00	70	232	168	63,5	40	40	85	85	5640
65631.W0428	42x84	Left	Coarse	42	84	M42	70	232	168	63,5	42	42	85	85	5340
65631.W0429	42x84	Left	Fine	42	84	M42x2,00	70	232	168	63,5	42	42	85	85	5340
65631.W0509	50x96	Left	Coarse	50	96	M48	82	265	192	73,0	50	50	96	96	7860
65631.W0510	50x96	Left	Fine	50	96	M48x2,00	82	265	192	73,0	50	50	96	96	7860

Material

Steel 1.0718 (11SMnPb30k)
silver zinc plated.

Technical Notes

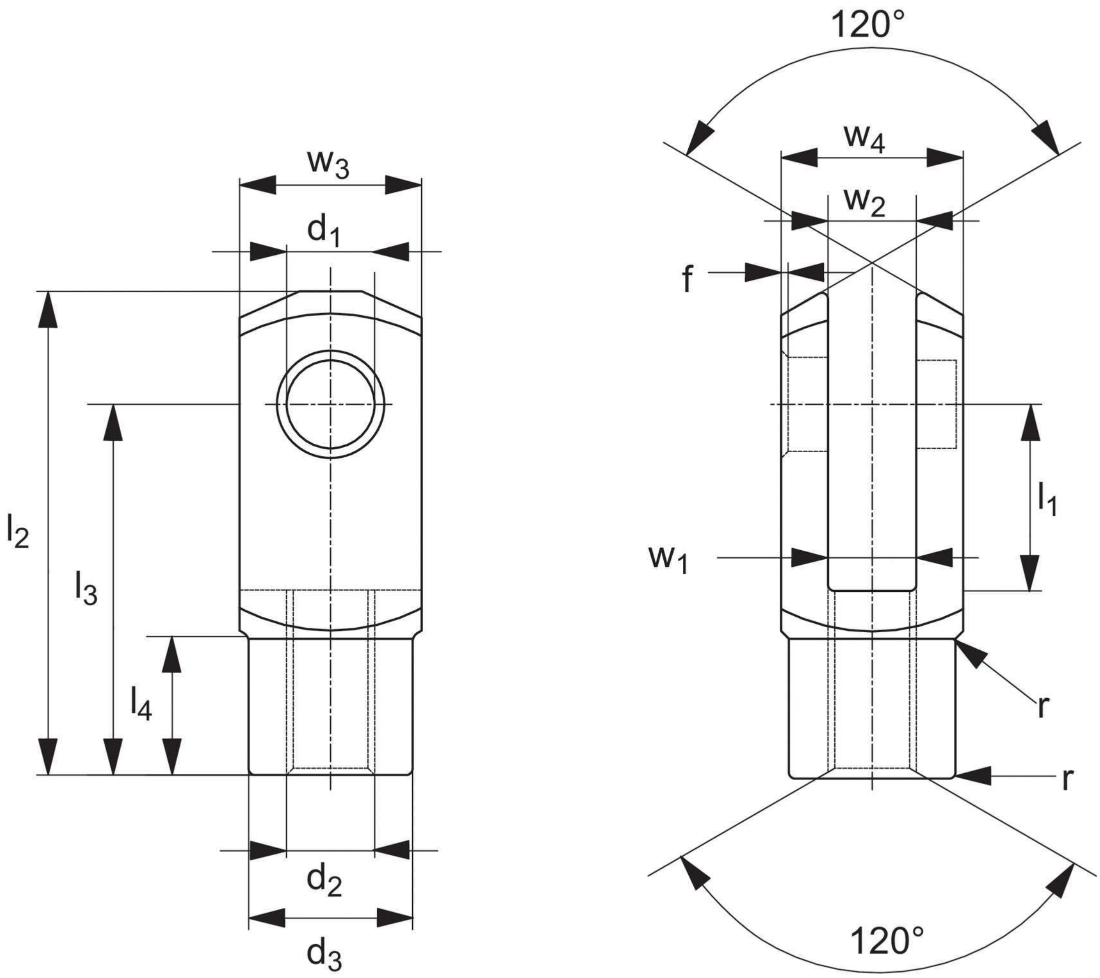
M4-M16: DIN 71 752/DIN ISO 8140.
M18-M48: Similar to DIN 71 752/DIN ISO 8140 and according to CETOP standard.

Important Notes

For sizes M4-M12, f and r =0,5
For sizes M14-M16, f and r =1
For sizes M18-M20, f=1, r = 1,5
For M24 f and r = 1,5
For sizes M27-M30, f = 1,5, r = 2
For M36 f = 2, r = 3
For sizes M42-M48, f = 3, r = 5
For r, radius or 45° bevelling.

Other Tolerances
w_4: M4-M16 = +0,3 -0,16
M18-M48 = +0,5 -0.2
w_2: size 4x8-10x20 = B13
All others +0,7 +0,15
d_3: M4-M16 = ±0,3
l_2: size 4x8-6x12 = ±0,3
All others ±0,4
l_3: M4-M16 = ±0,2
M18-M48 = ±0,3
r: M18-M48 = ±0,5

Stainless Clevis Joint



Order No.	Size	Thread (hand)	Thread type	d_1 H9	l_1 ±0,5	d_2	d_3	l_2 ±0,5	l_3	l_4	w_1 ±0,5	w_2	w_3 h11	w_4	g
65635.W0040	4x8	Right	Coarse	4	8	M 4	8	21	16	6,0	4	4	8	8	5
65635.W0041	4x16	Right	Coarse	4	16	M 4	8	29	24	6,0	4	4	8	8	7
65635.W0051	5x10	Right	Coarse	5	10	M 5	9	26	20	7,5	5	5	10	10	9
65635.W0052	5x20	Right	Coarse	5	20	M 5	9	36	30	7,5	5	5	10	10	13
65635.W0061	6x12	Right	Coarse	6	12	M 6	10	31	24	9,0	6	6	12	12	15
65635.W0062	6x24	Right	Coarse	6	24	M 6	10	43	36	9,0	6	6	12	12	21
65635.W0081	8x16	Right	Coarse	8	16	M 8	14	42	32	12,0	8	8	16	16	37
65635.W0082	8x16	Right	Fine	8	16	M 8x1,00	14	42	32	12,0	8	8	16	16	37
65635.W0083	8x32	Right	Coarse	8	32	M 8	14	58	48	12,0	8	8	16	16	54
65635.W0084	8x32	Right	Fine	8	32	M 8x1,00	14	58	48	12,0	8	8	16	16	54
65635.W0102	10x20	Right	Coarse	10	20	M10	18	52	40	15,0	10	10	20	20	74
65635.W0103	10x20	Right	Fine	10	20	M10x1,25	18	52	40	15,0	10	10	20	20	74
65635.W0104	10x40	Right	Coarse	10	40	M10	18	72	60	15,0	10	10	20	20	116
65635.W0105	10x40	Right	Fine	10	40	M10x1,25	18	72	60	15,0	10	10	20	20	116
65635.W0122	12x24	Right	Coarse	12	24	M12	20	62	48	18,0	12	12	24	24	121
65635.W0123	12x24	Right	Fine	12	24	M12x1,25	20	62	48	18,0	12	12	24	24	121
65635.W0124	12x48	Right	Coarse	12	48	M12	20	86	72	18,0	12	12	24	24	175
65635.W0125	12x48	Right	Fine	12	48	M12x1,25	20	86	72	18,0	12	12	24	24	175
65635.W0142	14x28	Right	Coarse	14	28	M14	24	72	56	22,5	14	14	27	27	178
65635.W0143	14x28	Right	Fine	14	28	M14x1,50	24	72	56	22,5	14	14	27	27	178
65635.W0145	14x56	Right	Coarse	14	56	M14	24	101	85	22,5	14	14	27	27	258
65635.W0146	14x56	Right	Fine	14	56	M14x1,50	24	101	85	22,5	14	14	27	27	258
65635.W0163	16x32	Right	Coarse	16	32	M16	26	83	64	24,0	16	16	32	32	282
65635.W0164	16x32	Right	Fine	16	32	M16x1,50	26	83	64	24,0	16	16	32	32	282
65635.W0166	16x64	Right	Coarse	16	64	M16	26	115	96	24,0	16	16	32	32	411
65635.W0167	16x64	Right	Fine	16	64	M16x1,50	26	115	96	24,0	16	16	32	32	411
65635.W0204	20x40	Right	Coarse	20	40	M20	34	105	80	30,0	20	20	40	40	550
65635.W0205	20x40	Right	Fine	20	40	M20x1,50	34	105	80	30,0	20	20	40	40	550
65635.W0255	25x50	Right	Coarse	25	50	M24	42	132	100	36,0	25	25	50	50	1100
65635.W0256	25x50	Right	Fine	25	50	M24x2,00	42	132	100	36,0	25	25	50	50	1100
65635.W0305	30x54	Right	Fine	30	54	M27x2,00	48	148	110	40,0	30	30	55	55	1440

Material
Stainless steel (1.4305 AISI 303 X8CrNiS18-9).

Technical Notes
M4-M16: DIN 71 752/DIN ISO 8140.
M20-M27: Similar to DIN 71 752 and according to CETOP standard.

Tips
Standard thread is right hand, (for left hand, see 65636).

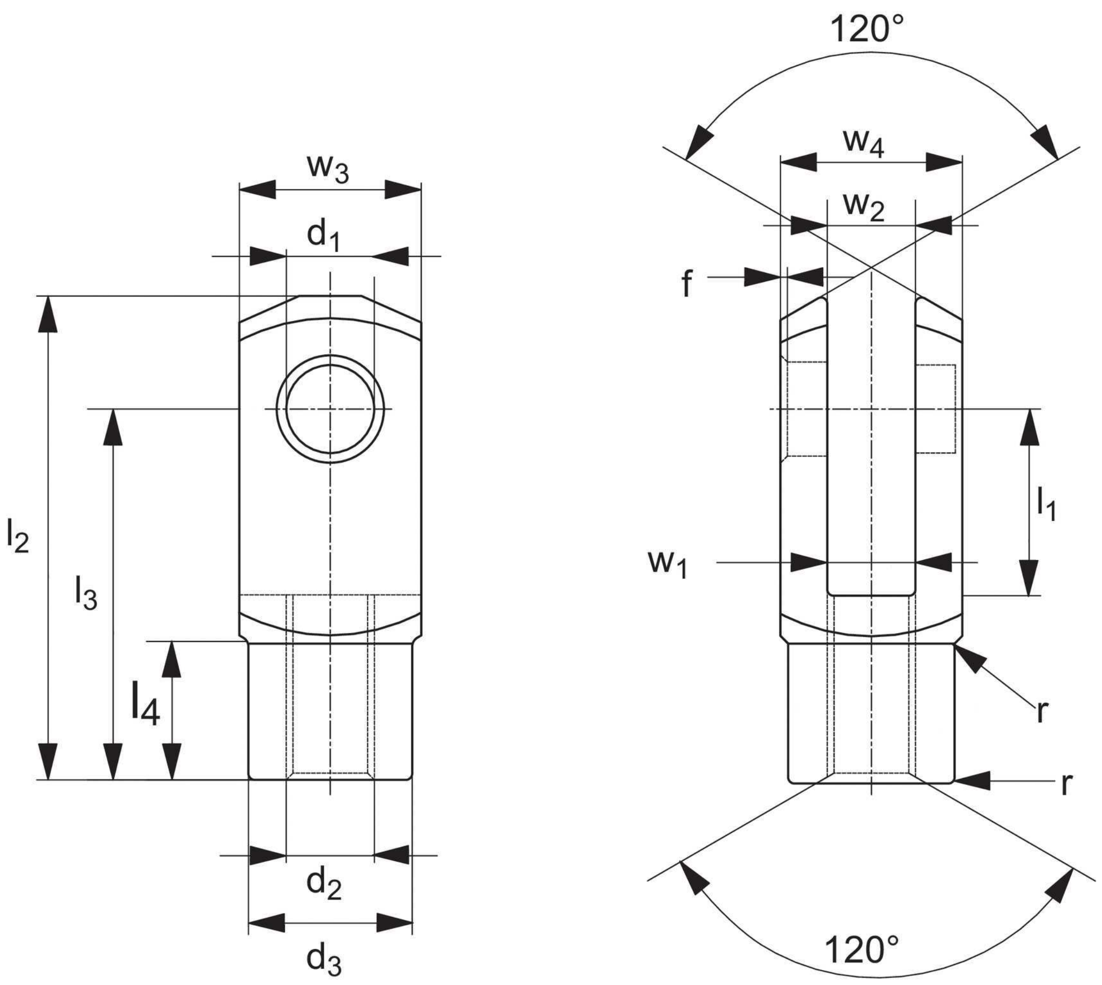
Important Notes
For sizes M4-M12, f and r = 0,5
For sizes M14-M16, f and r = 1
For size M20, f=1, r = 1,5
For M24, f and r = 1,5
For M27, f=1,5, r = 2
For r, radius or 45° bevelling.

Other Tolerances:-
w_4: M4-M16 = +0,3 -0,16
M20-M27 = +0,5 - 0,2
w_2: Size 4x8-10x20 = B13
Size 10x40-30x54 = +0,7 +0,15
l_3: up to size 6x12 = ±0,3
From size 6x24 = ±0,4

Stainless Clevis Joints

left hand thread

65636



Material
Stainless steel (1.4305 AISI 303 X8CrNiS18-9)

Technical Notes
M4-M16: DIN 71 752/DIN ISO 8140.
M20-M27: Similar to DIN 71 752 and according to CETOP standard.

Important Notes
For sizes M4-M12, f and r = 0,5
For sizes M14-M16, f and r = 1
For size M20, f=1, r = 1,5
For M24, f and r = 1,5
For M27, f=1,5, r = 2
For r, radius or 45° bevelling at manufacturers choice.

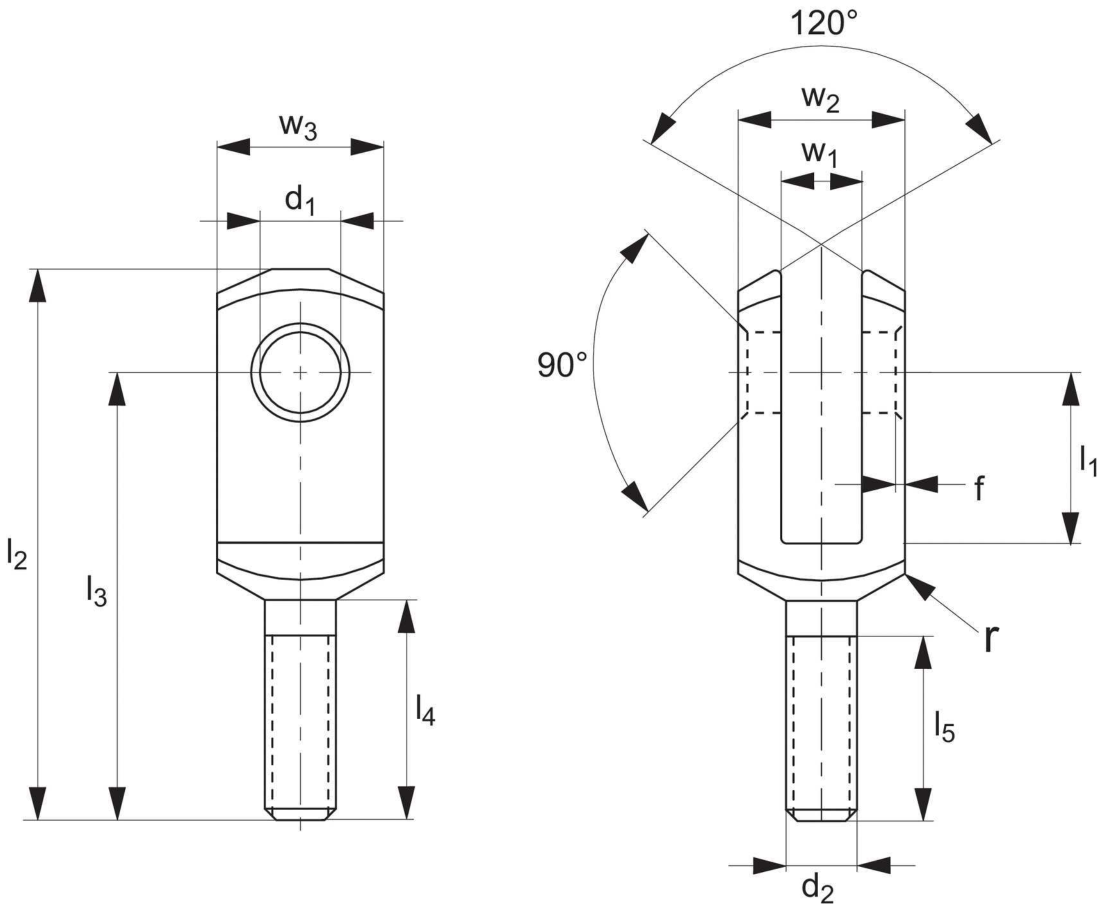
Other Tolerances:-
w_4: M4-M16 = +0,3 -0,16
M20-M27 = +0,5 - 0,2
w_2: Size 4x8-10x20 = B13
Size 10x40-30x54 = +0,7 +0,15
l_3: up to size 6x12 = ±0,3
From size 6x24 = ±0,4

Order No.	Size	Thread (hand)	Thread type	d_1 H9	l_1 ±0,5	d_2	d_3	l_2 ±0,5	l_3	l_4	w_1 B13	w_2	w_3 h11	w_4	g
65636.W0040	4x8	Left	Coarse	4	8	M 4	8	21	16	6,0	4	4	8	8	5
65636.W0041	4x16	Left	Coarse	4	16	M 4	8	29	24	6,0	4	4	8	8	7
65636.W0051	5x10	Left	Coarse	5	10	M 5	9	26	20	7,5	5	5	10	10	9
65636.W0052	5x20	Left	Coarse	5	20	M 5	9	36	30	7,5	5	5	10	10	13
65636.W0061	6x12	Left	Coarse	6	12	M 6	10	31	24	9,0	6	6	12	12	15
65636.W0062	6x24	Left	Coarse	6	24	M 6	10	43	36	9,0	6	6	12	12	21
65636.W0081	8x16	Left	Coarse	8	16	M 8	14	42	32	12,0	8	8	16	16	37
65636.W0082	8x16	Left	Fine	8	16	M 8x1,00	14	42	32	12,0	8	8	16	16	37
65636.W0083	8x32	Left	Coarse	8	32	M 8	14	58	48	12,0	8	8	16	16	54
65636.W0102	10x20	Left	Coarse	10	20	M10	18	52	40	15,0	10	10	20	20	74
65636.W0103	10x20	Left	Fine	10	20	M10x1,25	18	52	40	15,0	10	10	20	20	74
65636.W0104	10x40	Left	Coarse	10	40	M10	18	72	60	15,0	10	10	20	20	116
65636.W0105	10x40	Left	Fine	10	40	M10x1,25	18	72	60	15,0	10	10	20	20	116
65636.W0122	12x24	Left	Coarse	12	24	M12	20	62	48	18,0	12	12	24	24	121
65636.W0123	12x24	Left	Fine	12	24	M12x1,25	20	62	48	18,0	12	12	24	24	121
65636.W0124	12x48	Left	Coarse	12	48	M12	20	86	72	18,0	12	12	24	24	175
65636.W0125	12x48	Left	Fine	12	48	M12x1,25	20	86	72	18,0	12	12	24	24	175
65636.W0142	14x28	Left	Coarse	14	28	M14	24	72	56	22,5	14	14	27	27	178
65636.W0143	14x28	Left	Fine	14	28	M14x1,50	24	72	56	22,5	14	14	27	27	178
65636.W0145	14x56	Left	Coarse	14	56	M14	24	101	85	22,5	14	14	27	27	258
65636.W0146	14x56	Left	Fine	14	56	M14x1,50	24	101	85	22,5	14	4	27	27	258
65636.W0163	16x32	Left	Coarse	16	32	M16	26	83	64	24,0	16	16	32	32	282
65636.W0164	16x32	Left	Fine	16	32	M16x1,50	26	83	64	24,0	16	16	32	32	282
65636.W0166	16x64	Left	Coarse	16	64	M16	26	115	96	24,0	16	16	32	32	411
65636.W0167	16x64	Left	Fine	16	64	M16x1,50	26	115	96	24,0	16	16	32	32	411
65636.W0204	20x40	Left	Coarse	20	40	M20	34	105	80	30,0	20	20	40	40	550
65636.W0205	20x40	Left	Fine	20	40	M20x1,50	34	105	80	30,0	20	20	40	40	550
65636.W0255	25x50	Left	Coarse	25	50	M24	42	132	100	36,0	25	25	50	50	1100
65636.W0256	25x50	Left	Fine	25	50	M24x2,00	42	132	100	36,0	25	25	50	50	1100
65636.W0305	30x54	Left	Fine	30	54	M27x2,00	48	148	110	40,0	30	30	55	55	1440

Male Clevis Joints

silver zinc plated

65640



Material
Steel (1.0718) silver zinc plated.

Technical Notes
Similar to DIN 71 752/DIN ISO 8140/CETOP standard.

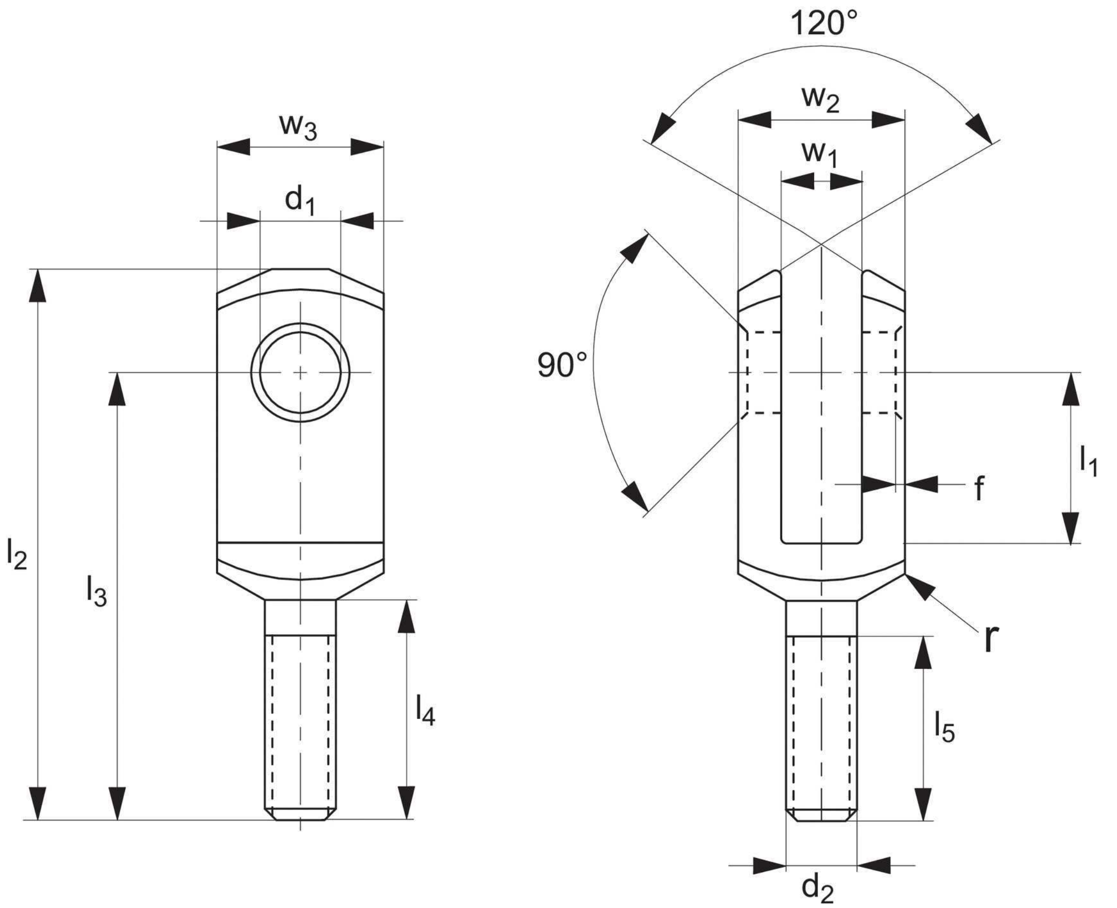
Tips
Standard thread is right hand, (for left hand, see 65641).
Other Tolerances:-
For r, radius or 45° bevelling.

Order No.	Size	Thread (hand)	d_1 tol. H9	l_1 ±0,5	d_2	l_2 ±0,2	l_3 ±0,4	l_4 ±0,2	l_5	w_1 +0,7 +0,15	w_2 +0,5 +0,2	w_3 tol. h11	f ±0,2	r	g
65640.W0006	6x12	Right	6	12	M 6	44	37	20	15	6	12	12	0,5	0,8	15
65640.W0008	8x16	Right	8	16	M 8	57	47	25	20	8	16	16	0,5	0,8	36
65640.W0010	10x20	Right	10	20	M10	69	57	30	25	10	20	20	0,5	0,8	68
65640.W0012	12x24	Right	12	24	M12	82	68	35	30	12	24	24	0,5	0,8	112
65640.W0014	14x28	Right	14	28	M14	94	78	40	35	14	27	27	1,0	1,2	171
65640.W0016	16x32	Right	16	32	M16	108	89	45	40	16	32	32	1,0	1,2	288
65640.W0020	20x40	Right	20	40	M20	134	109	55	50	20	40	40	1,0	1,5	550

Male Clevis Joints

left hand thread - silver zinc plated

65641

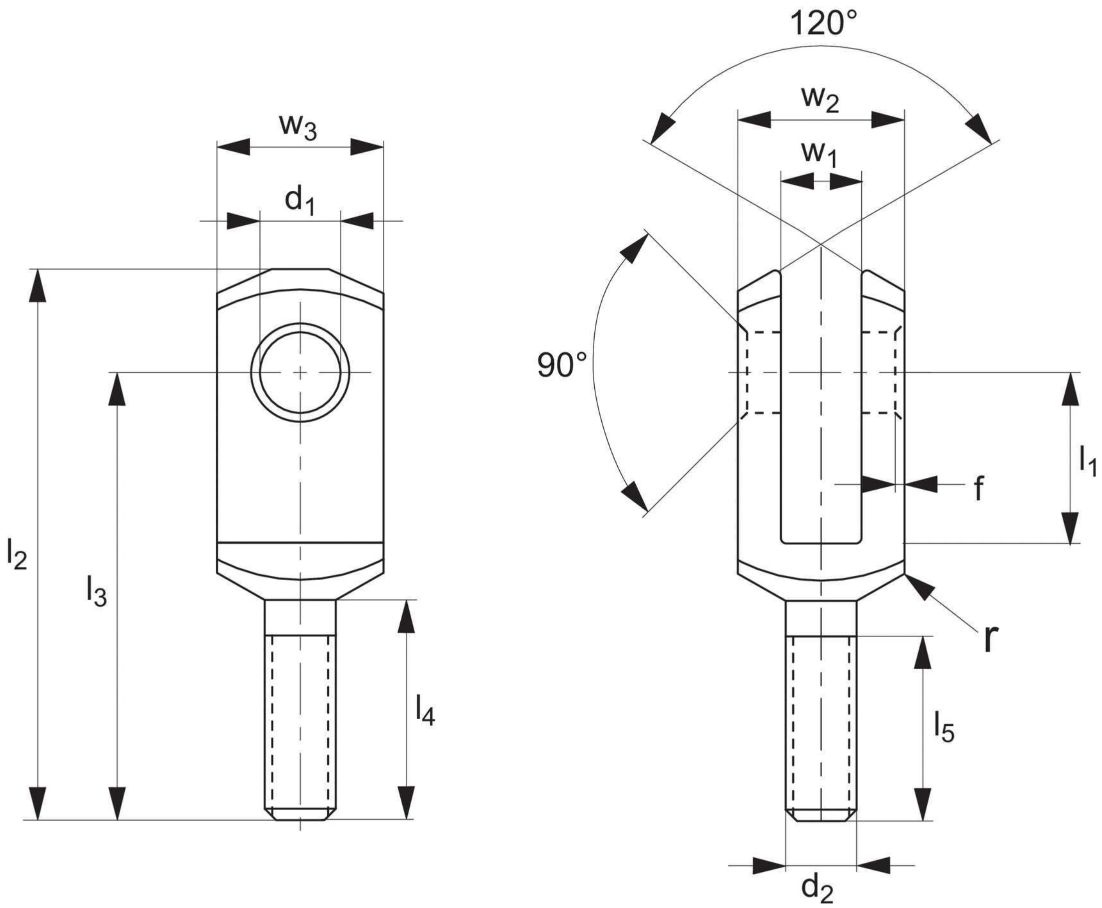


Order No.	Size	Thread (hand)	d_1 tol. H9	l_1 ±0,5	d_2	l_2 ±0,2	l_3 ±0,4	l_4 ±0,2	l_5	w_1 +0,7 +0,15	w_2 +0,5 +0,2	w_3 tol. h11	f ±0,2	r	g
65641.W0006	6x12	Left	6	12	M 6	44	37	20	15	6	12	12	0,5	0,8	15
65641.W0008	8x16	Left	8	16	M 8	57	47	25	20	8	16	16	0,5	0,8	36
65641.W0010	10x20	Left	10	20	M10	69	57	30	25	10	20	20	0,5	0,8	68
65641.W0012	12x24	Left	12	24	M12	82	68	35	30	12	24	24	0,5	0,8	112
65641.W0014	14x28	Left	14	28	M14	94	78	40	35	14	27	27	1,0	1,2	171
65641.W0016	16x32	Left	16	32	M16	108	89	45	40	16	32	32	1,0	1,2	288
65641.W0020	20x40	Left	20	40	M20	134	109	55	50	20	40	40	1,0	1,5	550

Material
Steel (1.0718) silver zinc plated.

Technical Notes
Similar to DIN 71 752/DIN ISO 8140/CETOP standard.

Tips
Other Tolerances:-
For r, radius or 45° bevelling.



Material
Stainless steel (1,4305 AISI 303).

Technical Notes
Similar to DIN 71 752/DIN ISO 8140/CETOP standard.

Tips
Standard is right hand thread, (For left hand see 65646).

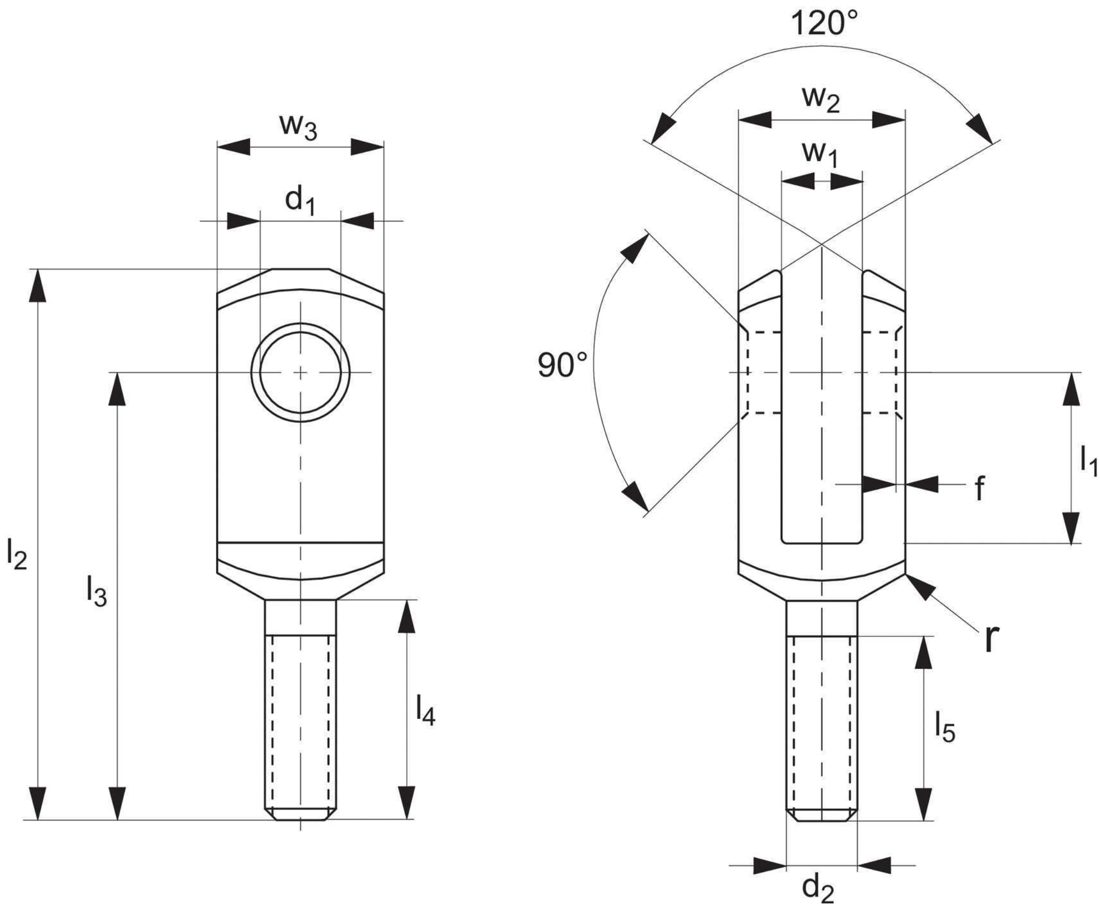
Other Tolerances:-
For r, radius or 45° bevelling.

Order No.	Size	Thread (hand)	d_1 tol. H9	l_1 ±0,5	d_2	l_2 ±0,2	l_3 ±0,4	l_4 ±0,2	l_5	w_1 +0,7 +0,15	w_2 +0,5 +0,2	w_3 tol. h11	f ±0,2	r	g
65645.W0006	6x12	Right	6	12	M 6	44	37	20	15	6	12	12	0,5	0,8	15
65645.W0008	8x16	Right	8	16	M 8	57	47	25	20	8	16	16	0,5	0,8	36
65645.W0010	10x20	Right	10	20	M10	69	57	30	25	10	20	20	0,5	0,8	68
65645.W0012	12x24	Right	12	24	M12	82	68	35	30	12	24	24	0,5	0,8	112
65645.W0014	14x28	Right	14	28	M14	94	78	40	35	14	27	27	1,0	1,2	171
65645.W0016	16x32	Right	16	32	M16	108	89	45	40	16	32	32	1,0	1,2	288
65645.W0020	20x40	Right	20	40	M20	134	109	55	50	20	40	40	1,0	1,5	550

Stainless Male Clevis Joints

left hand thread

65646



Material
Stainless steel (1,4305 AISI 303).

Technical Notes
Similar to DIN 71 752/DIN ISO 8140/CETOP standard.

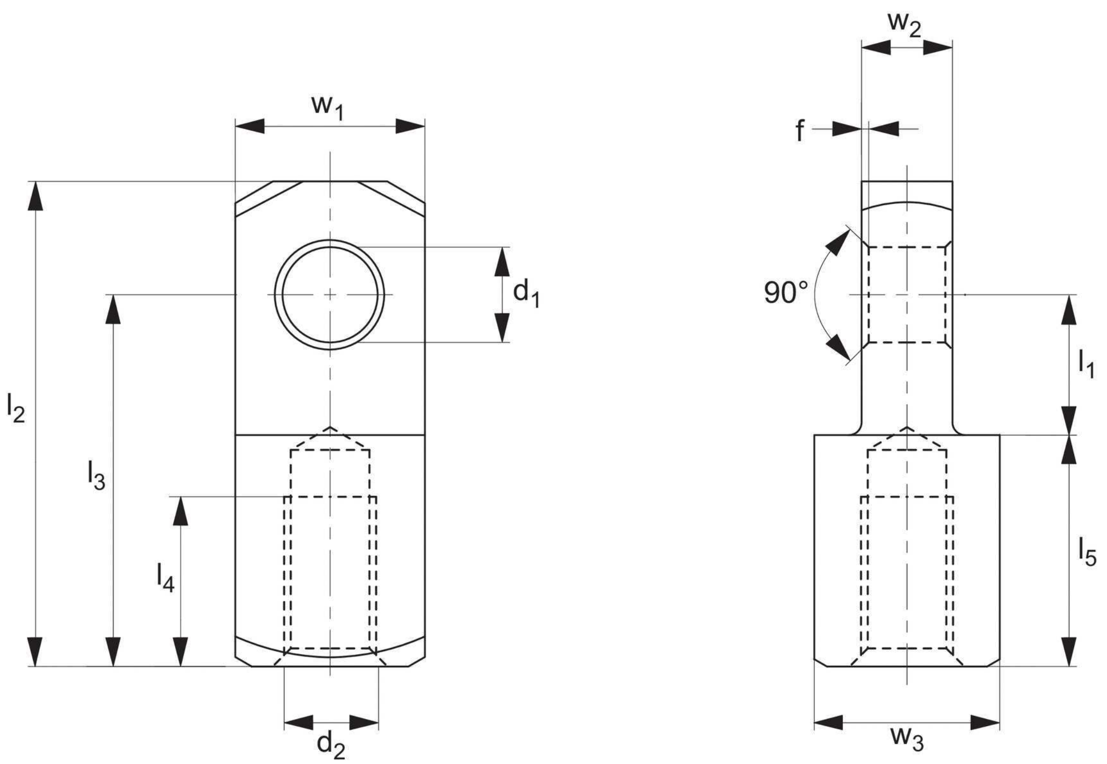
Tips
Other Tolerances:-
For r, radius or 45° bevelling.

Order No.	Size	Thread (hand)	d_1 tol. H9	l_1 ±0,5	d_2	l_2 ±0,2	l_3 ±0,4	l_4 ±0,2	l_5	w_1 +0,7 +0,15	w_2 +0,5 +0,2	w_3 tol. h11	f ±0,2	r	g
65646.W0006	6x12	Left	6	12	M 6	44	37	20	15	6	12	12	0,5	0,8	15
65646.W0008	8x16	Left	8	16	M 8	57	47	25	20	8	16	16	0,5	0,8	36
65646.W0010	10x20	Left	10	20	M10	69	57	30	25	10	20	20	0,5	0,8	68
65646.W0012	12x24	Left	12	24	M12	82	68	35	30	12	24	24	0,5	0,8	112
65646.W0014	14x28	Left	14	28	M14	94	78	40	35	14	27	27	1,0	1,2	171
65646.W0016	16x32	Left	16	32	M16	108	89	45	40	16	32	32	1,0	1,2	288
65646.W0020	20x40	Left	20	40	M20	134	109	55	50	20	40	40	1,0	1,5	550

Mating Piece for Clevis Joints

silver zinc plated

65652



Material

Steel (1.0718).
Silver zinc plated.

Tips

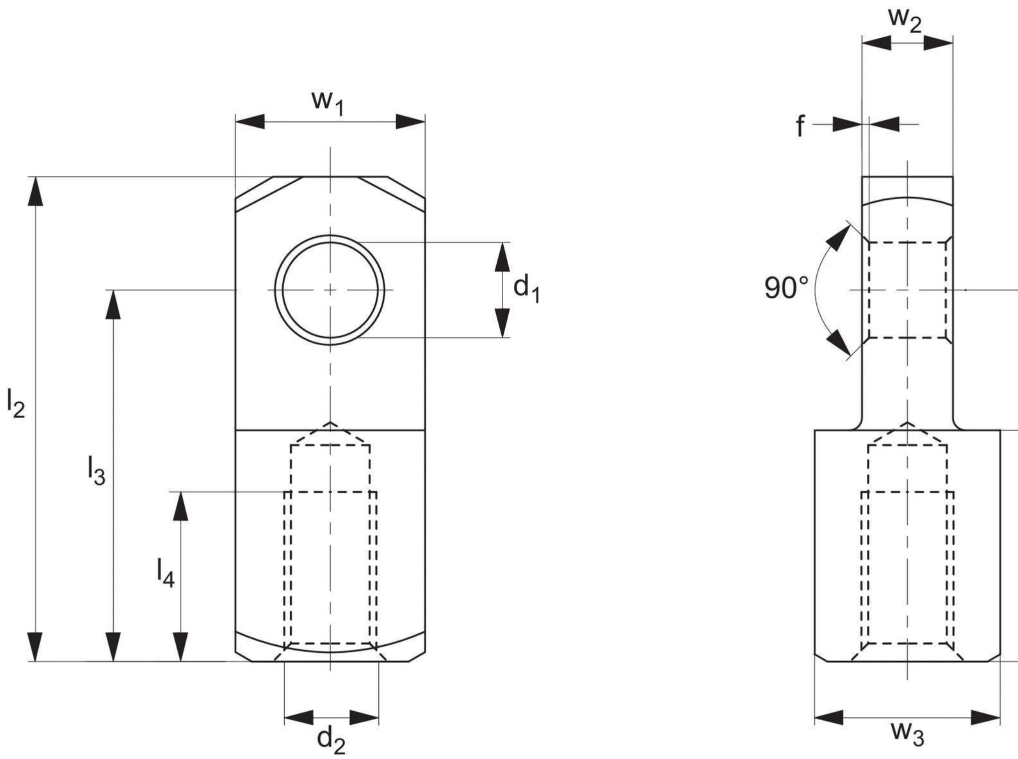
Standard thread is right hand, (for left hand thread, see 65653).
Thin end of mating piece is designed to fit in between forks of clevis joint. Designed so thread size matches clevis joint, (e.g. M5 mating piece will fit on M5 clevis joint).

Order No.	Thread (hand)	Thread type	d_1 H9	l_1 ±0,5	d_2	l_2 ±0,5	l_3 ±0,5	l_4	l_5 ±0.2	w_1 h11	w_2 -0,2	w_3 h11	f ±0.2	g
65652.W0004	Right	Coarse	4	6,0	M 4	21	16	6	10,0	8	4	8	0,5	6
65652.W0005	Right	Coarse	5	7,5	M 5	26	20	8	12,5	10	5	10	0,5	12
65652.W0006	Right	Coarse	6	9,0	M 6	31	24	11	15,0	12	6	12	0,5	21
65652.W0008	Right	Coarse	8	12,0	M 8	42	32	14	20,0	16	8	16	0,5	51
65652.W0009	Right	Fine	8	12,0	M 8x1,00	42	32	14	20,0	16	8	16	0,5	51
65652.W0010	Right	Coarse	10	15,0	M10	52	40	18	25,0	20	10	20	0,5	98
65652.W0011	Right	Fine	10	15,0	M10x1,25	52	40	18	25,0	20	10	20	0,5	98
65652.W0012	Right	Coarse	12	18,0	M12	62	48	22	30,0	24	12	24	0,5	168
65652.W0013	Right	Fine	12	18,0	M12x1,25	62	48	22	30,0	24	12	24	0,5	167
65652.W0014	Right	Coarse	14	21,0	M14	72	56	25	35,0	27	14	27	1,0	247
65652.W0015	Right	Fine	14	21,0	M14x1,50	72	56	25	35,0	27	14	27	1,0	245
65652.W0016	Right	Coarse	16	24,0	M16	83	64	30	40,0	32	16	32	1,0	397
65652.W0017	Right	Fine	16	24,0	M16x1,50	83	64	30	40,0	32	16	32	1,0	395
65652.W0020	Right	Coarse	20	30,0	M20	105	80	38	50,0	40	20	40	1,0	783
65652.W0021	Right	Fine	20	30,0	M20X1,50	105	80	38	50,0	40	20	40	1,0	776

Mating Piece for Clevis Joints

left hand thread - silver zinc plated

65653



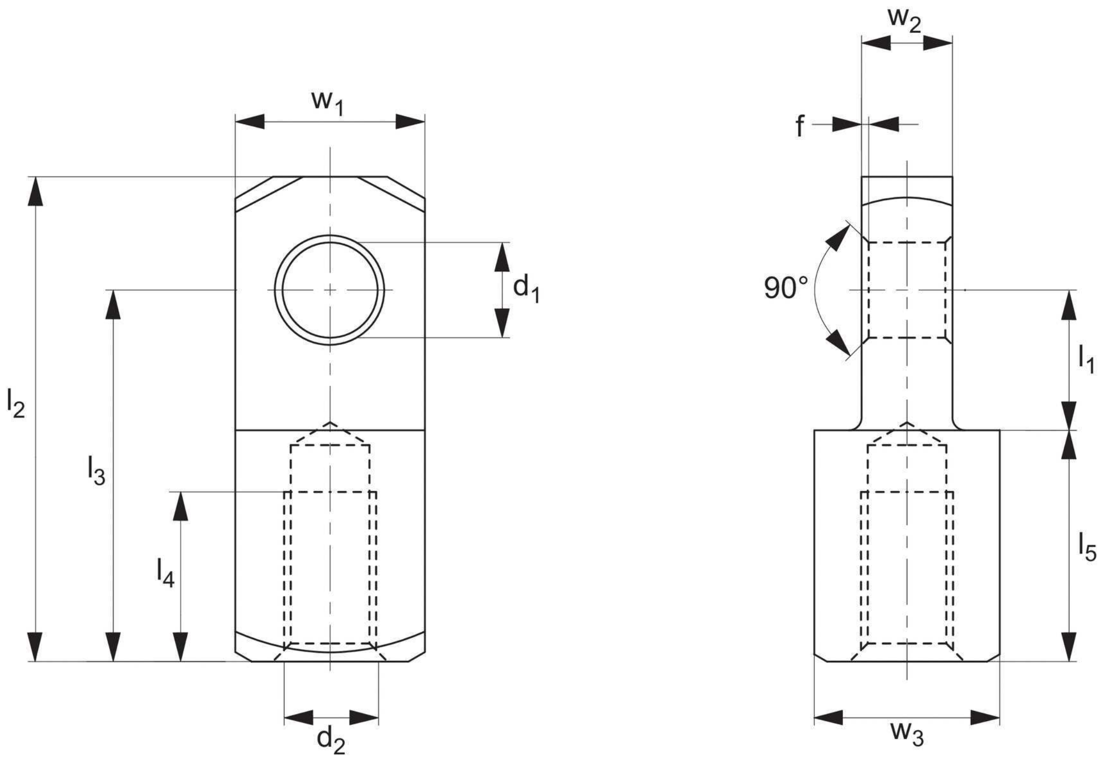
Material
Steel (1.0718).
Silver zinc plated.

Tips
Thin end of mating piece is designed to fit in between forks of clevis joint. Designed so thread size matches clevis joint, (e.g. M5 mating piece will fit on M5 clevis joint).

Order No.	Thread (hand)	Thread type	d_1 H9	l_1 ±0,5	d_2	l_2 ±0,5	l_3 ±0,5	l_4	l_5 ±0.2	w_1 h11	w_2 -0,2	w_3 h11	f ±0.2	g
65653.W1004	Left	Coarse	4	6,0	M 4	21	16	6	10,0	8	4	8	0,5	6
65653.W1005	Left	Coarse	5	7,5	M 5	26	20	8	12,5	10	5	10	0,5	12
65653.W1006	Left	Coarse	6	9,0	M 6	31	24	11	15,0	12	6	12	0,5	21
65653.W1008	Left	Coarse	8	12,0	M 8	42	32	14	20,0	16	8	16	0,5	51
65653.W1009	Left	Fine	8	12,0	M 8x1,00	42	32	14	20,0	16	8	16	0,5	51
65653.W1010	Left	Coarse	10	15,0	M10	52	40	18	25,0	20	10	20	0,5	98
65653.W1011	Left	Fine	10	15,0	M10x1,25	52	40	18	25,0	20	10	20	0,5	98
65653.W1012	Left	Coarse	12	18,0	M12	62	48	22	30,0	24	12	24	0,5	168
65653.W1013	Left	Fine	12	18,0	M12x1,25	62	48	22	30,0	24	12	24	0,5	167
65653.W1014	Left	Coarse	14	21,0	M14	72	56	25	35,0	27	14	27	1,0	247
65653.W1015	Left	Fine	14	21,0	M14x1,50	72	56	25	35,0	27	14	27	1,0	245
65653.W1016	Left	Coarse	16	24,0	M16	83	64	30	40,0	32	16	32	1,0	397
65653.W1017	Left	Fine	16	24,0	M16x1,50	83	64	30	40,0	32	16	32	1,0	395
65653.W1020	Left	Coarse	20	30,0	M20	105	80	38	50,0	40	20	40	1,0	783
65653.W1021	Left	Fine	20	30,0	M20X1,50	105	80	38	50,0	40	20	40	1,0	776

Stainless Mating Piece for Clevis Joints

65656



Order No.	Thread (hand)	Thread type	d_1 H9	l_1 ±0,5	d_2	l_2 ±0,5	l_3 ±0,5	l_4	l_5 ±0.2	w_1 h11	w_2 -0,2	w_3 h11	f ±0.2	g
65656.W0004	Right	Coarse	4	6	M 4	21	16	6	10,0	8	4	8	0,5	6
65656.W0005	Right	Coarse	5	7,5	M 5	26	20	8	12,5	10	5	10	0,5	12
65656.W0006	Right	Coarse	6	9	M 6	31	24	11	15,0	12	6	12	0,5	21
65656.W0008	Right	Coarse	8	12	M 8	42	32	14	20,0	16	8	16	0,5	51
65656.W0009	Right	Fine	8	12	M 8x1,00	42	32	14	20,0	16	8	16	0,5	51
65656.W0010	Right	Coarse	10	15	M10	52	40	18	25,0	20	10	20	0,5	98
65656.W0011	Right	Fine	10	15	M10x1,25	52	40	18	25,0	20	10	20	0,5	98
65656.W0012	Right	Coarse	12	18	M12	62	48	22	30,0	24	12	24	0,5	168
65656.W0013	Right	Fine	12	18	M12x1,25	62	48	22	30,0	24	12	24	0,5	167
65656.W0014	Right	Coarse	14	21	M14	72	56	25	35,0	27	14	27	1,0	247
65656.W0015	Right	Fine	14	21	M14x1,50	72	56	25	35,0	27	14	27	1,0	245
65656.W0016	Right	Coarse	16	24	M16	83	64	30	40,0	32	16	32	1,0	397
65656.W0017	Right	Fine	16	24	M16x1,50	83	64	30	40,0	32	16	32	1,0	395
65656.W0020	Right	Coarse	20	30	M20	105	80	38	50,0	40	20	40	1,0	783
65656.W0021	Right	Fine	20	30	M20X1,50	105	80	38	50,0	40	20	40	1,0	776

Material

Stainless steel (AISI 303 1.4305).

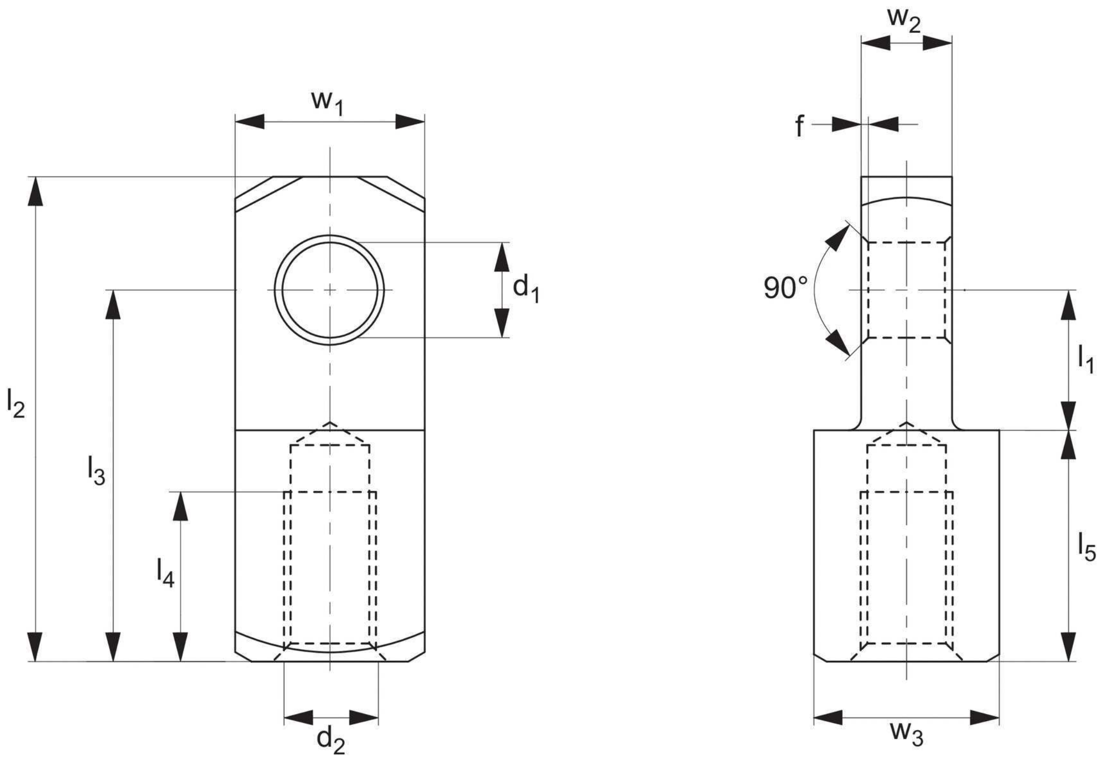
Tips

Standard thread is right hand, (for left hand thread see 65657).
Thin end of mating piece is designed to fit in between forks of clevis joint. Designed so thread size matches clevis joint, (e.g. M5 mating piece will fit on M5 clevis joint).

Stainless Mating Piece for Clevis Joints

left hand thread

65657



Material

Stainless steel (AISI 303 1.4305).

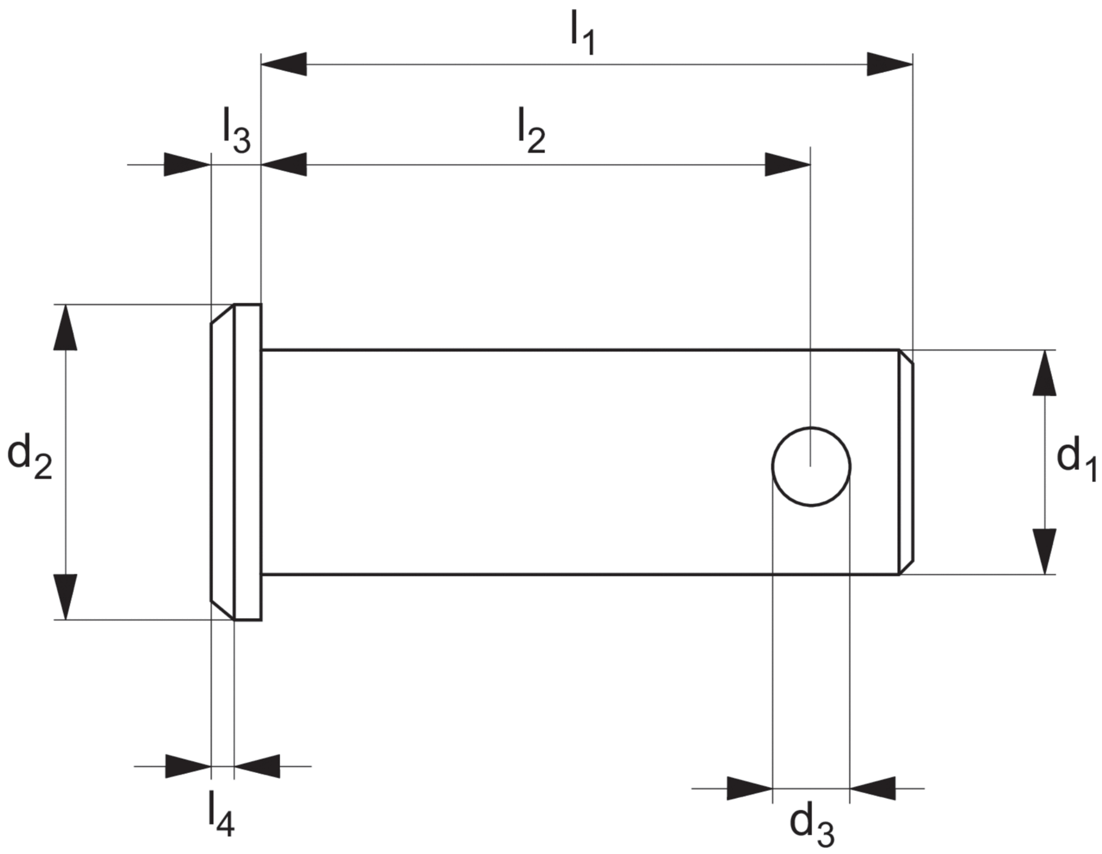
Tips

Thin end of mating piece is designed to fit in between forks of clevis joint. Designed so thread size matches clevis joint, (e.g. M5 mating piece will fit on M5 clevis joint).

Order No.	Thread (hand)	Thread type	d_1 H9	l_1 ±0,5	d_2	l_2 ±0,5	l_3 ±0,5	l_4	l_5 ±0.2	w_1 h11	w_2 -0,2	w_3 h11	f ±0.2	g
65657.W0004	Left	Coarse	4	6	M 4	21	16	6	10,0	8	4	8	0,5	6
65657.W0005	Left	Coarse	5	7,5	M 5	26	20	8	12,5	10	5	10	0,5	12
65657.W0006	Left	Coarse	6	9	M 6	31	24	11	15,0	12	6	12	0,5	21
65657.W0008	Left	Coarse	8	12	M 8	42	32	14	20,0	16	8	16	0,5	51
65657.W0009	Left	Fine	8	12	M 8x1,00	42	32	14	20,0	16	8	16	0,5	51
65657.W0010	Left	Coarse	10	15	M10	52	40	18	25,0	20	10	20	0,5	98
65657.W0011	Left	Fine	10	15	M10x1,25	52	40	18	25,0	20	10	20	0,5	98
65657.W0012	Left	Coarse	12	18	M12	62	48	22	30,0	24	12	24	0,5	168
65657.W0013	Left	Fine	12	18	M12x1,25	62	48	22	30,0	24	12	24	0,5	167
65657.W0014	Left	Coarse	14	21	M14	72	56	25	35,0	27	14	27	1,0	247
65657.W0015	Left	Fine	14	21	M14x1,50	72	56	25	35,0	27	14	27	1,0	245
65657.W0016	Left	Coarse	16	24	M16	83	64	30	40,0	32	16	32	1,0	397
65657.W0017	Left	Fine	16	24	M16x1,50	83	64	30	40,0	32	16	32	1,0	395
65657.W0020	Left	Coarse	20	30	M20	105	80	38	50,0	40	20	40	1,0	783
65657.W0021	Left	Fine	20	30	M20X1,50	105	80	38	50,0	40	20	40	1,0	776

Clevis Pins With Hole

65660



Material
Sizes 5-14 steel 1,0214 (QST 36-3).
Sizes 16-50 steel (1,0718 11SMnPb30+C).

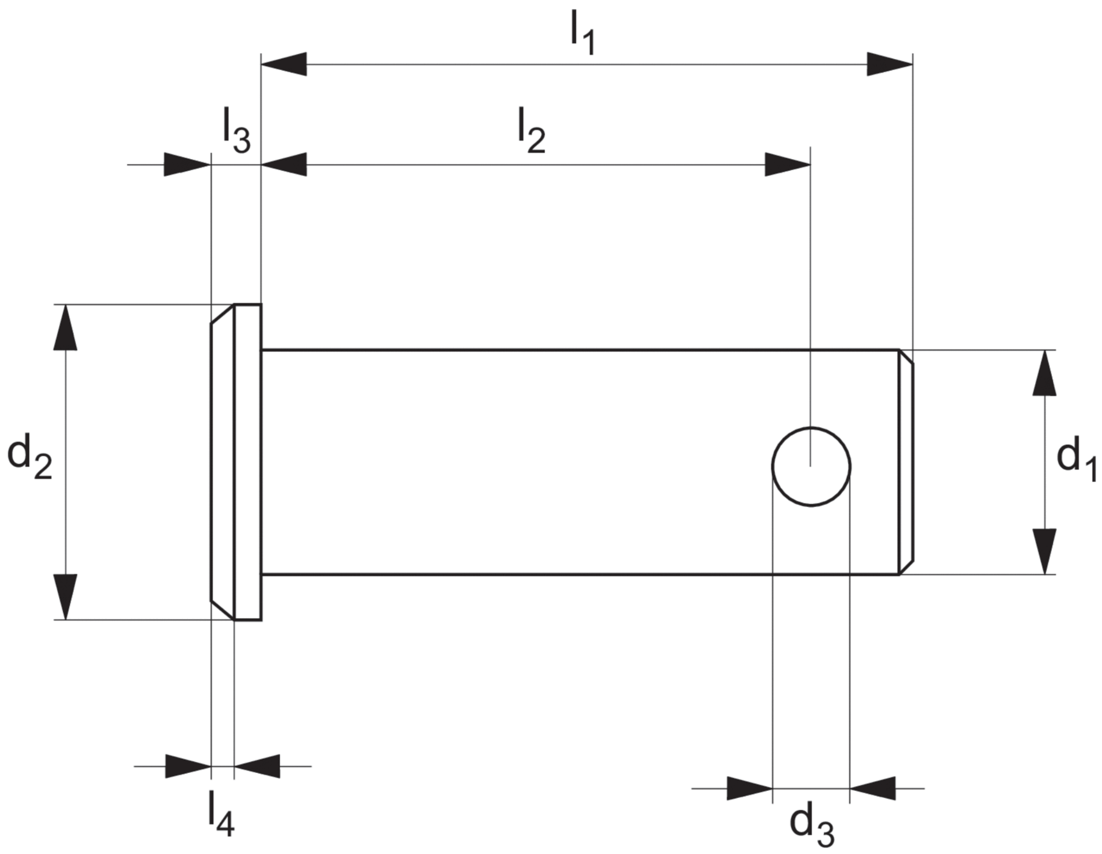
Technical Notes
Designed for use with clevis joints.

Tips
For use with clevis joints 65630 and 65631. For split cotter pins to suit see part number 65674.
For washers see part number 65675.

Order No.	d_1 tol. h11	l_1 tol. js15	d_2 tol. h14	d_3 tol. h14	l_2 +0,5	l_3 tol. js14	l_4	g
65660.W0105	5	15	8	1,0	12,3	1,5	0,5	2,6
65660.W0106	6	18	9	1,6	15,3	1,5	0,5	4,6
65660.W0108	8	22	12	2,0	19,5	2,0	1,0	10,0
65660.W0110	10	29	14	3,2	24,5	2,0	1,0	19,0
65660.W0112	12	35	17	4,0	29,5	3,0	1,5	34,0
65660.W0114	14	40	19	4,0	32,5	3,0	1,5	53,0
65660.W0116	16	45	20	4,0	38,2	3,5	1,5	72,0
65660.W0118	18	50	25	5,0	43,5	3,5	1,5	104,0
65660.W0120	20	53	28	5,0	47,0	4,0	1,5	139,0
65660.W0125	25	67	34	6,3	59,0	5,5	1,5	266,0
65660.W0128	28	72	34	6,3	63,2	5,5	2,0	361,0
65660.W0130	30	77	36	6,3	68,2	5,5	2,0	428,0
65660.W0135	35	87	45	8,0	76,5	7,0	2,0	677,0
65660.W0140	40	100	48	8,0	90,0	6,0	5,0	1035,0
65660.W0142	42	100	48	8,0	90,0	7,0	5,0	1151,0
65660.W0150	50	115	58	10,0	103,0	7,0	6,0	1846,0

Stainless Clevis Pin With Hole

65661



Material
Stainless steel (1.4305, X8CrNiS18-9).
For sizes 6-8: stainless steel (1.4567, X3CrNiCu18-9-4).

Technical Notes
Designed for use with clevis joints.

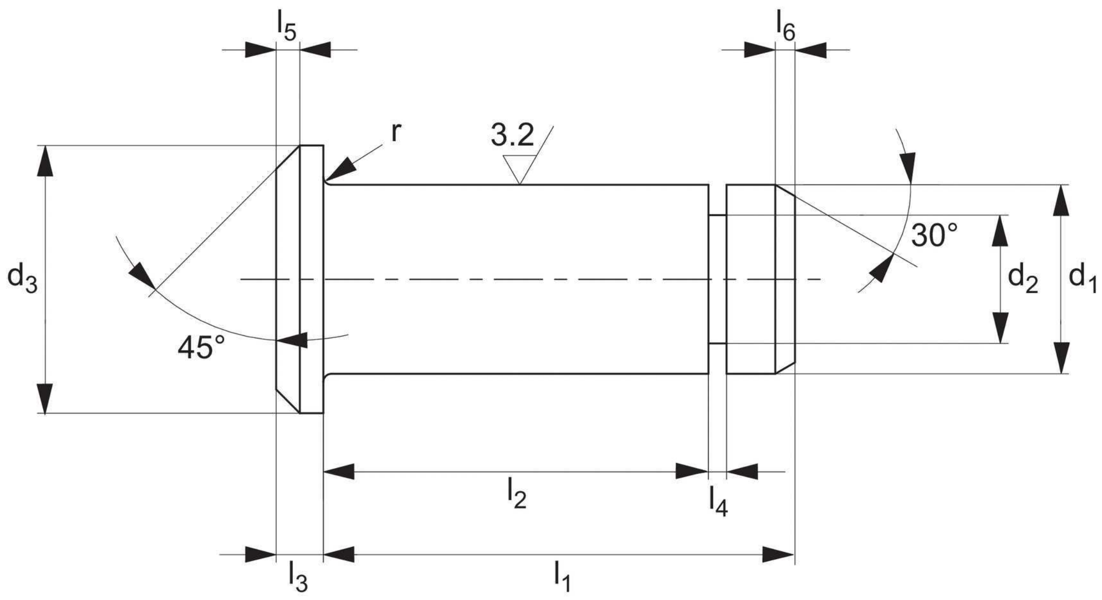
Tips
For use with clevis joints 65635 and 65636. For split cotter pins to suit see part number 65674.
For washers see part number 65671.

Order No.	d_1 tol. h11	l_1 tol. js15	d_2 tol. h14	d_3 tol. h14	l_2 +0,5	l_3 tol. js14	l_4	g
65661.W0005	5	15	8	1,2	12,3	1,5	0,50	2,6
65661.W0006	6	18	9	1,6	15,3	2,0	0,75	6,0
65661.W0008	8	23	12	2,0	19,5	2,5	1,00	10,0
65661.W0010	10	29	14	3,2	24,5	2,5	1,00	19,0
65661.W0012	12	35	16	4,0	29,5	2,5	1,25	34,0
65661.W0014	14	40	20	4,0	32,5	3,0	1,25	41,0
65661.W0016	16	45	20	4,0	38,2	3,0	1,50	72,0
65661.W0020	20	53	28	5,0	47,0	4,0	1,50	139,0
65661.W0025	25	67	34	6,3	59,0	5,0	1,50	266,0

Clevis Pin

silver zinc plated

65664



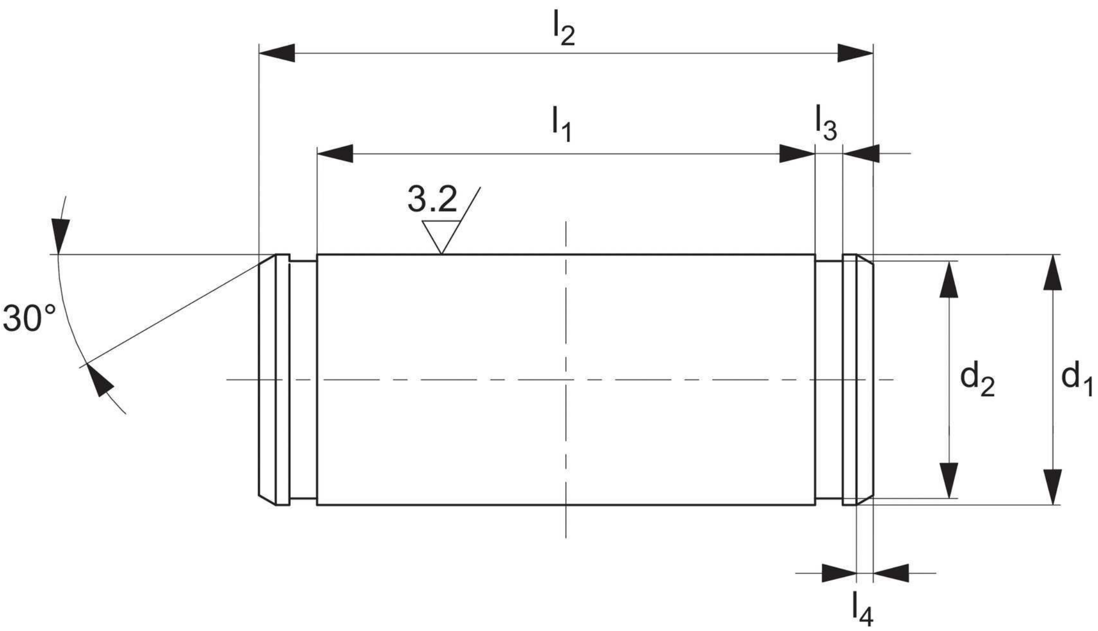
Material
Steel (9SMnPb28), silver zinc plated.

Technical Notes
Designed for use with clevis joints.

Tips
For safety fasteners, see 65680-65682.

Order No.	d_1 h11	l_1	d_2 h11	d_3 h12	l_2 +0,30	l_3 js14	l_4 +0,10	l_5	l_6	r	g
65664.W0104	4	10,5	3,2	6	8,5	1,0	0,64	0,50	0,50	0,3	2
65664.W0105	5	13,0	4,0	8	10,5	1,5	0,74	0,50	0,50	0,5	3
65664.W0106	6	15,5	5,0	9	12,5	1,5	0,74	0,50	0,75	0,5	4
65664.W0108	8	20,0	6,0	12	16,5	2,0	0,94	1,00	1,00	0,5	9
65664.W0110	10	25,0	8,0	14	20,5	2,0	1,05	1,00	1,00	0,5	17
65664.W0112	12	30,0	9,0	17	24,5	3,0	1,15	1,25	1,25	0,5	30
65664.W0114	14	33,0	10,0	19	27,5	3,0	1,25	1,50	1,50	1,0	48
65664.W0116	16	38,5	12,0	20	32,5	3,0	1,35	1,50	1,50	1,0	67
65664.W0120	20	46,0	17,5	26	40,5	4,0	1,80	2,00	1,50	1,0	125
65664.W0125	25	57,0	18,0	32	50,5	5,0	1,80	2,00	1,50	1,0	260

65666



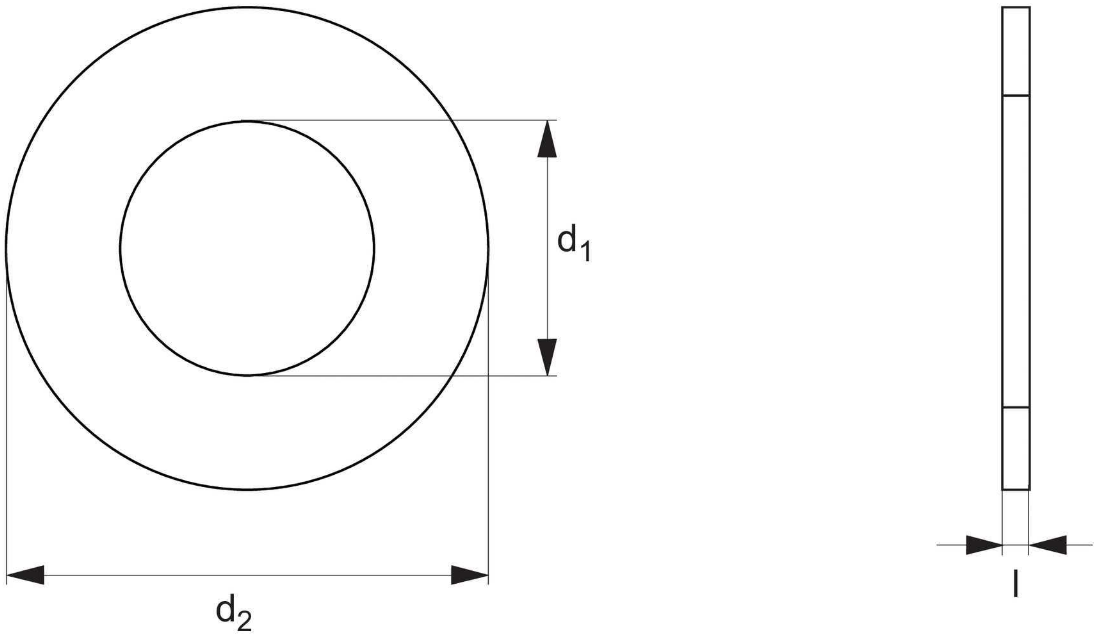
Order No.	d_1 h11	l_1 +0,30	d_2 h11	l_2 +0,40	l_3 h13	l_4	g
65666.W0005	5	10,5	4,8	15	0,7	1	3
65666.W0006	6	12,2	5,7	17	0,8	1	5
65666.W0008	8	16,5	7,6	20	0,9	1	8
65666.W0010	10	20,5	9,6	25	1,1	1	15
65666.W0012	12	24,5	11,5	30	1,1	1	26
65666.W0016	16	32,5	15,2	39	1,1	1	61
65666.W0020	20	40,5	19,0	48	1,3	1	118

Material
Stainless steel (AISI 303).

Technical Notes
For use with 65635-65636 clevis joints and 65678 circlips.

Steel Washer

65670



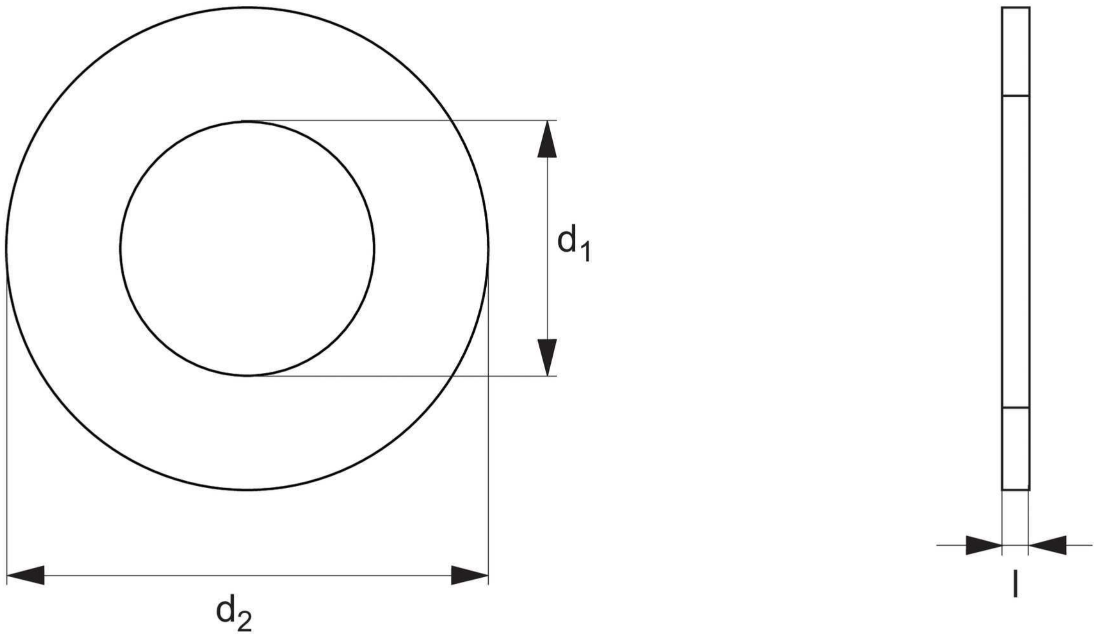
Material
Steel, silver zinc plated.

Technical Notes
DIN 125A flat washer ISO 7089.

Order No.	d_1	d_2	l
65670.W0004	4,3	9	0,8
65670.W0005	5,3	10	1,0
65670.W0006	6,4	12	1,6
65670.W0007	7,4	14	1,6
65670.W0008	8,4	16	1,6
65670.W0010	10,5	20	2,0
65670.W0012	13,0	24	2,5
65670.W0014	15,0	28	2,5
65670.W0016	17,0	30	3,0
65670.W0018	19,0	34	3,0
65670.W0020	21,0	37	3,0
65670.W0022	23,0	39	3,0
65670.W0025	25,0	44	4,0
65670.W0028	28,0	50	4,0
65670.W0030	31,0	56	4,0
65670.W0033	34,0	60	5,0
65670.W0036	37,0	66	5,0
65670.W0039	40,0	72	6,0
65670.W0042	43,0	78	7,0
65670.W0045	46,0	85	7,0
65670.W0050	50,0	92	7,0

Stainless Washer

65671



Material

Stainless steel (Grade A2).

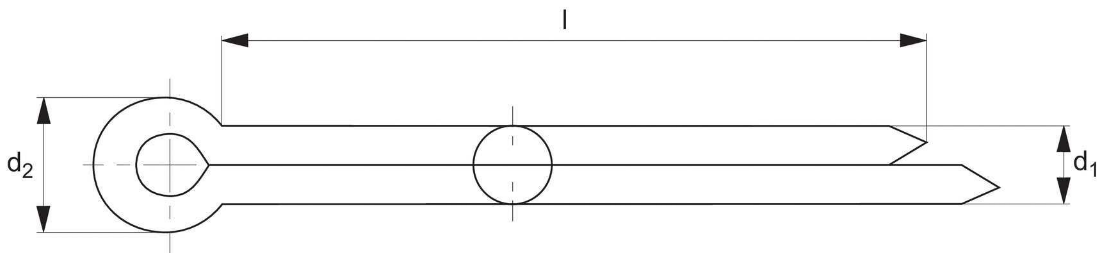
Technical Notes

DIN 125A flat washer ISO 7089.

Order No.	d_1	d_2	l
65671.W0004	4,3	9	0,8
65671.W0005	5,3	10	1,0
65671.W0006	6,4	12	1,6
65671.W0007	7,4	14	1,6
65671.W0008	8,4	16	1,6
65671.W0010	10,5	20	2,0
65671.W0012	13,0	24	2,5
65671.W0014	15,0	28	2,5
65671.W0016	17,0	30	3,0
65671.W0020	21,0	37	3,0
65671.W0025	25,0	44	4,0

Steel Cotter Pin

65674



Order No.	d_1 nom.Ø	l_1	d_1 min.	d_1 max.	d_2 min.	d_2 max.	l_2	l_3	For use with clevis pin
65674.W0010	1,0	10	0,8	0,9	0,80	1,6	1,6	3,0	65660.W0105
65674.W0016	1,6	18	1,3	1,4	1,25	2,5	2,5	3,2	65660.W0106
65674.W0020	2,0	18	1,7	1,8	1,25	2,5	2,5	4,0	65660.W0108
65674.W0032	3,2	22	2,7	2,9	1,60	3,2	3,2	6,4	65660.W0110
65674.W0040	4,0	28	3,5	3,7	2,00	4,0	4,0	8,0	65660.W0112
65674.W0050	5,0	50	4,4	4,6	8,00	9,2	4,0	10,0	65660.W0118
65674.W0060	6,0	71	5,7	5,9	2,00	4,0	4,0	12,6	65660.W0125
65674.W0080	8,0	112	7,3	7,5	2,00	4,0	4,0	16,0	65660.W0135
65674.W0100	10,0	112	9,3	9,5	3,20	6,3	6,3	20,0	65660.W0150

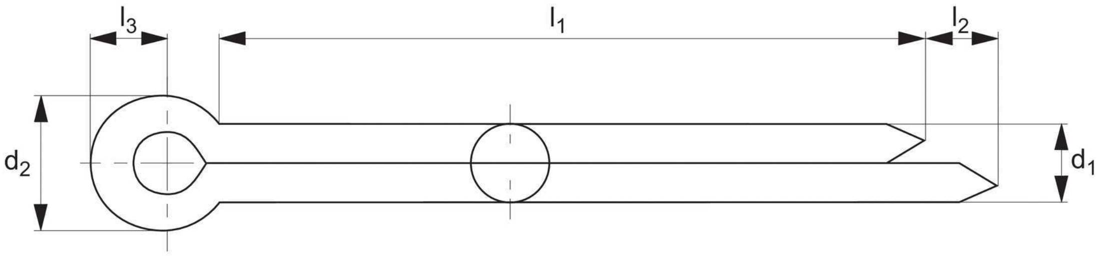
Material
Mild steel, silver zinc plated.

Technical Notes
To DIN 94 (equivalent to ISO 1234). Cotter pins require a loose fit, and as a result the metric versions can also be for inch sizes.

Tips
Used with clevis pins as denoted in product table, with clevis joints 65630 and 65631, and washers 65670.

Stainless Cotter Pin

65675



Order No.	d_1	l_1	d_1 min.	d_1 max.	d_2 max.	l_2 max.	l_3	For use with clevis pin
65675.W1010	1,0	10	0,8	0,9	1,8	1,6	3,0	65661.W0005
65675.W1018	1,6	18	1,3	1,4	2,8	2,5	3,2	65661.W0006
65675.W2018	2,0	18	1,7	1,8	3,6	2,5	4,0	65661.W0008
65675.W3022	3,2	22	2,7	2,9	5,8	3,2	6,4	65661.W0010
65675.W4028	4,0	28	3,5	3,7	7,4	4,0	8,0	65661.W0016
65675.W5050	5,0	50	4,4	4,6	9,2	4,0	10	65661.W0020
65675.W6071	6,3	71	5,7	5,9	11,8	4,0	12,6	65661.W0025

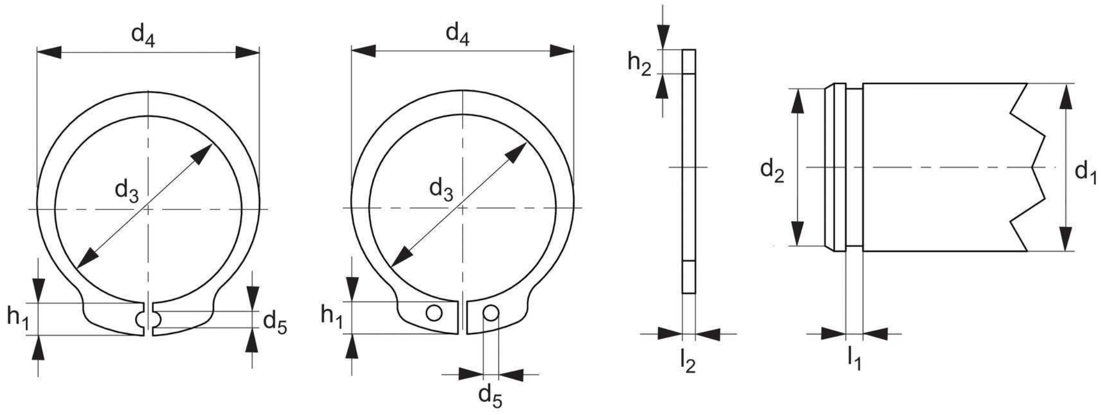
Material
Stainless steel (A2, DIN 1,4301).

Technical Notes
To DIN 94 (equivalent to ISO 1234). Cotter pins require a loose fit, and as a result the metric versions can also be for inch sizes.

Tips
Used with clevis pins as denoted in products table, with clevis joints 65636.

Stainless Circlips

65678



$d_1 \leq 9mm$ $d_1 > 9mm$

Material
Stainless steel (AISI 303).

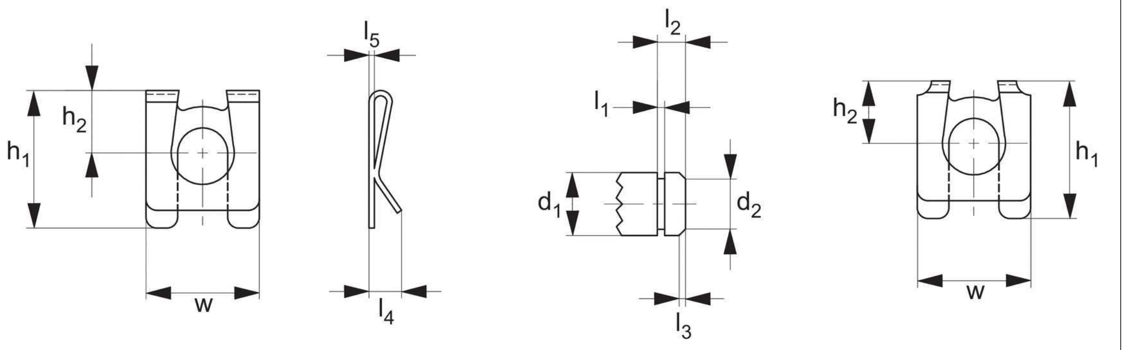
Technical Notes
To DIN 471.
For use with 65666 clevis pins and 65635-65636 clevis joints.

Order No.	d_1	l_1	d_2	d_3	d_4	d_5 min	l_2	h_1	h_2
65678.W0005	5	0,7	4,8	4,7	10,3	1,00	0,6	2,5	1,1
65678.W0006	6	0,8	5,7	5,6	11,7	1,15	0,7	2,7	1,3
65678.W0008	8	1,1	7,6	7,4	14,7	1,20	0,8	3,2	1,5
65678.W0010	10	1,1	9,6	11,0	19,0	1,70	1,0	3,3	1,8
65678.W0012	12	1,1	11,5	11,0	19,0	1,70	1,0	3,3	1,8
65678.W0016	16	1,1	15,2	14,7	23,8	1,70	1,0	3,7	2,2
65678.W0020	20	1,3	19,0	18,5	28,4	2,00	1,2	4,0	2,6

Safety Fastener (SLM)

silver zinc plated

65680



65680.008

Order No.	d_1 h11	l_1 +0,1	d_2 h11	l_2	l_3	l_4	l_5	w	h_1	h_2	Max. axial thrust KN	g
65680.W0004	4	0,64	3,2	2,0	0,50	2,3	0,3	7	8,5	4,0	1,00	19
65680.W0005	5	0,74	4,0	2,5	0,50	3,3	0,4	9	10,7	5,0	1,30	34
65680.W0006	6	0,74	5,0	3,0	0,75	3,8	0,4	11	14,1	6,0	1,50	63
65680.W0008	8	0,94	6,0	3,5	1,00	4,0	0,5	14	17,5	8,0	3,60	110
65680.W0010	10	1,05	8,0	4,5	1,00	5,0	0,5	18	22,1	10,0	6,40	211
65680.W0012	12	1,15	9,0	5,0	1,25	5,0	0,5	22	26,0	12,0	9,60	280
65680.W0014	14	1,25	10,0	5,5	1,50	6,0	0,6	25	30,0	13,5	11,32	474
65680.W0016	16	1,35	12,0	6,0	1,50	6,0	0,6	28	34,0	16,0	13,50	563

Material

Spring steel, silver zinc plated. Hardened and annealed 1450 to 1600ºC N/mm².

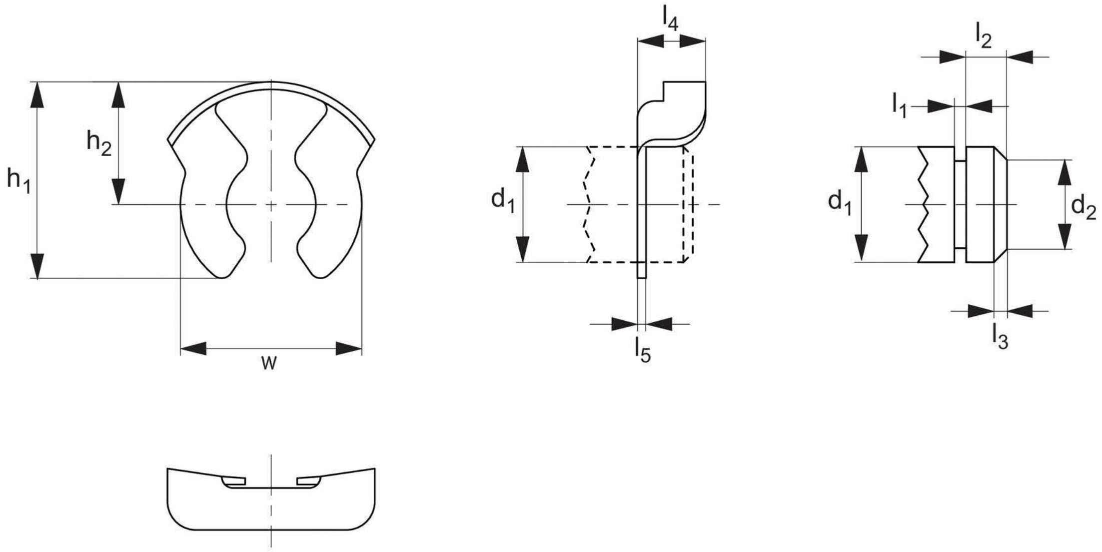
Tips

Easily assembled and removed by hand without special tools. Compatible with clevis pins. Safety lip prevents accidental removal. Assembly 'rattle' is eliminated by the fasteners concave back holding the clevis pin under tension.

Safety Fastener (KLM)

silver zinc plated

65682



Material
Steel, silver zinc plated.

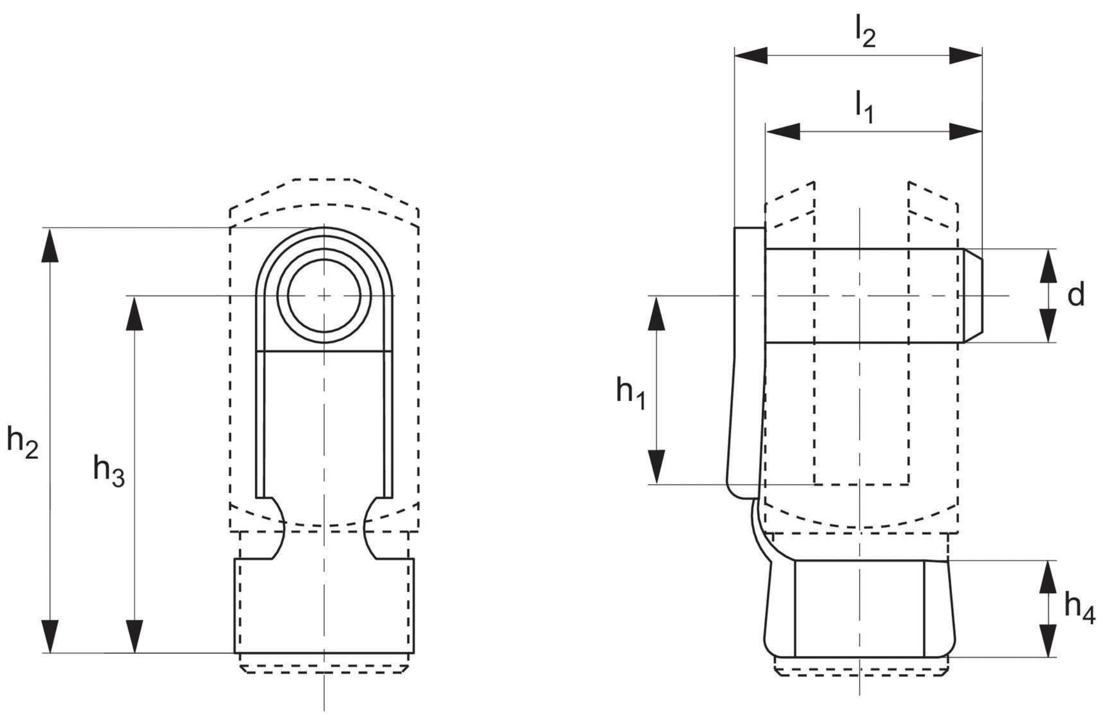
Tips
Easily assembled and removed by hand without special tools.

Order No.	d_1 h11	l_1 +0,10	d_2 h11	l_2	l_3	l_4	l_5	w	h_1	h_2	Max axial force KN
65682.W0004	4	0,64	3,2	2,0	0,50	2,8	0,4	6,6	7,20	4,3	1,50
65682.W0005	5	0,74	4,0	2,5	0,50	2,8	0,5	7,5	8,40	5,2	3,00
65682.W0006	6	0,74	5,0	3,0	0,75	3,5	0,5	10,6	11,25	6,8	4,85
65682.W0008	8	0,94	6,0	3,5	1,00	4,5	0,5	11,5	11,90	7,4	5,50
65682.W0010	10	1,05	8,0	4,5	1,00	5,9	0,6	15,5	16,30	9,5	9,50
65682.W0012	12	1,15	9,0	5,5	1,25	6,2	0,6	16,8	18,00	10,5	10,70
65682.W0014	14	1,25	10,0	5,5	1,50	6,8	0,7	19,2	20,00	12,2	12,70
65682.W0016	16-18	1,35	12,0	5,5-6,0	1,50	7,6	0,8	22,7	24,00	14,3	14,00
65682.W0020	20-25	1,80	16-18	5,5-6,5	1,50	9,8	1,0	34,0	34,00	19,0	16,00

Clevis Retention Clips

silver zinc plated

65684



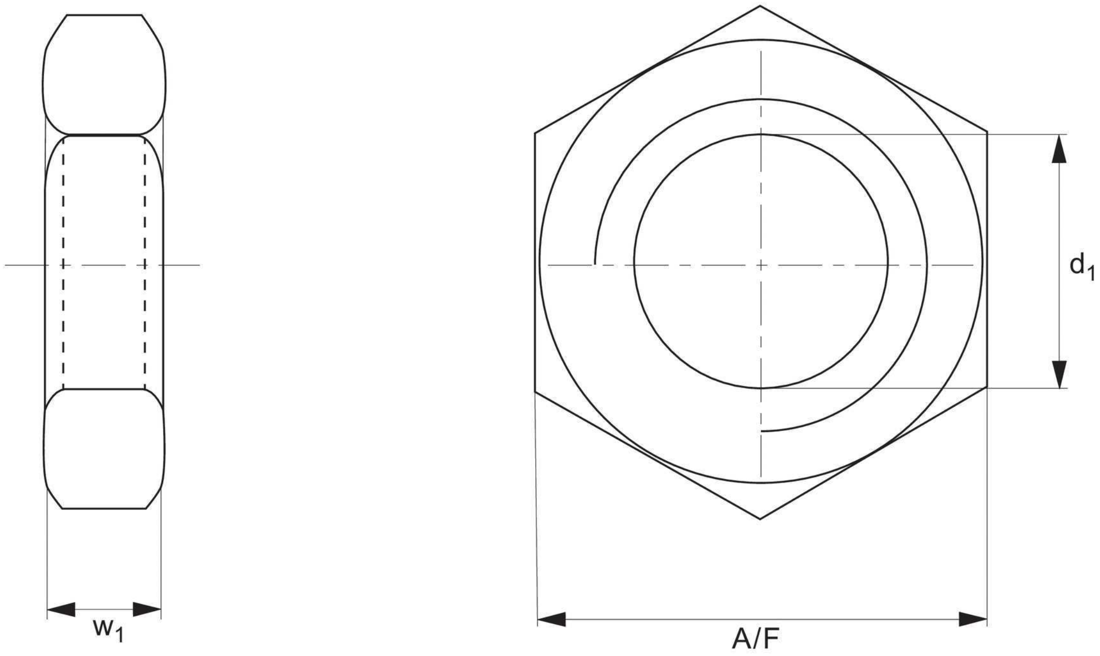
Material
Pin - steel (9SMnPb28).
Spring - carbon steel C70, silver zinc plated.

Tips
Clips on to base of clevis joint. For clevis joint see part numbers 65630 and 65631.

Order No.	Size	d h11	h_1	h_2	h_3	h_4	l_1	l_2	g
65684.W0048	4x8	4	8	19	15	4,0	9	11	2
65684.W0051	5x10	5	10	23	19	4,5	12	14	3
65684.W0052	5x20	5	20	33	29	4,5	12	14	3
65684.W0061	6x12	6	12	28	23	6,0	14	16	5
65684.W0062	6x24	6	24	40	35	6,0	14	16	5
65684.W0081	8x16	8	16	37	31	8,0	19	23	11
65684.W0083	8x32	8	32	53	47	8,0	19	23	12
65684.W0102	10x20	10	20	46	39	10,0	23	27	19
65684.W0104	10x40	10	40	66	59	10,0	23	27	20
65684.W0122	12x24	12	24	55	46	12,0	28	32	32
65684.W0124	12x48	12	48	79	71	12,0	28	32	34
65684.W0142	14x28	14	28	62	52	14,0	31	34	47
65684.W0145	14x56	14	56	92	82	14,0	31	34	50
65684.W0163	16x32	16	32	72	62	16,0	36	41	67
65684.W0166	16x64	16	64	103	92	16,0	36	39	74
65684.W0204	20x40	20	40	88	72	16,0	44	49	130

Steel Lock Nuts

65686



Material
Mild steel, silver zinc plated

Technical Notes
Hexagonal lock nuts to DIN 439/936

Order No.	Thread (hand)	d_1	w_1	A/F	g
65686.W0005	Right	M 5	2,7	8	2
65686.W0006	Right	M 6	3,2	10	3
65686.W0008	Right	M 8	5,0	13	4
65686.W0010	Right	M10	6,0	17	8
65686.W0011	Right	M10x1,25	6,0	17	8
65686.W0012	Right	M12	7,0	19	10
65686.W0013	Right	M12x1,25	7,0	19	10
65686.W0014	Right	M14	8,0	22	16
65686.W0015	Right	M14x1,50	8,0	22	16
65686.W0016	Right	M16	8,0	24	18
65686.W0017	Right	M16x1,50	8,0	24	18
65686.W0018	Right	M18x1,50	9,0	27	28
65686.W0020	Right	M20x1,50	9,0	30	32
65686.W0022	Right	M22x1,50	10,0	32	40
65686.W0024	Right	M24x2,00	10,0	36	52
65686.W0027	Right	M27x2,00	12,0	41	102
65686.W0030	Right	M30x2,00	12,0	46	102
65686.W0036	Right	M36x3,00	18,0	55	175
65686.W0039	Right	M39x3,00	16,0	60	240
65686.W0042	Right	M42x3,00	16,0	65	290
65686.W0045	Right	M45x3,00	18,0	70	380
65686.W0052	Right	M52x3,00	26,0	80	535
65686.W0060	Right	M60x4,00	27,0	90	860
65686.W0205	Left	M 5	27,0	8	2
65686.W0206	Left	M 6	3,2	10	3
65686.W0208	Left	M 8	5,0	13	4
65686.W0210	Left	M10	6,0	17	8
65686.W0211	Left	M10x1,25	6,0	17	8
65686.W0212	Left	M12	7,0	19	10
65686.W0213	Left	M12x1,25	7,0	19	10
65686.W0214	Left	M14	8,0	22	16
65686.W0215	Left	M14x1,50	8,0	22	16
65686.W0216	Left	M16	8,0	24	18
65686.W0217	Left	M16x1,50	8,0	24	18
65686.W0218	Left	M18x1,50	9,0	27	28
65686.W0220	Left	M20x1,50	9,0	30	32
65686.W0222	Left	M22x1,50	10,0	32	40
65686.W0224	Left	M24x2,00	10,0	36	52
65686.W0227	Left	M27x2,00	12,0	41	102
65686.W0230	Left	M30x2,00	12,0	46	102
65686.W0236	Left	M36x3,00	18,0	55	175
65686.W0239	Left	M39x3,00	16,0	60	240
65686.W0242	Left	M42x3,00	16,0	65	290
65686.W0245	Left	M45x3,00	18,0	70	380
65686.W0252	Left	M52x3,00	26,0	80	535

Steel Lock Nuts

65686

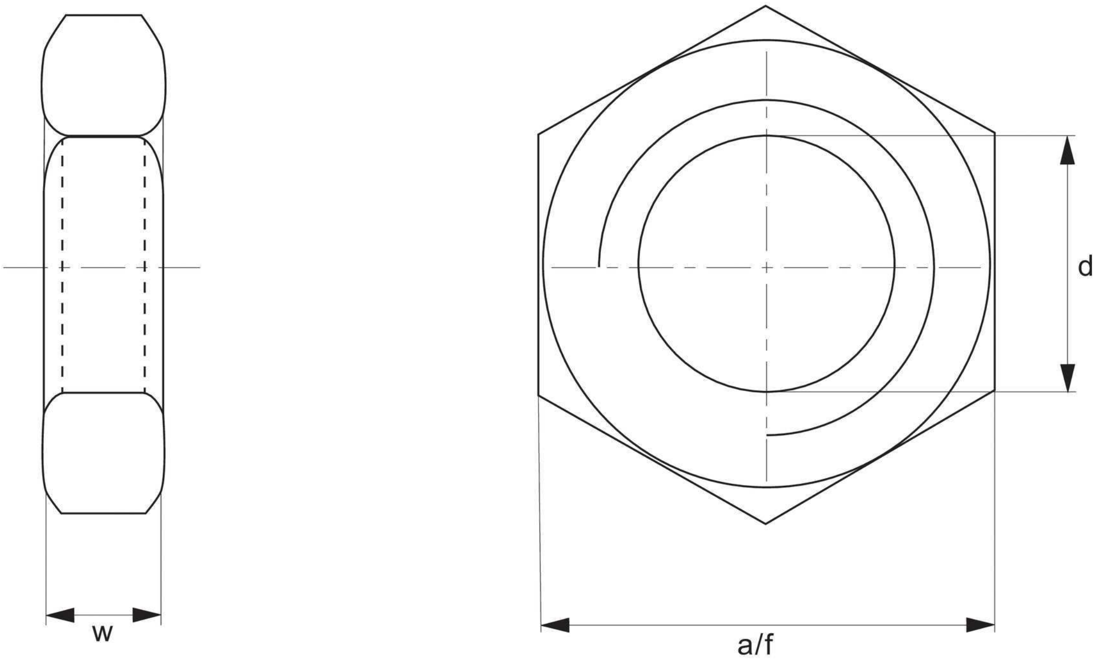
Order No.	Thread (hand)	d_1	w_1	A/F	g
65686.W0260	Left	M60x4,00	27,0	90	860

Material
Mild steel, silver zinc plated

Technical Notes
Hexagonal lock nuts to DIN 439/936

Stainless Lock Nuts

65687

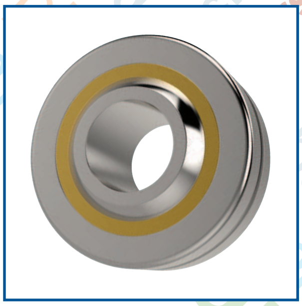


Material
Stainless steel (A2)

Technical Notes
Hexagonal lock nuts similar to ISO 4035/8675 (DIN 439/936)

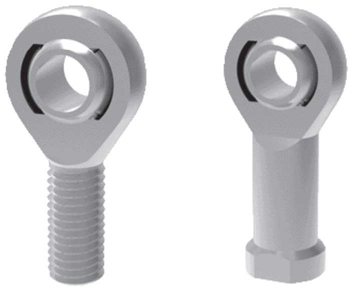
Tips
Stainless steel (A4) available on request.

Order No.	Thread (hand)	d	a/f	w min.	g
65687.W0005	Right	M 5	8	2,7	2
65687.W0006	Right	M 6	10	3,2	3
65687.W0008	Right	M 8	13	4,0	4
65687.W0009	Right	M 8x1,00	13	4,0	4
65687.W0010	Right	M10	17	5,0	8
65687.W0011	Right	M10x1,25	17	6,0	8
65687.W0012	Right	M12	19	6,0	10
65687.W0013	Right	M12x1,25	19	6,0	10
65687.W0014	Right	M14	22	7,0	18
65687.W0015	Right	M14x1,50	22	7,0	18
65687.W0016	Right	M16	24	8,0	20
65687.W0017	Right	M16x1,50	24	8,0	20
65687.W0018	Right	M18	27	9,0	30
65687.W0019	Right	M18x1,50	27	9,0	30
65687.W0020	Right	M20	30	10,0	32
65687.W0021	Right	M20x1,50	30	10,0	32
65687.W0022	Right	M22	34	11,0	40
65687.W0023	Right	M22x1,50	34	11,0	40
65687.W0024	Right	M24	36	12,0	52
65687.W0025	Right	M24x2,00	36	12,0	52
65687.W0027	Right	M27	41	13,5	90
65687.W0028	Right	M27x2,00	41	13,5	90
65687.W0030	Right	M30	46	15,0	110
65687.W0031	Right	M30x2,00	46	15,0	110
65687.W0033	Right	M33	50	16,5	155
65687.W0036	Right	M36	55	18,0	190
65687.W0206	Left	M 6	10	2,90	3
65687.W0208	Left	M 8	13	3,70	4
65687.W0210	Left	M10	17	4,70	8
65687.W0212	Left	M12	19	5,70	10
65687.W0216	Left	M16	24	7,42	20
65687.W0220	Left	M20	30	9,10	32
65687.W0222	Left	M24	32	10,90	40
65687.W0230	Left	M30	46	13,90	110
65687.W0236	Left	M36	55	16,90	190



Rod Ends

Parts overview

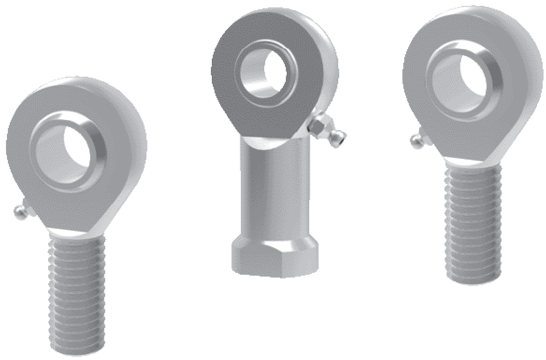


Heavy Duty Rod Ends: integral spherical plain bearings - series K and series E

Male and female rod ends, maintenance free. These are our most popular range of heavy duty rod ends. Bore diameters 5mm up to 30mm.

Spherical Plain Bearings: steel and stainless steel

65974 is our lowest cost, most popular option spherical bearing. Stainless steel version 65976 requires maintenance. 65974 is maintenance free. Bore diameters 5mm up to 30mm.

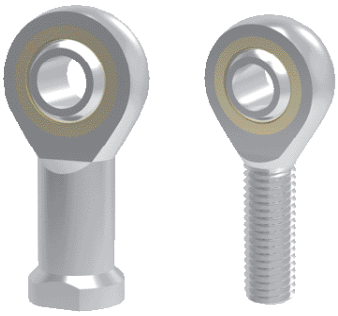


Heavy Duty Rod Ends: integral ball bearings - series K and series E

Male and female rod ends. Different bore sizes in relation to the thread size. All require maintenance. Bore diameters 6mm up to 30mm.

Stainless Steel Heavy Duty Rod Ends: integral spherical plain bearings

Male and female rod ends maintenance free.



Low Cost Rod Ends: with spherical plain bearing

These are our most popular male and female rod ends. Maintenance free. Female-bore diameters 5mm up to 12mm. Male-bore diameters 5mm up to 16mm.

Rod Ends with Studs

Steel and Stainless steel, male and female, maintenance free. Sizes M6 up to M16.

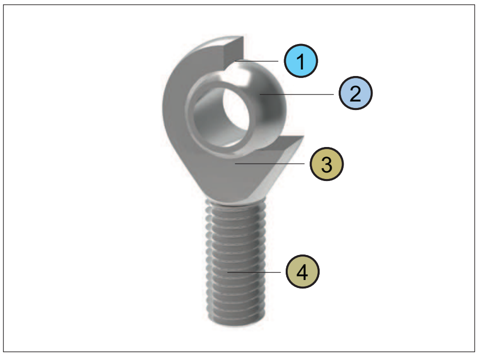
see our website for our full range:
wixroyd.com

ov-65700-65970-a - Updated - 20-12-2016

All of our rod ends incorporate either a plain spherical bearing, ball bearing, or roller bearing. Below is an overview of each type.

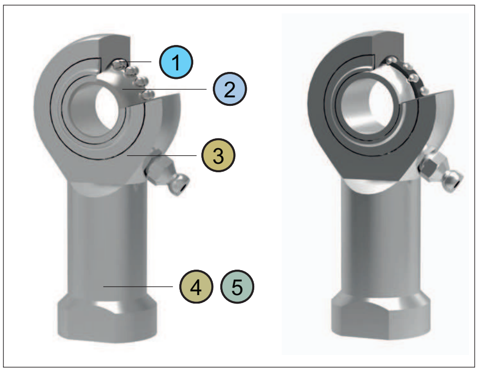
Plain spherical bearings

1. Thin coating made from Polyamid-PTFE-fibreglass - compound, maintenance free, absorbs any foreign particles.
2. Ball made of bearing steel, hardened, ground, polished and hard chromium plated, ensures reliable corrosion protection.
3. No clearance - radial clearance 0-10µm.
4. All rod end housings made of forged steel, tempered, extremely high load resistances.



Ball and roller bearings

1. Radial clearance: 10-30µm, low friction.
2. Inner ring made of bearing steel, hardened ball grooves polished.
3. Shields on both sides protect against rough dirt penetration.
4. All rod ends housings are made of forged steel, case hardened bearing race.
5. Low maintenance due to long-term greasing, especially suitable for high speed large swiveling angles or rotating movements.



Rod ends and water

Stainless steel versions

Most of our rod ends are available in stainless steel as standard.

High grade AISI 316 stainless steel available on request.

ov-65700-65970-b - Updated - 20-12-2016

Rod ends with integral maintenance-free spherical plain bearings

In many cases heavy-duty rod ends with integral spherical plain bearings are most often used. They are above all used for small swivelling or tilting movements at low speeds. They stand out for their high load capacity and can also be used for shock-like loads. The rod end ball slides on a plastic bearing shell consisting of a glass fibre-filled nylon/teflon compound. This design assures a maintenance-free rod end. Heavy-duty plain bearing rod ends have slight initial movement friction and virtually no clearance. The plastic material used has another advantage in that it can absorb many foreign particles so that no damage can occur. The balls of heavy-duty rod ends with integral spherical plain bearings are hard chrome plated. This reliable corrosion protection ensures that the function of the rod end will not be affected by a corroded ball surface under humid operating conditions.

Rod ends with integral ball bearings

This design is especially suitable for high speeds, large swivelling angles or rotating movements with relatively low or medium loads. Prominent technical features are the low bearing friction, long-time greasing as well as the sealing against some dirt pentration (by means of shields on both sides). Under normal operating conditions the rod ends are maintenance-free. Greasing nipples are provided for lubrication in case of rough operations and maximum loads. To avoid incompatibility with the production lubrication, we recommend lubrication with a calcium-complex-soap-grease. A special heat treatment procedure gives the rod end housing a raceway hardness adapted to the antifriction bearing, ensuring at the same time high stability with changing loads.

Rod ends with integral roller bearings

This design, based on the structure of a self-aligning roller bearing is preferably used for high speed, large tilting angles or rotating movements under high loads. Compared to rod ends with ball bearings, rod ends with self-aligning roller bearings essentially have higher basic load ratings. This design is equipped with a cage to minimise the rolling friction and heat build-up. These rod ends, with long-time lubrication are under normal operating conditions maintenance-free. Greasing nipples are provided for lubrication in case of rough operations and maximum loads. To avoid incompatibility with the production lubrication, we recommend lubricating with a calcium-complex-soap-grease. Shields on both sides limit dirt particles from penetrating into the bearing. The rod ends with roller bearings are subjected to a special heat treatment to obtain a raceway hardness adapted to the antifriction bearings, ensuring at the same time a high stability with changing loads.

Rod end bearings load capacity explained

Static load capacity C_0 (plain bearings)

The static load capacity C_0 is the radially acting static load which does not cause any permanent deformation of the components when the spherical bearing or rod end is stationary, (i.e. the load condition without pivoting, swivelling or tilting movements). It is also a precondition here that the operating temperature must be at normal room temperature and the surrounding components must possess sufficient stability.

The values specified in the tables are determined by static tension tests on a representative number of series components at 20°C normal room temperature. The static load capacity may vary with lower or higher temperature depending on the material. In the case of all rod ends with plain bearings, the static load rating refers to the maximum permissible static load of the rod end housing in a tensile direction up to which no permanent deformation occurs at the weakest housing cross-section. The value in the product tables has a safety factor of 1.2 times the tensile strength of the rod ends housing material.

Static load capacity C_0 (roller and ball bearings)

For our rod ends with roller and ball bearings, the static load rating is the load at which the bearing can operate at room temperature without its performance being impaired as a result of deformations, fracture, or damage to the sliding contact surfaces (max 1/10,000th of the ball diameter).

Dynamic load capacity C (plain bearings)

Dynamic load ratings serve as values for calculation of the service life of dynamically-loaded spherical bearings and rod ends. The values themselves do not provide any information about the effective dynamic load capacity of the spherical bearing or rod end. To obtain this information, it is necessary to take into account the additional influencing factors such as load type, swivel or tilt angle, speed characteristic, max. permitted bearing clearance, max. permitted bearing friction, lubrication conditions and temperature, etc.

Dynamic load capacities depend on the definition used to calculate them. Comparison of values is not always possible owing to the different definitions used by various manufacturers, and because the load capacities are often determined under completely different test conditions.

Dynamic load capacity C (roller and ball bearings)

For our rod ends with roller and ball bearings, the dynamic load capacity is the load at which 90% of a large quantity of identical rod ends reach 1 million revolutions before they fail (due to fatigue of the rolling surfaces.)

Operating temperatures

Heavy-duty ball and roller bearing rod ends can be used for operating temperatures between -20°C and +120°C. The temperature range of heavy-duty rod ends with integral spherical plain bearing is between -30°C and +60°C, without affecting the load capacity. Higher temperatures will reduce the load capacity taken into account for the calculation of the 'working life' under the temperature factor C_2 on page 451.

Loads

The decisive parameters for the selection and calculation of heavy-duty rod ends are size, direction and type of load.

Radial or combined loads

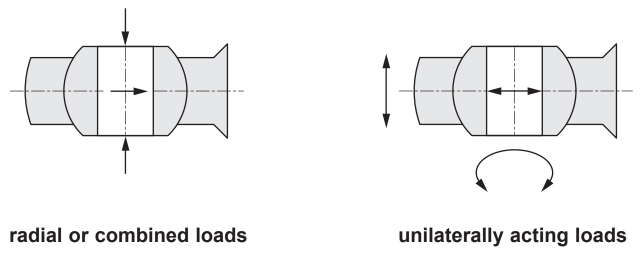
The heavy-duty rod ends have been especially designed to cope with high radial loads. They can be used for combined loads, the axial load share of which does not exceed 20% of the corresponding radial load.

Unilaterally acting load

In this case the load acts only in the same direction, which means that the load area is always in the same bearing section.

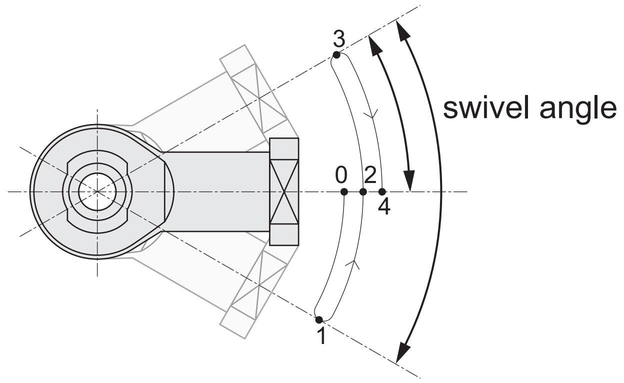
Alternately acting load

In case of alternating loads, the load areas facing each other are alternately loaded and/or relieved, which means that the load changes its direction constantly by approximately 180°.



Swivelling angle

The swivelling angle is the movement of the rod end from one final position to the other. Half the swivelling angle a° is used to calculate the service or 'working life'.

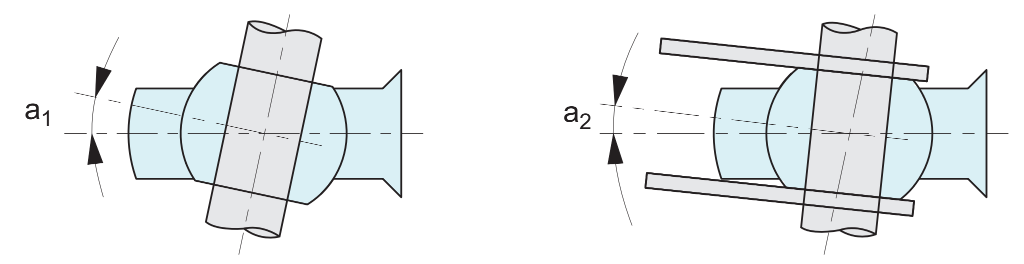


Angle of tilt

The angle of tilt, also called setting angle, refers to the movement of the joint ball and/ or the inner ring to the rod end axis (in degrees). The tilting angle (a) indicated in the table for the heavy-duty ball and roller bearing rod ends corresponds to the maximum possible movement being limited by the shields on both sides.

It is important that this tilting angle is not exceeded either during installation or operation, as otherwise the shields may be damaged. For heavy-duty plain bearing rod ends a distinction is made between the tilting angles (a1 and a2).

If the movement is not limited by adjacent components, then angle a1 can fully be used without affecting the rod end capacity. Tilting angle a2 is the movement limit when connecting a forked component.



Nominal service life

The term 'nominal service life' is used for heavy-duty ball and roller bearing rod ends and represents the number of swivelling motions or rotations and/or the number of service hours the rod end performs before showing the first signs of material fatigue on the raceway or roller bodies. In view of many factors that are difficult or impossible to assess, the service life of several apparently identical bearings differ under the same operating conditions.

For this reason, the following method for the service life determination of heavy-duty ball and roller rod ends results in a nominal service life being achieved or exceeded by at least 90% of a large quantity of identical rod ends.

Working life

The term 'working life' is used with heavy-duty plain bearing rod ends. It represents the number of swivelling motions or rotations and/ or the number of service hours the heavy duty plain bearing rod end performs before becoming unserviceable due to material fatigue, wear, increased bearing clearance or increase of the bearing friction moment.

The 'working life' is not only influenced by the size and the type of load, it is also affected by a number of factors, which are difficult to assess. A calculation of the exact service life is therefore impossible. Field-experienced standard values for the approximate 'working life' can nevertheless be determined by using the following calculation procedure which is based on numerous results from endurance test runs and values from decades of experience. The values determined by this formula are achieved, if not exceeded, by the majority of the heavy-duty rod ends.

Heavy-duty rod ends

65700, 65720, 65740, 65742, 65760, 65780, 65800

d_1		d_{1mp} Tolerance limit		V_{d1p}	V_{d1mp}	b_{1s} Tolerance limit		h_s, h_{1s}, h_{2s} Tolerance limit	
Over	Icl.	Upper	Lower	Max.	Max.	Upper	Lower	Upper	Lower
	6	+0,012	0	0,012	0,009	0	-0,12	+0,8	-1,2
6	10	+0,015	0	0,015	0,011	0	-0,12	+0,8	-1,2
10	18	+0,018	0	0,018	0,014	0	-0,12	+1,0	-1,7
18	30	+0,021	0	0,021	0,016	0	-0,12	+1,4	-2,1
30	50	+0,025	0	0,025	0,019	0	-0,12	+1,8	-2,7

Dimensions and tolerance symbols

d_1 = nominal bore diameter of the inner ring or joint ball.

d_{1mp} = mean bore diameter deviation in one plane, arithmetical mean of the largest and smallest bore diameter.

V_{d1p} = bore diameter variation in one plane, difference between the largest and smallest bore diameter.

V_{d1mp} = mean bore diameter variation, difference between the largest and smallest bore diameter of one inner ring or joint ball.

b_{1s} = single inner ring or joint ball width deviation.

h, h_1, h_2 = single length from inner ring or ball bore centre to shank end.

h_s, h_{1s}, h_{s2} = single length variation of a single rod end.

ov-65700-65970-f - Updated - 20-12-2016

Permissible load

The maximum load is defined by the static basic load rating C_0. If static loads are a combination of radial and axial loads, the equivalent static load will have to be calculated.

$$P_0 \leq C_0 \text{ (N)}$$

P_0 = Static equivalent load

Self-aligning ball bearing $= P_0 = F_r + Y_0 \cdot F_a$

Self-aligning roller bearing $= P_0 = F_r + 5 \cdot F_a$

F_a = Axial load

F_r = Radial load

Y_0 = Axial factor, static, see individual product pages

Y_0 = Basic static load rating (kN), see individual product pages

Nominal service life

For Rod Ends with integral self-aligning ball bearing **65740, 65742, 65760, 65820, 65840.**

Rotating

$$G_{h_{rot.}} = 10^6 \frac{\left(\frac{C}{P}\right)^3}{60 \cdot n} \text{ (h)}$$

Oscillating

$$G_{h_{osc.}} = 10^6 \frac{\left(\frac{C}{P\sqrt[3]{\frac{ß}{90}}}\right)^3}{60 \cdot f} \text{ (h)}$$

P = Dynamic equivalent load (kN)

Self-aligning ball bearing $= P = F_r + Y \cdot F_a$

Self-aligning roller bearing $= P = F_r + 9.5 \cdot F_a$

C = Basic dynamic load (kN), see individual product pages

Y = axial factor, dynamic, see individual product pages

$Gh_{rot.}$ = nominal service life for rotation (hours of operation)

$Gh_{osc.}$ = nominal service life for rotation (hours of operation)

ß = half of swivelling angle (degree), ß = 90 should be used for rotation.
Condition: Swivelling angle ß “ 3°. For swivelling angles ß<3° we recommend the use of heavy-duty spherical plain bearing rod ends

n = rotation speed (rpm)

f = frequency of oscillation (rpm)

h = hours

For Rod ends with integral self-aligning roller bearing **65780, 65800.**

Rotating

$$G_{h_{rot.}} = 10^6 \frac{\left(\frac{C}{P}\right)^{3,333}}{60 \cdot n} \text{ (h)}$$

Oscillating

$$G_{h_{osc.}} = 10^6 \frac{\left(\frac{C}{P\sqrt[3]{\frac{ß}{90}}}\right)^{3,333}}{60 \cdot f} \text{ (h)}$$

Calculation example

At the rotating side of a crank mechanism a ball or roller bearing rod end should be installed. The expected service life amounts to at least 5000 hours.

Known: Rotation speed n = 300 rpm, radial load F_r = 0,75 kN

Selected: **65760.W0108** = 4,0 kN

$$G_{h_{rot.}} = 10^6 \frac{\left(\frac{C}{P}\right)^3}{60 \cdot n} \text{ (h)}$$

$$= 10^6 \frac{\left(\frac{4,0}{0,75}\right)^3}{60 \cdot 300} = 8428 \text{ h} > 5000 \text{ h} \;\; ☑$$

ov-65700-65970-g - Updated - 20-12-2016

Permissible load

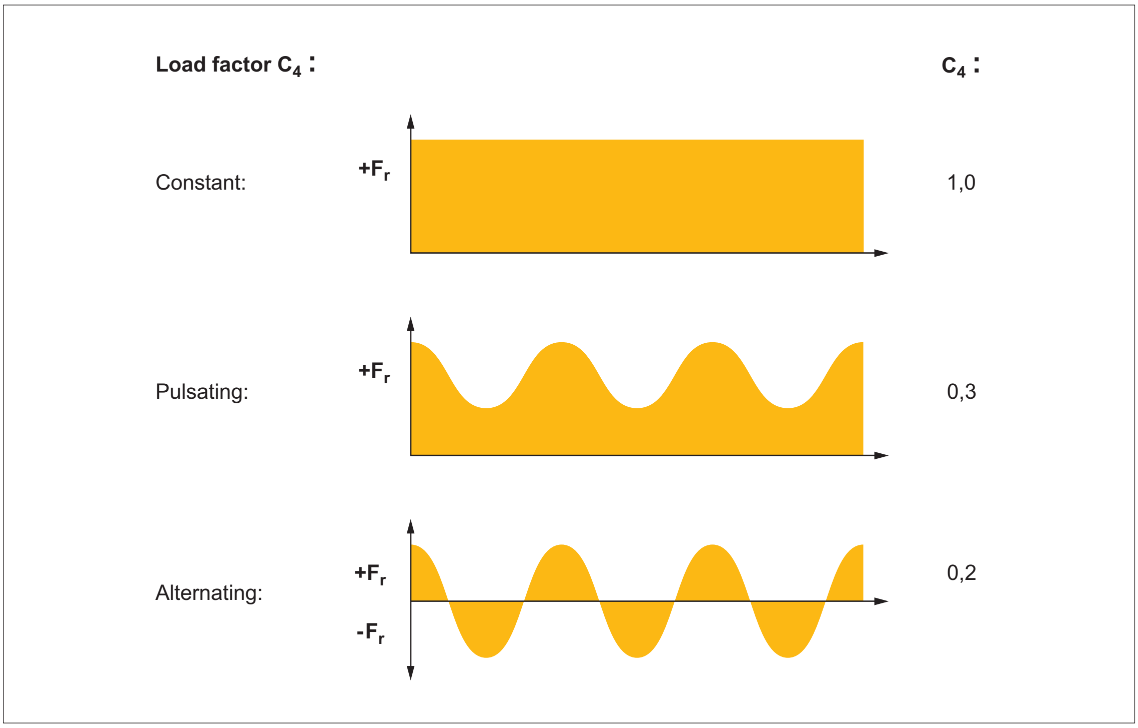
The maximum permissible load is calculated by using equation **1.** If static loads are a combination of radial and axial loads, the equivalent static load will have to be calculated using equation **2.**

Permissible load

Equation 1 $P_{max} = C_0 \cdot C_2 \cdot C_4$

Equation 2 $P = F_r + F_a \leq P_{max}$

P_{max} = Maximum permissible load (kN)
C_0 = Static basic load (kN), see individual product pages
C_2 = Temperature factor, see below
C_4 = Factor for type of load, see below
P = Equivalent dynamic load (kN)
F_r = Radial load
F_a = Axial load (kN)
Condition: $Fa \leq 0.2 \cdot F_r$



Temperature factor C_2

Up to 60°C	1,0.
60°C to 80°C	0,8.
80°C to 100°C	0,7.
100°C to 120°C	0,8.

ov-65700-65970-h - Updated - 20-12-2016

Permissible sliding velocity

The permissible sliding velocity of heavy-duty rod ends mainly depends on the load and temperature conditions. Heat generated by friction in the rod end housing is the main limitation on sliding velocity. When selecting the rod end size, it is necessary to determine the sliding velocity and the pv-value, which is a product of the specific bearing load p (N/mm²) and the sliding velocity v (m/s).

Specific bearing load

$$p = k \cdot \frac{P}{C}$$

Known: Permissible pv-value = 0,5 N/mm² • m/s

P = Specific bearing load (N/mm²)
C = Basic dynamic load rating (N), see individual product pages
k = Specific load factor (N/mm²) for tribological pairing
k = 50 N/mm²

Mean sliding velocity

$$V_m = 5{,}82 \cdot 10^{-7} \cdot d_3 \cdot ß \cdot f$$

Known: Permissible sliding velocity v_{max} = 0,15 m/s

V_m = Mean sliding velocity (m/s)
d_3 = Pivot ball diameter (mm), see individual product pages
ß = Half swivelling angle (degree), for swivelling angle > 180°
ß = 90° to be used
f = Frequency of oscillation (rpm)

Nominal service life

$$G = C_1 \cdot C_2 \cdot C_3 \cdot \frac{3}{d_3 \cdot ß} \cdot \frac{C}{P} \cdot 10^8$$

$$G_h = C_1 \cdot C_2 \cdot C_3 \cdot \frac{5}{d_3 \cdot ß \cdot f} \cdot \frac{C}{P} \cdot 10^6$$

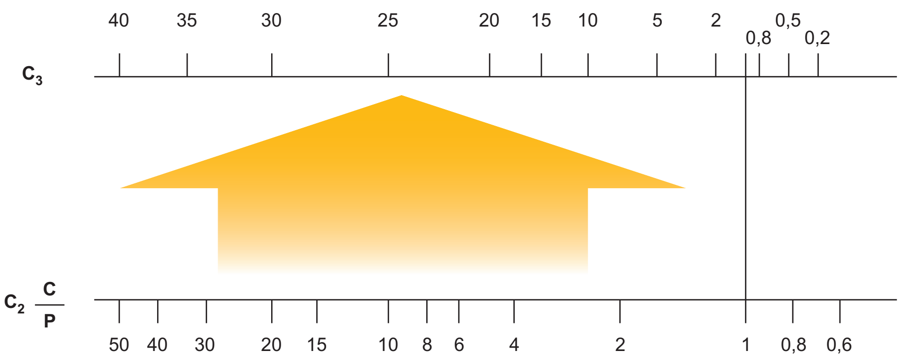
G = Nominal service life (number of oscillations or revolutions)
G_h = Nominal service life (hours)
C_2 = Temperature factor, see previous pages
C_3 = Material factor, see alignment chart on next page
C_1 = Load direction factor
C_1 = 1,0 = Single load direction

Alternating load direction at f < 30 rpm: C_1 = 0,250
Alternating load direction at f > 30 rpm: C_1 = 0,125

Alignment

To find C_3 calculate $C_2 \cdot \frac{C}{P}$ and on the chart below, read across to C_3

C_2 = Temperature factor
C = Basic dynamic load rating (N) see individual product pages
P = Specific bearing load (N/mm²)



Calculation example

The rod end assembly of conveyor equipment calls for heavy-duty rod end with a service life of 7000 hours in conjunction with an alternating acting load of 5 kN. 25 swivelling moments with a swivelling angle of 20° take place per minute. The operating temperature amounts to approx. 60° C. The choice is a heavy-duty rod end **65880.W0115** with: C = 13,4 kN, d_3 = 22mm.

Checking the permissible load of the rod end

$$P_{max} = C_0 \cdot C_2 \cdot C_4$$

$$P_{max} = 41 \cdot 0{,}2 \cdot 1{,}0 = 8{,}2\ kN > 5{,}0\ kN$$

C_0 = 41 kN
C_2 = 1,0 (temperature 60°C)
C_4 = 0,2 (alternating load)

Checking the permissible sliding velocity

$$V_m = 5{,}82 \cdot 10^{-7} \cdot d_3 \cdot ß \cdot f = 5{,}82 \cdot 10^{-7} \cdot 22 \cdot 10 \cdot 25$$

$$= 0{,}0032\ m/s < 0{,}15\ m/s\ ☑$$

Checking the p · V -value

$$pV = p \cdot V_m$$

$$pV = 18{,}66 \cdot 0{,}0032$$

$$= 0{,}06\ N/mm^2 \cdot m/s < 0{,}5\ N/mm^2 \cdot m/s\ ☑$$

$$p = k \cdot \frac{P}{C} = 50 \cdot \frac{5000}{13400}\ x\ 18{,}66\ N/mm^2$$

Nominal service life

$$G_h = C_1 \cdot C_2 \cdot C_3 \cdot \frac{5}{d_3 \cdot ß \cdot f} \cdot \frac{C}{P} \cdot 10^6$$

$$G_h = 0{,}25 \cdot 1{,}0 \cdot 12 \cdot \frac{5}{22 \cdot 10 \cdot 25} \cdot \frac{13{,}4}{5{,}0} \cdot 10^6$$

$$= 7308\ h > 7000\ h\ ☑$$

Known: C_1 = 0,25 (alternating load direction, f = 25 rpm < 30 rpm)

$$C_3 = C_2 \cdot \frac{C}{P} = 1{,}0 \cdot \frac{13{,}4}{5{,}0} = 2{,}68$$

See alignment chart C_3 = 12

d_3 = 22
f = 25 rpm
ß = 10° (half the swivelling angle 20° = 10°)
C = 13,4 kN
P = 5,0 kN

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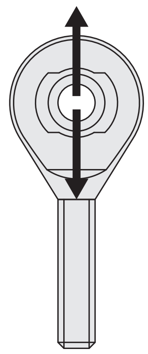
Radial static load

The ultimate radial static load rating is measured as the failure point when a load is increasingly applied to a pin through the rod end's bore and pulled straight up while the rod end is held in place. Note that the actual rating is determined by calculating the lowest of the following three values:



1. Raceway material comprehensive strength (R value)

$$R = E \times T \times X$$

2. Rod end head strength (H value, cartridge type construction)

$$H = [(\frac{T}{2}\sqrt{D^2 - T^2}) + (\frac{D}{2} \times SIN^{-1}\frac{T}{2}) - (\text{O.D. of Bearing} \times T)] \times X$$

Angle of $\frac{T}{2}$ expressed in radians

3. Shank strength (S value)

Male Threaded Rod End

$$S = [(\text{root diameter of thread}^2 \times .78) - (N^2 \times .78)] \times X$$

Female Threaded Rod End

$$S_2 = [(J^2 \times .78) + (\text{major diameter of thread} \times .78)] \times X$$

E = Ball diameter
T = Housing width
X = Allowable stress
D = Head diameter
N = Diameter of drilled hole in shank of male rod end
J = Shank diameter of female rod end

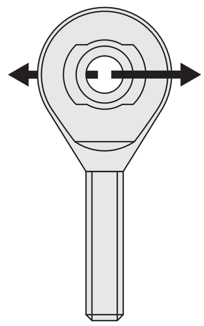
Axial static load

The axial static load capacity is measured as the force required to cause failure via a load parallel to the axis of the bore. Depending on the material types and construction methods, the ultimate axial load is generally 10-20% of the ultimate radial static load. The formula does not account for the bending of the shank due to a moment of force, nor the strength of the stake in cartridge-type construction.

Axial strength (A value)

$$A = .78 [(E + .176T)^2 - E2] \times X$$

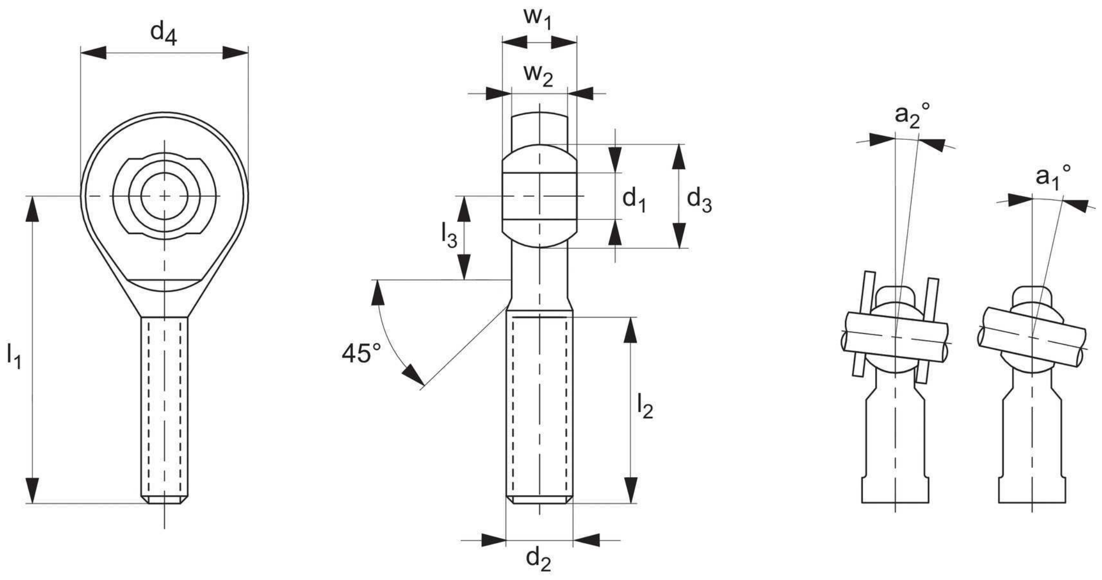
X = Allowable Stress (see table)
E = Ball diameter
T = Housing width



Material	Allowable stress (PSI)
300 Series stainless steel	35,000
Low carbon steel	52,000

Heavy-Duty Rod Ends - Male

with integral spherical plain bearing



Order No.	Thread (hand)	d_1 H7	l_1	d_2	d_3	d_4	l_2	l_3	g
65700.W0005	Right	5	33	M 5	11,11	18	20	9	14
65700.W0006	Right	6	36	M 6	12,70	20	22	12	20
65700.W0008	Right	8	42	M 8	15,87	24	25	15	38
65700.W0010	Right	10	48	M10	19,05	28	29	15	60
65700.W0012	Right	12	54	M12	22,22	32	33	19	92
65700.W0014	Right	14	60	M14	25,40	36	36	20	127
65700.W0016	Right	16	66	M16	28,57	42	40	22	202
65700.W0018	Right	18	72	M18x1,5*	31,75	46	44	25	250
65700.W0020	Right	20	78	M20x1,5*	34,92	50	47	28	327
65700.W0022	Right	22	84	M22x1,5*	38,10	54	51	26	440
65700.W0025	Right	25	94	M24x2,0*	42,85	60	57	30	630
65700.W0030	Right	30	110	M30x2,0*	50,75	70	66	35	1015
65700.W0505	Left	5	33	M 5	11,11	18	20	9	14
65700.W0506	Left	6	36	M 6	12,70	20	22	12	20
65700.W0508	Left	8	42	M 8	15,87	24	25	15	38
65700.W0510	Left	10	48	M10	19,05	28	29	15	60
65700.W0512	Left	12	54	M12	22,22	32	33	19	92
65700.W0514	Left	14	60	M14	25,40	36	36	20	127
65700.W0516	Left	16	66	M16	28,57	42	40	22	202
65700.W0518	Left	18	72	M18x1,5*	31,75	46	44	25	250
65700.W0520	Left	20	78	M20x1,5*	34,92	50	47	28	327
65700.W0522	Left	22	84	M22x1,5*	38,10	54	51	26	440
65700.W0525	Left	25	94	M24x2,0*	42,85	60	57	30	630
65700.W0530	Left	30	110	M30x2,0*	50,80	70	66	35	1015

Order No.	w_1	w_2	a_1°	a_2°	Max. dynamic load C kN	Max. static load C_0 kN
65700.W0005	8	6,00	13,0	7,5	3,9	5,6
65700.W0006	9	6,75	13,0	6,5	4,6	7,8
65700.W0008	12	9,00	14,5	7,5	7,0	14,3
65700.W0010	14	10,50	13,5	8,0	10,4	22,6
65700.W0012	16	12,00	13,0	8,0	12,4	32,8
65700.W0014	19	13,50	16,0	9,5	15,4	41,3
65700.W0016	21	15,00	15,5	8,5	22,4	56,6
65700.W0018	23	16,50	15,0	9,5	26,3	69,7
65700.W0020	25	18,00	14,5	9,0	30,8	82,2
65700.W0022	28	20,00	15,5	10,0	38,2	95,6
65700.W0025	31	22,00	15,0	10,0	45,3	118,6
65700.W0030	37	25,00	17,0	10,5	55,0	145,6
65700.W0505	8	6,00	13,0	7,5	3,9	5,6
65700.W0506	9	6,75	13,0	6,5	4,6	7,8
65700.W0508	12	9,00	14,5	7,5	7,0	14,3
65700.W0510	14	10,50	13,5	8,0	10,4	22,6
65700.W0512	16	12,00	13,0	8,0	12,4	32,8
65700.W0514	19	13,50	16,0	9,5	15,4	41,3
65700.W0516	21	15,00	15,5	8,5	22,4	56,6
65700.W0518	23	16,50	15,0	9,5	26,3	69,7

Material

Housing - forged steel, tempered, rolled thread, surface galvanized.
Joint ball - ball bearing steel, hardened and ground.
Race - nylon/teflon/glass compound.

Technical Notes

Maintenance free. Sizes according to DIN ISO 12240-4, series K.
For tolerances see product technical pages.

Important Notes

*Denotes fine pitch thread.

Heavy-Duty Rod Ends - Male

with integral spherical plain bearing

65700

Order No.	w_1	w_2	a_1 °	a_2 °	Max. dynamic load C kN	Max. static load C_0 kN
65700.W0520	25	18,00	14,5	9,0	30,8	82,2
65700.W0522	28	20,00	15,5	10,0	38,2	95,6
65700.W0525	31	22,00	15,0	10,0	45,3	118,6
65700.W0530	37	25,00	17,0	10,5	55,0	145,6

Material
Housing - forged steel, tempered, rolled thread, surface galvanized.
Joint ball - ball bearing steel, hardened and ground.
Race - nylon/teflon/glass compound.

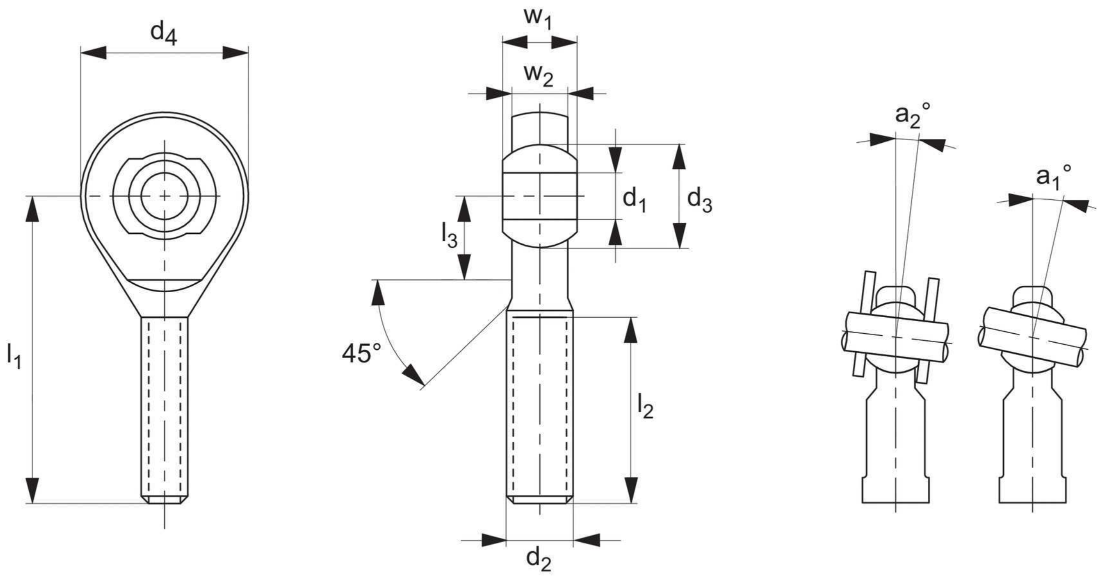
Technical Notes
Maintenance free. Sizes according to DIN ISO 12240-4, series K.
For tolerances see product technical pages.

Important Notes
*Denotes fine pitch thread.

Stainless Heavy-Duty Rod Ends - Male

with integral spherical plain bearing

65702



Order No.	Thread (hand)	d_1 H7	l_1	d_2	d_3	d_4	l_2	l_3	g
65702.W0005	Right	5	33	M 5	11,11	18	20	9	14
65702.W0006	Right	6	36	M 6	12,70	20	22	12	20
65702.W0008	Right	8	42	M 8	15,87	24	25	15	38
65702.W0010	Right	10	48	M10	19,05	28	29	15	60
65702.W0012	Right	12	54	M12	22,22	32	33	19	92
65702.W0014	Right	14	60	M14	25,40	36	36	20	127
65702.W0016	Right	16	66	M16	28,57	42	40	22	202
65702.W0018	Right	18	72	M18x1,5*	31,75	46	44	25	250
65702.W0020	Right	20	78	M20x1,5*	34,92	50	47	28	327
65702.W0022	Right	22	84	M22x1,5*	38,10	54	51	26	440
65702.W0025	Right	25	94	M24x2*	42,85	60	57	30	630
65702.W0030	Right	30	110	M30x2*	50,80	70	66	35	1015
65702.W0505	Left	5	33	M 5	11,11	18	20	9	14
65702.W0506	Left	6	36	M 6	12,70	20	22	12	20
65702.W0508	Left	8	42	M 8	15,87	24	25	15	38
65702.W0510	Left	10	48	M10	19,05	28	29	15	60
65702.W0512	Left	12	54	M12	22,22	32	33	19	92
65702.W0514	Left	14	60	M14	25,40	36	36	20	127
65702.W0516	Left	16	66	M16	28,57	42	40	22	202
65702.W0518	Left	18	72	M18x1,5*	31,75	46	44	25	250
65702.W0520	Left	20	78	M20x1,5*	34,92	50	47	28	327
65702.W0522	Left	22	84	M22x1,5*	38,10	54	51	26	440
65702.W0525	Left	25	94	M24x2*	42,85	60	57	30	630
65702.W0530	Left	30	110	M30x2*	50,80	70	66	35	1015

Order No.	w_1	w_2	a_1°	a_2°	Max. dynamic load C kN	Max. static load C_0 kN
65702.W0005	8	6,00	13,0	7,5	3,9	3,9
65702.W0006	9	6,75	13,0	6,5	4,6	5,4
65702.W0008	12	9,00	14,5	7,5	7,0	9,7
65702.W0010	14	10,50	13,5	8,0	10,4	15,4
65702.W0012	16	12,00	13,0	8,0	12,4	22,3
65702.W0014	19	13,50	16,0	9,5	15,4	30,4
65702.W0016	21	15,00	15,5	8,5	22,4	41,5
65702.W0018	23	16,50	15,0	9,5	26,3	51,2
65702.W0020	25	18,00	14,5	9,0	30,8	60,3
65702.W0022	28	20,00	15,5	10,0	38,2	70,0
65702.W0025	31	22,00	15,0	10,0	45,4	87,0
65702.W0030	37	25,00	17,0	10,5	55,0	106,8
65702.W0505	8	6,00	13,0	7,5	3,9	3,9
65702.W0506	9	6,75	13,0	6,5	4,6	5,4
65702.W0508	12	9,00	14,5	7,5	7,0	9,7
65702.W0510	14	10,50	13,5	8,0	10,4	15,4
65702.W0512	16	12,00	13,0	8,0	12,4	22,3
65702.W0514	19	13,50	16,0	9,5	15,4	30,4
65702.W0516	21	15,00	15,5	8,5	22,4	41,5
65702.W0518	23	16,50	15,0	9,5	26,3	51,2

Material
Rod end housing: Stainless steel DIN 1.4301 (AISI 304), forged, rolled thread
Joint ball: Stainless steel 1.4412, hardened and ground, surface polished.
Race: Nylon/Teflon/glass compound.

Technical Notes
Maintenance free.
For tolerances see product technical pages.

Tips
A2 stainless steel provides good corrosion resistance to a wide range of atmospheric conditions and corrosive media. It is considered resistant to potable water.

Important Notes
*Denotes fine pitch thread.

Stainless Heavy-Duty Rod Ends - Male

with integral spherical plain bearing

65702

Order No.	w_1	w_2	a_1°	a_2°	Max. dynamic load C kN	Max. static load C_0 kN
65702.W0520	25	18,00	14,5	9,0	30,8	60,3
65702.W0522	28	20,00	15,5	10,0	38,2	70,0
65702.W0525	31	22,00	15,0	10,0	45,4	87,0
65702.W0530	37	25,00	17,0	10,5	55,0	106,8

Material
Rod end housing: Stainless steel DIN 1.4301 (AISI 304), forged, rolled thread
Joint ball: Stainless steel 1.4412, hardened and ground, surface polished.
Race: Nylon/Teflon/glass compound.

Technical Notes
Maintenance free.
For tolerances see product technical pages.

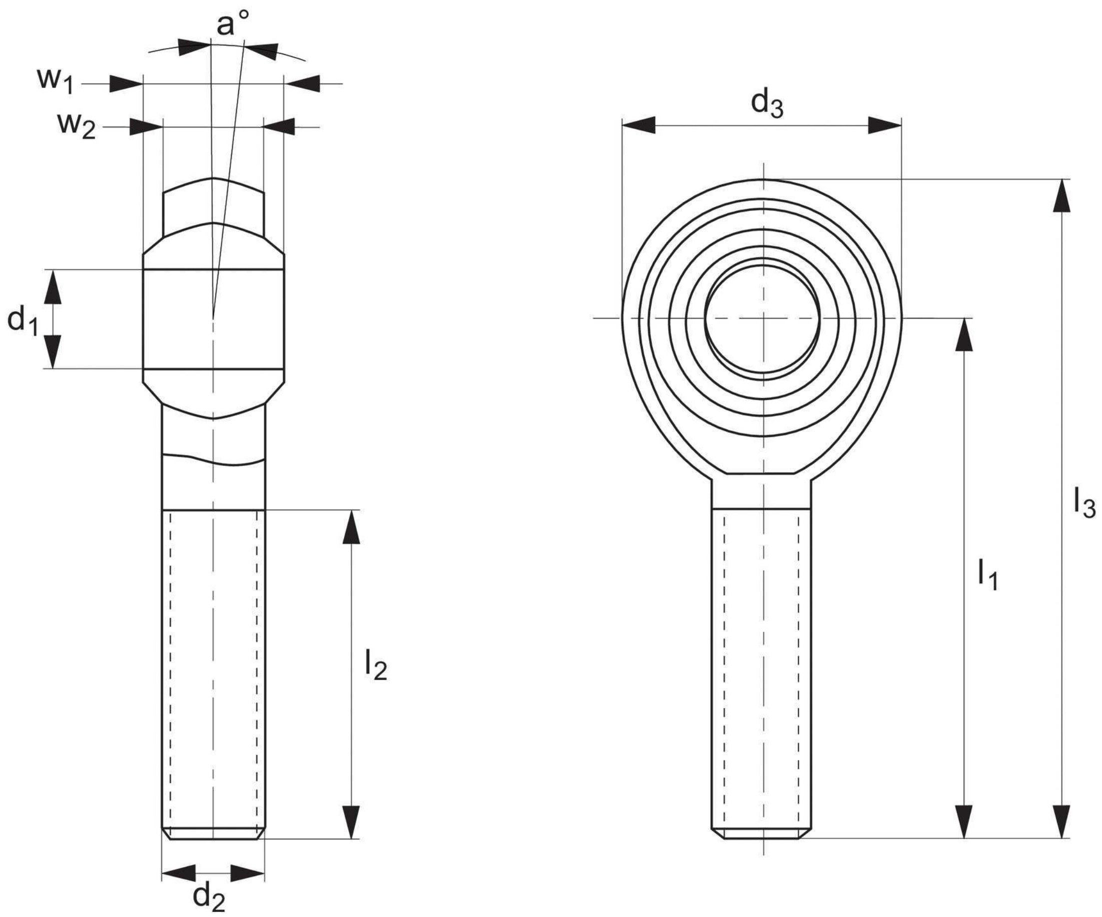
Tips
A2 stainless steel provides good corrosion resistance to a wide range of atmospheric conditions and corrosive media. It is considered resistant to potable water.

Important Notes
*Denotes fine pitch thread.

Low Cost Rod End - Male

with teflon bearing race

65704

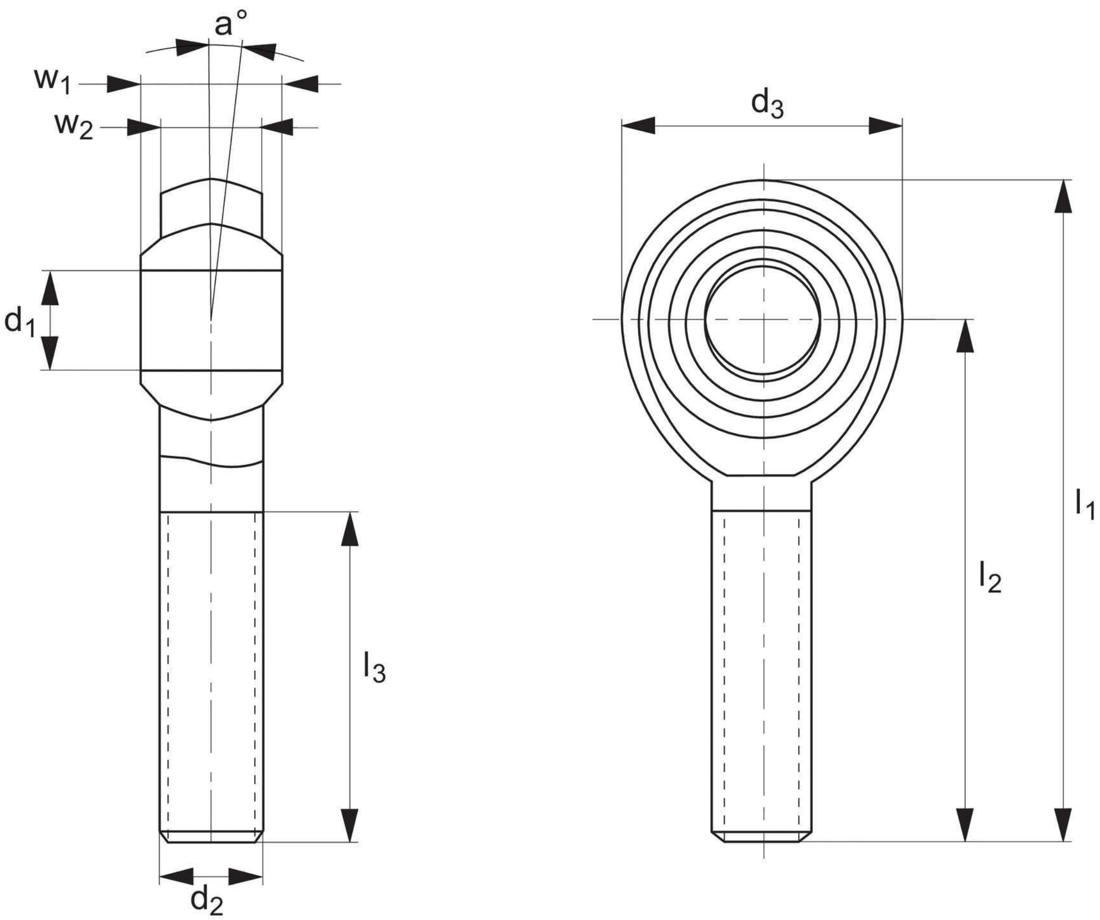


Material
Ball: low carbon steel, surface hardened. Silver zinc plated.
Housing: low carbon steel, zinc plated.
Brass bearing ring with PTFE Composite lining.

Order No.	Thread (hand)	d_1 H7	l_1	d_2	d_3	l_2	l_3	w_1	w_2	a°	Max.static load C_0 kN
65704.W0005	Right	5	33	M 5	18	20	42	8	6,00	12	4,8
65704.W0006	Right	6	36	M 6	20	22	46	9	6,75	12	6,2
65704.W0008	Right	8	42	M 8	24	25	54	12	9,00	12	10,3
65704.W0010	Right	10	48	M10	28	29	62	14	10,50	12	14,4
65704.W0012	Right	12	54	M12	34	33	70	16	12,00	8	19,2
65704.W0016	Right	16	69	M16	42	40	87	21	15,00	8	31,2
65704.W0505	Left	5	33	M 5	18	20	42	8	6,00	12	3,9
65704.W0506	Left	6	36	M 6	20	22	46	9	6,75	12	6,0
65704.W0508	Left	8	42	M 8	24	25	54	12	9,00	12	10,0
65704.W0510	Left	10	48	M10	28	29	62	14	10,50	12	16,0
65704.W0512	Left	12	54	M12	34	33	70	16	12,00	8	23,0
65704.W0516	Left	16	69	M16	42	40	87	21	15,00	8	44,0

Stainless Low Cost Rod Ends - Male

65706



Material

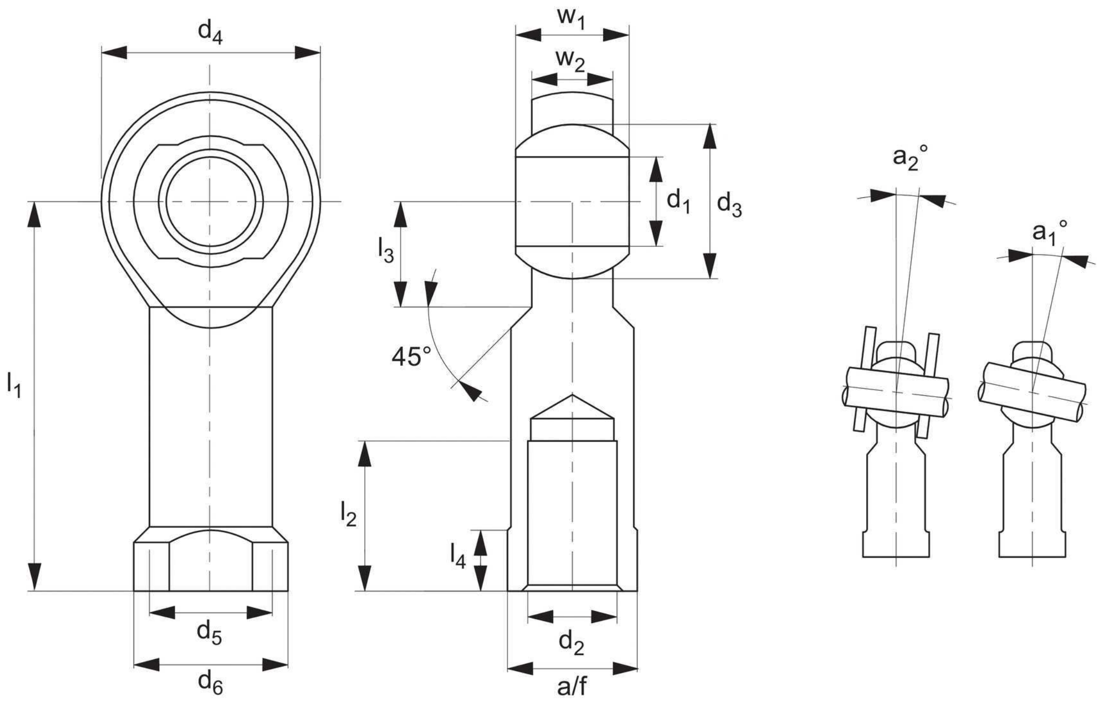
Housing: stainless steel (AISI 303)
Ball: stainless steel, hardened, ground and polished.
Race: teflon or PTFE liner.
Stainless steel bearing ring lined with bronze and PTFE Composite

Order No.	Thread (hand)	d_1 H7	d_2	l_1	l_2	l_3	d_3	w_1	w_2	a°	Max. static load kN
65706.W0005	Right	5	M 5	42,0	33,0	19	18	8	6,00	13	4,8
65706.W0006	Right	6	M 6	46,0	36,0	21	20	9	6,75	13	6,2
65706.W0008	Right	8	M 8	54,0	42,0	25	24	12	9,00	14	10,3
65706.W0010	Right	10	M10	62,0	48,0	28	28	14	10,50	13	14,4
65706.W0012	Right	12	M12	70,0	54,0	32	32	16	12,00	13	19,2
65706.W0016	Right	16	M16	87,0	66,0	37	42	21	15,00	15	31,2
65706.W0505	Left	5	M 5	42,0	33,0	19	18	8	6,00	13	4,8
65706.W0506	Left	6	M 6	46,5	36,0	21	20	9	6,75	13	5,2
65706.W0508	Left	8	M 8	54,5	42,0	25	24	12	9,00	14	7,0
65706.W0510	Left	10	M10	62,5	48,0	28	28	14	10,50	13	10,4
65706.W0512	Left	12	M12	70,5	54,0	32	32	16	12,00	13	13,0
65706.W0516	Left	16	M16	87,0	66,0	37	42	21	15,00	15	31,2

Heavy-Duty Rod Ends - Female

with integral spherical plain bearing

65720



Material

Rod end housing - forged steel, tempered, surface galvanized.
Joint ball - ball bearing steel, hardened and ground, polished and chromium plated.
Race - nylon/teflon/glass compound.

Technical Notes

Maintenance free. Sizes according to DIN ISO 12240-4, series K, thread according to Cetop RP 103 P.
For tolerances see product technical pages.

Important Notes

* Denotes fine pitch thread.

Order No.	Thread (hand)	d_1 H7	l_1	d_2	d_3	d_4	d_5	d_6	l_2	g
65720.W0004	Right	5	27	M 4	11,11	18	9,0	11	10	18
65720.W0005	Right	5	27	M 5	11,11	18	9,0	11	10	18
65720.W0006	Right	6	30	M 6	12,70	20	10,0	13	12	24
65720.W0008	Right	8	36	M 8	15,87	24	12,5	16	16	45
65720.W0010	Right	10	43	M10	19,05	28	15,0	19	20	74
65720.W0011	Right	10	43	M10x1,25*	19,05	28	15,0	19	20	74
65720.W0012	Right	12	50	M12	22,22	32	17,5	22	22	109
65720.W0013	Right	12	50	M12x1,25*	22,22	32	17,5	22	22	109
65720.W0014	Right	14	57	M14	25,40	36	20,0	25	25	155
65720.W0016	Right	16	64	M16	28,57	42	22,0	27	28	233
65720.W0017	Right	16	64	M16x1,50*	28,57	42	22,0	27	28	233
65720.W0018	Right	18	71	M18x1,50*	31,75	46	25,0	31	32	310
65720.W0020	Right	20	77	M20x1,50*	34,92	50	27,5	34	33	386
65720.W0022	Right	22	84	M22x1,5*	38,10	54	30,0	38	37	520
65720.W0025	Right	25	94	M24x2,00*	42,85	60	33,5	42	42	705
65720.W0030	Right	30	110	M30x2,00*	50,80	70	40,0	50	51	1084
65720.W0031	Right	30	110	M27x2,00*	50,80	70	40,0	50	51	1084
65720.W0504	Left	5	27	M 4	11,11	18	9,0	11	10	18
65720.W0505	Left	5	27	M 5	11,11	18	9,0	11	10	18
65720.W0506	Left	6	30	M 6	12,70	20	10,0	13	12	24
65720.W0508	Left	8	36	M 8	15,87	24	12,5	16	16	45
65720.W0510	Left	10	43	M10	19,05	28	15,0	19	20	74
65720.W0511	Left	10	43	M10x1,25*	19,05	28	15,0	19	20	74
65720.W0512	Left	12	50	M12	22,22	32	17,5	22	22	109
65720.W0513	Left	12	50	M12x1,25*	22,22	32	17,5	22	22	109
65720.W0514	Left	14	57	M14	25,40	36	20,0	25	25	155
65720.W0516	Left	16	64	M16	28,57	42	22,0	27	28	233
65720.W0517	Left	16	64	M16x1,50*	28,57	42	22,0	27	28	233
65720.W0518	Left	18	71	M18x1,50*	31,75	46	25,0	31	32	310
65720.W0520	Left	20	77	M20x1,50*	34,92	50	27,5	34	33	386
65720.W0522	Left	22	84	M22x1,50*	38,10	54	30,0	38	37	520
65720.W0525	Left	25	94	M24x2,00*	42,85	60	33,5	42	42	705
65720.W0530	Left	30	110	M30x2,00*	50,80	70	40,0	50	51	1084
65720.W0531	Left	30	110	M27x2,00*	50,80	70	40,0	50	51	1084

Order No.	l_3	l_4	w_1	w_2	a/f	$a_1°$	$a_2°$	Max. dynamic load C kN	Max. static load C_0 kN
65720.W0004	10	4,0	8	6,00	9	13,0	7,5	3,91	10,8
65720.W0005	10	4,0	8	6,00	9	13,0	7,5	3,91	10,8
65720.W0006	12	5,0	9	6,75	11	13,0	6,5	4,59	12,8
65720.W0008	12	5,0	12	9,00	14	14,5	7,5	6,965	19,2
65720.W0010	15	6,5	14	10,50	17	13,5	8,0	10,42	27,4

Heavy-Duty Rod Ends - Female

with integral spherical plain bearing

65720

Order No.	l_3	l_4	w_1	w_2	a/f	a_1°	a_2°	Max. dynamic load C kN	Max. static load C_0 kN
65720.W0011	15	6,5	14	10,50	17	13,5	8,0	10,42	27,4
65720.W0012	16	6,5	16	12,00	19	13,0	8,0	12,42	33,4
65720.W0013	16	6,5	16	12,00	19	13,0	8,0	12,42	33,4
65720.W0014	20	8,0	19	13,50	22	16,0	9,5	15,44	41,3
65720.W0016	22	8,0	21	15,00	22	15,5	8,5	22,41	59,6
65720.W0017	22	8,0	21	15,00	22	15,5	8,5	22,41	59,6
65720.W0018	24	10,0	23	16,50	27	15,0	9,5	26,32	69,7
65720.W0020	26	10,0	25	18,00	30	14,5	9,0	30,80	82,2
65720.W0022	26	12,0	28	20,00	32	15,5	10,0	38,23	95,60
65720.W0025	30	12,0	31	22,00	36	15,0	10,0	45,35	118,6
65720.W0030	35	15,0	37	25,00	41	17,0	10,5	55,01	145,6
65720.W0031	35	15,0	37	25,00	41	17,0	10,5	55,01	145,6
65720.W0504	10	4,0	8	6,00	9	13,0	7,5	3,91	10,8
65720.W0505	10	4,0	8	6,00	9	13,0	7,5	3,91	10,8
65720.W0506	12	5,0	9	6,75	11	13,0	6,5	4,59	12,8
65720.W0508	12	5,0	12	9,00	14	14,5	7,5	6,965	19,2
65720.W0510	15	6,5	14	10,50	17	13,5	8,0	10,42	27,4
65720.W0511	15	6,5	14	10,50	17	13,5	8,0	10,42	27,4
65720.W0512	16	6,5	16	12,00	19	13,0	8,0	12,42	33,4
65720.W0513	16	6,5	16	12,00	19	13,0	8,0	12,42	33,4
65720.W0514	20	8,0	19	13,50	22	16,0	9,5	15,44	41,3
65720.W0516	22	8,0	21	15,00	22	15,5	8,5	22,41	59,6
65720.W0517	22	8,0	21	15,00	22	15,5	8,5	22,41	59,6
65720.W0518	24	10,0	23	16,50	27	15,0	9,5	26,32	69,7
65720.W0520	26	10,0	25	18,00	30	14,5	9,0	30,80	82,2
65720.W0522	26	12,0	28	20,00	32	15,5	10,0	38,23	95,6
65720.W0525	30	12,0	31	22,00	36	15,0	10,0	45,35	118,6
65720.W0530	35	15,0	37	25,00	41	17,0	10,5	55,01	145,6
65720.W0531	35	15,0	37	25,00	41	17,0	10,5	55,01	145,6

Material
Rod end housing - forged steel, tempered, surface galvanized.
Joint ball - ball bearing steel, hardened and ground, polished and chromium plated.
Race - nylon/teflon/glass compound.

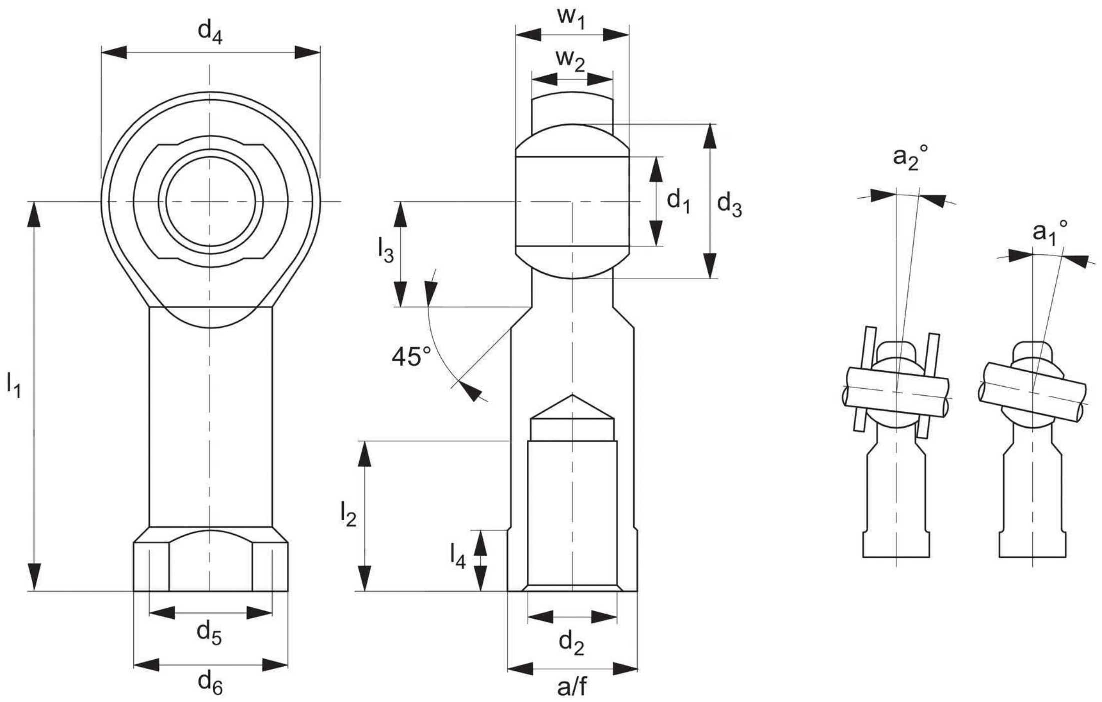
Technical Notes
Maintenance free. Sizes according to DIN ISO 12240-4, series K, thread according to Cetop RP 103 P.
For tolerances see product technical pages.

Important Notes
* Denotes fine pitch thread.

Stainless Heavy-Duty Rod Ends - Female

with integral spherical plain bearing

65722



Order No.	Thread (hand)	d_1 H7	l_1	d_2	d_3	d_4	d_5	d_6	l_2	g
65722.W0104	Right	5	27	M 4	11,11	18	9,0	11	10	18
65722.W0105	Right	5	27	M 5	11,11	18	9,0	11	10	18
65722.W0106	Right	6	30	M 6	12,70	20	10,0	13	12	24
65722.W0108	Right	8	36	M 8	15,87	24	12,5	16	16	45
65722.W0110	Right	10	43	M10	19,05	28	15,0	19	20	74
65722.W0111	Right	10	43	M10x1,25*	19,05	28	15,0	19	20	74
65722.W0112	Right	12	50	M12	22,22	32	17,5	22	22	109
65722.W0113	Right	12	50	M12x1,25*	22,22	32	17,5	22	22	109
65722.W0114	Right	14	57	M14	25,40	36	20,0	25	25	155
65722.W0116	Right	16	64	M16	28,57	42	22,0	27	28	233
65722.W0117	Right	16	64	M16x1,50*	28,57	42	22,0	27	28	233
65722.W0118	Right	18	71	M18x1,50*	31,75	46	25,0	31	32	310
65722.W0120	Right	20	77	M20x1,50*	34,92	50	27,5	34	33	386
65722.W0122	Right	22	84	M22x1,50*	38,10	54	30,0	38	37	520
65722.W0125	Right	25	94	M24x2,00*	42,85	60	33,5	42	42	705
65722.W0130	Right	30	110	M30x2,00*	50,80	70	40,0	50	51	1084
65722.W0131	Right	30	110	M27x2,00*	50,80	70	40,0	50	51	1084
65722.W0504	Left	5	27	M 4	11,11	18	9,0	11	10	18
65722.W0505	Left	5	27	M 5	11,11	18	9,0	11	10	18
65722.W0506	Left	6	30	M 6	12,70	20	10,0	13	12	24
65722.W0508	Left	8	36	M 8	15,87	24	12,5	16	16	45
65722.W0510	Left	10	43	M10	19,05	28	15,0	19	20	74
65722.W0511	Left	10	43	M10x1,25*	19,05	28	15,0	19	20	74
65722.W0512	Left	12	50	M12	22,22	32	17,5	22	22	109
65722.W0513	Left	12	50	M12x1,25*	22,22	32	17,5	22	22	109
65722.W0514	Left	14	57	M14	25,40	36	20,0	25	25	155
65722.W0516	Left	16	64	M16	28,57	42	22,0	27	28	233
65722.W0517	Left	16	64	M16x1,50*	28,57	42	22,0	27	28	233
65722.W0518	Left	18	71	M18x1,50*	31,75	46	25,0	31	32	310
65722.W0520	Left	20	77	M20x1,50*	34,92	50	27,5	34	33	386
65722.W0522	Left	22	84	M22x1,50*	38,10	54	30,0	38	37	520
65722.W0525	Left	25	94	M24x2,00*	42,85	60	33,5	42	42	705
65722.W0530	Left	30	110	M30x2,00*	50,80	70	40,0	50	51	1084
65722.W0531	Left	30	110	M27x2,00*	50,80	70	40,0	50	51	1084

Order No.	l_3	l_4	w_1	w_2	a/f	$a_1°$	$a_2°$	Max dynamic load C kN	Max static load C_0 kN
65722.W0104	10	4,0	8	6,00	9	13,0	7,5	3,9	7,9
65722.W0105	10	4,0	8	6,00	9	13,0	7,5	3,9	7,9
65722.W0106	12	5,0	9	6,75	11	13,0	6,5	4,6	9,4
65722.W0108	12	5,0	12	9,00	14	14,5	7,5	7,0	14,1
65722.W0110	15	6,5	14	10,50	17	13,5	8,0	10,4	20,1

Material

Rod end housing: Stainless steel DIN 1.4301 (AISI 304/A2).
Joint Ball: Stainless steel 1.4412, hardened and ground, surface polished.
Race: nylon/teflon/glass compound.

Technical Notes

Maintenance free.
For tolerances see product technical pages.

Tips

A2 stainless steel provides good corrosion resistance to a wide range of atmospheric conditions and corrosive media. It is considered resistant to potable water.

Important Notes

*Denotes fine pitch thread.

Stainless Heavy-Duty Rod Ends - Female

with integral spherical plain bearing

65722

Order No.	l_3	l_4	w_1	w_2	a/f	a_1°	a_2°	Max dynamic load C kN	Max static load C_0 kN
65722.W0111	15	6,5	14	10,50	17	13,5	8,0	10,4	20,1
65722.W0112	16	6,5	16	12,00	19	13,0	8,0	12,4	24,5
65722.W0113	16	6,5	16	12,00	19	13,0	8,0	12,4	24,5
65722.W0114	20	8,0	19	13,50	22	16,0	9,5	15,4	30,4
65722.W0116	22	8,0	21	15,00	22	15,5	8,5	22,4	43,7
65722.W0117	22	8,0	21	15,00	22	15,5	8,5	22,4	43,7
65722.W0118	24	10,0	23	16,50	27	15,0	9,5	26,3	51,2
65722.W0120	26	10,0	25	18,00	30	14,5	9,0	30,8	60,3
65722.W0122	26	12,0	28	20,00	32	15,5	10,0	38,2	70,0
65722.W0125	30	12,0	31	22,00	36	15,0	10,0	45,4	87,0
65722.W0130	35	15,0	37	25,00	41	17,0	10,5	55,0	106,8
65722.W0131	35	15,0	37	25,0	41	17,0	10,5	55,0	106,8
65722.W0504	10	4,0	8	6,00	9	13,0	7,5	3,9	7,9
65722.W0505	10	4,0	8	6,00	9	13,0	7,5	3,9	7,9
65722.W0506	12	5,0	9	6,75	11	13,0	6,5	4,6	9,4
65722.W0508	12	5,0	12	9,00	14	14,5	7,5	7,0	14,1
65722.W0510	15	6,5	14	10,50	17	13,5	8,0	10,4	20,1
65722.W0511	15	6,5	14	10,50	17	13,5	8,0	10,4	20,1
65722.W0512	16	6,5	16	12,00	19	13,0	8,0	12,4	24,5
65722.W0513	16	6,5	16	12,00	19	13,0	8,0	12,4	24,5
65722.W0514	20	8,0	19	13,50	22	16,0	9,5	15,4	30,4
65722.W0516	22	8,0	21	15,00	22	15,5	8,5	22,4	43,7
65722.W0517	22	8,0	21	15,00	22	15,5	8,5	22,4	43,7
65722.W0518	24	10,0	23	16,50	27	15,0	9,5	26,3	51,2
65722.W0520	26	10,0	25	18,00	30	14,5	9,0	30,8	60,3
65722.W0522	26	12,0	28	20,00	32	15,5	10,0	38,2	70,0
65722.W0525	30	12,0	31	22,00	36	15,0	10,0	45,4	87,0
65722.W0530	35	15,0	37	25,00	41	17,0	10,5	55,0	106,8
65722.W0531	35	15,0	37	25,00	41	17,0	10,5	55,0	106,8

Material
Rod end housing: Stainless steel DIN 1.4301 (AISI 304/A2).
Joint Ball: Stainless steel 1.4412, hardened and ground, surface polished.
Race: nylon/teflon/glass compound.

Technical Notes
Maintenance free.
For tolerances see product technical pages.

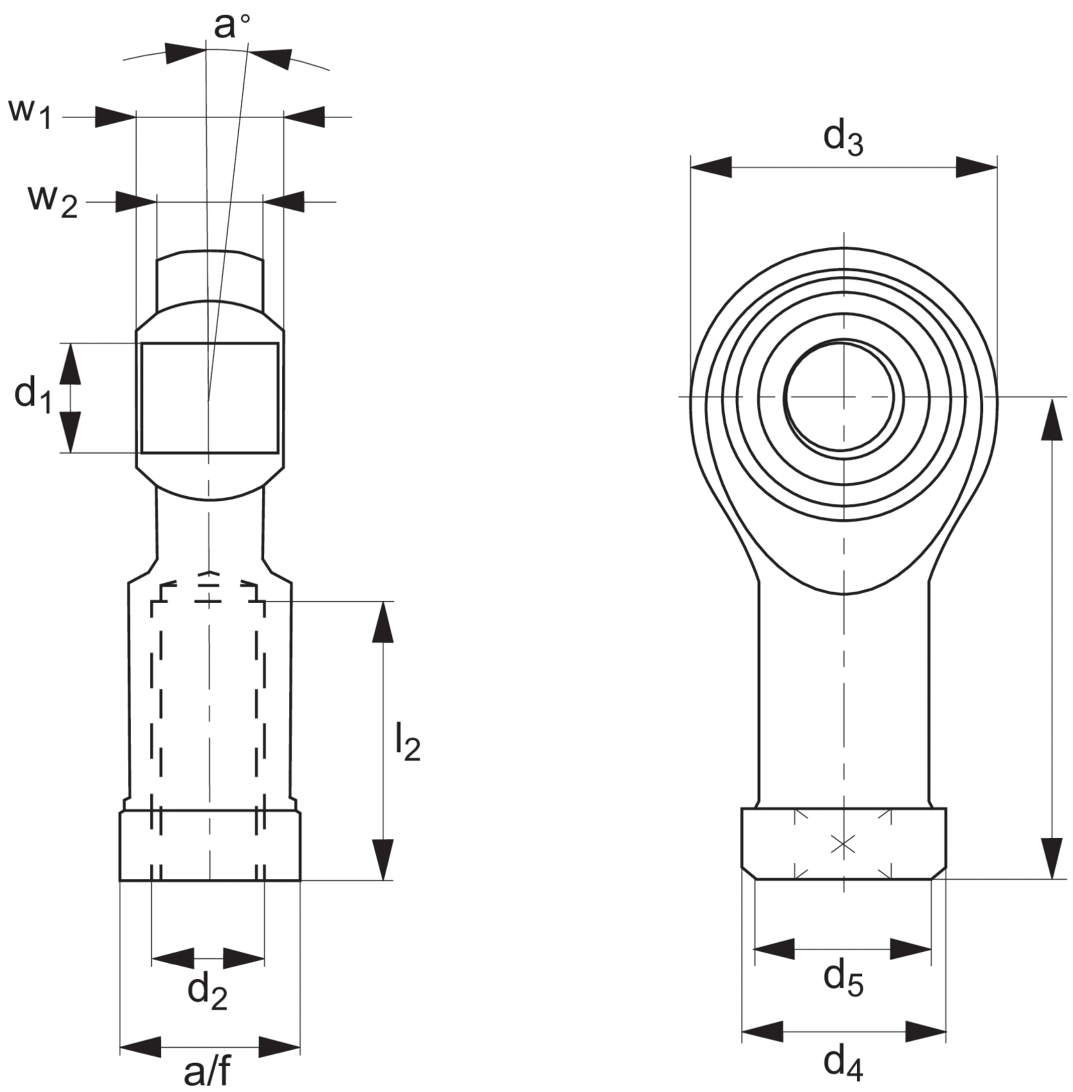
Tips
A2 stainless steel provides good corrosion resistance to a wide range of atmospheric conditions and corrosive media. It is considered resistant to potable water.

Important Notes
*Denotes fine pitch thread.

Low Cost Rod End - Female

with teflon bearing race

65724



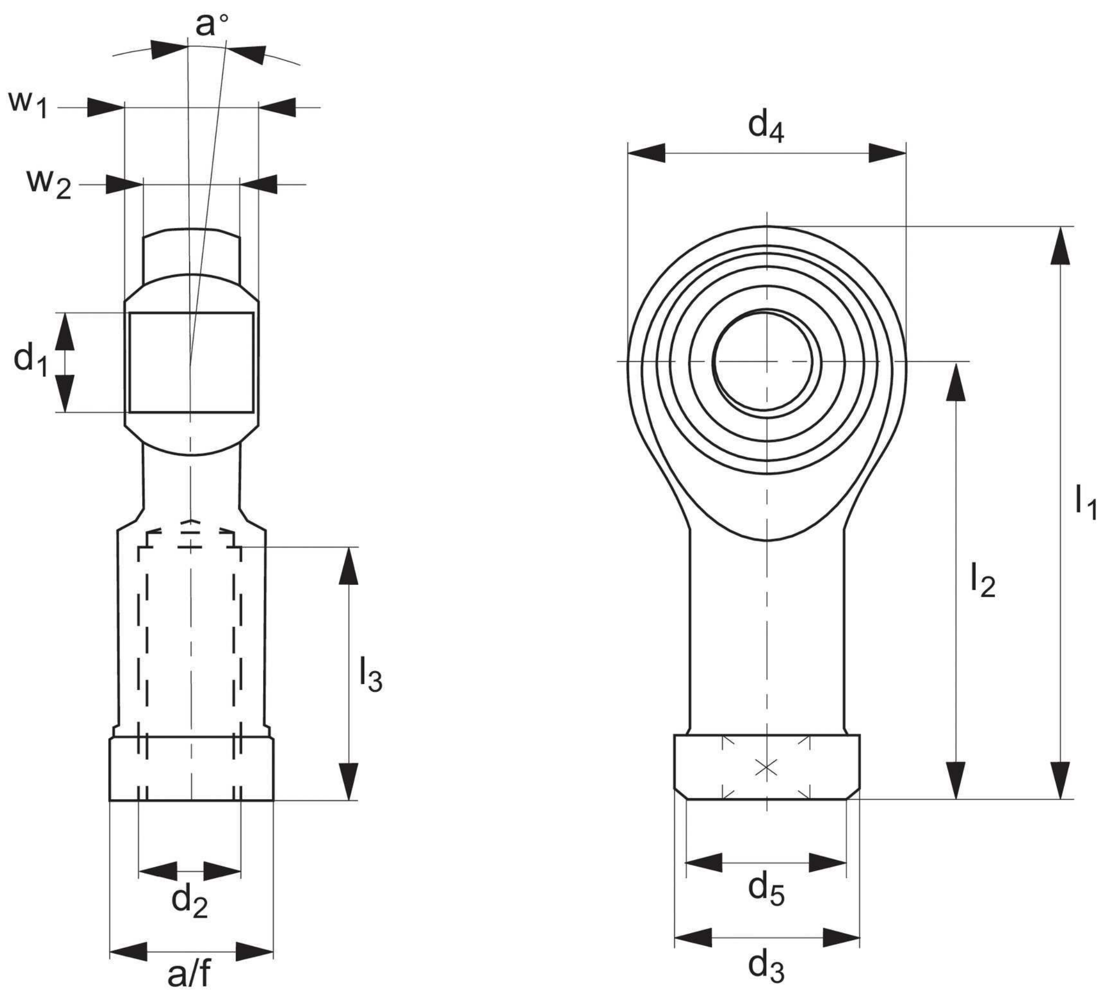
Material

Ball: low carbon steel, surface hardened. Silver zinc plated.
Housing: low carbon steel, zinc plated for corrosion resistance.
Brass bearing with PTFE composite lining.

Important Notes

Housing styles are subject to change.

Order No.	Thread (hand)	d_1 H7	l_1	d_2	d_3	d_4	d_5	l_2	w_1	w_2	a/f	a°	Max. static load C_0 kN
65724.W0005	Right	5	27	M 5	18	11	9,0	10	8	6,00	9	13	4,8
65724.W0004	Right	5	27	M 4	18	11	9,0	10	8	6,00	9	13	4,8
65724.W0006	Right	6	30	M 6	20	13	10,0	12	9	6,75	11	13	6,2
65724.W0008	Right	8	36	M 8	24	16	12,5	16	12	9,00	13	14	10,3
65724.W0010	Right	10	43	M10	28	19	15,0	20	14	10,50	17	13	14,4
65724.W0011	Right	10	43	M10x1,25	28	19	15,0	20	14	10,50	17	13	14,4
65724.W0012	Right	12	50	M12	34	22	17,5	22	16	12,00	19	13	19,2
65724.W0016	Right	16	64	M16	42	27	22,0	28	21	15,00	22	15	31,2
65724.W0504	Left	5	27	M 4	18	11	9,0	10	8	6,00	9	13	4,8
65724.W0505	Left	5	27	M 5	18	11	9,0	10	8	6,00	9	13	4,8
65724.W0506	Left	6	30	M 6	20	13	10,0	12	9	6,75	11	13	6,2
65724.W0508	Left	8	36	M 8	24	16	12,5	16	12	9,00	13	14	10,3
65724.W0510	Left	10	43	M10	28	19	15,0	20	14	10,50	17	13	14,4
65724.W0511	Left	10	43	M10x1,25	28	19	15,0	20	14	10,50	17	13	14,4
65724.W0512	Left	12	50	M12	34	22	17,5	22	16	12,00	19	13	19,2
65724.W0516	Left	16	64	M16	42	27	22,0	28	21	15,00	22	15	31,2



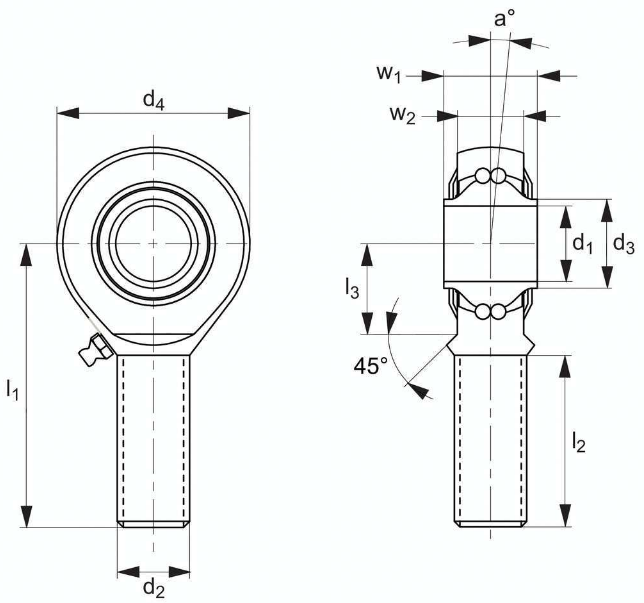
Material
Housing: stainless steel (AISI 303)
Ball: Stainless steel, hardened ground and polished stainless steel bearing rings

Order No.	Thread (hand)	d_1 H7	l_1	d_2	d_3	d_4	d_5	l_2	l_3	w_1	w_2	a/f	a°	Max. static load C_0 kN	g
65726.W0005	Right	5	36	M 5	11	18	8,5	27	10	8	6,00	9	13	4,8	16
65726.W0006	Right	6	40	M 6	13	20	10,0	30	12	9	6,75	11	13	6,2	22
65726.W0008	Right	8	48	M 8	16	24	12,5	36	16	12	9,00	14	14	10,3	47
65726.W0010	Right	10	57	M10	19	28	15,0	43	20	14	10,50	17	13	14,4	77
65726.W0012	Right	12	66	M12	22	32	17,5	50	22	16	12,00	19	13	19,2	100
65726.W0016	Right	16	85	M16	27	42	22,0	64	28	21	15,00	22	15	31,2	220
65726.W0505	Left	5	36	M 5	11	18	8,5	27	10	8	6,00	9	13	4,8	16
65726.W0506	Left	6	40	M 6	13	20	10,0	30	12	9	6,75	11	13	6,2	22
65726.W0508	Left	8	48	M 8	16	24	12,5	36	16	12	9,00	14	14	10,3	47
65726.W0510	Left	10	57	M10	19	28	15,0	43	20	14	10,50	17	13	14,4	77
65726.W0512	Left	12	66	M12	22	32	17,5	50	22	16	12,00	19	13	19,2	100
65726.W0516	Left	16	85	M16	27	42	22,0	64	28	21	15,00	22	15	31,2	220

Heavy-Duty Rod Ends - Male

with integral ball bearing

65740



Order No.	Thread (hand)	d1 H7	l1	d2	d3	d4	l2	l3	w1	w2	g
65740.W0106	Right	6	36	M 6	9,0	20	22	12	9	6,75	19
65740.W0108	Right	8	42	M 8	10,5	24	25	15	12	9,00	36
65740.W0110	Right	10	48	M10	12,0	28	29	15	14	10,50	60
65740.W0112	Right	12	54	M12	14,5	32	33	19	16	12,00	87
65740.W0114	Right	14	60	M14	17,0	36	36	20	19	13,50	135
65740.W0116	Right	16	66	M16	19,0	42	40	22	21	15,00	190
65740.W0118	Right	18	72	M18x1,5*	21,5	46	44	25	23	16,50	270
65740.W0120	Right	20	78	M20x1,5*	24,5	50	47	28	25	18,00	338
65740.W0122	Right	22	84	M22x1,5*	26,0	54	51	26	28	20,00	450
65740.W0125	Right	25	94	M24x2,0*	29,5	64	57	30	31	22,00	602
65740.W0130	Right	30	110	M30x2,0*	34,5	70	66	35	37	25,00	922
65740.W0206	Left	6	36	M 6	9,0	20	22	12	9	6,75	19
65740.W0208	Left	8	42	M 8	10,5	24	25	15	12	9,00	36
65740.W0210	Left	10	48	M10	12,0	28	29	15	14	10,50	60
65740.W0212	Left	12	54	M12	14,5	32	33	19	16	12,00	87
65740.W0214	Left	14	60	M14	17,0	36	36	20	19	13,50	135
65740.W0216	Left	16	66	M16	19,0	42	40	22	21	15,00	190
65740.W0218	Left	18	72	M18x1,5*	21,5	46	44	25	23	16,50	270
65740.W0220	Left	20	78	M20x1,5*	24,5	50	47	28	25	18,00	338
65740.W0222	Left	22	84	M22x1,5*	26,0	54	51	26	28	20,00	450
65740.W0225	Left	25	94	M24x2,0*	29,5	64	57	30	31	22,00	602
65740.W0230	Left	30	110	M30x2,0*	34,5	70	66	35	37	25,00	922

Order No.	a°	Calc factor Y_0	Calc factor Y	Max.speed rpm	Max. dynamic load C kN	Max. static load C_0 kN
65740.W0106	8,0	2,09	2,19	1350	2,75	0,65
65740.W0108	8,5	1,80	1,89	1300	4,00	1,00
65740.W0110	8,0	1,90	1,81	1225	4,45	1,45
65740.W0112	7,5	1,74	1,82	1125	4,95	1,80
65740.W0114	6,0	2,36	2,48	1025	5,60	2,00
65740.W0116	8,0	2,24	2,35	975	6,25	2,35
65740.W0118	8,5	2,21	2,31	900	7,10	2,90
65740.W0120	7,0	2,46	2,58	825	7,90	3,45
65740.W0122	8,0	2,35	2,24	725	9,30	3,98
65740.W0125	5,0	2,02	2,12	600	11,03	5,68
65740.W0130	7,5	2,24	2,35	450	14,15	7,45
65740.W0206	8,0	2,09	2,19	1350	2,75	0,65
65740.W0208	8,5	1,80	1,89	1300	4,00	1,00
65740.W0210	8,0	1,90	1,81	1225	4,45	1,45
65740.W0212	7,5	1,74	1,82	1125	4,95	1,80
65740.W0214	6,0	2,36	2,48	1025	5,60	2,00
65740.W0216	8,0	2,24	2,35	975	6,25	2,35
65740.W0218	8,5	2,21	2,31	900	7,10	2,90
65740.W0220	7,0	2,46	2,58	825	7,90	3,45

Material

Housing - forged steel, tempered, case hardened bearing race, ground and lapped, rolled thread, surface galvanized.
Inner ring - ball bearing steel, hardened, superfine ground.
Lubrication - calcium-complex-soap-grease, temp range -20°C to +120°C.
Lubrication nipple - DIN 3405 D1/A (sizes 6 to 10) DIN 71412 H1 (sizes 12 to 30)

Technical Notes

Low maintenance. Sizes according to DIN ISO 12240-4 series K.
For tolerances see product technical pages.

Important Notes

*Denotes fine pitch thread.

Heavy-Duty Rod Ends - Male

with integral ball bearing

65740

Order No.	a°	Calc factor Y_0	Calc factor Y	Max.speed rpm	Max. dynamic load C kN	Max. static load C_0 kN
65740.W0222	8,0	2,35	2,24	725	9,30	3,98
65740.W0225	5,0	2,02	2,12	600	11,03	5,68
65740.W0230	7,5	2,24	2,35	450	14,15	7,45

Material
Housing - forged steel, tempered, case hardened bearing race, ground and lapped, rolled thread, surface galvanized.
Inner ring - ball bearing steel, hardened, superfine ground.
Lubrication - calcium-complex-soap-grease, temp range -20°C to +120°C.
Lubrication nipple - DIN 3405 D1/A (sizes 6 to 10) DIN 71412 H1 (sizes 12 to 30)

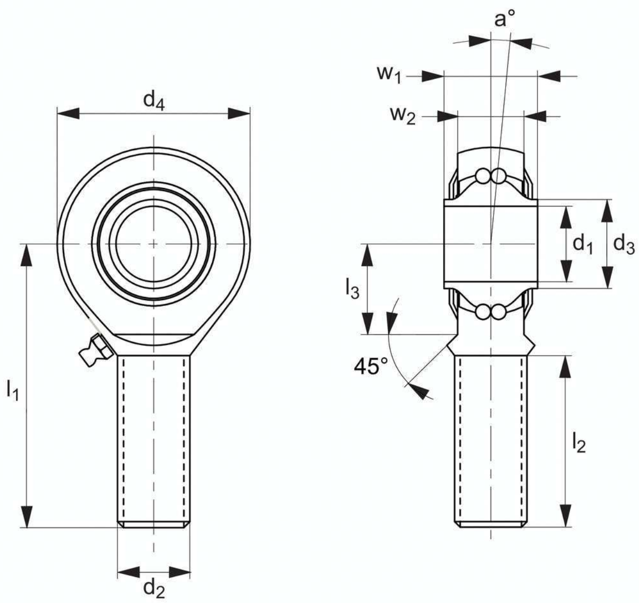
Technical Notes
Low maintenance. Sizes according to DIN ISO 12240-4 series K.
For tolerances see product technical pages.

Important Notes
*Denotes fine pitch thread.

Stainless Heavy-Duty Rod Ends - Male

with integral ball bearing

65742



Order No.	Thread (hand)	d_1 H7	l_1	d_2	d_3	d_4	l_2	l_3	w_1	w_2	g
65742.W0006	Right	6	36	M 6	9,0	20	22	12	9	6,75	19
65742.W0008	Right	8	42	M 8	10,5	24	25	15	12	9,00	36
65742.W0010	Right	10	48	M10	12,0	28	29	15	14	10,50	60
65742.W0012	Right	12	54	M12	14,5	32	33	19	16	12,00	87
65742.W0016	Right	16	66	M16	19,0	42	40	22	21	15,00	190
65742.W0020	Right	20	78	M20x1,5*	24,5	50	47	28	25	18,00	338
65742.W0506	Left	6	36	M 6	9,0	20	22	12	9	6,75	19
65742.W0508	Left	8	42	M 8	10,5	24	25	15	12	9,00	36
65742.W0510	Left	10	48	M10	12,0	28	29	15	14	10,50	60
65742.W0512	Left	12	54	M12	14,5	32	33	19	16	12,00	87
65742.W0516	Left	16	66	M16	19,0	42	40	22	21	15,00	190
65742.W0520	Left	20	78	M20x1,5*	24,5	50	47	28	25	18,00	338

Order No.	a°	Calc factor Y_0	Calc factor Y	Max. speed rpm	Max. dynamic load C kN	Max. static load C_0 kN
65742.W0006	8,0	2,09	2,19	1350	1,9	0,5
65742.W0008	8,5	1,80	1,89	1300	2,8	0,7
65742.W0010	8,0	1,90	1,81	1225	3,1	1,0
65742.W0012	7,5	1,74	1,82	1125	3,5	1,3
65742.W0016	8,0	2,24	2,35	975	4,3	1,6
65742.W0020	7,0	2,46	2,58	825	5,4	2,3
65742.W0506	8,0	2,09	2,19	1350	1,9	0,5
65742.W0508	8,5	1,80	1,89	1300	2,8	0,7
65742.W0510	8,0	1,90	1,81	1225	3,1	1,0
65742.W0512	7,5	1,74	1,82	1125	3,5	1,3
65742.W0516	8,0	2,24	2,35	975	4,3	1,3
65742.W0520	7,0	2,46	2,58	825	5,4	2,3

Material

Housing - stainless steel, forged, hardened bearing race, superfinished, rolled thread.
Inner ring - stainless steel, hardened, superfine finish.
Lubrication - aluminium-complex-soap-grease, temp range -45°C to +120°C.
Lubrication nipple - DIN 3405 D1/A (until size 10) DIN 71412 H1 (from size 12).

Technical Notes

Low maintenance. Sizes according to DIN ISO 12240-4 series K.
For tolerances see product technical pages.

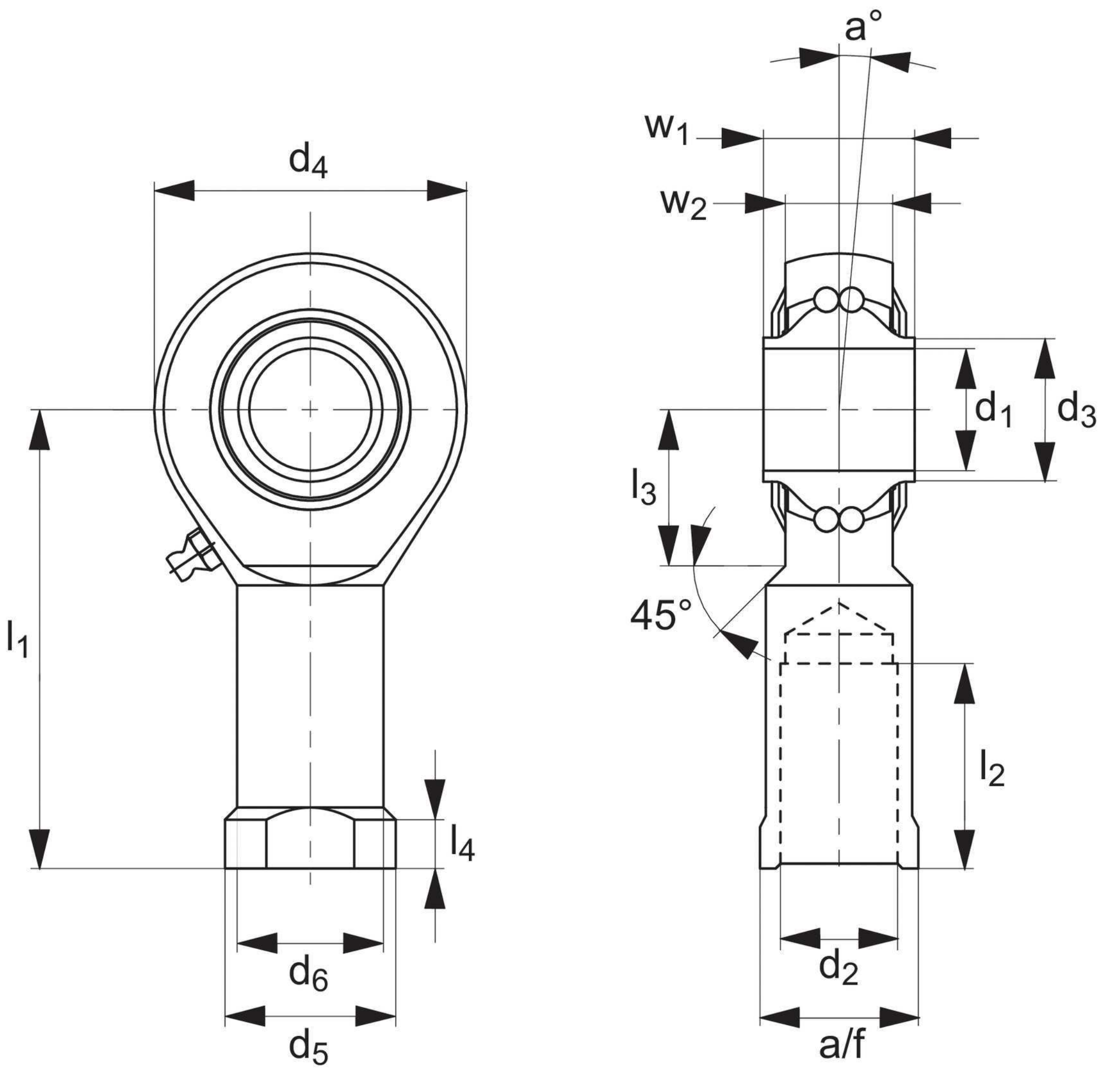
Important Notes

*Denotes fine pitch thread.
Use of torque Nm during installation of stainless rod end in order to achieve max. life of part.
Rod end 65742 should not be used in applications with transverse bites applied on thread.

Heavy-Duty Rod Ends - Female

with integral ball bearing

65760



Material
Rod end housing - forged steel, tempered, case hardened bearing race, ground and lapped, surface galvanized.
Inner ring - ball bearing steel, hardened, superfine ground.
Lubrication - calcium-complex-soap-grease, temp range -20°C to +120°C.
Lubrication nipple - DIN 3405 D1/A (sizes 6 to 10) DIN 71412 H1 (sizes 12 to 30).

Technical Notes
Low maintenance. Sizes according to DIN ISO 12240-4 series K.
For tolerances see product technical pages.

Important Notes
*Denotes fine pitch thread.

Order No.	Thread (hand)	$d_{1\ H7}$	l_1	d_2	d_3	d_4	d_5	d_6	l_2	l_3	g
65760.W0106	Right	6	30	M 6	9,0	20	10,0	13	12	10	24
65760.W0108	Right	8	36	M 8	10,5	24	12,5	16	16	12	44
65760.W0110	Right	10	43	M10	12,0	28	15,0	19	20	15	72
65760.W0112	Right	12	50	M12	14,5	32	17,5	22	22	16	107
65760.W0114	Right	14	57	M14	17,0	36	20,0	25	25	20	160
65760.W0116	Right	16	64	M16	19,0	42	22,0	27	28	22	224
65760.W0118	Right	18	71	M18X1,5*	21,5	46	25,0	31	32	24	293
65760.W0120	Right	20	77	M20X1,5*	24,5	50	27,5	34	33	26	367
65760.W0122	Right	22	84	M22X1,5*	26,0	54	30,0	38	37	26	480
65760.W0125	Right	25	94	M24X2,0*	29,5	64	30,0	35	42	32	572
65760.W0130	Right	30	110	M30X2,0*	34,5	70	40,0	50	51	35	978
65760.W0206	Left	6	30	M 6	9,0	20	10,0	13	12	10	24
65760.W0208	Left	8	36	M 8	10,5	24	12,5	16	16	12	44
65760.W0210	Left	10	43	M10	12,0	28	15,0	19	20	15	72
65760.W0212	Left	12	50	M12	14,5	32	17,5	22	22	16	107
65760.W0214	Left	14	57	M14	17,0	36	20,0	25	25	20	160
65760.W0216	Left	16	64	M16	19,0	42	22,0	27	28	22	224
65760.W0218	Left	18	71	M18X1,5*	21,5	46	25,0	31	32	24	293
65760.W0220	Left	20	77	M20X1,5*	24,5	50	27,5	34	33	26	367
65760.W0222	Left	22	84	M22X1,5*	26,0	54	30,0	38	37	26	480
65760.W0225	Left	25	94	M24X2,0*	29,5	64	30,0	35	42	32	572
65760.W0230	Left	30	110	M30X2,0*	34,5	70	40,0	50	51	35	978

Order No.	l_4	w_1	w_2	a/f	a°	Calc. factor Y	Calc. factor Y_o	Max. speed rpm	Max. dynamic load C kN	Max. static load C_0 kN
65760.W0106	5,0	9	6,75	11	8,0	2,09	2,19	1350	2,8	0,7
65760.W0108	5,0	12	9,00	14	8,5	1,80	1,89	1300	4,0	1,0

Heavy-Duty Rod Ends - Female

with integral ball bearing

65760

Order No.	l_4	w_1	w_2	a/f	a°	Calc. factor Y	Calc. factor Y_o	Max. speed rpm	Max. dynamic load C kN	Max. static load C_0 kN
65760.W0110	6,5	14	10,50	17	8,0	1,90	1,81	1225	4,5	1,5
65760.W0112	6,5	16	12,00	19	7,5	1,74	1,82	1125	5,6	2,0
65760.W0114	8,0	19	13,50	22	6,0	2,36	2,48	1025	7,1	2,9
65760.W0116	8,0	21	15,00	22	8,0	2,24	2,35	975	7,9	3,5
65760.W0118	10,0	23	16,50	27	8,5	2,21	2,31	900	11,0	5,7
65760.W0120	10,0	25	18,00	30	7,0	2,46	2,58	825	14,2	7,5
65760.W0122	12,0	28	20,00	32	8,0	2,35	2,24	725	14,2	7,5
65760.W0125	10,0	31	22,00	30	5,0	2,02	2,12	600	14,2	7,5
65760.W0130	15,0	37	25,00	41	7,5	2,24	2,35	450	14,2	7,5
65760.W0206	5,0	9	6,75	11	8,0	2,09	2,19	1350	2,8	0,7
65760.W0208	5,0	12	9,00	14	8,5	1,80	1,89	1300	4,0	1,0
65760.W0210	6,5	14	10,50	17	8,0	1,90	1,81	1225	4,5	1,5
65760.W0212	6,5	16	12,00	19	7,5	1,74	1,82	1125	5,6	2,0
65760.W0214	8,0	19	13,50	22	6,0	2,36	2,48	1025	7,1	2,9
65760.W0216	8,0	21	15,00	22	8,0	2,24	2,35	975	7,9	3,5
65760.W0218	10,0	23	16,50	27	8,5	2,21	2,31	900	11,0	5,7
65760.W0220	10,0	25	18,00	30	7,0	2,46	2,58	825	14,2	7,5
65760.W0222	12,0	28	20,00	32	8,0	2,35	2,24	725	14,2	7,5
65760.W0225	10,0	31	22,00	30	5,0	2,02	2,12	600	14,2	7,5
65760.W0230	15,0	37	25,00	41	7,5	2,24	2,35	450	14,2	7,5

Material

Rod end housing - forged steel, tempered, case hardened bearing race, ground and lapped, surface galvanized.
Inner ring - ball bearing steel, hardened, superfine ground.
Lubrication - calcium-complex-soap-grease, temp range -20°C to +120°C.
Lubrication nipple - DIN 3405 D1/A (sizes 6 to 10) DIN 71412 H1 (sizes 12 to 30).

Technical Notes

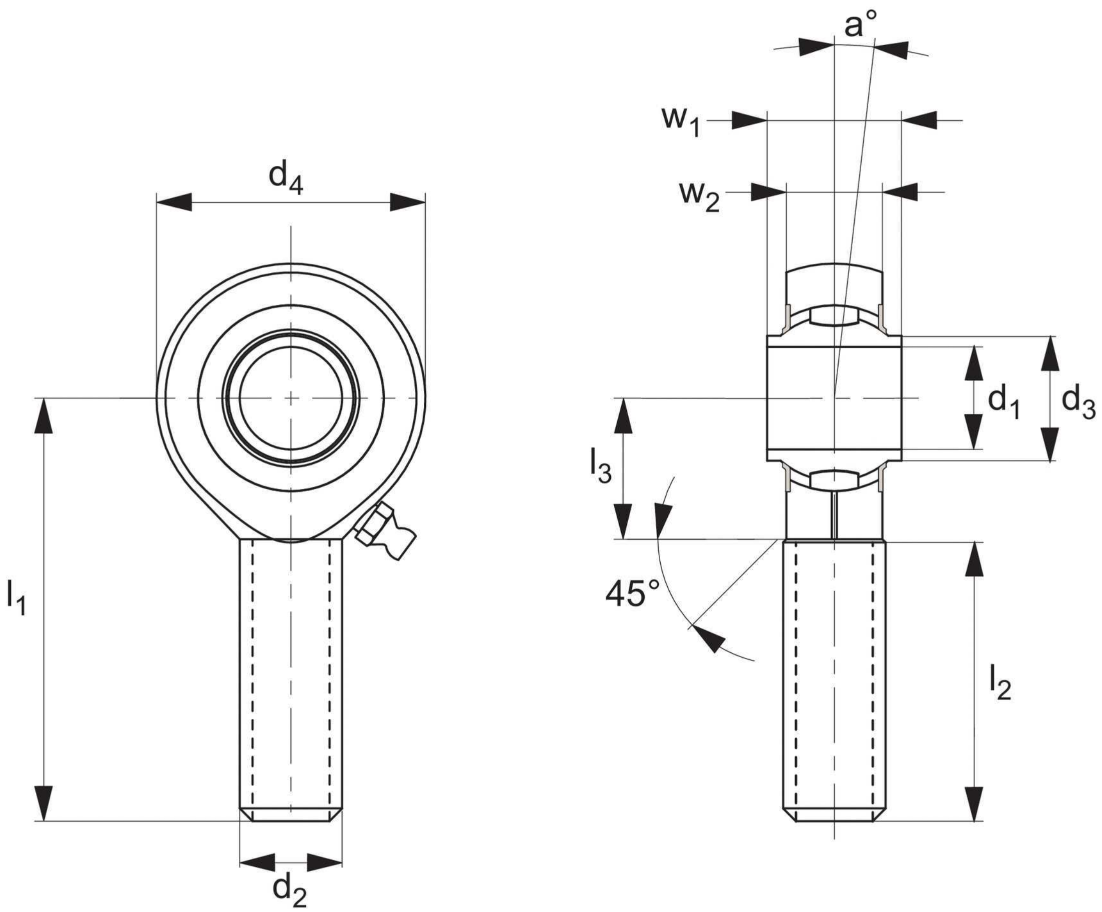
Low maintenance. Sizes according to DIN ISO 12240-4 series K.
For tolerances see product technical pages.

Important Notes

*Denotes fine pitch thread.

Heavy-Duty Rod Ends - Male
with integral roller bearing

65780



Order No.	Thread (hand)	d_1 H7	l_1	d_2	d_3	d_4	l_2	l_3	g
65780.W0112	Right	12	54	M12	14,5	32	33	19	88
65780.W0116	Right	16	66	M16	19,0	42	40	22	185
65780.W0120	Right	20	78	M20x1,5*	24,5	50	47	28	340
65780.W0125	Right	25	94	M24x2,0*	29,5	64	57	30	596
65780.W0130	Right	30	110	M30x2,0*	34,5	70	66	35	912
65780.W0512	Left	12	54	M12	14,5	32	33	19	88
65780.W0516	Left	16	66	M16	19,0	42	40	22	185
65780.W0520	Left	20	78	M20x1,5*	24,5	50	47	28	340
65780.W0525	Left	25	94	M24x2,0*	29,5	64	57	30	596
65780.W0530	Left	30	110	M30x2,0*	34,5	70	66	35	912

Order No.	w_1	w_2	a°	Max. speed rpm	Max. dynamic load C kN	Max. static load C_0 kN
65780.W0112	16	12	7,5	1125	10,25	6,6
65780.W0116	21	15	7,0	975	13,30	8,9
65780.W0120	25	18	7,0	825	17,00	11,7
65780.W0125	31	22	5,0	600	24,90	18,5
65780.W0130	37	25	7,5	450	32,50	24,8
65780.W0512	16	12	7,5	1125	10,25	6,6
65780.W0516	21	15	7,0	975	13,30	8,9
65780.W0520	25	18	7,0	825	17,00	11,7
65780.W0525	31	22	5,0	600	24,90	18,5
65780.W0530	37	25	7,5	450	32,50	24,8

Material
Rod end housing - forged steel, tempered, case hardened bearing race, ground and lapped, surface galvanized.
Inner ring - ball bearing steel, hardened, superfine ground.
Lubrication - calcium-complex-soap-grease, temp. range -20°C to +120°C.
Lubrication nipple - DIN 71412 HZ.

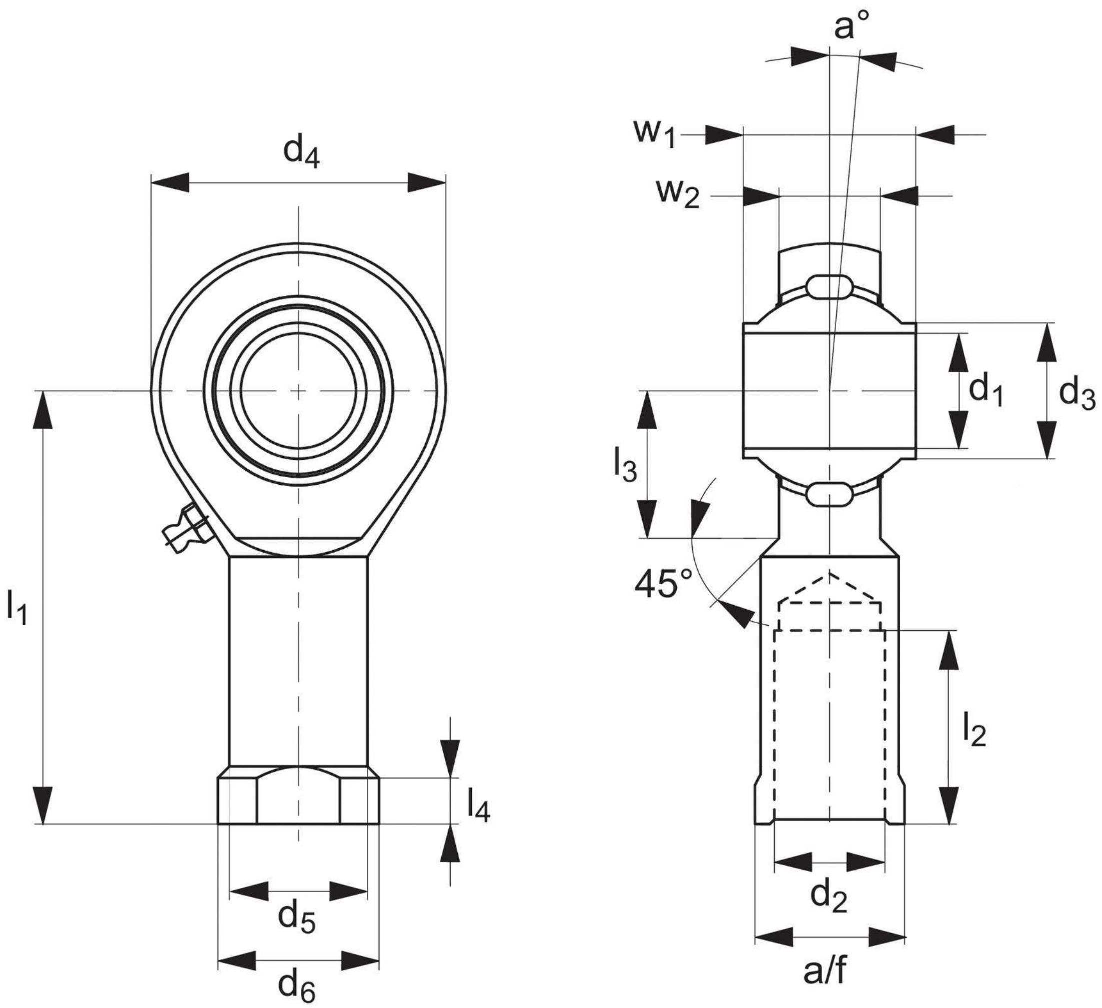
Technical Notes
Low maintenance. Sizes according to DIN ISO 12240-4, series K.
For tolerances see product technical pages.

Important Notes
*Denotes fine pitch thread.

Heavy-Duty Rod Ends - Female

with integral roller bearing

65800



Material

Rod end housing - forged steel, tempered, case hardened bearing race, ground and lapped, surface galvanized.
Inner ring - ball bearing steel, hardened, superfine ground.
Lubrication - calcium-complex-soap-grease, temp range -20°C to +120°C.
Lubrication nipple - DIN 71412 H1.

Technical Notes

Low maintenance. Sizes according to DIN ISO 12240-4, series K.
For tolerances see product technical pages.

Important Notes

*Denotes fine pitch thread.

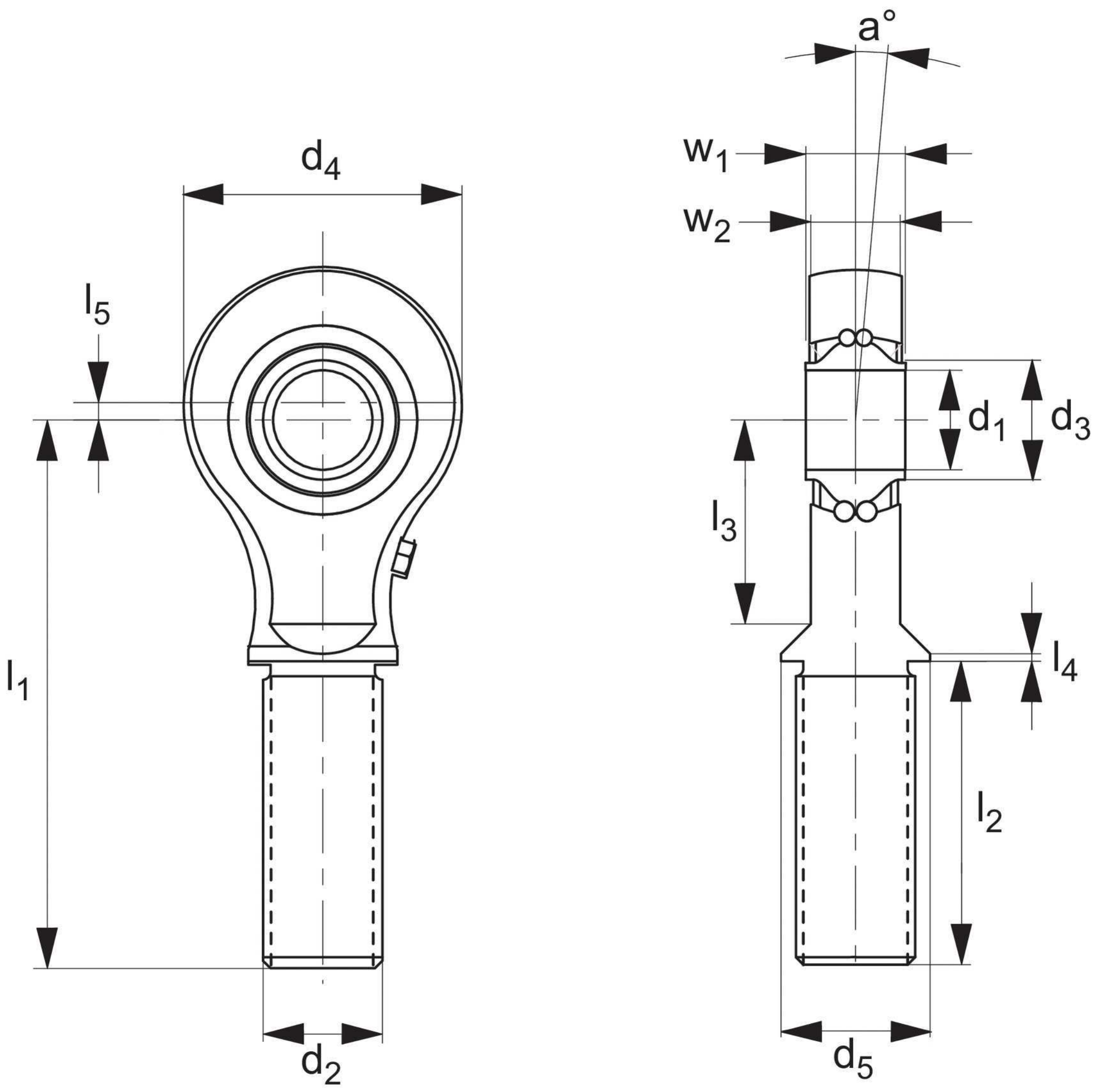
Order No.	Thread (hand)	d_1 H7	l_1	d_2	d_3	d_4	d_5	d_6	l_2	g
65800.W0112	Right	12	50,0	M12	14,5	32	17,5	22	22,0	109
65800.W0116	Right	16	64,0	M16	19,0	42	22,0	27	28,0	220
65800.W0120	Right	20	77,0	M20x1,5*	24,5	50	27,5	34	33,0	361
65800.W0125	Right	25	94,0	M24x2,0*	29,5	64	30,0	35	42,0	565
65800.W0130	Right	30	110,0	M30x2,0*	34,5	70	40,0	50	51,0	1000
65800.W0212	Left	12	50,0	M12	14,5	32	17,5	22	22,0	109
65800.W0216	Left	16	64,0	M16	19,0	42	22,0	27	28,0	220
65800.W0220	Left	20	77,0	M20x1,5*	24,5	50	27,5	34	33,0	361
65800.W0225	Left	25	94,0	M24x2,0*	29,5	64	30,0	35	42,0	565
65800.W0230	Left	30	110,0	M30x2,0*	34,5	70	40,0	50	51,0	1000

Order No.	l_3	l_4	w_1	w_2	a/f	a°	Max. speed rpm	Max. dynamic load C kN	Max. static load C_0 kN
65800.W0112	16	6,5	16	12	19	7,5	1125	10,3	6,6
65800.W0116	22	8,0	21	15	22	7,0	975	13,3	8,9
65800.W0120	26	10,0	25	18	30	7,0	825	17,0	11,7
65800.W0125	32	10,0	31	22	30	5,0	600	24,9	18,5
65800.W0130	35	15,0	37	25	41	7,5	450	32,5	24,9
65800.W0212	16	6,5	16	12	19	7,5	1125	10,3	6,6
65800.W0216	22	8,0	21	15	22	7,0	975	13,3	8,9
65800.W0220	26	10,0	25	18	30	7,0	825	17,0	11,7
65800.W0225	32	10,0	31	22	30	5,0	600	24,9	18,5
65800.W0230	35	15,0	37	25	41	7,5	450	32,5	24,9

Heavy-Duty Rod Ends - Male

with integral ball bearing

65820



Material
Housing - forged steel, tempered, case hardened bearing race, ground and lapped, surface galvanized.
Inner ring - ball bearing steel, hardened, superfine ground.
Lubrication - calcium-complex-soap-grease, temp range -20°C to +120°C
Lubrication nipple - DIN 3405 D1/A

Technical Notes
Low maintenance.
For tolerances see product technical pages.

Important Notes
*Denotes fine pitch thread.

Order No.	Thread (hand)	d_1 K6	l_1	d_2	d_3	d_4	d_5	l_2	l_3	w_1	g
65820.W0004	Right	5	57,0	M8x1,0	7,5	19	12	39,5	13	12	37
65820.W0005	Right	5	33,5	M8x1,0	7,5	19	12	16,0	13	12	33
65820.W0006	Right	6	64,0	M10x1,0	8,5	24	14	42,5	17	14	62
65820.W0007	Right	6	40,5	M10x1,0	8,5	24	14	19,0	17	14	57
65820.W0008	Right	8	72,0	M12x1,5	11,0	30	17	46,5	20	15	97
65820.W0009	Right	8	48,5	M12x1,5	11,0	30	17	23,0	20	15	88
65820.W0010	Right	10	82,0	M14x1,5	13,5	36	19	49,5	28	20	168
65820.W0011	Right	10	58,5	M14x1,5	13,5	36	19	26,0	28	20	154
65820.W0012	Right	12	90,0	M16x1,5	15,0	40	21	53,5	31	20	226
65820.W0013	Right	12	65,5	M16x1,5	15,0	40	21	29,0	31	20	204
65820.W0015	Right	15	100,0	M20x1,5	18,5	42	26	62,5	30	20	310
65820.W0016	Right	15	73,5	M20x1,5	18,5	42	26	36,0	30	20	273
65820.W0017	Right	17	105,0	M20x1,5	21,0	48	26	62,5	36	22	401
65820.W0018	Right	17	78,5	M20x1,5	21,0	48	26	36,0	36	22	354
65820.W0020	Right	20	11,7	M24x1,5	24,0	56	30	68,5	41	24	587
65820.W0021	Right	20	89,5	M24x1,5	24,0	56	30	41,0	41	24	519
65820.W0504	Left	5	57,0	M8x1,0	7,5	19	12	39,5	13	12	37
65820.W0505	Left	5	33,5	M8x1,0	7,5	19	12	16,0	13	12	33
65820.W0506	Left	6	64.0	M10x1,0	8,5	24	14	42,5	17	14	62
65820.W0507	Left	6	40,5	M10x1,0	8,5	24	14	19,0	17	14	57
65820.W0508	Left	8	72,0	M12x1,5	11,0	30	17	46,5	20	15	97
65820.W0509	Left	8	48,5	M12x1,5	11,0	30	17	23,0	20	15	88
65820.W0510	Left	10	82,0	M14x1,5	13,5	36	19	49,5	28	20	168
65820.W0511	Left	10	58,5	M14x1,5	13,5	36	19	26,0	28	20	154
65820.W0512	Left	12	90,0	M16x1,5	15,0	40	21	53,5	31	20	226
65820.W0513	Left	12	65,5	M16x1,5	15,0	40	21	29,0	31	20	204
65820.W0515	Left	15	100,0	M20x1,5	18,5	42	26	62,5	30	20	310
65820.W0516	Left	15	73,5	M20x1,5	18,5	42	26	36,0	30	20	273
65820.W0517	Left	17	105,0	M20x1,5	21,0	48	26	62,5	36	22	401

Heavy-Duty Rod Ends - Male

with integral ball bearing

65820

Order No.	Thread (hand)	d_1 K6	l_1	d_2	d_3	d_4	d_5	l_2	l_3	w_1	g
65820.W0518	Left	17	78,5	M20x1,5	21,0	48	26	36,0	36	22	354
65820.W0520	Left	20	11,7	M24x1,5	24,0	56	30	68,5	41	24	587
65820.W0521	Left	20	89,5	M24x1,5	24,0	56	30	41,0	41	24	519

Order No.	w_2	l_4	l_5	a°	Calc. factor Y	Calc. factor Y_o	Max. speed rpm	Max.dynamic load C kN	Max.static load C_0 kN
65820.W0004	8	2,5	1,5	7,0	1,51	1,58	1350	1,61	0,48
65820.W0005									
65820.W0006									
65820.W0007									
65820.W0008									
65820.W0009	10	2,5	2,0	8,5	1,90	1,81	1225	2,60	0,98
65820.W0010									
65820.W0011	14	2,5	2,5	9,5	1,69	1,77	1100	5,12	1,90
65820.W0012	14	2,5	3,0	7,5	1,81	1,90	1050	5,34	2,06
65820.W0013									
65820.W0015									
65820.W0016	14	2,5	3,0	6,5	2,07	2,17	975	5,48	3,27
65820.W0017	16	2,5	3,5	7,0	2,35	2,46	875	5,57	2,68
65820.W0018									
65820.W0020	18	3,0	3,5	5,5	2,76	2,90	775	6,16	3,14
65820.W0021	18	3,0	3,5	5,5	2,76	2,90	775	6,16	3,14
65820.W0504	8	2,5	1,5	7,0	1,51	1,58	1350	1,61	0,48
65820.W0505	8	2,5	1,5	7,0	1,51	1,58	1350	1,61	0,48
65820.W0506	10	2,5	1,5	10,5	1,28	1,34	1300	2,44	0,76
65820.W0507	10	2,5	1,5	10,5	1,28	1,34	1300	2,44	0,76
65820.W0508	10	2,5	2,0	8,5	1,90	1,81	1225	2,60	0,98
65820.W0509	10	2,5	2,0	8,5	1,90	1,81	1225	2,60	0,98
65820.W0510									
65820.W0511	14	2,5	2,5	9,5	1,69	1,77	1100	5,12	1,90
65820.W0512									
65820.W0513									
65820.W0515									
65820.W0516	14	2,5	3,0	6,5	2,07	2,17	975	5,48	2,68
65820.W0517	16	2,5	3,5	7,0	2,35	2,46	875	5,57	2,68
65820.W0518									
65820.W0520	18	3,0	3,5	5,5	2,76	2,90	775	6,16	3,14
65820.W0521									

Material

Housing - forged steel, tempered, case hardened bearing race, ground and lapped, surface galvanized.
Inner ring - ball bearing steel, hardened, superfine ground.
Lubrication - calcium-complex-soap-grease, temp range -20°C to +120°C
Lubrication nipple - DIN 3405 D1/A

Technical Notes

Low maintenance.
For tolerances see product technical pages.

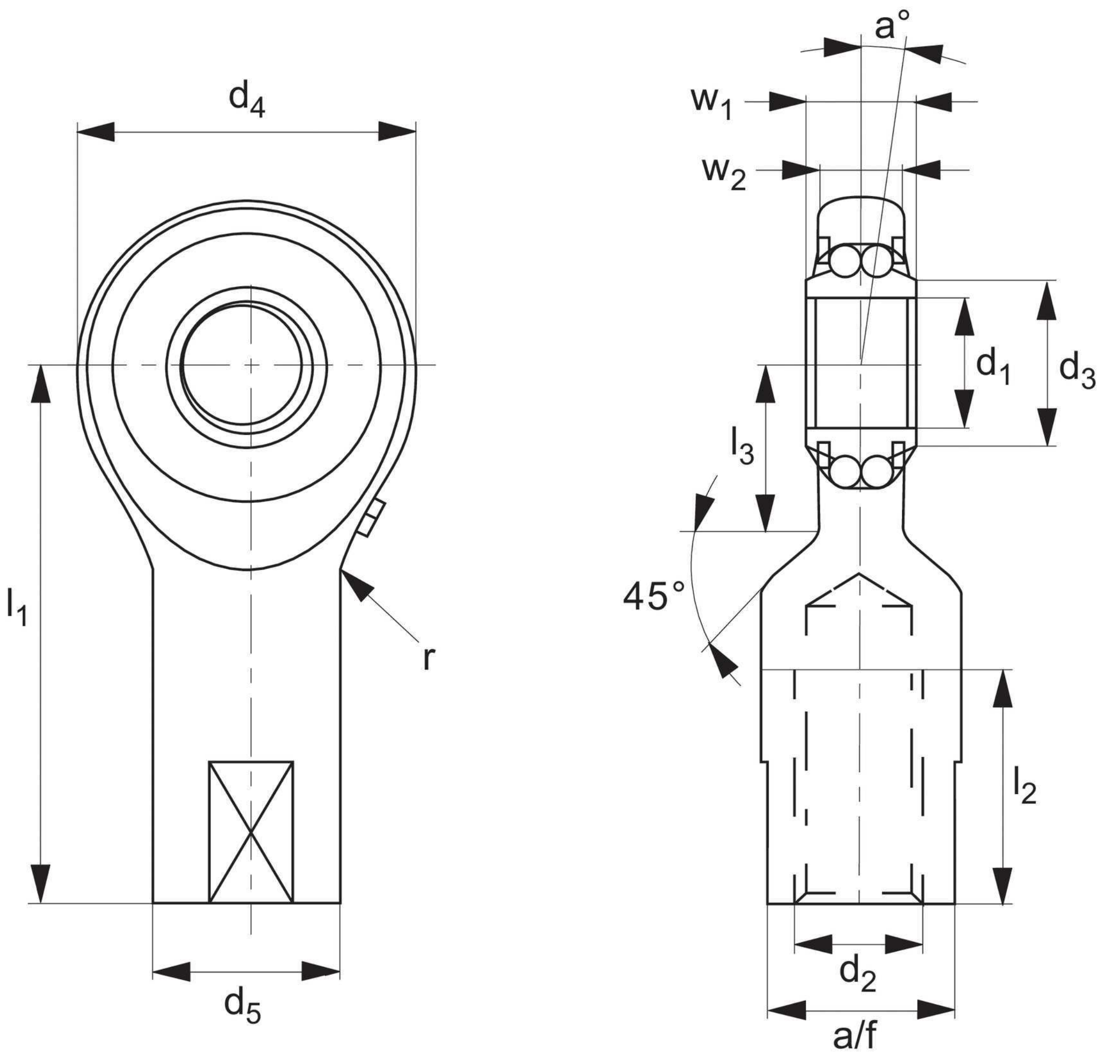
Important Notes

*Denotes fine pitch thread.

Heavy-Duty Rod Ends - Female

with integral ball bearing

65840



Material
Rod end housing - forged steel, tempered, case hardened bearing race, ground and lapped, surface galvanized.
Inner ring - ball bearing steel, hardened, superfine ground.
Lubrication - calcium-complex-soap-grease, temp range -20°C to +120°C.
Lubrication nipple - DIN 3405 D1/A.

Technical Notes
Low maintenance.
For tolerances see product technical pages.

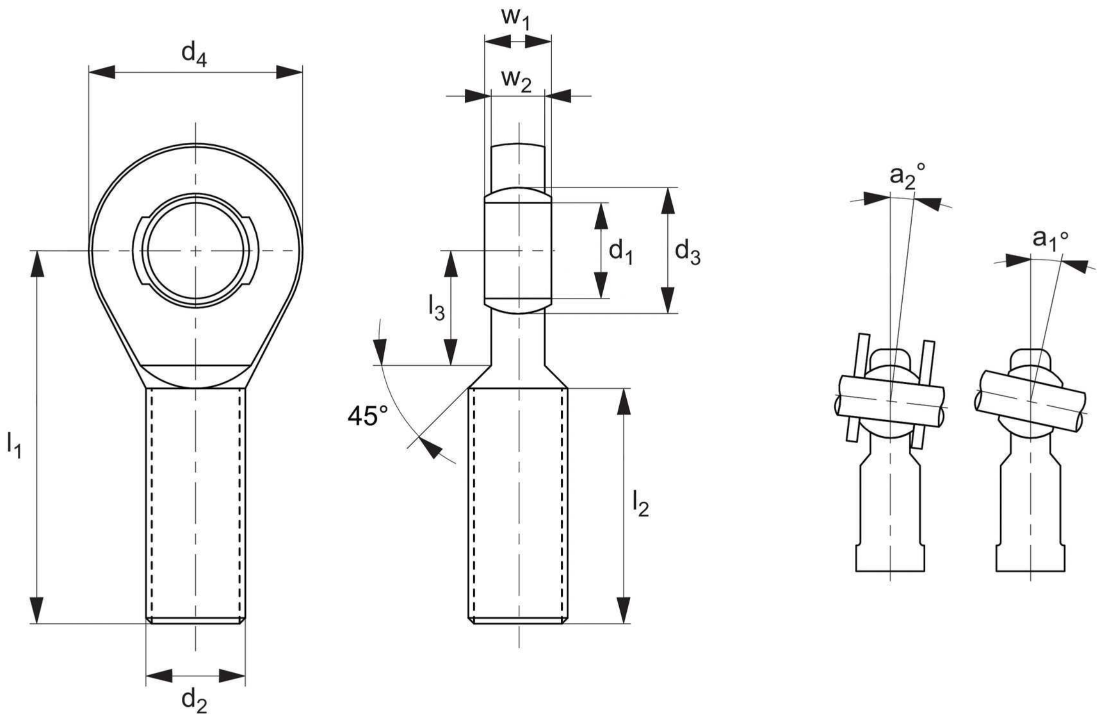
Order No.	Thread (hand)	d_1 H7	l_1	d_2	d_3	d_4	d_5	l_2	l_3	w_1	w_2	r	g
65840.W0010	Right	10	38	M 8	13,0	30	15	17	14,5	13,0	9	10	63
65840.W0015	Right	15	51	M12	17,5	40	19	24	20,0	16,5	12	15	140
65840.W0020	Right	20	65	M16	24,0	48	22	32	22,0	20,5	15	20	223
65840.W0510	Left	10	38	M 8	13,0	30	15	917	14,5	13,0	9	10	63
65840.W0515	Left	15	51	M12	17,5	40	19	24	20,0	16,5	12	15	140
65840.W0520	Left	20	65	M16	24,0	48	22	32	22,0	20,5	15	20	223

Order No.	a/f	a°	Calc. factor Y	Calc factor Y_o	Max. speed rpm	Max. dynamic load C kN	Max. static load C_0 kN
65840.W0010	13	7,0	1,90	1,81	1225	2,6	1,0
65840.W0015	17	7,0	2,30	2,41	1025	5,0	1,9
65840.W0020	19	6,5	2,34	2,45	850	6,1	3,0
65840.W0510	13	7,0	1,90	1,81	1225	2,6	1,0
65840.W0515	17	7,0	2,30	2,41	1025	5,0	1,9
65840.W0520	19	6,5	2,34	2,45	850	6,1	3,0

Heavy-Duty Rod Ends - Male

with integral spherical plain bearing

65860



Order No.	Thread (hand)	d_1 K6	l_1	d_2	d_3	d_4	l_2	l_3	g
65860.W0006	Right	6	36	M 6	10,0	20	22	11	14
65860.W0008	Right	8	42	M 8	13,0	23	25	12	24
65860.W0010	Right	10	48	M10	16,0	28	29	15	41
65860.W0012	Right	12	54	M12	18,0	32	33	15	67
65860.W0015	Right	15	63	M14	22,0	38	33	18	110
65860.W0017	Right	17	69	M16	25,0	44	40	23	163
65860.W0020	Right	20	78	M20x1,5*	29,0	51	47	25	270
65860.W0025	Right	25	94	M24x2,0*	35,5	62	57	32	508
65860.W0030	Right	30	110	M30x2,0*	40,7	70	66	35	785
65860.W0035	Right	35	140	M36x3,0*	47,0	82	92	38	1330
65860.W0040	Right	40	145	M42x3,0*	53,0	92	94	42	1890
65860.W0041	Right	40	150	M39x3,0*	53,0	92	99	42	1785
65860.W0045	Right	45	165	M45x3,0*	60,0	102	100	50	2620
65860.W0046	Right	45	163	M42x3,0*	60,0	102	98	50	2430
65860.W0050	Right	50	195	M52x3,0*	66,0	112	120	60	3865
65860.W0051	Right	50	185	M45x3,0*	66,0	112	110	60	3225
65860.W0060	Right	60	225	M60x4,0*	80,0	135	140	70	6400
65860.W0061	Right	60	210	M60x4,0*	80,0		125	70	5430
65860.W0506	Left	6	36	M 6	10,0	20	22	11	14
65860.W0508	Left	8	42	M 8	13,0	23	25	12	24
65860.W0510	Left	10	48	M10	16,0	28	29	15	41
65860.W0512	Left	12	54	M12	18,0	32	33	15	67
65860.W0515	Left	15	63	M14	22,0	38	33	18	110
65860.W0517	Left	17	69	M16	25,0	44	40	23	163
65860.W0520	Left	20	78	M20x1,5*	29,0	51	47	25	270
65860.W0525	Left	25	94	M24x2,0*	35,5	62	57	32	508
65860.W0530	Left	30	110	M30x2,0*	40,7	70	66	35	785
65860.W0535	Left	35	140	M36x3,0*	47,0	82	92	38	1330
65860.W0540	Left	40	145	M42x3,0*	53,0	92	94	42	1890
65860.W0541	Left	40	150	M39x3,0*	53,0	92	99	42	1785
65860.W0545	Left	45	165	M45x3,0*	60,0	102	100	50	2620
65860.W0546	Left	45	163	M42x3,0*	60,0	102	98	50	2430
65860.W0550	Left	50	195	M52x3,0*	66,0	112	120	60	3865
65860.W0551	Left	50	185	M45x3,0*	66,0	112	110	60	3225
65860.W0560	Left	60	225	M60x4,0*	80,0	135	140	70	6400
65860.W0561	Left	60	210	M52x3,0*	80,0	135	125	70	5430

Order No.	w_1	w_2	a_1°	a_2°	Max. dynamic load C kN	Max. static load C_0 kN
65860.W0006	6	4	13,0	6,5	2,5	6,4
65860.W0008	8	5	15,0	8,0	4,2	11,0
65860.W0010	9	6	12,0	6,0	6,4	16,8

Material
Housing - forged steel, tempered, rolled thread, surface galvanized.
Joint ball - ball bearing steel, hardened and ground, surface superfinished and chromium plated.
Race - nylon/teflon/glass compound.

Technical Notes
Maintenance free. Sizes according to DIN ISO 12240-4, series E.
For tolerances see product technical pages.

Important Notes
*Denotes fine pitch thread.

Heavy-Duty Rod Ends - Male

with integral spherical plain bearing

65860

Order No.	w_1	w_2	a_1°	a_2°	Max. dynamic load C kN	Max. static load C_0 kN
65860.W0012	10	7	10,5	5,0	9,2	23,0
65860.W0015	12	9	8,5	4,5	13,4	39,6
65860.W0017	14	10	10,0	5,5	19,2	54,1
65860.W0020	16	12	9,0	4,5	25,2	76,7
65860.W0025	20	16	7,5	3,5	42,4	119,1
65860.W0030	22	18	6,0	3,0	54,0	141,8
65860.W0035	25	20	6,5	3,5	70,4	180,8
65860.W0040	28	22	7,0	3,5	86,0	222,6
65860.W0041	28	22	7,0	3,5	86,0	222,6
65860.W0045	32	25	7,5	4,0	107,0	276,2
65860.W0046	32	25	7,5	4,0	107,0	276,2
65860.W0050	35	28	6,5	3,0	132,0	339,2
65860.W0051	35	28	6,5	3,0	132,0	339,2
65860.W0060	44	36	6,5	3,5	208,0	532,1
65860.W0061	44	36	6,5	3,5	208,0	532,1
65860.W0506	6	4	13,0	6,5	2,5	6,4
65860.W0508	8	5	15,0	8,0	4,2	11,0
65860.W0510	9	6	12,0	6,0	6,4	16,8
65860.W0512	10	7	10,5	5,0	9,2	23,0
65860.W0515	12	9	8,5	4,5	13,4	39,6
65860.W0517	14	10	10,0	5,5	19,2	54,1
65860.W0520	16	12	9,0	4,5	25,2	76,7
65860.W0525	20	16	7,5	3,5	42,4	119,1
65860.W0530	22	18	6,0	3,0	54,0	141,8
65860.W0535	25	20	6,5	3,5	70,4	180,8
65860.W0540	28	22	7,0	3,5	86,0	222,6
65860.W0541	28	22	7,0	3,5	86,0	222,6
65860.W0545	32	25	7,5	4,0	107,0	276,2
65860.W0546	32	25	7,5	4,0	107,0	276,2
65860.W0550	35	28	6,5	3,0	132,0	339,2
65860.W0551	35	28	6,5	3,0	132,0	339,2
65860.W0560	44	36	6,5	3,5	208,0	532,1
65860.W0561	44	36	6,5	3,5	208,0	532,1

Material
Housing - forged steel, tempered, rolled thread, surface galvanized.
Joint ball - ball bearing steel, hardened and ground, surface superfinished and chromium plated.
Race - nylon/teflon/glass compound.

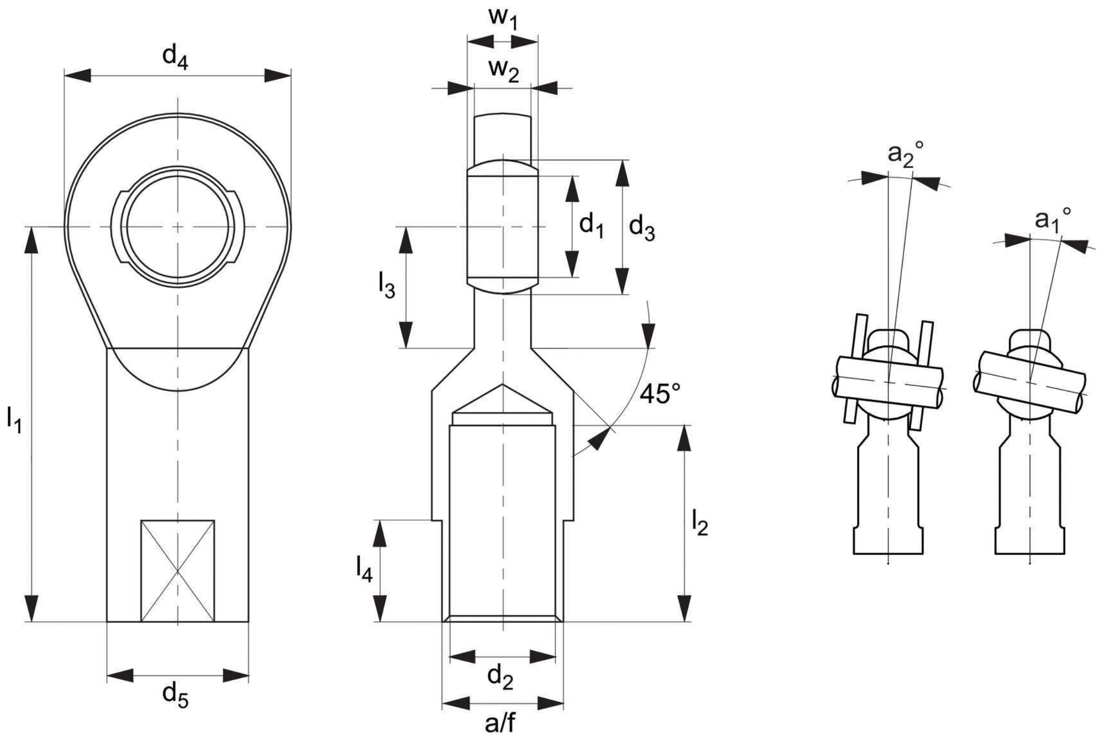
Technical Notes
Maintenance free. Sizes according to DIN ISO 12240-4, series E.
For tolerances see product technical pages.

Important Notes
*Denotes fine pitch thread.

Heavy-Duty Rod Ends - Female

with integral spherical plain bearing

65880



Order No.	Thread (hand)	d_1 K6	l_1	d_2	d_3	d_4	d_5	l_2	l_3	g
65880.W0106	Right	6	30	M 6	10,0	20	10	12	11	17
65880.W0108	Right	8	36	M 8	13,0	23	13	16	12	31
65880.W0110	Right	10	43	M10	16,0	28	16	20	13	54
65880.W0111	Right	10	43	M10x1,25*	16,0	28	16	20	13	54
65880.W0112	Right	12	50	M12	18,0	32	19	22	15	86
65880.W0113	Right	12	50	M12x1,25*	18,0	32	19	22	15	86
65880.W0115	Right	15	61	M14	22,0	38	22	25	18	142
65880.W0117	Right	17	67	M16	25,0	44	25	28	20	208
65880.W0120	Right	20	77	M20x1,50*	29,0	51	28	33	23	290
65880.W0125	Right	25	94	M24x2,00*	35,5	62	35	42	30	573
65880.W0130	Right	30	110	M30x2,00*	40,7	70	42	51	32	908
65880.W0135	Right	35	125	M36x3,00*	47,0	82	50	61	38	1230
65880.W0136	Right	35	130	M36x2,00*	47,0	82	50	66	38	1230
65880.W0140	Right	40	145	M42x3,00*	53,0	92	58	71	42	2075
65880.W0141	Right	40	142	M39x3,00*	53,0	92	52	66	42	1880
65880.W0145	Right	45	165	M45x3,00*	60,0	102	67	76	50	3085
65880.W0146	Right	45	145	M42x3,00*	60,0	102	58	66	50	2500
65880.W0150	Right	50	195	M52x3,00*	66,0	112	70	89	60	3975
65880.W0151	Right	50	160	M45x3,00*	66,0	112	62	69	60	3200
65880.W0160	Right	60	225	M60x4,00*	80,0	135	82	103	70	7300
65880.W0161	Right	60	175	M52x3,00*	80,0	135	71	71	70	5900
65880.W0206	Left	6	30	M 6	10,0	20	10	12	11	17
65880.W0208	Left	8	36	M 8	13,0	23	13	16	12	31
65880.W0210	Left	10	43	M10	16,0	28	16	20	13	54
65880.W0211	Left	10	43	M10x1,25*	16,0	28	16	20	13	54
65880.W0212	Left	12	50	M12	18,0	32	19	22	15	86
65880.W0213	Left	12	50	M12x1,25*	18,0	32	19	22	15	86
65880.W0215	Left	15	61	M14	22,0	38	22	25	18	142
65880.W0217	Left	17	67	M16	25,0	44	25	28	20	208
65880.W0220	Left	20	77	M20x1,50*	29,0	51	28	33	23	290
65880.W0225	Left	25	94	M24x2,00*	35,5	62	35	42	30	573
65880.W0230	Left	30	110	M30x2,00*	40,7	70	42	51	32	908
65880.W0235	Left	35	125	M36x3,00*	47,0	82	50	61	38	1230
65880.W0236	Left	35	130	M36x2,00*	47,0	82	50	66	38	1230
65880.W0240	Left	40	145	M42x3,00*	53,0	92	58	71	42	2075
65880.W0241	Left	40	142	M39x3,00*	53,0	92	52	66	42	1880
65880.W0245	Left	45	165	M45x3,00*	60,0	102	67	76	50	3085
65880.W0246	Left	45	145	M42x3,00*	60,0	102	58	66	50	2500
65880.W0250	Left	50	195	M52x3,00*	66,0	112	70	89	60	3975
65880.W0251	Left	50	160	M45x3,00*	66,0	112	62	69	60	3200
65880.W0260	Left	60	225	M60x4,00*	80,0	135	82	103	70	7300
65880.W0261	Left	60	175	M52x3,00*	80,0	135	71	71	70	5900

Material

Rod end housing - forged steel, tempered, surface galvanized.
Joint ball - ball bearing steel, hardened and ground, polished and chromium plated.
Race - nylon/teflon/glass compound.

Technical Notes

Female thread maintenance free adapter sizes according to DIN ISO 12240-4, series E.
For tolerances see product technical pages.

Important Notes

*Denotes fine pitch thread.

Heavy-Duty Rod Ends - Female

with integral spherical plain bearing

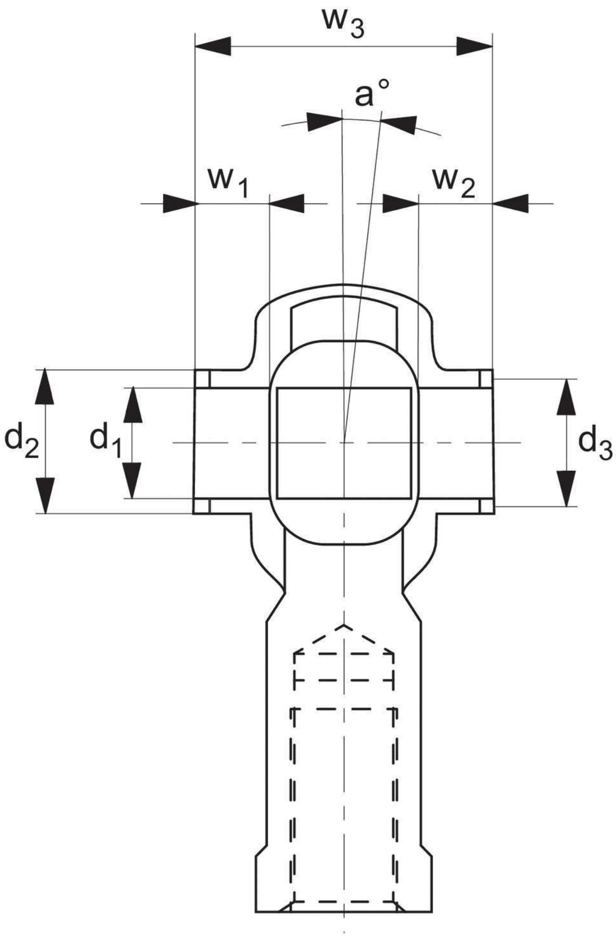
65880

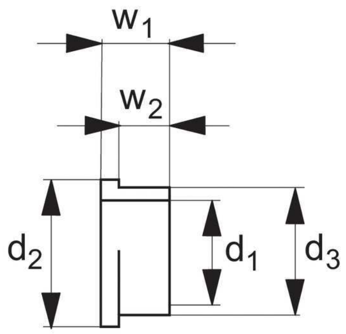
Order No.	l_4	w_1	w_2	a/f	a_1°	a_2°	Max. dynamic load C kN	Max. static load C_0 kN
65880.W0106	-	6	4	9	13,0	6,5	2,5	10,6
65880.W0108	-	8	5	11	15,0	8,0	4,2	13,1
65880.W0110	-	9	6	14	12,0	6,0	6,4	18,8
65880.W0111	-	9	6	14	12,0	6,0	6,4	18,8
65880.W0112	-	10	7	17	10,5	5,0	9,2	28,0
65880.W0113	-	10	7	17	10,5	5,0	9,2	28,0
65880.W0115	-	12	9	19	8,5	4,5	13,4	41,0
65880.W0117	-	14	10	22	10,0	5,5	19,2	57,9
65880.W0120	-	16	12	24	9,0	4,5	25,2	76,7
65880.W0125	-	20	16	30	7,5	3,5	42,4	119,1
65880.W0130	-	22	18	36	6,0	3,0	54,0	141,8
65880.W0135	36	25	20	41	6,5	3,5	70,4	180,8
65880.W0136	41	25	20	41	6,5	3,5	70,4	180,8
65880.W0140	42	28	22	50	7,0	3,5	86,0	222,6
65880.W0141	39	28	22	46	7,0	3,5	86,0	222,6
65880.W0145	45	32	25	55	7,5	4,0	107,0	276,2
65880.W0146	42	32	25	50	7,5	4,0	107,0	276,2
65880.W0150	52	35	28	60	6,5	3,0	132,0	339,2
65880.W0151	45	35	28	55	6,5	3,0	132,0	339,2
65880.W0160	60	44	36	70	6,5	3,5	208,0	532,1
65880.W0161	52	44	36	60	6,5	3,5	208,0	532,1
65880.W0206	-	6	4	9	13,0	6,5	2,5	10,6
65880.W0208	-	8	5	11	15,0	8,0	4,2	13,1
65880.W0210	-	9	6	14	12,0	6,0	6,4	18,8
65880.W0211	-	9	6	14	12,0	6,0	6,4	18,8
65880.W0212	-	10	7	17	10,5	5,0	9,2	28,0
65880.W0213	-	10	7	17	10,5	5,0	9,2	28,0
65880.W0215	-	12	9	19	8,5	4,5	13,4	41,0
65880.W0217	-	14	10	22	10,0	5,5	19,2	57,9
65880.W0220	-	16	12	24	9,0	4,5	25,2	76,7
65880.W0225	-	20	16	30	7,5	3,5	42,4	119,1
65880.W0230	-	22	18	36	6,0	3,0	54,0	141,8
65880.W0235	36	25	20	41	6,5	3,5	70,4	180,8
65880.W0236	41	25	20	41	6,5	3,5	70,4	180,8
65880.W0240	42	28	22	50	7,0	3,5	86,0	222,6
65880.W0241	39	28	22	46	7,0	3,5	86,0	222,6
65880.W0245	45	32	25	55	7,5	4,0	107,0	276,2
65880.W0246	42	32	25	50	7,5	4,0	107,0	276,2
65880.W0250	52	35	28	60	6,5	3,0	132,0	339,2
65880.W0251	45	35	28	55	6,5	3,0	132,0	339,2
65880.W0260	60	44	36	70	6,5	3,5	208,0	532,1
65880.W0261	52	44	36	60	6,5	3,5	208,0	532,1

Material
Rod end housing - forged steel, tempered, surface galvanized.
Joint ball - ball bearing steel, hardened and ground, polished and chromium plated.
Race - nylon/teflon/glass compound.

Technical Notes
Female thread maintenance free adapter sizes according to DIN ISO 12240-4, series E.
For tolerances see product technical pages.

Important Notes
*Denotes fine pitch thread.





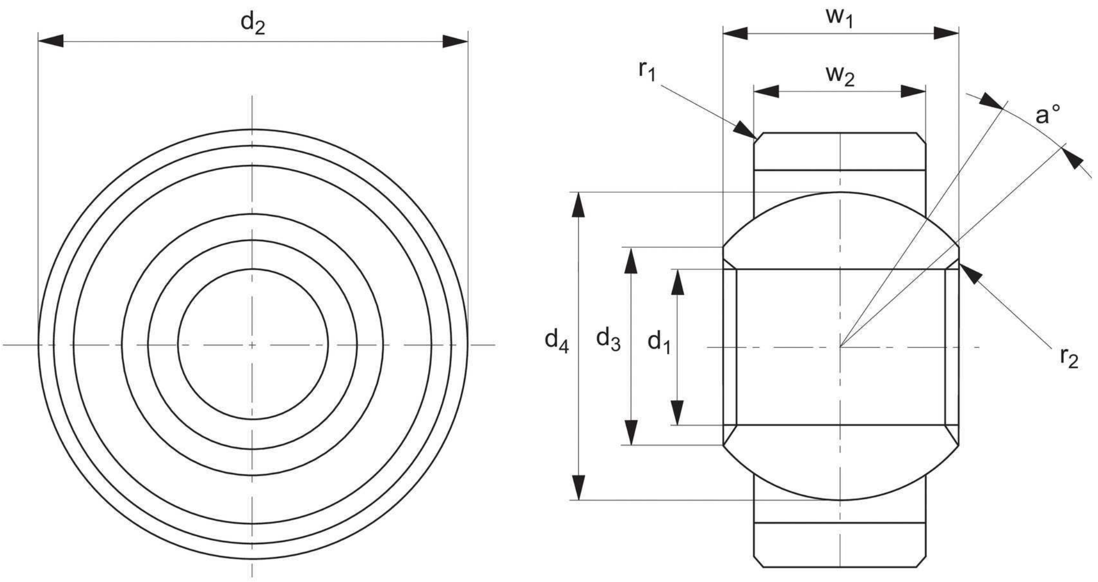
Material
Rubber

Technical Notes
Rubber protector caps for additional protection of rod ends. For use with maintence free series K rod ends.
Brass spacer bush available on request.
Temperature range: -20ºC to + 110ºC.

Tips
Mounted easily with retaining pliers.

Order no.	Suitable for steel rod ends	Suitable for stainless steel rod ends	d_1	d_2	d_3	w_1	w_2	w_3	a°	g
65970.W0006	65700/65720.W0006	65702/65722.W106	6	11	8,7	6	4	21	13	3
65970.W0008	65700/65720.W0008	65702/65722.W108	8	12	10,3	6	4	24	14	3
65970.W0010	65700/65720.W0010	65702/65722.W110	10	14	12,5	6	4	26	14	5
65970.W0012	65700/65720.W0012	65702/65722.W112	12	17	15,0	8	6	32	13	5
65970.W0014	65700/65720.W0014	65702/65722.W114	14	19	16,8	8	6	35	16	7
65970.W0016	65700/65720.W0016	65702/65722.W116	16	21	19,0	8	6	37	15	7
65970.W0018	65700/65720.W0018	65702/65722.W118	18	25	21,8	8	6	39	15	7
65970.W0020	65700/65720.W0020	65702/65722.W120	20	28	24,3	10	8	45	15	40
65970.W0022	65700/65720.W0022	65702/65722.W122	22	29	25,7	10	8	48	15	40
65970.W0025	65700/65720.W0025	65702/65722.W125	25	33	29,7	10	8	51	15	40

65974

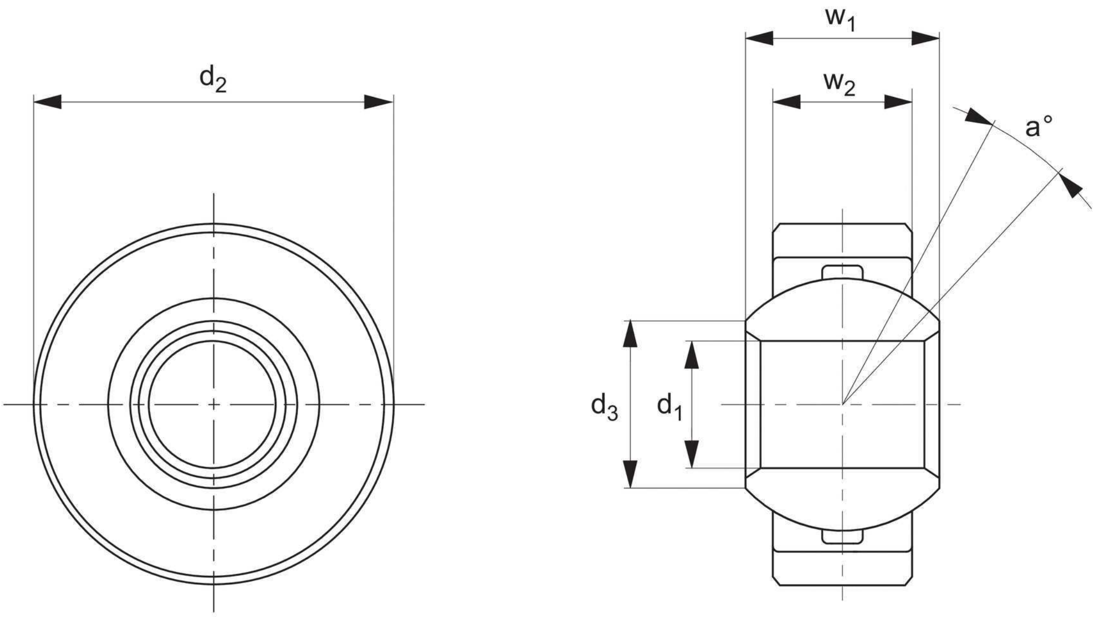


Material
Housing: undercut steel 11SMnPb30K (1.0718) turned silver zinc plated.
Ball: ball bearing steel 100Cr6 hardened, surface condition polished.
Race: teflon.

Technical Notes
To DIN 12240-1

Tips
For stainless steel version see 65976.

Order No.	d_1 h7	d_2	d_3	d_4	w_1	w_2	r_1	r_2	a°	Max. static load C_0kN	g
65974.W0005	5	16	7,7	11,10	8	6,00	0,3	1,2	13	17	9
65974.W0006	6	18	8,9	12,70	9	6,75	0,3	1,2	13	22	13
65974.W0008	8	22	10,4	15,88	12	9,00	0,3	1,2	13	36	24
65974.W0010	10	26	12,9	19,05	14	10,50	0,3	1,2	13	50	40
65974.W0012	12	30	15,4	22,23	16	12,00	0,4	1,2	13	67	80
65974.W0014	14	34	16,8	25,40	19	13,50	0,4	1,2	15	86	110
65974.W0016	16	38	19,3	28,58	21	15,00	0,4	1,5	15	107	130
65974.W0018	18	42	21,8	31,75	23	16,50	0,4	1,5	15	131	170
65974.W0020	20	46	24,3	34,93	25	18,00	0,4	1,5	15	157	230
65974.W0022	22	50	25,8	38,10	28	20,00	0,4	2,0	15	191	280
65974.W0025	25	56	29,5	42,86	31	22,00	0,5	2,0	15	236	390
65974.W0030	30	66	29,5	50,80	37	25,00	0,5	2,0	15	318	610



Order No.	d_1 H7	d_2	d_3	w_1	w_2	a°	Admissible rpm/min	Max static load C_{0kN}	g
65976.W0004	4	14	6,5	7	5,25	14	700	9,5	5
65976.W0005	5	16	7,7	8	6,00	13	600	12,5	8
65976.W0006	6	18	8,9	9	6,75	13	530	15,5	12
65976.W0008	8	22	10,4	12	9,00	14	420	27,8	23
65976.W0010	10	26	12,9	14	10,50	13	350	39,0	38
65976.W0012	12	30	15,4	16	12,00	13	300	53,5	58
65976.W0014	14	34	16,8	19	13,50	16	260	70,0	83
65976.W0016	16	38	19,3	21	15,00	15	230	88,0	115
65976.W0018	18	42	21,8	23	16,50	15	210	106,5	150
65976.W0020	20	46	24,3	25	18,00	14	190	130,0	200
65976.W0022	22	50	25,8	28	20,00	15	170	162,0	270
65976.W0025	25	56	29,6	31	22,00	15	150	204,0	375
65976.W0030	30	66	34,8	37	25,00	17	130	281,0	540
65976.W0035	35	78	37,7	43	30,00	19	110	343,0	850
65976.W0040	40	87	42,2	49	35,00	16	100	495,0	1400

Material
Housing: stainless steel (1.4305) turned.
Bearing shell: special brass CuSn8 surface coated with a PTFE foil.
Ball: ball bearing steel 100Cr6 hardened, surface condition polished, hard chrome plated.
Upon request: stainless steel (1.4034) hardened, surface condition polished.
Stainless steel (1.4401) not hardened, surface condition polished.

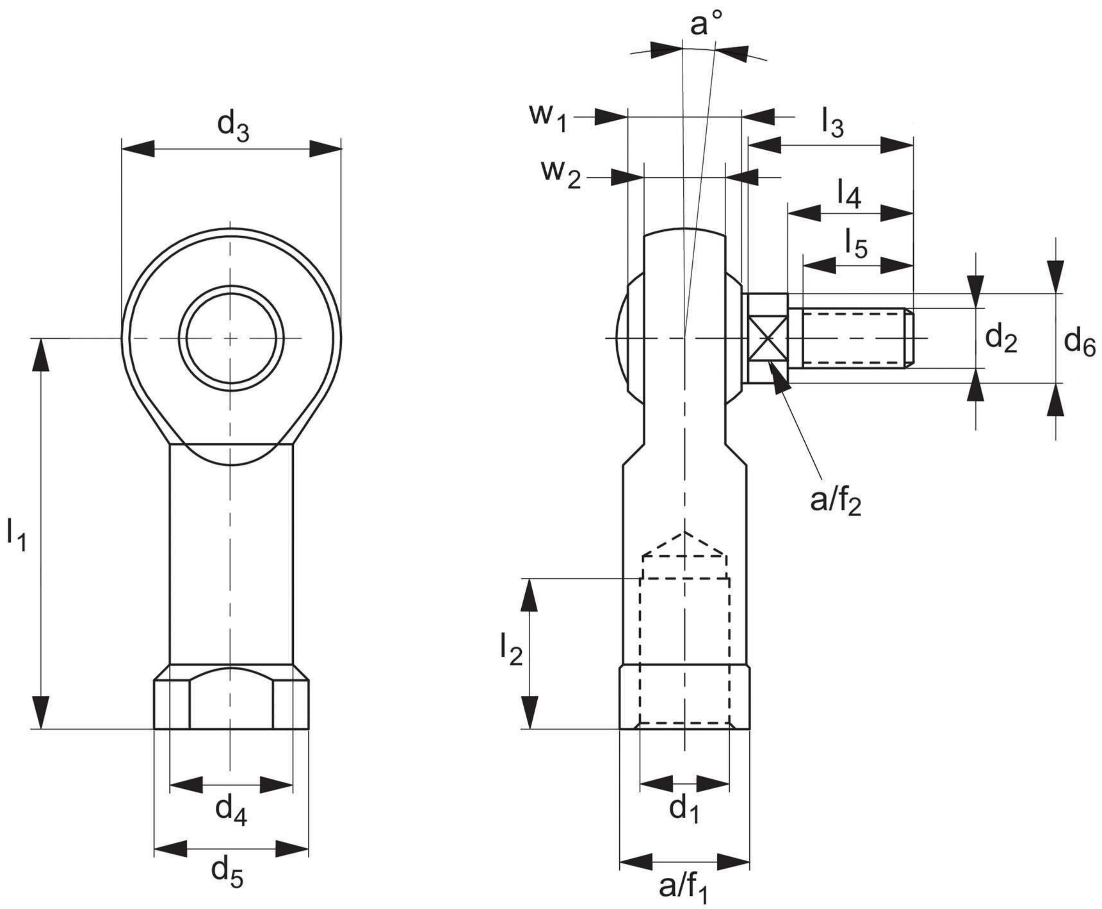
Technical Notes
Suitable for low speeds and high dynamic loads.

Maintenance free, series K similar to DIN 12240-1 (DIN 648)

Important Notes
Working range -50°C to +200°C
Recommended shaft tolerance: g6
External diameter of pivoting bearing: h6
Recommended housing tolerance: J7

Rod End with Stud - Female

65990



Material

Body: surface zinc plated
Race: steel/ bronze - PTFE composite.
Inner ring: bearing steel, hardened ground and spherical surface chromium plates.
Outer ring: brass body pressed around, outer race lined with bronze - PTFE composite.

Technical Notes

Maintenance free. Sizes according to DIN ISO 12240-4 series K.

Tips

Rod end studs d_2 are all right hand threads.

Important Notes

*Denotes fine pitch threads.

Order No.	d_1 thread (hand)	d_1	d_2	l_1	d_3	d_4	d_5	d_6	l_2	l_3	g
65990.W0106	Right	M 6	M 6	30	20	10,0	13	9,0	12	18,5	22
65990.W0108	Right	M 8	M 8	36	24	12,5	16	10,5	16	23,5	47
65990.W0110	Right	M10	M10	43	28	15,0	19	13,0	20	28,0	77
65990.W0111	Right	M10 x 1,25*	M10	43	28	15,0	19	13,0	20	28,0	77
65990.W0112	Right	M12	M12	50	32	17,5	22	15,0	22	32,5	100
65990.W0113	Right	M12 x 1,25*	M12	50	32	17,5	22	15,0	22	32,5	100
65990.W0114	Right	M14	M14	57	36	20,0	25	17,0	25	37,5	160
65990.W0115	Right	M14 x 1,50*	M14	57	36	20,0	25	17,0	25	37,5	160
65990.W0116	Right	M16	M16	64	42	22,0	27	19,0	28	42,5	220
65990.W0117	Right	M16 x 1,50*	M16	64	42	22,0	27	19,0	28	42,5	220
65990.W0506	Left	M 6	M 6	30	20	10,0	13	9,0	12	18,5	22
65990.W0508	Left	M 8	M 8	36	24	12,5	16	10,5	16	23,5	47
65990.W0510	Left	M10	M10	43	28	15,0	19	13,0	20	28,0	77
65990.W0511	Left	M10 x 1,25*	M10	43	28	15,0	19	13,0	20	28,0	77
65990.W0512	Left	M12	M12	50	32	17,5	22	15,0	22	32,5	100
65990.W0513	Left	M12 x 1,25*	M12	50	32	17,5	22	15,0	22	32,5	100
65990.W0514	Left	M14	M14	57	36	20,0	25	17,0	25	37,5	160
65990.W0515	Left	M14 x 1,50*	M14	57	36	20,0	25	17,0	25	37,5	160
65990.W0516	Left	M16	M16	64	42	22,0	27	19,0	28	42,5	220
65990.W0517	Left	M16 x 1,50*	M16	64	42	22,0	27	19,0	28	42,5	220

Order No.	l_4	l_5	w_1	w_2	a/f_1	a/f_2	a°	Max. Static Load C_0 kN
65990.W0106	13	10	9	6,75	11	8	13	7,7
65990.W0108	17	13	12	9,00	14	8	14	12,9
65990.W0110	21	17	14	10,50	17	12	13	18,0
65990.W0111	21	17	14	10,50	17	12	13	18,0
65990.W0112	25	20	16	12,00	19	14	13	24,0
65990.W0113	25	20	16	12,00	19	14	13	24,0
65990.W0114	29	22	19	13,50	22	14	16	31,0
65990.W0115	29	22	19	13,50	22	14	16	31,0
65990.W0116	33	24	21	15,00	22	17	15	39,0
65990.W0117	33	24	21	15,00	22	17	15	39,0
65990.W0506	13	10	9	6,75	11	8	13	7,7

Rod End with Stud - Female

65990

Order No.	l_4	l_5	w_1	w_2	a/f_1	a/f_2	a°	Max. Static Load C_0 kN
65990.W0508	17	13	12	9,00	14	8	14	12,9
65990.W0510	21	17	14	10,50	17	12	13	18,0
65990.W0511	21	17	14	10,50	17	12	13	18,0
65990.W0512	25	20	16	12,00	19	14	13	24,0
65990.W0513	25	20	16	12,00	19	14	13	24,0
65990.W0514	29	22	19	13,50	22	14	16	31,0
65990.W0515	29	22	19	13,50	22	14	16	31,0
65990.W0516	33	24	21	15,00	22	17	15	39,0
65990.W0517	33	24	21	15,00	22	17	15	39,0

Material
Body: surface zinc plated
Race: steel/ bronze - PTFE composite.
Inner ring: bearing steel, hardened ground and spherical surface chromium plates.
Outer ring: brass body pressed around, outer race lined with bronze - PTFE composite.

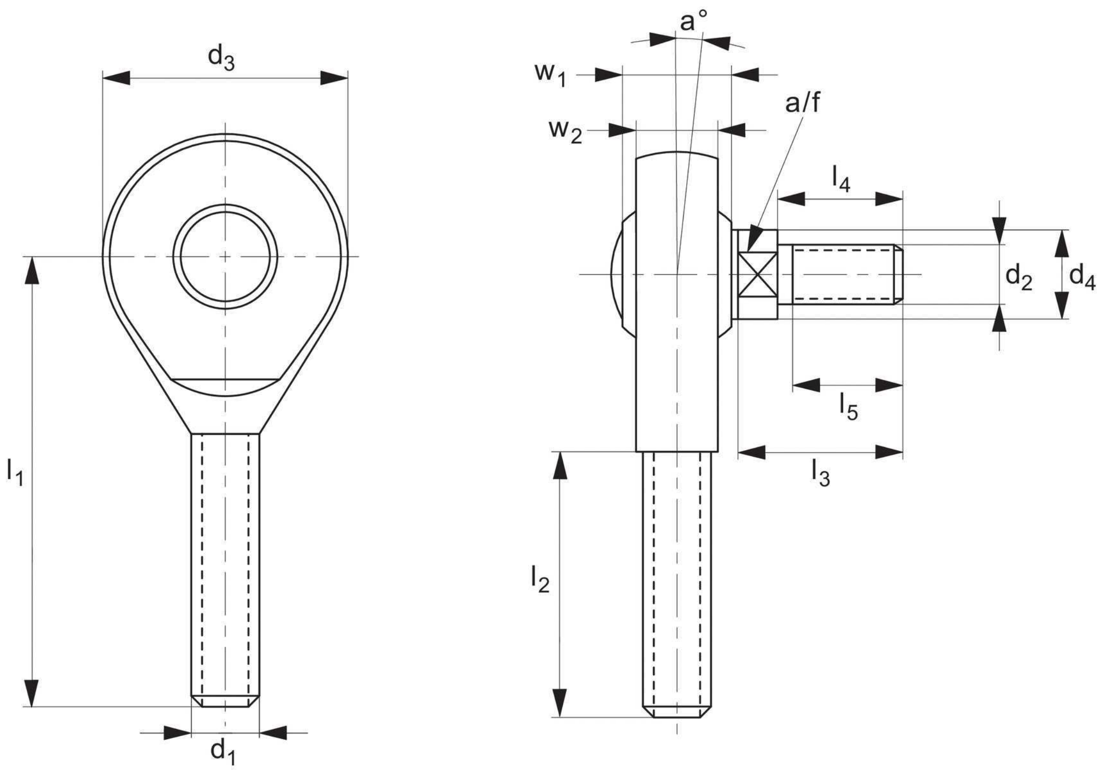
Technical Notes
Maintenance free. Sizes according to DIN ISO 12240-4 series K.

Tips
Rod end studs d_2 are all right hand threads.

Important Notes
*Denotes fine pitch threads.

Rod End with Stud - Male

65992



Material
Body: surface zinc plated.
Race: steel/ bronze - PTFE composite.
Inner ring: bearing steel, hardened ground and spherical surface chromium plates.
Outer ring: brass body pressed around, outer race lined with bronze - PTFE composite.

Technical Notes
Maintenance free. Sizes according to DIN ISO 12230-4 series K.

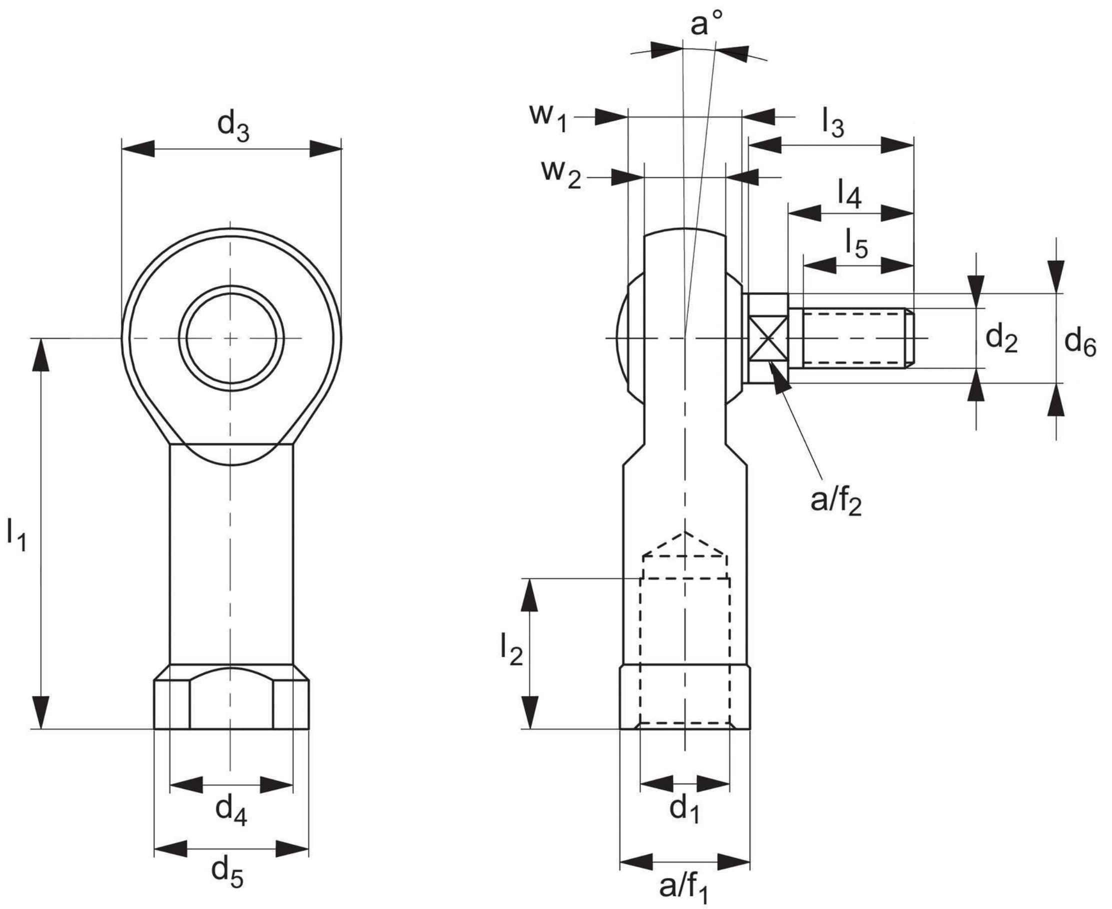
Tips
Rod end studs d_2 are all right hand threads.

Order No.	d_1 thread (hand)	d_1	d_2	l_1	d_3	d_4	l_2	l_3	l_4	g
65992.W0106	Right	M 6	M 6	36	20	9,0	21	18,5	13	20
65992.W0108	Right	M 8	M 8	42	24	10,5	25	23,5	17	38
65992.W0110	Right	M10	M10	48	28	13,0	28	28,5	21	55
65992.W0112	Right	M12	M12	54	32	15,0	32	32,5	25	85
65992.W0114	Right	M14	M14	60	36	17,0	36	37,5	29	140
65992.W0116	Right	M16	M16	66	42	19,0	37	42,5	33	210
65992.W0506	Left	M 6	M 6	36	20	9,0	21	18,5	13	20
65992.W0508	Left	M 8	M 8	42	24	10,5	25	23,5	17	38
65992.W0510	Left	M10	M10	48	28	13,0	28	28,5	21	55
65992.W0512	Left	M12	M12	54	32	15,0	32	32,5	25	85
65992.W0514	Left	M14	M14	60	36	17,0	36	37,5	29	140
65992.W0516	Left	M16	M16	66	42	19,0	37	42,5	33	210

Order No.	l_5	w_1	w_2	a/f	a°	Max. static load C_0 kN
65992.W0106	10	9	6,75	8	13	7,7
65992.W0108	13	12	9,00	8	14	12,9
65992.W0110	17	14	10,50	12	13	18,0
65992.W0112	20	16	12,00	14	13	24,0
65992.W0114	22	19	13,50	14	16	31,0
65992.W0116	24	21	15,00	17	15	39,0
65992.W0506	10	9	6,75	8	13	7,7
65992.W0508	13	12	9,00	8	14	12,9
65992.W0510	17	14	10,50	12	13	18,0
65992.W0512	20	16	12,00	14	13	24,0
65992.W0514	22	19	13,50	14	16	31,0
65992.W0516	24	21	15,00	17	15	39,0

Stainless Rod End with Stud - Female

65994



Material
Body: stainless steel (AISI 304)
Race: steel/ bronze - PTFE composite.
Inner ring: stainless steel, hardened and ground (AISI 304).
Outer ring: brass body pressed around, outer race lined with bronze - PTFE composite.
Joint ball: stainless steel (AISI 440C)

Technical Notes
Maintenance free. Sizes according to DIN ISO 12740-4, series K

Tips
Rod end studs d_2 are all right hand threads.

Important Notes
*denotes fine pitch threads.

Order No.	d_1 thread (hand)	d_1	d_2	l_1	d_3	d_4	d_5	d_6	l_2	g
65994.W0106	Right	M 6	M 6	30	20	10,0	13	9,0	12	22
65994.W0108	Right	M 8	M 8	36	24	12,5	16	10,5	16	47
65994.W0110	Right	M10	M10	43	28	15,0	19	13,0	20	77
65994.W0111	Right	M10 x 1,25*	M10	43	28	15,0	19	13,0	20	100
65994.W0112	Right	M12	M12	50	32	17,5	22	15,0	22	100
65994.W0113	Right	M12 x 1,25*	M12	50	32	17,5	22	15,0	22	100
65994.W0114	Right	M14	M14	57	36	20,0	25	17,0	25	160
65994.W0115	Right	M14 x 1,50*	M14	57	36	20,0	25	17,0	25	160
65994.W0116	Right	M16	M16	64	42	22,0	27	19,0	28	220
65994.W0117	Right	M16 x 1,50*	M16	64	42	22,0	27	19,0	28	220
65994.W0506	Left	M 6	M 6	30	20	10,0	13	9,0	12	22
65994.W0508	Left	M 8	M 8	36	24	12,5	16	10,5	16	47
65994.W0510	Left	M10	M10	43	28	15,0	19	13,0	20	77
65994.W0511	Left	M10 x 1,25*	M10	43	28	15,0	19	13,0	20	100
65994.W0512	Left	M12	M12	50	32	17,5	22	15,0	22	100
65994.W0513	Left	M12 x 1,25*	M12	50	32	17,5	22	15,0	22	100
65994.W0514	Left	M14	M14	57	36	20,0	25	17,0	25	160
65994.W0515	Left	M14 x 1,50*	M14	57	36	20,0	25	17,0	25	160
65994.W0516	Left	M16	M16	64	42	22,0	27	19,0	28	220
65994.W0517	Left	M16 x 1,50*	M16	64	42	22,0	27	19,0	28	220

Order No.	l_3	l_4	l_5	w_1	w_2	a/f_1	a/f_2	a°	Max. Static load C_0 kN
65994.W0106	18,5	13	10	9	6,75	11	8	13	7,7
65994.W0108	23,5	17	13	12	9,00	14	8	14	12,9
65994.W0110	28,0	21	17	14	10,50	17	12	13	18,0
65994.W0111	28,0	21	17	14	10,50	17	12	13	18,0
65994.W0112	32,5	25	20	16	12,00	19	14	13	24,0
65994.W0113	32,5	25	20	16	12,00	19	14	13	24,0
65994.W0114	37,5	29	22	19	13,50	22	14	16	31,0
65994.W0115	37,5	29	22	19	13,50	22	14	16	31,0
65994.W0116	42,5	33	24	21	15,00	22	17	15	39,0
65994.W0117	42,5	33	24	21	15,00	22	17	15	39,0
65994.W0506	18,5	13	10	9	6,75	11	8	13	7,7

Stainless Rod End with Stud - Female

65994

Order No.	l_3	l_4	l_5	w_1	w_2	a/f_1	a/f_2	a°	Max. Static load C_0 kN
65994.W0508	23,5	17	13	12	9,00	14	8	14	12,9
65994.W0510	28,0	21	17	14	10,50	17	12	13	18,0
65994.W0511	28,0	21	17	14	10,50	17	12	13	18,0
65994.W0512	32,5	25	20	16	12,00	19	14	13	24,0
65994.W0513	32,5	25	20	16	12,00	19	14	13	24,0
65994.W0514	37,5	29	22	19	13,50	22	14	16	31,0
65994.W0515	37,5	29	22	19	13,50	22	14	16	31,0
65994.W0516	42,5	33	24	21	15,00	22	17	15	39,0
65994.W0517	42,5	33	24	21	15,00	22	17	15	39,0

Material
Body: stainless steel (AISI 304)
Race: steel/ bronze - PTFE composite.
Inner ring: stainless steel, hardened and ground (AISI 304).
Outer ring: brass body pressed around, outer race lined with bronze - PTFE composite.
Joint ball: stainless steel (AISI 440C)

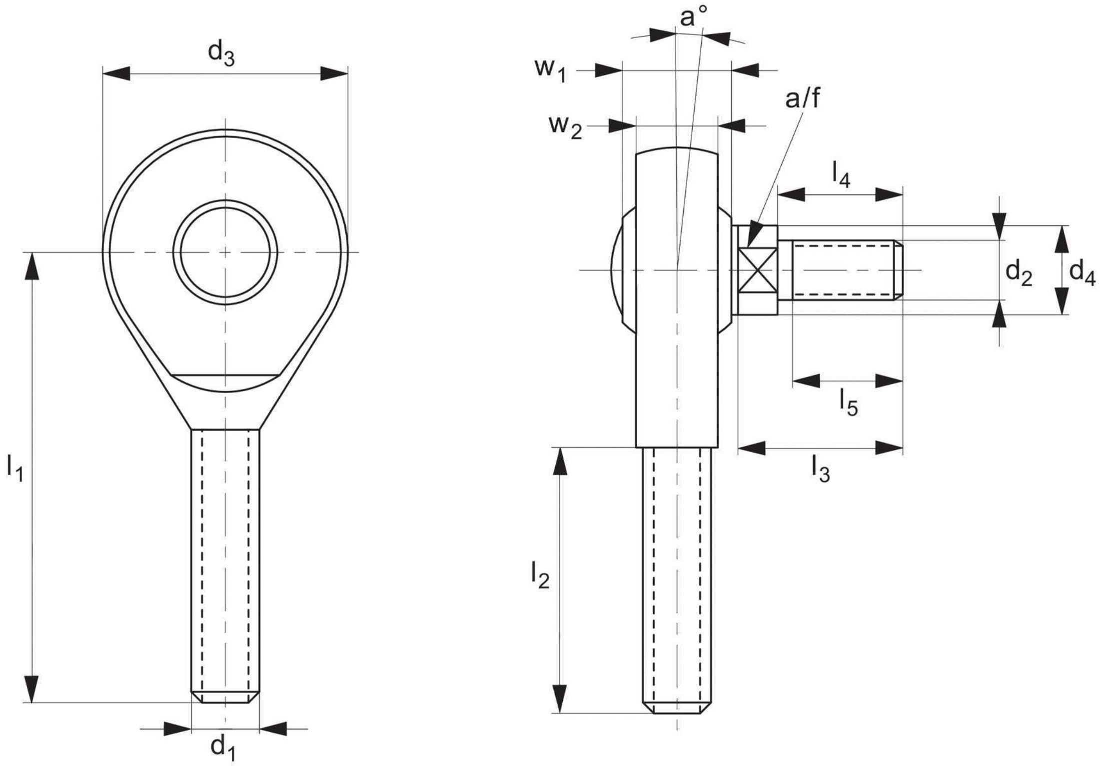
Technical Notes
Maintenance free. Sizes according to DIN ISO 12740-4, series K

Tips
Rod end studs d_2 are all right hand threads.

Important Notes
*denotes fine pitch threads.

Stainless Rod End with stud - Male

65996



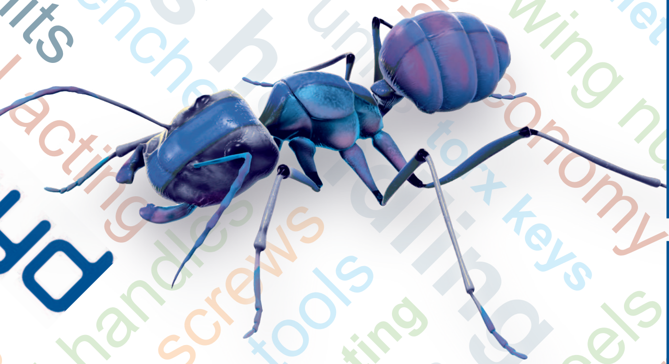
Order No.	d_1 thread (hand)	d_1	d_2	l_1	d_3	d_4	l_2	g
65996.W0106	Right	M 6	M 6	36	20	9,0	21	20
65996.W0108	Right	M 8	M 8	42	24	10,5	25	38
65996.W0110	Right	M10	M10	48	28	13,0	28	55
65996.W0112	Right	M12	M12	54	32	15,0	32	85
65996.W0114	Right	M14	M14	60	36	17,0	36	140
65996.W0116	Right	M16	M16	66	42	19,0	37	210
65996.W0506	Left	M 6	M 6	36	20	9,0	21	20
65996.W0508	Left	M 8	M 8	42	24	10,5	25	38
65996.W0510	Left	M10	M10	48	28	13,0	28	55
65996.W0512	Left	M12	M12	54	32	15,0	32	85
65996.W0514	Left	M14	M14	60	36	17,0	36	140
65996.W0516	Left	M16	M16	66	42	19,0	37	210

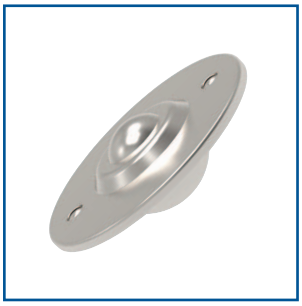
Order No.	l_3	l_4	l_5	w_1	w_2	a/f	a°	Max. static load C_0 kN
65996.W0106	18,5	13	10	9	6,75	8	13	7,7
65996.W0108	23,5	17	13	12	9,00	8	14	12,9
65996.W0110	28,5	21	17	14	10,50	12	13	18,0
65996.W0112	32,5	25	20	16	12,00	14	13	24,0
65996.W0114	37,5	29	22	19	13,50	14	16	31,0
65996.W0116	42,5	33	24	21	15,00	17	15	39,0
65996.W0506	18,5	13	10	9	6,75	8	13	7,7
65996.W0508	23,5	17	13	12	9,00	8	14	12,9
65996.W0510	28,5	21	17	14	10,50	12	13	18,0
65996.W0512	32,5	25	20	16	12,00	14	13	24,0
65996.W0514	37,5	29	22	19	13,50	14	16	31,0
65996.W0516	42,5	33	24	21	15,00	17	15	39,0

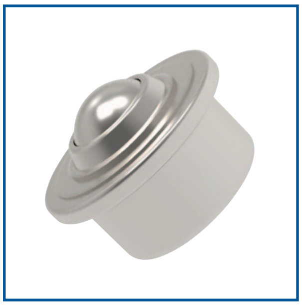
Material
Body: stainless steel (AISI 304)
Race: steel/ bronze - PTFE composite.
Inner ring: stainless steel, hardened and ground (AISI 304)
Outer ring: brass body pressed around, outer race lined with bronze - PTFE composite.
Joint ball: stainless steel (AISI 440C)

Technical Notes
Maintenence free. Sizes according to DIN ISO 12240-4 series K.

Tips
Rod end studs d_2 are all right hand threads.







Ball Transfer Units

Product selection

Available materials

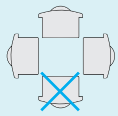
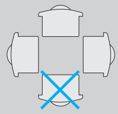
Housing	Ball	Load Factor	
Steel	Steel	1,0	Housing: AISI 1040 steel, machined, toughened & zinc plated. Ball: AISI 52100 chrome steel
Steel	Stainless	0,7	Housing: AISI 1040 steel, machined, toughened & zinc plated. Ball: AISI 420 stainless steel
Stainless	Stainless	0,7	Housing: AISI 416 stainless steel. Ball: AISI 420 stainless steel
Steel	Acetal		Housing: AISI 1040 steel, machined, toughened & zinc plated. Ball: POM acetal
Aluminium	Stainless		Housing: aluminium. Ball: AISI 420 stainless steel
Acetal	Acetal		Housing: POM acetal. Ball: POM acetal
Acetal	Stainless		Housing: POM acetal. Ball: AISI 420 stainless steel

Fixing clip selection

Part No.	Ball Size	Minimum Bore ø	Maximum Bore ø
67202.W9015	15	24,8	25,0
67202.W9022	22	37,0	37,2
67202.W9030	30	46,3	46,7

Clip requires a minimum plate thickness of 3mm to grip securely

How to select the correct unit

Ball Type	Max Load (Kg)	Friction (% of load)	Speed (m/s)	Shock Loads	Arduous Conditions	Orientation	Instant Change
Medium Duty	20-3500	2%	1,5	3 3 3	3 3		3 3 3
Light Duty	7-250	3%	1,0	3	3 3		3 3 3

Variables to consider

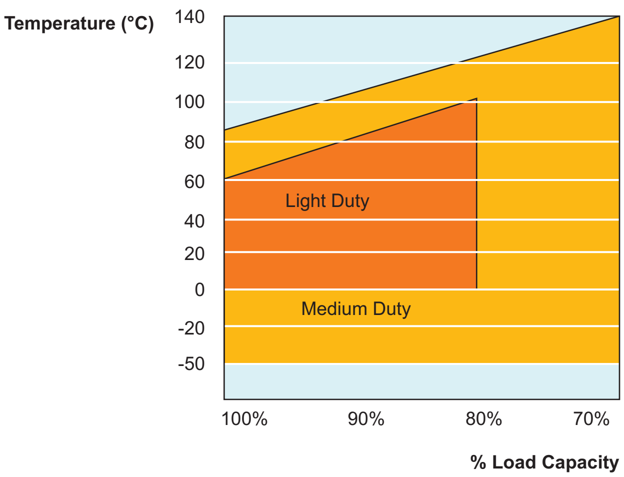
Shock Loads:
Specify High Capacity series & spring loaded units

Track Hardness/Conveyed Item Material:
Standard material ball units have Rockwell 'C' hardness of 60 minimum

Delicate Surfaces:
Ball Units - Acetal (POM) & Phenolic Resin

Operating Environment:
Wet, dirty, outdoor, radioactive

Operation temperature



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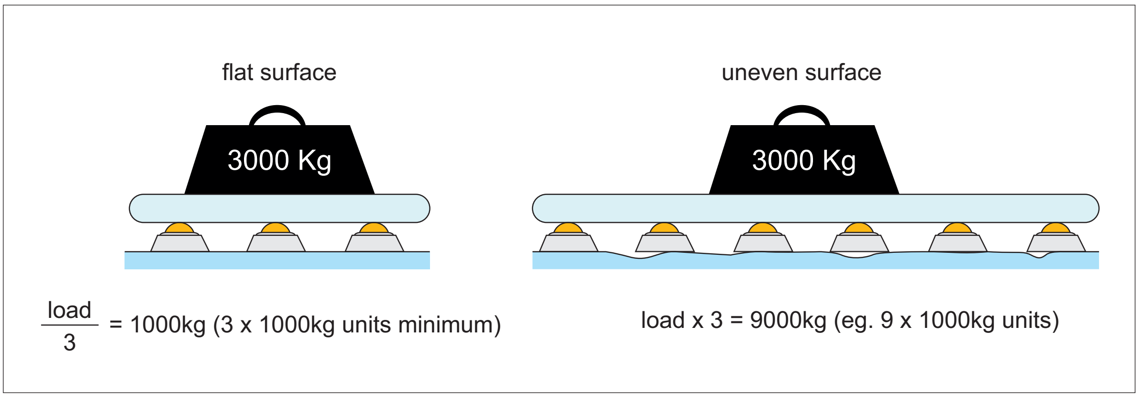
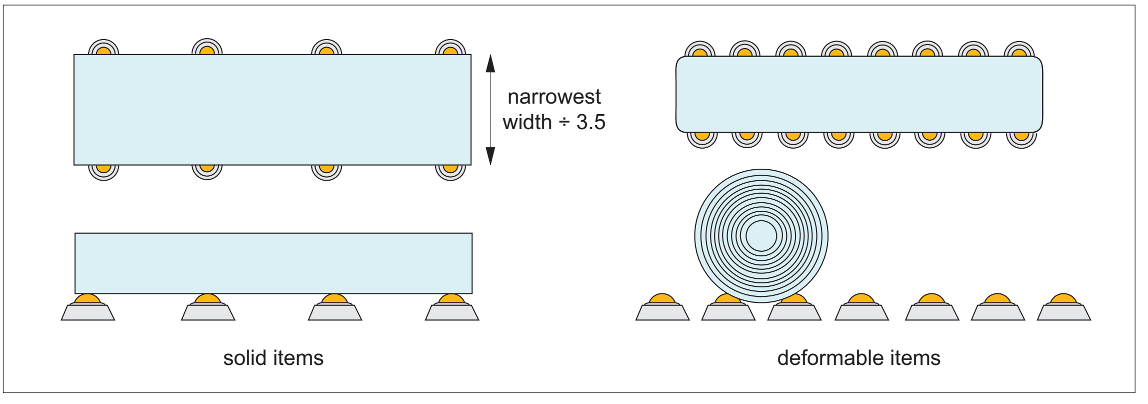


Load and stability

To determine the load of a ball transfer unit, the weight of the article to be conveyed should be divided by 3. If the height tolerance of the load balls is good and the surface of the workpiece to be conveyed is suitable, the calculation can be based on the number of ball transfer units under the load.



Pitching and spacing

How the ball transfer units should be arranged depends on the bottom surface of the load to be transported. For loads with a uniform, even bottom surface, e.g. packing cases, the distance between the ball transfer units is calculated by dividing the smallest dimension by 3,5.

Conveying speed and load capacity

The maximum conveying speed allowed amounts to 2m/s. The load capacities specified apply to any mounting position and are based on 10^6 rotations of the load ball. With the units being used over a longer time at speeds exceeding 1m/s, an increase in temperature as well as a reduction in travel life must be expected depending on the load.

Calculation of travel life

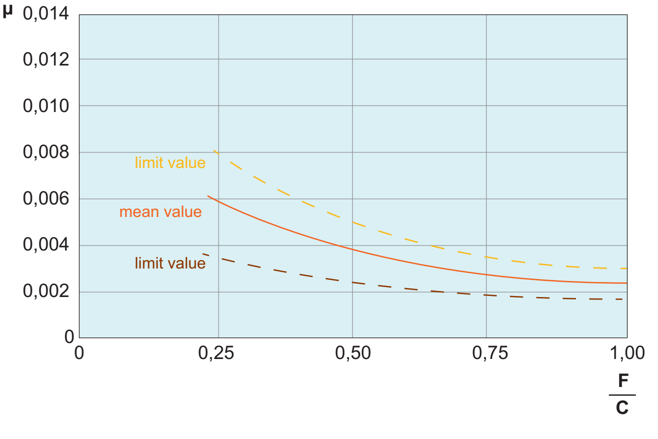
$$L = \frac{C^3}{F} 10^6 \text{ rotations}$$

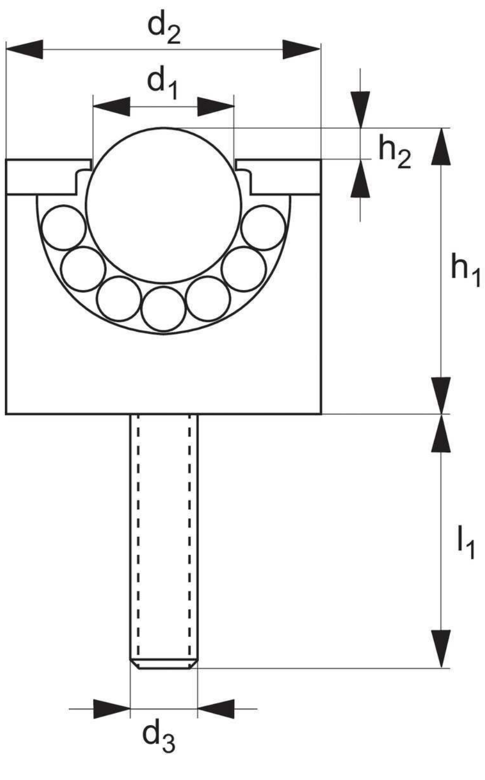
L = travel life
C = load capacity (N)
F = load (N)

Friction

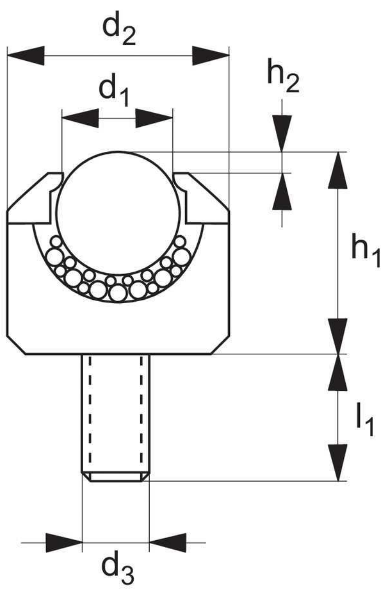
The diagram shows the friction values as a function of load and speed for ball transfer units. These approximate values apply to all mounting positions with operation on a hardened steel plate.

v = 1m/s





type 1



type 2

Material
Carbon steel, aluminium or stainless steel housing. Carbon steel or stainless steel balls.

Technical Notes
67200.W0161 and 67200.W0162 can be supplied with a flat top. All steel parts are supplied with a small amount of oil, to protect from oxidation.

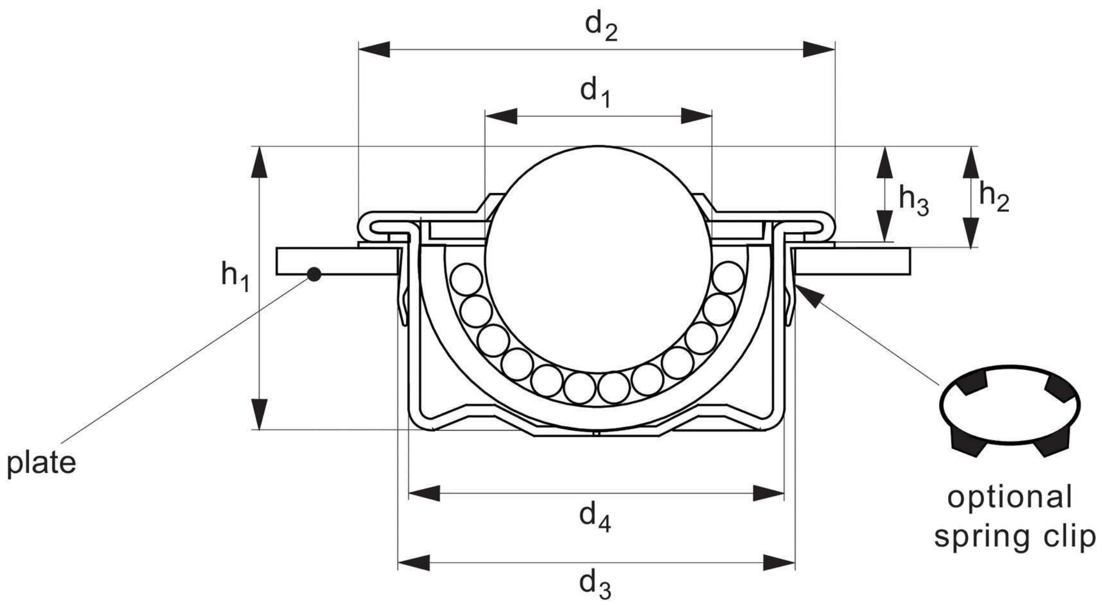
Tips
Normally used in measuring equipment, small linear motion systems (e.g photo copier slides) and miniature mechanisms.

Order No.	Type	d_1 Ø	d_2 ± 0,03	h_1	h_2	d_3	l_1	Housing	Ball	Max. load Kg
67200.W0051	type 1	4,8	13	9	1	M 6	15	Steel	Steel	10
67200.W0151	type 1	15,8	28	20,5	4	M 6	12	Steel	Steel	70
67200.W0152	type 1	15,8	24	20,5	4	M 6	12	Stainless	Stainless	70
67200.W0161	type 1	15,8	24	20,5	4	M 6	12	Steel	Steel	70
67200.W0162	type 1	15,8	24	20,5	4	M 6	12	Stainless	Stainless	70
67200.W0052	type 1	4,8	13	9	1	M 6	15	Stainless	Stainless	10
67200.W0053	type 2	4,8	8	6	1	M 2	2,5	Aluminium	Stainless	5
67200.W0064	type 1	6,4	17	11	2	M 6	15	Steel	Stainless	20
67200.W0072	type 1	6,4	17	11	2	M 6	15	Stainless	Stainless	20
67200.W0065	type 2	6,4	13	10,5	2	M 3	6	Aluminium	Stainless	10
67200.W0084	type 1	7,9	18	14	2	M 8	18	Steel	Stainless	30
67200.W0082	type 1	8,0	18	12	2	M 6	15	Stainless	Stainless	8
67200.W0093	type 2	7,9	15	12,5	2	M 4	8	Aluminium	Stainless	15
67200.W0101	type 1	9,6	23	20	2	M 8	20	Steel	Steel	40
67200.W0102	type 1	9,6	23	20	2	M 8	20	Stainless	Stainless	40
67200.W0131	type 1	12,7	28	25	3,5	M 8	23	Steel	Steel	50
67200.W0132	type 1	12,7	28	25	3,5	M 8	23	Stainless	Stainless	50

Push-Fit Ball Transfer Units

light duty

67202



Order No.	d_1	d_2	h_1	h_2	d_3 min.	d_3 max.	h_3	d_4	Housing	Ball	Max. load Kg
67202.W0151	15	31	21,0	10,1	25,0	25,5	9,8	24	Steel	Steel	60
67202.W0152	15	31	21,0	10,1	25,0	25,5	9,8	24	Stainless	Stainless	40
67202.W0154	15	31	21,0	10,1	25,0	25,5	9,8	24	Steel	Stainless	60
67202.W0155	15	31	21,0	10,1	25,0	25,5	9,8	24	Steel	Acetal	10
67202.W0221	22	45	29,5	10,4	37,0	37,5	10,1	36	Steel	Steel	160
67202.W0222	22	45	29,5	10,4	37,0	37,5	10,1	36	Stainless	Stainless	90
67202.W0224	22	45	29,5	10,4	37,0	37,5	10,1	36	Steel	Stainless	160
67202.W0225	22	45	29,5	10,4	37,0	37,5	10,1	36	Steel	Acetal	20
67202.W0301	30	55	37,0	14,4	46,0	46,5	14,1	45	Steel	Steel	280
67202.W0302	30	55	37,0	14,4	46,0	46,5	14,1	45	Stainless	Stainless	200
67202.W0304	30	55	37,0	14,4	46,0	46,5	14,1	45	Steel	Stainless	280
67202.W0305	30	55	37,0	14,4	46,0	46,5	14,1	45	Steel	Acetal	25

Material

Steel (zinc plated), stainless steel (AISI 416 for housing and AISI 420 for balls) and acetal (POM).

Technical Notes

Cost effective and light-weight units formed from sheet steel material. No reduction in load carrying capacity even when installed upside down. Sizes 22 and 30 have a felt seal for the ball.
Low friction 1:0,03.
Temperature range -20°C to +70°C.
Speeds up to 1m/s.

Tips

These rollers can only be used in the horizontal or "ball up" direction. During installation spring clips can be used to compensate for irregular bore diameters. Spring clips require a minimum plate thickness of 3mm for secure installation. See table below for spring clip details. Pease order separately.

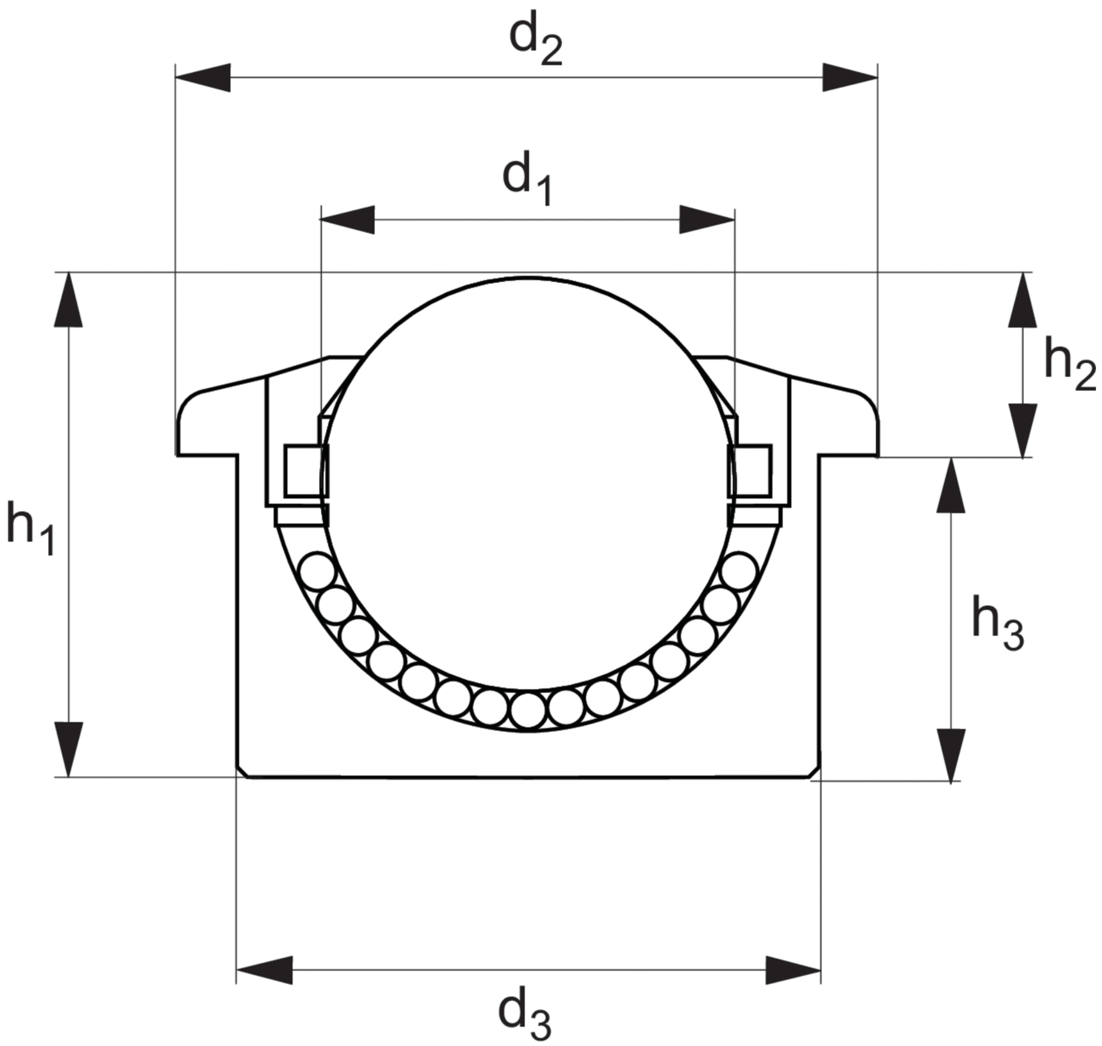
Important Notes

Refer to Here for details on clip selection. Price available on request.

Acetal Body Ball Transfer Units

light duty

67204



Material

Acetal (POM) housing with acetal or stainless (AISI 316) balls.

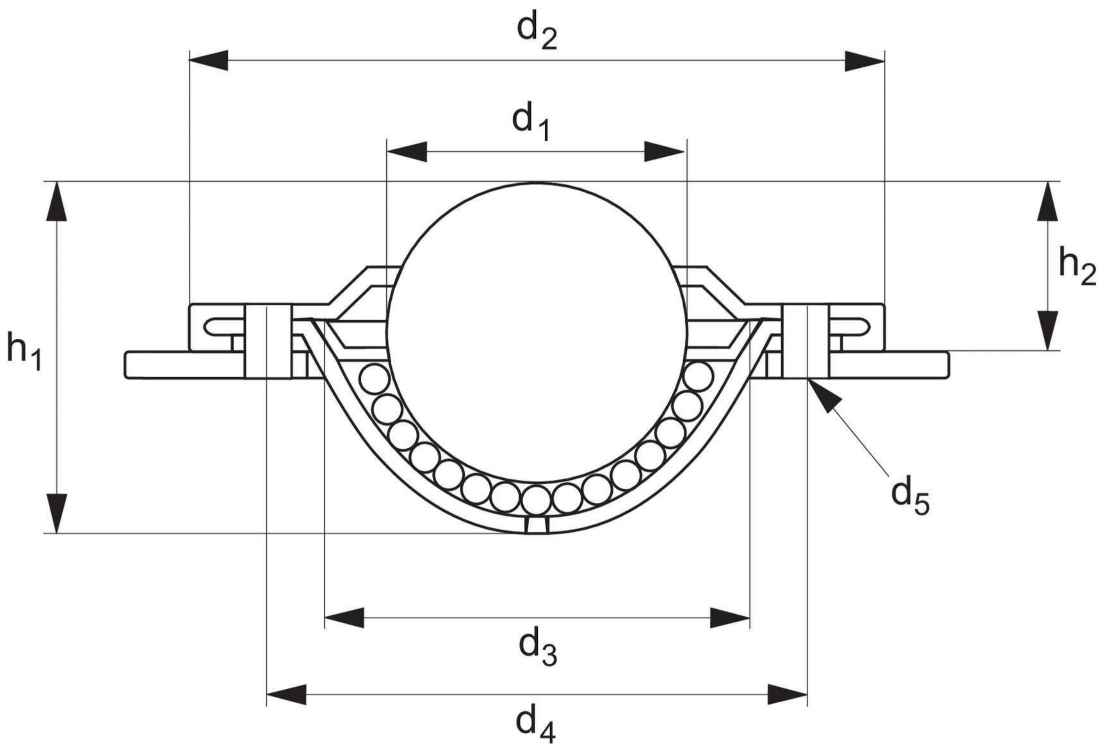
Technical Notes

Push fit units.
These actetal units resist salt water and chemicals. They are non-conductive and non-magnetic.
Low friction 1:0,03.
Temperature range -20°C to +70°C
Speeds up to 1m/s.

Tips

These rollers can only be used in the horizontal or "ball up" direction.

Order No.	d_1	d_2	h_1	h_2	h_3	d_3	Housing	Ball
67204.W0156	15	31	21,0	9,5	11,5	24	Acetal	Stainless
67204.W0157	15	31	21,0	9,5	11,5	24	Acetal	Acetal
67204.W0226	22	45	30,5	9,8	20,7	36	Acetal	Stainless
67204.W0227	22	45	30,5	9,8	20,7	36	Acetal	Acetal
67204.W0306	30	55	37,0	13,8	23,2	45	Acetal	Stainless
67204.W0307	30	55	37,0	13,8	23,2	45	Acetal	Acetal
67204.W0456	45	75	53,5	19,0	34,5	62	Acetal	Stainless
67204.W0457	45	75	53,5	19,0	34,5	62	Acetal	Acetal



no fixing holes 67208.W0251

Material
Steel (AISI 1040 housing and AISI 52100 for balls), stainless steel (AISI 416 for housing and AISI 420 for balls) and acetal (POM).

Technical Notes
Cost effective and light-weight units formed from sheet steel material. No reduction in load carrying capacity even when installed upside down. Low friction 1:0,03. Temperature range -20°C to +70°C Speeds up to 1m/s.

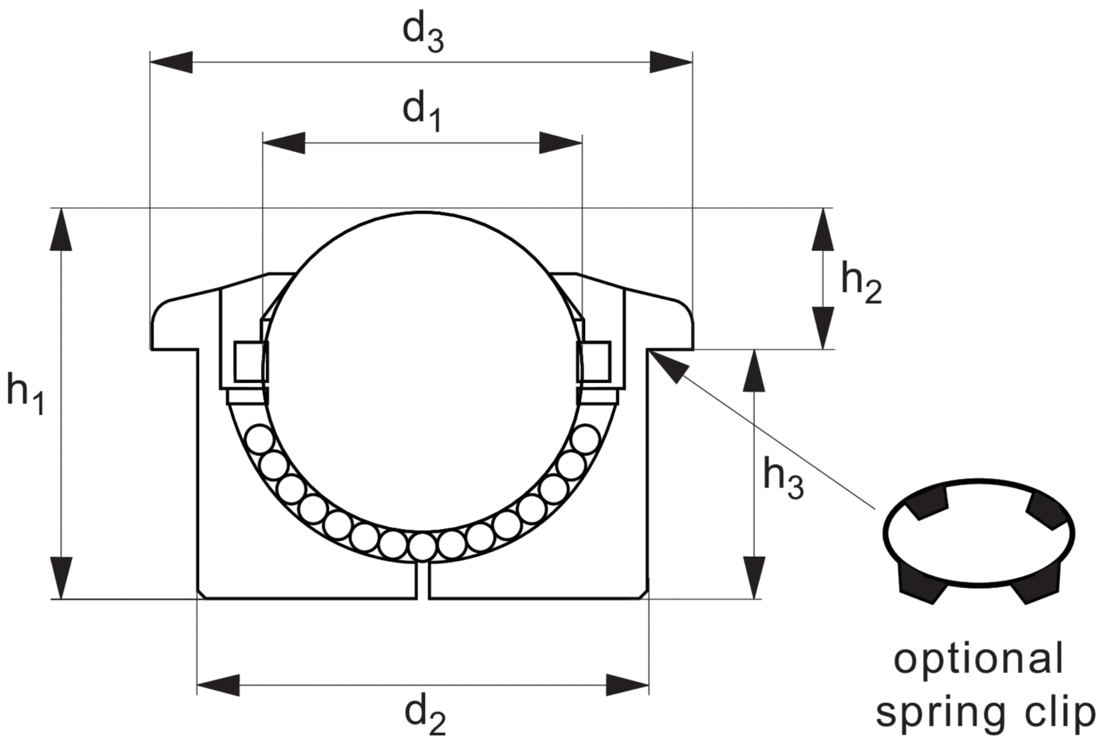
Tips
Theses rollers can only be used in the horizontal or "ball up" direction. 67208.W0322 and 67208.W0332 have 7 large fluid drain holes & omit felt seal.

Order No.	d_1	d_2	h_1	h_2	d_3	d_4	d_5	Housing	Ball	Max. load Kg
67208.W0161	15	41,0	19,3	10,8	24,0	30,0	2 x 3,4	Steel	Steel	15
67208.W0164	15	41,0	19,3	10,8	24,0	30,0	2 x 3,4	Steel	Stainless	10
67208.W0165	15	41,0	19,3	10,8	24,0	30,0	2 x 3,4	Steel	Acetal	10
67208.W0221	23	45,0	27,7	9,8	33,0	39,0	3 x 3,5	Steel	Steel	120
67208.W0224	23	45,0	27,7	9,8	33,0	39,0	3 x 3,5	Steel	Stainless	22
67208.W0225	23	45,0	27,7	9,8	33,0	39,0	3 x 3,5	Steel	Acetal	90
67208.W0251	25	47,1	29,6	14,3	38,1	-	-	Stainless	Stainless	55
67208.W0252	25	56,0	30,0	14,6	36,0	45,0	2 x 4,0	Steel	Steel	60
67208.W0254	25	56,0	30,0	14,6	36,0	45,0	2 x 4,0	Steel	Stainless	40
67208.W0322	32	73,7	36,1	16,2	45,5	58,7	2 x 5,5	Stainless	Stainless	125
67208.W0255	25	56,0	30,0	14,6	36,0	45,0	2 x 4,0	Steel	Acetal	22
67208.W0332	32	74,0	36,1	16,2	46,0	58,7	3 x 5,5	Stainless	Stainless	125

Push-Fit Ball Transfer Units

medium duty

67220



Order No.	d_1	d_2	h_1	h_2	h_3	d_3	Housing	Ball	Max. load Kg
67220.W0454	45	62	53,5	19,0	34,5	75	Steel	Stainless	600
67220.W0304	30	45	36,8	13,8	23,0	55	Steel	Stainless	350
67220.W0254	25	38	30,5	13,0	17,5	46	Steel	Stainless	140
67220.W0224	22	36	30,5	9,8	20,7	45	Steel	Stainless	180
67220.W0154	15	24	20,0	8,1	11,9	30	Steel	Stainless	50
67220.W0124	12	22	16,7	8,0	8,7	27	Steel	Stainless	20
67220.W0121	12	22	16,7	8,0	8,7	27	Steel	Steel	25
67220.W0125	12	22	16,7	8,0	8,7	27	Steel	Acetal	5
67220.W0122	12	22	16,7	8,0	8,7	27	Stainless	Stainless	20
67220.W0151	15	24	20,0	8,1	11,9	30	Steel	Steel	60
67220.W0155	15	24	20,0	8,1	11,9	30	Steel	Acetal	10
67220.W0152	15	24	20,0	8,1	11,9	30	Stainless	Stainless	40
67220.W0161	15	24	21,0	9,5	11,5	31	Steel	Steel	60
67220.W0165	15	24	21,0	9,5	11,5	31	Steel	Acetal	10
67220.W0164	15	24	21,0	9,5	11,5	31	Steel	Stainless	50
67220.W0162	15	24	21,0	9,5	11,5	31	Stainless	Stainless	40
67220.W0221	22	36	30,5	9,8	20,7	45	Steel	Steel	180
67220.W0225	22	36	30,5	9,8	20,7	45	Steel	Acetal	20
67220.W0222	22	36	30,5	9,8	20,7	45	Stainless	Stainless	126
67220.W0251	25	38	30,5	13,0	17,5	46	Steel	Steel	200
67220.W0255	25	38	30,5	13,0	17,5	46	Steel	Acetal	25
67220.W0252	25	38	30,5	13,0	17,5	46	Stainless	Stainless	140
67220.W0301	30	45	36,8	13,8	23,0	55	Steel	Steel	350
67220.W0305	30	45	36,8	13,8	23,0	55	Steel	Acetal	25
67220.W0302	30	45	36,8	13,8	23,0	55	Stainless	Stainless	220
67220.W0451	45	62	53,5	19,0	34,5	75	Steel	Steel	600
67220.W0455	45	62	53,5	19,0	34,5	75	Steel	Acetal	25
67220.W0452	45	62	53,5	19,0	34,5	75	Stainless	Stainless	350
67220.W0601	60	100	77,5	30,0	47,5	117	Steel	Steel	1500
67220.W0605	60	100	77,5	30,0	47,5	117	Steel	Acetal	35
67220.W0602	60	100	77,5	30,0	47,5	117	Stainless	Stainless	1050

Material

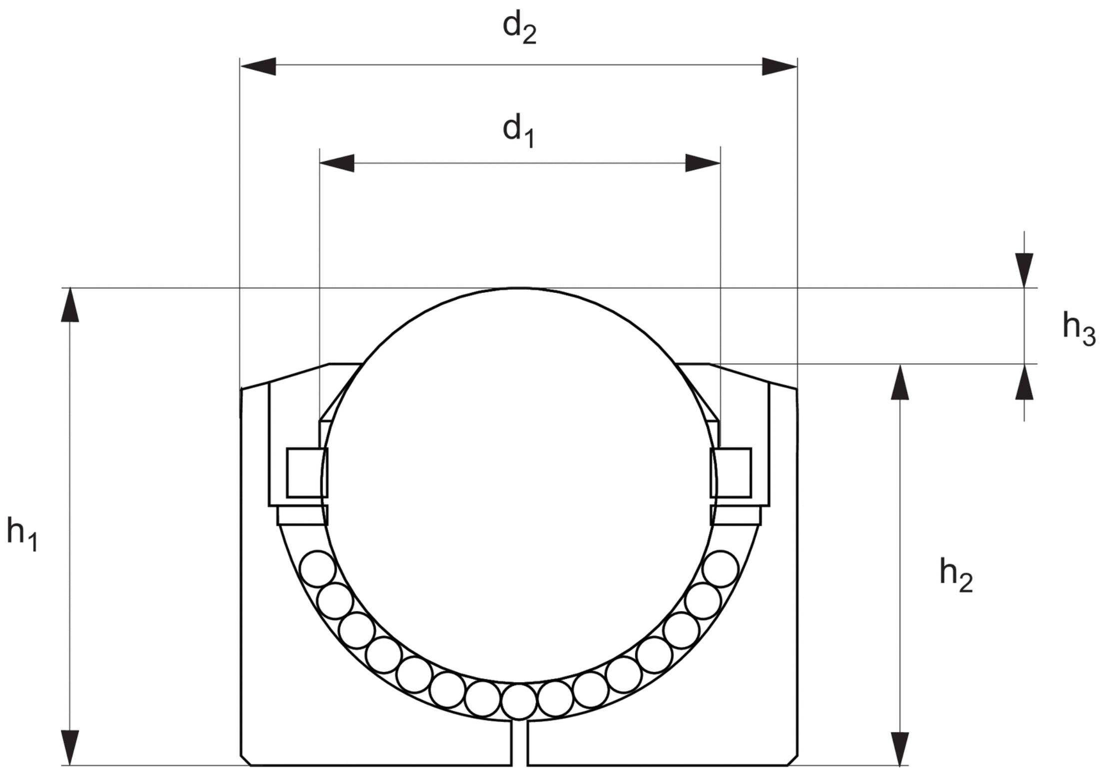
Steel (AISI 1040 housing and AISI 52100 for balls), stainless steel (AISI 416 for housing and AISI 420 for balls) and acetal (POM).

Technical Notes

These ball transfer units are made of a solid steel block with a precision machined hemispherical carrying bowl.
Top cover plates are shaped to ensure the perfect conveyance of items which have possible burred or bent edges. This design also prevents possible damage to the carrying ball.
Provided with a hole in the base of the bearing cup to dispose of particles of dirt and swarf (this may also be used for re-lubrication purposes).

Tips

These rollers can only be used in the horizontal or ball up direction.



Order No.	d_1	d_2 ±0,03	h_1	h_3	h_2	Housing	Ball	Max. load Kg
67222.W0081	8	18 ± 0,03	12,0	10,0	2,0	Steel	Steel	13,0
67222.W0084	8	18 ± 0,03	12,0	10,0	2,0	Steel	Stainless	10,0
67222.W0082	8	18 ± 0,03	12,0	10,0	2,0	Stainless	Stainless	8,4
67222.W0124	12	20 ± 0,03	16,5	13,5	3,0	Steel	Stainless	20,0
67222.W0154	15	24 ± 0,08	20,0	15,0	5,0	Steel	Stainless	50,0
67222.W0224	22	36 ± 0,08	30,5	27,9	4,5	Steel	Stainless	180,0
67222.W0304	30	45 ± 0,08	36,8	30,3	6,5	Steel	Stainless	350,0
67222.W0454	45	62 ± 0,10	53,5	45,0	8,5	Steel	Stainless	600,0
67222.W0604	60	100 ± 0,1	77,5	61,0	16,5	Steel	Stainless	1100,0
67222.W0121	12	20 ± 0,03	16,5	13,5	3,0	Steel	Steel	25,0
67222.W0125	12	20 ± 0,03	16,5	13,5	3,0	Steel	Acetal	5,0
67222.W0122	12	20 ± 0,03	16,5	13,5	3,0	Stainless	Stainless	14,0
67222.W0151	15	24 ± 0,08	20,0	15,0	5,0	Steel	Steel	60,0
67222.W0155	15	24 ± 0,08	20,0	15,0	5,0	Steel	Acetal	10,0
67222.W0152	15	24 ± 0,08	20,0	15,0	5,0	Stainless	Stainless	40,0
67222.W0221	22	36 ± 0,08	30,5	27,9	4,5	Steel	Steel	180,0
67222.W0225	22	36 ± 0,08	30,5	27,9	4,5	Steel	Acetal	20,0
67222.W0222	22	36 ± 0,08	30,5	27,9	2,6	Stainless	Stainless	125,0
67222.W0301	30	45 ± 0,08	36,8	30,3	6,5	Steel	Steel	350,0
67222.W0305	30	45 ± 0,08	36,8	30,3	6,5	Steel	Acetal	25,0
67222.W0302	30	45± 0,08	36,8	30,3	6,5	Stainless	Stainless	245,0
67222.W0451	45	62 ± 0,10	53,5	45,0	8,5	Steel	Steel	600,0
67222.W0455	45	62 ± 0,10	53,5	45,0	8,5	Steel	Acetal	25,0
67222.W0452	45	62 ± 0,10	53,5	45,0	8,5	Stainless	Stainless	420,0
67222.W0601	60	100 ± 0,1	77,5	61,0	16,5	Steel	Steel	1500,0
67222.W0605	60	100 ± 0,1	77,5	61,0	16,5	Steel	Acetal	35,0
67222.W0602	60	100 ± 0,1	77,5	61,0	16,5	Stainless	Stainless	1000,0

Material
Steel (AISI 1040 housing and AISI 52100 for balls), stainless steel (AISI 416 for housing and AISI 420 for balls) and acetal (POM).

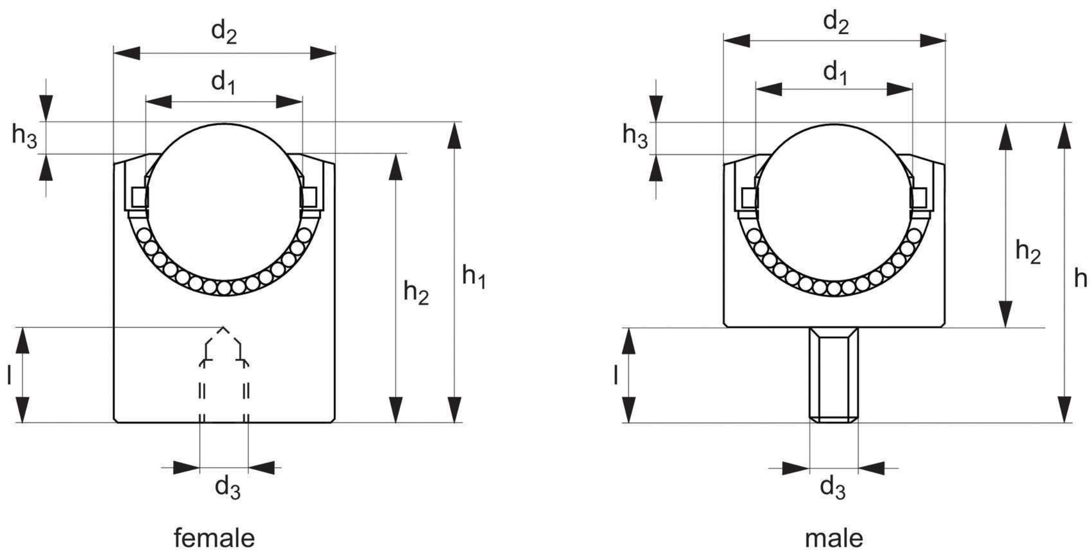
Technical Notes
These ball transfer units are made of a solid steel block with a precision machined hemispherical carrying bowl.
Top cover plates are shaped to ensure the perfect conveyance of items which have possible burred or bent edges. This design also prevents possible damage to the carrying ball.
Provided with a hole in the base of the bearing cup to dispose of particles of dirt and swarf (this may also be used for re-lubrication purposes).
Manufactured without a flange on the housing, therefore the whole load is being supported only by the bottom face of the unit.

Tips
These rollers can only be used in the horizontal or "ball up" direction.

Threaded Ball Transfer Units

medium duty

67224



Order No.	Type	d_1	d_2	h_1	h_2	h_3	d_3	l	Housing	Ball	Max. load Kg
67224.W1121	Female	12	22	24,0	20,5	3,5	M 8	5,0	Steel	Steel	25
67224.W1125	Female	12	22	24,0	20,5	3,5	M 8	5,0	Steel	Acetal	5
67224.W1122	Female	12	22	24,0	20,5	3,5	M 8	5,0	Stainless	Stainless	17
67224.W1124	Female	12	22	24,0	20,5	3,5	M 8	5,0	Steel	Stainless	20
67224.W1224	Female	22	36	40,5	34,0	4,5	M 8	10,0	Steel	Stainless	180
67224.W2224	Male	22	36	62,9	37,5	4,5	M12	25,4	Steel	Stainless	126
67224.W2454	Male	45	62	107,3	66,0	8,5	M20	41,3	Steel	Stainless	420
67224.W2304	Male	30	45	69,2	43,8	6,5	M12	25,4	Steel	Stainless	245
67224.W2154	Male	15	24	32,5	20,5	3,9	M 6	12,0	Steel	Stainless	35
67224.W2124	Male	12	20	29,8	17,8	3,0	M 8	12,0	Steel	Stainless	14
67224.W1454	Female	45	62	63,5	50,5	13,0	M 8	10,0	Steel	Stainless	600
67224.W1304	Female	30	45	46,8	38,8	8,0	M 8	10,0	Steel	Stainless	350
67224.W1154	Female	15	24	28,0	23,0	5,0	M 8	8,0	Steel	Stainless	50
67224.W1151	Female	15	24	28,0	23,0	5,0	M 8	8,0	Steel	Steel	60
67224.W1155	Female	15	24	28,0	23,0	5,0	M 8	8,0	Steel	Acetal	10
67224.W1152	Female	15	24	28,0	23,0	5,0	M 8	8,0	Stainless	Stainless	40
67224.W1221	Female	22	36	40,5	34,0	4,5	M 8	10,0	Steel	Steel	180
67224.W1225	Female	22	36	40,5	34,0	4,5	M 8	10,0	Steel	Acetal	20
67224.W1222	Female	22	36	40,5	34,0	4,5	M 8	10,0	Stainless	Stainless	126
67224.W1301	Female	30	45	46,8	38,8	8,0	M 8	10,0	Steel	Steel	350
67224.W1305	Female	30	45	46,8	38,8	8,0	M 8	10,0	Steel	Acetal	25
67224.W1302	Female	30	45	46,8	38,8	8,0	M 8	10,0	Stainless	Stainless	245
67224.W1451	Female	45	62	63,5	50,5	13,0	M 8	10,0	Steel	Steel	600
67224.W1455	Female	45	62	63,5	50,5	13,0	M 8	10,0	Steel	Acetal	25
67224.W1452	Female	45	62	63,5	50,5	13,0	M 8	10,0	Stainless	Stainless	420
67224.W2121	Male	12	20	29,8	17,8	3,0	M 8	12,0	Steel	Steel	20
67224.W2125	Male	12	20	29,8	17,8	3,0	M 8	12,0	Steel	Acetal	4
67224.W2122	Male	12	20	29,8	17,8	3,0	M 8	12,0	Stainless	Stainless	14
67224.W2151	Male	15	24	32,5	20,5	3,9	M 6	12,0	Steel	Steel	50
67224.W2155	Male	15	24	32,5	20,5	3,9	M 6	12,0	Steel	Acetal	10
67224.W2152	Male	15	24	32,5	20,5	3,9	M 6	12,0	Stainless	Stainless	30
67224.W2221	Male	22	36	62,9	37,5	4,5	M12	25,4	Steel	Steel	180
67224.W2225	Male	22	36	62,9	37,5	4,5	M12	25,4	Steel	Acetal	20
67224.W2222	Male	22	36	62,9	37,5	4,5	M12	25,4	Stainless	Stainless	126
67224.W2301	Male	30	45	69,2	43,8	6,5	M12	25,4	Steel	Steel	350
67224.W2305	Male	30	45	69,2	43,8	6,5	M12	25,4	Steel	Acetal	210
67224.W2302	Male	30	45	69,2	43,8	6,5	M12	25,4	Stainless	Stainless	245
67224.W2451	Male	45	62	107,3	66,0	8,5	M20	41,3	Steel	Steel	600
67224.W2455	Male	45	62	107,3	66,0	8,5	M20	41,3	Steel	Acetal	35
67224.W2452	Male	45	62	107,3	66,0	8,5	M20	41,3	Stainless	Stainless	420

Material

Steel (AISI 1040 housing and AISI 52100 for balls), stainless steel (AISI 416 for housing and AISI 420 for balls) and acetal (POM).

Technical Notes

These ball transfer units are made of a solid steel block with a precision machined hemispherical carrying bowl.
Top cover plates are shaped to ensure the perfect conveyance of items which have possible burred or bent edges. This design also prevents possible damage to the carrying ball.
Provided with a hole in the base of the bearing cup to dispose of particles of dirt and swarf (this may also be used for re-lubrication purposes).
Manufactured without a flange on the housing, therefore the whole load is being supported only by the bottom face of the unit.

Shock Absorbers

Shock Absorbers benefits and features

Why do we need shock absorbers?

Shock Absorbers are widely used in industry where the speed, direction or movement of objects must be changed or stopped. Without suitable methods of control the kinetic energy inherent in many moving objects, which occur in manufacturing, can result in increased machine wear and even machine damage.

Ideally any method of "shock absorption" should provide two key features:

1) Bring the moving object to rest quickly, smoothly and without rebounding forces
2) In-built reliability and safety

Shock Absorbers are able to quickly convert the kinetic energy of a moving object into heat and to dissipate this into the air, and provide a constant linear deceleration of an object throughout its entire impact stroke, to quickly, smoothly and quietly bring a moving object to rest with the lowest reaction force and in the shortest time. All of these features mean increased manufacturing productivity, extended machine life, and improved efficiency.

The cost of outdated buffering methods

Traditional buffering methods:

- Springs
- Dash Pots
- Air Buffers
- Rubber bumpers

Costs associated with outdated cushioning methods:

- Loss of production
- Increased machine wear and tear
- Increased maintenance cost
- Increased vibration and noise pollution
- Varying and inconsistent dampening forces, with non-linear or high peak forces at some point in their stroke.

Traditional buffering methods can only dissipate a small percentage of the kinetic energy of a moving object, the remainder is stored (rather than dissipated) as elastic energy which results in high resistance and rebounding forces toward the end of the impact stroke.

Benefits of using Wixroyd Shock Absorbers

Wixroyd Shock Absorbers are designed to stop a moving object smoothly and quietly from the beginning to the end of its impact stroke. Their design enables a constant resistance force or linear deceleration throughout the impact stroke, quickly converting the kinetic energy of the moving object into heat which is quickly dissipated into the air. A linear deceleration curve, as achieved by our shock absorbers, brings an object to rest in the shortest time while reducing damaging impact forces.

Energy Capacity: Shock absorbers can absorb more energy, without increasing deceleration or reaction forces.

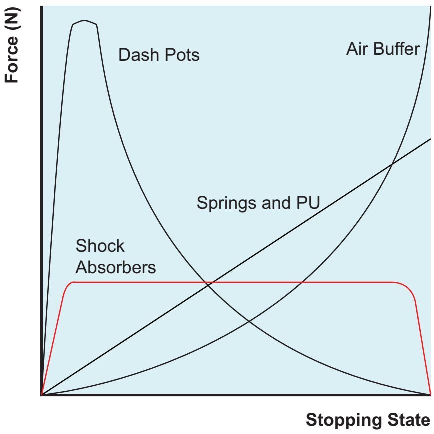
Stopping Force: Shock absorbers provide smooth decelaration of parts, which means less machine wear and hence reduced maintenance.

Stopping time: Shock absorbers bring moving loads to rest more quickly, increasing productivity.

Advantages of using Wixroyd Shock Absorbers

- Consistent and reliable dampening force or linear deceleration, throughout entire impact stroke
- Smoother motion and deceleration of moving parts
- Increased productivity
- Extended machine life and improved efficiency
- Simplified application design and build costs
- Reduced maintenance costs
- Improved health and safety, through reduced vibration and noise pollution

Comparison of shock absorbers vs. other methods



Dashpots: produce large peak forces at beginning of impact stroke, abruptly slowing load - however braking force quickly declines.

Springs & Rubber Buffers: energy is stored rather than dissipated, resulting in rebounding of the load.

Air Buffers: initial braking force is low, but due to the compressibility of air it increases sharply toward later stages of stroke, resulting in inconsistent braking force.

Shock Absorbers: designed to stop a moving object smoothly and quietly from beginning to end of its impact stroke. Their design enables constant resistance force or linear deceleration throughout impact stroke, they quickly convert kinetic energy of a moving object into heat which is quickly dissipated into the air.

ov-68001-68032-a - Updated - 20-12-2016

Wixroyd Shock Absorbers are available in two primary types

Self-compensating

Self compensating shock absorber 68001

Our Self-Compensating Shock Absorbers are effective for a stated range of Effective Mass (Me), and are self-compensating within this range - see selection charts. As long as the applications effective mass remains within the given range then no additional adjustment is required for changes in weight, speed or propelling force.

See models: 68001, 68002, 68003, 68004, 68008, 68012

Self compensating shock absorber 68002

Each Self-Compensating Shock Absorber is available in three standard max. Impact speed (v-m/s) variations:

1 - high impact speed
2 - medium impact speed
3 - low impact speed

For specific max. impact speed values please refer to the selections charts and the specific product tables.

For hard impact at the start of a stroke it is advisable to choose a high impact speed model, for hard set down at the end of a stroke it is advisable to choose a medium or low impact speed model, or to move up to the next higher bore size

Adjustable

Adjustable shock absorber 68020

Set collar to 0 at initial installation

After a few cycles adjust collar setting to suit application

Adjustable Shock Absorbers have an adjustment collar at their base (with a scale of 0-9), which enables adjustment of the Shock Absorber's optimum deceleration to suit the application.

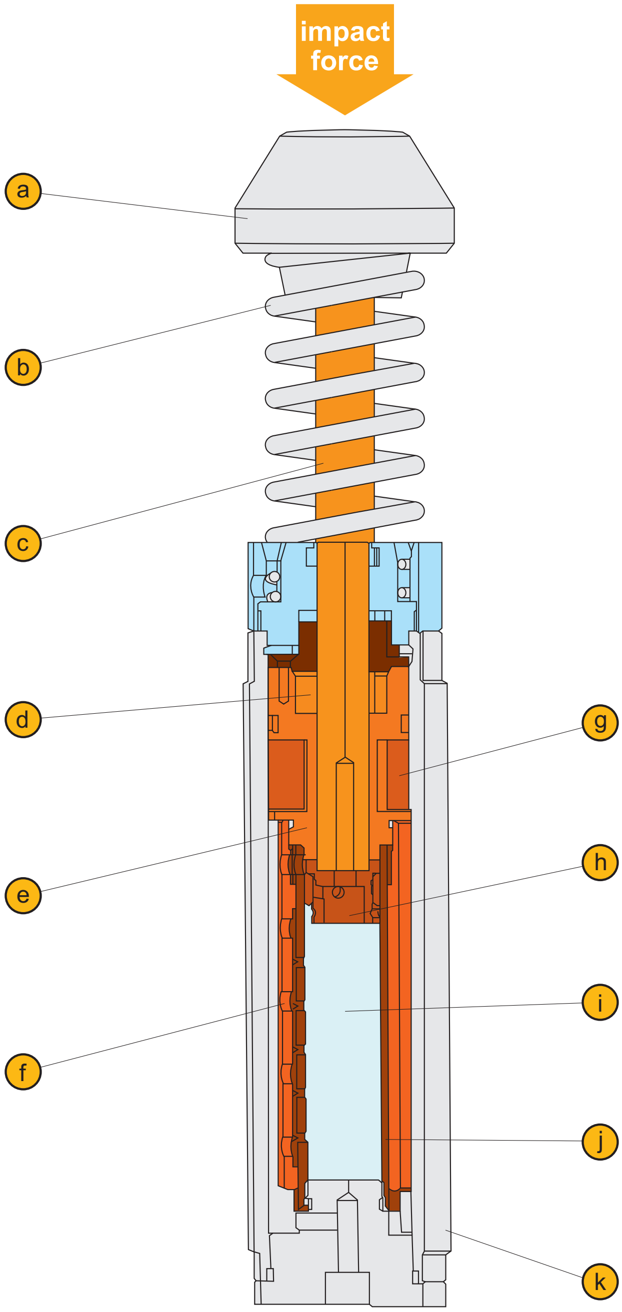
After initial installation, the Shock Absorber should be cycled a number of times to settle, and then the adjustable collar turned to the desired position for the application.

ov-68001-68032-b - Updated - 20-12-2016

Inside a Wixroyd Shock Absorber

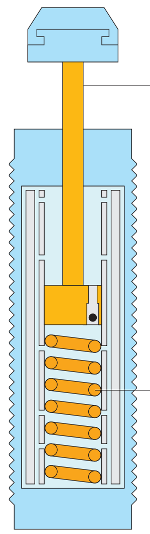
Shock absorber design

The design of Wixroyd Shock Absorbers is beautifully simple and beautifully effective. Made from high quality materials and components, they provide the highest performance and reliability.



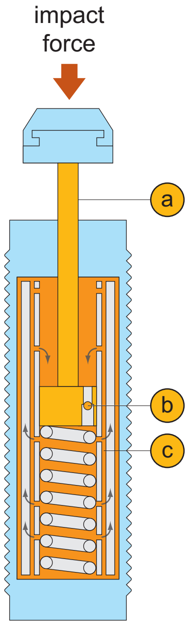
- (a) Impact Cap
- (b) Return Spring; DIN GWP (external and internal models avai.)
- (c) Piston Rod; AISI 1045, hardened to HV940°, chrome plated
- (d) Seal
- (e) Bearing
- (f) Orifices
- (g) Accumulator; neoprene rubber
- (h) Check Valve
- (i) Fluid
- (j) Inner Tube
- (k) Outer Tube; STKM11A, hardened and blackened

ov-68001-68032-c - Updated - 20-12-2016



At rest

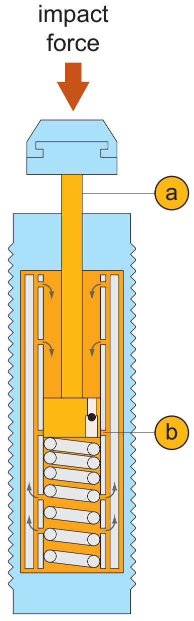
1) Shock Absorber at rest, piston rod 1, fully extended through force exerted on it by return spring 2.



Initial impact

2) Moving load impacts piston 1, which moves into shock absorber body increasing pressure in chamber.

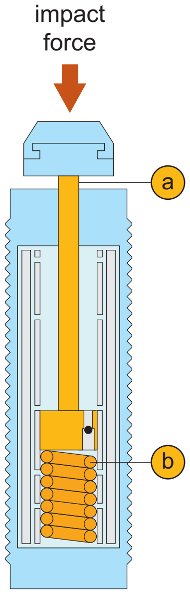
3) Piston rod check valve closes 2. Hydraulic oil behind the piston head is initially able to escape/vent into the accumulator 3.



Continued impact and linear decelaration

4) As load on piston rod 1 increases, the rod continues to move back into the inner tube, as it does so the number of available metering orifices 2 through which the hydraulic oil is able to escape reduces - hence the velocity of the moving load continues to decelerate.

5)The number and position of the orifices are such that the pressure in the inner tube remains constant throughout the entire impact stroke - providing constant linear decelaration. (Number of metering orificies decreases proportionally through length of piston rod.)



Load bought to rest

6) The moving load is brought to a smooth and quiet stop.

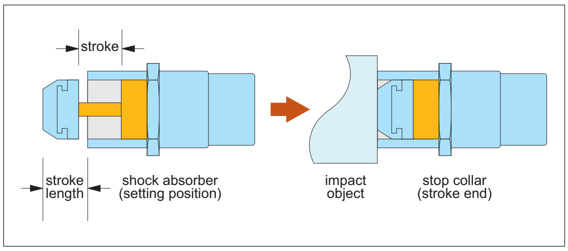
7) When the load is removed the return spring 2 pushes the piston 1, back to its original resting position, ready for the next cycle.

ov-68001-68032-d - Updated - 20-12-2016

Optional extras

Stop collars

We advise the use of external mechanical stops with all of our Shock Absorbers, typically within 1 to 0.5 mm from the end of the stroke. Alternatively, we have a range of stop collars available which can be mounted directly to the shock absorber body (see our part 68030). Stop Collars are available for our M8 to M36 threaded models, they can be used both to adjust stroke and also to fix the end position of the load.

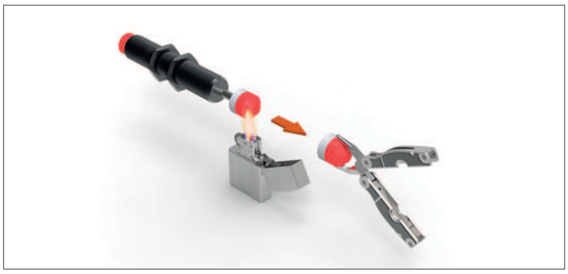


Flange mounting adaptors

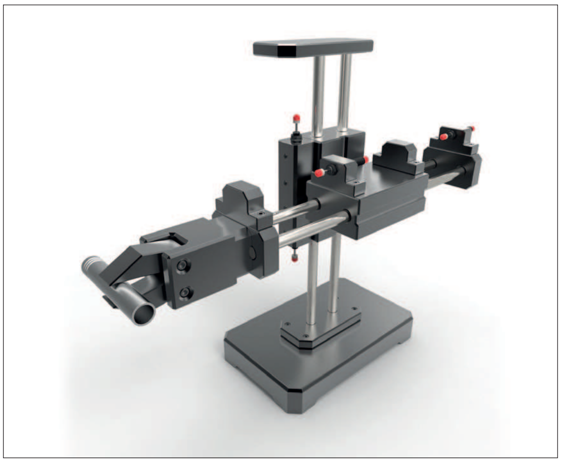
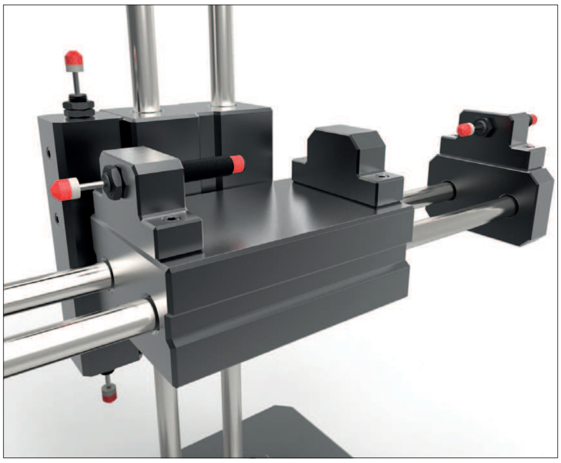
Basic mounting of shock absorbers is through the use of its threaded body, and lock nuts supplied. Alternatively Shock Absorbers can be flange mounted, please see our available flange mounting adaptors part 68032 for our M36 and M42 threaded models.

Muffler caps

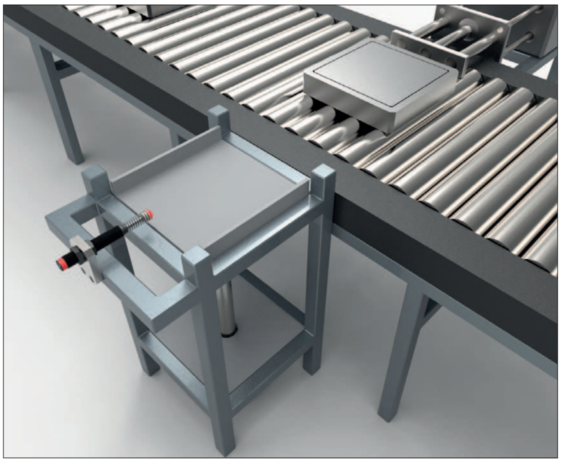
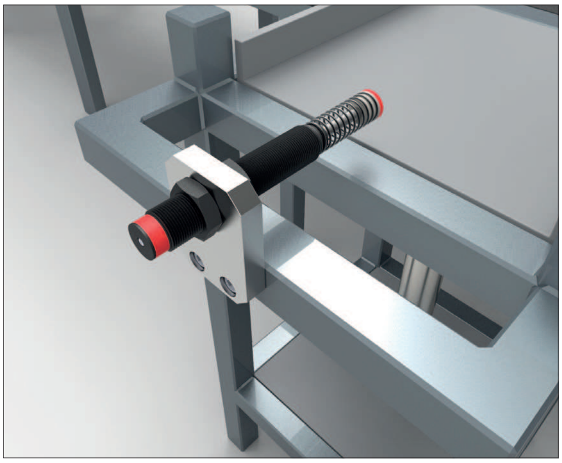
Shock Absorbers are supplied with muffler caps as standard. Muffler caps can be removed from the Shock Absorber Piston by heating them with a lighter and pulling away using a pair of plyers.



Application examples

Pick and place robots

Pick and place machines

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How to select your Wixroyd Shock Absorber

Firstly consider the following:

1) Direction of movement - horizontal, free fall or rotary
2) Total weight of impacting object
3) Propelling force - if present
4) Impact velocity of load
5) Number of cycles/impact per hour
6) Number of shock absorbers in application (only if parallel)

Secondly, ascertain the following from your application

1) Mass to be decelerated (weight) ..... m (kg)
2) Impact velocity at shock absorber .. v (m/s)
3) Propelling or driving force............... F (N)
4) Number of impact cycles per hour... C (/hr)
5) Desired shock absorber stroke......... S (m)

Thirdly, derive value for the following within your application

ET (Nm) Maximum energy absorbed per cycle
ETC (Nm/hr) Maximum energy absorbed per hour
Me (Kg) Effective mass

Formulae on the following pages will allow you to derive these values for the most appropriate set-up of your application.

Finally, refer to our selection charts

Using the values derived from you calculations, refer to our selection charts and identify the most suitable Wixroyd Shock Absorber for your application.

Mounting and installation information

1. Please install a 1 to 0.5 mm mechanical stop or stop collar before the end of the impact stroke and do not drive shock absorbers into their final position under full load. See the range of Stop Collars part 68030, which can be easily mounted on to shock absorbers to protect shock absorber pistons from bottoming out and can also be used to adjust the final stroke.
2. Reusing is prohibited after dismantling. Do not paint the piston rod or threaded body. This both inhibits movement of the piston and can interfere with effective heat dissipation.
3. Install shock absorbers as close to the moving object’s centre as possible.
4. If installing shock absorbers in sheet metal, please ensure sheet metal is robust enough.
5. When installing two or more shock absorbers in parallel, please ensure that they have the same stroke.

Product selection calculation

Some useful calculation formulae

1) Kinetic energy: .... $E_K = mv^2/2$
2) Drive energy: .... $E_D = F \cdot S$
3) Free fall velocity: .... $v = \sqrt{2g} \cdot h$
4) Pneumatic or hydraulic cylinder driving forces: .... $F = 0.00785\ Pd^2$
5) Maximum shock force (approximate): .... $F_m = 1.2\ E_T/S$
6) Propelling force generated by electric motors: .... $F = 3000\ kW/v$
7) Total energy absorbed per hour: .... $E_{TC} = E_T \cdot C$

Key to formulae symbols used

μ	-	coefficient of friction	E_{TC}	(Nm)	total energy per hour	M_e	(kg)	effective mass
α	(rad)	angle of incline	F	(N)	propelling force	P	(Bar)	operation pressure
θ	(rad)	side load of angle	F_m	(N)	maximum shock force	R	(m)	radius
ω	(rad/s)	angular velocity	g	(m/s²)	acceleration due to gravity (9.81m/s2)	R_S	(m)	shock absorber mounting distance from rotation center
A	(m)	width						
B	(m)	thickness	h	(m)	height	S	(m)	stroke
C	(/hr)	impact cycles per hour	I	(Nm/s2)	moment of inertia	T	(Nm)	driving torque
d	(mm)	cylinder bore diameter	HM	-	arresting torque factor for motors (normally 2.5)	t	(s)	decelartion time
E_D	(Nm)	drive energy per cycle				v	(m/s)	velocity of impact mass
E_K	(Nm)	kinetic energy per cycle	kW	(kW)	electric motor power	v_s	(m/s)	impact velocity at shock absorber
E_T	(Nm)	total energy per cycle	m	(kg)	mass to be deccelerated			

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1) Horizontal moving mass - without propelling force

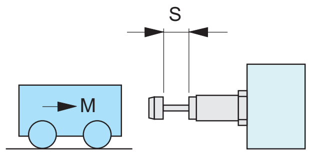
m = 300kg
v = 1,0m/s
S = 0,04m
C = 300/hr

$$E_k = \frac{mv^2}{2} = \frac{300 \cdot 1{,}0^2}{2} = 150\text{Nm}$$

$$E_T = E_k = 150\text{Nm}$$

$$E_{TC} = E_T \cdot C = 150 \cdot 300 = 45000\text{Nm/hr}$$

$$M_e = \frac{2E_T}{v^2} = \frac{2 \cdot 150}{1{,}0^2} = 300\text{kg}$$



Selection from capacity chart: 68024.W0362 is suitable

2) Horizontal moving mass - with propelling force

m = 300kg
v = 1,2m/s
S = 0,05m
P = 40N/cm²
d = 100mm
C = 300/hr

$$E_k = \frac{mv^2}{2} = \frac{300 \cdot 1{,}0^2}{2} = 216\text{Nm}$$

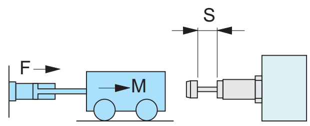
$$E_D = F \cdot S = 0{,}00785Pd^2 \cdot S$$

$$= 0{,}00785 \cdot 40 \cdot 100^2 \cdot 0{,}05 = 157\text{Nm}$$

$$E_T = E_K + E_D = 216 + 157 = 373\text{Nm}$$

$$E_{TC} = E_T \cdot C = 373 \cdot 300 = 111900\text{Nm/hr}$$

$$M_e = \frac{2E_T}{v^2} = \frac{2 \cdot 373}{1{,}2^2} = 518\text{kg}$$



Selection from capacity chart: 68024.W0422 is suitable

3) Horizontal moving mass - motor driven

m = 400kg
v = 1,0m/s
kW = 1,5kW
HM = 2,5
S = 0,075m
C = 60/hr

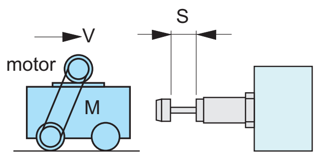
$$E_k = \frac{mv^2}{2} = \frac{400 \cdot 1{,}0^2}{2} = 200\text{Nm}$$

$$E_D = F \cdot S = \frac{\text{kW} \cdot \text{HM}}{v} \cdot S = \frac{1500 \cdot 2{,}5}{1{,}0} \cdot 0{,}075 = 281\text{Nm}$$

$$E_T = E_K + E_D = 200 + 281 = 481\text{Nm}$$

$$E_{TC} = E_T \cdot C = 481 \cdot 60 = 25860\text{Nm/hr}$$

$$M_e = \frac{2E_T}{v^2} = \frac{2 \cdot 481}{1{,}0^2} = 962\text{kg}$$



Selection from capacity chart: 68024.W0423 is suitable

4) Horizontal moving mass - driven rollers

m = 150kg
v = 0,5m/s
μ = 0,25
S = 0,02m
C = 120/hr

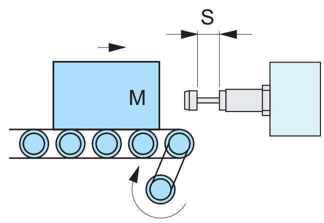
$$E_k = \frac{mv^2}{2} = \frac{150 \cdot 0{,}5^2}{2} = 18{,}75\text{Nm}$$

$$E_D = F \cdot S = mg\mu \cdot S = 150 \cdot 9{,}81 \cdot 0{,}25 \cdot 0{,}02 = 7{,}35\text{Nm}$$

$$E_T = E_K + E_D = 18{,}73 + 7{,}35 = 26{,}1\text{Nm}$$

$$E_{TC} = E_T \cdot C = 26{,}1 \cdot 120 = 3132\text{Nm/hr}$$

$$M_e = \frac{2E_T}{v^2} = \frac{2 \cdot 26{,}1}{0{,}5^2} = 208{,}8\text{kg}$$



Selection from capacity chart: 68002.W0203 is suitable

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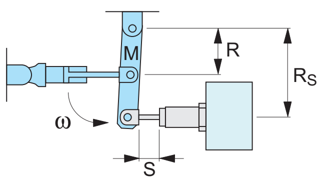
5) Swinging arm - with propelling force (universal weight distribution)



$$E_k = \frac{I \cdot \omega^2}{2} = \frac{216 \cdot 3^2}{2} = 972Nm$$

$$F = \frac{0,0785 \cdot D^2 \cdot P \cdot R}{R_S} = \frac{0,0785 \cdot 80^2 \cdot 5 \cdot 0,6}{0,9} = 1674.7Nm$$

$$E_D = F \cdot S = 1674,7 \cdot 0,05 = 83,7Nm$$

$$E_T = E_K + E_D = 972 + 83,7 = 1055,7Nm$$

$$E_{TC} = E_T \cdot C = 1055,7 \cdot 150 = 158355Nm/hr$$

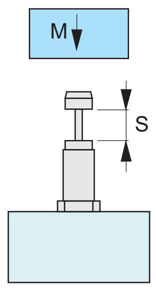
$$v = R_S \cdot \omega = 0,6 \cdot 3 = 1.8m/s$$

$$M_e = \frac{2E_T}{v^2} = \frac{2 \cdot 1055,7}{1,8^2} = 651,2kg$$

P = 5bar
m = 600kg
ω = 3rad/s
R = 0,6m
R_s = 0,9m
d = 80mm
C = 150/hr
I = 216Nm/s²

Selection from capacity chart: 68002.W0203 is suitable

6) Vertical moving mass - free falling



$$v = \sqrt{2g \cdot h} = \sqrt{2 \cdot 9.81 \cdot 0,4} = 2.8m/s$$

$$E_k = \frac{mv^2}{2} = \frac{40 \cdot 2,8^2}{2} = 157Nm$$

$$E_D = F \cdot S = mg \cdot h = 40 \cdot 9.81 \cdot 0,06 = 23,5Nm$$

$$E_T = E_K + E_D = 157 + 23,5 = 180,5Nm$$

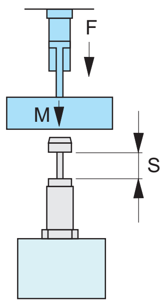
$$E_{TC} = E_T \cdot C = 180,5 \cdot 200 = 36100Nm/hr$$

$$M_e = \frac{2E_T}{v^2} = \frac{2 \cdot 180,5}{2,8^2} = 46kg$$

m = 40kg
h = 0,4m
S = 0,06m
C = 200/hr

Selection from capacity chart: 68003.W0361 is suitable

7) Vertical moving mass - with propelling force



$$E_k = \frac{mv^2}{2} = \frac{40 \cdot 1,0^2}{2} = 20Nm$$

$$E_D = F \cdot S = (mg + 0,0785Pd^2) \cdot S$$

$$= (40 \cdot 9,81 + 0,0785 \cdot 5 \cdot 50^2) \cdot 0,025 = 33,5Nm$$

$$E_T = E_K + E_D = 20 + 33,5 = 55,5Nm$$

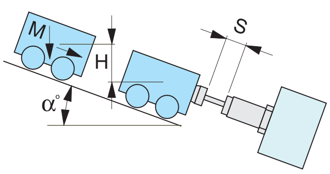
$$E_{TC} = E_T \cdot C = 55,5 \cdot 200 = 11100Nm/hr$$

$$M_e = \frac{2E_T}{v^2} = \frac{2 \cdot 55,5}{1,0^2} = 111kg$$

m = 40kg
h = 0,3m
S = 0,025m
P = 5bar
d = 50mm
C = 200/hr
v = 1,0m/s

Selection from capacity chart: 68024.W0252 is suitable

8) Free moving mass - on inclined plane



$$v = \sqrt{2g \cdot h} = \sqrt{2 \cdot 9.81 \cdot 0,3} = 2.43m/s$$

$$E_k = \frac{mv^2}{2} = \frac{150 \cdot 2,43^2}{2} = 443Nm$$

$$E_D = F \cdot S = m \cdot g \cdot S \cdot \sin\alpha = 150 \cdot 9,81 \cdot 0,075 \cdot \sin 30° = 55,2Nm$$

$$E_T = E_K + E_D = 433 + 55,2 = 498,2Nm$$

$$E_{TC} = E_T \cdot C = 498,2 \cdot 200 = 99640Nm/hr$$

$$M_e = \frac{2E_T}{v^2} = \frac{2 \cdot 498,2}{2,43^2} = 168,7kg$$

m = 150kg
h = 0,3m
α = 30°
S = 0,075m
C = 200/hr

Selection from capacity chart: 68024.W0423 is suitable

9) Horizontal rotating door

$$I = \frac{m(4A^2 + B^2)}{12} = \frac{20(4 \cdot 1{,}0^2 + 0{,}05^2)}{12} = 6{,}67\text{kg} \cdot \text{m}^2$$

$$E_k = \frac{I\omega^2}{2} = \frac{6{,}67 \cdot 2{,}0^2}{2} = 13{,}34\text{Nm}$$

$$\theta = \frac{S}{R_S} = \frac{0{,}04}{0{,}8} = 0{,}05\text{rad}$$

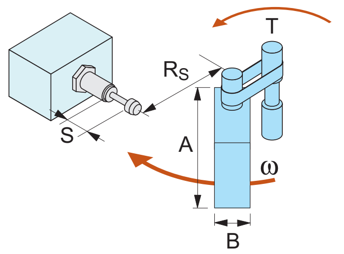
$$E_D = T \cdot \theta = 20 \cdot 0{,}5 = 1{,}0\text{Nm}$$

$$E_T = E_K + E_D = 13{,}34 + 1{,}0 = 14{,}34\text{Nm}$$

$$E_{TC} = E_T \cdot C = 14{,}34 \cdot 100 = 1434\text{Nm/hr}$$

$$v = \omega \cdot R_S = 2{,}0 \cdot 0{,}8 = 1.6\text{m/s}$$

$$M_e = \frac{2E_T}{v^2} = \frac{2 \cdot 14{,}34}{1{,}6^2} = 11{,}2\text{kg}$$



m = 20kg
ω = 2,0rad/s
T = 20Nm
R_s = 0,8m
A = 1,0m
B = 0,05m
S = 0,016m
C = 100/hr

Selection from capacity chart: 68002.W0203 is suitable

10) Horizontal rotating mass - with torque

$$I = \frac{m(4A^2 + B^2)}{12} = \frac{40(4 \cdot 0{,}5^2 + 0{,}05^2)}{12} = 3{,}36\text{kg} \cdot \text{m}^2$$

$$E_k = \frac{I\omega^2}{2} = \frac{3{,}36 \cdot 2{,}0^2}{2} = 6{,}8\text{Nm}$$

$$\theta = \frac{S}{R_S} = \frac{0{,}05}{0{,}4} = 0{,}125\text{rad}$$

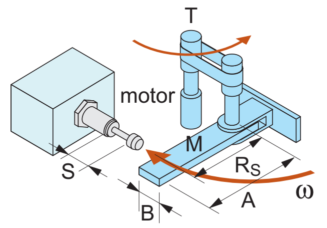
$$E_D = T \cdot \theta = 10 \cdot 0{,}125 = 1{,}25\text{Nm}$$

$$E_T = E_K + E_D = 6{,}8 + 1{,}25 = 8{,}05\text{Nm}$$

$$E_{TC} = E_T \cdot C = 8{,}05 \cdot 50 = 402{,}5\text{Nm/hr}$$

$$v = \omega \cdot R_S = 2{,}0 \cdot 0{,}4 = 0{,}8\text{m/s}$$

$$M_e = \frac{2E_T}{v^2} = \frac{2 \cdot 8{,}05}{0{,}8^2} = 25{,}15\text{kg}$$



m = 40kg
A = 0,5m
B = 0,05m
ω = 2,0rad/s
T = 10Nm
R_s = 0,4m
S = 0,05m
C = 50/hr

Selection from capacity chart: 68003.W0361 is suitable

11) Rotary index table - with propelling force

$$I = \frac{mR^2}{2} = \frac{200 \cdot 0{,}5^2}{2} = 25\text{kg} \cdot \text{m}^2$$

$$E_k = \frac{I\omega^2}{2} = \frac{25 \cdot 1{,}0^2}{2} = 12{,}5\text{Nm}$$

$$\theta = \frac{S}{R_S} = \frac{0{,}04}{0{,}4} = 0{,}1\text{rad}$$

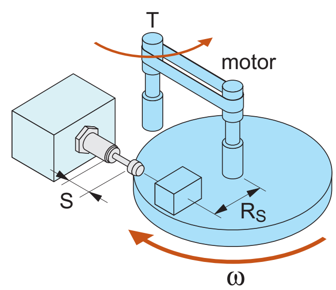
$$E_D = T \cdot \theta = 100 \cdot 0{,}1 = 10\text{Nm}$$

$$E_T = E_K + E_D = 12{,}5 + 10 = 22{,}5\text{Nm}$$

$$E_{TC} = E_T \cdot C = 22{,}5 \cdot 50 = 1125\text{Nm/hr}$$

$$v = \omega \cdot R_S = 1{,}0 \cdot 0{,}4 = 0{,}4\text{m/s}$$

$$M_e = \frac{2E_T}{v^2} = \frac{2 \cdot 22{,}5}{0{,}4^2} = 281\text{kg}$$



m = 200kg
ω = 1,0rad/s
T = 100Nm
R = 0,5m
R_s = 0,4m
S = 0,04m
C = 100/hr

Selection from capacity chart: 68024.W0255 is suitable

68001 - shock absorbers - self compensating

Order Number	Stroke (mm)	Thread (mm)	Max. Energy per cycle Nm (ET)	Max. Energy per hour Nm/hr (ETC)	Max. Effective Mass Kg (Me)	Max. Impact Speed m/s (v)	Operating temp. (°C)	Avai. w/o cap	Avai. with cap	Flange Avai.	Stop Collar Avai.	Weight (g)
68001.W0081	6	M 8 x 1,0	2	8,800	0,5	2,0	-10~+80	•	•	-	•	11
68001.W0082	6	M 8 x 1,0	2	8,800	2,0	1,0	-10~+80	•	•	-	•	11
68001.W0083	6	M 8 x 1,0	2	8,800	6,0	0,5	-10~+80	•	•	-	•	11
68001.W0101	5	M10 x 1,0	3	10,800	1,0	3,0	-10~+80	•	•	-	•	14
68001.W0102	5	M10 x 1,0	3	10,800	3,0	1,5	-10~+80	•	•	-	•	14
68001.W0103	5	M10 x 1,0	3	10,800	7,0	0,8	-10~+80	•	•	-	•	14
68001.W0104	8	M10 x 1,0	4	15,200	2,0	3,0	-10~+80	•	•	-	•	20
68001.W0105	8	M10 x 1,0	4	15,200	4,0	1,5	-10~+80	•	•	-	•	20
68001.W0106	8	M10 x 1,0	4	15,200	9,0	0,8	-10~+80	•	•	-	•	20
68001.W0107	10	M10 x 0,75	4	10,800	1,0	3,0	-10~+80	•	•	-	•	20
68001.W0108	10	M10 x 0,75	4	10,800	2,0	1,0	-10~+80	•	•	-	•	20
68001.W0109	10	M10 x 0,75	4	10,800	3,0	0,5	-10~+80	•	•	-	•	20
68001.W0121	10	M12 x 1,0	5	17,640	5,0	3,0	-10~+80	•	•	-	•	32
68001.W0122	10	M12 x 1,0	5	17,640	10,0	1,5	-10~+80	•	•	-	•	32
68001.W0123	10	M12 x 1,0	5	17,640	30,0	0,8	-10~+80	•	•	-	•	32

68002, 68004 - shock absorbers - self compensating

Order Number	Stroke (mm)	Thread (mm)	Max. Energy per cycle Nm (ET)	Max. Energy per hour Nm/hr (ETC)	Max Effective Mass Kg (Me)	Max. Impact Speed m/s (v)	Operating temp. (°C)	Avai. w/o cap	Avai. with cap	Flange Avai.	Stop Collar Avai.	Weight (g)
68002.W0141	12	M14 x 1,5	15	30,000	8	3,0	-10~+80	•	•	-	•	80
68002.W0142	12	M14 x 1,5	15	30,000	50	1,5	-10~+80	•	•	-	•	80
68002.W0143	12	M14 x 1,5	15	30,000	100	0,8	-10~+80	•	•	-	•	80
68002.W0147	16	M14 x 1,5	20	35,000	10	3,0	-10~+80	•	•	-	•	80
68002.W0148	16	M14 x 1,5	20	35,000	70	1,0	-10~+80	•	•	-	•	80
68002.W0149	16	M14 x 1,5	20	35,000	150	0,5	-10~+80	•	•	-	•	80
68002.W0198	20	M14 x 1,5	20	35,000	10	3,0	-10~+80	•	•	-	•	80
68002.W0199	20	M14 x 1,5	20	35,000	70	1,0	-10~+80	•	•	-	•	80
68002.W0200	20	M14 x 1,5	20	35,000	150	0,5	-10~+80	•	•	-	•	80
68002.W0201	20	M20 x 1,5	40	40,000	30	3,5	-10~+80	•	•	-	•	215
68002.W0202	20	M20 x 1,5	40	40,000	200	2,0	-10~+80	•	•	-	•	215
68002.W0203	20	M20 x 1,5	40	40,000	700	1,0	-10~+80	•	•	-	•	215
68002.W0204	30	M20 x 1,5	50	48,000	30	3,5	-10~+80	•	•	-	•	220
68002.W0205	30	M20 x 1,5	50	48,000	200	2,0	-10~+80	•	•	-	•	220
68002.W0206	30	M20 x 1,5	50	48,000	700	1,0	-10~+80	•	•	-	•	220
68002.W0207	50	M20 x 1,5	60	60,000	60	3,5	-10~+80	-	•	-	•	300
68002.W0208	50	M20 x 1,5	60	60,000	400	2,0	-10~+80	-	•	-	•	300
68002.W0209	50	M20 x 1,5	60	60,000	1,200	1,0	-10~+80	-	•	-	•	300
68004.W0201	30	M20 x 1,5	45	55,000	40	3,5	-10~+80	-	•	-	•	220
68004.W0202	30	M20 x 1,5	45	55,000	300	2,0	-10~+80	-	•	-	•	220
68004.W0203	30	M20 x 1,5	45	55,000	900	1,0	-10~+80	-	•	-	•	220
68004.W0204	35	M20 x 1,5	52	63,000	40	3,5	-10~+80	-	•	-	•	210
68004.W0205	35	M20 x 1,5	52	63,000	200	2,0	-10~+80	-	•	-	•	210
68004.W0206	35	M20 x 1,5	52	63,000	650	1,0	-10~+80	-	•	-	•	210
68004.W0207	50	M20 x 1,5	60	68,000	60	3,5	-10~+80	-	•	-	•	470
68004.W0208	50	M20 x 1,5	60	68,000	210	2,0	-10~+80	-	•	-	•	470
68004.W0209	50	M20 x 1,5	60	68,000	480	1,0	-10~+80	-	•	-	•	470

ov-68001-68032-j - Updated - 20-12-2016

68003 - shock absorbers - self compensating

Order Number	Stroke (mm)	Thread (mm)	Max. Energy per cycle Nm (ET)	Max. Energy per hour Nm/hr (ETC)	Max Effective Mass Kg (Me)	Max. Impact Speed m/s (v)	Operating temp. (°C)	Avai. w/o cap	Avai. with cap	Flange Avai.	Stop Collar Avai.	Weight (g)
68003.W0251	25	M25 x 1,5	80	54,000	200	4,0	-10~+80	•	•	-	•	330
68003.W0252	25	M25 x 1,5	80	54,000	800	2,5	-10~+80	•	•	-	•	330
68003.W0253	25	M25 x 1,5	80	54,000	1,500	1,0	-10~+80	•	•	-	•	330
68003.W0254	40	M25 x 1,5	120	75,000	300	4,0	-10~+80	-	•	-	•	430
68003.W0255	40	M25 x 1,5	120	75,000	1,200	2,5	-10~+80	-	•	-	•	430
68003.W0256	40	M25 x 1,5	120	75,000	2,000	1,0	-10~+80	-	•	-	•	430
68003.W0257	50	M25 x 1,5	98	90,000	15	4,0	-10~+80	•	•	-	•	435
68003.W0258	50	M25 x 1,5	98	90,000	40	2,5	-10~+80	•	•	-	•	435
68003.W0259	50	M25 x 1,5	98	90,000	160	1,0	-10~+80	•	•	-	•	435
68003.W0261	80	M25 x 1,5	150	120,000	20	4,0	-10~+80	•	•	-	•	535
68003.W0262	80	M25 x 1,5	150	120,000	50	2,5	-10~+80	•	•	-	•	535
68003.W0263	80	M25 x 1,5	150	120,000	200	1,0	-10~+80	•	•	-	•	535
68003.W0361	60	M36 x 1,5	250	120,000	400	4,0	-10~+80	-	•	•	•	1030
68003.W0362	60	M36 x 1,5	250	120,000	1,500	2,5	-10~+80	-	•	•	•	1030
68003.W0363	60	M36 x 1,5	250	120,000	2,400	1,0	-10~+80	-	•	•	•	1030

68005 - shock absorbers - self compensating

Order Number	Stroke (mm)	Thread (mm)	Max. Energy per cycle Nm (ET)	Max. Energy per hour Nm/hr (ETC)	Max Effective Mass Kg (Me)	Max. Impact Speed m/s (v)	Operating temp. (°C)	Avai. w/o cap	Avai. with cap	Flange Avai.	Stop Collar Avai.	Weight (g)
68005.W0301	25	M30 x 1,5	180	60,000	300	3,0	-10~+80	-	•	-	•	950
68005.W0302	25	M30 x 1,5	180	60,000	700	2,0	-10~+80	-	•	-	•	950
68005.W0303	25	M30 x 1,5	180	60,000	1,300	1,0	-10~+80	-	•	-	•	950

68008 - shock absorbers - self compensating

Order Number	Stroke (mm)	Thread (mm)	Max. Energy per cycle Nm (ET)	Max. Energy per hour Nm/hr (ETC)	Max Effective Mass Kg (Me)	Max. Impact Speed m/s (v)	Operating temp. (°C)	Avai. w/o cap	Avai. with cap	Flange Avai.	Stop Collar Avai.	Weight (g)
68008.W0141	15	M14 x 1,0	9,8	35,280	30	1,0	-10~+80	-	•	-	•	80
68008.W0142	15	M14 x 1,0	9,8	35,280	15	1,5	-10~+80	-	•	-	•	80
68008.W0191	20	M20 x 1,5	36	22,000	27	2	-10~+80	•	•	-	•	170
68008.W0192	25	M20 x 1,5	40	24,200	35	2	-10~+80	•	•	-	•	180
68008.W0201	30	M20 x 1,5	44	26,460	60	1,2	-10~+80	-	•	-	•	185
68008.W0202	30	M20 x 1,5	44	26,460	30	1,7	-10~+80	-	•	-	•	185
68008.W0203	30	M20 x 1,5	44	26,460	15	2,4	-10~+80	-	•	-	•	185
68008.W0204	30	M20 x 1,5	44	26,460	5	4,2	-10~+80	-	•	-	•	205
68008.W0205	30	M20 x 1,5	44	26,460	3	6,0	-10~+80	-	•	-	•	205
68008.W0211	50	M20 x 1,5	59	35,280	30	2,0	-10~+80	-	•	-	•	250
68008.W0212	50	M20 x 1,5	59	35,280	15	2,8	-10~+80	-	•	-	•	250
68008.W0213	50	M20 x 1,5	59	35,280	8	3,8	-10~+80	-	•	-	•	250
68008.W0214	50	M20 x 1,5	59	35,280	5	5,0	-10~+80	-	•	-	•	250
68008.W0215	50	M20 x 1,5	59	35,280	3	6,8	-10~+80	-	•	-	•	235

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68012 - shock absorbers - self compensating

Order Number	Stroke (mm)	Thread (mm)	Max. Energy per cycle Nm (ET)	Max. Energy per hour Nm/hr (ETC)	Max Effective Mass Kg (Me)	Max. Impact Speed m/s (v)	Operating temp. (°C)	Avai. w/o cap	Avai. with cap	Flange Avai.	Stop Collar Avai.	Weight (g)
68012.W0081/82	6	M14 x 1,0	3	7,000	6	2,5	-10~+80	•	•	-	•	17
68012.W0101/102	7	M14 x 1,0	6	12,400	12	3,5	-10~+80	•	•	-	•	28
68012.W0121/122	10	M20 x 1,5	12	22,500	22	4,0	-10~+80	•	•	-	•	32
68012.W0141/142	12	M20 x 1,5	20	33,000	40	5,0	-10~+80	•	•	-	•	70
68012.W0201/202	15	M20 x 1,5	59	38,000	120	5,0	-10~+80	•	•	-	•	160
68012.W0251/252	25	M20 x 1,5	80	60,000	180	5,0	-10~+80	•	•	-	•	295
68012.W0271/272	25	M20 x 1,5	147	72,000	270	5,0	-10~+80	•	•	-	•	375

68020, 68024 - shock absorbers - adjustable

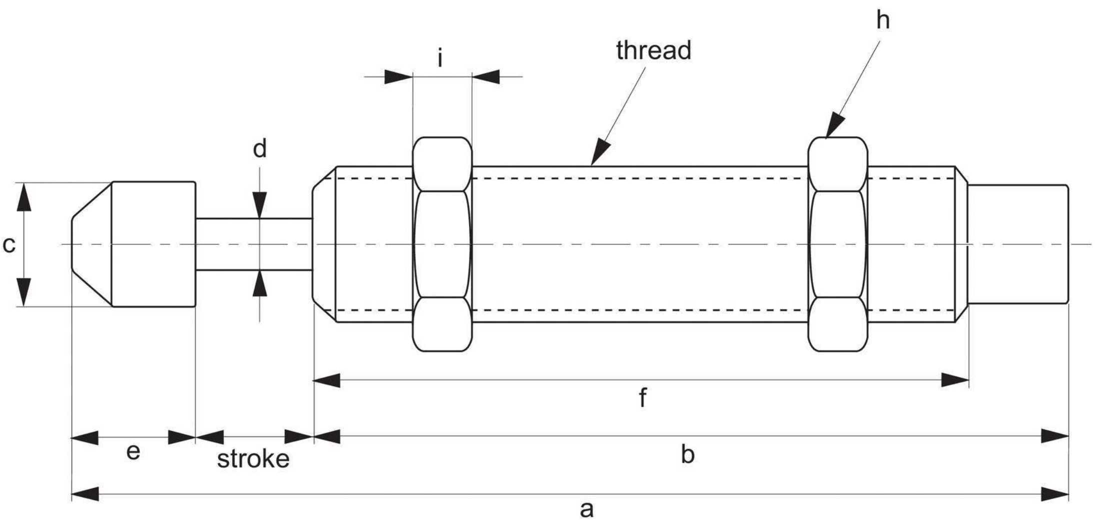
Order Number	Stroke (mm)	Thread (mm)	Max. Energy per cycle Nm (ET)	Max. Energy per hour Nm/hr (ETC)	Max Effective Mass Kg (Me)	Max. Impact Speed m/s (v)	Operating temp. (°C)	Avai. w/o cap	Avai. with cap	Flange Avai.	Stop Collar Avai.	Weight (g)
68020.W0141	10	M14 x 1,5	20	25,000	80	3,0	-10~+80	•	•	-	•	90
68020.W0142	10	M14 x 1,5	20	25,000	80	3,0	-10~+80	•	•	-	•	90
68020.W0199	16	M20 x 1,5	25	28,500	200	3,5	-10~+80	•	•	-	•	222
68020.W0200	16	M20 x 1,5	25	28,500	200	3,5	-10~+80	•	•	-	•	230
68020.W0203	25	M20 x 1,5	39	30,000	200	3,5	-10~+80	•	•	-	•	230
68020.W0204	25	M20 x 1,5	39	30,000	312	3,5	-10~+80	•	•	-	•	240
68024.W0251	25	M25 x 1,5	85	54,000	400	3,5	-10~+80	•	•	-	•	335
68024.W0252	25	M25 x 1,5	85	54,000	400	3,5	-10~+80	•	•	-	•	350
68024.W0253	30	M25 x 1,5	95	60,000	480	3,5	-10~+80	•	•	-	•	340
68024.W0254	30	M25 x 1,5	95	60,000	480	3,5	-10~+80	•	•	-	•	365
68024.W0255	40	M25 x 1,5	100	80,000	700	3,5	-10~+80	-	•	-	•	455
68024.W0256	50	M25 x 1,5	98	90,000	720	4,0	-10~+80	•	•	-	•	455
68024.W0257	80	M25 x 1,5	150	120,000	800	4,0	-10~+80	•	•	-	•	585
68024.W0361	25	M36 x 1,5	150	81,000	1400	3,0	-10~+80	-	•	•	•	955
68024.W0362	50	M36 x 1,5	300	100,000	1400	3,0	-10~+80	-	•	•	•	1100
68024.W0421	25	M42 x 1,5	260	125,000	3000	3,5	-10~+80	-	•	•	-	1280
68024.W0422	50	M42 x 1,5	500	150,000	4000	4,5	-10~+80	-	•	•	-	1490
68024.W0423	75	M42 x 1,5	750	180,000	6000	4,5	-10~+80	-	•	•	-	1710

ov-68001-68032-I - Updated - 20-12-2016

Shock Absorbers, Self Compensating

M14 - M20, non adjustable

68002



Order No.	Stroke (mm)	Max. Nm Per Cycle (Et)	Max. Nm Per Hour (ETc)	Max. Effective Mass (Me) Kg	Impact Speed	Max. Impact Speed (V) m/s	Operating Temperature (°C)	g
68002.W0140	8	12	22000	6	High	3,0	-10 to +80	65
68002.W0141	12	15	30000	8	High	3,0	-10 to +80	80
68002.W0142	12	15	30000	50	Med	1,5	-10 to +80	80
68002.W0143	12	15	30000	100	Low	0,8	-10 to +80	80
68002.W0144	16	20	35000	10	Low	3,0	-10 to +80	85
68002.W0145	16	20	35000	70	Low	1,5	-10 to +80	85
68002.W0146	16	20	35000	150	Low	0,8	-10 to +80	85
68002.W0147	16	20	35000	10	High	3,0	-10 to +80	80
68002.W0148	16	20	35000	70	Med	1,5	-10 to +80	80
68002.W0149	16	20	35000	150	Low	0,8	-10 to +80	80
68002.W0198	20	20	35000	10	High	3,0	-10 to +80	95
68002.W0199	20	20	35000	70	Med	1,5	-10 to +80	95
68002.WX200	10	16	42000	30	Low	3,5	-10 to +80	165
68002.W0200	20	20	35000	150	Low	0,8	-10 to +80	95
68002.W0201	20	40	40000	30	High	3,5	-10 to +80	215
68002.W0202	20	40	40000	200	Med	2,0	-10 to +80	215
68002.W0203	20	40	40000	700	Low	1,0	-10 to +80	215
68002.W0204	30	50	48000	30	High	3,5	-10 to +80	220
68002.W0205	30	50	48000	200	Med	2,0	-10 to +80	220
68002.W0206	30	50	48000	700	Low	1,0	-10 to +80	220
68002.W0207	50	60	6000	60	High	3,5	-10 to +80	300
68002.W0208	50	60	60000	400	Med	2,0	-10 to +80	300
68002.W0209	50	60	60000	1200	Low	1,0	-10 to +80	300

Order No.	Thread	a	b	c	d	e	f	h	i
68002.W0140	M14x1,5	73,5	55,0	12,0	4,0	11,2	50.5	19	5
68002.W0141	M14x1,5	98,5	76	12	4	10,5	67	19	5
68002.W0142	M14x1,5	98,5	76	12	4	10,5	67	19	5
68002.W0143	M14x1,5	98,5	76	12	4	10,5	67	19	5
68002.W0144	M14x1,5	122,2	95,0	12,0	4,0	11,2	86,0	19,0	5,0
68002.W0145	M14x1,5	122,2	95,0	12,0	4,0	11,2	86,0	19,0	5,0
68002.W0146	M14x1,5	122,2	95,0	12,0	4,0	11,2	86,0	19,0	5,0
68002.W0147	M14x1,5	102,5	76	12	4	10,5	67	19	5
68002.W0148	M14x1,5	102,5	76	12	4	10,5	67	19	5
68002.W0149	M14x1,5	102,5	76	12	4	10,5	67	19	5
68002.W0198	M14x1,5	125,5	95	12	4	10,5	86	19	5
68002.W0199	M14x1,5	125,5	95	12	4	10,5	86	19	5
68002.WX200	M16x1,5	68,0	58,0	10,0	5,0	8,0	40,0	19,0	6,0
68002.W0200	M14x1,5	125,5	95	12	4	10,5	86	19	5
68002.W0201	M20x1,5	145,8	110	18	6	15,8	101	26	7
68002.W0202	M20x1,5	145,8	110	18	6	15,8	101	26	7
68002.W0203	M20x1,5	145,8	110	18	6	15,8	101	26	7
68002.W0204	M20x1,5	158,8	113	18	6	15,8	104	26	7
68002.W0205	M20x1,5	158,8	113	18	6	15,8	104	26	7
68002.W0206	M20x1,5	158,8	113	18	6	15,8	104	26	7
68002.W0207	M20x1,5	232,8	167	18	6	15,8	158	26	7
68002.W0208	M20x1,5	232,8	167	18	6	15,8	158	26	7

Material

Outer Tube: STKM11A, hardened and blackened.
Piston Rod: AISI 1045 hardened to HV940°, chrome plated.
Return Spring: DIN GWP.
Muffler Cap: urethane rubber. Seal: nitrile rubber.

Technical Notes

Supplied with rubber muffler cap as standard, this is removable - see introductory technical notes for guidance.

Tips

Select High Impact Speed model for hard impact at start of stroke. For hard set down at end of stroke choose a Medium or Low Impact Speed model.

Important Notes

For correct product selection refer to Product Selection Formulae and Calculation pages, and associated Capacity & Selection Charts.

Referral

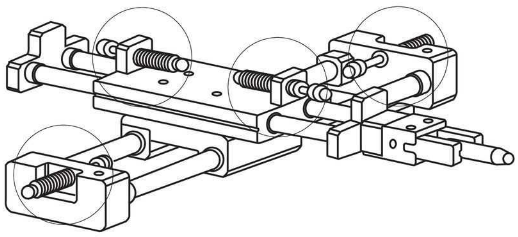
For stop collars see part 68030 . For mounting flanges see part 68032 .

Shock Absorbers, Self Compensating

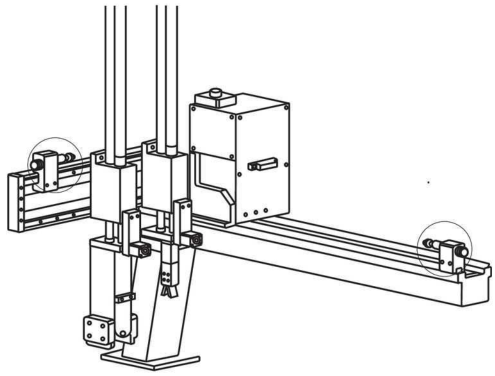
M14 - M20, non adjustable

Order No.	Thread	a	b	c	d	e	f	h	i
68002.W0209	M20x1,5	232,8	167	18	6	15,8	158	26	7

application examples:



robot for plastic injection molding machine



slide unit

68002

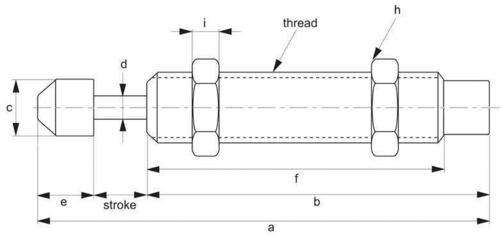
Material
Outer Tube: STKM11A, hardened and blackened.
Piston Rod: AISI 1045 hardened to HV940°, chrome plated.
Return Spring: DIN GWP.
Muffler Cap: urethane rubber. Seal: nitrile rubber.

Technical Notes
Supplied with rubber muffler cap as standard, this is removable - see introductory technical notes for guidance.

Tips
Select High Impact Speed model for hard impact at start of stroke. For hard set down at end of stroke choose a Medium or Low Impact Speed model.

Important Notes
For correct product selection refer to Product Selection Formulae and Calculation pages, and associated Capacity & Selection Charts.

Referral
For stop collars see part 68030 . For mounting flanges see part 68032 .



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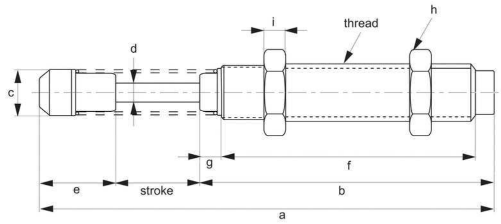
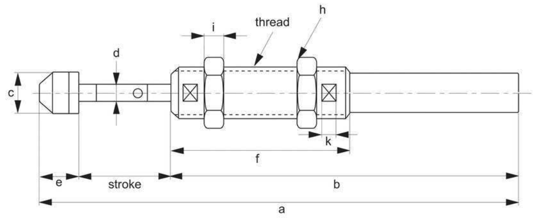


type - 68003.W0254 to .W0256



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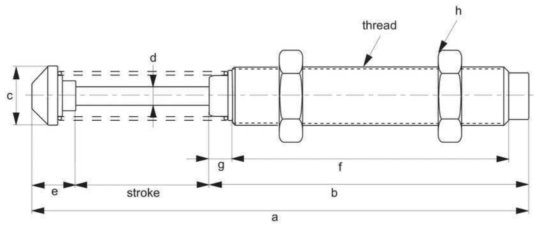


type - 68003.W0261 to .W0263

Material
Outer Tube: STKM11A, hardened and blackened.
Piston Rod: AISI 1045 hardened to HV940°, chrome plated.
Return Spring: DIN GWP.
Muffler Cap: urethane rubber. **Seal:** nitrile rubber.

Technical Notes
Supplied with rubber muffler cap as standard, this is removable - see introductory technical notes for guidance.

Tips
Select High Impact Speed model for hard impact at start of stroke. For hard set down at end of stroke choose a Medium or Low Impact Speed model.

Important Notes
For correct product selection refer to Product Selection Formulae and Calculation pages, and associated Capacity & Selection Charts.

Referral
For stop collars see part 68030 . For mounting flanges see part 68032 .

Order No.	Stroke (mm)	Max. Nm Per Cycle (Et)	Max. Nm Per Hour (ETc)	Max. Effective Mass (Me) Kg	Impact Speed	Max. Impact Speed (v) m/s	Operating Temperature (°C)	g
68003.W0251	25	80	54000	200	High	4,0	-10 to +80	330
68003.W0252	25	80	54000	800	Med	2,5	-10 to +80	330
68003.W0253	25	80	54000	1500	Low	1,0	-10 to +80	330
68003.W0254	40	120	75000	300	High	4,0	-10 to +80	430
68003.W0255	40	120	75000	1200	Med	2,5	-10 to +80	430
68003.W0256	40	120	75000	2000	Low	1,0	-10 to +80	430
68003.W0257	50	98	90000	15	High	4,0	-10 to +80	435
68003.W0258	50	98	90000	40	Med	2,5	-10 to +80	435
68003.W0259	50	98	90000	160	Low	1,0	-10 to +80	435
68003.W0261	80	150	120000	20	High	4,0	-10 to +80	535
68003.W0262	80	150	120000	50	Med	2,5	-10 to +80	535
68003.W0263	80	150	120000	200	Low	1,0	-10 to +80	535
68003.W0361	60	250	120000	400	High	4,0	-10 to +80	1,030
68003.W0362	60	250	120000	1500	Med	2,5	-10 to +80	1,030
68003.W0363	60	250	120000	2400	Low	1,0	-10 to +80	1,030

Order No.	Thread	a	b	c	d	e	f	g	h	i	j	k
68003.W0251	M25x1,5	155,0	111,0	22,0	8	19,5	101,0	-	32	9	-	-
68003.W0252	M25x1,5	155,0	111,0	22,0	8	19,5	101,0	-	32	9	-	-
68003.W0253	M25x1,5	155,0	111,0	22,0	8	19,5	101,0	-	32	9	-	-
68003.W0254	M25x1,5	214,0	127,0	22,0	8	36,0	117,0	10	32	9	-	-
68003.W0255	M25x1,5	214,0	127,0	22,0	8	36,0	117,0	10	32	9	-	-
68003.W0256	M25x1,5	214,0	127,0	22,0	8	36,0	117,0	10	32	9	-	-
68003.W0257	M25x1,5	239,5	170,5	22,0	8	19,5	100,0	-	32	9	-	-
68003.W0258	M25x1,5	239,5	170,5	22,0	8	19,5	100,0	-	32	9	-	-
68003.W0259	M25x1,5	239,5	170,5	22,0	8	19,5	100,0	-	32	9	-	-

Shock Absorbers, Self Compensating

M25 - M36, non-adjustable

68003

Order No.	Thread	a	b	c	d	e	f	g	h	i	j	k
68003.W0261	M25x1,5	336,0	237,0	22,0	8	19,5	100,0	-	32	9	23	11
68003.W0262	M25x1,5	336,0	237,0	22,0	8	19,5	100,0	-	32	9	23	11
68003.W0263	M25x1,5	336,0	237,0	22,0	8	19,5	100,0	-	32	9	23	11
68003.W0361	M36x1,5	248,0	162,0	35,5	10	26,0	134,0	17	46	15	23	11
68003.W0362	M36x1,5	248,0	162,0	35,5	10	26,0	134,0	17	46	15	23	11
68003.W0363	M36x1,5	248,0	162,0	35,5	10	26,0	134,0	17	46	15	23	11

Material

Outer Tube: STKM11A, hardened and blackened.
Piston Rod: AISI 1045 hardened to HV940°, chrome plated.
Return Spring: DIN GWP.
Muffler Cap: urethane rubber. **Seal:** nitrile rubber.

Technical Notes

Supplied with rubber muffler cap as standard, this is removable - see introductory technical notes for guidance.

Tips

Select High Impact Speed model for hard impact at start of stroke. For hard set down at end of stroke choose a Medium or Low Impact Speed model.

Important Notes

For correct product selection refer to Product Selection Formulae and Calculation pages, and associated Capacity & Selection Charts.

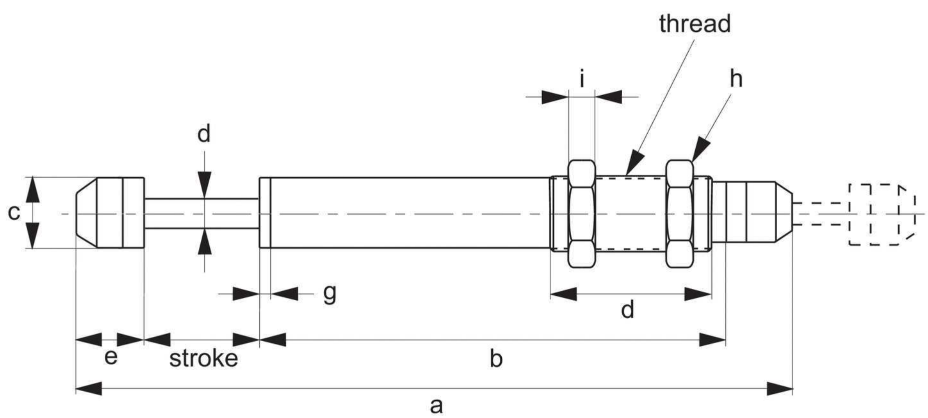
Referral

For stop collars see part 68030 . For mounting flanges see part 68032 .

Double Cushion Shock Absorbers

M20, self-compensating, non-adjustable

68004



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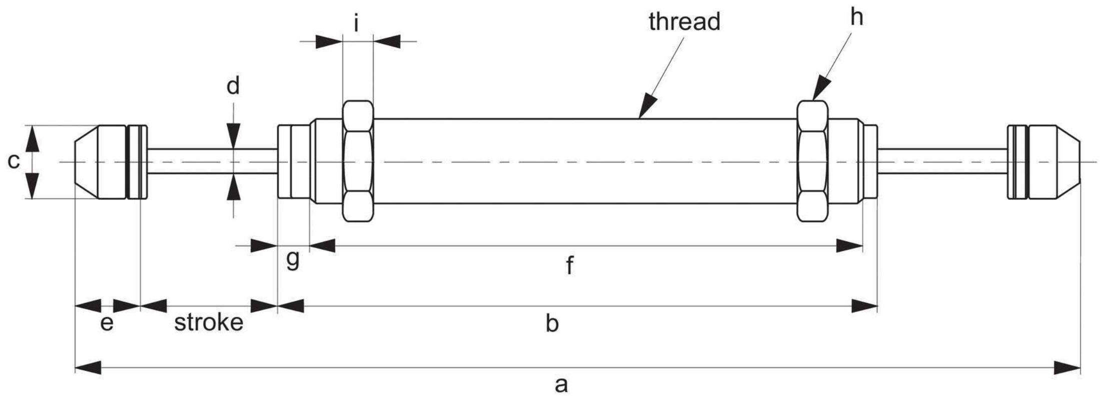


type: 68004.W0204-W0209

Material

Outer Tube: STKM11A, hardened and blackened.
Piston Rod: AISI 1045 hardened to HV940°, chrome plated.
Return Spring: DIN GWP.
Muffler Cap: urethane rubber. **Seal:** nitrile rubber.

Technical Notes

Supplied with rubber muffler cap as standard, this is removable - see introductory technical notes for guidance.

Tips

Select High Impact Speed model for hard impact at start of stroke. For hard set down at end of stroke choose a Medium or Low Impact Speed model.

Important Notes

For correct product selection refer to Product Selection Formulae and Calculation pages, and associated Capacity & Selection Charts.

Referral

For stop collars see part 68030 . For mounting flanges see part 68032 .

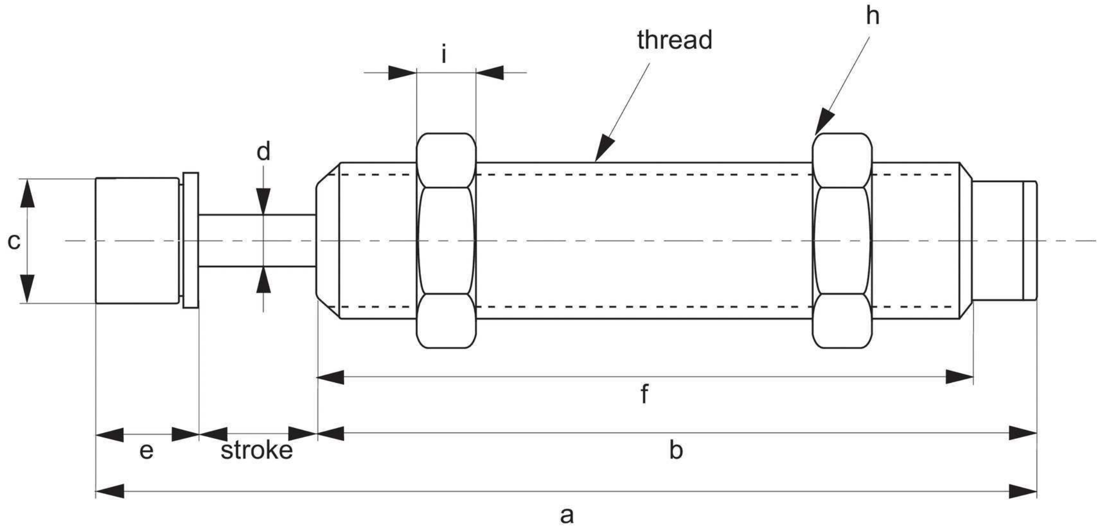
Order No.	Stroke (mm)	Max. Nm Per Cycle (Et)	Max. Nm Per Hour (ETc)	Max. Effective Mass (Me) Kg	Impact Speed	Max. Impact Speed (v) m/s	Operating Temperature (°C)	g
68004.W0201	30	45	55000	40	High	3,5	-10 to +80	320
68004.W0202	30	45	55000	300	Med	2,0	-10 to +80	320
68004.W0203	30	45	55000	900	Low	1,0	-10 to +80	320
68004.W0204	35	52	63000	40	High	3,5	-10 to +80	350
68004.W0205	35	52	63000	200	Med	2,0	-10 to +80	350
68004.W0206	35	52	63000	650	Low	1,0	-10 to +80	350
68004.W0207	50	60	68000	60	High	3,5	-10 to +80	470
68004.W0208	50	60	68000	210	Med	2,0	-10 to +80	470
68004.W0209	50	60	68000	480	Low	1,0	-10 to +80	470
68004.W0210	50	70	72000	530	Low	3,5	-10 to +80	480

Order No.	Thread	a	b	c	d	e	f	g	h	i
68004.W0201	M20x1,5	183,6	123	18	6	15,8	44	3	26	7
68004.W0202	M20x1,5	183,6	123	18	6	15,8	44	3	26	7
68004.W0203	M20x1,5	183,6	123	18	6	15,8	44	3	26	7
68004.W0204	M20x1,5	224,6	123	18	5	15,8	42	5	26	7
68004.W0205	M20x1,5	224,6	123	18	5	15,8	42	5	26	7
68004.W0206	M20x1,5	224,6	123	18	5	15,8	42	5	26	7
68004.W0207	M20x1,5	276,6	145	18	6	15,8	134	8	26	7
68004.W0208	M20x1,5	276,6	145	18	6	15,8	134	8	26	7
68004.W0209	M20x1,5	276,6	145	18	6	15,8	134	8	26	7
68004.W0210	M20x1,5	313,8	172,8	17,8	6	20,5	11	16	26	7

Shock Absorber Self Compensating

M30, non-adustable

68005



Order No.	Stroke mm	Max. Nm per cycle (Et)	Max. Nm per Hour (ETc)	Max. Effective Mass (Me) Kg	Impact Speed	Max. Impact Speed (v) m/s	g
68005.W0301	25	180	60000	300	High	3.0	950
68005.W0302	25	180	60000	700	Med	2.0	950
68005.W0303	25	180	60000	1300	Low	1.0	950

Order No.	Thread	a	b	c	d	e	f	h	i
68005.W0301	M30 x 1,5	151	106,5	27	10	19,5	94,5	36	14
68005.W0302	M30 x 1,5	151	106,5	27	10	19,5	94,5	36	14
68005.W0303	M30 x 1,5	151	106,5	27	10	19,5	94,5	36	14

Material

Outer Tube: STKM11A, hardened and blackened.
Piston Rod: AISI 1045 hardened to HV940°, chrome plated.
Return Spring: DIN GWP.
Muffler Cap: urethane rubber. **Seal:** nitrile rubber.

Technical Notes

Supplied with rubber muffler cap as standard, this is removable - see introductory technical notes for guidance.

Tips

Select High Impact Speed model for hard impact at start of stroke. For hard set down at end of stroke choose a Medium or Low Impact Speed model.

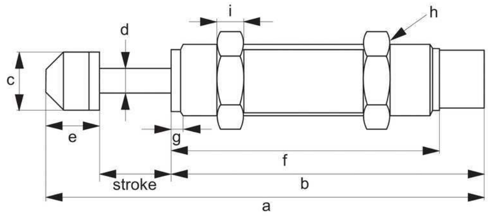
Important Notes

For correct product selection refer to Product Selection Formulae and Calculation pages, and associated Capacity & Selection Charts.

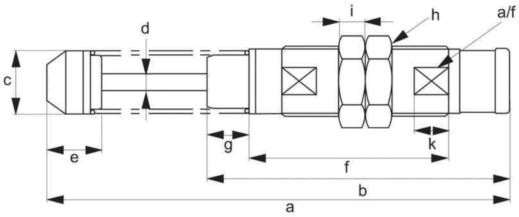
Shock Absorbers, Self Compensating

M14 - M20, non-adjustable

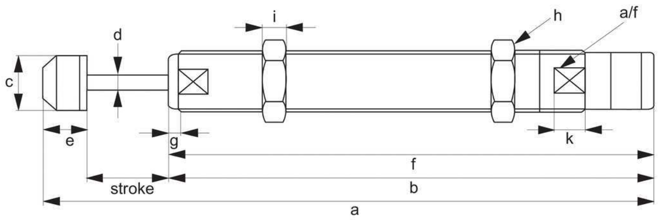
68008



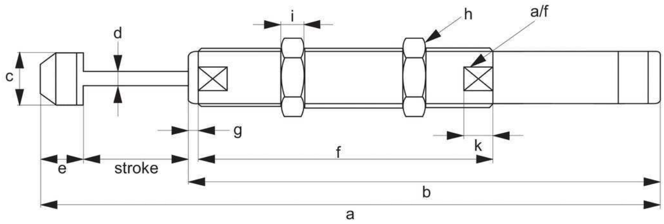
type - 68008.W0141 to W0192



type - 68008.W0201 to W0205



type - 68008.W0211 to W0214



type - 68008.W0215

Order No.	Stroke (mm)	Max. Nm Per Cycle (Et)	Max. Nm Per Hour (ETc)	Max. Effective Mass (Me) Kg	Impact Speed	Max. Impact Speed (v) m/s	Operating Temperature (°C)	g
68008.W0141	15	9,8	35280	30	Low	1,0	-10 to +80	80
68008.W0142	15	9,8	35280	15	Med	1,5	-10 to +80	80
68008.W0191	20	36,0	22000	27	Low	2,0	-10 to +80	170
68008.W0192	25	40,0	24200	35	Low	2,0	-10 to +80	180
68008.W0201	30	44,0	26460	60	V Low	1,2	-10 to +80	185
68008.W0202	30	44,0	26460	30	Low	1,7	-10 to +80	185
68008.W0203	30	44,0	26460	15	Med	2,4	-10 to +80	185
68008.W0204	30	44,0	26460	5	High	4,2	-10 to +80	205
68008.W0205	30	44,0	26460	3	V High	6,0	-10 to +80	205
68008.W0211	50	59,0	35280	30	V Low	2,0	-10 to +80	250
68008.W0213	50	59,0	35280	8	Low	3,8	-10 to +80	250
68008.W0212	50	59,0	35280	15	Med	2,8	-10 to +80	250
68008.W0214	50	59,0	35280	5	High	5,0	-10 to +80	250
68008.W0215	50	59,0	35280	3	V High	6,8	-10 to +80	235

Order No.	Thread	a	b	c	d	e	f	g	h	i	j	k
68008.W0141	M14x1,0	95,2	69,2	12	4	11,0	53,0	2,0	19	5	-	-
68008.W0142	M14x1,0	95,2	69,2	12	4	11,0	53,0	2,0	19	5	-	-
68008.W0191	M20x1,5	129,3	95,0	18	5	15,8	74,5	3,8	26	7	-	-
68008.W0192	M20x1,5	140,4	100,0	18	5	15,8	81,0	2,7	26	7	-	-
68008.W0201	M20x1,5	134,0	85,6	18	5	18,0	48,0	21,0	26	7	18,2	10
68008.W0202	M20x1,5	134,0	85,6	18	5	18,0	48,0	21,0	26	7	18,2	10
68008.W0203	M20x1,5	134,0	85,6	18	5	18,0	48,0	21,0	26	7	18,2	10
68008.W0204	M20x1,5	146,0	97,3	18	5	18,0	48,0	32,7	26	7	18,2	10
68008.W0205	M20x1,5	146,0	97,3	18	5	18,0	48,0	32,7	26	7	18,2	10
68008.W0211	M20x1,5	221,0	156,0	18	5	15,8	136,5	4,0	26	7	18,2	10

Material

Outer Tube: STKM11A, hardened and blackened.
Piston Rod: AISI 1045 hardened to HV940°, chrome plated.
Return Spring: DIN GWP.
Muffler Cap: urethane rubber. **Seal:** nitrile rubber.

Technical Notes

Supplied with rubber muffler cap as standard, this is removable - see introductory technical notes for guidance.

Tips

Select High Impact Speed model for hard impact at start of stroke. For hard set down at end of stroke choose a Medium or Low Impact Speed model.

Important Notes

For correct product selection refer to Product Selection Formulae and Calculation pages, and associated Capacity & Selection Charts.

Referral

For stop collars see part 68030 . For mounting flanges see part 68032 .

Shock Absorbers, Self Compensating

M14 - M20, non-adjustable

68008

Order No.	Thread	a	b	c	d	e	f	g	h	i	j	k
68008.W0213	M20x1,5	221,0	156,0	18	5	15,8	136,5	4,0	26	7	18,2	10
68008.W0212	M20x1,5	221,0	156,0	18	5	15,8	136,5	4,0	26	7	18,2	10
68008.W0214	M20x1,5	221,0	156,0	18	5	15,8	136,5	4,0	26	7	18,2	10
68008.W0215	M20x1,5	221,0	156,0	18	5	15,8	60,0	4,0	26	7	18,2	10

Material

Outer Tube: STKM11A, hardened and blackened.
Piston Rod: AISI 1045 hardened to HV940°, chrome plated.
Return Spring: DIN GWP.
Muffler Cap: urethane rubber. **Seal:** nitrile rubber.

Technical Notes

Supplied with rubber muffler cap as standard, this is removable - see introductory technical notes for guidance.

Tips

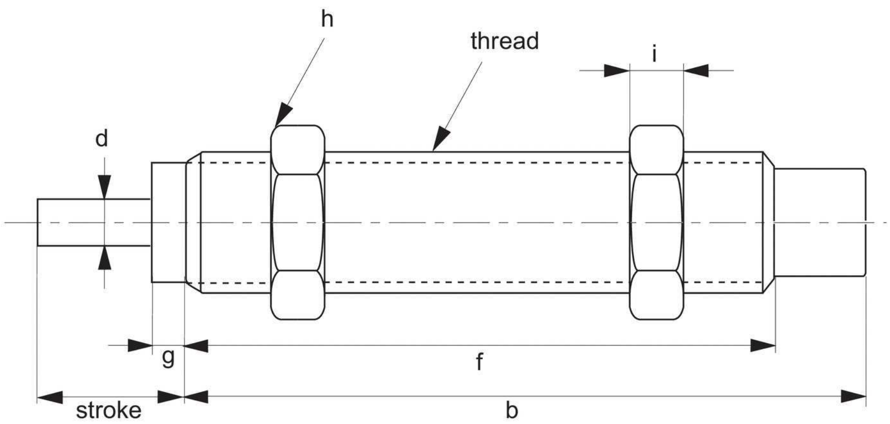
Select High Impact Speed model for hard impact at start of stroke. For hard set down at end of stroke choose a Medium or Low Impact Speed model.

Important Notes

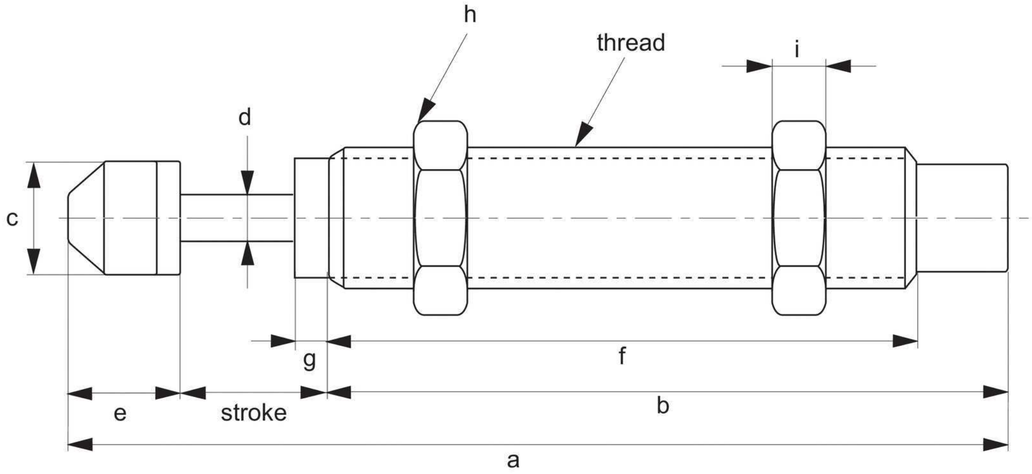
For correct product selection refer to Product Selection Formulae and Calculation pages, and associated Capacity & Selection Charts.

Referral

For stop collars see part 68030 . For mounting flanges see part 68032 .



without cap



with cap

Material
Outer Tube: STKM11A, hardened and blackened.
Piston Rod: AISI 1045 hardened to HV940°, chrome plated.
Return Spring: DIN GWP.
Muffler Cap: urethane rubber. Seal: nitrile rubber.

Technical Notes
Supplied with rubber muffler cap as standard, this is removable - see introductory technical notes for guidance.

Important Notes
For correct product selection refer to Product Selection Formulae and Calculation pages, and associated Capacity & Selection Charts.

Referral
For stop collars see part 68030 . For mounting flanges see part 68032 .

Order No.	With / Without Cap	Stroke (mm)	Max. Nm Per Cycle (Et)	Max. Nm Per Hour (ETc)	Max. Effective Mass (Me) Kg	Max. Impact Speed (v) m/s	Operating Temperature (°C)	g
68012.W0080	Without	4	0,5	720	3,0	0,3 - 1,0	-10 to +80	4,0
68012.W0081	Without	6	3	7000	6	0,3 - 2,5	-10 to +80	15
68012.W0082	With	6	3	7000	6	0,3 - 2,5	-10 to +80	17
68012.W0101	Without	7	6	12400	12	0,3 - 2,5	-10 to +80	25
68012.W0102	With	7	6	12400	12	0,3 - 3,5	-10 to +80	28
68012.W0121	Without	10	12	22500	22	0,3 - 4,0	-10 to +80	29
68012.W0122	With	10	12	22500	22	0,3 - 4,0	-10 to +80	32
68012.W0141	Without	12	20	33000	40	0,3 - 5,0	-10 to +80	65
68012.W0142	With	12	20	33000	40	0,3 - 5,0	-10 to +80	70
68012.W0143	With	12	14	24000	25,0	0,3 - 5,0	-10 to +80	70
68012.W0201	Without	15	59	38000	120	0,3 - 5,0	-10 to +80	150
68012.W0202	With	15	59	38000	120	0,3 - 5,0	-10 to +80	160
68012.W0251	Without	25	80	60000	180	0,3 - 5,0	-10 to +80	280
68012.W0252	With	25	80	60000	180	0,3 - 5,0	-10 to +80	295
68012.W0271	Without	25	147	72000	270	0,3 - 5,0	-10 to +80	360
68012.W0272	With	25	147	72000	270	0,3 - 5,0	-10 to +80	375

Order No.	Thread	a	b	c	d	e	f	g	h	i	a/f
68012.W0080	M 6x0,75	36,5	28,5	4,5	1,8	4,0	22,5	1	8,0	3,0	-
68012.W0082	M 8x1,0	55,2	40,6	6,6	2,9	8,6	33,6	2	11,0	3	-
68012.W0101	M10x1,0	-	47,0	-	3,0	-	39,0	3	12,7	3	-
68012.W0102	M10x1,0	62,6	47,0	8,6	3,0	8,6	39,0	3	12,7	3	-
68012.W0121	M12x1,0	-	52,5	-	3,0	-	44,0	3	14,0	4	-
68012.W0122	M12x1,0	71,1	52,5	10,3	3,0	8,6	44,0	3	14,0	4	-
68012.W0141	M14x1,5	-	67,0	-	4,0	-	58,0	4	19,0	5	12,1
68012.W0142	M14x1,5	90,0	67,0	12,0	4,0	11,0	58,0	4	19,0	5	12,1

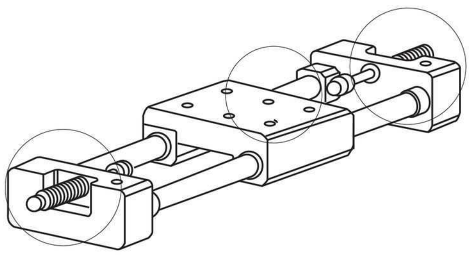
Shock Absorbers, Self Compensating

M8 - M27, non-adjustable

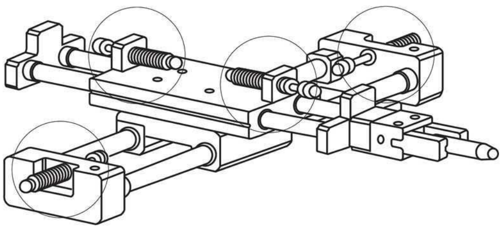
68012

Order No.	Thread	a	b	c	d	e	f	g	h	i	a/f
68012.W0143	M14x1,5	78,8	55,0	12,0	4,0	11,2	46,5	3,5	19,0	5,0	12,1
68012.W0201	M20x1,5	-	73,0	-	6,0	-	62,0	4	26,0	7	18,0
68012.W0202	M20x1,5	103,0	73,0	18,0	6,0	15,0	62,0	4	26,0	7	18,0
68012.W0251	M25x1,5	-	92,0	-	8,0	-	82,0	-	32,0	9	23,0
68012.W0252	M25x1,5	136,0	92,0	22,0	8,0	19,0	82,0	-	32,0	9	23,0
68012.W0271	M27x1,5	-	99,0	-	8,0	-	86,0	5	36,0	6	25,0
68012.W0272	M27x1,5	143,0	99,0	22,0	8,0	19,0	86,0	5	36,0	6	25,0

application examples:



slide unit cylinder



slide unit

Material

Outer Tube: STKM11A, hardened and blackened.
Piston Rod: AISI 1045 hardened to HV940°, chrome plated.
Return Spring: DIN GWP.
Muffler Cap: urethane rubber. Seal: nitrile rubber.

Technical Notes

Supplied with rubber muffler cap as standard, this is removable - see introductory technical notes for guidance.

Important Notes

For correct product selection refer to Product Selection Formulae and Calculation pages, and associated Capacity & Selection Charts.

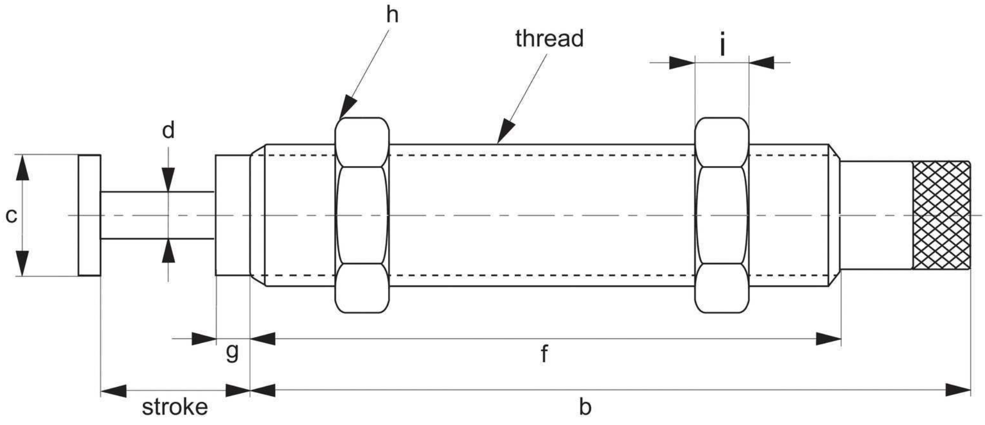
Referral

For stop collars see part 68030 . For mounting flanges see part 68032 .

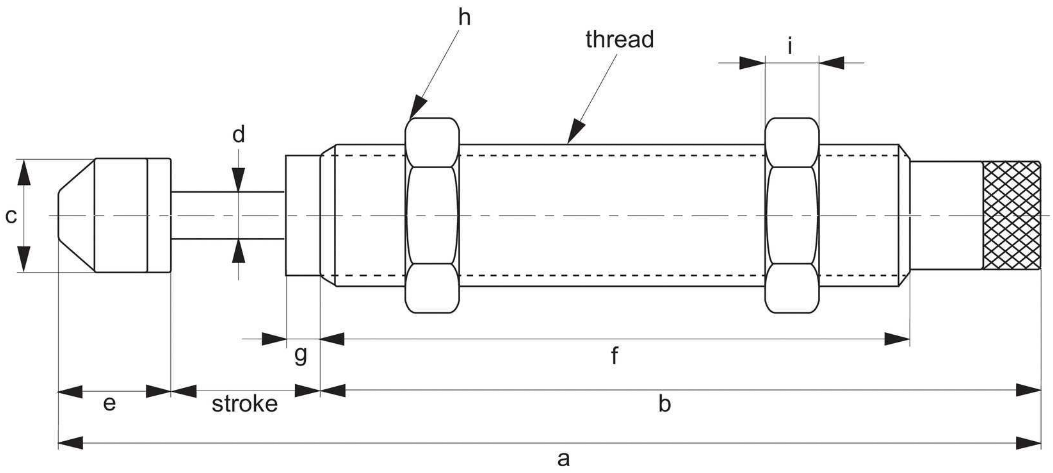
Shock Absorber, Adjustable

M14 - M20

68020



without cap



with cap

Order No.	With / Without Cap	Stroke (mm)	Max. Nm Per Cycle (Et)	Max. Nm Per Hour (ETc)	Max. Effective Mass (Me) Kg	Max speed (v) m/s	Operating Temperature (°C)	g
68020.W0139	Without	10	12	22000	35	3,0	-10 to +80	66
68020.W0140	With	10	12	22000	35	3,0	-10 to +80	66
68020.W0141	Without	10	20	25000	80	3,0	-10 to +80	90
68020.W0142	With	10	20	25000	80	3,0	-10 to +80	90
68020.W0143	Without	15	24	26000	100	3,0	-10 to +80	120
68020.W0144	With	15	24	26000	100	3,0	-10 to +80	120
68020.W0145	Without	25	28	27500	140	3,0	-10 to +80	194
68020.W0146	With	25	28	27500	140	3,0	-10 to +80	194
68020.W0147	Without	12	22	27500	130	3,0	-10 to +80	200
68020.W0148	With	12	22	27500	130	3,0	-10 to +80	200
68020.W0199	Without	16	28	28500	200	3,5	-10 to +80	222
68020.W0200	With	16	28	28500	200	3,5	-10 to +80	230
68020.W0201	Without	16	28	27500	200	3,0	-10 to +80	230
68020.W0202	With	16	28	27500	200	3,0	-10 to +80	230
68020.W0203	Without	25	39	30000	312	3,5	-10 to +80	232
68020.W0204	With	25	39	30000	312	3,5	-10 to +80	240
68020.W0205	Without	20	34	29000	298	3,5	-10 to +80	235
68020.W0206	With	20	34	29000	298	3,5	-10 to +80	235
68020.W0207	Without	50	69	52000	420	3,5	-10 to +80	330
68020.W0208	With	50	69	52000	420	3,5	-10 to +80	330

Order No.	Thread	a	b	c	d	e	f	h	i
68020.W0139	M14x1,5	90,3	71,7	10,3	4	8,6	57,3	14	4
68020.W0140	M14x1,5	90,3	71,7	10,3	4	8,6	57,3	14	4
68020.W0141	M14x1,5	109,5	88,5	12	4	11,2	72,5	19	5
68020.W0142	M14x1,5	109,5	88,5	12	4	11,0	72,5	19	5

Material

Outer Tube: STKM11A, hardened and blackened.
Piston Rod: AISI 1045 hardened to HV940°, chrome plated.
Return Spring: DIN GWP.
Muffler Cap: urethane rubber.
Seal: nitrile rubber.

Technical Notes

Adjustable shock absorbers have an adjustment collar at their base to enable setting of optimum deceleration of unit to suit application.
Supplied with rubber muffler cap as standard, this is removable - see introductory technical notes for guidance.

Important Notes

For correct product selection refer to Product Selection Formulae and Calculation pages, and associated Capacity & Selection Charts.

Referral

For stop collars see part 68030 . For mounting flanges see part 68032 .

Shock Absorber, Adjustable

M14 - M20

68020

Order No.	Thread	a	b	c	d	e	f	h	i
68020.W0143	M14x1,5	128,2	102	12	4	11,2	86,0	19	5
68020.W0144	M14x1,5	128,2	102	12	4	11,2	86,0	19	5
68020.W0145	M14x1,5	153,2	117	12	4	11,2	101,0	19	5
68020.W0146	M14x1,5	153,2	117	12	4	11,2	101,0	19	5
68020.W0147	M16x1,5	99,0	76,5	14	4	11,2	54,9	19	6
68020.W0148	M16x1,5	99,0	76,5	14	4	11,2	54,9	19	6
68020.W0199	M20x1,5	-	117,0	-	6	-	101,0	26	7
68020.W0200	M20x1,5	158,0	117,0	18	6	15,8	101,0	26	7
68020.W0201	M20x2,0	148,3	117,0	17,8	6	15,3	101,0	26	7
68020.W0202	M20x2,0	148,3	117,0	17,8	6	15,3	101,0	26	7
68020.W0203	M20x1,5	157,3	117,0	17,8	6	15,3	101,0	26	7
68020.W0204	M20x1,5	157,3	117,0	17,8	6	15,3	101,0	26	7
68020.W0205	M20x1,5	152,3	117,0	17,8	6	15,3	101,0	26	7
68020.W0206	M20x1,5	152,3	117,0	17,8	6	15,3	101,0	26	7
68020.W0207	M20x1,5	239,3	174	17,8	6	15,3	158,0	26	7
68020.W0208	M20x1,5	239,3	174	17,8	6	15,3	158,0	26	7

adjusting optimum deceleration

adjustment collar enables setting
of shock absorber's optimum deceleration

after initial installation, cycle unit a number
of times to settle, then turn adjustment collar to
desired position for application.
repeat until desired deceleration is achieved

Material

Outer Tube: STKM11A, hardened and blackened.
Piston Rod: AISI 1045 hardened to HV940°, chrome plated.
Return Spring: DIN GWP.
Muffler Cap: urethane rubber.
Seal: nitrile rubber.

Technical Notes

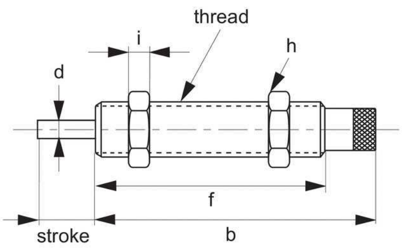
Adjustable shock absorbers have an adjustment collar at their base to enable setting of optimum deceleration of unit to suit application.
Supplied with rubber muffler cap as standard, this is removable - see introductory technical notes for guidance.

Important Notes

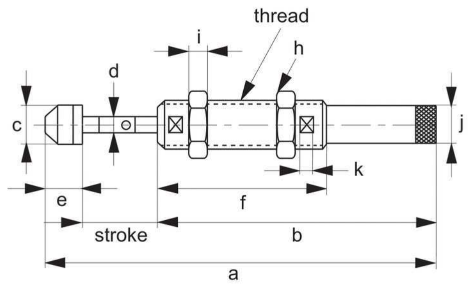
For correct product selection refer to Product Selection Formulae and Calculation pages, and associated Capacity & Selection Charts.

Referral

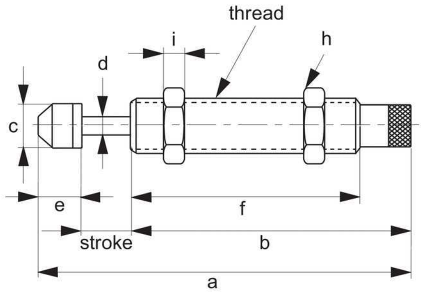
For stop collars see part 68030 . For mounting flanges see part 68032 .



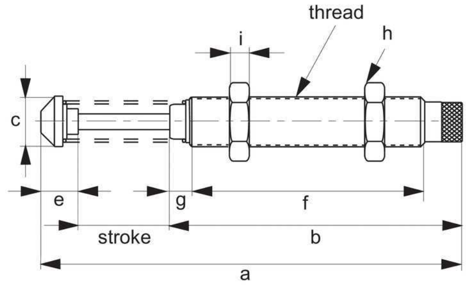
type - 68024. W0251 & .W0253



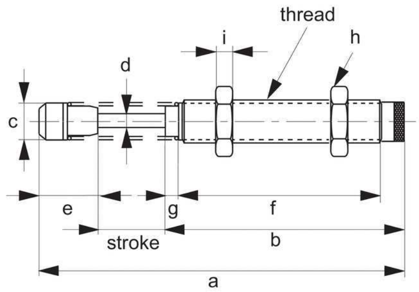
type - 68024. W0256 & .W0257



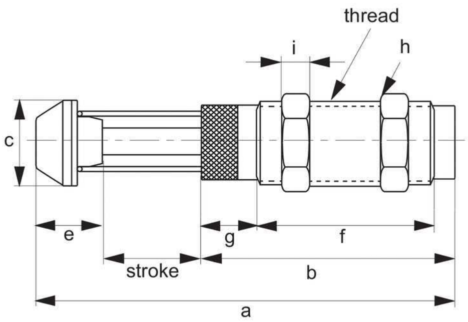
type - 68024. W0252 & .W0254



type - 68024. W0361 & .W0362



type - 68024. W0255



type - 68024. W0421 & .W0423

Material
Outer Tube: STKM11A, hardened and blackened.
Piston Rod: AISI 1045 hardened to HV940°, chrome plated.
Return Spring: DIN GWP.
Muffler Cap: urethane rubber.
Seal: nitrile rubber.

Technical Notes
Adjustable shock absorbers have an adjustment collar at their base to enable setting of optimum deceleration of unit to suit application.
After initial installation, cycle unit a number of times to settle, then turn adjustment collar to desired position for application.
Supplied with rubber muffler cap as standard, this is removable - see introductory technical notes for guidance.

Important Notes
For correct product selection refer to Product Selection Formulae and Calculation pages, and associated Capacity & Selection Charts.

Referral
For stop collars see part 68030 . For mounting flanges see part 68032 .

Order No.	With / Without Cap	Stroke (mm)	Max. Nm Per Cycle (Et)	Max. Nm Per Hour (Etc)	Max. Effective Mass (Me) Kg	Max. Impact Speed (v) m/s	Operating Temperature (°C)	g
68024.W0251	Without	25	85	54000	400	3,5	-10 to +80	335
68024.W0252	With	25	85	54000	400	3,5	-10 to +80	350
68024.W0253	Without	30	95	60000	480	3,5	-10 to +80	340
68024.W0254	With	30	95	60000	480	3,5	-10 to +80	365
68024.W0255	With	40	100	80000	700	3,5	-10 to +80	455
68024.W0256	With	50	120	90000	720	4,0	-10 to +80	455
68024.W0257	With	80	150	120000	800	4,0	-10 to +80	585
68024.W0361	With	25	150	81000	1400	3,0	-10 to +80	955
68024.W0362	With	50	300	81000	1400	3,0	-10 to +80	1100
68024.W0260	Without	25	195	75700	1400	3,3	-10 to +80	482
68024.W0260	With	25	195	75700	1400	3,3	-10 to +80	482
68024.W0261	Without	25	195	75700	1400	3,3	-10 to +80	482
68024.W0262	With	52	385	98962	2400	3,3	-10 to +80	708
68024.W0263	Without	52	385	98962	2400	3,3	-10 to +80	708
68024.W0421	With	25	260	125000	3000	3,5	-10 to +80	1280
68024.W0422	With	50	500	150000	4000	4,5	-10 to +80	1490
68024.W0423	With	75	750	180000	6000	4,5	-10 to +80	1710

Order No.	Thread	a	b	c	d	e	f	g	h	i	j	k
68024.W0251	M25x1,5	-	118,5	-	8	-	101,0	-	32	9	-	-
68024.W0252	M25x1,5	163,0	118,5	22,0	8	19,0	101,0	-	32	9	-	-
68024.W0253	M25x1,5	-	118,5	-	8	-	101,0	-	32	9	-	-
68024.W0254	M25x1,5	167,5	118,5	22,0	8	19,0	101,0	-	32	9	-	-
68024.W0255	M25x1,5	221,5	144,5	22,0	8	37,0	117,0	10,0	32	9	-	-
68024.W0256	M25x1,5	247,0	178,0	22,0	8	19,0	100,0	-	32	9	23	11
68024.W0257	M25x1,5	343,5	244,5	22,0	8	19,0	100,0	-	32	9	23	11

Shock Absorber, Adjustable

M25 - M42

68024

Order No.	Thread	a	b	c	d	e	f	g	h	i	j	k
68024.W0258	M25x1,5	343,5	244,5	22,0	8	19,0	100,0	-	32	9	23	11
68024.W0259	M27x1,5	162.5	118,5	22,0	8	19,0	101,0	-	32	9	-	-
68024.W0260	M33x1,5	150,3	110,5	28,5	10	13,8	77,9	19,1	45	11	29,7	16
68024.W0261	M33x1,5	150,3	110,5	28,5	10	13,8	77,9	19,1	45	11	29,7	16
68024.W0262	M33x1,5	217,3	151,5	28,5	10	13,8	118,7	19,1	45	11	29,7	16
68024.W0263	M33x1,5	217,3	151,5	28,5	10	13,8	118,7	19,1	45	11	29,7	16
68024.W0361	M36x1,5	183,8	123,0	35,5	10	25,8	103,0	10,0	46	15	-	-
68024.W0362	M36x1,5	246,8	154,0	35,5	10	25,8	134,0	17,0	46	15	-	-
68024.W0421	M42x1,5	186,4	127,5	44,5	12	33,9	88,0	28,5	50	15	-	-
68024.W0422	M42x1,5	240,9	157,0	44,5	12	33,9	117,5	28,5	50	15	-	-
68024.W0423	M42x1,5	301,4	187,5	44,5	12	33,9	148,0	28,5	50	15	-	-

Material

Outer Tube: STKM11A, hardened and blackened.
Piston Rod: AISI 1045 hardened to HV940°, chrome plated.
Return Spring: DIN GWP.
Muffler Cap: urethane rubber.
Seal: nitrile rubber.

Technical Notes

Adjustable shock absorbers have an adjustment collar at their base to enable setting of optimum deceleration of unit to suit application.
After initial installation, cycle unit a number of times to settle, then turn adjustment collar to desired position for application.
Supplied with rubber muffler cap as standard, this is removable - see introductory technical notes for guidance.

Important Notes

For correct product selection refer to Product Selection Formulae and Calculation pages, and associated Capacity & Selection Charts.

Referral

For stop collars see part 68030 . For mounting flanges see part 68032 .

Stop Collars for Shock Absorbers

M8 to M36

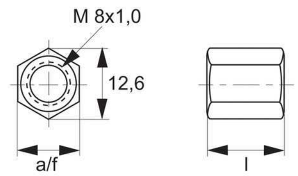
68030

Material

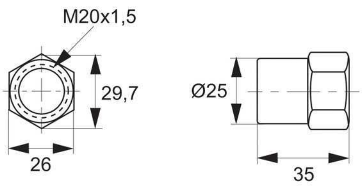
Steel, hardened and blackened.

Technical Notes

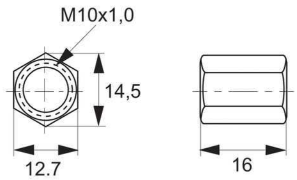
For use with Wixroyd range of shock absorbers, stop collars can be used to adjust both the stroke and fixing position of the shock absorber.
Stop collar plus half nut supplied.



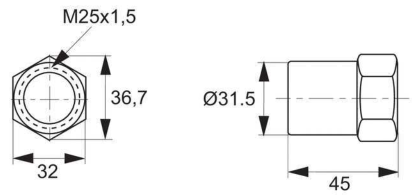
type - 68030. W0008



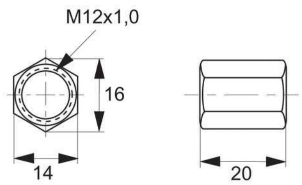
type - 68030. W0020



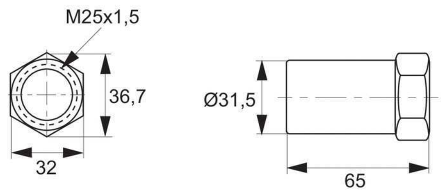
type - 68030. W0010



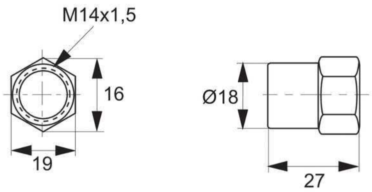
type - 68030. W0025



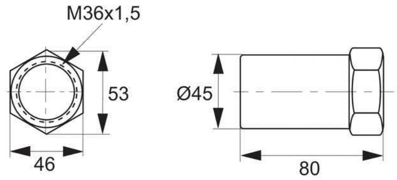
type - 68030. W0012



type - 68030. W0026

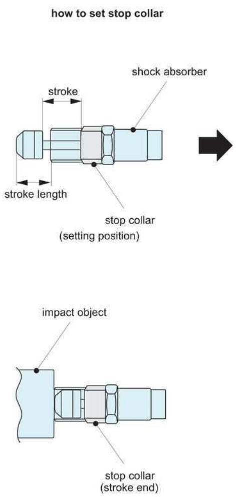


type - 68030. W0014



type - 68030. W0036

Order No.	Thread	l	a/f	dia.	To Suit Shock Absorber Size
68030.W0008	M 8x1,0	14	11,0	-	**68001**.W0081, .W0082, .W0083 **68012**.W0081, .W0082
68030.W0010	M10x1,0	16	12,7	-	**68001**.W0101, .W0102, .W0103,. W0104, .W0105, .W0106 **68012**.W0101, .W0102
68030.W0012	M12x1,0	20	14,0	-	**68001**.W0121, .W0122, .W0123 **68012**.W0121, .W0122
68030.W0014	M14x1,5	27	19,0	18,0	**68002**.W0141, .W0142, .W0143,. W0144, .W0145, .W0146 **68008**.W0141, .W0142 **68012**.W0141, .W0142 **68020**.W0141, .W0142
68030.W0020	M20x1,5	35	26,0	25,0	**68002**.W0201, .W0202, .W0203, .W0204,. W0205, .W0206, .W0207, .W0208, .W0209 **68004**.W0201, .W0202, .W0203,. W0204, .W0205, .W0206 **68008**.W0201, .W0202, .W0203, .W0204,. W0205, .W0211, .W0212, .W0213, .W0214, .W0215 **68012**.W0201, .W0202 **68020**.W0201, .W0202, .W0203, .W0204
68030.W0025	M25x1,5	45	32,0	31,5	**68003**.W0251, .W0252, .W0253, .W0257, .W0258,. W0259, .W0260, .W0261, .W0262, .W0263 **68012**.W0251, .W0252 **68024**.W0252, .W0254, .W0255, .W0257
68030.W0026	M25x1,5	65	32,0	31,5	**68003**.W0254, .W0255, .W0256 **68024**.W0255
68030.W0036	M36x1,5	80	46,0	45,0	**68003**.W0361, .W0362, .W0363 **68024**.W0361, .W0362

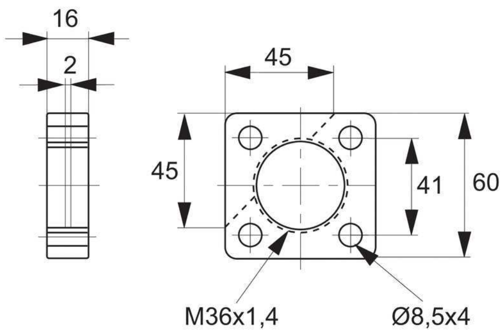


Material
Steel, hardened and blackened.

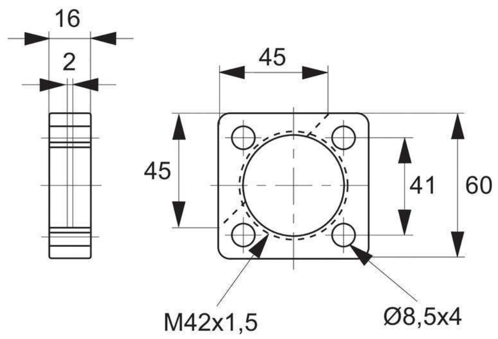
Technical Notes
For use with Wixroyd range of shock absorbers, stop collars can be used to adjust both the stroke and fixing position of the shock absorber.
Stop collar plus half nut supplied.

Mounting Flanges for Shock Absorbers

M36 and M42

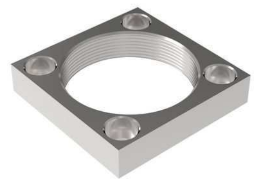


type - 68032. W0036



type - 68032. W0042

Order No.	Thread	To Suit Shock Absorber Size
68032.W0036	M36 x 1,5	**68003**.W0361, .W0362, .W0363 **68024**.W0361, .W0632
68032.W0042	M42 x 1,5	**68024**.W0421, .W0422, .W0423



Material

Steel, hardened and blackened.

Technical Notes

Provide easy mounting of Wixroyd Shock Absorbers in our application.

Wixroyd INGENUITY

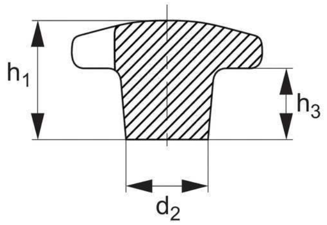
Handles & Pulls

ov-handles-and-pulls - Updated - 12-01-2017

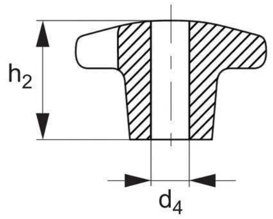
Palm Grips

cast iron - DIN 6335

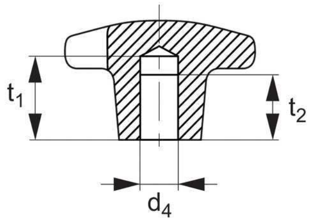
70000



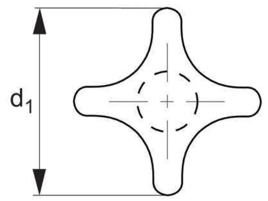
unmachined

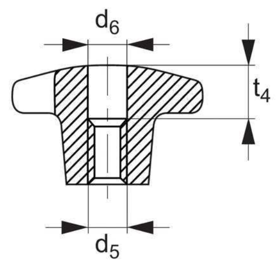


smooth through going bore

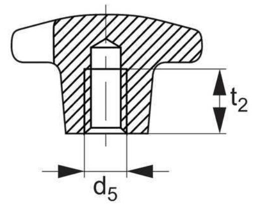


smooth blind hole





threaded, through going bore



threaded blind hole

Material
Cast iron GG20, bright.

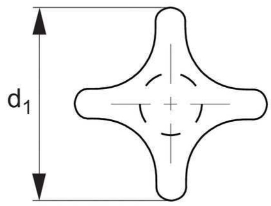
Technical Notes
Sandblasted or tumbled.

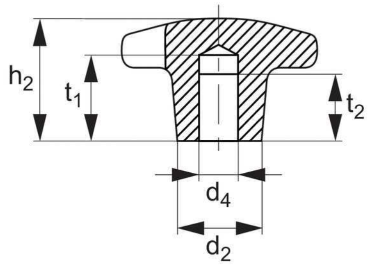
Tips
Grips with different bores or surface treatment can be made to order (min. quantity for specials 200 off).

Order No.	Finish	d_1	d_2	d_4 H7	d_5	d_6	h_1	h_2	h_3	t_1	t_2	t_4	g
70000.W0032	Unmachined	32	12	-	-	-	21	-	10	-	-	-	38
70000.W0040	Unmachined	40	14	-	-	-	26	-	14	-	-	-	69
70000.W0050	Unmachined	50	18	-	-	-	34	-	20	-	-	-	115
70000.W0063	Unmachined	63	20	-	-	-	42	-	25	-	-	-	228
70000.W0080	Unmachined	80	25	-	-	-	52	-	30	-	-	-	415
70000.W0090	Unmachined	100	32	-	-	-	65	-	38	-	-	-	855
70000.W0132	Smooth, Through	32	12	6	-	-	-	20	-	-	-	-	34
70000.W0140	Smooth, Through	40	14	8	-	-	-	25	-	-	-	-	59
70000.W0150	Smooth, Through	50	18	10	-	-	-	32	-	-	-	-	95
70000.W0163	Smooth, Through	63	20	12	-	-	-	40	-	-	-	-	171
70000.W0180	Smooth, Through	80	25	16	-	-	-	50	-	-	-	-	338
70000.W0190	Smooth, Through	100	32	20	-	-	-	63	-	-	-	-	709
70000.W0232	Smooth, Blind	32	12	6	-	-	-	20	-	15	12	-	36
70000.W0240	Smooth, Blind	40	14	8	-	-	-	25	-	18	15	-	61
70000.W0250	Smooth, Blind	50	18	10	-	-	-	32	-	21	18	-	99
70000.W0263	Smooth, Blind	63	20	12	-	-	-	40	-	25	22	-	200
70000.W0280	Smooth, Blind	80	25	16	-	-	-	50	-	32	28	-	380
70000.W0290	Smooth, Blind	100	32	20	-	-	-	63	-	40	36	-	648
70000.W0332	Threaded, Through	32	12	-	M 6	6,4	-	20	-	-	-	10	34
70000.W0340	Threaded, Through	40	14	-	M 8	8,4	-	25	-	-	-	12	60
70000.W0350	Threaded, Through	50	18	-	M10	10,5	-	32	-	-	-	16	95
70000.W0363	Threaded, Through	63	20	-	M12	13,0	-	40	-	-	-	20	191
70000.W0380	Threaded, Through	80	25	-	M16	17,0	-	50	-	-	-	30	339
70000.W0390	Threaded, Through	100	32	-	M20	21,0	-	63	-	-	-	38	704
70000.W0432	Threaded, Blind	32	12	-	M 6	-	-	20	-	-	12	-	35
70000.W0440	Threaded, Blind	40	14	-	M 8	-	-	25	-	-	15	-	63
70000.W0450	Threaded, Blind	50	18	-	M10	-	-	32	-	-	18	-	103
70000.W0463	Threaded, Blind	63	20	-	M12	-	-	40	-	-	22	-	205
70000.W0480	Threaded, Blind	80	25	-	M16	-	-	50	-	-	28	-	359
70000.W0490	Threaded, Blind	100	32	-	M20	-	-	63	-	-	36	-	720

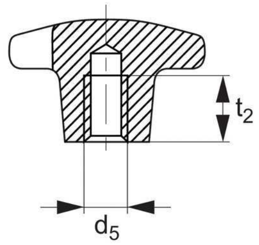
Palm Grips

cast iron, plastic coated - DIN 6335





smooth blind hole



threaded blind hole

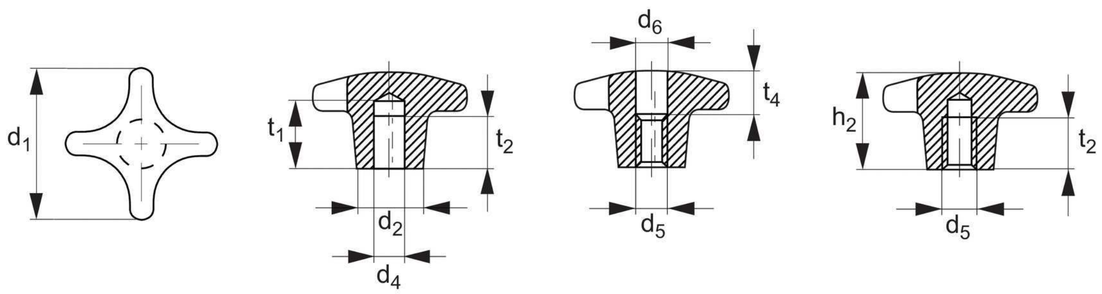
Order No. Orange	Order No. Black	Finish	d_1	d_2	d_4 H7	d_5	h_2	t_1	t_2	g
70020.W0540	70020.W0640	Smooth, Blind	40	14	8	-	25	18	15	62
70020.W0541	70020.W0641	Threaded, Blind	40	14	-	M 8	25	-	15	56
70020.W0550	70020.W0650	Smooth, Blind	50	18	10	-	32	21	18	106
70020.W0551	70020.W0651	Threaded, Blind	50	18	-	M10	32	-	18	110
70020.W0563	70020.W0663	Smooth, Blind	63	20	12	-	40	25	22	201
70020.W0564	70020.W0664	Threaded, Blind	63	20	-	M12	40	-	22	198
70020.W0580	70020.W0680	Smooth, Blind	80	25	16	-	50	32	28	353
70020.W0581	70020.W0681	Threaded, Blind	80	25	-	M16	50	-	28	364

Material
Cast iron GG20, plastic-coated, orange RAL2004 or black RAL9005 dull finish.

Palm Grips

aluminium - DIN 6335

70040



smooth blind hole

threaded, through

threaded blind hole

Order No. Unpolished	Order No. Polished	Finish	d_1	d_2	d_4 H7	d_5	d_6	h_2	t_1	t_2	t_4	g
70040.W0240	70040.W0640	Smooth, Blind	40	14	8	-	-	25	18	15	-	25
70040.W0250	70040.W0650	Smooth, Blind	50	18	10	-	-	32	21	18		45
70040.W0263	70040.W0663	Smooth, Blind	63	20	12	-	-	40	25	22	-	84
70040.W0280	70040.W0680	Smooth, Blind	80	25	16	-	-	50	32	28		141
70040.W0340	70040.W0740	Threaded, Through	40	14	-	M 8	8,4	25	-	-	12	23
70040.W0350	70040.W0750	Threaded, Through	50	18	-	M10	10,5	32	-	-	16	44
70040.W0363	70040.W0763	Threaded, Through	63	20	-	M12	13,0	40	-	-	20	70
70040.W0380	70040.W0780	Threaded, Through	80	25	-	M16	17,0	50	-	-	30	129
70040.W0440	70040.W0840	Threaded, Blind	40	14	-	M 8	-	25	-	15	-	22
70040.W0450	70040.W0850	Threaded, Blind	50	18	-	M10	-	32	-	18	-	46
70040.W0463	70040.W0863	Threaded, Blind	63	20	-	M12	-	40	-	22	-	86
70040.W0480	70040.W0880	Threaded, Blind	80	25	-	M16	-	50	-	28	-	143

Material

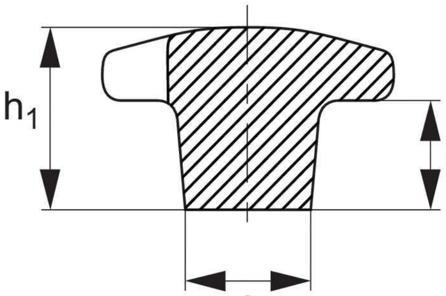
Light metal aluminium (polished or unpolished).

Tips

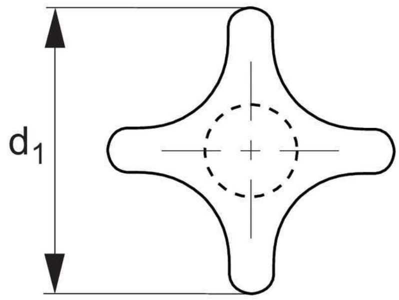
Grips with different bores or surface treatment can be made to order (min. quantity for specials 200 off).

ALU.

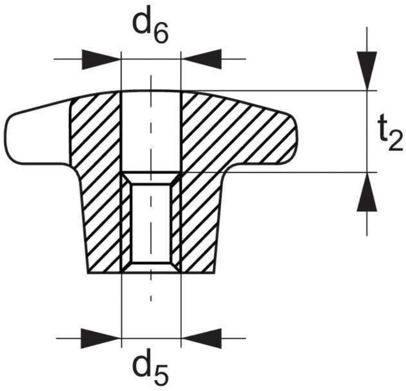
70042



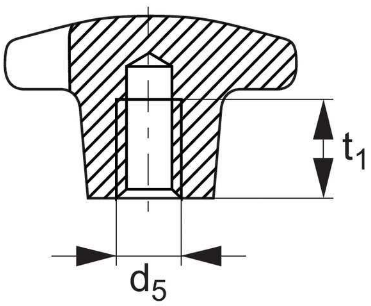
unmachined



Material
Stainless steel A2 (AISI 304), dull blasted.

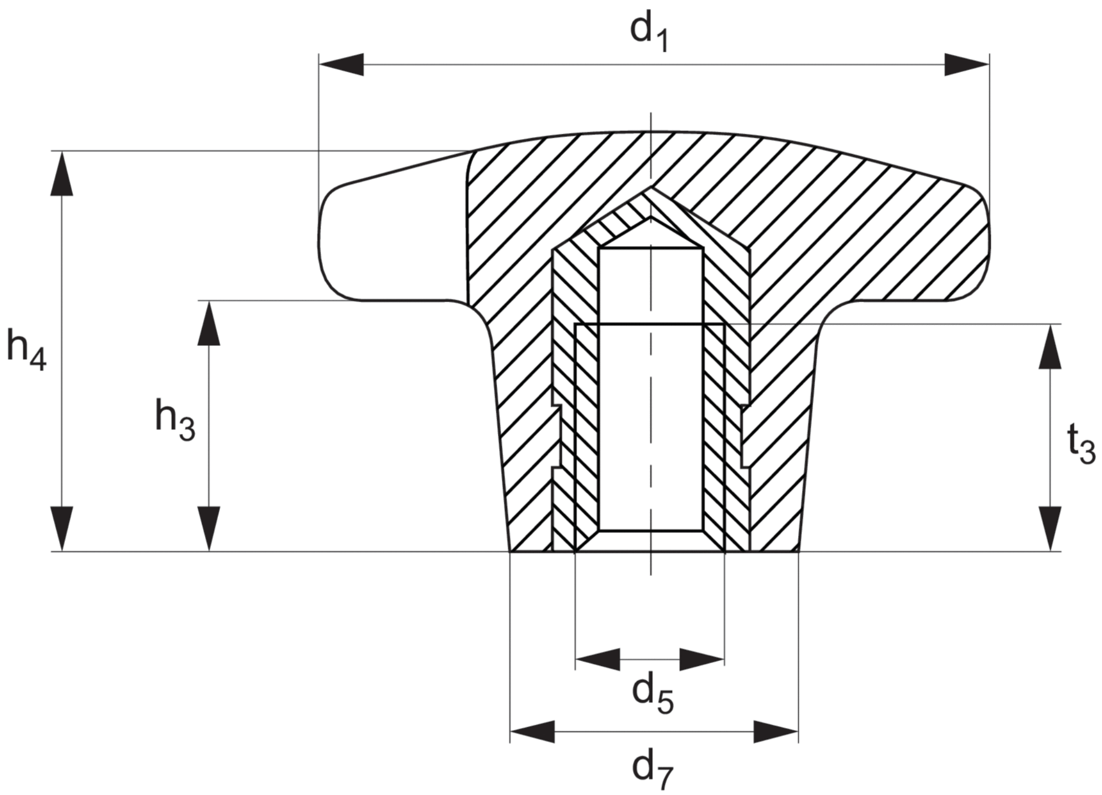


threaded, through bore



threaded blind hole

Order No.	Finish	d_1	d_2	d_5	d_6	h_1	h_2	t_1	t_2	g
70042.W0032	Unmachined	32	12	-	-	21	10	-	-	41
70042.W0040	Unmachined	40	14	-	-	26	14	-	-	70
70042.W0050	Unmachined	50	18	-	-	34	20	-	-	128
70042.W0063	Unmachined	63	20	-	-	42	25	-	-	227
70042.W0332	Threaded, Through	32	12	M 6	6,4	20	-	-	10	36
70042.W0340	Threaded, Through	40	14	M 8	8,4	25	-	-	12	60
70042.W0350	Threaded, Through	50	18	M10	10,5	32	-	-	16	107
70042.W0363	Threaded, Through	63	20	M12	13,0	40	-	-	20	192
70042.W0432	Threaded, Blind	32	12	M 6	-	20	-	12	-	38
70042.W0440	Threaded, Blind	40	14	M 8	-	25	-	15	-	62
70042.W0450	Threaded, Blind	50	18	M10	-	32	-	18	-	114
70042.W0463	Threaded, Blind	63	20	M12	-	40	-	22	-	205

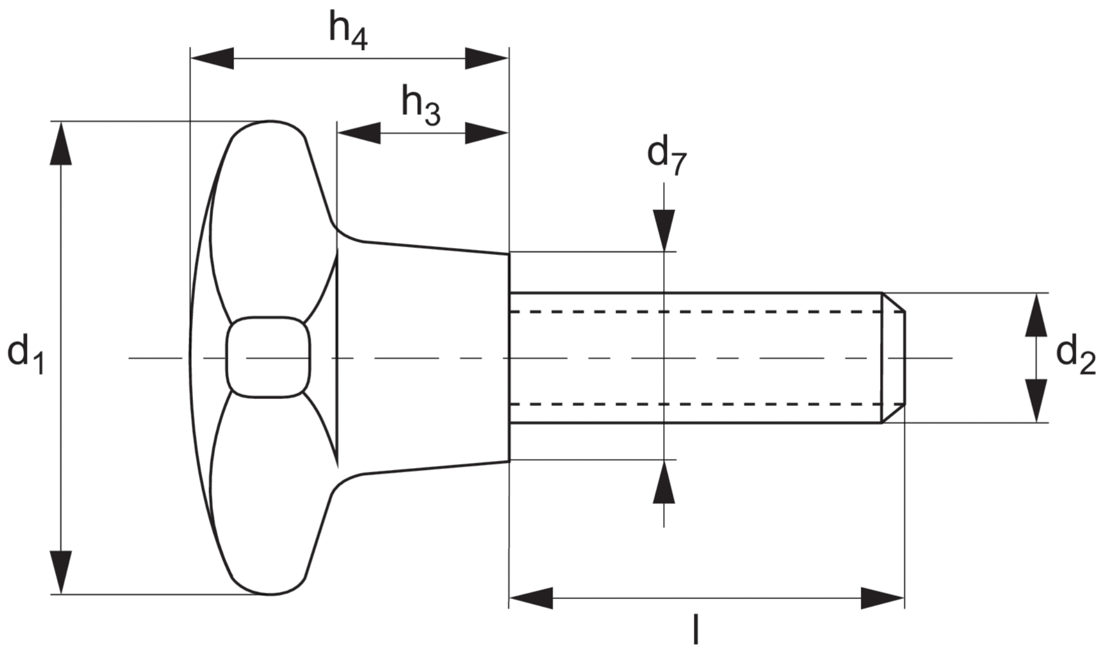


Material
Grip: duroplast PF 31 DIN 7708, black.
Threaded bush: steel, galvanised or stainless steel A2.
Temperature range: max 110°C.

Order No.	Finish	d_1	d_5	d_7	h_3	h_4	t_3	g
70060.W0220	Brass	20	M 4	10	6	13	6,5	3,3
70060.W0225	Steel	25	M 5	12	8	16	9,5	7,0
70060.W0232	Steel	32	M 6	14	10	20	12,0	12,0
70060.W0240	Steel	40	M 8	18	13	25	14,0	16,0
70060.W0250	Steel	50	M10	22	20	32	18,0	32,0
70060.W0263	Steel	63	M12	26	25	40	22,0	62,0
70060.W0280	Steel	80	M16	35	30	50	30,0	137,0
70060.W1225	Stainless	25	M 5	12	8	16	9,5	7,0
70060.W1232	Stainless	32	M 6	14	10	20	12,0	12,0
70060.W1240	Stainless	40	M 8	18	13	25	14,0	16,0
70060.W1263	Stainless	63	M12	26	25	40	22,0	62,0
70060.W1280	Stainless	80	M16	35	30	50	30,0	137,0

Palm Grips
with grub screw

70080



Material
Duroplast PF 31 to DIN 7708, black.
Grub screw: steel, galvanised or stainless steel A2.

Technical Notes
Special designs e.g. different lengths or grub screws in brass, or stainless steel can be made to order depending on quantity.
Temperature range up to 110°C.

PF

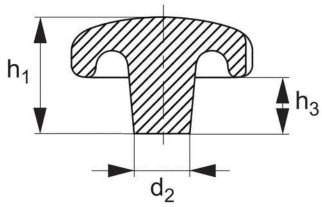
+110°

Order No. Steel	Order No. Stainless	d_1	d_2	l	d_7	h_3	h_4	g
70080.W0051	70080.W1051	25	M 5	10	12	8	16	6,7
70080.W0052	70080.W1052	25	M 5	15	12	8	16	7,3
70080.W0053	70080.W1053	25	M 5	20	12	8	16	7,5
70080.W0054	70080.W1054	25	M 5	25	12	8	16	8,1
70080.W0055	70080.W1055	25	M 5	30	12	8	16	8,9
70080.W0061	70080.W1061	32	M 6	15	14	10	20	11,0
70080.W0062	70080.W1062	32	M 6	20	14	10	20	12,0
70080.W0063	70080.W1063	32	M 6	25	14	10	20	15,0
70080.W0064	70080.W1064	32	M 6	30	14	10	20	16,0
70080.W0065	70080.W1065	32	M 6	40	14	10	20	16,0
70080.W0081	70080.W1081	40	M 8	20	18	13	25	24,0
70080.W0082	70080.W1082	40	M 8	25	18	13	25	25,0
70080.W0083	70080.W1083	40	M 8	30	18	13	25	26,0
70080.W0084	70080.W1084	40	M 8	40	18	13	25	30,0
70080.W0085	70080.W1085	40	M 8	50	18	13	25	32,0
70080.W0101	70080.W1101	50	M10	25	22	20	32	41,0
70080.W0102	70080.W1102	50	M10	30	22	20	32	48,0
70080.W0103	70080.W1103	50	M10	40	22	20	32	51,0
70080.W0104	70080.W1104	50	M10	50	22	20	32	56,0
70080.W0105	70080.W1105	50	M10	60	22	20	32	69,0
70080.W0121	70080.W1121	63	M12	30	26	25	40	86,0
70080.W0122	70080.W1122	63	M12	40	26	25	40	93,0
70080.W0123	70080.W1123	63	M12	50	26	25	40	99,0
70080.W0124	70080.W1124	63	M12	60	26	25	40	105,0
70080.W0125	70080.W1125	63	M12	80	26	25	40	112,0
70080.W0161	70080.W1161	80	M16	40	35	30	50	198,0
70080.W0162	70080.W1162	80	M16	50	35	30	50	175,0
70080.W0163	70080.W1163	80	M16	60	35	30	50	219,0
70080.W0164	70080.W1164	80	M16	80	35	30	50	251,0

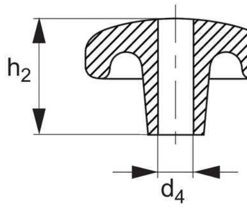
Star Grips

cast iron - DIN 6336

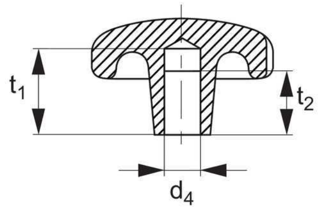
70100



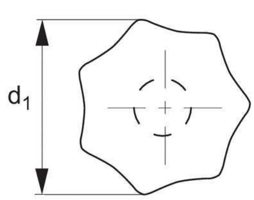
unmachined

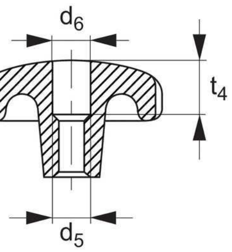


smooth through going bore

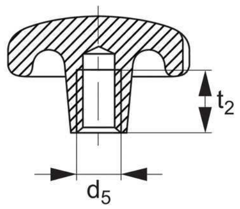


smooth blind hole





threaded, through going bore



threaded blind hole

Material

GG20 cast iron, bright, sand blasted or tumbled.

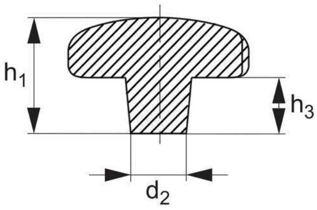
Technical Notes

Grips with different bores or surface treatments can be obtained by special order, (minimum quantity 200 off).

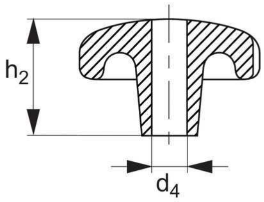
Order No.	Finish	d_1	d_2	d_4 H7	d_5	d_6	h_1	h_2	h_3	t_1	t_2	t_4	g
70100.W0032	Unmachined	32	12	-	-	-	21	-	10	-	-	-	55
70100.W0040	Unmachined	40	14	-	-	-	26	-	13	-	-	-	82
70100.W0050	Unmachined	50	18	-	-	-	34	-	17	-	-	-	150
70100.W0063	Unmachined	63	20	-	-	-	42	-	21	-	-	-	260
70100.W0080	Unmachined	80	25	-	-	-	52	-	25	-	-	-	510
70100.W0132	Smooth, Through	32	12	6	-	-	-	20	-	-	-	-	49
70100.W0140	Smooth, Through	40	14	8	-	-	-	25	-	-	-	-	72
70100.W0150	Smooth, Through	50	18	10	-	-	-	32	-	-	-	-	130
70100.W0163	Smooth, Through	63	20	12	-	-	-	40	-	-	-	-	220
70100.W0180	Smooth, Through	80	25	16	-	-	-	50	-	-	-	-	440
70100.W0232	Smooth, Blind	32	12	6	-	-	-	20	-	15	12	-	50
70100.W0240	Smooth, Blind	40	14	8	-	-	-	25	-	18	15	-	74
70100.W0250	Smooth, Blind	50	18	10	-	-	-	32	-	21	18	-	135
70100.W0263	Smooth, Blind	63	20	12	-	-	-	40	-	25	22	-	235
70100.W0280	Smooth, Blind	80	25	16	-	-	-	50	-	32	28	-	460
70100.W0332	Threaded, Through	32	12	-	M 6	6,4	-	20	-	-	-	10	49
70100.W0340	Threaded, Through	40	14	-	M 8	8,4	-	25	-	-	-	12	72
70100.W0350	Threaded, Through	50	18	-	M10	10,5	-	32	-	-	-	16	130
70100.W0363	Threaded, Through	63	20	-	M12	13,0	-	40	-	-	-	20	220
70100.W0380	Threaded, Through	80	25	-	M16	17,0	-	50	-	-	-	30	545
70100.W0432	Threaded, Blind	32	12	-	M 6	-	-	20	-	-	12	-	50
70100.W0440	Threaded, Blind	40	14	-	M 8	-	-	25	-	-	15	-	74
70100.W0450	Threaded, Blind	50	18	-	M10	-	-	32	-	-	18	-	135
70100.W0463	Threaded, Blind	63	20	-	M12	-	-	40	-	-	22	-	235
70100.W0480	Threaded, Blind	80	25	-	M16	-	-	50	-	-	28	-	460

Star Grips
aluminium - DIN 6336

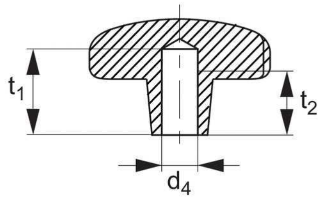
70120



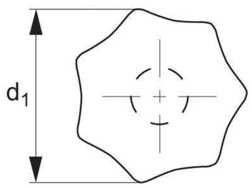
unmachined

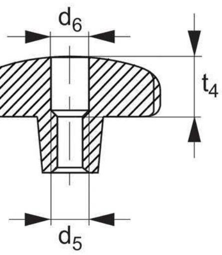


smooth through going bore

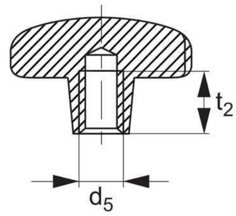


smooth blind hole





threaded, through going bore



threaded blind hole

Material
Light metal aluminium (polished or unpolished).

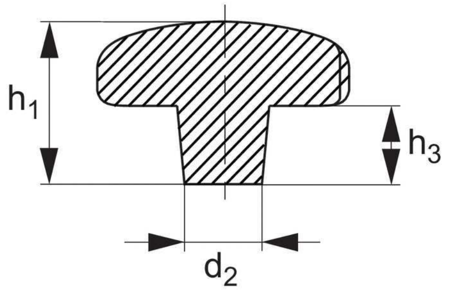
ALU.

Order No. Unpolished	Order No. Polished	Finish	d_1	d_2	d_4 H7	d_5	d_6	h_1	h_2	h_3	t_1	t_2	t_4	g
70120.W0040	-	Unmachined	40	14	-	-	-	26	-	13	-	-	-	36
70120.W0050	-	Unmachined	50	18	-	-	-	34	-	17	-	-	-	70
70120.W0063	-	Unmachined	63	20	-	-	-	42	-	21	-	-	-	128
70120.W0080	-	Unmachined	80	25	-	-	-	52	-	25	-	-	-	245
70120.W0140	70120.W0540	Smooth, Through	40	14	8	-	-	-	25	-	-	-	-	32
70120.W0150	70120.W0550	Smooth, Through	50	18	10	-	-	-	32	-	-	-	-	64
70120.W0163	70120.W0563	Smooth, Through	63	20	12	-	-	-	40	-	-	-	-	110
70120.W0180	70120.W0580	Smooth, Through	80	25	16	-	-	-	50	-	-	-	-	200
70120.W0240	70120.W0640	Smooth, Blind	40	14	8	-	-	-	25	-	18	15	-	30
70120.W0250	70120.W0650	Smooth, Blind	50	18	10	-	-	-	32	-	21	18	-	63
70120.W0263	70120.W0663	Smooth, Blind	63	20	12	-	-	-	40	-	25	22	-	117
70120.W0280	70120.W0680	Smooth, Blind	80	25	16	-	-	-	50	-	32	28	-	223
70120.W0340	70120.W0740	Threaded, Through	40	14	-	M 8	8,4	-	25	-	-	-	12	32
70120.W0350	70120.W0750	Threaded, Through	50	18	-	M10	10,5	-	32	-	-	-	16	32
70120.W0363	70120.W0763	Threaded, Through	63	20	-	M12	13,0	-	40	-	-	-	20	109
70120.W0380	70120.W0780	Threaded, Through	80	25	-	M16	17,0	-	50	-	-	-	30	218
70120.W0440	70120.W0840	Threaded, Blind	40	14	-	M 8	-	-	25	-	-	15	-	33
70120.W0450	70120.W0850	Threaded, Blind	50	18	-	M10	-	-	32	-	-	18	-	63
70120.W0463	70120.W0863	Threaded, Blind	63	20	-	M12	-	-	40	-	-	22	-	111
70120.W0480	70120.W0880	Threaded, Blind	80	25	-	M16	-	-	50	-	-	28	-	227

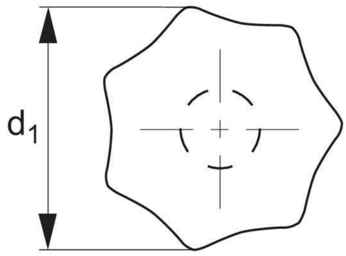
Star Grips

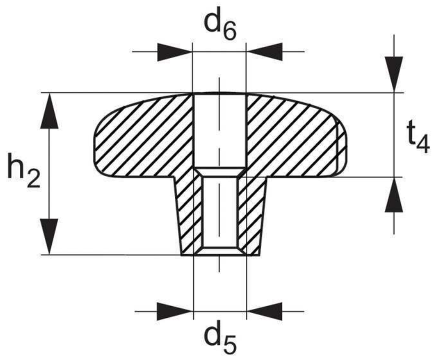
die-cast stainless steel - DIN 6336

70122

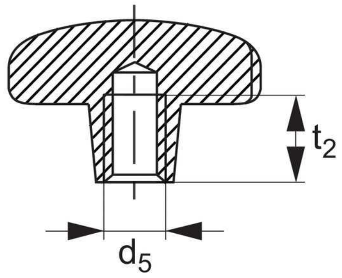


unmachined





threaded, through bore



threaded blind hole

Material
Stainless steel A2 (AISI 304), dull blasted.

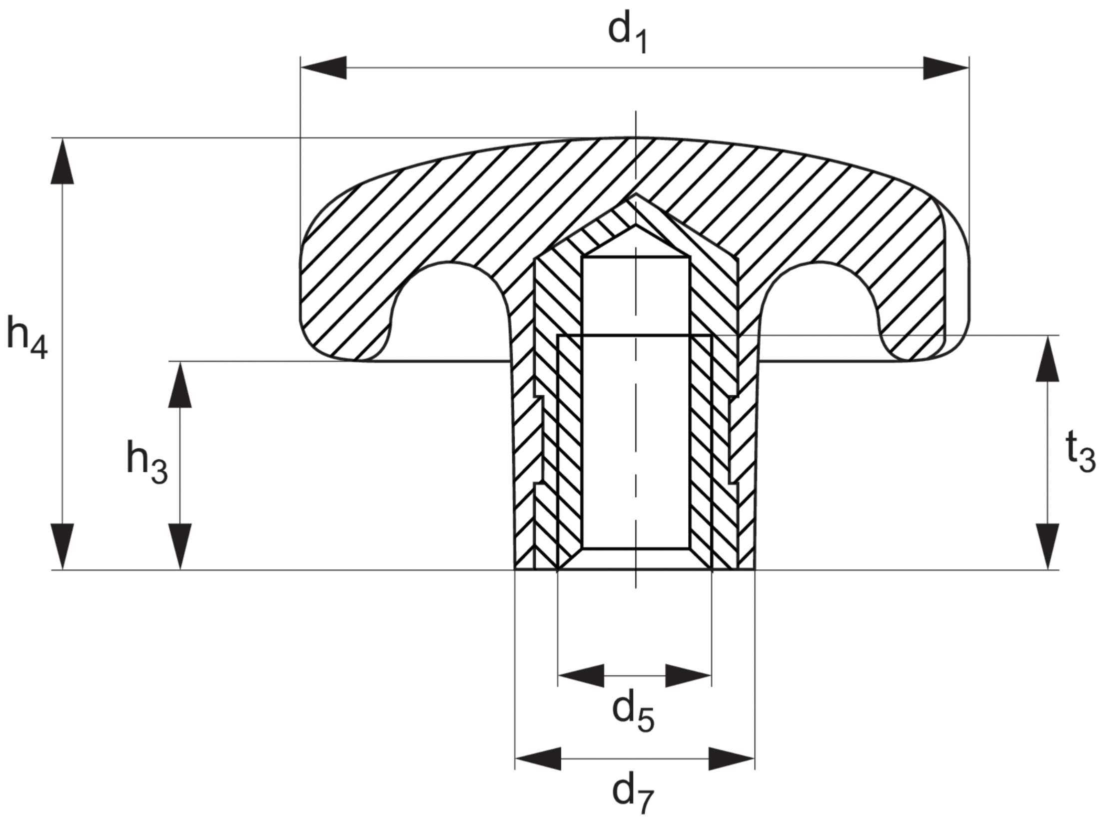
STAINLESS STEEL 304

Order No.	Finish	d_1	d_2	d_5	d_6	h_1	h_2	h_3	t_2	t_4	g
70122.W0032	Unmachined	32	12	-	-	21	-	10	-	-	56
70122.W0040	Unmachined	40	14	-	-	26	-	13	-	-	85
70122.W0050	Unmachined	50	18	-	-	34	-	17	-	-	181
70122.W0063	Unmachined	63	20	-	-	42	-	21	-	-	319
70122.W0332	Threaded, Through	32	12	M 6	6,4	-	20	-	-	10	52
70122.W0340	Threaded, Through	40	14	M 8	8,4	-	25	-	-	12	75
70122.W0350	Threaded, Through	50	18	M10	10,5	-	32	-	-	16	158
70122.W0363	Threaded, Through	63	20	M12	13,0	-	40	-	-	20	279
70122.W0432	Threaded, Blind	32	12	M 6	-	-	20	-	12	-	53
70122.W0440	Threaded, Blind	40	14	M 8	-	-	25	-	15	-	77
70122.W0450	Threaded, Blind	50	18	M10	-	-	32	-	18	-	165
70122.W0463	Threaded, Blind	63	20	M12	-	-	40	-	22	-	296

Star Grips

plastic - DIN 6336

70140



Material

Grip: duroplast PF 31 DIN 7708, black.
Threaded bush: steel, galvanised, stainless steel A2 or brass.

Technical Notes

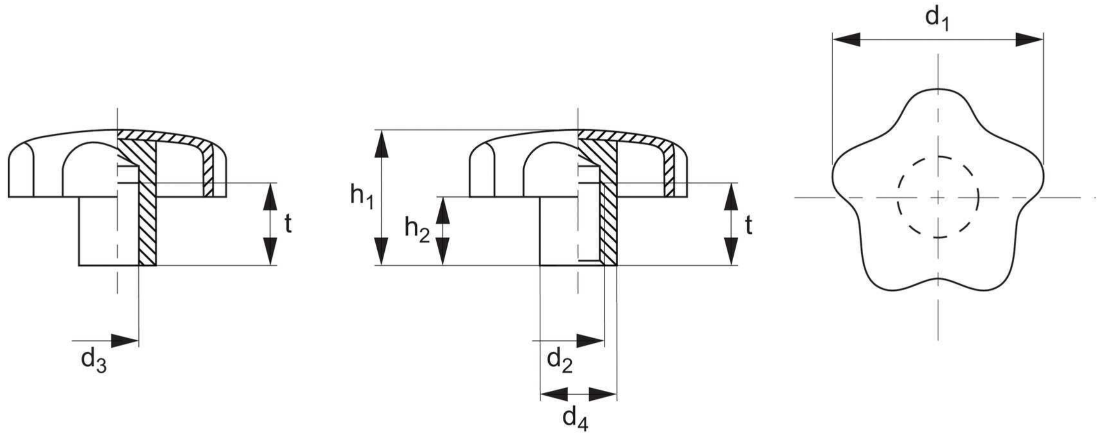
Temperature range: max 110°C.

Order No.	Finish	d_1	d_5	d_7	h_3	h_4	t_3	g
70140.W0220	Brass	20	M 4	10	7	13	6,5	3,4
70140.W0225	Steel	25	M 5	12	8	16	9,5	7,4
70140.W0232	Steel	32	M 6	14	10	20	12,0	11,0
70140.W0240	Steel	40	M 8	18	13	25	14,0	22,0
70140.W0250	Steel	50	M10	22	17	32	18,0	40,0
70140.W0263	Steel	63	M12	26	21	40	22,0	83,0
70140.W0280	Steel	80	M16	35	25	50	30,0	163,0
70140.W1225	Stainless	25	M 5	12	8	16	9,5	7,4
70140.W1232	Stainless	32	M 6	14	10	20	12,0	11,0
70140.W1240	Stainless	40	M 8	18	13	25	14,0	22,0
70140.W1250	Stainless	50	M10	22	17	32	18,0	40,0
70140.W1263	Stainless	63	M12	26	21	40	22,0	83,0
70140.W1280	Stainless	80	M16	35	25	50	30,0	163,0

Star Grips

female, stainless steel

70160



smooth blind hole

threaded blind hole

Material

Grip: sheet drawn stainless (AISI 304) dull blasted.
Hub: stainless steel (AISI 304), butt-welded.

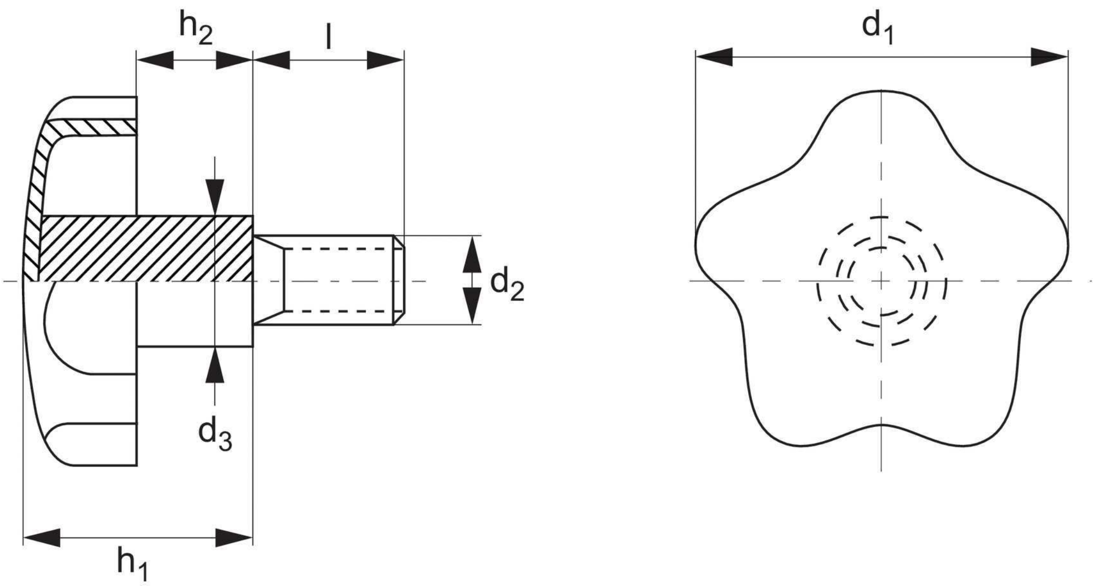
STAINLESS STEEL 304

Order No.	Finish	d_1	d_2	d_3 H7	d_4	h_1	h_2	t min	g
70160.W0240	Smooth, Blind	40	-	8	14	25	12,5	15	29
70160.W0250	Smooth, Blind	50	-	10	18	32	17,5	18	67
70160.W0260	Smooth, Blind	60	-	12	20	40	21,0	22	110
70160.W0440	Threaded, Blind	40	M 8	-	14	25	12,5	15	37
70160.W0450	Threaded, Blind	50	M10	-	18	32	17,5	18	69
70160.W0460	Threaded, Blind	60	M12	-	20	40	21,0	22	112

Star Grips

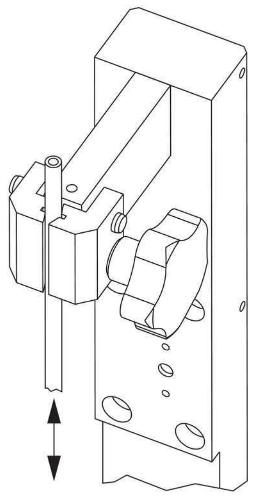
male, stainless steel

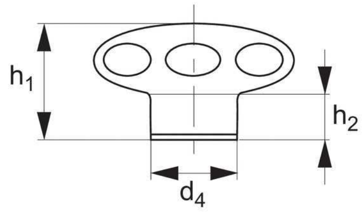
70162

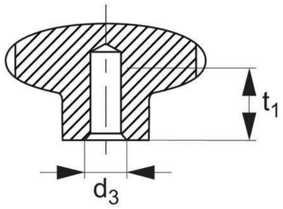


Material
Grip: sheet drawn stainless (AISI 304), dull blasted.
Hub: stainless steel (AISI 304), butt-welded.

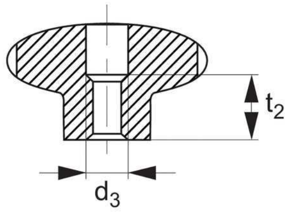
Order No.	d_1	d_2	l	d_3	h_1 ≈	h_2 ≈	g
70162.W0140	40	M 8	20	14	24,0	12,0	50
70162.W0142	40	M 8	30	14	24,0	12,0	55
70162.W0144	40	M 8	40	14	24,0	12,0	56
70162.W0150	50	M10	20	18	30,0	16,5	95
70162.W0152	50	M10	30	18	30,0	16,5	97
70162.W0154	50	M10	40	18	30,0	16,5	100
70162.W0160	60	M12	30	20	37,5	20,0	155
70162.W0162	60	M12	40	20	37,5	20,0	162
70162.W0164	60	M12	50	20	37,5	20,0	169



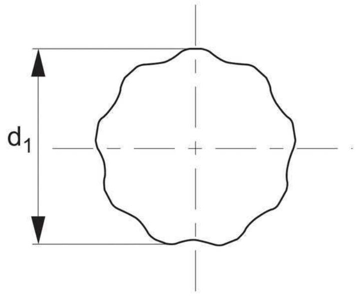


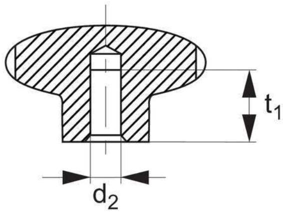


threaded
blind bore



threaded
through bore





smooth
blind bore

Material
Stainless steel 1.4305 (AISI 303), matt, dull blasted.

Technical Notes
Stainless steel star grips are a special development intended for the food processing machinery industry. Large radii and smooth surfaces have been introduced to meet the highest hygienic demands.

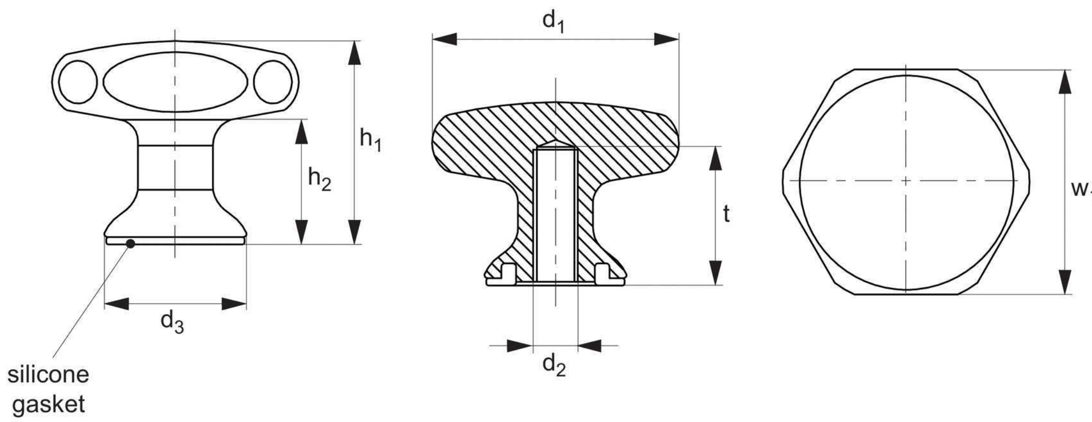
STAINLESS STEEL 304

Order No.	Finish	d_1	d_2 H7	d_3	d_4	h_1	h_2	t_1 min	t_2	g
70180.W0040	Threaded, Blind	40	-	M 6	18	30,5	15	12	-	134
70180.W0041	Threaded, Blind	40	-	M 8	18	30,5	15	12	-	132
70180.W0050	Threaded, Blind	50	-	M 8	21	34,0	17	15	-	226
70180.W0051	Threaded, Blind	50	-	M10	21	34,0	17	15	-	222
70180.W0060	Threaded, Blind	60	-	M10	25	39,0	18	18	-	395
70180.W0061	Threaded, Blind	60	-	M12	25	39,0	18	18	-	384
70180.W0141	Threaded Through	40	-	M 8	18	30,5	15	-	13	129
70180.W0151	Threaded Through	50	-	M10	21	34,0	17	-	16	216
70180.W0161	Threaded Through	60	-	M12	25	39,0	18	-	20	362
70180.W0240	Smooth, Blind	40	8	-	18	30,5	15	12	-	131
70180.W0250	Smooth, Blind	50	10	-	21	34,0	17	15	-	223
70180.W0260	Smooth, Blind	60	12	-	25	39,0	18	18	-	386

Star Grips - 3A Standard

hygienic line, stainless steel

70190



Order No.	d_1	d_2	d_3	w_1	t	h_1	h_2
70190.W0027	27	M 5	15	24	15	20	13
70190.W0033	33	M 6	19	30	20	24	13
70190.W0040	40	M 8	25	36	20	28	16
70190.W0050	50	M10	25	46	25	30	16
70190.W0065	65	M12	31	60	25	40	24

Material
Stainless steel AISI304
Blue gasket: silicone

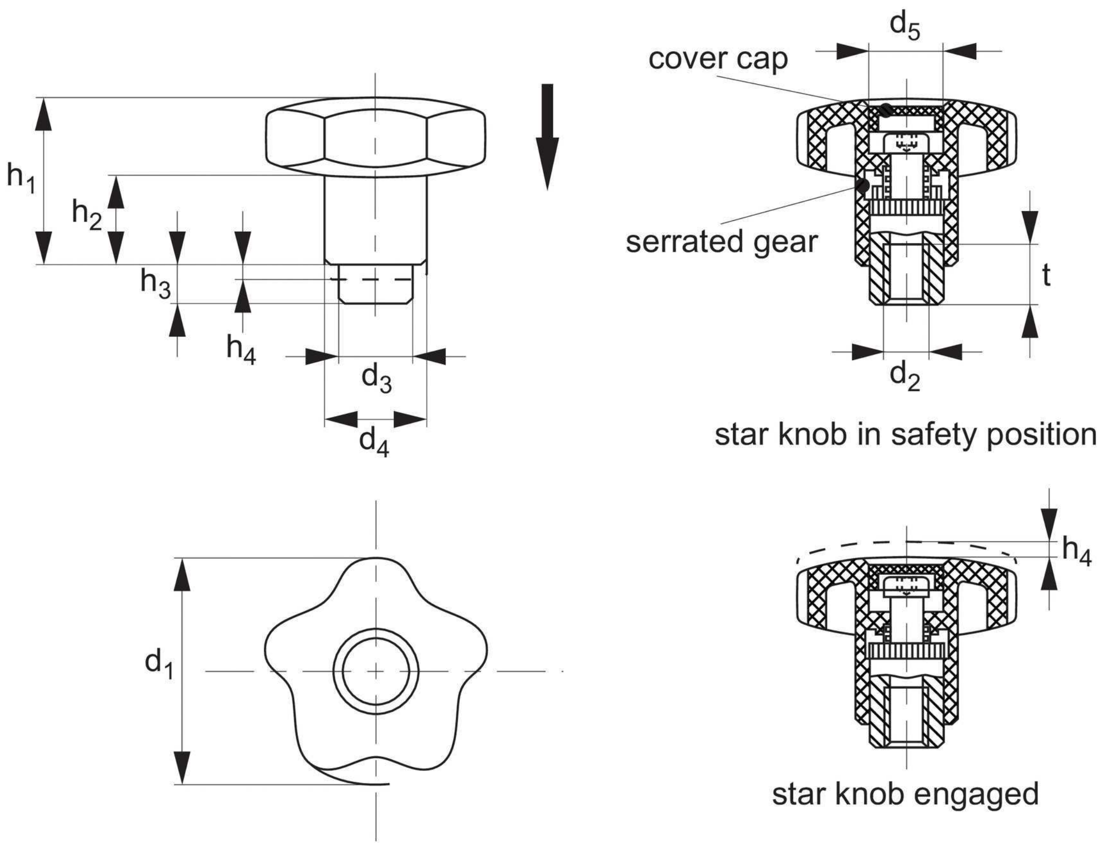
Tips
Made to the high "3A" standard. This ensures it meets the high standards required for use in food, beverage, pharmaceutical and medical applications.
Hygienically designed for effective and easy cleaning, corrosion resistant, non-toxic.
Design precludes contamination by dirt, food particles and organic matter.

Referral
AISI316 available on request.

Free Running Safety Star Grip

free-running when not engaged

70300



Material
Plastic technopolymer (Polyamide PA) glass fibre reinforced, black.
Thread bush, steel.
Inner parts: zinc die cast.

Technical Notes
Suitable for applications where an accidental loosening or adjusting of the knob may lead to accidents.
Temperature resistant to +130°C.

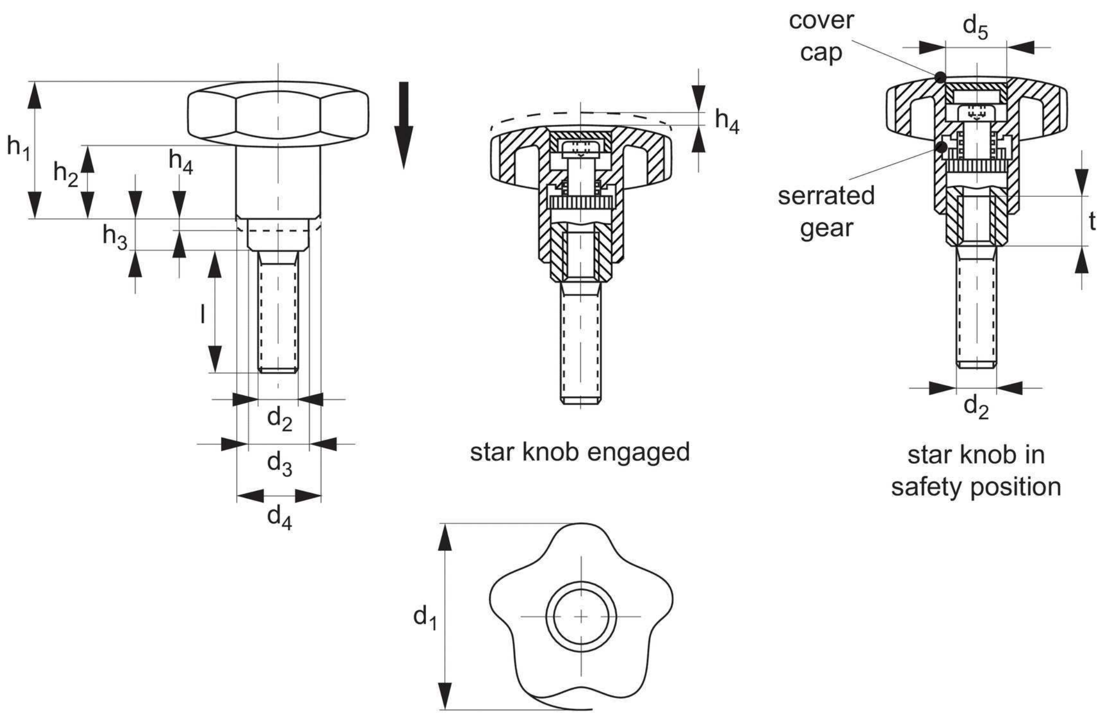
Tips
Unique safety handle:
When not in use, star knob is not engaged with the threaded insert, i.e. the knob is free-running. Only after axial pushing of the star knob, the two serrations get engaged so that the knob can be loosened/ tightened. After releasing, the two serrations are disengaged by a spring.

Order No.	d_1	d_2	d_3	d_4	d_5	h_1	h_2	h_3	h_4 stroke	t min.
70300.W0061	40	M 6	13,5	18	13,5	30	14	7	2,5	11
70300.W0081	40	M 8	13,5	18	13,5	30	14	7	2,5	11
70300.W0082	50	M 8	16,0	22	16,5	34	15	8	3,5	14
70300.W0101	50	M10	16,0	22	16,5	34	15	8	3,5	14

Free Running Safety Star Grip, with Grub Screw

free-running when not engaged

70310



Material

Plastic technopolymer (Polyamide PA) glass fibre reinforced, black.
Thread bush, steel.
Inner parts: zinc die cast.

Technical Notes

Suitable for applications where an accidental loosening or adjusting of the knob may lead to accidents.
Temperature resistant to +130°C.

Tips

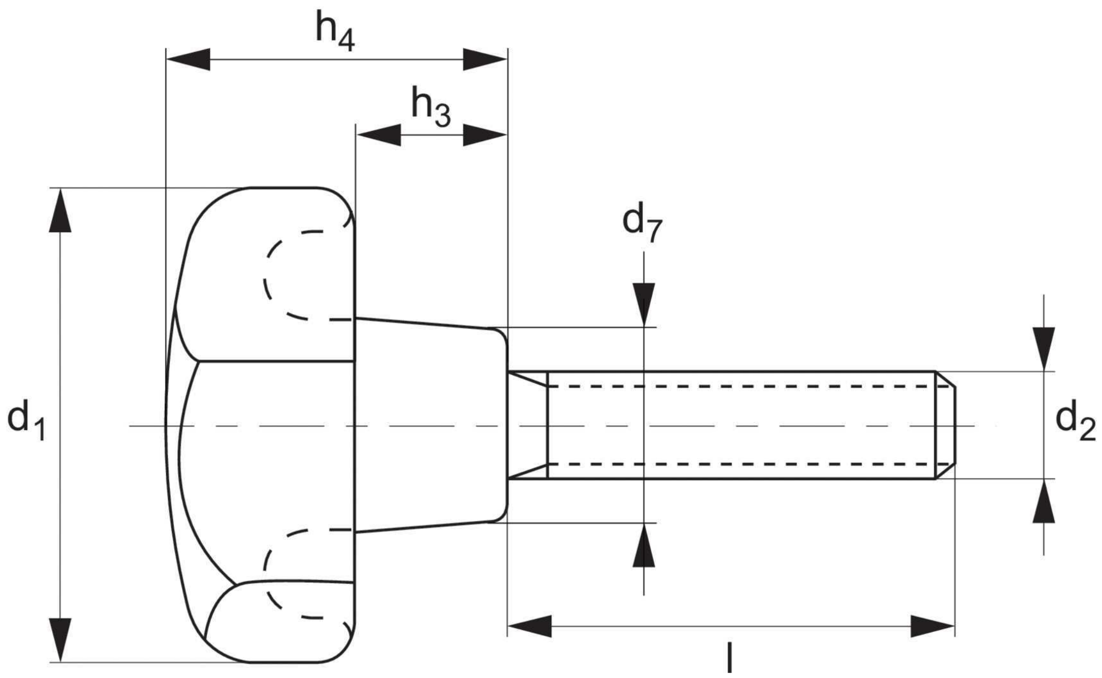
Unique safety handle.
When not in use, star knob is not engaged with the threaded insert, i.e. the knob is free-running. Only after axial pushing of the star knob, the two serrations get engaged so that the knob can be loosened/ tightened. After releasing, the two serrations are disengaged by a spring.

Order No.	d_1	d_2	l	d_3	d_4	d_5	h_1	h_2	h_3	h_4 stroke
70310.W0061	40	M 6	20	13,5	18	13,5	30	14	7	2,5
70310.W0062	40	M 6	25	13,5	18	13,5	30	14	7	2,5
70310.W0063	40	M 6	32	13,5	18	13,5	30	14	7	2,5
70310.W0064	40	M 6	40	13,5	18	13,5	30	14	7	2,5
70310.W0081	40	M 8	20	13,5	18	13,5	30	14	7	2,5
70310.W0082	40	M 8	25	13,5	18	13,5	30	14	7	2,5
70310.W0083	40	M 8	32	13,5	18	13,5	30	14	7	2,5
70310.W0084	40	M 8	40	13,5	18	13,5	30	14	7	2,5
70310.W0085	50	M 8	25	16,0	22	16,5	34	15	8	3,5
70310.W0086	50	M 8	32	16,0	22	16,5	34	15	8	3,5
70310.W0087	50	M 8	40	16,0	22	16,5	34	15	8	3,5
70310.W0088	50	M 8	50	16,0	22	16,5	34	15	8	3,5
70310.W0101	50	M10	25	16,0	22	16,5	34	15	8	3,5
70310.W0102	50	M10	32	16,0	22	16,5	34	15	8	3,5
70310.W0103	50	M10	40	16,0	22	16,5	34	15	8	3,5
70310.W0104	50	M10	50	16,0	22	16,5	34	15	8	3,5

Star Grips

with grub screw - DIN 6336

70500



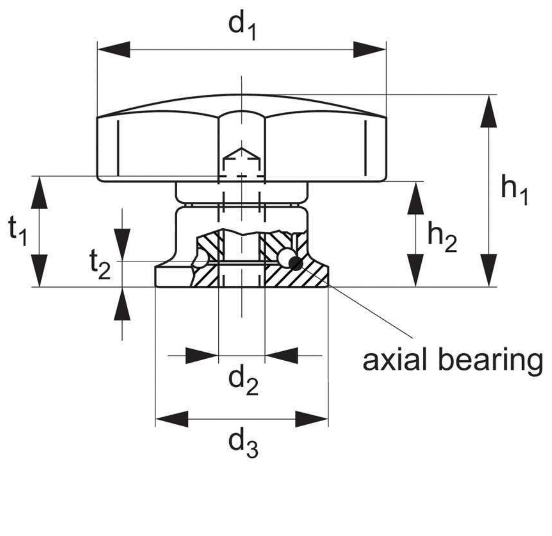
Material
duroplast PF 31 to DIN 7708, black.
Grub screw: steel, galvanised.

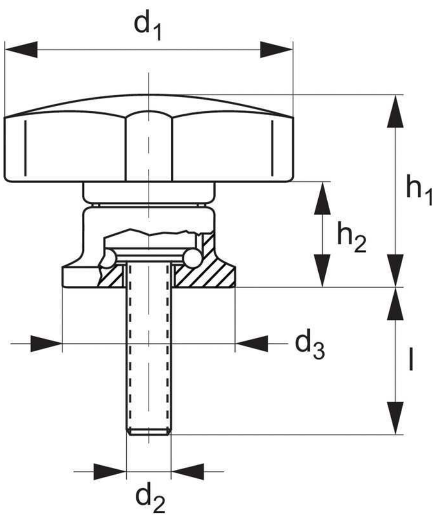
Technical Notes
Special designs e.g. different lengths or grub screws in brass or stainless steel, on request.
Temperature range max. 110°C.
DIN 6336.

Order No. Steel	Order No. Stainless	d_1	d_2	l	d_7	h_3	h_4	g
70500.W0051	70500.W1051	25	M 5	10	12	8	16	7,3
70500.W0054	70500.W1054	25	M 5	15	12	8	16	7,2
70500.W0056	70500.W1056	25	M 5	20	12	8	16	8,7
70500.W0058	70500.W1058	25	M 5	25	12	8	16	8,7
70500.W0060	70500.W1060	25	M 5	30	12	8	16	9,2
70500.W0102	70500.W1102	32	M 6	15	14	10	20	14,0
70500.W0104	70500.W1104	32	M 6	20	14	10	20	14,0
70500.W0106	70500.W1106	32	M 6	25	14	10	20	14,0
70500.W0108	70500.W1108	32	M 6	30	14	10	20	16,0
70500.W0110	70500.W1110	32	M 6	40	14	10	20	17,0
70500.W0152	70500.W1152	40	M 8	20	18	13	25	28,0
70500.W0154	70500.W1154	40	M 8	25	18	13	25	30,0
70500.W0156	70500.W1156	40	M 8	30	18	13	25	32,0
70500.W0158	70500.W1158	40	M 8	40	18	13	25	35,0
70500.W0160	70500.W1160	40	M 8	50	18	13	25	38,0
70500.W0202	70500.W1202	50	M10	25	22	17	32	51,0
70500.W0204	70500.W1204	50	M10	30	22	17	32	54,0
70500.W0206	70500.W1206	50	M10	40	22	17	32	60,0
70500.W0208	70500.W1208	50	M10	50	22	17	32	64,0
70500.W0210	70500.W1210	50	M10	60	22	17	32	77,0
70500.W0252	70500.W1252	63	M12	30	26	21	40	101,0
70500.W0254	70500.W1254	63	M12	40	26	21	40	108,0
70500.W0256	70500.W1256	63	M12	50	26	21	40	115,0
70500.W0258	70500.W1258	63	M12	60	26	21	40	121,0
70500.W0260	70500.W1260	63	M12	80	26	21	40	143,0
70500.W0302	70500.W1302	80	M16	40	35	25	50	223,0
70500.W0304	70500.W1304	80	M16	50	35	25	50	237,0
70500.W0306	70500.W1306	80	M16	60	35	25	50	232,0
70500.W0308	70500.W1308	80	M16	80	35	25	50	274,0

Palm Grips
with axial bearing

70550



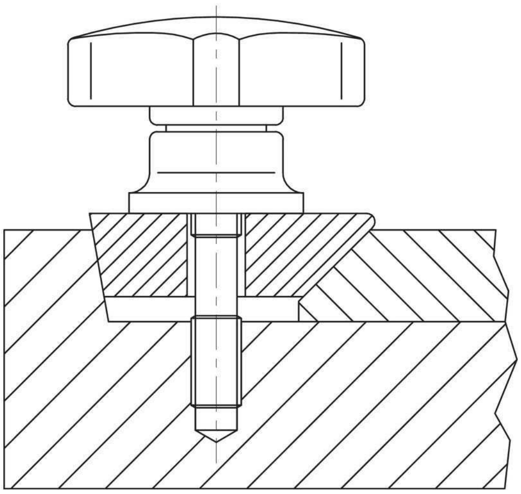


Order No.	Finish	d_1	d_2	l +2	d_3	h_1 ≈	h_2 ≈	t_1 min.	t_2	g
70550.W0040	Threaded, Blind	40	M 6	-	24	27	15,0	12,5	5,0	45
70550.W0050	Threaded, Blind	50	M 8	-	25	34	22,5	14,0	4,2	68
70550.W0063	Threaded, Blind	63	M10	-	30	41	26,5	18,0	5,4	111
70550.W0080	Threaded, Blind	80	M12	-	35	54	34,0	26,5	6,6	218
70550.W0042	Grub Screw	40	M 6	15	24	27	15,0	-	-	50
70550.W0044	Grub Screw	40	M 6	25	24	27	15,0	-	-	52
70550.W0053	Grub Screw	50	M 8	20	25	34	22,5	-	-	81
70550.W0056	Grub Screw	50	M 8	35	25	34	22,5	-	-	86
70550.W0066	Grub Screw	63	M10	30	30	41	26,5	-	-	137
70550.W0068	Grub Screw	63	M10	40	30	41	26,5	-	-	142
70550.W0083	Grub Screw	80	M12	30	35	54	34,0	-	-	258
70550.W0087	Grub Screw	80	M12	50	35	54	34,0	-	-	276

Material
Grip: thermoplast (PA).
Inner part: heat-treated steel, nitrited black.
Screw: quality 8.8, blackened.

Technical Notes
Advantages of axial bearing:
- Double clamping force with same lever size, by reducing the surface friction.
- Protection of work piece by fixed locating face.
- Little setting due to higher pre-clamping force of bolt.
Temperature resistance +80ºC max.

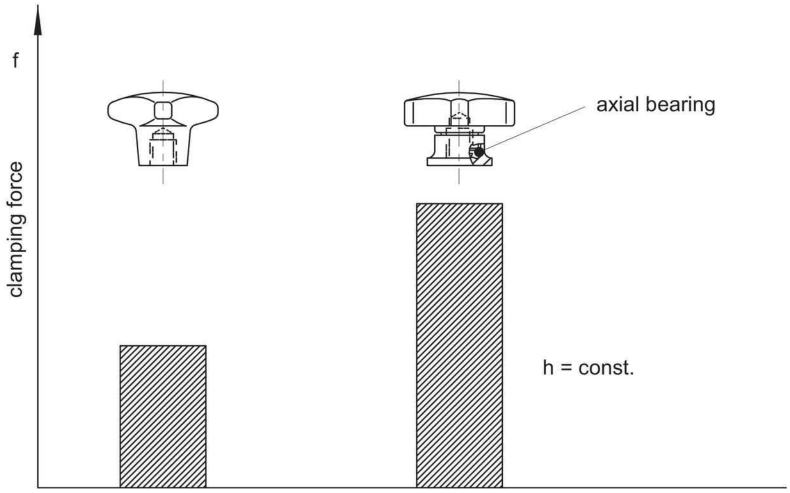
TP +80°



Palm Grips

with axial bearing

70550



Material

Grip: thermoplast (PA).
Inner part: heat-treated steel, nitrited black.
Screw: quality 8.8, blackened.

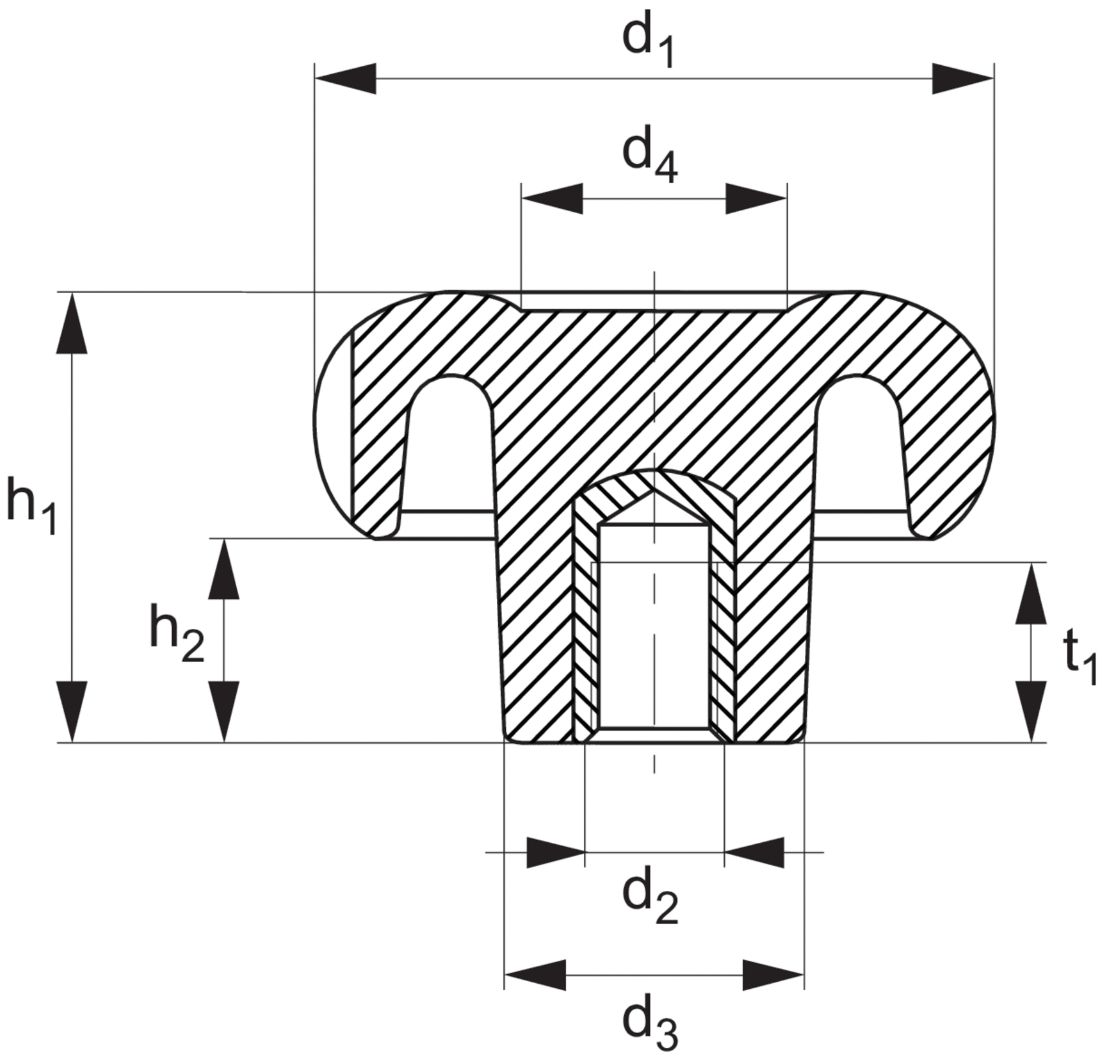
Technical Notes

Advantages of axial bearing:
- Double clamping force with same lever size, by reducing the surface friction.
- Protection of work piece by fixed locating face.
- Little setting due to higher pre-clamping force of bolt.

Temperature resistance +80°C max.

Three Lobe Knob
with stainless steel bush

70580



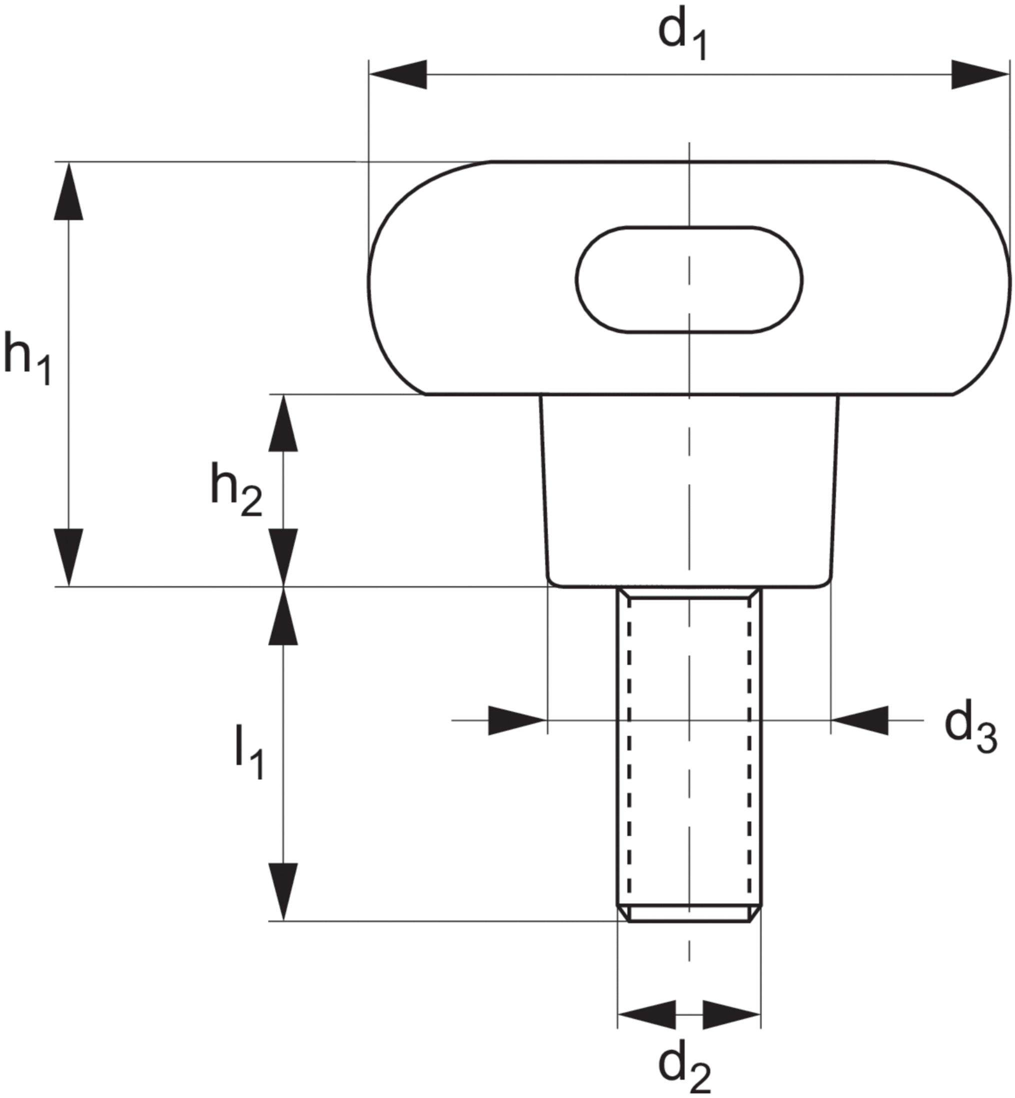
Material
Grip: thermoplastic, black.
Bush: stainless steel.

TP

Order No.	d_1	d_2	d_3	d_4	h_1	h_2	t_1	g
70580.W0060	30	M 6	14	11	22	11	9	11
70580.W0080	40	M 8	18	15	28	13	13	26
70580.W0100	50	M10	22	20	33	15	16	43

Three Lobe Knob

with stainless steel grub screw



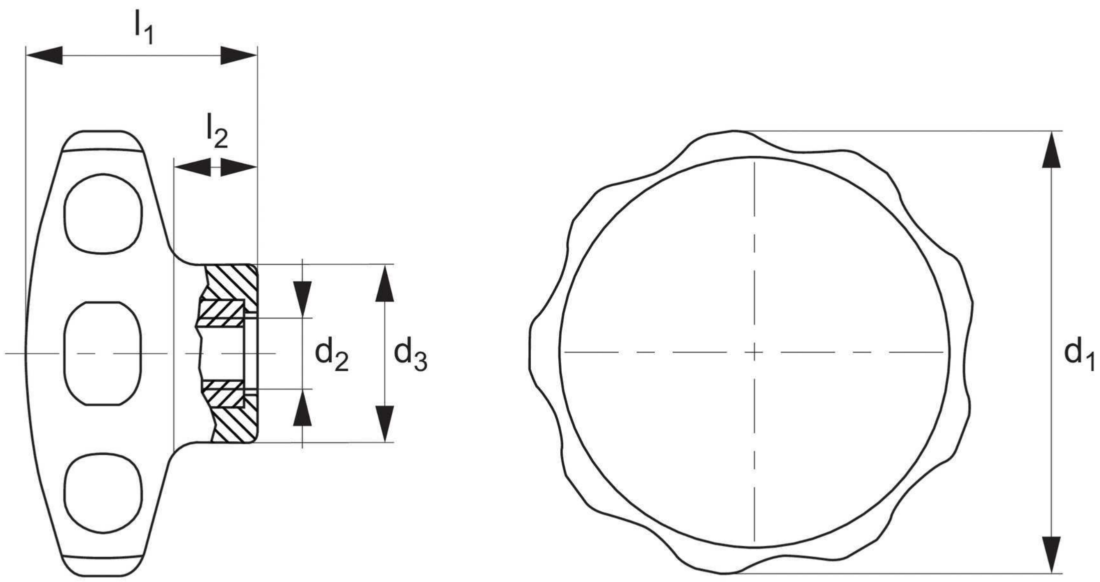
Material
Grip: thermoplastic, black.
Grub screw: stainless steel.

TP

Order No.	d_1	d_2	l_1	d_3	h_1	h_2	g
70590.W0061	30	M 6	20	14	22	11	18
70590.W0062	30	M 6	30	14	22	11	20
70590.W0081	40	M 8	20	18	28	13	20
70590.W0082	40	M 8	30	18	28	13	23
70590.W0101	50	M10	25	22	33	15	60
70590.W0102	50	M10	30	22	33	15	64

Star Grips

with stainless steel bush



Order No. Black	Order No. White	d_1	d_2	d_3	l_1	l_2	g
70600.W0030	70600.W0031	30	M 4	14,0	19	7	5,3
70600.W0035	70600.W0036	30	M 5	14,0	19	7	5,7
70600.W0040	70600.W0041	40	M 5	16,5	22	9	8,2
70600.W0045	70600.W0046	40	M 6	16,5	22	9	9,5
70600.W0050	70600.W0051	50	M 6	22,0	26	10	16,0
70600.W0055	70600.W0056	50	M 8	22,0	26	10	19,0
70600.W0060	70600.W0061	62	M 8	22,0	35	13	19,0
70600.W0065	70600.W0066	62	M10	22,0	35	13	39,0

70600

Material

Grip: thermoplast (PA 6) Black RAL 9005.
Cap: thermoplast (PA 6)
Black RAL 9005, White RAL 9019, Yellow RAL 1016, Orange RAL 2004, Blue RAL 5015.
Threaded bush: stainless steel.

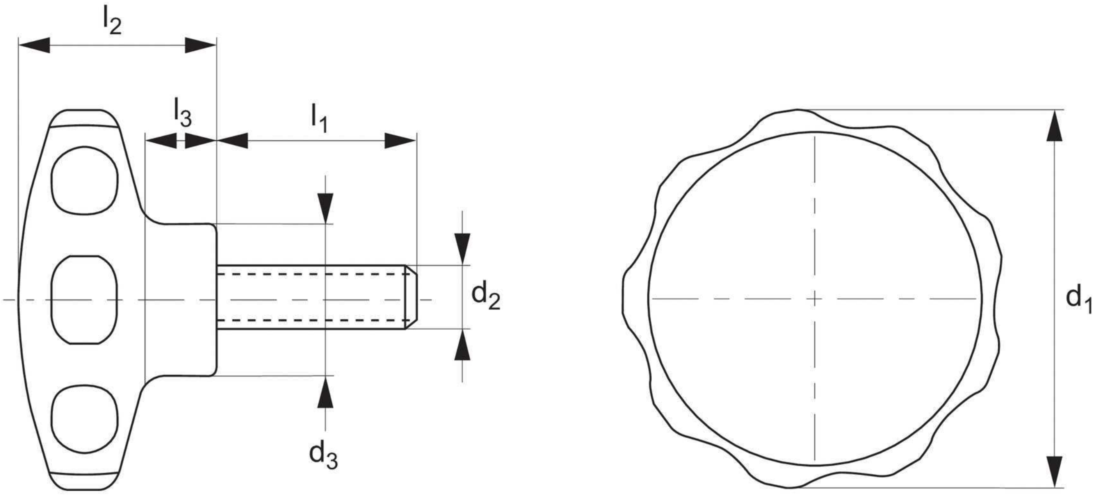
Technical Notes

Temperature range - 30ºC to + 80ºC.
Special types e.g, differing threads available on request, subject to minimum quantity.

Star Grips

with stainless steel grub screw

70610



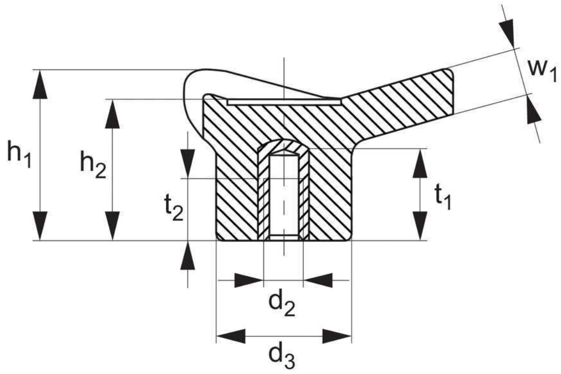
Order No. Black	Order No. White	d_1	d_2	l_1	d_3	l_2	l_3	g
70610.W0100	70610.W0101	30	M 4	10	14,0	19	7	6,1
70610.W0110	70610.W0111	30	M 4	14	14,0	19	7	6,6
70610.W0120	70610.W0121	30	M 4	18	14,0	19	7	6,9
70610.W0130	70610.W0131	30	M 4	23	14,0	19	7	7,3
70610.W0140	70610.W0141	30	M 4	28	14,0	19	7	7,7
70610.W0150	70610.W0151	30	M 5	10	14,0	19	7	7,1
70610.W0160	70610.W0161	30	M 5	14	14,0	19	7	7,9
70610.W0170	70610.W0171	30	M 5	18	14,0	19	7	8,4
70610.W0180	70610.W0181	30	M 5	23	14,0	19	7	9,0
70610.W0190	70610.W0191	30	v	28	14,0	19	7	9,0
70610.W0200	70610.W0201	40	M 5	10	16,5	22	9	9,6
70610.W0210	70610.W0211	40	M 5	14	16,5	22	9	10,0
70610.W0220	70610.W0221	40	M 5	18	16,5	22	9	11,0
70610.W0220	70610.W0221	40	M 5	18	16,5	22	9	11,0
70610.W0230	70610.W0231	40	M 5	23	16,5	22	9	12,0
70610.W0250	70610.W0251	40	M 6	14	16,5	22	9	12,0
70610.W0260	70610.W0261	40	M 6	18	16,5	22	9	13,0
70610.W0270	70610.W0271	40	M 6	23	16,5	22	9	14,0
70610.W0280	70610.W0281	40	M 6	28	16,5	22	9	15,0
70610.W0290	70610.W0291	40	M 6	38	16,5	22	9	16,0
70610.W0300	70610.W0301	50	M 6	14	22,0	26	10	19,0
70610.W0310	70610.W0311	50	M 6	18	22,0	26	10	19,0
70610.W0320	70610.W0321	50	M 6	23	22,0	26	10	20,0
70610.W0330	70610.W0331	50	M 6	28	22,0	26	10	21,0
70610.W0340	70610.W0341	50	M 6	38	22,0	26	10	23,0
70610.W0350	70610.W0351	50	M 8	18	22,0	26	10	26,0
70610.W0360	70610.W0361	50	M 8	23	22,0	26	10	27,0
70610.W0370	70610.W0371	50	M 8	28	22,0	26	10	29,0
70610.W0380	70610.W0381	50	M 8	38	22,0	26	10	32,0
70610.W0390	70610.W0391	50	M 8	48	22,0	26	10	35,0
70610.W0400	70610.W0401	62	M 8	18	22,0	35	13	40,0
70610.W0410	70610.W0411	62	M 8	23	22,0	35	13	41,0
70610.W0420	70610.W0421	62	M 8	28	22,0	35	13	43,0
70610.W0430	70610.W0431	62	M 8	38	22,0	35	13	46,0
70610.W0440	70610.W0441	62	M 8	48	22,0	35	13	49,0
70610.W0450	70610.W0451	62	M10	23	22,0	35	13	51,0
70610.W0460	70610.W0461	62	M10	28	22,0	35	13	54,0
70610.W0470	70610.W0471	62	M10	38	22,0	35	13	59,0
70610.W0480	70610.W0481	62	M10	48	22,0	35	13	64,0
70610.W0490	70610.W0491	62	M10	58	22,0	35	13	69,0

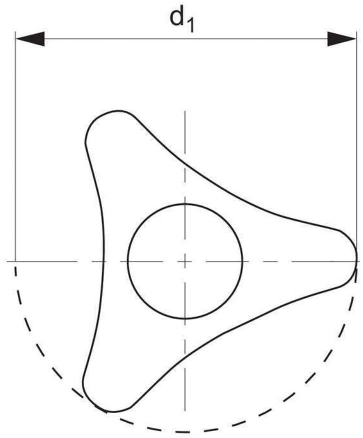
Material

Grip: thermoplast (PA 6) Black RAL 9005.
Cap: thermoplast (PA 6)
Black RAL 9005, white RAL 9019, orange RAL 2004, yellow RAL 1016, blue RAL 5015.
Threaded bush: stainless steel.

Technical Notes

Temperature range -30°C to +80°C.
Special types e.g. differing threads available on request, subject to minimum order quantity.

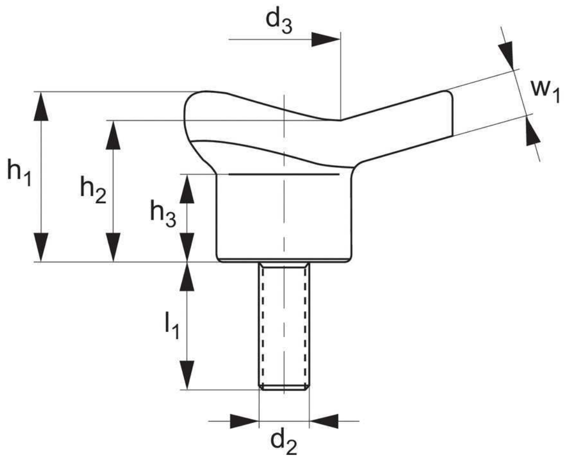


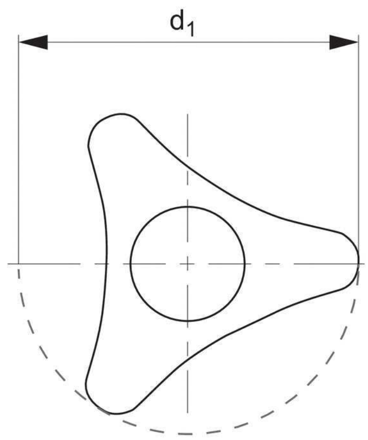


Material
Brass bush. Duroplast, black.

Order No.	d_1	d_2	d_3	h_1	h_2	t_1	t_2	w_1	g
70620.W0345	34	M 5	17	22	20	12	9	7,0	11
70620.W0346	34	M 6	17	22	20	12	9	7,0	11
70620.W0348	34	M 8	17	22	20	12	9	7,0	12
70620.W0456	45	M 6	25	30	27	18	13	8,5	26
70620.W0458	45	M 8	25	30	27	18	15	8,5	27
70620.W0459	45	M10	25	30	27	18	16	8,5	28
70620.W0658	65	M 8	30	39	36	25	15	10,0	51
70620.W0659	65	M10	30	39	36	25	16	10,0	51
70620.W0660	65	M12	30	39	36	25	18	10,0	56
70620.W0858	85	M 8	35	48	43	30	15	12,0	89
70620.W0859	85	M10	35	48	43	30	16	12,0	89
70620.W0860	85	M12	35	48	43	30	18	12,0	94
70620.W0861	85	M16	35	48	43	30	20	12,0	100

Three Lobed Knobs
with grub screw



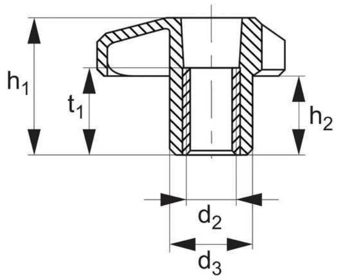


Material
Zinc plated steel stud. Duroplast, black.

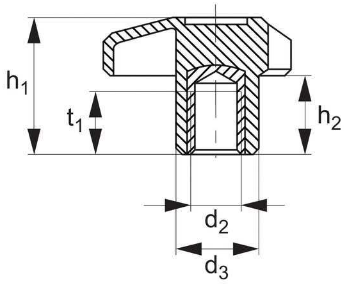
PF

Order No.	d_1	d_2	l_1	d_3	h_1	h_2	h_3	w_1	g
70630.W0341	34	M 6	20	17	22	20	12	7,0	15,0
70630.W0342	34	M 6	25	17	22	20	12	7,0	16,0
70630.W0343	34	M 6	30	17	32	20	12	7,0	17,0
70630.W0344	34	M 8	20	17	22	20	12	7,0	19,0
70630.W0345	34	M 8	25	17	22	20	12	7,0	20,0
70630.W0451	41	M 8	20	25	30	27	18	8,5	35,0
70630.W0452	41	M 8	30	25	30	27	18	8,5	37,0
70630.W0453	41	M 8	40	25	30	27	18	8,5	41,0
70630.W0454	41	M10	30	25	30	27	18	8,5	46,0
70630.W0651	65	M 8	40	30	39	36	25	10,0	65,0
70630.W0652	65	M10	30	30	39	36	25	10,0	71,0
70630.W0851	85	M12	20	35	48	43	30	12,0	124,0
70630.W0852	85	M12	35	35	48	43	30	12,0	130,0

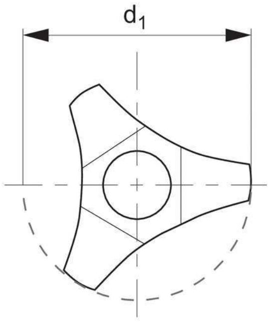
70640



threaded through



threaded bush



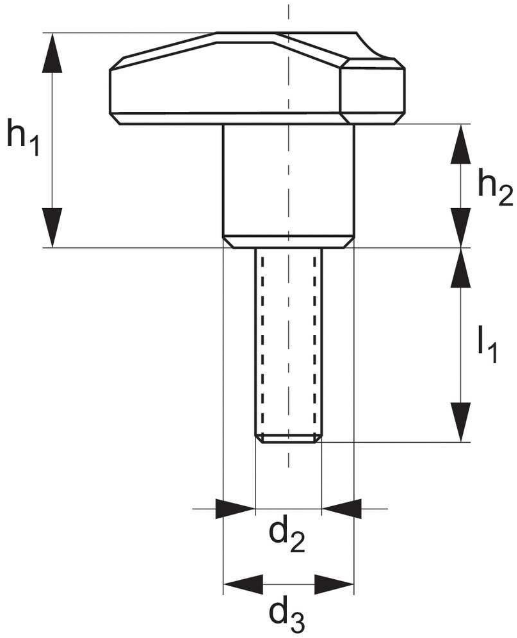
Material
Brass bush. Thermoplastic, matt black.

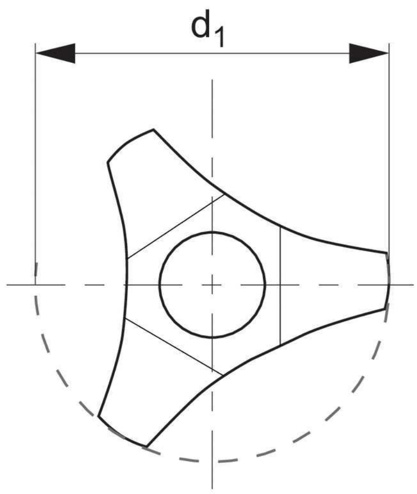
TP

Order No.	Type	d_1	d_2	d_3	h_1	h_2	t_1	g
70640.W0045	Threaded Through	45	M 6	18	27	16	15	12,4
70640.W0046	Threaded Through	45	M 8	18	27	16	15	13,2
70640.W0047	Threaded Through	45	M10	18	27	16	15	13,2
70640.W0055	Threaded Through	55	M 8	20	33	19	15	18,2
70640.W0056	Threaded Through	55	M10	20	33	19	15	19,2
70640.W0057	Threaded Through	55	M12	20	33	19	15	19,8
70640.W0146	Threaded Bush	45	M 6	18	27	16	14	13,8
70640.W0148	Threaded Bush	45	M 8	18	27	16	14	15,6
70640.W0150	Threaded Bush	45	M10	18	27	16	14	17,2
70640.W0155	Threaded Bush	55	M 8	20	33	19	14	22,8
70640.W0156	Threaded Bush	55	M10	20	33	19	14	23,4
70640.W0157	Threaded Bush	55	M12	20	33	19	14	25,6

Three Lobed Knobs

with grub screw

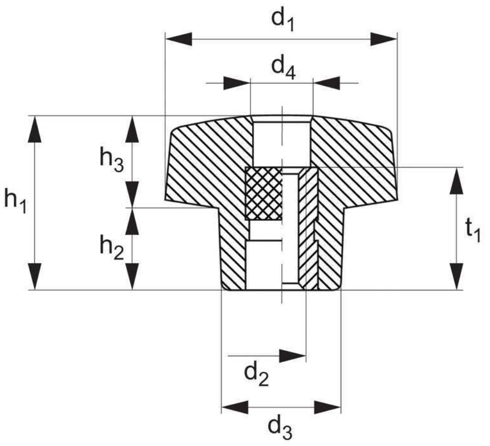




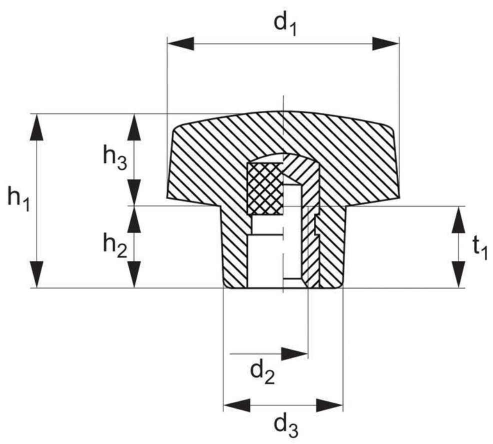
Material
Zinc plated steel stud.
Thermoplastic, matt black.

TP

Order No.	d_1	d_2	l_1	d_3	h_1	h_2	g
70660.W0451	45	M 6	20	18	27	16	16,4
70660.W0452	45	M 6	25	18	27	16	17,0
70660.W0453	45	M 6	40	18	27	16	20,0
70660.W0454	45	M 8	20	18	27	16	20,2
70660.W0455	45	M 8	25	18	27	16	23,6
70660.W0456	45	M 8	40	18	27	16	27,0
70660.W0457	45	M10	20	18	27	16	30,0
70660.W0458	45	M10	30	18	27	16	35,0
70660.W0551	55	M 6	20	20	33	19	22,8
70660.W0552	55	M 6	25	20	33	19	23,6
70660.W0553	55	M 6	40	20	33	19	26,8
70660.W0554	55	M 8	20	20	33	19	27,2
70660.W0556	55	M 8	40	20	33	19	33,4
70660.W0560	55	M 8	30	20	33	19	30,1
70660.W0557	55	M10	20	20	33	19	36,4
70660.W0558	55	M10	30	20	33	19	42,0



threaded through



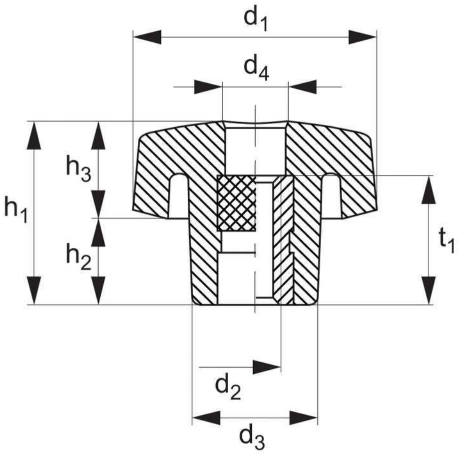
threaded bush

Material
Brass bush. Duroplast, black.

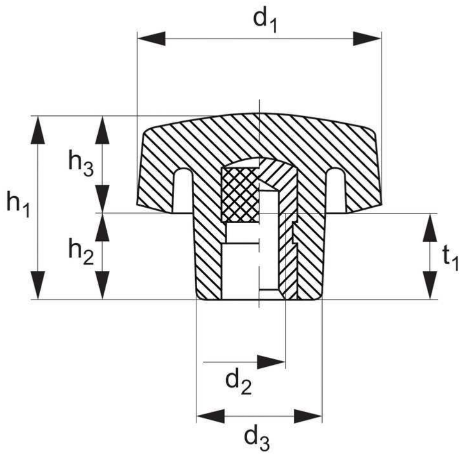
PF

Order No.	Type	d_1	d_2	d_3	d_4	h_1	h_2	h_3	t_1	g
70680.W0021	Threaded Through	20	M 4	13	7,5	15	7	8,0	11	6
70680.W0022	Threaded Through	20	M 5	13	7,5	15	7	8,0	11	7
70680.W0023	Threaded Through	20	M 6	13	7,5	15	7	8,0	11	10
70680.W0031	Threaded Through	30	M 5	17	9,0	24	11	12,5	15	15
70680.W0032	Threaded Through	30	M 6	17	9,0	24	11	12,5	15	16
70680.W0033	Threaded Through	30	M 8	17	9,0	24	11	12,5	15	17
70680.W0204	Threaded Bush	20	M 4	13	-	15	7	8,0	9	5
70680.W0205	Threaded Bush	20	M 5	13	-	15	7	8,0	9	5
70680.W0206	Threaded Bush	20	M 6	13	-	15	7	8,0	9	5
70680.W0305	Threaded Bush	30	M 5	17	-	24	11	13,0	9	14
70680.W0306	Threaded Bush	30	M 6	17	-	24	11	13,0	9	15
70680.W0308	Threaded Bush	30	M 8	17	-	24	11	13,0	15	17
70680.W0406	Threaded Bush	40	M 6	21	-	28	12	16,0	13	35
70680.W0408	Threaded Bush	40	M 8	21	-	28	12	16,0	15	34
70680.W0410	Threaded Bush	40	M10	21	-	28	12	16,0	16	36
70680.W0508	Threaded Bush	50	M 8	25	-	33	13	20,0	15	54
70680.W0510	Threaded Bush	50	M10	25	-	33	13	20,0	16	56
70680.W0512	Threaded Bush	50	M12	25	-	33	13	20,0	18	58

70700



threaded through



threaded bush

Material
Brass bush. Duroplast, black.

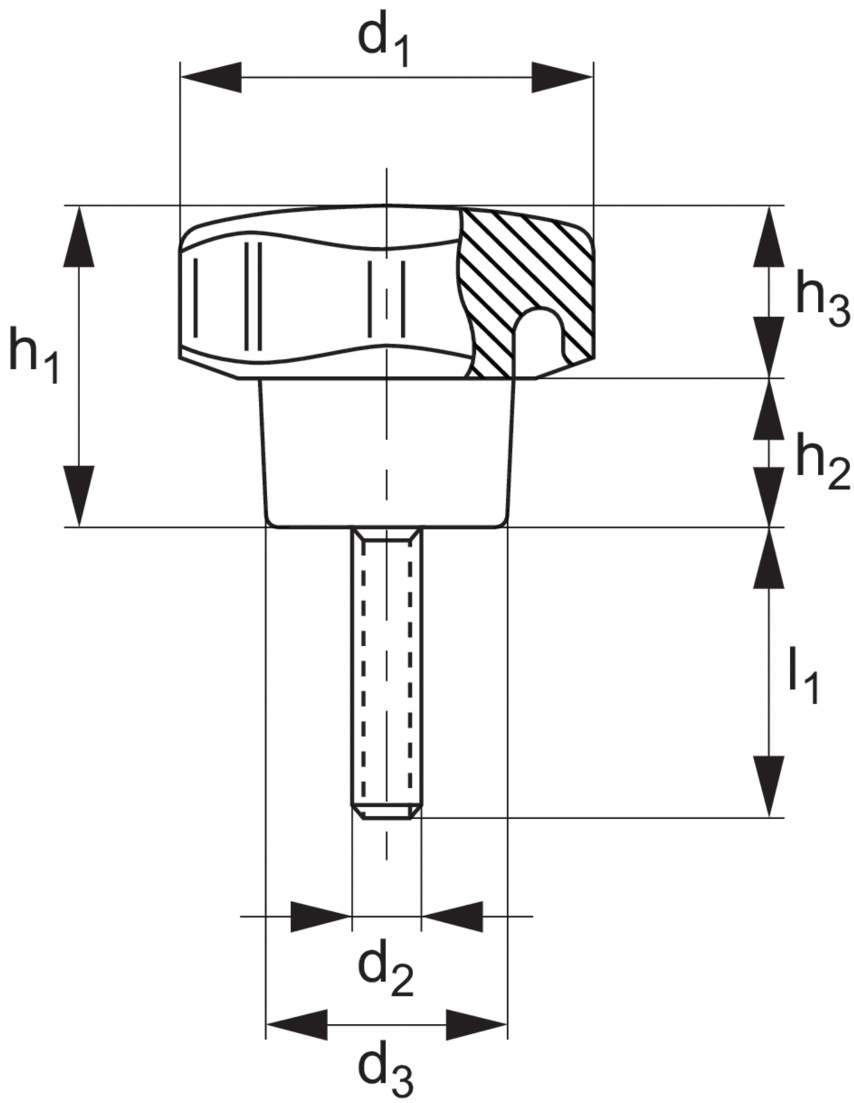
PF

Order No.	Type	d_1	d_2	d_3	d_4	h_1	h_2	h_3	t_1	g
70700.W0041	Threaded Through	40	M 6	21	11	28	13	15	18	28
70700.W0042	Threaded Through	40	M 8	21	11	28	13	15	18	29
70700.W0043	Threaded Through	40	M10	21	11	28	13	15	18	31
70700.W0051	Threaded Through	50	M 8	25	13	33	15	18	18	43
70700.W0052	Threaded Through	50	M10	25	13	33	15	18	18	45
70700.W0053	Threaded Through	50	M12	25	13	33	15	18	18	47
70700.W0061	Threaded Through	60	M10	28	11	35	15	20	25	70
70700.W0062	Threaded Through	60	M12	28	13	35	15	20	25	70
70700.W0063	Threaded Through	60	M14	28	15	35	15	20	25	70
70700.W0064	Threaded Through	60	M16	28	17	35	15	20	25	68
70700.W0071	Threaded Through	70	M10	32	11	42	21	21	25	92
70700.W0072	Threaded Through	70	M12	32	13	42	21	21	25	96
70700.W0073	Threaded Through	32	M14	70	15	42	21	21	25	94
70700.W0074	Threaded Through	70	M16	32	17	42	21	21	25	93
70700.W0406	Threaded Bush	40	M 6	21	-	28	13	15	13	26
70700.W0408	Threaded Bush	40	M 8	21	-	28	13	15	15	30
70700.W0410	Threaded Bush	40	M10	21	-	28	13	15	16	31
70700.W0508	Threaded Bush	50	M 8	25	-	33	15	18	15	48
70700.W0510	Threaded Bush	50	M10	25	-	33	15	18	16	49
70700.W0512	Threaded Bush	50	M12	25	-	33	15	18	18	50
70700.W0608	Threaded Bush	60	M 8	28	-	35	15	20	15	67
70700.W0610	Threaded Bush	60	M10	28	-	35	15	20	16	68
70700.W0612	Threaded Bush	60	M12	28	-	35	15	20	18	70
70700.W0614	Threaded Bush	60	M14	28	-	35	15	20	20	75
70700.W0620	Threaded Bush	60	M16	28	-	35	15	20	20	77
70700.W0710	Threaded Bush	70	M10	32	-	42	21	21	16	92
70700.W0712	Threaded Bush	70	M12	32	-	42	21	21	18	95
70700.W0714	Threaded Bush	70	M14	32	-	42	21	21	20	100
70700.W0716	Threaded Bush	70	M16	32	-	42	21	21	20	102
70700.W0912	Threaded Bush	90	M12	42	-	55	26	29	18	202
70700.W0914	Threaded Bush	90	M14	42	-	55	26	29	20	201
70700.W0916	Threaded Bush	90	M16	42	-	55	26	29	20	201
70700.W0918	Threaded Bush	90	M18	42	-	55	26	29	20	217

Six Lobed Knobs

with grub screw

70720



Material
Zinc plated steel stud. Duroplast, black.

PF

Order No.	d_1	d_2	l_1	d_3	h_1	h_2	h_3	g
70720.W0040	40	M 6	25	21	28	13	15	34
70720.W0041	40	M 6	40	21	28	13	15	37
70720.W0042	40	M 8	20	21	28	13	15	38
70720.W0043	40	M 8	25	21	28	13	15	39
70720.W0044	40	M 8	30	21	28	13	15	40
70720.W0045	40	M 8	40	21	28	13	15	44
70720.W0046	40	M 8	50	21	28	13	15	46
70720.W0047	40	M 8	70	21	28	13	15	55
70720.W0048	40	M10	50	21	28	13	15	60
70720.W0049	40	M10	70	21	28	13	15	70
70720.W0050	50	M 8	25	25	33	15	18	55
70720.W0051	50	M 8	40	25	33	15	18	60
70720.W0052	50	M 8	60	25	33	15	18	67
70720.W0053	50	M10	25	25	33	15	18	63
70720.W0054	50	M10	40	25	33	15	18	70
70720.W0055	50	M10	50	25	33	15	18	76
70720.W0056	50	M10	15	25	33	15	18	84
70720.W0057	50	M12	40	25	33	15	18	93
70720.W0058	50	M12	60	25	33	15	18	108
70720.W0060	60	M 8	20	28	35	15	20	75
70720.W0061	60	M 8	40	28	35	15	20	80
70720.W0062	60	M 8	60	28	35	15	20	87
70720.W0063	60	M10	20	28	35	15	20	82
70720.W0064	60	M10	40	28	35	15	20	96
70720.W0065	60	M10	60	28	35	15	20	107
70720.W0066	60	M12	30	28	35	15	20	107
70720.W0067	60	M12	50	28	35	15	20	122
70720.W0068	60	M12	60	28	35	15	20	127

Six Lobed Knobs

with grub screw

70720

Order No.	d_1	d_2	l_1	d_3	h_1	h_2	h_3	g
70720.W0069	60	M12	80	28	35	15	20	133
70720.W0070	70	M10	30	32	42	21	21	115
70720.W0071	70	M10	40	32	42	21	21	116
70720.W0072	70	M12	30	32	42	21	21	133
70720.W0073	70	M12	40	32	42	21	21	138
70720.W0074	70	M12	50	32	42	21	21	145
70720.W0075	70	M12	70	32	42	21	21	156
70720.W0076	70	M14	40	32	42	21	21	170
70720.W0077	70	M14	50	32	42	21	21	181
70720.W0090	90	M12	60	42	55	26	29	255
70720.W0091	90	M12	70	42	55	26	29	260
70720.W0092	90	M14	60	42	55	26	29	283
70720.W0093	90	M14	70	42	55	26	29	288
70720.W0094	90	M16	60	42	55	26	29	322
70720.W0095	90	M16	70	42	55	26	29	328

Material

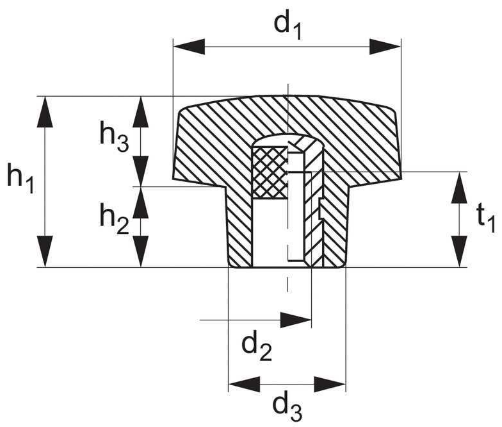
Zinc plated steel stud. Duroplast, black.

PF

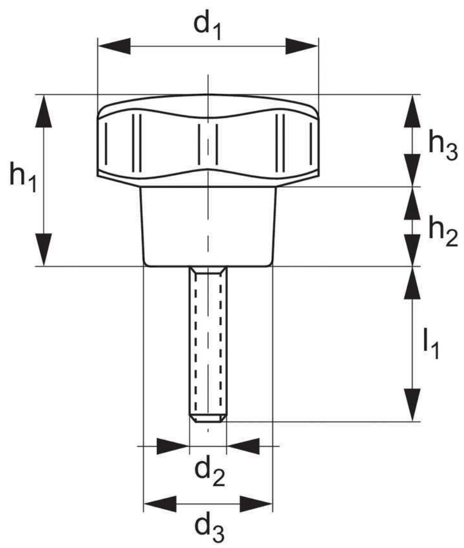
Six Lobed Knobs

stainless steel insert/thread

70740



threaded bush



grub screw

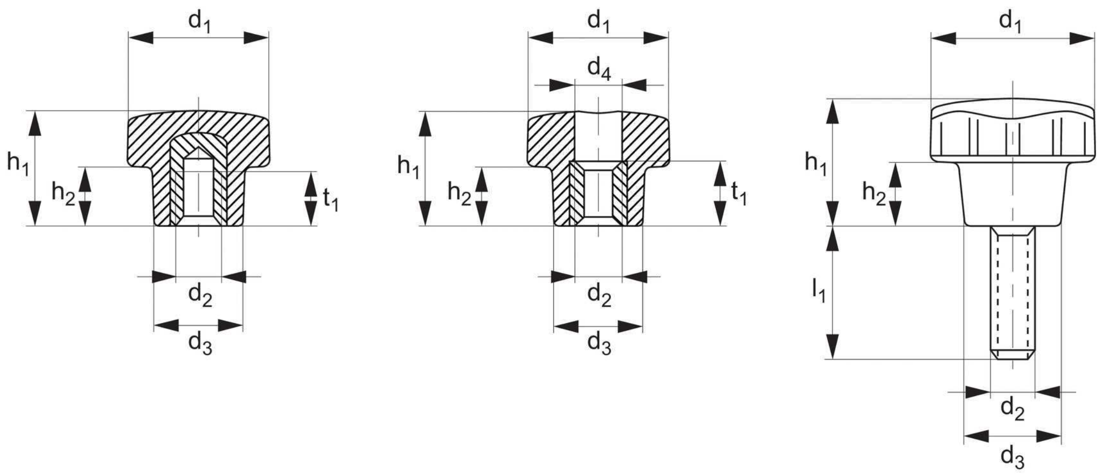
Order No.	Type	d_1	d_2	l_1	d_3	h_1	h_2	h_3	t_1	g
70740.W0030	Threaded Bush	30	M 6	-	17	24	11	13	9	15
70740.W0040	Threaded Bush	40	M 8	-	21	28	12	16	15	33
70740.W0050	Threaded Bush	50	M10	-	25	33	13	20	16	55
70740.W0060	Threaded Bush	60	M12	-	28	37	15	22	18	85
70740.W0301	Grub Screw	30	M 6	10	17	24	11	13	-	18
70740.W0302	Grub Screw	30	M 6	20	17	24	11	13	-	21
70740.W0303	Grub Screw	30	M 6	35	17	24	11	13	-	22
70740.W0401	Grub Screw	40	M 8	20	21	28	12	16	-	42
70740.W0402	Grub Screw	40	M 8	25	21	28	12	16	-	44
70740.W0403	Grub Screw	40	M 8	30	21	28	12	16	-	46
70740.W0404	Grub Screw	40	M 8	45	21	28	12	16	-	51
70740.W0501	Grub Screw	50	M10	20	25	33	13	20	-	73
70740.W0502	Grub Screw	50	M10	30	25	33	13	20	-	78
70740.W0503	Grub Screw	50	M10	50	25	33	13	20	-	87
70740.W0601	Grub Screw	60	M12	30	28	37	15	22	-	118
70740.W0602	Grub Screw	60	M12	40	28	37	15	22	-	125
70740.W0603	Grub Screw	60	M12	50	28	37	15	22	-	132
70740.W0701	Grub Screw	70	M12	70	32	42	18	24	-	184

Material

Stainless steel bush or thread AISI 303 (1.4305). Duroplast, black.

PF STAINLESS STEEL 303

70760



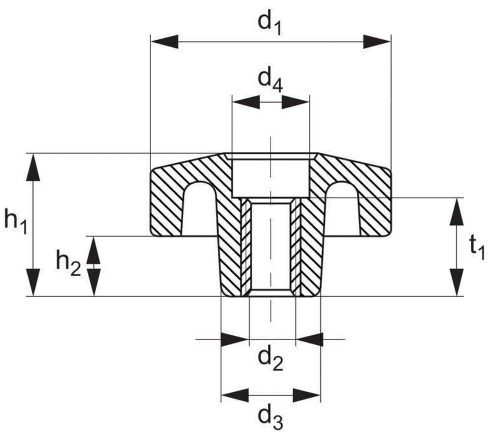
threaded bush   threaded through   grub screw

Order No.	Type	d_1	d_2	l_1	d_3	h_1	d_4	h_2	t_1	g
70760.W0004	Threaded Bush	21	M 4	-	13	15	-	8	8	8
70760.W0005	Threaded Bush	21	M 5	-	13	15	-	8	8	8
70760.W0006	Threaded Bush	21	M 6	-	13	15	-	8	8	8
70760.W0104	Threaded Through	21	M 4	-	13	15	7	8	11	7
70760.W0105	Threaded Through	21	M 5	-	13	15	7	8	11	7
70760.W0106	Threaded Through	21	M 6	-	13	15	7	8	11	7
70760.W0410	Grub Screw	21	M 4	10	13	16	-	8	-	5
70760.W0425	Grub Screw	21	M 4	25	13	16	-	8	-	5
70760.W0510	Grub Screw	21	M 5	10	13	16	-	8	-	6
70760.W0515	Grub Screw	21	M 5	15	13	16	-	8	-	6

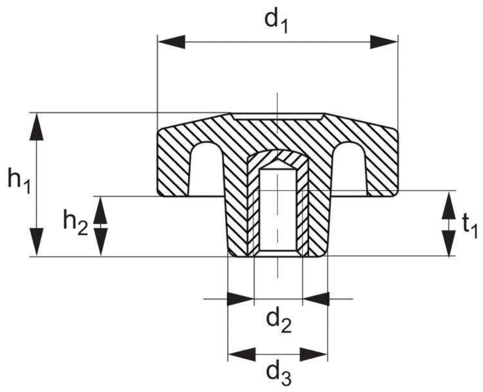
Material
Brass bush. Thermoplastic, black.

TP

Eight Lobed Knobs



threaded through



threaded bush

Material
Brass bush. Thermoplastic, matte black.

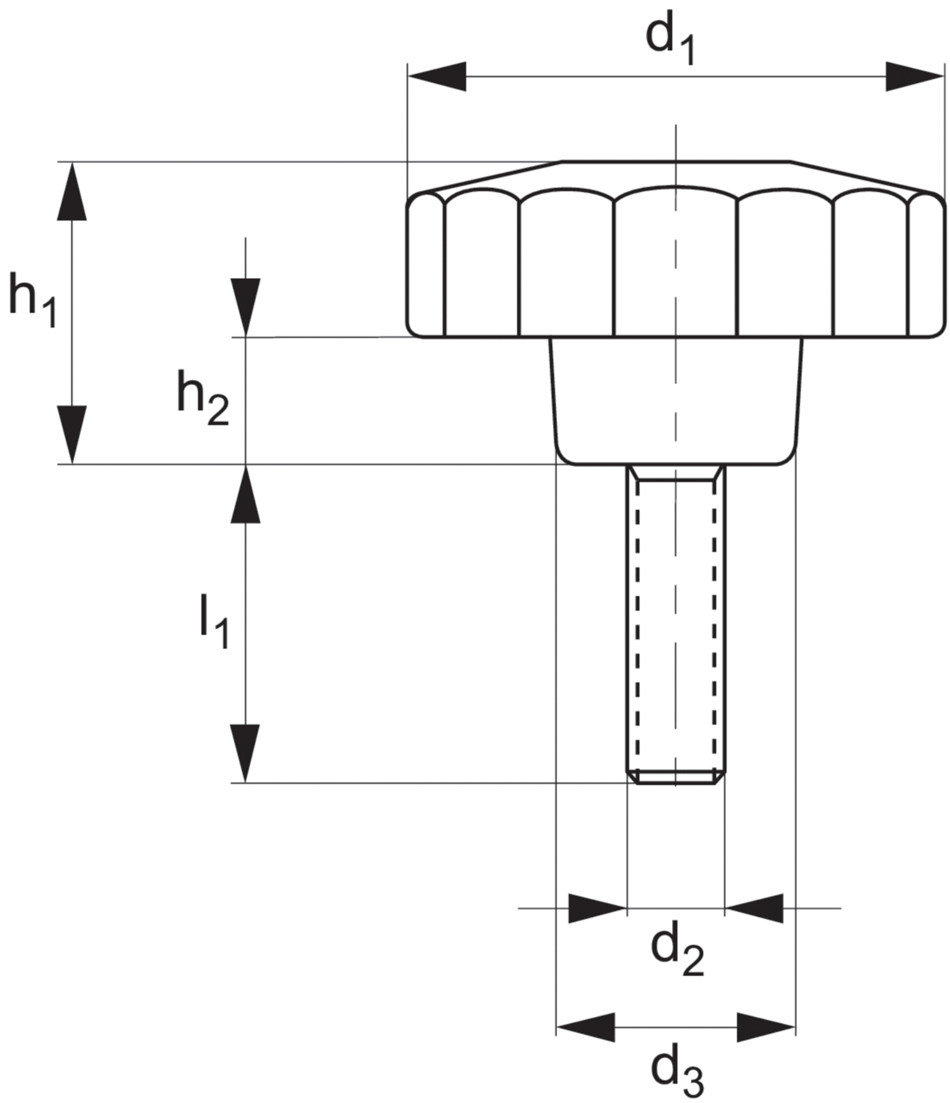
TP

Order No.	Type	d_1	d_2	d_3	h_1	d_4	t_1	h_2	g
70800.W0021	Threaded Through	25	M 4	13	17	7	11	8	7
70800.W0022	Threaded Through	25	M 5	13	17	7	11	8	8
70800.W0023	Threaded Through	25	M 6	13	17	7	11	8	9
70800.W0031	Threaded Through	35	M 6	18	20	11	15	8	18
70800.W0032	Threaded Through	35	M 8	18	20	11	15	8	18
70800.W0033	Threaded Through	35	M10	18	20	11	15	8	19
70800.W0042	Threaded Through	45	M 6	22	26	11	18	12	27
70800.W0043	Threaded Through	45	M 8	22	26	11	18	12	28
70800.W0044	Threaded Through	45	M10	22	26	11	18	12	30
70800.W0051	Threaded Through	55	M 8	25	29	13	18	15	40
70800.W0052	Threaded Through	55	M10	25	29	13	18	15	41
70800.W0053	Threaded Through	55	M12	25	29	13	18	15	42
70800.W0254	Threaded Bush	25	M 4	13	17	-	9	8	7
70800.W0255	Threaded Bush	25	M 5	13	17	-	9	8	7
70800.W0256	Threaded Bush	25	M 6	13	17	-	9	8	7
70800.W0356	Threaded Bush	35	M 6	18	20	-	13	8	16
70800.W0358	Threaded Bush	35	M 8	18	20	-	13	8	17
70800.W0359	Threaded Bush	35	M10	18	20	-	13	8	18
70800.W0455	Threaded Bush	45	M 5	22	26	-	13	12	27
70800.W0456	Threaded Bush	45	M 6	22	26	-	13	12	27
70800.W0458	Threaded Bush	45	M 8	22	26	-	13	12	28
70800.W0459	Threaded Bush	45	M10	22	26	-	13	12	29
70800.W0558	Threaded Bush	55	M 8	25	29	-	15	15	43
70800.W0559	Threaded Bush	55	M10	25	29	-	16	15	44
70800.W0562	Threaded Bush	55	M12	25	29	-	18	15	45

Eight Lobed Knobs

with grub screw

70820



Material

Zinc plated steel stud.
Thermoplastic, black, matte.

TP

Order No.	d_1	d_2	l_1	d_3	h_1	h_2	g
70820.W0021	25	M 4	15	13	17	8	7
70820.W0022	25	M 5	15	13	17	8	8
70820.W0023	25	M 5	25	13	17	8	9
70820.W0024	25	M 6	15	13	17	8	10
70820.W0025	25	M 6	20	13	17	8	11
70820.W0026	25	M 6	25	13	17	8	12
70820.W0031	35	M 6	15	18	20	8	19
70820.W0032	35	M 6	25	18	20	8	20
70820.W0033	35	M 6	35	18	20	8	22
70820.W0034	35	M 8	20	18	20	8	26
70820.W0035	35	M 8	25	18	20	8	26
70820.W0036	35	M 8	40	18	20	8	29
70820.W0037	35	M10	30	18	20	8	35
70820.W0041	45	M 8	20	22	26	12	37
70820.W0042	45	M 8	25	22	26	12	38
70820.W0043	45	M 8	30	22	26	12	39
70820.W0044	45	M 8	40	22	26	12	41
70820.W0045	45	M10	20	22	26	12	44
70820.W0046	45	M10	30	22	26	12	51
70820.W0047	45	M10	40	22	26	12	54
70820.W0051	55	M 8	20	25	29	15	50
70820.W0052	55	M 8	30	25	29	15	53
70820.W0053	55	M 8	40	25	29	15	56
70820.W0054	55	M10	20	25	29	15	57
70820.W0055	55	M10	30	25	29	15	63
70820.W0056	55	M10	40	25	29	15	68
70820.W0057	55	M12	30	25	29	15	83
70820.W0058	55	M12	40	25	29	15	90

Eight Lobed Knobs
with grub screw

70820

Material
Zinc plated steel stud.
Thermoplastic, black, matte.

TP

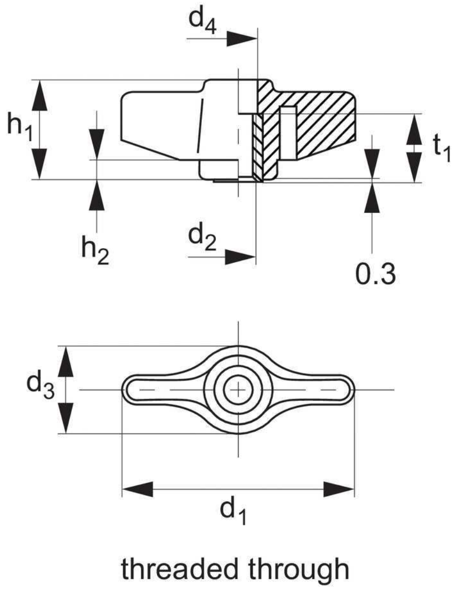
wing nuts

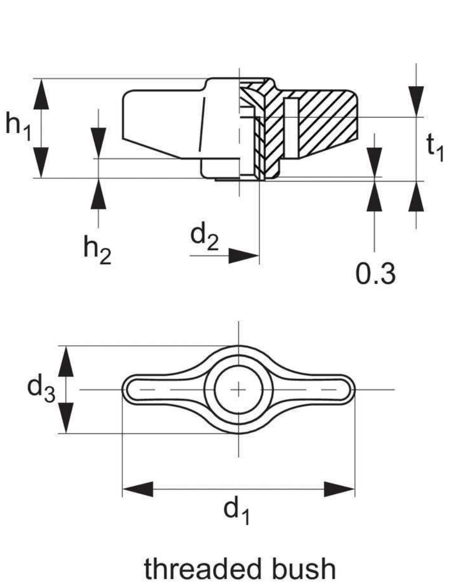
Wixroyd

ball knobs

handles & pulls

Wing Nuts





Material
Brass bush. Thermoplastic, black, matte.

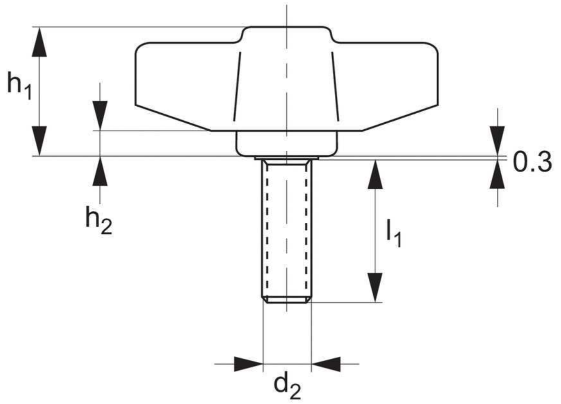
TP

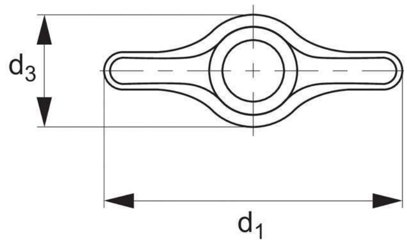
Order No.	Type	d_1	d_2	d_3	d_4	h_1	h_2	t_1	g
72180.W0034	Threaded Through	34	M 5	14	7	18	4	15	7
72180.W0035	Threaded Through	34	M 6	14	7	18	4	15	7
72180.W0040	Threaded Through	40	M 6	15	9	19	4	15	10
72180.W0041	Threaded Through	40	M 8	15	9	19	4	15	10
72180.W0048	Threaded Through	48	M 6	17	9	20	4	15	10
72180.W0049	Threaded Through	48	M 8	17	9	20	4	15	11
72180.W0135	Threaded Bush	34	M 5	14	-	18	4	8	5
72180.W0136	Threaded Bush	34	M 6	14	-	18	4	9	5
72180.W0138	Threaded Bush	34	M 8	14	-	18	4	9	6
72180.W0146	Threaded Bush	40	M 6	15	-	19	4	9	7
72180.W0148	Threaded Bush	40	M 8	15	-	19	4	9	7
72180.W0149	Threaded Bush	48	M 6	17	-	20	4	13	7
72180.W0150	Threaded Bush	48	M 8	17	-	20	4	13	9

Wing Nuts

plastic, with grub screw

72190





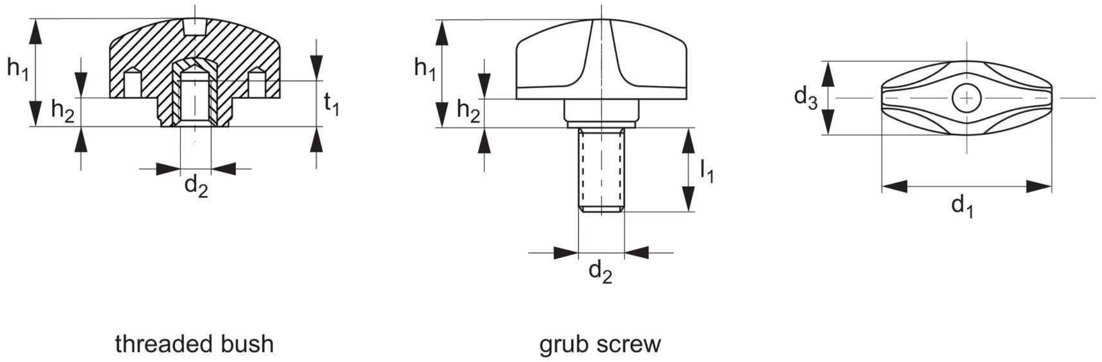
Material

Zinc plated steel stud.
Thermoplastic, black, matt.

TP

Order No.	d_1	d_2	l_1	d_3	h_1	h_2	g
72190.W0341	34	M 4	15	14	18	4	5
72190.W0342	34	M 5	15	14	18	4	7
72190.W0343	34	M 6	15	14	18	4	9
72190.W0344	34	M 6	25	14	18	4	11
72190.W0345	34	M 8	15	14	18	4	13
72190.W0346	34	M 8	25	14	18	4	15
72190.W0401	40	M 6	15	15	19	4	10
72190.W0402	40	M 6	20	15	19	4	11
72190.W0403	40	M 8	15	15	19	4	14
72190.W0404	40	M 8	20	15	19	4	15
72190.W0405	40	M 8	25	15	19	4	16
72190.W0481	48	M 6	15	17	20	4	12
72190.W0482	48	M 6	20	17	20	4	12
72190.W0483	48	M 6	25	17	20	4	13
72190.W0484	48	M 8	15	17	20	4	15
72190.W0485	48	M 8	25	17	20	4	18
72190.W0486	48	M 8	30	17	20	4	19
72190.W0487	48	M 8	40	17	20	4	22

72210

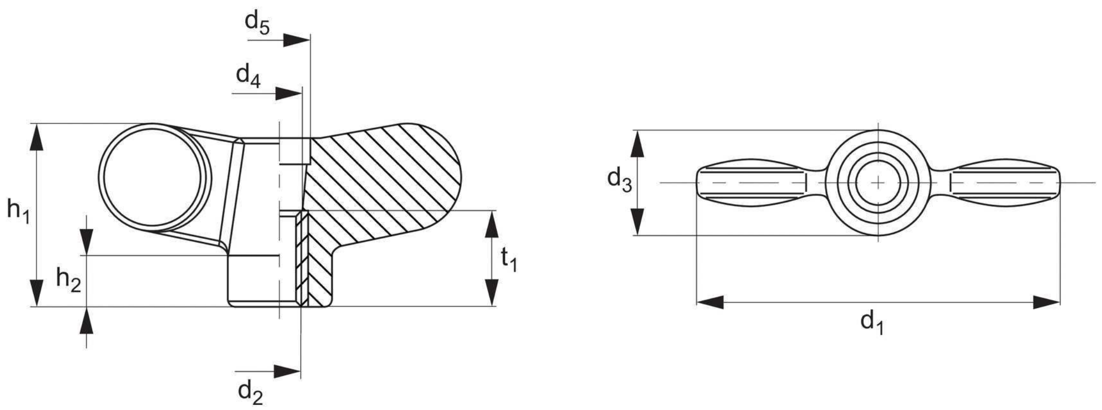


Order No.	Type	d_1	d_2	l_1	d_3	h_1	h_2	t_1	g
72210.W0004	Threaded Bush	30	M 4	-	13	19	5	8	5,8
72210.W0005	Threaded Bush	30	M 5	-	13	19	5	8	5,4
72210.W0006	Threaded Bush	30	M 6	-	13	19	5	8	5,6
72210.W0008	Threaded Bush	30	M 8	-	13	19	5	8	6,0
72210.W0341	Grub Screw	30	M 4	15	13	19	5	-	5,4
72210.W0342	Grub Screw	30	M 4	20	13	19	5	-	5,4
72210.W0351	Grub Screw	30	M 5	15	13	19	5	-	6,4
72210.W0352	Grub Screw	30	M 5	25	13	19	5	-	7,6
72210.W0353	Grub Screw	30	M 5	30	13	19	5	-	9,4
72210.W0361	Grub Screw	30	M 6	15	13	19	5	-	8,0
72210.W0362	Grub Screw	30	M 6	25	13	19	5	-	9,8
72210.W0363	Grub Screw	30	M 6	30	13	19	5	-	10,0
72210.W0364	Grub Screw	30	M 6	40	13	19	5	-	12,2
72210.W0381	Grub Screw	30	M 8	15	13	19	5	-	11,4
72210.W0383	Grub Screw	30	M 8	30	13	19	5	-	16,6
72210.W0384	Grub Screw	30	M 8	40	13	19	5	-	19,8

Material
Brass bush. Zinc plated steel stud.
Thermoplastic, black, matt.

TP

72270



Material
Thermoplastic, black.
Brass bush.

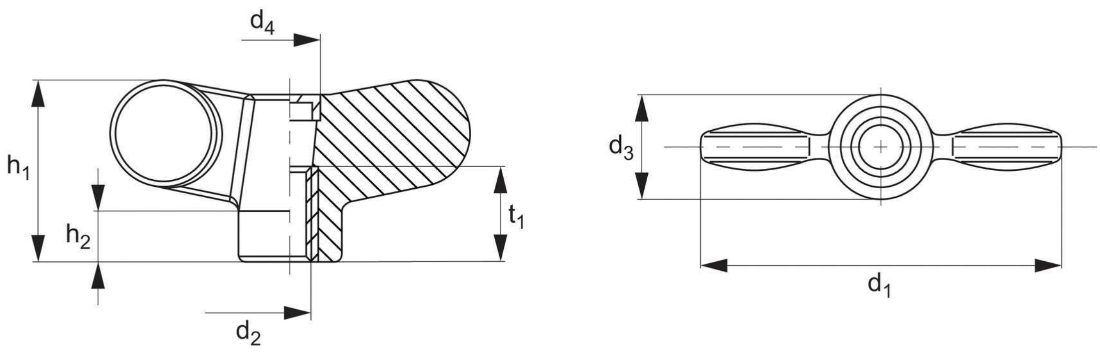
TP

Order No.	d_1	d_2	d_3	d_4	d_5	h_1	h_2	t_1	g
72270.W0052	55	M 6	16	8	11	28	8	18	14
72270.W0054	55	M 8	16	10	11	28	8	18	15
72270.W0074	70	M 8	20	10	11	36	10	18	23
72270.W0076	70	M10	20	11	11	36	10	18	24

Wing Nut

plastic, with colour insert

72280



Order No. Black	Order No. Red	d_1	d_2	d_3	d_4	h_1	h_2	t_1	g
72280.W0052	72280.W0152	55	M 6	16	11	28	8	18	14,5
72280.W0054	72280.W0154	55	M 8	16	11	28	8	18	15,5
72280.W0074	72280.W0174	70	M 8	20	11	36	10	18	23,5
72280.W0076	72280.W0176	70	M10	20	11	36	10	18	24,5

Material
Thermoplastic, black.
Plastic insert: black RAL9005, red RAL3000, blue RAL5019.

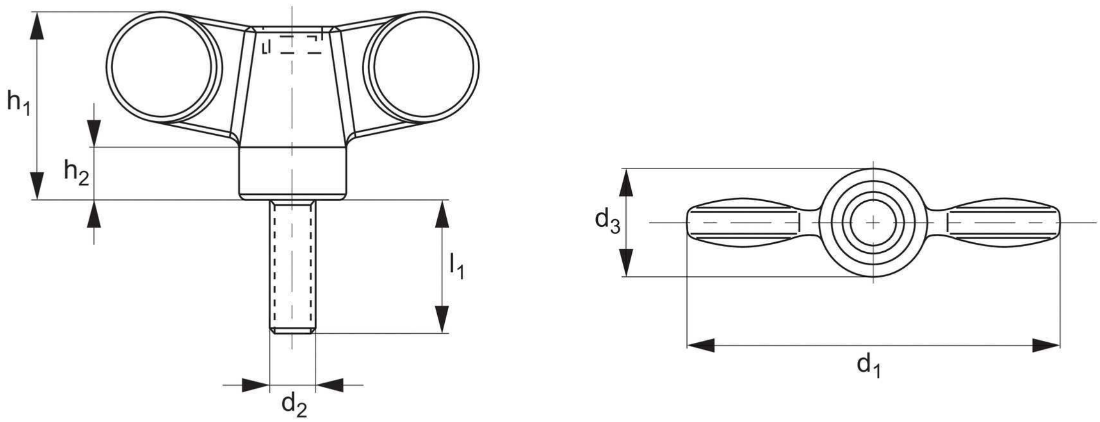
Tips
Other colour inserts available on request, subject to minimum quantity.

TP

Wing Nut

plastic, with grub screw and colour insert

72290



Order No. Black	Order No. Red	d_1	d_2	l_1	d_3	h_1	h_2	g
72290.W0054	72290.W0154	55	M 8	20	16	28	8	24
72290.W0055	72290.W0155	55	M 8	40	16	28	8	26
72290.W0056	72290.W0156	55	M10	20	16	28	8	30
72290.W0057	72290.W0157	55	M10	40	16	28	8	40
72290.W0074	72290.W0174	70	M 8	20	20	36	10	30
72290.W0076	72290.W0176	70	M10	20	20	36	10	39
72290.W0077	72290.W0177	70	M10	40	20	36	10	47

Material

Thermoplastic black.
Plastic insert: black RAL9005, red RAL3000, blue RAL 5019.

Tips

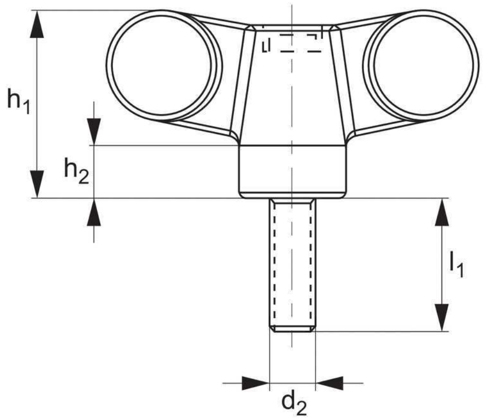
Other colour inserts available on request, subject to minimum quantity.

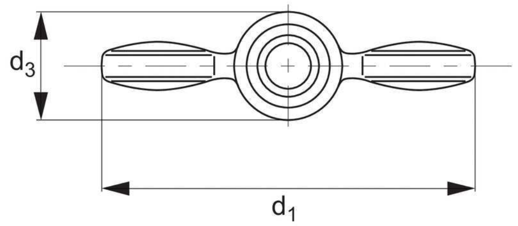
TP

Wing Nut - Stainless Steel

plastic, with grub screw and colour insert

72300





Order No. Black Insert	Order No. Red Insert	d_1	d_2	l_1	d_3	h_1	h_2	g
72300.W0054	72300.W0154	55	M 8	20	16	28	8	24
72300.W0055	72300.W0155	55	M 8	30	16	28	8	25
72300.W0077	72300.W0177	70	M10	30	20	36	10	43

Material

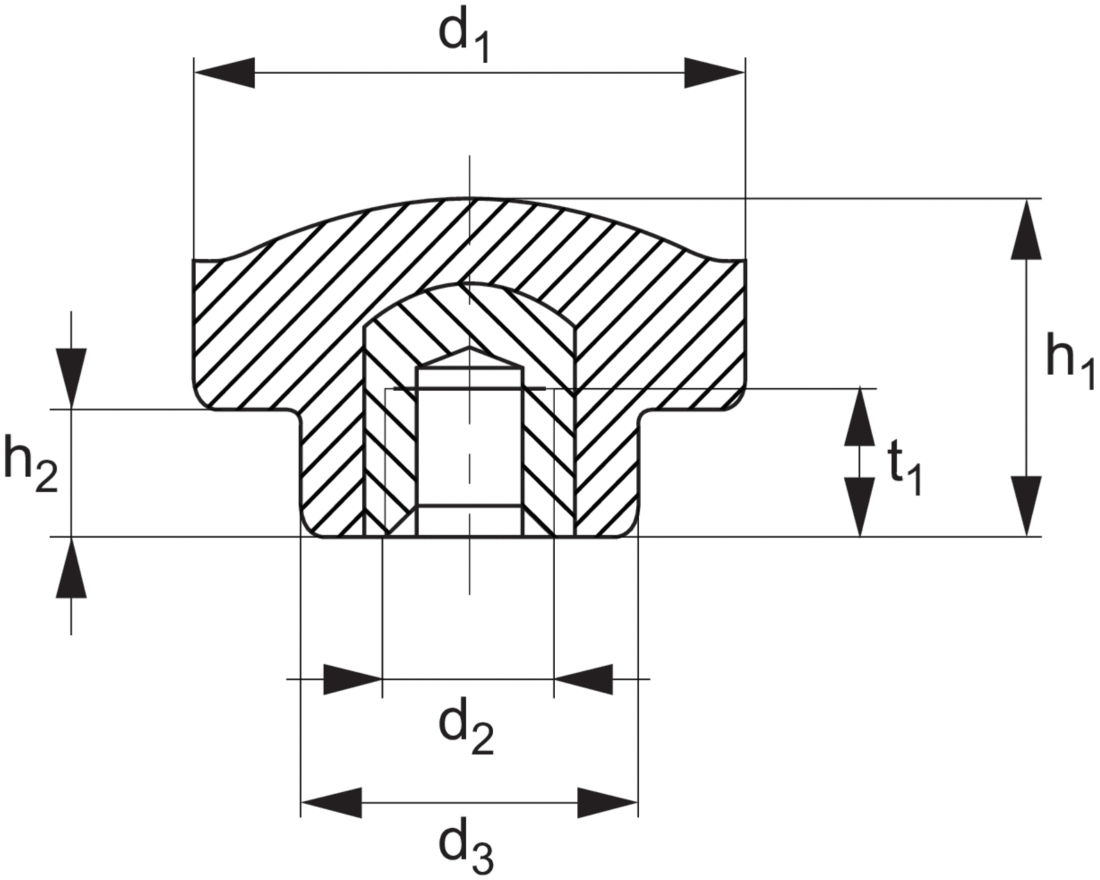
Thermoplastic black, with stainless steel thread.
Plastic insert: black RAL9005, red RAL3000, blue RAL5019.

Tips

Other colour inserts available on request, subject to minimum quantity.

TP STAINLESS STEEL 303

72410

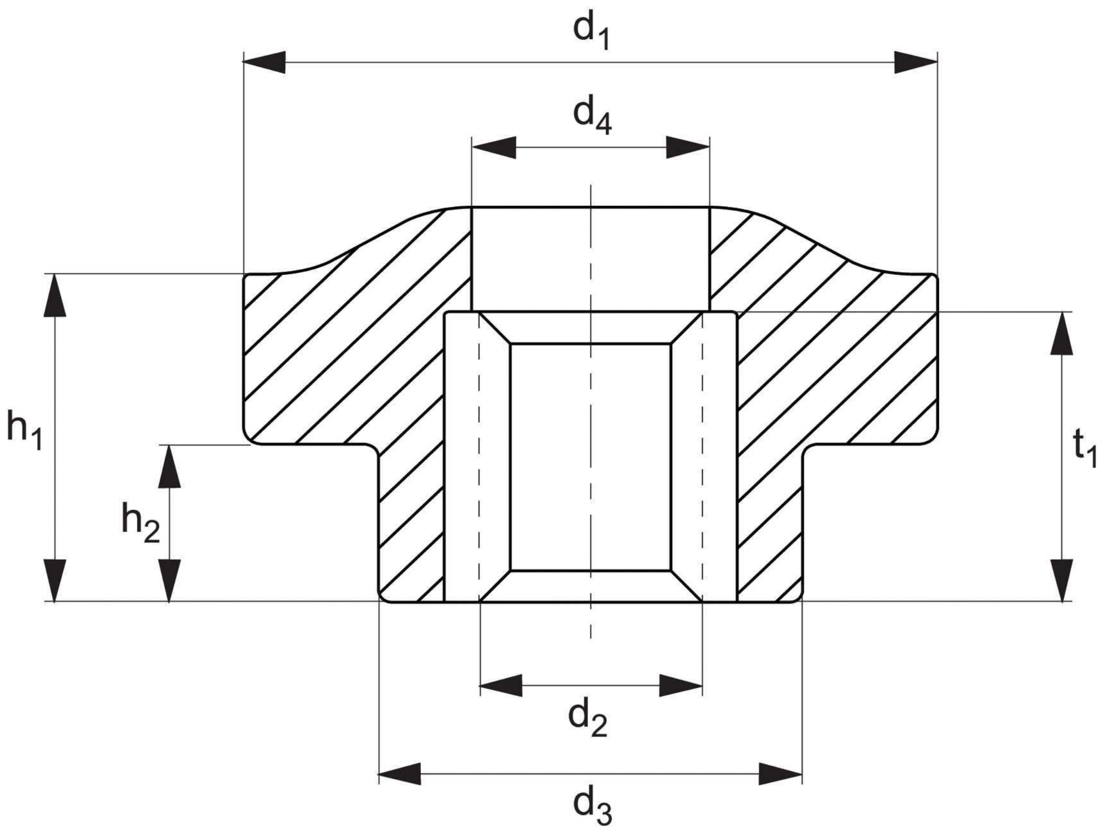


Material
Brass bush with tapped hole.
Thermoplastic, black, matt.

TP

Order No.	d_1	d_2	d_3	h_1	h_2	t_1	g
72410.W0224	22	M 4	15	14	6	8	7
72410.W0225	22	M 5	15	14	6	8	8
72410.W0226	22	M 6	15	14	6	8	8
72410.W0228	22	M 8	15	14	6	8	7
72410.W0244	24	M 4	15	14	6	8	8
72410.W0245	24	M 5	15	14	6	8	9
72410.W0246	24	M 6	15	14	6	8	7
72410.W0248	24	M 8	15	14	6	8	8
72410.W0264	26	M 4	16	15	6	8	11
72410.W0265	26	M 5	16	15	6	8	11
72410.W0266	26	M 6	16	15	6	8	11
72410.W0268	26	M 8	16	15	6	8	10

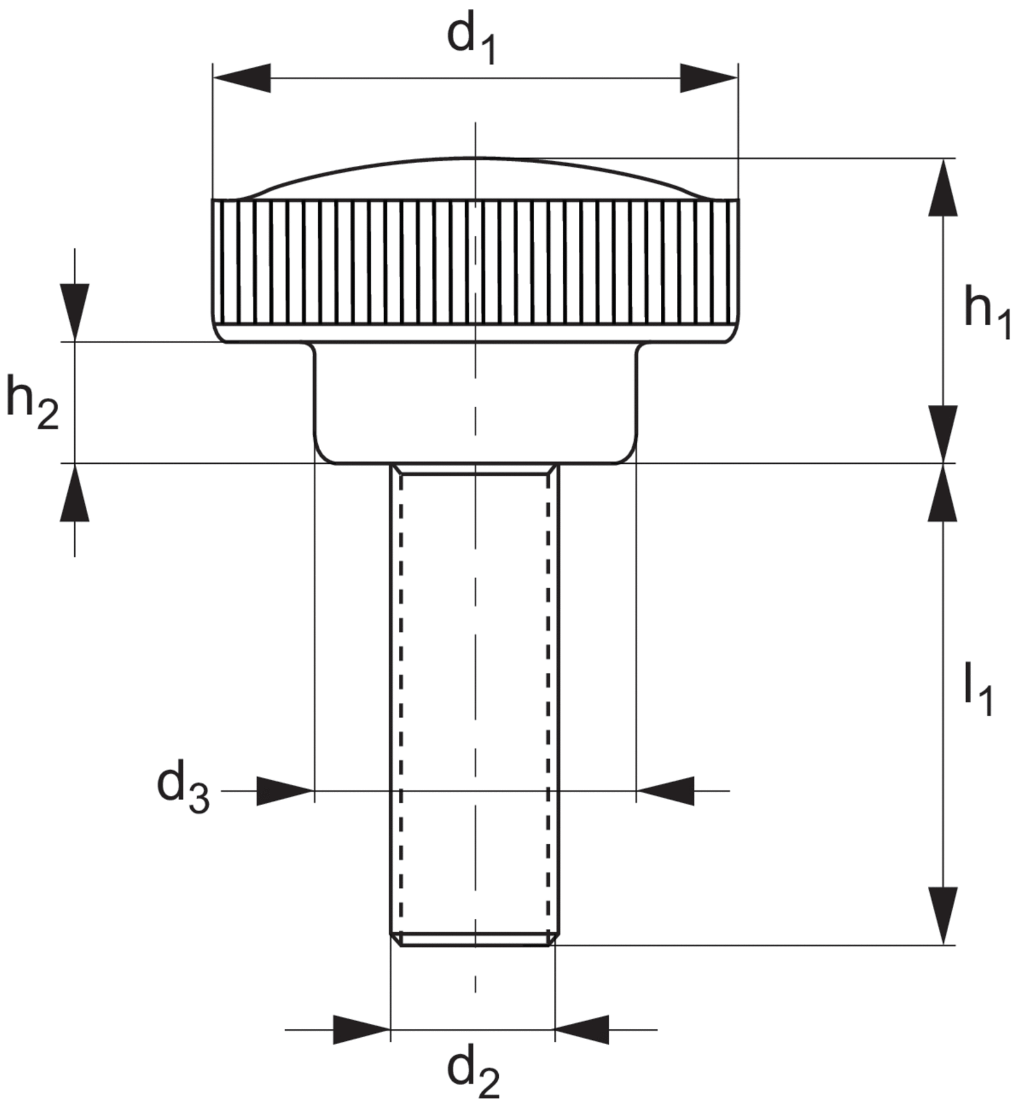
72420



Material
Brass bush with tapped through hole. Thermoplastic, black, matt.

TP

Order No.	d_1	d_2	d_3	d_4	h_1	h_2	t_1	g
72420.W0154	15	M 4	11	7	14	7	11	4
72420.W0155	15	M 5	11	7	14	7	11	4
72420.W0224	22	M 4	15	9	14	6	11	7
72420.W0225	22	M 5	15	9	14	6	11	7
72420.W0226	22	M 6	15	9	14	6	11	7
72420.W0228	22	M 8	15	9	14	6	11	7
72420.W0244	24	M 4	15	9	14	6	11	7
72420.W0245	24	M 5	15	9	14	6	11	9
72420.W0246	24	M 6	15	9	14	6	11	8
72420.W0248	24	M 8	15	9	14	6	11	8
72420.W0264	26	M 4	16	9	15	6	11	9
72420.W0265	26	M 5	16	9	15	6	11	9
72420.W0266	26	M 6	16	9	15	6	11	9
72420.W0268	26	M 8	16	9	15	6	11	9
72420.W0326	32	M 6	19	9	18	8	11	11
72420.W0328	32	M 8	19	9	18	8	11	12



Material
Zinc plated steel stud.
Thermoplastic, black, matt.

TP

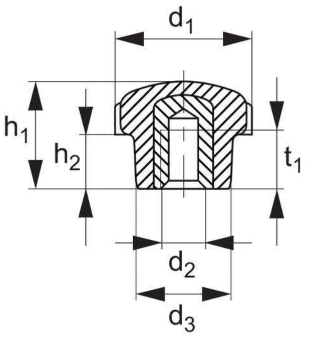
Order No.	d_1	d_2	l_1	d_3	h_1	h_2	g
72430.W0151	15	M 4	10	11	14	7	4,0
72430.WX151	15	M 4	15	11	14	7	4,0
72430.W0152	15	M 5	10	11	14	7	4,0
72430.W0220	22	M 4	10	15	14	6	6,0
72430.W0221	22	M 4	25	15	14	6	6,0
72430.WX221	22	M 5	15	10	14	6	7,0
72430.W0222	22	M 5	15	15	14	6	7,0
72430.WX222	22	M 6	10	15	14	6	8,0
72430.W0223	22	M 6	15	15	14	6	8,0
72430.WX223	22	M 6	20	15	14	6	9,0
72430.W0224	22	M 6	25	15	14	6	9,0
72430.W0225	22	M 6	30	15	14	6	11,0
72430.WX225	22	M 6	35	15	14	6	12,0
72430.W0226	22	M 6	40	15	14	6	13,0
72430.W0241	24	M 4	10	15	14	6	5,0
72430.W0242	24	M 4	25	15	14	6	6,0
72430.W0243	24	M 5	10	15	14	6	8,0
72430.W0244	24	M 6	10	15	14	6	6,0
72430.WX244	24	M 6	15	15	14	6	10
72430.W0245	24	M 6	25	15	14	6	11,0
72430.W0250	26	M 5	10	15	14	6	9,0
72430.W0261	26	M 5	15	16	15	6	10,0
72430.W0262	26	M 5	25	16	15	6	11,0
72430.WX262	26	M 6	10	16	15	6	10
72430.W0263	26	M 6	15	16	15	6	11,0
72430.W0264	26	M 6	20	16	15	6	12,0
72430.W0265	26	M 6	25	16	15	6	13,0
72430.W0266	26	M 6	40	16	15	6	15,0

Order No.	d_1	d_2	l_1	d_3	h_1	h_2	g
72430.W0267	26	M 8	25	16	15	6	17,0
72430.W0268	32	M 6	15	19	18	8	13
72430.W0269	32	M 6	0	19	18	8	14
72430.W0270	32	M 6	25	19	18	8	15
72430.W0271	32	M 6	30	19	18	8	16
72430.W0272	32	M 6	40	19	18	8	18
72430.W0273	32	M 8	15	19	18	8	19
72430.W0274	32	M 8	25	19	18	8	22
72430.W0275	32	M 8	40	19	18	8	27

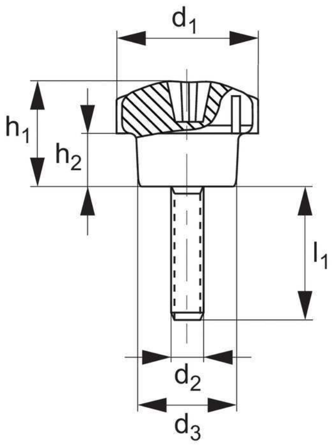
Material
Zinc plated steel stud.
Thermoplastic, black, matt.

TP

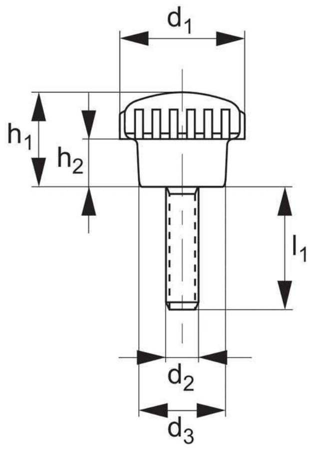
72440



threaded bush



grub screw, phillips



grub screw

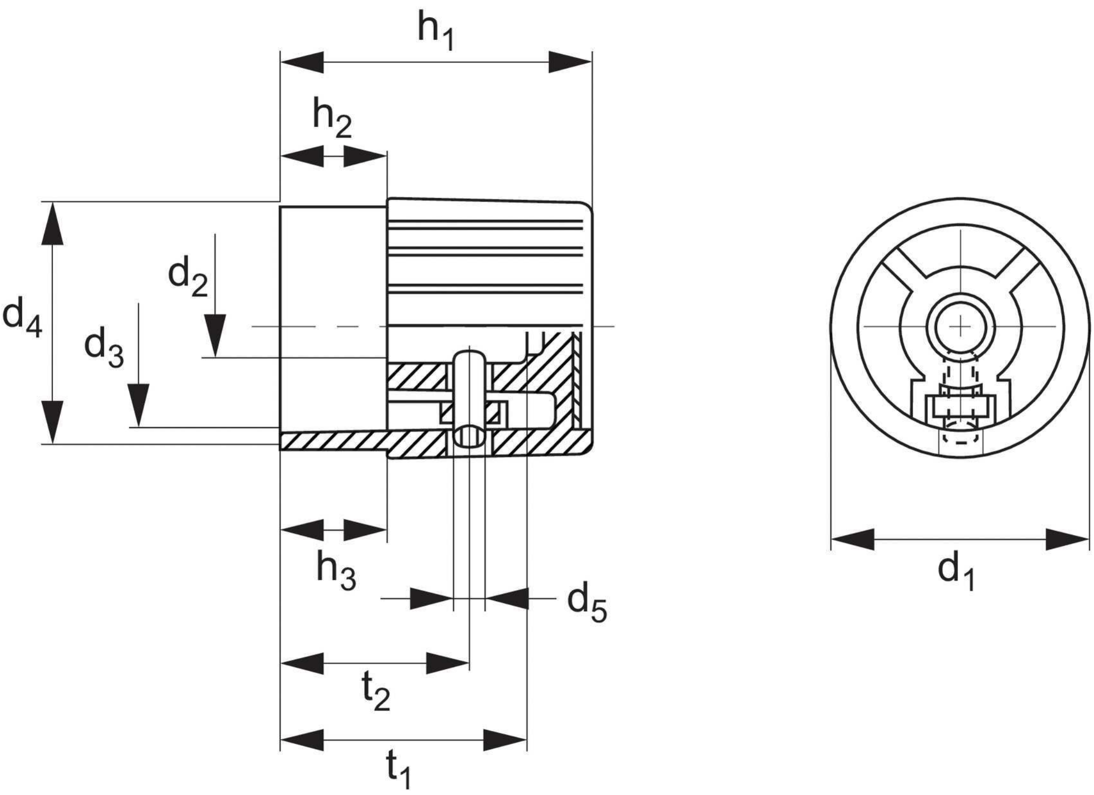
Order No.	Type	d_1	d_2	l_1	d_3	h_1	h_2	t_1	g
72440.W0004	Threaded Bush	17	M 4	-	13	15	8	8	6
72440.W0005	Threaded Bush	17	M 5	-	13	15	8	8	6
72440.W0006	Threaded Bush	17	M 6	-	13	15	8	8	6
72440.W0105	Grub Screw, Phillips	17	M 5	20	13	15	8	-	9
72440.W0410	Grub Screw	17	M 4	10	13	15	8	-	4
72440.W0425	Grub Screw	17	M 4	25	13	15	8	-	5
72440.W0515	Grub Screw	17	M 5	15	13	15	8	-	6

Material
Thermoplastic, black.
Female type - brass bush.
Male type - zinc plated steel stud.

TP

Knurled Control Knob

72480



Material
Thermoplastic, black, matt.
Reinforced glass fibre.
Aluminium cover disk.

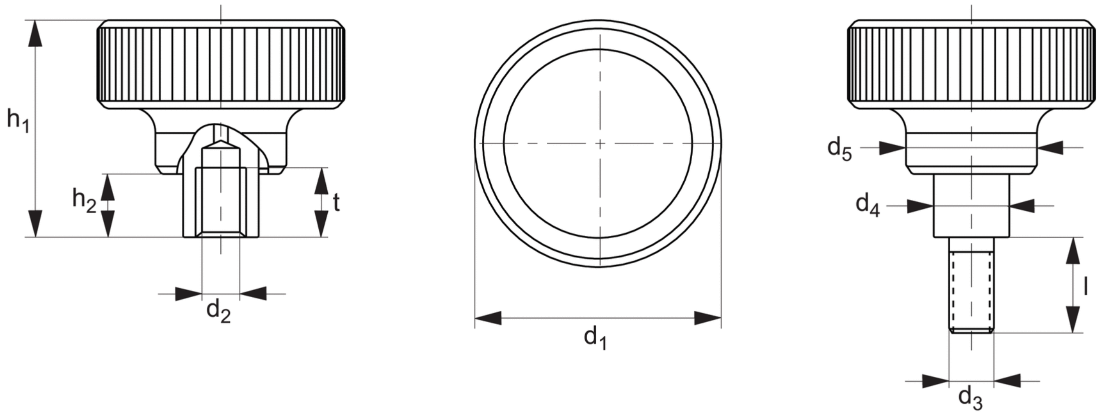
Technical Notes
Tapped hole with grub screw for mounting to shaft. "With Index" model has laser marked index point on diameter.

TP

Order No.	Type	d_1	d_2	d_3	d_4	d_5	h_1	h_2	h_3	t_1	t_2	g
72480.W0002	W/o Index	27	6	22	25	M 4	30	12	12	25	18	10
72480.W0004	W/o Index	32	8	25	30	M 4	38	13	13	30	23	22
72480.W0006	W/o Index	35	10	28	33	M 5	45	15	15	37	27	30
72480.W0102	With Index	27	6	22	25	M 4	30	12	12	25	18	12
72480.W0104	With Index	32	8	25	30	M 4	38	13	13	30	23	22
72480.W0106	With Index	35	10	28	33	M 5	45	15	15	37	27	30

Torque Control Knob

72485



female thread

male thread

Material

Cap: thermoplastic PA 6, light grey, similar to RAL 7035
Torque mechanism: Steel, hardened.
Body: Aluminium, black anodised
Inner part: Steel, blackened

Technical Notes

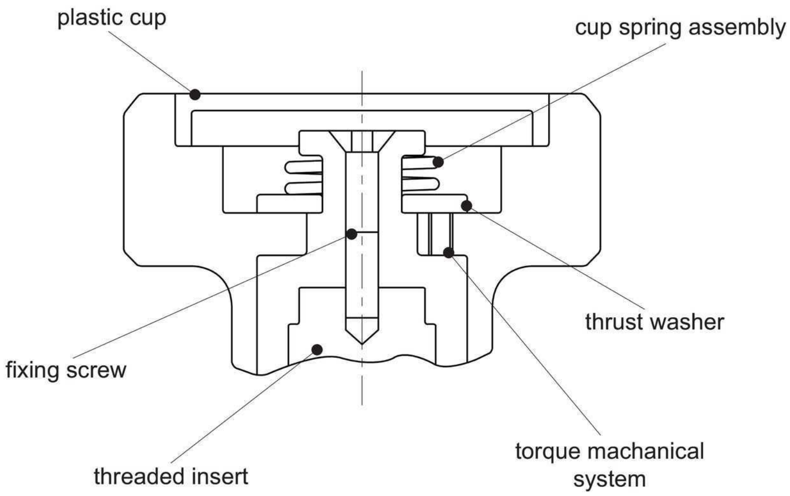
The handle with intergrate torque mechanism allows a defined torque during tightening. Reaching the torque results in a "over-looking". For releasing the torque is transmitted indefinitely.

Order No.	d_1	d_2	d_3	l	d_4	d_5	h_1	h_2	t	Tightening torque +/- 10% max. (Nm)	Type	g
72485.W0020	34	M 3	-	-	10	21	37,5	9,5	7	1,0	Female	48
72485.W0022	34	M 4	-	-	10	21	37,5	9,5	9	1,0	Female	48
72485.W0024	34	M 5	-	-	10	21	37,5	9,5	9	1,0	Female	48
72485.W0026	34	M 6	-	-	10	21	37,5	9,5	9	1,0	Female	48
72485.W0030	42	M 6	-	-	13,5	27	43,5	11,5	11	2,0	Female	127
72485.W0032	42	M8	-	-	13,5	27	43,5	11,5	11	2,0	Female	127
72485.W0040	52	M10	-	-	19	32	54	15,5	17	3,0	Female	206
72485.W0042	52	M12	-	-	19	32	54	15,5	17	3	Female	206
72485.W0050	62	M10	-	-	19	33	54	15,5	17	4	Female	285
72485.W0052	62	M12	-	-	19	33	54	15,5	17	4	Female	285
72485.W0060	62	M10	-	-	19	33	54	15,5	17	5,5	Female	285
72485.W0062	62	M12	-	-	19	33	54	15,5	17	5,5	Female	285
72485.W0300	34	-	M 5	12	10	21	37,5	9,5	-	1,0	Male	62
72485.W0301	34	-	M 5	16	10	21	37,5	9,5	-	1,0	Male	63
72485.W0302	34	-	M 5	20	10	21	37,5	9,5	-	1,0	Male	63
72485.W0303	34	-	M 5	25	10	21	37,5	9,5	-	1,0	Male	64
72485.W0304	34	-	M 5	32	10	21	37,5	9,5	-	1,0	Male	65
72485.W0305	34	-	M 6	12	10	21	37,5	9,5	-	1,0	Male	64
72485.W0306	34	-	M 6	16	10	21	37,5	9,5	-	1,0	Male	65
72485.W0307	34	-	M 6	20	10	21	37,5	9,5	-	1,0	Male	66
72485.W0308	34	-	M 5	12	10	21	37,5	9,5	-	1,0	Male	67
72485.W0309	34	-	M 6	32	10	21	37,5	9,5	-	1,0	Male	68
72485.W0400	42	-	M 8	16	13,5	27	43,5	11,5	-	2,0	Male	152
72485.W0401	42	-	M 8	20	13,5	21	43,5	11,5	-	2,0	Male	153
72485.W0402	42	-	M 8	25	13,5	27	43,5	11,5	-	2,0	Male	155
72485.W0403	42	-	M 8	32	13,5	27	43,5	11,5	-	2,0	Male	158
72485.W0404	42	-	M 8	40	13,5	27	43,5	11,5	-	2,0	Male	161
72485.W0405	42	-	M10	20	13,5	27	43,5	11,5	-	2,0	Male	165
72485.W0406	42	-	M10	25	13,5	27	43,5	11,5	-	2,0	Male	170
72485.W0407	42	-	M10	32	13,5	27	43,5	11,5	-	2,0	Male	173
72485.W0408	42	-	M 10	40	13,5	27	43,5	11,5	-	2,0	Male	62
72485.W0409	42	-	M10	50	13,5	27	43,5	11,5	-	2,0	Male	187
72485.W0500	52	-	M10	25	19	32	54	15,5	-	3,0	Male	241
72485.W0501	52	-	M10	32	19	32	54,0	15,5	-	3,0	Male	62
72485.W0502	52	-	M10	40	19	32	54,0	15,5	-	3,0	Male	248
72485.W0503	52	-	M10	50	19	32	54,0	15,5	-	3,0	Male	254
72485.W0504	52	-	M10	63	19	32	54,0	15,5	-	3,0	Male	262
72485.W0505	52	-	M12	32	19	32	54,0	15,5	-	3,0	Male	251
72485.W0506	34	-	M12	25	19	32	54,0	15,5	-	3,0	Male	254
72485.W0507	52	-	M12	40	19	32	54,0	15,5	-	3,0	Male	262
72485.W0508	52	-	M12	50	19	32	54,0	15,5	-	3,0	Male	270
72485.W0509	52	-	M12	63	19	32	54,0	15,5	-	3,0	Male	274
72485.W0600	62	-	M10	25	19	33	54,0	15,5	-	4,0	Male	334
72485.W0601	62	-	M10	32	19	33	54,0	15,5	-	4,0	Male	339
72485.W0602	62	-	M10	40	19	33	54,0	15,5	-	4,0	Male	341
72485.W0603	62	-	M10	50	19	33	54,0	15,5	-	4,0	Male	347
72485.W0604	62	-	M10	63	19	33	54,0	15,5	-	4,0	Male	355

Torque Control Knob

72485

Order No.	d_1	d_2	d_3	l	d_4	d_5	h_1	h_2	t	Tightening torque +/- 10% max. (Nm)	Type	g
72485.W0605	62	-	M12	25	19	33	54,0	15,5	-	4,0	Male	344
72485.W0606	62	-	M12	25	19	33	54,0	15,5	-	4,0	Male	347
72485.W0607	62	-	M12	40	19	33	54,0	15,5	-	4,0	Male	355
72485.W0608	62	-	M12	50	19	33	54,0	15,5	-	4,0	Male	363
72485.W0609	62	-	M12	50	19	33	54,0	15,5	-	4,0	Male	367
72485.W0700	62	-	M10	25	19	33	54,0	15,5	-	5,5	Male	334
72485.W0701	62	-	M10	32	19	33	54,0	15,5	-	4,0	Male	339
72485.W0702	62	-	M10	40	19	33	54,0	15,5	-	5,5	Male	334
72485.W0703	62	-	M10	25	19	33	54,0	15,5	-	5,5	Male	347
72485.W0704	62	-	M10	63	19	33	54,0	15,5	-	5,5	Male	355
72485.W0705	62	-	M12	25	19	33	54,0	15,5	-	5,5	Male	344
72485.W0706	52	-	M12	32	19	33	54,0	15,5	-	4,0	Male	347
72485.W0707	62	-	M12	40	19	33	54,0	15,5	-	5,5	Male	355
72485.W0708	62	-	M12	50	19	33	54,0	15,5	-	5,5	Male	363
72485.W0709	62	-	M12	63	19	33	54,0	15,5	-	5,5	Male	367



Material

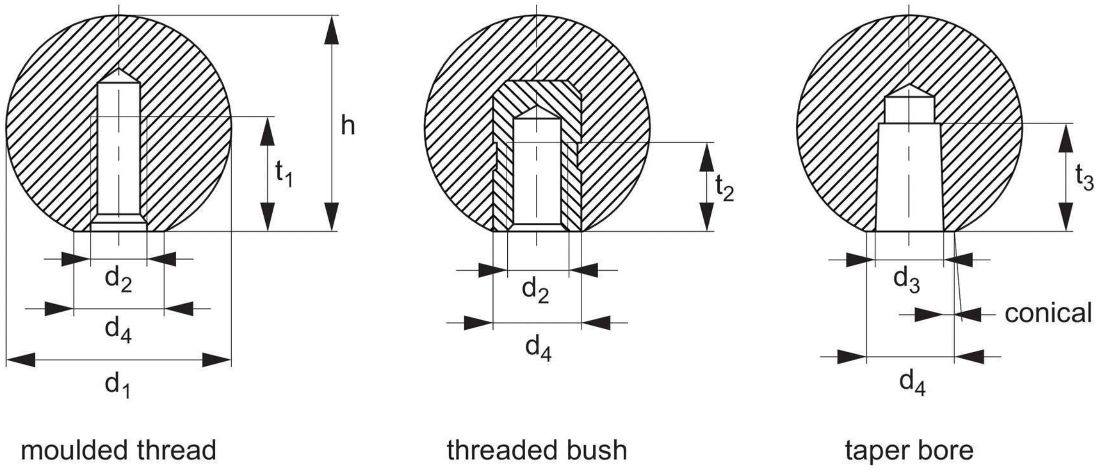
Cap: thermoplastic PA 6, light grey, similar to RAL 7035
Torque mechanism: Steel, hardened.
Body: Aluminium, black anodised
Inner part: Steel, blackened

Technical Notes

The handle with intergrate torque mechanism allows a defined torque during tightening. Reaching the torque results in a "over-looking". For releasing the torque is transmitted indefinitely.

Ball Knobs - Plastic

DIN 319



Order No.	Finish	d_1	d_2	d_3	d_4 ~	h ~	t_1 ≥	t_2 ≥	g
73000.W0016	Moulded Thread	16	M 4	-	8	15	7	-	3,2
73000.W0020	Moulded Thread	20	M 5	-	12	18	9	-	5,2
73000.W0025	Moulded Thread	25	M 6	-	15	22,5	11	-	10,0
73000.W0032	Moulded Thread	32	M 8	-	18	29,0	14	-	22,0
73000.W0040	Moulded Thread	40	M10	-	22	37,0	18	-	43,0
73000.W0050	Moulded Thread	50	M12	-	28	46,0	21	-	86,0
73000.W0116	Threaded Bush	16	M 4	-	8	15,0	-	6,0	5,1
73000.W0120	Threaded Bush	20	M 5	-	12	18,0	-	7,5	6,6
73000.W0125	Threaded Bush	25	M 6	-	15	22,5	-	9,0	13,0
73000.W0132	Threaded Bush	32	M 8	-	18	29,0	-	12,0	26,0
73000.W0140	Threaded Bush	40	M10	-	22	37,0	-	15,0	56,0
73000.W0150	Threaded Bush	50	M12	-	28	46,0	-	18,0	108,0
73000.W0216	Taper Bore	16	-	4	8	15,0	-	-	2,7
73000.W0220	Taper Bore	20	-	5	12	18,0	-	-	5,1
73000.W0225	Taper Bore	25	-	6	15	22,5	-	-	9,3
73000.W0232	Taper Bore	32	-	8	18	29,0	-	-	19,0
73000.W0240	Taper Bore	40	-	10	22	37,0	-	-	39,0
73000.W0250	Taper Bore	50	-	12	28	46,0	-	-	84,0

Material

Duroplast PF 31 DIN 7708, black.
Bush: steel, zinc-plated.
73000.W0116 has bush of brass.
Finish: polished, jointless.
Threaded bush type also available in red, subject to minimum quantity.

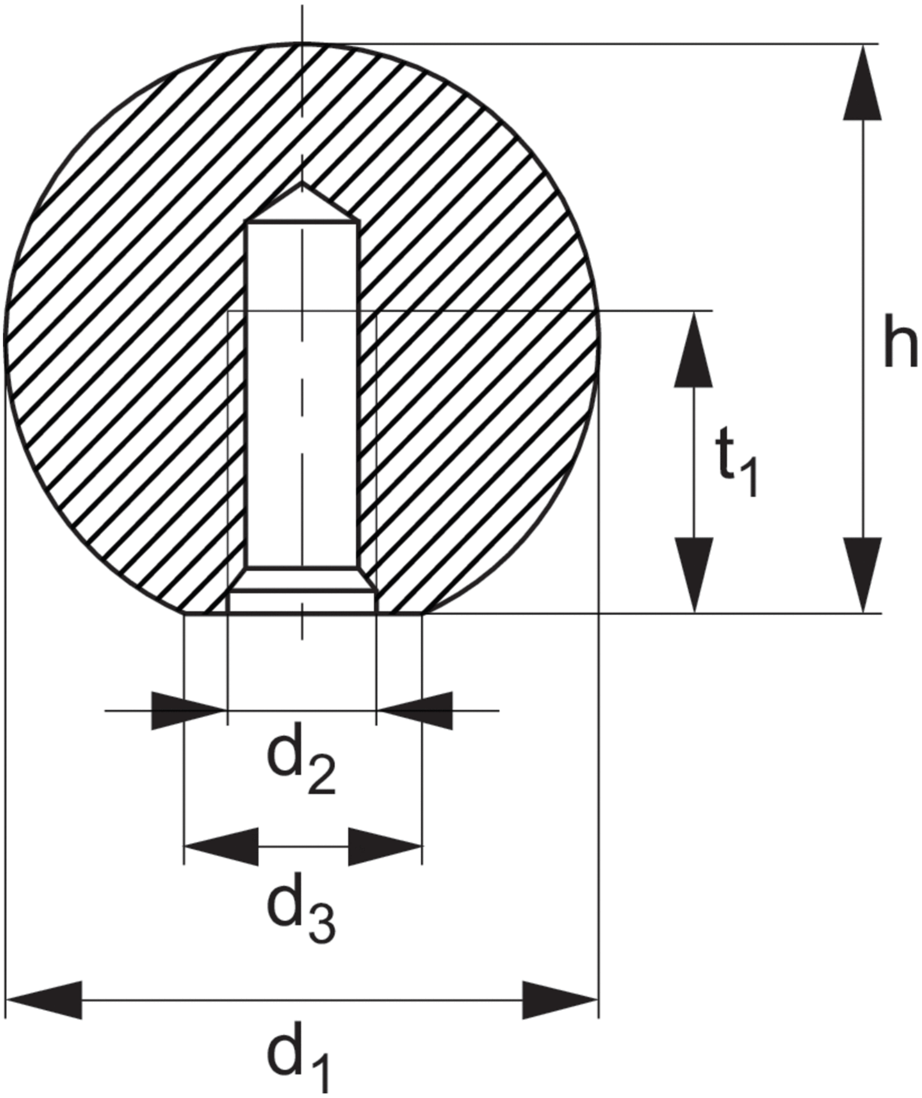
Technical Notes

Temperature range max. 110°C. Assembly of taper bush model is through lightly tapping with a hammer, the knob will hold in position without need for cementing. Counter bore requires an h9 fit.

Ball Knobs - Steel

similar to DIN 319

73002



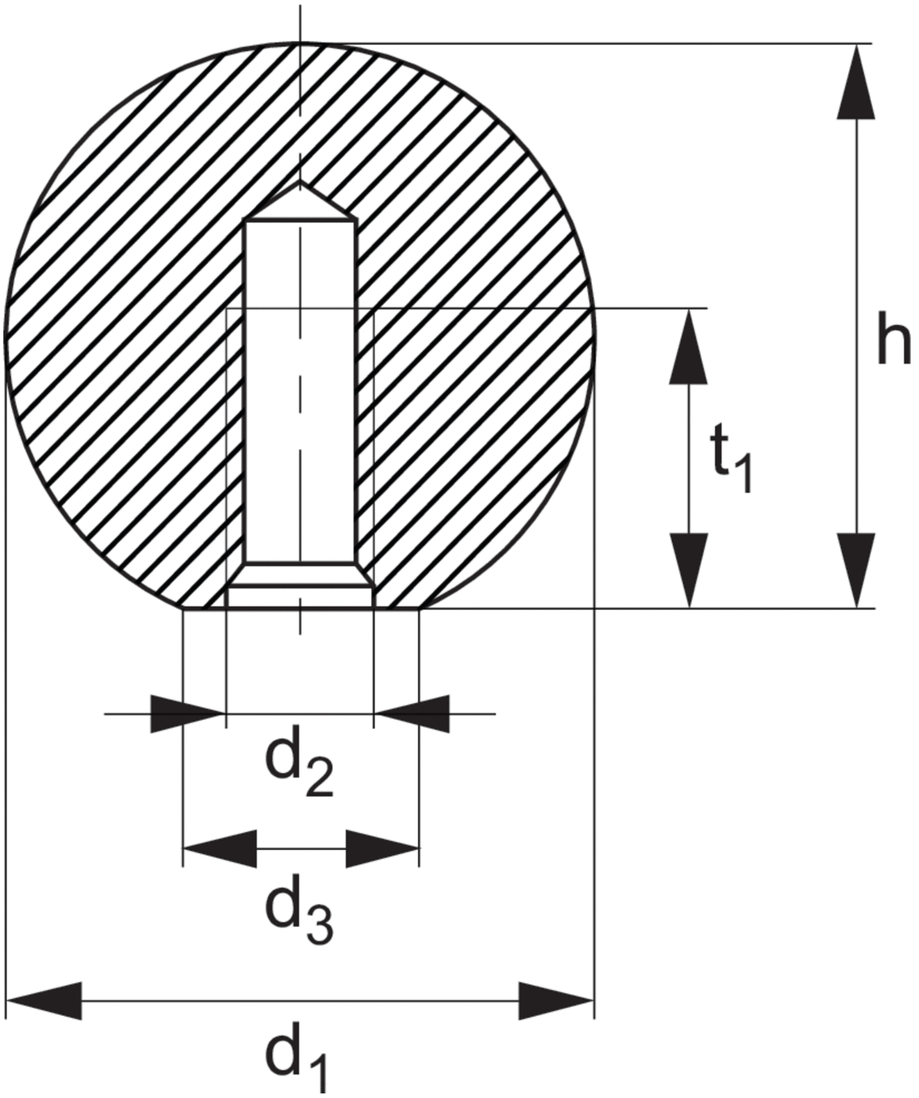
Material
Steel, polished, bright

Order No.	d_1	d_2	d_3 ~	h ~	t_1 min.	g
73002.W0016	16	M 4	8	15,0	7,0	16
73002.W0020	20	M 5	12	18,0	9,0	26
73002.W0025	25	M 6	15	22,5	11,0	58
73002.W0032	32	M 8	18	29,0	14,5	116
73002.W0040	40	M10	22	37,0	18,0	241
73002.W0050	50	M12	27	46,0	21,0	475

Ball Knobs - Stainless Steel

similar to DIN 319

73004



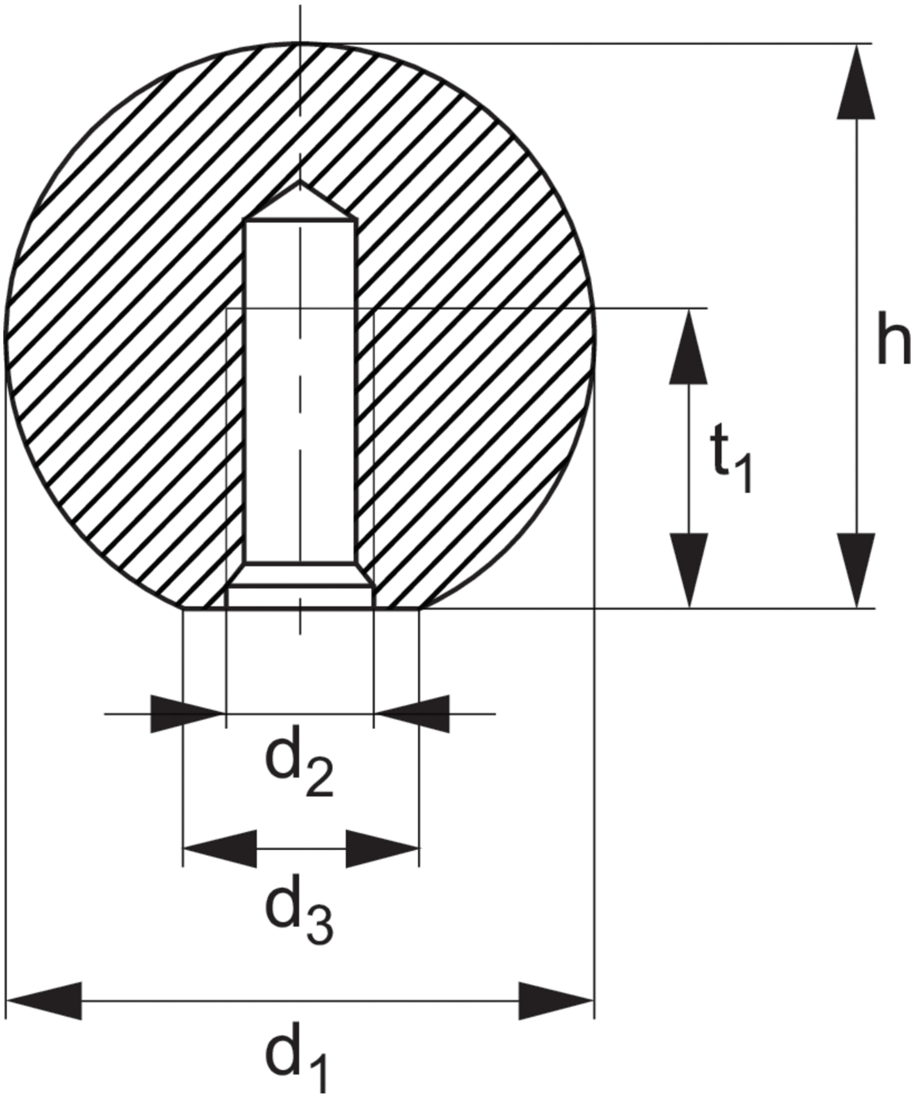
Material
Stainless steel 1.4305, dull blasted

Order No.	d_1	d_2	d_3 ~	h ~	t_1 min.	g
73004.W0216	16	M 4	8	15,0	7,0	16
73004.W0220	20	M 5	12	18,0	9,0	31
73004.W0225	25	M 6	15	22,5	11,0	59
73004.W0232	32	M 8	18	29,0	14,5	122
73004.W0240	40	M10	22	37,0	18,0	242

Ball Knobs - aluminium

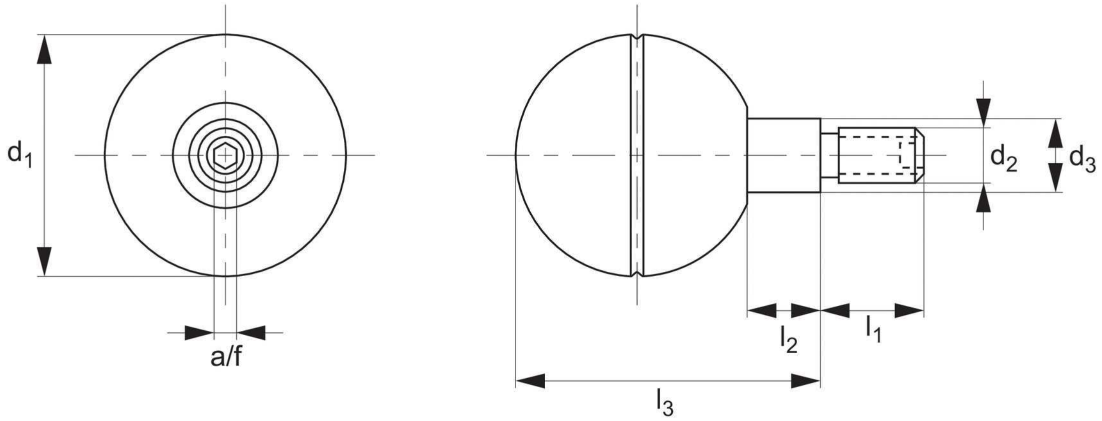
similar to DIN 319

73006



Material
Aluminium, polished polished, bright

Order No.	d_1	d_2	d_3 ~	h ~	t_1 min.	g
73006.W0116	16	M 4	8	15,0	7,0	7
73006.W0120	20	M 5	12	18,0	9,0	12
73006.W0125	25	M 6	15	22,5	11,0	22
73006.W0132	32	M 8	18	29,0	14,5	44
73006.W0140	40	M10	22	37,0	18,0	87
73006.W0150	50	M12	27	46,0	21,0	173

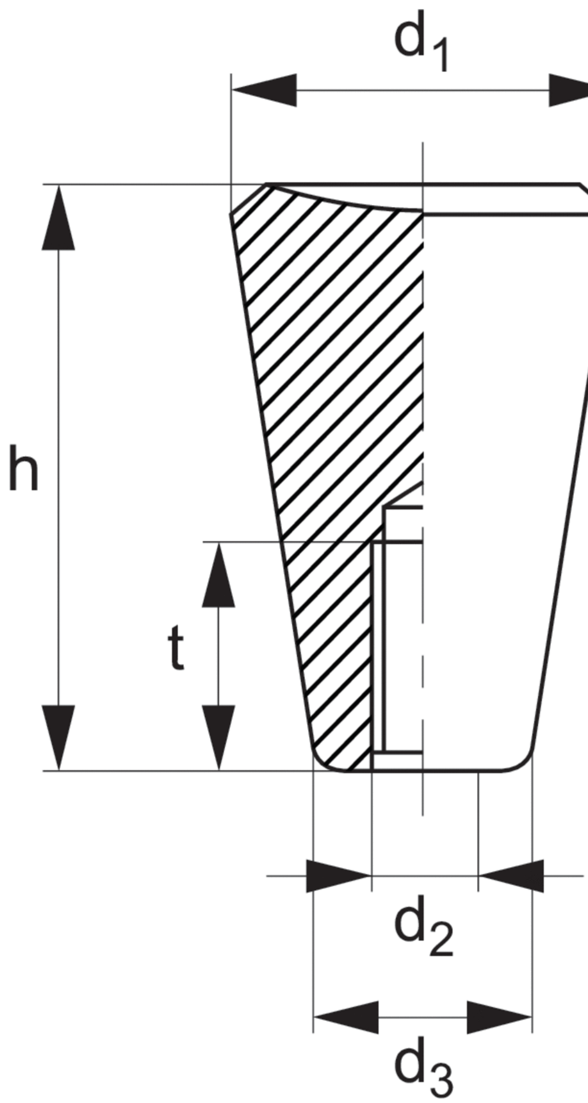


Material
Duroplast, black. Zinc plated steel stud, hexagonal locking blind hole.

PF

Order No.	d_1	d_2	l_1	d_3	l_2	l_3	a/f	g
73020.W0041	41	M 8	15	13	12	51	4	87
73020.W0042	41	M10	17	13	12	51	5	90
73020.W0047	47	M 8	15	14	12	58	4	118
73020.W0048	47	M10	17	14	12	58	5	121
73020.W0061	60	M 8	15	14	12	71	4	206
73020.W0062	60	M10	17	14	12	71	5	212

73100

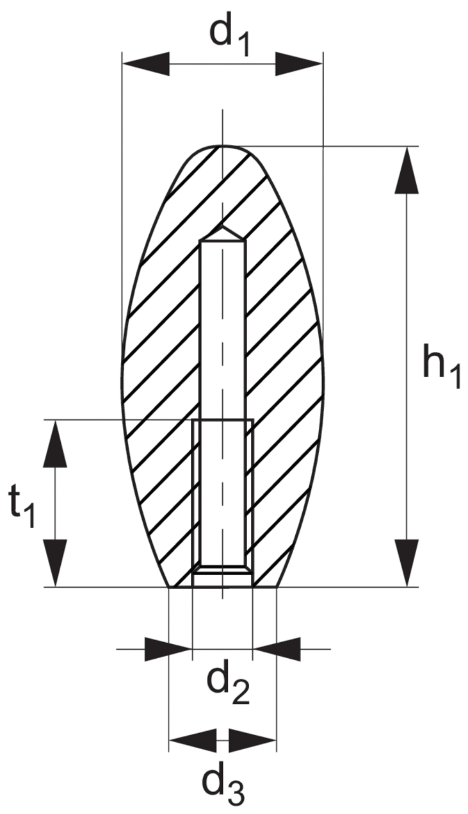


Material
Duroplast PF 31, black.

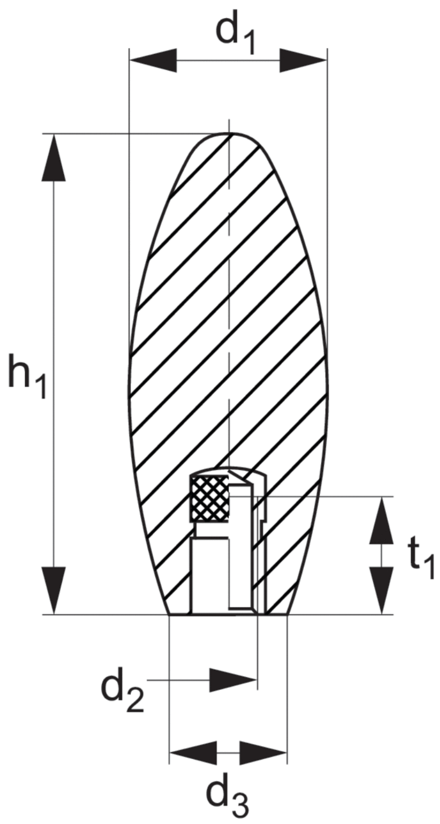
Technical Notes
Temperature range max. 110°C.

Order No.	d_1	d_2	d_3 ≈	h	t min.	g
73100.W0020	20	M 5	12	30	18	7,8
73100.W0021	20	M 6	12	30	18	7,4
73100.W0025	25	M 6	15	38	18	14,0
73100.W0026	25	M 8	15	38	18	13,0
73100.W0031	30	M 8	18	46	18	26,0
73100.W0032	30	M10	18	46	18	25,0
73100.W0036	35	M10	21	53	21	46,0
73100.W0037	35	M12	21	53	21	43,0

73110



moulded thread



threaded bush

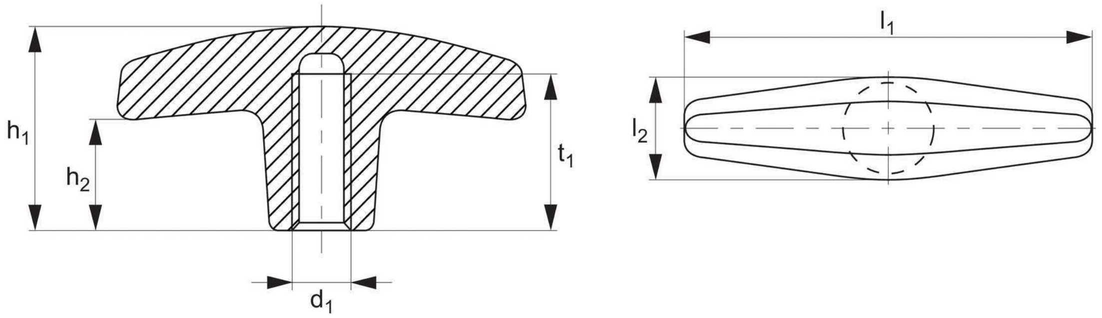
Material
Duroplast, black.
Bush: zinc plated steel.

PF

Order No.	Finish	d_1	d_2	h_1	d_3	t_1	g
73110.W0030	Moulded Thread	30	M 8	65	16	16	41
73110.W0031	Moulded Thread	30	M10	65	16	21	40
73110.W0032	Moulded Thread	30	M12	65	16	25	39
73110.W0035	Moulded Thread	35	M12	85	22	25	71
73110.W0036	Moulded Thread	35	M16	85	22	30	69
73110.W0535	Threaded Bush	35	M10	85	22	21	87

T-Handle Grips

73130

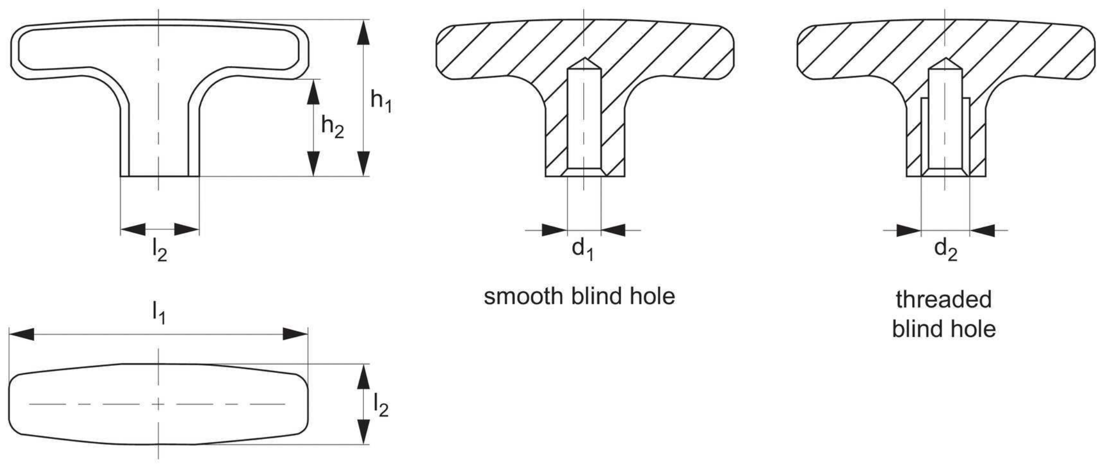


Material
Thermoplast, black, with moulded female thread.

TP

Order No.	d_1	l_1	h_1	h_2	l_2	t_1	g
73130.W0006	M 6	57	30	16	15	13	9
73130.W0008	M 8	57	30	16	15	15	8

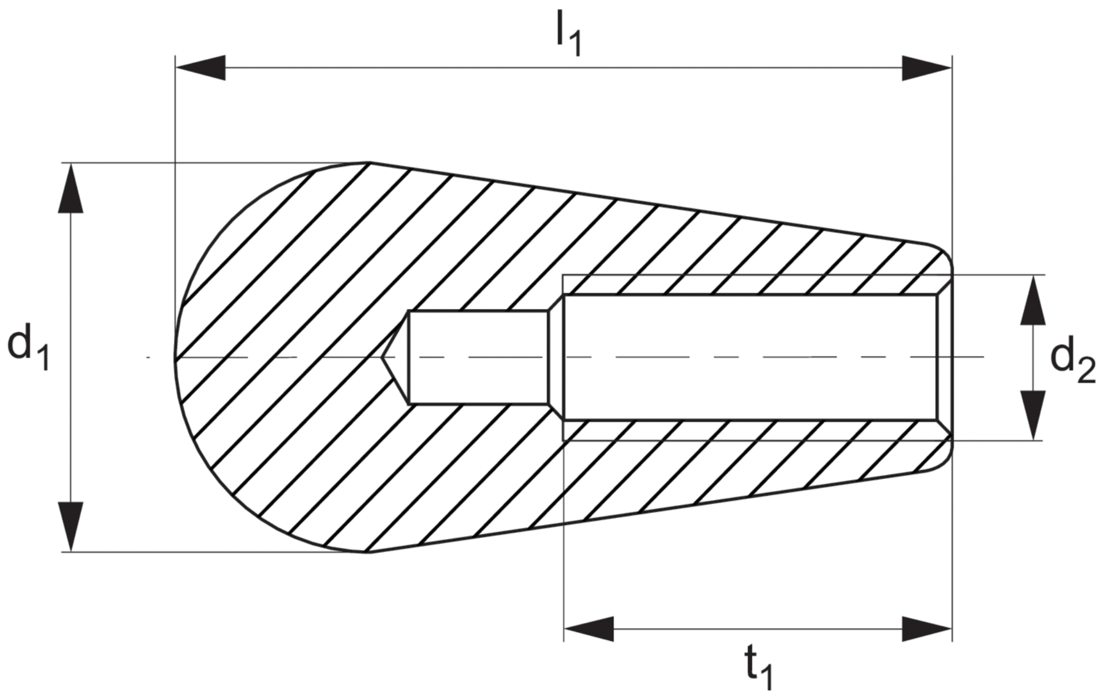
73132



Material
Aluminium, plastic coated, similar to RAL 9005 black, matt structure

Order No.	Finish	d_1 H7	d_2	l_1	l_2	h_1	h_2	g
73132.W0020	Smooth, Blind	6	-	55	14	33	22	31
73132.W0030	Smooth, Blind	8	-	67	16	37	25	46
73132.W0035	Smooth, Blind	8	-	80	20	41	26	80
73132.W0120	Threaded, Blind	-	M 6	55	14	33	22	33
73132.W0125	Threaded, Blind	-	M 8	55	14	33	22	40
73132.W0130	Threaded, Blind	-	M 8	67	16	37	25	48
73132.W0135	Threaded, Blind	-	M 8	80	20	41	26	80
73132.W0140	Threaded, Blind	-	M10	80	20	41	26	80

73140



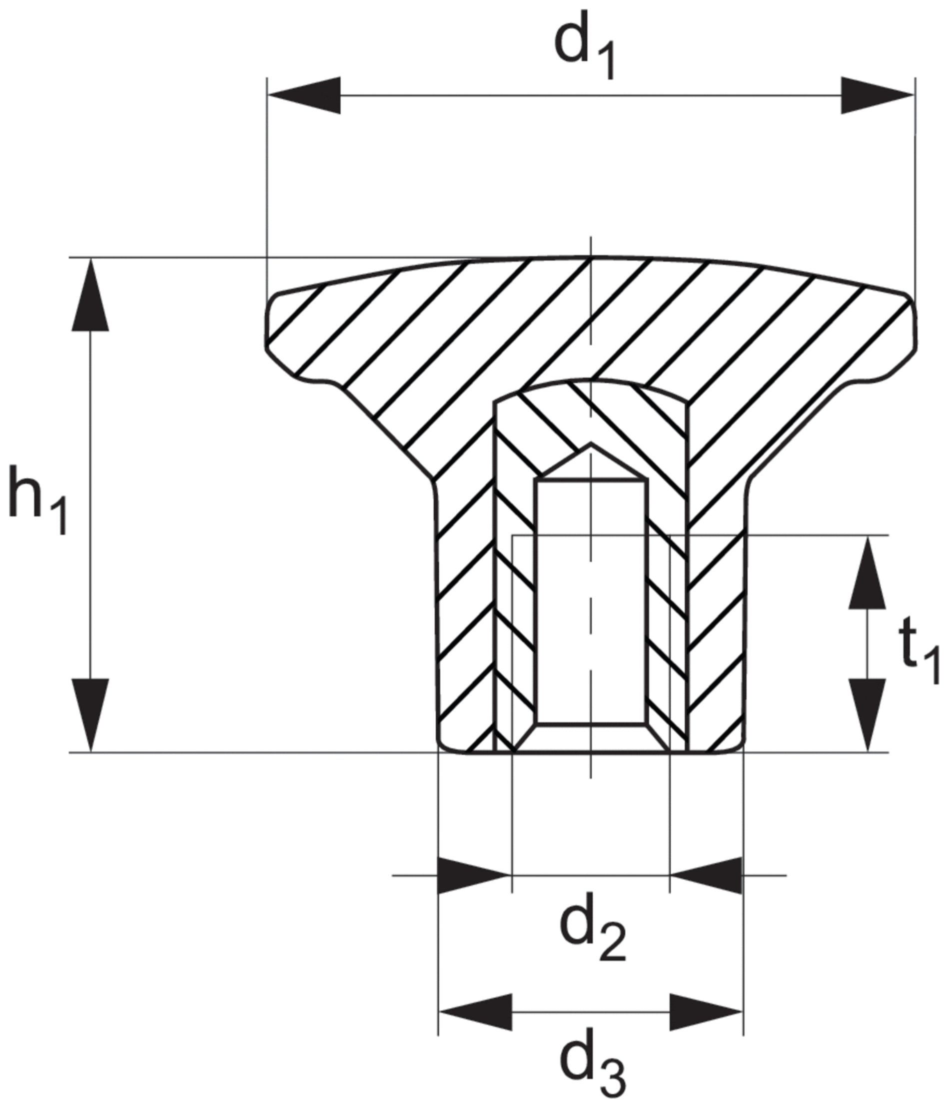
Material
Thermoplastic, matte black, with moulded female thread.

Technical Notes
* Ø8 - moulded blind hole - not threaded.

TP

Order No.	d_1	d_2*	l_1	t_1	g
73140.W0005	13	M 5	43	15	3,2
73140.W0008	25	M 8	50	25	13,0
73140.W0009	25	M 8	50	25	12,0

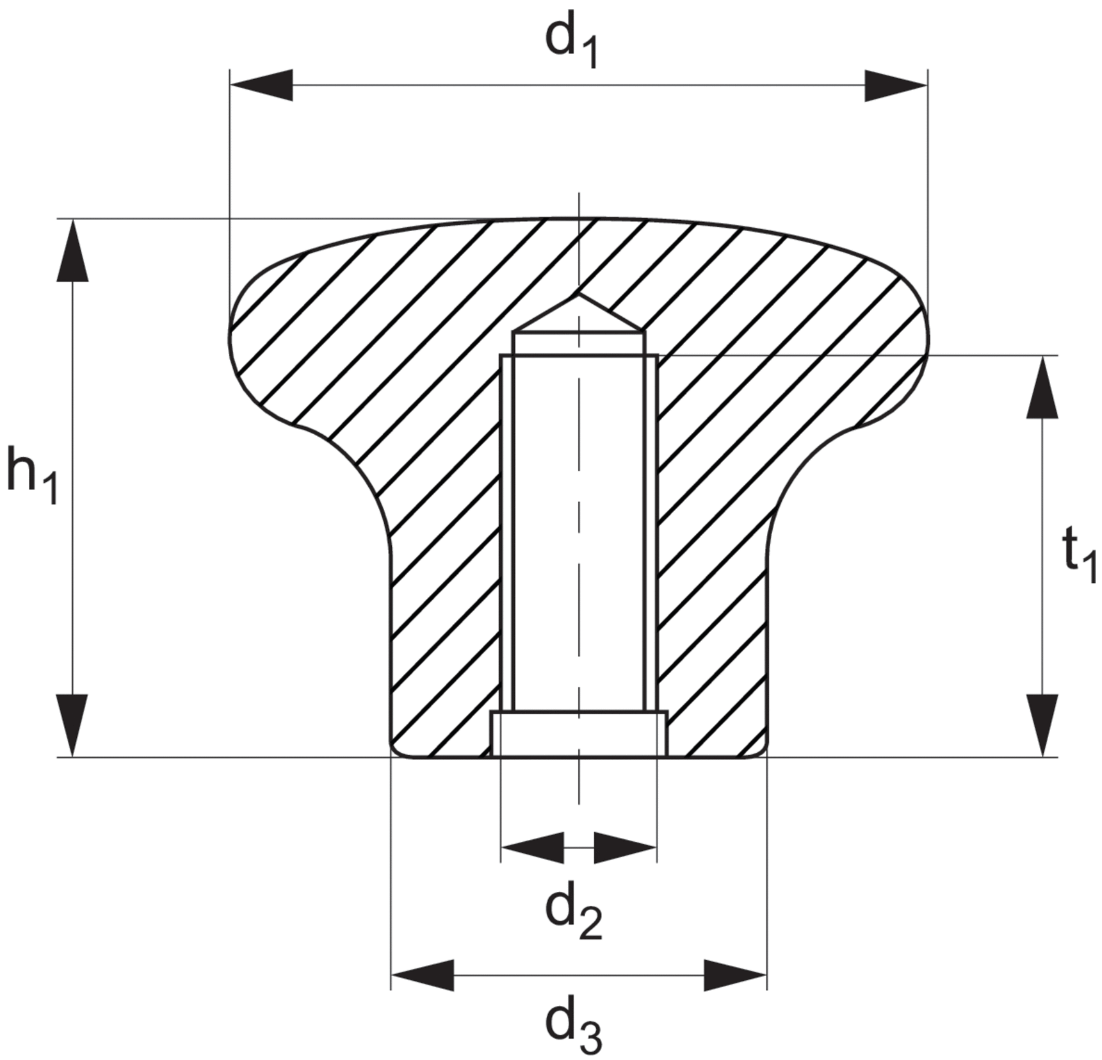
73160



Material
Thermoplastic, matt black. Brass bush with tapped blind hole.

TP

Order No.	d_1	d_2	d_3	h_1	t_1	g
73160.W0021	26	M 4	12	17	8	8
73160.W0022	26	M 5	12	17	8	8
73160.W0023	26	M 6	12	17	8	8
73160.W0031	32	M 6	15	24	13	13
73160.W0032	32	M 8	15	24	13	13

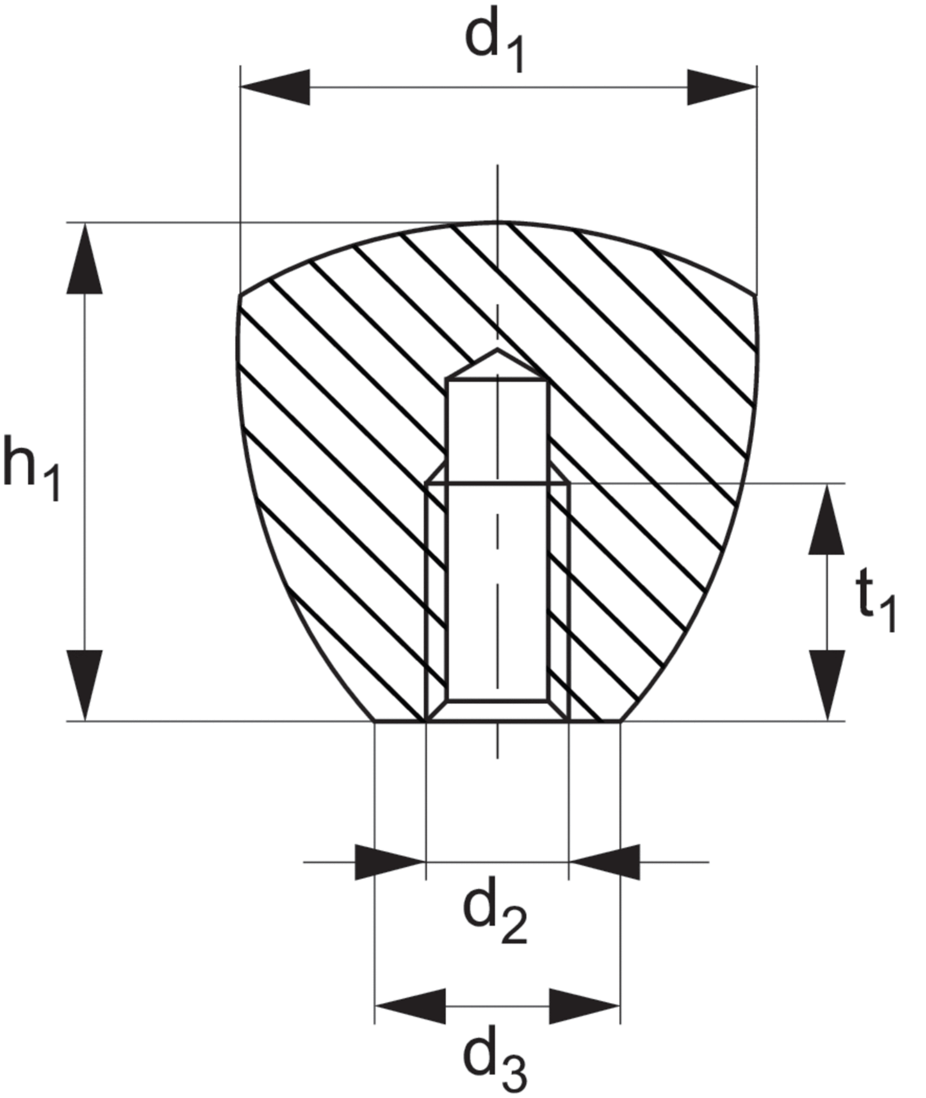


Material
Duroplast, black, moulded thread.

PF

Order No.	d_1	d_2	d_3	h_1	t_1	g
73170.W0031	35	M 6	17	35	20	19
73170.W0032	35	M 8	17	35	20	18
73170.W0051	45	M 8	24	34	23	36
73170.W0052	45	M10	24	34	23	35
73170.W0053	45	M12	24	34	23	34

73180

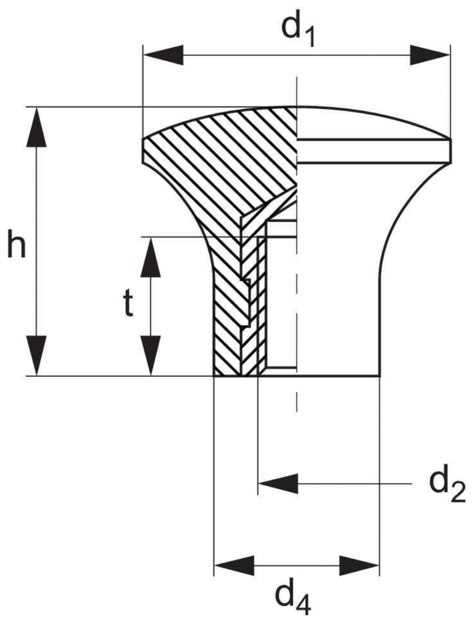


Material
Duroplast, black. Moulded thread.

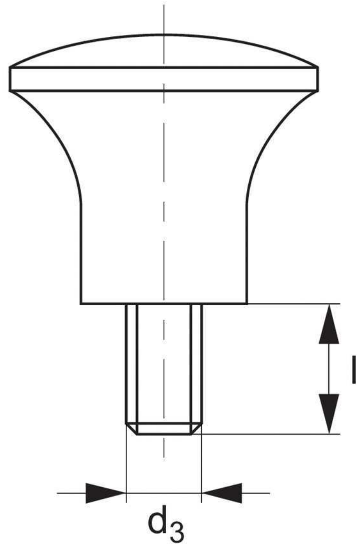
PF

Order No.	d_1	d_2	d_3	h_1	t_1	g
73180.W0031	30	M 6	15	30	22	21
73180.W0032	30	M 8	15	30	22	20
73180.W0033	30	M10	15	30	22	20

73200



threaded bush



grub screw

Order No.	Type	d_1	d_2	d_3	l	d_4	h	t	g
73200.W0017	Threaded Bush	17	M 5	-	-	10	14	7	4,8
73200.W0021	Threaded Bush	21	M 6	-	-	12	17	11	8,2
73200.W0025	Threaded Bush	25	M 6	-	-	14	21	11	11,0
73200.W0033	Threaded Bush	33	M 8	-	-	18	29	12	19,0
73200.W0117	Grub Screw	17	-	M 5	9	10	14	-	4,2
73200.W0121	Grub Screw	21	-	M 6	10	12	17	-	7,1
73200.W0125	Grub Screw	25	-	M 6	10	14	21	-	10,0
73200.W0133	Grub Screw	33	-	M 8	14	18	29	-	23,0

Material
Black, duroplast PF31.
Brass bush or zinc plated steel male thread.

Technical Notes
Max. temperature 110°C.

PF

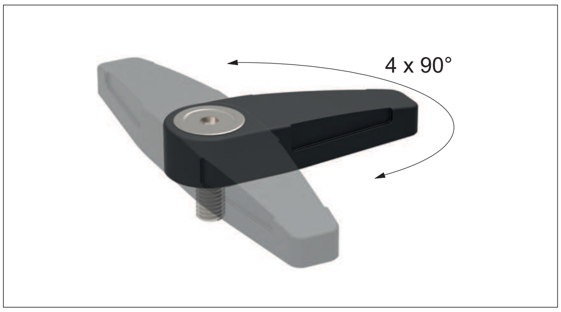
handles & pulls

Clamping Levers

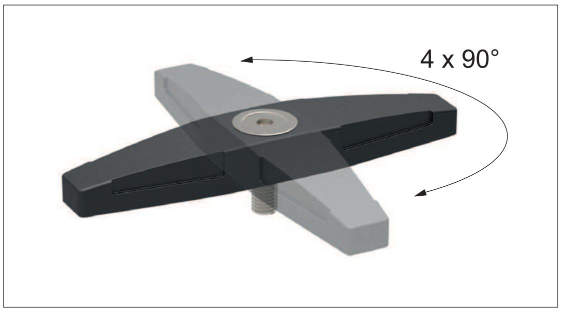
73900

- Locking of panels and covers.
- Securing components during transport.
- Sturdy, solid design.
- Double sided model available.
- Indexes at 4 x 90°.

Models

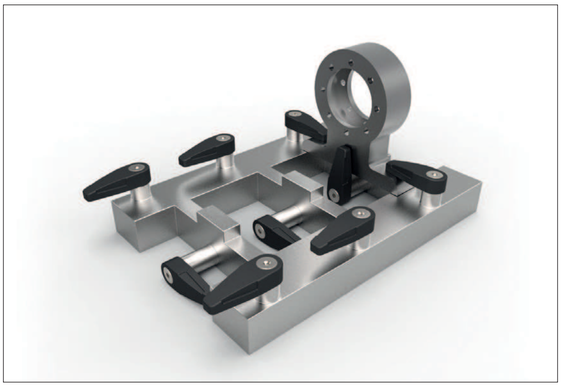


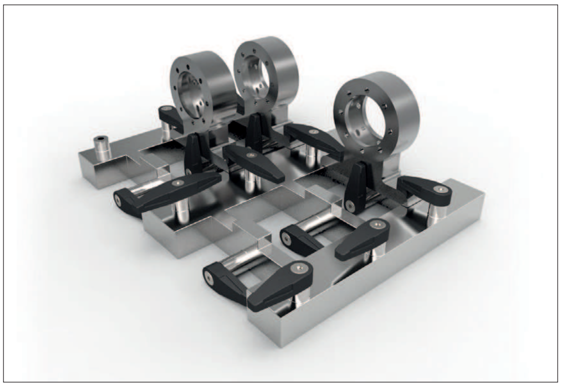
Single side



Double side

Applications

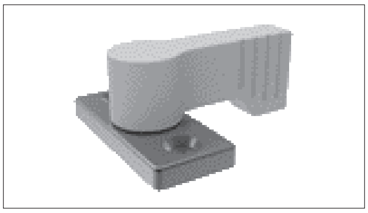




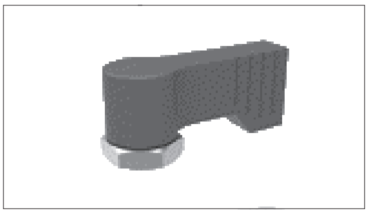
73906

- Locking of drawers.
- Securing of panels and covers.
- Simple operation.
- Indexes at 4 x 90°.
- Three mounting options.

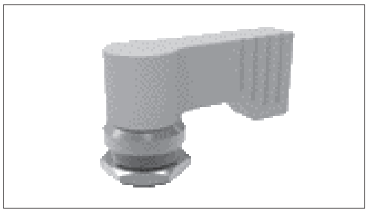
Mounting options



Flange



Female thread



Male thread

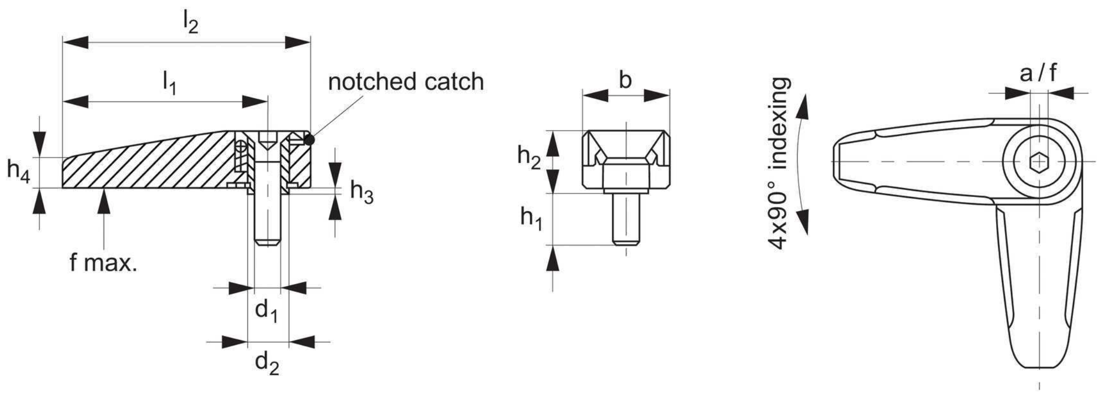
Applications

ov-73900-a - Updated - 12-01-2017

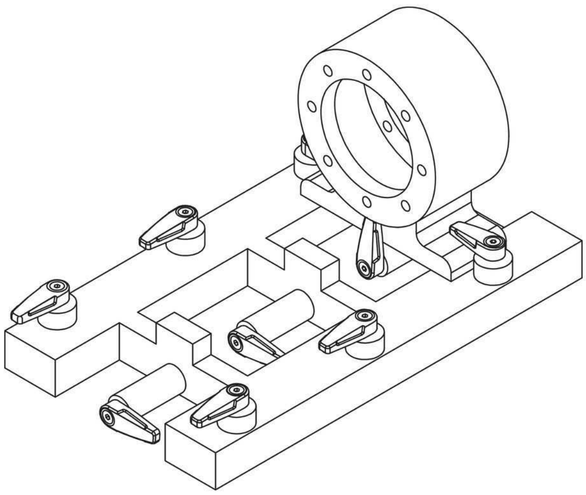
Retaining Catches

one-sided

73900



Order No. Silver	Order No. Black	d_1	d_2	l_1	l_2	b	h_1	h_2	h_3	h_4	a/f	Load f Max. N	g
73900.W0101	73900.W0102	M 6	9	45	55	19,0	12	13,3	0,8	6,5	4	500	59
73900.W0151	73900.W0152	M 8	14	65	78	25,2	14	15,8	0,8	9,0	5	1000	136



Material

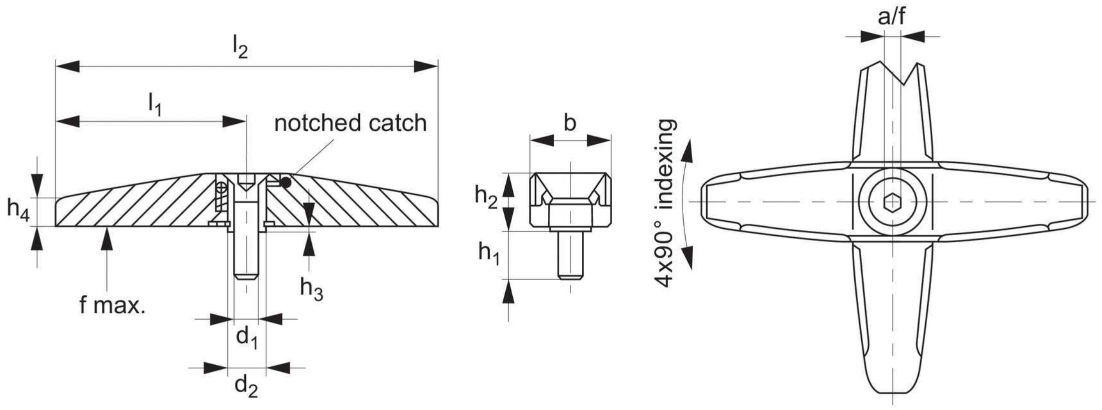
Body: die cast zinc, black coated to RAL 9005 or silver coated to RAL 9006.
Fixing screw: stainless steel A2.
Inner parts: dry powdered metal.

Technical Notes

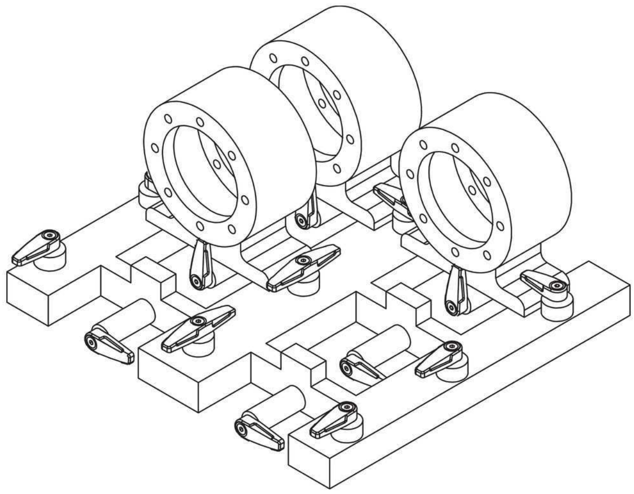
Quick retaining catch with positive indexing. Ideal for retaining doors, panels as well as for retaining parts during transportation.
Retaining catch is indexed 4x90°.

Retaining Catches
double-sided

73902



Order No. Silver	Order No. Black	d_1	d_2	l_1	l_2	b	h_1	h_2	h_3	h_4	a/f	Load f max. N	g
73902.W0601	73902.W0602	M 6	9	45	90	19,0	12	13,3	0,8	6,5	4	500	93
73902.W0651	73902.W0652	M 8	14	65	130	25,2	14	15,8	0,8	9,0	5	1000	220



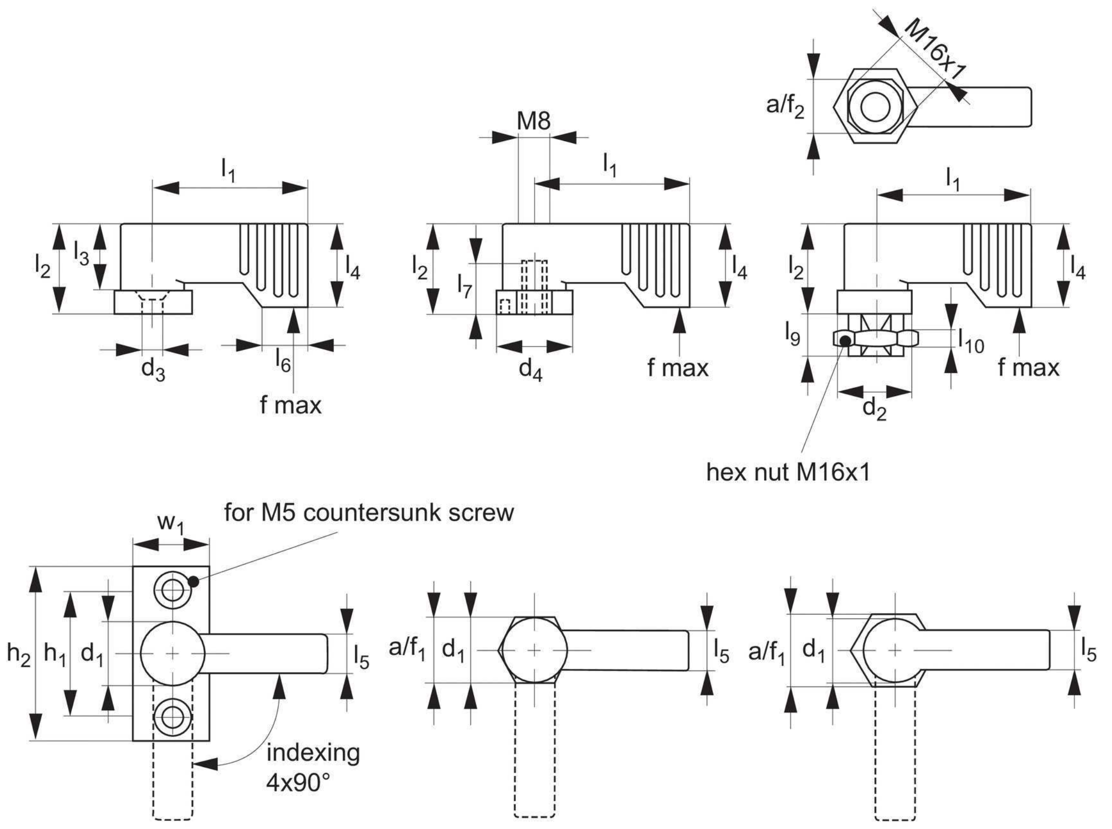
Material
Body: die cast zinc, black coated to RAL 9005 or silver coated to RAL 9006.
Fixing screw: stainless steel A2.
Inner parts: dry powdered metal.

Technical Notes
Quick retaining catch with positive indexing. Ideal for retaining doors, panels as well as for retaining parts during transportation.
Retaining catch is indexed 4x90°.

Retaining Catches

wing grip, one-sided

73906



with mounting plate | female thread | male thread

Order No	Colour	Type	d_1	d_2	d_3	d_4 approx.	d_5	d_6 H11	l_1	l_2 approx.	l_3	l_4 min.	g
73906.W0201	Silver	Mounting Plate	17	-	5,3	-	-	-	40	22	16,5	21,5	20
73906.W0202	Black	Mounting Plate	17	-	5,3	-	-	-	40	22	16,5	21,5	20
73906.W0232	Black	Female Thread	17	-	-	20	7	2	40	22	16,5	21,5	30
73906.W0262	Black	Male Thread	17	19	-	-	-	-	40	22	16,5	21,5	50
73906.W0231	Silver	Female Thread	17	-	-	20	7	2	40	22	16,5	21,5	30
73906.W0261	Silver	Male Thread	17	19	-	-	-	-	40	22	16,5	21,5	50

Order No	l_5	l_6	l_7	l_8	l_9	l_{10}	h_1	h_2	w_1	a/f1	a/f2	Load f max. N
73906.W0201	10	11	-	-	-	-	32	45	20	-	-	450
73906.W0202	10	11	-	-	-	-	32	45	20	-	-	450
73906.W0231	10	11	11	4	-	-	-	-	-	17	-	450
73906.W0232	10	11	11	4	-	-	-	-	-	17	-	450
73906.W0261	10	11	-	-	9	3	-	-	-	19	14	450
73906.W0262	10	11	-	-	9	3	-	-	-	19	14	450

Material

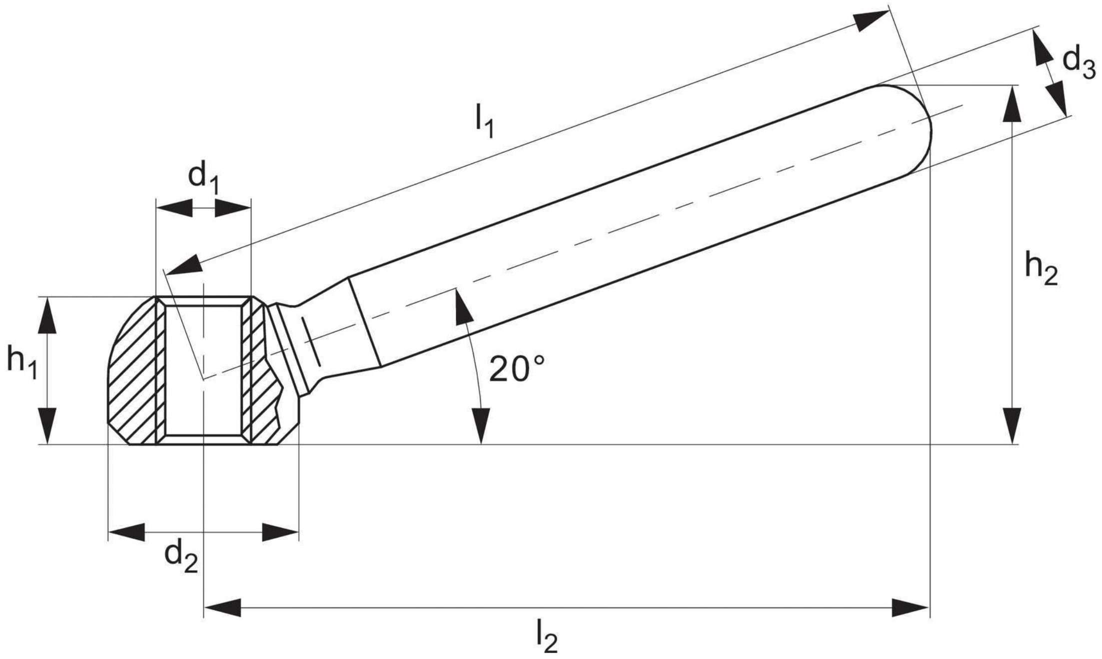
Lever: die-cast Zinc, plastic coated silver (RAL9006) or black (RAL 9005) matte finish.
Flange: die-cast Zinc, plastic coated, black.

Technical Notes

To be used for locking doors, drawers and as a support during transports etc. The retaining catch indexes at 4x90°.

Clamping Levers
welded

73920



Material
Case hardened steel, or stainless steel AISI 303. Shaft butt welded.

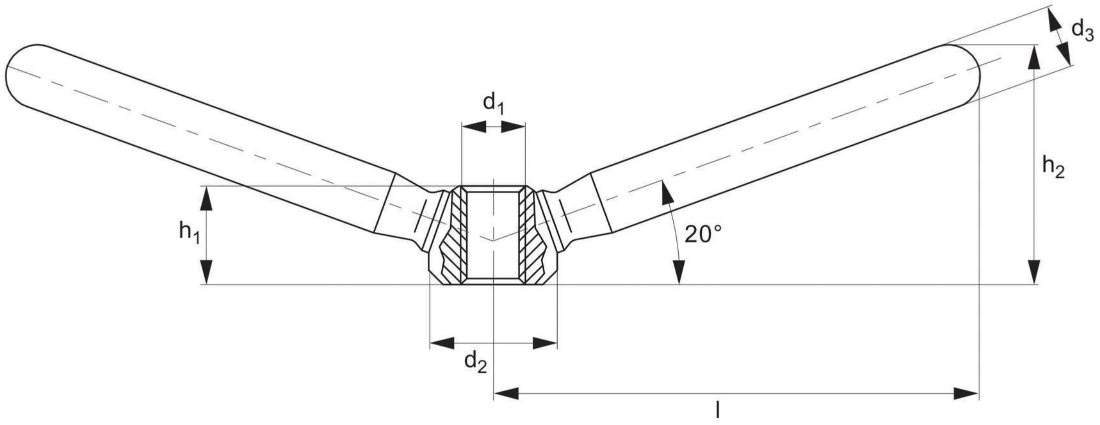
Technical Notes
Low price version to no. 74200.

Order No.	Finish	l_1	l_2 ≈	d_1	d_2	d_3	h_1	h_2 ≈	g
73920.W0506	Steel	63	60	M 8	16	10	12,5	30,5	39
73920.W0508	Steel	80	76	M10	20	12	15,0	37,0	74
73920.W0510	Steel	100	95	M12	25	14	19,0	46,0	149
73920.W0512	Steel	125	119	M16	32	18	25,0	58,5	316
73920.W0516	Steel	160	152	M20	40	20	31,0	73,0	533
73920.W0606	Stainless Steel	63	60	M 8	16	10	12,5	30,5	39
73920.W0608	Stainless Steel	80	76	M10	20	12	15,0	37,0	73
73920.W0610	Stainless Steel	100	95	M12	25	14	19,0	46,0	153
73920.W0612	Stainless Steel	125	119	M16	32	18	25,0	58,5	314
73920.W0616	Stainless Steel	160	152	M20	40	20	31,0	73,0	533

Clamping Nuts

welded, double-sided

73922



Material

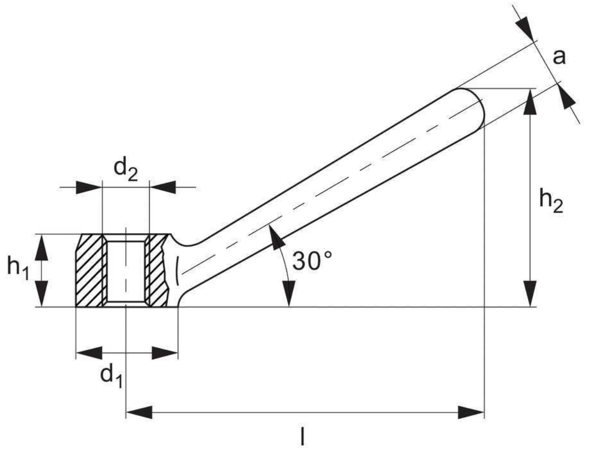
Steel, galvanised.
Stainless steel 1.4301, dull blasted.

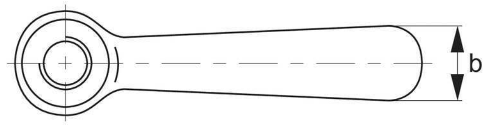
Technical Notes

Allows for two-handed operating.

Order No. Steel	Order No. Stainless Steel	l ≈	d_1	d_2	d_3	h_1	h_2	g
73922.W0706	73922.W0806	47,5	M 8	16	10	12,5	26	55
73922.W0708	73922.W0808	59,5	M10	20	12	15,0	32	116
73922.W0710	73922.W0810	75,5	M12	25	14	19,0	40	210
73922.W0712	73922.W0812	94,5	M16	32	18	25,0	52	432
73922.W0716	73922.W0816	118,0	M20	40	20	31,0	62	716

74000





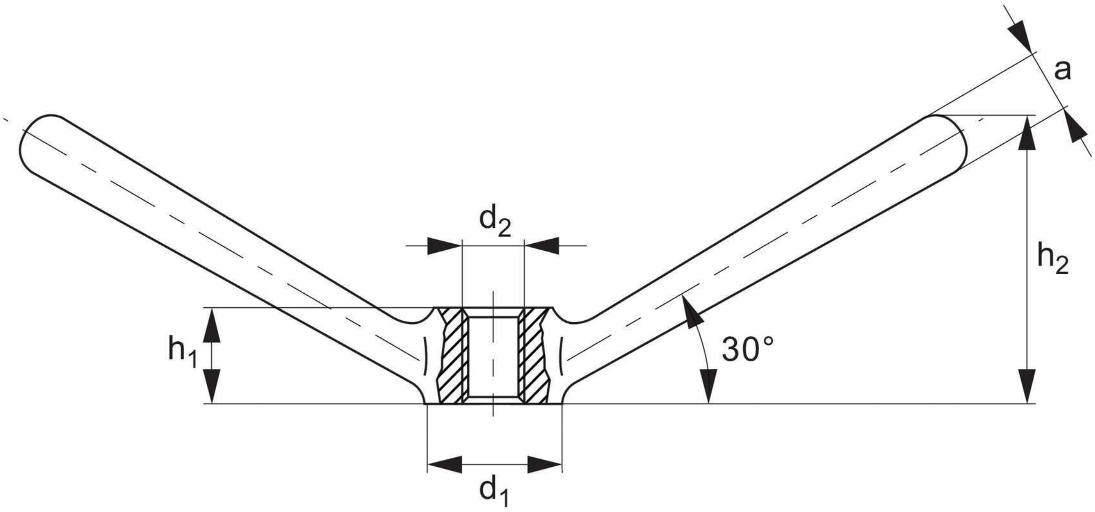
Order No.	d_1	d_2	a	b	h_1	h_2 ≈	l ≈	g
74000.W0008	16	M 8	7	12	12	34,0	56	34
74000.W0010	20	M10	9	14	14	42,5	70	60
74000.W0012	25	M12	11	18	18	53,0	87	125
74000.W0016	32	M16	15	22	22	66,5	109	248
74000.W0020	40	M20	18	28	28	84,5	140	518

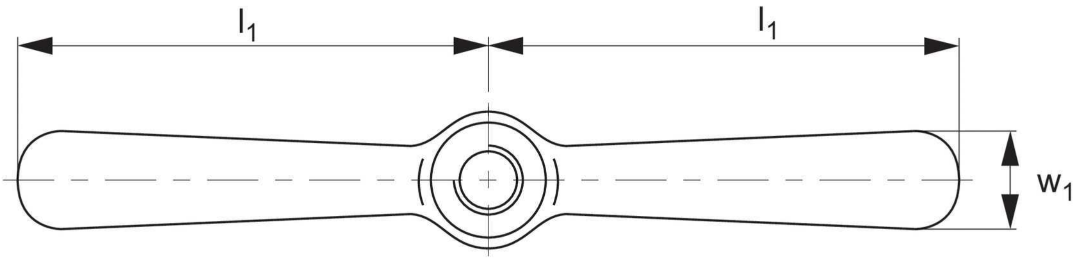
Material
Malleable iron, tumble finish.
Contact faces machined.

Technical Notes
These economic clamping levers are ideal where a lacquered finish is required.

Double Clamping Levers

74100





Material
Malleable iron, prepared and tumble finished. Contact faces machined.

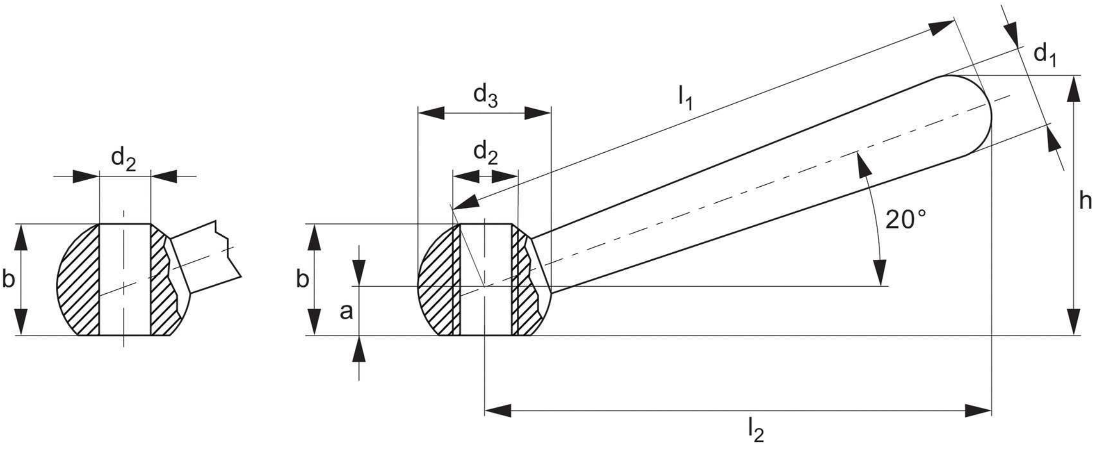
Technical Notes
Clamping levers with double arms are robust. Applications are, for example, in boiler making and special purpose machinery.

Order No.	d_1	d_2	a	w_1	h_1	h_2 ≈	l_1 ≈	g
74100.W0008	16	M 8	7	12	12	34	56	55
74100.W0010	20	M10	9	14	14	42	70	104
74100.W0012	25	M12	11	18	18	53	87	213
74100.W0016	32	M16	15	22	22	66	109	429
74100.W0020	40	M20	18	28	28	84	140	820

Clamping Levers

DIN 99

74200



smooth bore   threaded bore

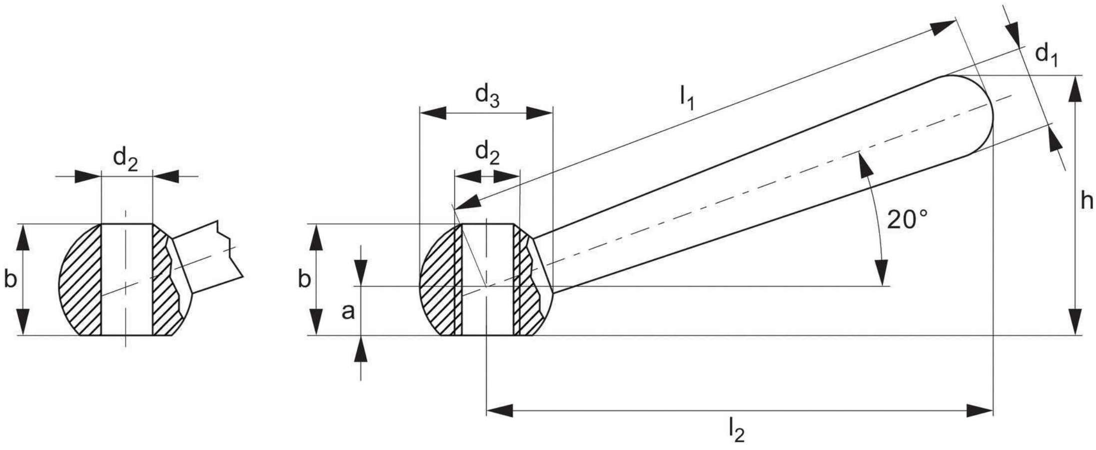
Order No.	Finish	l_1	l_2 ≈	a	b ≈	d_1	d_2 H7	d_2	d_3	h ≈	g
74200.W0105	Smooth Bore	50	48	4,0	9,5	8	6	-	12	24,0	16
74200.W0106	Smooth Bore	63	60	5,0	12,0	10	8	-	16	30,5	37
74200.W0108	Smooth Bore	80	76	6,0	14,5	13	10	-	20	38,0	73
74200.W0110	Smooth Bore	100	95	7,5	18,5	16	12	-	25	47,0	140
74200.W0112	Smooth Bore	125	119	10,0	24,0	20	16	-	32	59,5	282
74200.W0116	Smooth Bore	160	152	12,5	30,0	25	20	-	40	75,7	553
74200.W0120	Smooth Bore	200	190	18,0	40,0	32	24	-	50	97,0	1096
74200.W0305	Threaded Bore	50	48	4,0	9,5	8	-	M 6	12	24,0	17
74200.W0306	Threaded Bore	63	60	5,0	12,5	10	-	M 8	16	30,5	38
74200.W0308	Threaded Bore	80	76	6,0	15,0	13	-	M10	20	38,0	74
74200.W0310	Threaded Bore	100	95	7,5	19,0	16	-	M12	25	47,0	142
74200.W0312	Threaded Bore	125	119	10,0	25,0	20	-	M16	32	59,5	297
74200.W0316	Threaded Bore	160	152	12,5	31,0	25	-	M20	40	75,7	566
74200.W0320	Threaded Bore	200	190	18,0	41,0	32	-	M24	50	97,0	1140

Material
Steel, blackened.

Clamping Levers - Stainless Steel

DIN 99

74201



smooth bore threaded bore

Material

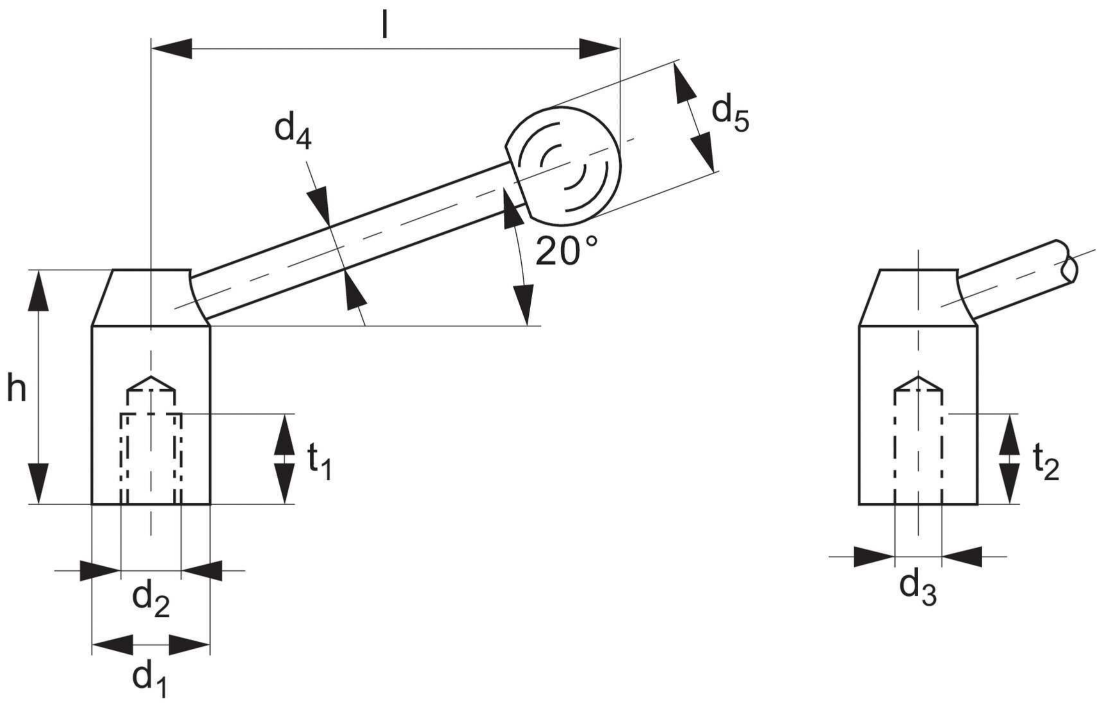
Stainless steel 1.4305 (AISI 303), dull blasted.

Order No.	Finish	l_1	l_2 ≈	a	b ≈	d_1	d_2 H7	d_2	d_3	h ≈	g
74201.W0206	Smooth Bore	63	60	5,0	12,0	10	8	-	16	30,5	37
74201.W0208	Smooth Bore	80	76	6,0	14,5	13	10	-	20	38,0	73
74201.W0210	Smooth Bore	100	95	7,5	18,5	16	12	-	25	47,0	140
74201.W0405	Threaded Bore	50	48	4,0	9,5	8	-	M 6	12	24,0	17
74201.W0406	Threaded Bore	63	60	5,0	12,5	10	-	M 8	16	30,5	38
74201.W0408	Threaded Bore	80	76	6,0	15,0	13	-	M10	20	38,0	74
74201.W0410	Threaded Bore	100	95	7,5	19,0	16	-	M12	25	47,0	142
74201.W0412	Threaded Bore	125	119	10,0	25,0	20	-	M16	32	59,5	297

Clamping Levers

DIN 319

74300



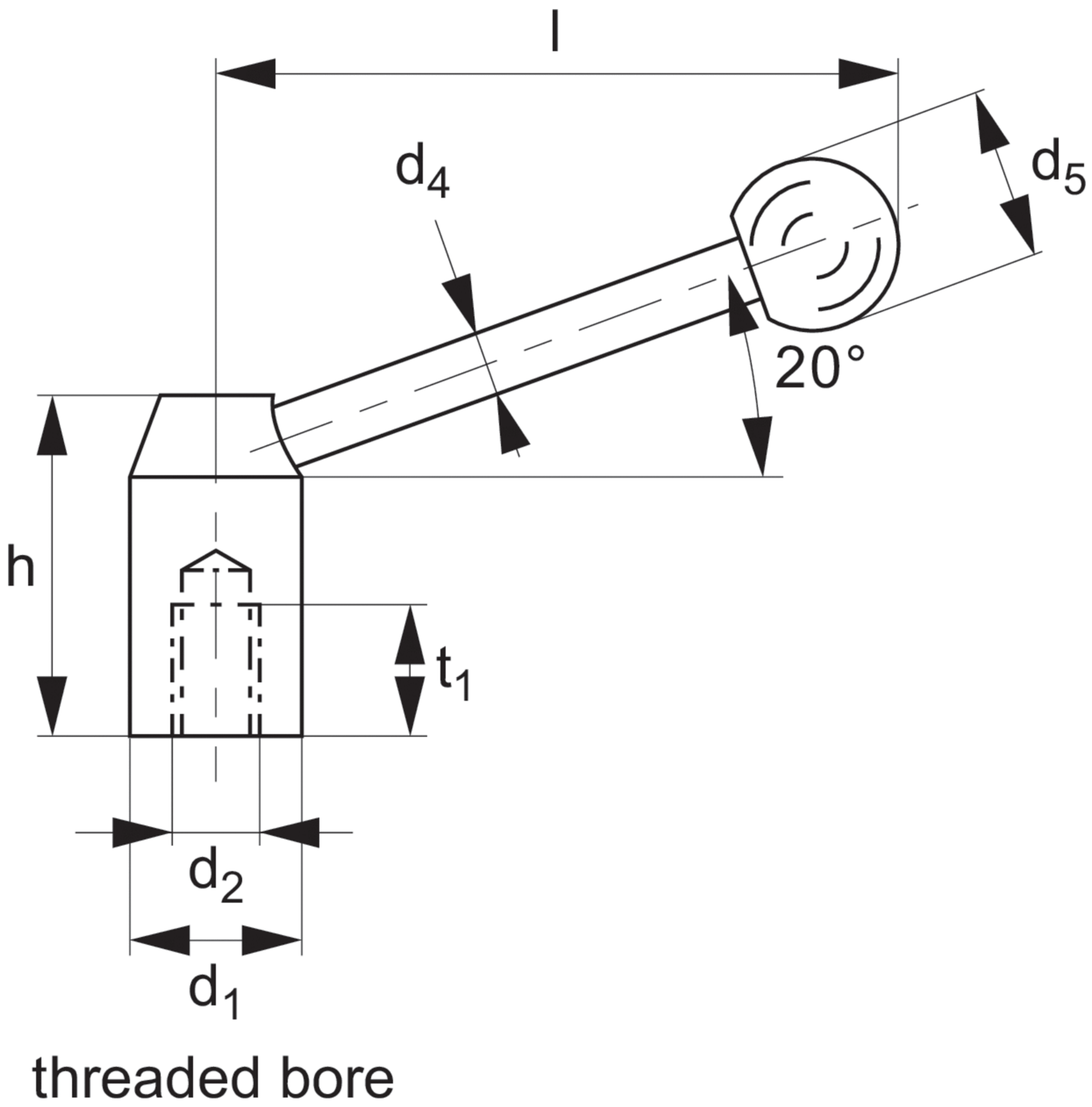
threaded bore

smooth bore

Material

Handle: free-cutting steel, finish-turned or ground, blackened.
Ball knob: plastic type 31 black.

Order No.	Finish	d_1	d_2	d_3 H7	d_4	d_5	h	l ≈	t_1	t_2	g
74300.W0022	Threaded Bore	20	M 8	-	8	20	33	65	15	-	97
74300.W0032	Threaded Bore	22	M10	-	8	20	37	82	15	-	113
74300.W0038	Threaded Bore	25	M12	-	10	25	42	96	18	-	165
74300.W0042	Threaded Bore	28	M12	-	12	30	47	110	18	-	262
74300.W0048	Threaded Bore	32	M16	-	12	32	52	124	23	-	354
74300.W0052	Threaded Bore	36	M16	-	14	35	58	138	24	-	519
74300.W0058	Threaded Bore	40	M20	-	16	40	64	152	27	-	715
74300.W0020	Smooth Bore	20	-	10	8	20	33	67	-	16	91
74300.W0030	Smooth Bore	22	-	10	8	20	37	82	-	18	117
74300.W0035	Smooth Bore	25	-	12	10	25	42	96	-	21	170
74300.W0040	Smooth Bore	28	-	12	12	30	47	110	-	22	268
74300.W0045	Smooth Bore	32	-	16	12	32	52	124	-	25	351
74300.W0050	Smooth Bore	36	-	16	14	35	58	138	-	26	524
74300.W0055	Smooth Bore	40	-	20	16	40	64	152	-	29	700



Material

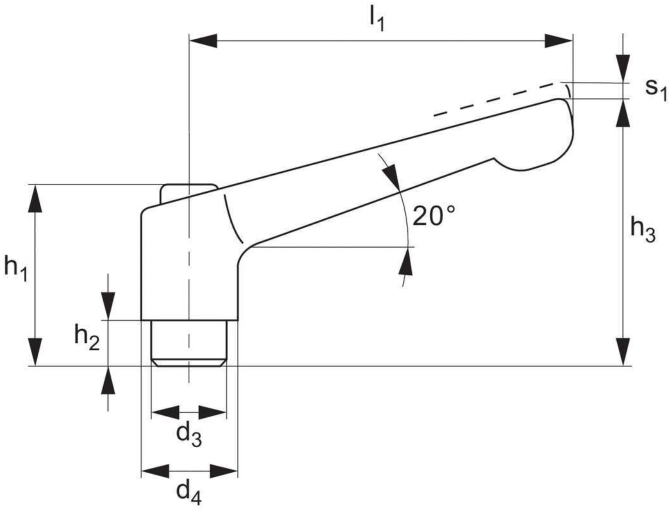
Handle: stainless steel 1.4305 (AISI 303). Dull blasted.
Ball knob: plastic type 31 black.

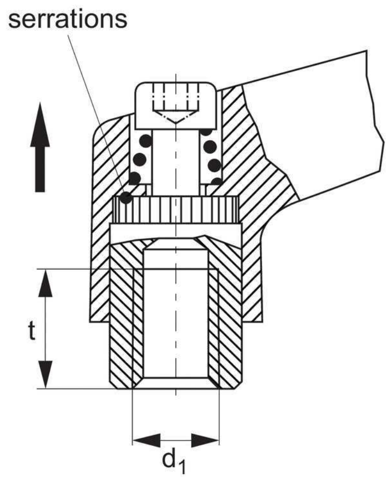
Order No.	Finish	d_1	d_2	d_4	d_5	h	l	t_1	g
74301.W0230	Threaded Bore	22	M 8	8	20	37	70	15	121
74301.W0236	Threaded Bore	25	M10	10	25	42	96	15	186
74301.W0242	Threaded Bore	28	M12	12	30	47	110	18	262
74301.W0248	Threaded Bore	32	M16	12	32	52	124	23	354

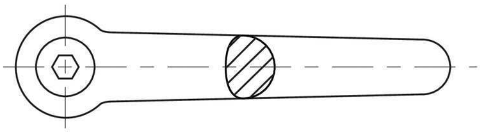
Adjustable Clamping Lever

threaded bore - stainless

74380







Order No.	l_1	d_1	d_3	d_4	h_1	h_2	h_3	Stroke s_1	t min.	g
74380.W0111	45	M 5	10,0	13,0	24,5	4,0	35	3,5	9	37
74380.W0121	45	M 6	10,0	13,0	24,5	4,0	35	3,5	9	30
74380.W0311	63	M 6	13,5	17,5	31,0	6,5	45	4,0	11	80
74380.W0321	63	M 8	13,5	17,5	31,0	6,5	45	4,0	11	50
74380.W0411	78	M 8	16,0	21,0	36,0	8,0	55	4,0	14	140
74380.W0421	78	M10	16,0	21,0	36,0	8,0	55	4,0	14	140

Material
Stainless steel, 1.4308 (AISI CF-8). Matte blasted.
Inner parts: stainless, 1.4305.
Screw & spring: stainless, 1.4300.

Technical Notes
By lifting the lever, the serrations are disengaged. The handle can be positioned by the serrations, and the threaded insert can be exchanged. Upon releasing the handle, the serrations are automatically re-engaged.

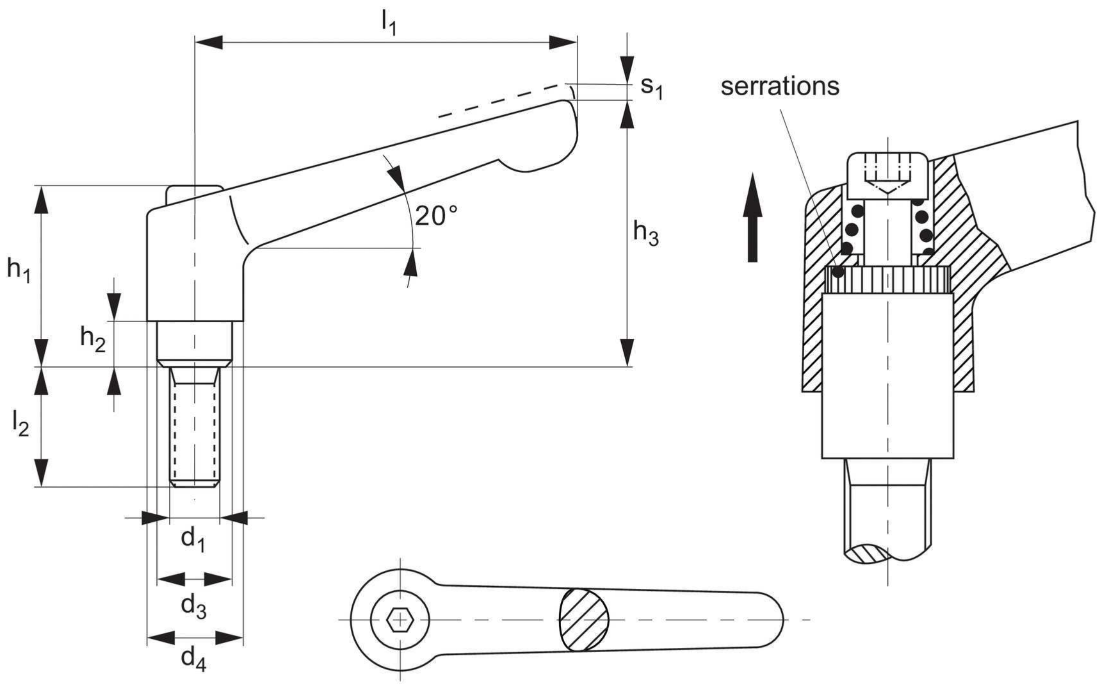
Tips
Ideal for applications with aggressive environments, such as food processing, chemical industries etc.

STAINLESS STEEL 303

Adjustable Clamping Levers

with grub screw - stainless

74390



Order No.	l_1	d_1	l_2	d_3	d_4	h_1	h_2	h_3	Stroke s_1
74390.W0041	45	M 5	12	10,0	13,0	24,5	4,0	35	3,5
74390.W0051	45	M 5	16	10,0	13,0	24,5	4,0	35	3,5
74390.W0061	45	M 5	20	10,0	13,0	24,5	4,0	35	3,5
74390.W0071	45	M 5	25	10,0	13,0	24,5	4,0	35	3,5
74390.W0081	45	M 5	32	10,0	13,0	24,5	4,0	35	3,5
74390.W0091	45	M 5	40	10,0	13,0	24,5	4,0	35	3,5
74390.W0099	45	M 5	50	10,0	13,0	24,5	4,0	35	3,5
74390.W0141	45	M 6	12	10,0	13,0	24,5	4,0	35	3,5
74390.W0151	45	M 6	16	10,0	13,0	24,5	4,0	35	3,5
74390.W0161	45	M 6	20	10,0	13,0	24,5	4,0	35	3,5
74390.W0171	45	M 6	25	10,0	13,0	24,5	4,0	35	3,5
74390.W0181	45	M 6	32	10,0	13,0	24,5	4,0	35	3,5
74390.W0191	45	M 6	40	10,0	13,0	24,5	4,0	35	3,5
74390.W0199	45	M 6	50	10,0	13,0	24,5	4,0	35	3,5
74390.W0221	63	M 6	16	13,5	17,5	31,0	6,5	45	4,0
74390.W0231	63	M 6	20	13,5	17,5	31,0	6,5	45	4,0
74390.W0241	63	M 6	25	13,5	17,5	31,0	6,5	45	4,0
74390.W0251	63	M 6	32	13,5	17,5	31,0	6,5	45	4,0
74390.W0261	63	M 6	40	13,5	17,5	31,0	6,5	45	4,0
74390.W0271	63	M 6	50	13,5	17,5	31,0	6,5	45	4,0
74390.W0281	63	M 6	63	13,5	17,5	31,0	6,5	45	4,0
74390.W0331	63	M 8	16	13,5	17,5	31,0	6,5	45	4,0
74390.W0341	63	M 8	20	13,5	17,5	31,0	6,5	45	4,0
74390.W0351	63	M 8	25	13,5	17,5	31,0	6,5	45	4,0
74390.W0361	63	M 8	32	13,5	17,5	31,0	6,5	45	4,0
74390.W0371	63	M 8	40	13,5	17,5	31,0	6,5	45	4,0
74390.W0381	63	M 8	50	13,5	17,5	31,0	6,5	45	4,0
74390.W0391	63	M 8	63	13,5	17,5	31,0	6,5	45	4,0
74390.W0441	78	M 8	20	16,0	21,0	36,0	8,0	55	4,0
74390.W0451	78	M 8	25	16,0	21,0	36,0	8,0	55	4,0
74390.W0461	78	M 8	32	16,0	21,0	36,0	8,0	55	4,0
74390.W0471	78	M 8	40	16,0	21,0	36,0	8,0	55	4,0
74390.W0481	78	M 8	50	16,0	21,0	36,0	8,0	55	4,0
74390.W0491	78	M 8	63	16,0	21,0	36,0	8,0	55	4,0
74390.W0499	78	M 8	80	16,0	21,0	36,0	8,0	55	4,0
74390.W0541	78	M10	20	16,0	21,0	36,0	8,0	55	4,0
74390.W0551	78	M10	25	16,0	21,0	36,0	8,0	55	4,0
74390.W0561	78	M10	32	16,0	21,0	36,0	8,0	55	4,0
74390.W0571	78	M10	40	16,0	21,0	36,0	8,0	55	4,0
74390.W0581	78	M10	50	16,0	21,0	36,0	8,0	55	4,0
74390.W0591	78	M10	63	16,0	21,0	36,0	8,0	55	4,0
74390.W0599	78	M10	80	16,0	21,0	36,0	8,0	55	4,0

Material

Stainless steel, 1.4308 (AISI CF-8). Matte blasted.
Inner parts: stainless, 1.4305.
Screw & spring: stainless, 1.4300.

Technical Notes

By lifting the lever, the serrations are disengaged. The handle can be positioned by the serrations, and the threaded insert can be exchanged. Upon releasing the handle, the serrations are automatically re-engaged.

Tips

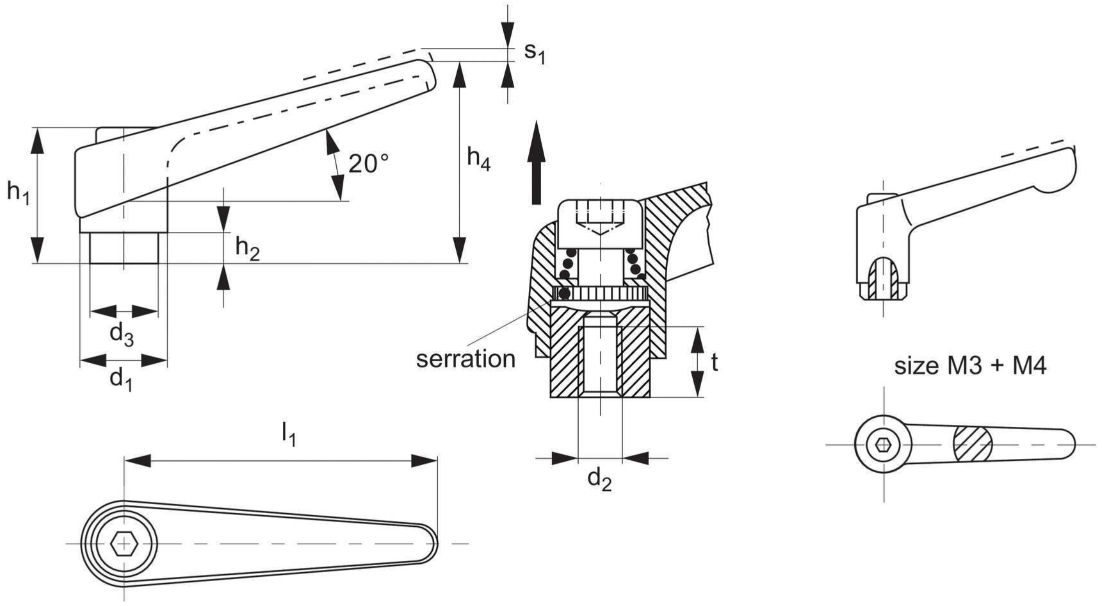
Ideal for applications with aggressive environments, such as food processing, chemical industries etc.

STAINLESS STEEL 303

Adjustable Clamping Levers

threaded bore

74410



Order No. Orange	**Order No. Silver**	Finish	d_1	d_2	d_3	h_1	h_1	Stroke s_1	h_4	l_2	t ≧	g
74410.W0032	74410.W0034	Female	13	M 3	10,0	24,5	4,0	3,5	30,5	30	7	25
74410.W0036	74410.W0038	Female	13	M 4	10,0	24,5	4,0	3,5	30,5	30	9	25
74410.W0111	74410.W0113	Female	14	M 5	10,0	24,5	4,0	3,0	35,0	45	8	33
74410.W0121	74410.W0123	Female	14	M 6	10,0	24,5	4,0	3,0	35,0	45	8	33
74410.W0311	74410.W0313	Female	18	M 6	13,5	31,0	6,5	3,0	45,0	62	10	67
74410.W0321	74410.W0323	Female	18	M 8	13,5	31,0	6,5	3,0	45,0	62	10	67
74410.W0411	74410.W0413	Female	22	M 8	16,0	36,0	8,0	3,5	52,0	74	14	112
74410.W0421	74410.W0423	Female	22	M10	16,0	36,0	8,0	3,5	52,0	74	14	109
74410.W0511	74410.W0513	Female	25	M10	19,0	43,0	11,0	4,0	63,0	89	17	176
74410.W0521	74410.W0523	Female	25	M12	19,0	43,0	11,0	4,0	63,0	89	17	171
74410.W0611	74410.W0613	Female	30	M12	23,0	50,5	12,0	5,0	76,0	108	22	286
74410.W0621	74410.W0623	Female	30	M16	23,0	50,5	12,0	5,0	76,0	108	22	269

Material

Handle: die-cast zinc.
- Orange RAL 2004
- Black RAL 9005
- Silver RAL 9006

Inner parts: steel, quality 5.8, blackened.
Threaded part: steel, quality 5, blackened.

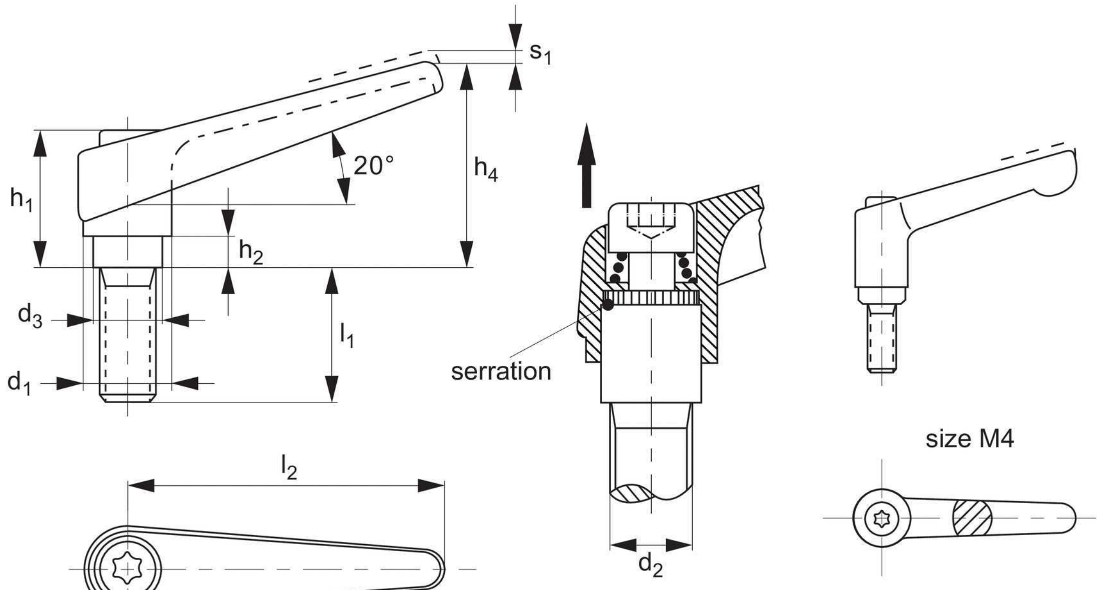
Technical Notes

By lifting the lever, the serrations are disengaged. The handle can be positioned by the serrations, and the threaded insert can be exchanged. Upon releasing the handle, the serrations are automatically re-engaged.

Adjustable Clamping Levers

with grub screw

74430



Order No. Orange	Order No. Silver	Finish	d_1	d_2	l_1	d_3	h_1	h_2	Stroke s_1	h_4	l_2	g
74430.W0041	74430.W0043	Male thread	14	M 5	12	10,0	24,5	4,0	3,0	35,0	45	36
74430.W0010	74430.W0012	Male thread	13	M 4	12	10,0	24,5	4,0	3,5	30,5	30	27
74430.W0014	74430.W0016	Male thread	13	M 4	16	10,0	24,5	4,0	3,5	30,5	30	27
74430.W0018	74430.W0020	Male thread	13	M 4	20	10,0	24,5	4,0	3,5	30,5	30	27
74430.W0022	74430.W0024	Male thread	13	M 4	25	10,0	24,5	4,0	3,5	30,5	30	28
74430.W0026	74430.W0028	Male thread	13	M 4	32	10,0	24,5	4,0	3,5	30,5	30	28
74430.W0051	74430.W0053	Male thread	14	M 5	16	10,0	24,5	4,0	3,0	35,0	45	36
74430.W0061	74430.W0063	Male thread	14	M 5	20	10,0	24,5	4,0	3,0	35,0	45	37
74430.W0071	74430.W0073	Male thread	14	M 5	25	10,0	24,5	4,0	3,0	35,0	45	38
74430.W0081	74430.W0083	Male thread	14	M 5	32	10,0	24,5	4,0	3,0	35,0	45	38
74430.W0086	74430.W0088	Male thread	14	M 5	40	10,0	24,5	4,0	3,0	35,0	45	39
74430.W0131	74430.W0133	Male thread	14	M 6	12	10,0	24,5	4,0	3,0	35,0	45	37
74430.W0141	74430.W0143	Male thread	14	M 6	16	10,0	24,5	4,0	3,0	35,0	45	37
74430.W0151	74430.W0153	Male thread	14	M 6	20	10,0	24,5	4,0	3,0	35,0	45	38
74430.W0161	74430.W0163	Male thread	14	M 6	25	10,0	24,5	4,0	3,0	35,0	45	39
74430.W0171	74430.W0173	Male thread	14	M 6	32	10,0	24,5	4,0	3,0	35,0	45	40
74430.W0181	74430.W0183	Male thread	14	M 6	40	10,0	24,5	4,0	3,0	35,0	45	41
74430.W0191	74430.W0193	Male thread	14	M 6	50	10,0	24,5	4,0	3,0	35,0	45	43
74430.W0221	74430.W0223	Male thread	18	M 6	16	13,5	31,0	6,5	3,0	45,0	62	72
74430.W0231	74430.W0233	Male thread	18	M 6	20	13,5	31,0	6,5	3,0	45,0	62	72
74430.W0241	74430.W0243	Male thread	18	M 6	25	13,5	31,0	6,5	3,0	45,0	62	74
74430.W0251	74430.W0253	Male thread	18	M 6	32	13,5	31,0	6,5	3,0	45,0	62	74
74430.W0261	74430.W0263	Male thread	18	M 6	40	13,5	31,0	6,5	3,0	45,0	62	76
74430.W0271	74430.W0273	Male thread	18	M 6	50	13,5	31,0	6,5	3,0	45,0	62	76
74430.W0281	74430.W0283	Male thread	18	M 6	63	13,5	31,0	6,5	3,0	45,0	62	80
74430.W0331	74430.W0333	Male thread	18	M 8	16	13,5	31,0	6,5	3,0	45,0	62	74
74430.W0341	74430.W0343	Male thread	18	M 8	20	13,5	31,0	6,5	3,0	45,0	62	76
74430.W0351	74430.W0353	Male thread	18	M 8	25	13,5	31,0	6,5	3,0	45,0	62	77
74430.W0361	74430.W0363	Male thread	18	M 8	32	13,5	31,0	6,5	3,0	45,0	62	79
74430.W0371	74430.W0373	Male thread	18	M 8	40	13,5	31,0	6,5	3,0	45,0	62	81
74430.W0381	74430.W0383	Male thread	18	M 8	50	13,5	31,0	6,5	3,0	45,0	62	84
74430.W0391	74430.W0393	Male thread	18	M 8	63	13,5	31,0	6,5	3,0	45,0	62	89
74430.W0441	74430.W0443	Male thread	22	M10	20	16,0	36,0	8,0	3,5	52,0	74	128
74430.W0451	74430.W0453	Male thread	22	M10	25	16,0	36,0	8,0	3,5	52,0	74	130
74430.W0461	74430.W0463	Male thread	22	M10	32	16,0	36,0	8,0	3,5	52,0	74	134
74430.W0471	74430.W0473	Male thread	22	M10	40	16,0	36,0	8,0	3,5	52,0	74	138
74430.W0481	74430.W0483	Male thread	22	M10	50	16,0	36,0	8,0	3,5	52,0	74	143
74430.W0486	74430.W0488	Male thread	22	M10	63	16,0	36,0	8,0	3,5	52,0	74	148
74430.W0491	74430.W0493	Male thread	22	M10	80	16,0	36,0	8,0	3,5	52,0	74	157
74430.W0541	74430.W0543	Male thread	25	M12	25	19,0	43,0	11,0	4,0	63,0	89	205
74430.W0551	74430.W0553	Male thread	25	M12	32	19,0	43,0	11,0	4,0	63,0	89	209
74430.W0561	74430.W0563	Male thread	25	M12	40	19,0	43,0	11,0	4,0	63,0	89	215
74430.W0571	74430.W0573	Male thread	25	M12	50	19,0	43,0	11,0	4,0	63,0	89	222
74430.W0581	74430.W0583	Male thread	25	M12	63	19,0	43,0	11,0	4,0	63,0	89	232
74430.W0591	74430.W0593	Male thread	25	M12	80	19,0	43,0	11,0	4,0	63,0	89	244

Material

Handle: die-cast zinc.
- Orange RAL 2004
- Black RAL 9005
- Silver RAL 9006.

Inner parts: steel, quality 5.8, blackened

Screw: steel, quality 5.8, blackened.

Technical Notes

By lifting the lever, the serrations are disengaged. The handle can be positioned by the serrations, and the threaded insert can be exchanged. Upon releasing the handle, the serrations are automatically re-engaged. The collar screw is torx head.

Adjustable Clamping Levers

with grub screw

74430

Order No. Orange	Order No. Silver	Finish	d_1	d_2	l_1	d_3	h_1	h_2	Stroke s_1	h_4	l_2	g
74430.W0641	74430.W0643	Male thread	30	M16	32	23,0	50,5	12,0	5,0	76,0	108	348
74430.W0651	74430.W0653	Male thread	30	M16	40	23,0	50,5	12,0	5,0	76,0	108	357
74430.W0661	74430.W0663	Male thread	30	M16	50	23,0	50,5	12,0	5,0	76,0	108	370
74430.W0671	74430.W0673	Male thread	30	M16	63	23,0	50,5	12,0	5,0	76,0	108	386
74430.W0681	74430.W0683	Male thread	30	M16	80	23,0	50,5	12,0	5,0	76,0	108	407

Material

Handle: die-cast zinc.
- Orange RAL 2004
- Black RAL 9005
- Silver RAL 9006.

Inner parts: steel, quality 5.8, blackened
Screw: steel, quality 5.8, blackened.

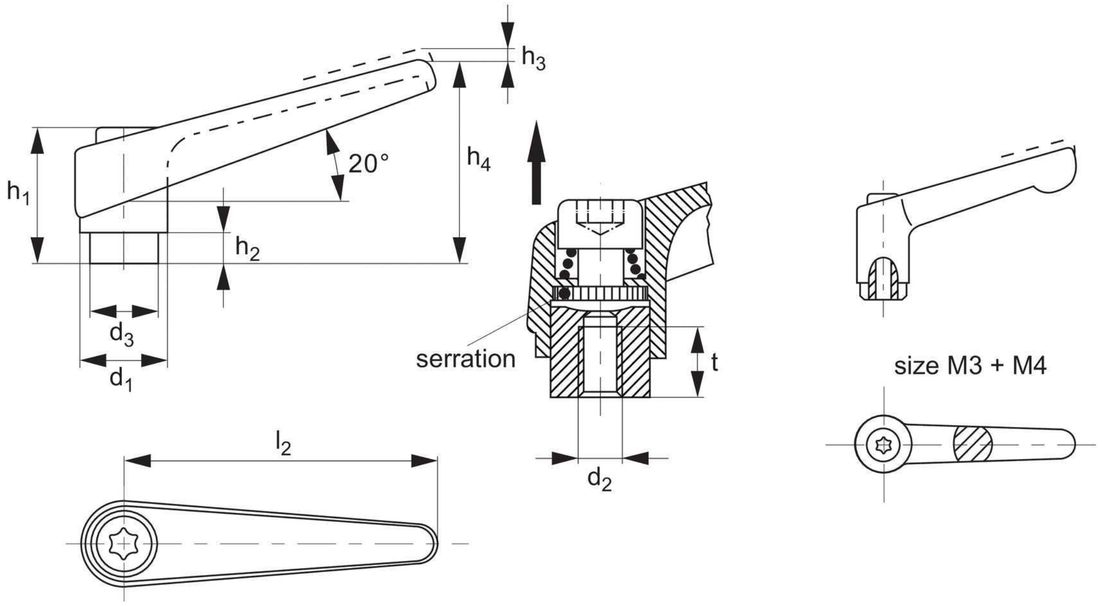
Technical Notes

By lifting the lever, the serrations are disengaged. The handle can be positioned by the serrations, and the threaded insert can be exchanged. Upon releasing the handle, the serrations are automatically re-engaged. The collar screw is torx head.

Adjustable Clamping Levers

threaded bore, inner parts stainless steel

74440



Order No.	Colour	d_1	d_2	d_3	h_1	h_2	h_3	h_4	l_2	t ≧	g
74440.W0032	Orange	13	M 3	10,0	24,5	4,0	3,5	30,5	30	7	25
74440.W0036	Orange	13	M 4	10,0	24,5	4,0	3,5	30,5	30	9	25
74440.W0111	Orange	14	M 5	10,0	24,5	4,0	3,0	35,0	45	8	33
74440.W0121	Orange	14	M 6	10,0	24,5	4,0	3,0	35,0	45	8	33
74440.W0321	Orange	18	M 8	13,5	31,0	6,5	3,0	45,0	62	10	67
74440.W0411	Orange	22	M 8	16,0	36,0	8,0	3,5	52,0	74	14	112
74440.W0421	Orange	22	M10	16,0	36,0	8,0	3,5	52,0	74	14	109
74440.W0511	Orange	25	M10	19,0	43,0	11,0	4,0	63,0	89	17	175
74440.W0521	Orange	25	M12	19,0	43,0	11,0	4,0	63,0	89	17	171
74440.W0611	Orange	30	M12	23,0	50,5	12,0	5,0	76,0	108	22	286
74440.W0621	Orange	30	M16	23,0	50,5	12,0	5,0	76,0	108	22	269
74440.W0034	Black	13	M 3	10,0	24,5	4,0	3,5	30,5	30	7	25
74440.W0038	Black	13	M 4	10,0	24,5	4,0	3,5	30,5	30	9	25
74440.W0114	Black	14	M 5	10,0	24,5	4,0	3,0	35,0	45	8	33
74440.W0124	Black	14	M 6	10,0	24,5	4,0	3,0	35,0	45	8	33
74440.W0324	Black	18	M 8	13,5	31,0	6,5	3,0	45,0	62	10	67
74440.W0414	Black	22	M 8	16,0	36,0	8,0	3,5	52,0	74	14	112
74440.W0424	Black	22	M10	16,0	36,0	8,0	3,5	52,0	74	14	109
74440.W0514	Black	25	M10	19,0	43,0	11,0	4,0	63,0	89	17	175
74440.W0524	Black	25	M12	19,0	43,0	11,0	4,0	63,0	89	17	171
74440.W0614	Black	30	M12	23,0	50,5	12,0	5,0	76,0	108	22	286
74440.W0624	Black	30	M16	23,0	50,5	12,0	5,0	76,0	108	22	269

Material

Handle: die-cast zinc,
- Orange RAL 2004
- Black RAL 9005

Inner parts: stainless steel 1,4305 (AISI 303).
Threaded part: stainless steel 1.4305. (AISI 303).

Technical Notes

By lifting the lever, the serrations are disengaged. The handle can be positioned by the serrations, and the threaded insert can be exchanged. Upon releasing the handle, the serrations are automatically re-engaged. The collar screw is torx head.

Tips

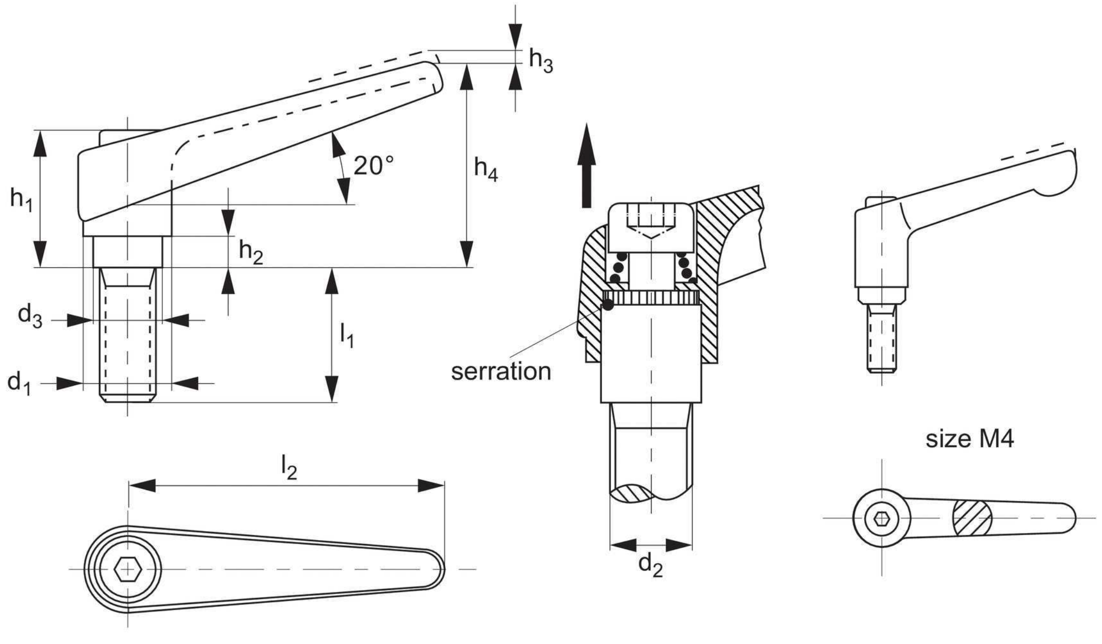
Suitable for medical and chemical industry applications.

STAINLESS STEEL 303

Adjustable Clamping Levers

with grub screw, inner parts stainless steel

74460



Order No. Orange	Order No. Black	d_1	d_2	l_1	d_3	h_1	h_2	h_3	h_4	l_2	g
74460.W0041	74460.W0044	14	M 5	12	10,0	24,5	4,0	3,0	35,0	45	36
74460.W0010	74460.W0012	13	M 4	12	10,0	24,5	4,0	3,5	30,5	30	27
74460.W0014	74460.W0016	13	M 4	16	10,0	24,5	4,0	3,5	30,5	30	27
74460.W0018	74460.W0020	13	M 4	20	10,0	24,5	4,0	3,5	30,5	30	27
74460.W0022	74460.W0024	13	M 4	25	10,0	24,5	4,0	3,5	30,5	30	28
74460.W0026	74460.W0028	13	M 4	32	10,0	24,5	4,0	3,5	30,5	30	28
74460.W0051	74460.W0054	14	M 5	16	10,0	24,5	4,0	3,0	35,0	45	36
74460.W0061	74460.W0064	14	M 5	20	10,0	24,5	4,0	3,0	35,0	45	37
74460.W0071	74460.W0074	14	M 5	25	10,0	24,5	4,0	3,0	35,0	45	38
74460.W0081	74460.W0084	14	M 5	32	10,0	24,5	4,0	3,0	35,0	45	38
74460.W0086	74460.W0089	14	M 5	40	10,0	24,5	4,0	3,0	35,0	45	39
74460.W0131	74460.W0134	14	M 6	12	10,0	24,5	4,0	3,0	35,0	45	37
74460.W0141	74460.W0144	14	M 6	16	10,0	24,5	4,0	3,0	35,0	45	37
74460.W0151	74460.W0154	14	M 6	20	10,0	24,5	4,0	3,0	35,0	45	38
74460.W0161	74460.W0164	14	M 6	25	10,0	24,5	4,0	3,0	35,0	45	39
74460.W0171	74460.W0174	14	M 6	32	10,0	24,5	4,0	3,0	35,0	45	40
74460.W0181	74460.W0184	14	M 6	40	10,0	24,5	4,0	3,0	35,0	45	41
74460.W0191	74460.W0194	14	M 6	50	10,0	24,5	4,0	3,0	35,0	45	43
74460.W0331	74460.W0334	18	M 8	16	13,5	31,0	6,5	3,0	45,0	62	74
74460.W0341	74460.W0344	18	M 8	20	13,5	31,0	6,5	3,0	45,0	62	76
74460.W0351	74460.W0354	18	M 8	25	13,5	31,0	6,5	3,0	45,0	62	77
74460.W0361	74460.W0364	18	M 8	32	13,5	31,0	6,5	3,0	45,0	62	79
74460.W0371	74460.W0374	18	M 8	40	13,5	31,0	6,5	3,0	45,0	62	81
74460.W0381	74460.W0384	18	M 8	50	13,5	31,0	6,5	3,0	45,0	62	84
74460.W0391	74460.W0394	18	M 8	63	13,5	31,0	6,5	3,0	45,0	62	89
74460.W0441	74460.W0444	22	M10	20	16,0	36,0	8,0	3,5	52,0	74	128
74460.W0451	74460.W0454	22	M10	25	16,0	36,0	8,0	3,5	52,0	74	130
74460.W0461	74460.W0464	22	M10	32	16,0	36,0	8,0	3,5	52,0	74	134
74460.W0471	74460.W0474	22	M10	40	16,0	36,0	8,0	3,5	52,0	74	138
74460.W0481	74460.W0484	22	M10	50	16,0	36,0	8,0	3,5	52,0	74	143
74460.W0486	74460.W0489	22	M10	63	16,0	36,0	8,0	3,5	52,0	74	148
74460.W0491	74460.W0494	22	M10	80	16,0	36,0	8,0	3,5	52,0	74	157
74460.W0541	74460.W0544	25	M12	25	19,0	43,0	11,0	4,0	63,0	89	205
74460.W0551	74460.W0554	25	M12	32	19,0	43,0	11,0	4,0	63,0	89	209
74460.W0561	74460.W0564	25	M12	40	19,0	43,0	11,0	4,0	63,0	89	215
74460.W0571	74460.W0574	25	M12	50	19,0	43,0	11,0	4,0	63,0	89	222
74460.W0581	74460.W0584	25	M12	63	19,0	43,0	11,0	4,0	63,0	89	232
74460.W0591	74460.W0594	25	M12	80	19,0	43,0	11,0	4,0	63,0	89	244
74460.W0641	74460.W0644	30	M16	32	23,0	50,5	12,0	5,0	76,0	108	348
74460.W0651	74460.W0654	30	M16	40	23,0	50,5	12,0	5,0	76,0	108	357
74460.W0661	74460.W0664	30	M16	50	23,0	50,5	12,0	5,0	76,0	108	370
74460.W0671	74460.W0674	30	M16	63	23,0	50,5	12,0	5,0	76,0	108	386
74460.W0681	74460.W0684	30	M16	80	23,0	50,5	12,0	5,0	76,0	108	407

Material

Handle: die-cast zinc,
- Orange RAL 2004
- Black RAL 9005.

Inner parts: stainless steel 1.4305 (AISI 303).
Screw: stainless steel 1.4305. (AISI 303).

Technical Notes

By lifting the lever, the serrations are disengaged. The handle can be positioned by the serrations, and the threaded insert can be exchanged. Upon releasing the handle, the serrations are automatically re-engaged.

Tips

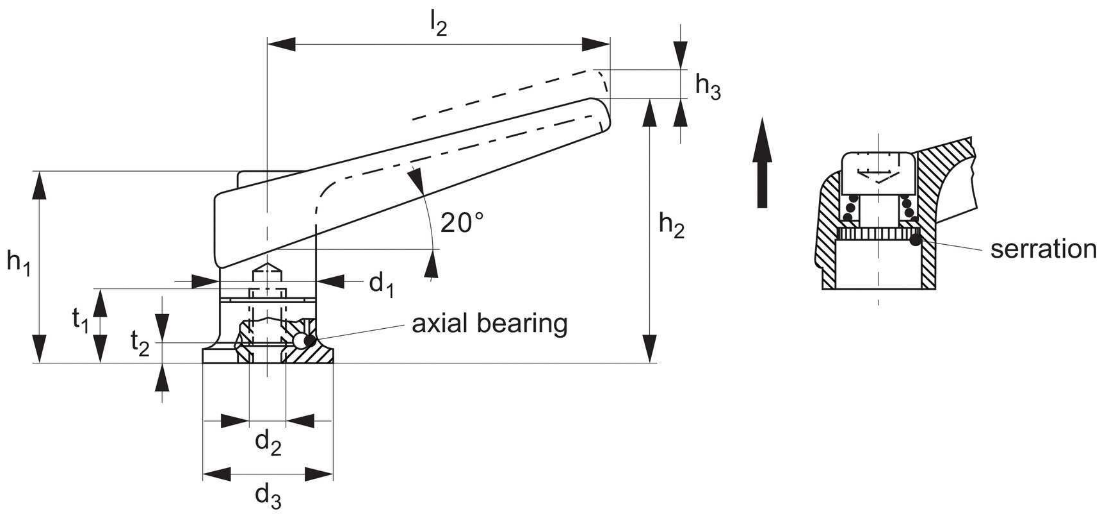
Suitable for medical and chemical industry applications.

STAINLESS STEEL 303

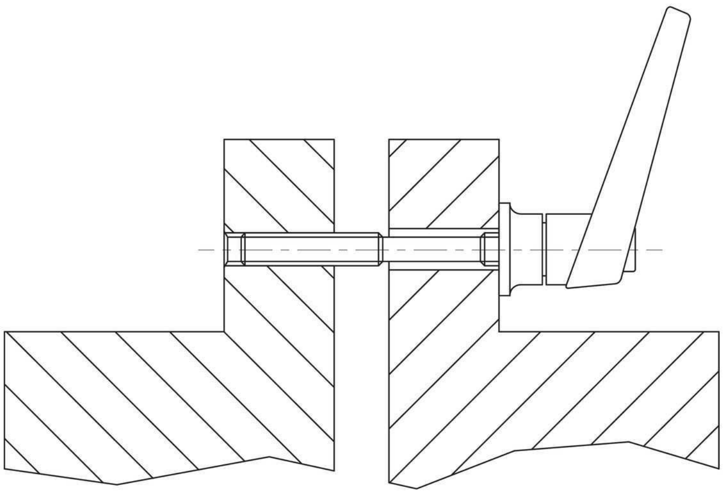
Adjustable Clamping Levers

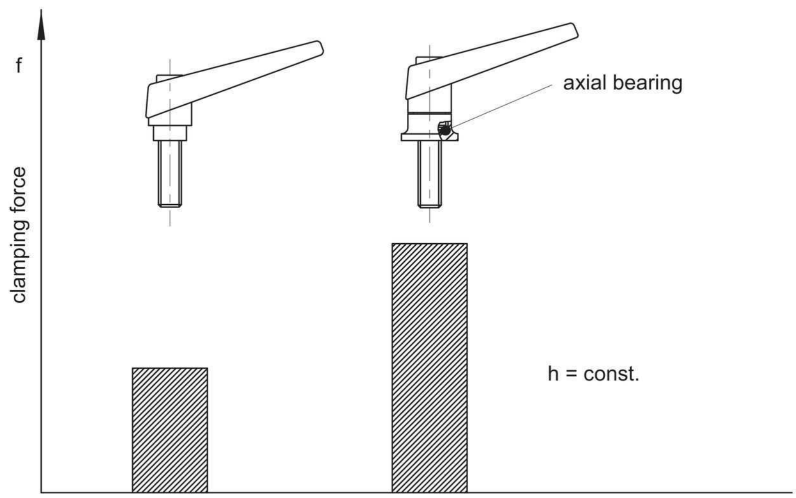
with axial bearing - threaded bore

74470



Order No.	Finish	d_1	d_2	d_3	h_1	h_2	h_3	l_2	t_1 min.	t_2	g
74470.W0010	Orange	18	M 6	24,0	34,5	50	3,0	62	12,5	5,0	99
74470.W0110	Orange	22	M 8	25,0	39,5	56	3,5	74	14,0	4,2	140
74470.W0210	Orange	25	M10	30,0	46,5	66	4,0	89	18,0	5,4	207
74470.W0310	Orange	30	M12	35,0	56,5	82	5,0	108	26,5	6,6	359
74470.W0012	Black	18	M 6	24,0	34,5	50	3,0	62	12,5	5,0	99
74470.W0112	Black	22	M 8	25,0	39,5	56	3,5	74	14,0	4,2	140
74470.W0212	Black	25	M10	30,0	46,5	66	4,0	89	18,0	5,4	207
74470.W0312	Black	30	M12	35,0	56,5	82	5,0	108	26,5	6,6	359





Material
Lever: die-cast zinc.
Orange RAL 2004,
Black RAL 9005.
Inner parts: heat-treated steel, nitrided, black.
Threaded part: steel, nitrided, blackened.

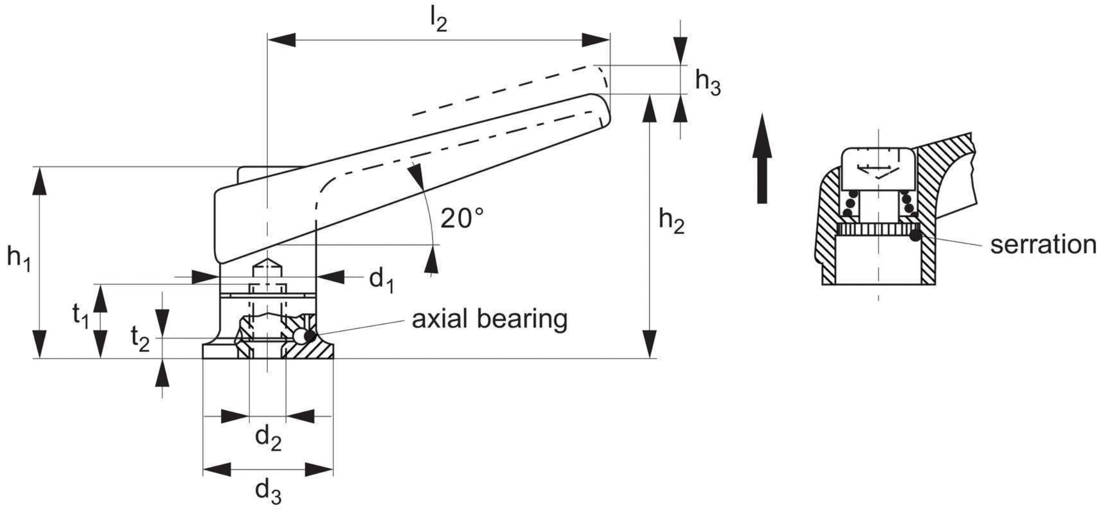
Technical Notes
By lifting the lever, the serrations are disengaged. The lever can be positioned by the serrations and the threaded insert can be exchanged. On releasing the lever, the serrations are automatically re-engaged. The collar screw is torx head.

Tips
Benefits of axial bearing:
- clamping force is 100% greater than using standard levers (see graph).
- smaller clamping levers can be used due to the improved clamping force.
- considerably less force loss due to setting.
- no releasing due to vibration.
- no damage to clamped parts, due to axial action.

Adjustable Clamping Levers

with axial bearing, from stainless steel, with female bearing

74472



Order No. Orange	Order No. Black	d_1	d_2	d_3	h_1	h_2	h_3	l_2	t_1 min.	t_2	g
74472.W1010	74472.W1012	18	M 6	24	34,5	50	3,0	62	12,5	5,0	99
74472.W1110	74472.W1112	22	M 8	25	39,5	56	3,5	74	14,0	4,2	140
74472.W1210	74472.W1212	25	M10	30	46,5	66	4,0	89	18,0	5,4	207
74472.W1310	74472.W1312	30	M12	35	56,5	82	5,0	108	26,5	6,6	359

Material
Lever: zinc die-cast, orange, similalr to RAL 2004. Zinc die-cast, black, similar to RAL 9005.
Threaded part: stainless steel.
Inner part: stainless steel.
Threaded part: stainless steel, hardened.

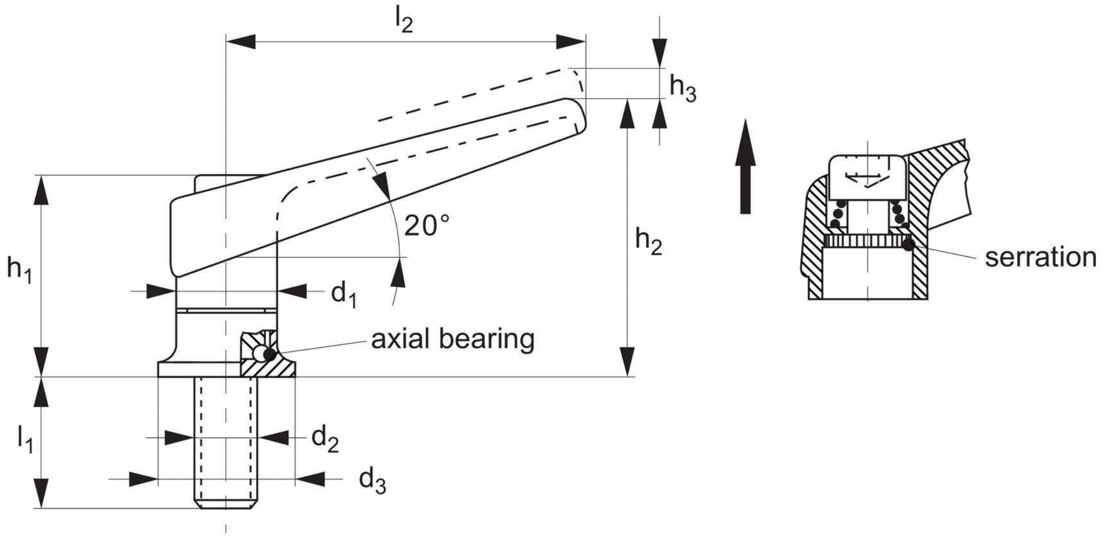
Technical Notes
By lifting the lever, the serrations are disengaged. The lever can be positioned by the serrations and the threaded insert can be exchanged. On releasing the lever, the serrations are automatically re-engaged.

Tips
Benefits of axial bearing:
- clamping force is 100% greater than when using standard levers (see graph).
- smaller clamping levers can be used due to the improved clamping force.
- considerably less force loss due to setting.
- no releasing due to vibration.
- no damage to clamped parts, due to axial action.

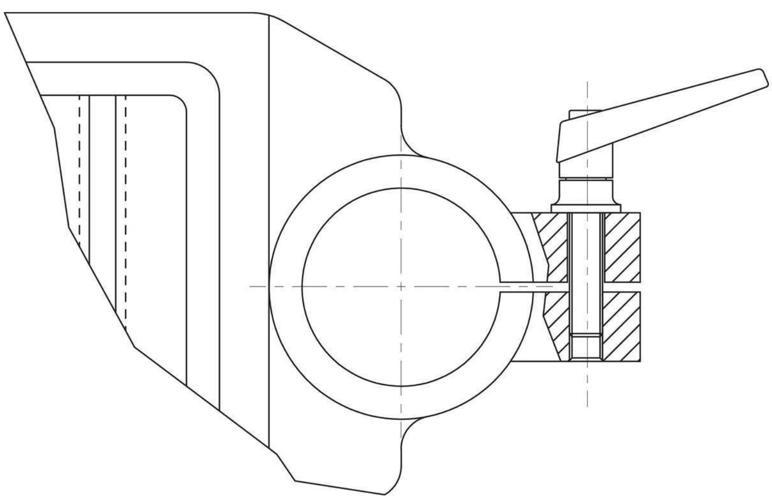
Adjustable Clamping Levers

with axial bearing - with grub screw

74480



Order No.	Finish	d_1	d_2	l_1	d_3	h_1	h_2	h_3	l_2	g
74480.W0030	Orange	18	M 6	20	24	34,5	50	3,0	62	97
74480.W0050	Orange	18	M 6	27	24	34,5	50	3,0	62	98
74480.W0130	Orange	22	M 8	21	25	39,5	56	3,5	74	151
74480.W0150	Orange	22	M 8	36	25	39,5	56	3,5	74	157
74480.W0230	Orange	25	M10	29	30	46,5	66	4,0	89	232
74480.W0250	Orange	25	M10	47	30	46,5	66	4,0	89	242
74480.W0330	Orange	30	M12	34	35	56,5	82	5,0	108	412
74480.W0346	Orange	30	M12	50	35	56,5	82	5,0	108	420
74480.W0350	Orange	30	M12	57	35	56,5	82	5,0	108	426
74480.W0364	Orange	30	M12	65	35	56,5	82	5,0	108	431
74480.W0384	Orange	30	M12	85	35	56,5	82	5,0	108	449
74480.W0032	Black	18	M 6	20	24	34,5	50	3,0	62	97
74480.W0052	Black	18	M 6	27	24	34,5	50	3,0	62	98
74480.W0132	Black	22	M 8	21	25	39,5	56	3,5	74	151
74480.W0152	Black	22	M 8	36	25	39,5	56	3,5	74	157
74480.W0232	Black	25	M10	29	30	46,5	66	4,0	89	232
74480.W0252	Black	25	M10	47	30	46,5	66	4,0	89	242
74480.W0332	Black	30	M12	34	35	56,5	82	5,0	108	412
74480.W0348	Black	30	M12	50	35	56,5	82	5,0	108	420
74480.W0352	Black	30	M12	57	35	56,5	82	5,0	108	426
74480.W0366	Black	30	M12	65	35	56,5	82	5,0	108	431
74480.W0386	Black	30	M12	85	35	56,5	82	5,0	108	449



Material

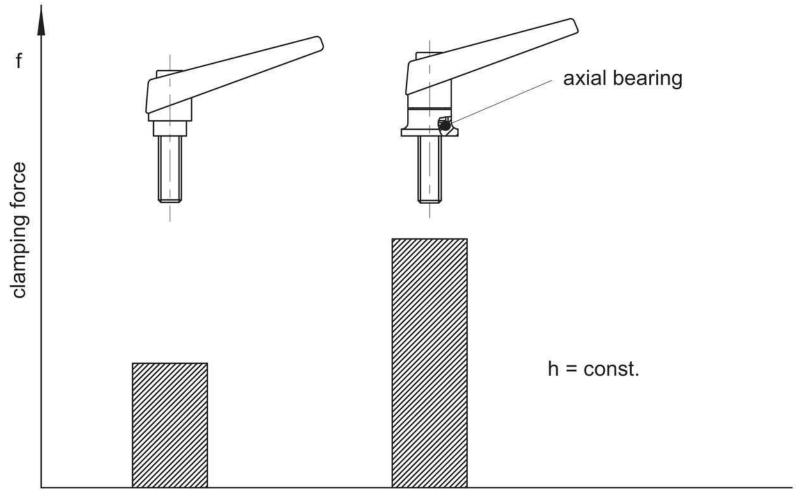
Lever: die-cast zinc.
Orange RAL 2004,
Black RAL 9005.
Inner parts: heat-treated steel, nitrided, blackened.
Screw: steel, nitrided, blackened.

Technical Notes

Lifting the lever disengages the serrations and the lever can be positioned. On releasing the lever the serrations are automatically re-engaged.

Tips

Benefits of axial bearing:
- clamping force is 100% greater than when using standard levers (see graph).
- smaller clamping levers can be used due to the improved clamping force.
- considerably less force loss due to setting.
- no releasing due to vibration.
- no damage to clamped parts, due to axial action.



Material
Lever: die-cast zinc.
Orange RAL 2004,
Black RAL 9005.
Inner parts: heat-treated steel, nitrided, blackened.
Screw: steel, nitrided, blackened.

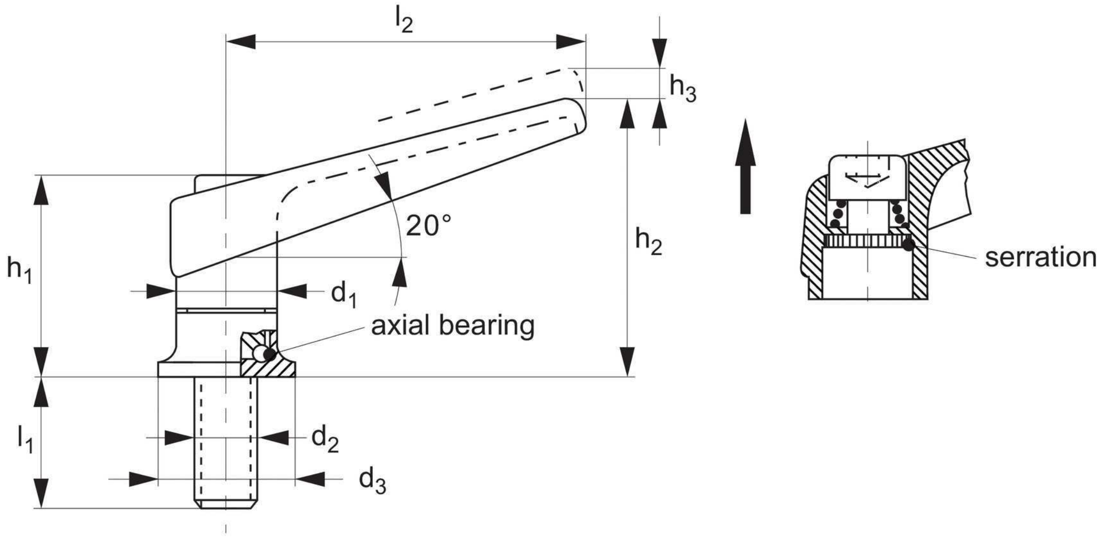
Technical Notes
Lifting the lever disengages the serrations and the lever can be positioned. On releasing the lever the serrations are automatically re-engaged.

Tips
Benefits of axial bearing:
- clamping force is 100% greater than when using standard levers (see graph).
- smaller clamping levers can be used due to the improved clamping force.
- considerably less force loss due to setting.
- no releasing due to vibration.
- no damage to clamped parts, due to axial action.

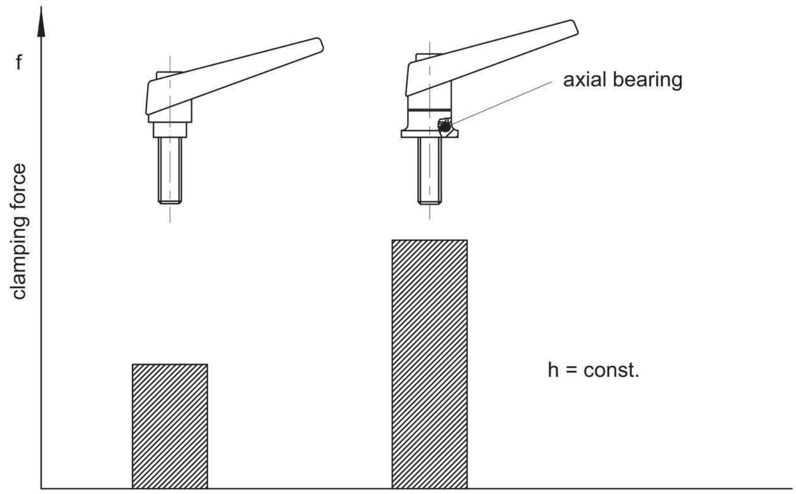
Adjustable Clamping Levers

with axial bearing, from stainless steel, with screw

74482



Order No. Orange	Order No. Black	d_1	d_2	l_1	d_3	h_1	h_2	h_3	l_2	g
74482.W1030	74482.W1032	18	M 6	20	24	34,5	50	3,0	62	97
74482.W1050	74482.W1052	18	M 6	27	24	34,5	50	3,0	62	98
74482.W1130	74482.W1132	22	M 8	21	25	39,5	56	3,5	74	151
74482.W1150	74482.W1152	22	M 8	36	25	39,5	56	3,5	74	157
74482.W1230	74482.W1232	25	M 10	29	30	46,5	66	4,0	89	232
74482.W1250	74482.W1252	25	M 10	47	30	46,5	66	4,0	89	242
74482.W1330	74482.W1332	30	M 12	34	35	56,5	82	5,0	108	412
74482.W1346	74482.W1348	30	M 12	50	35	56,5	82	5,0	108	420
74482.W1350	74482.W1352	30	M 12	57	35	56,5	82	5,0	108	426
74482.W1364	74482.W1366	30	M 12	65	35	56,5	82	5,0	108	431
74482.W1384	74482.W1386	30	M 12	85	35	56,5	82	5,0	108	449



Material

Lever: zinc die-cast, orange, simialr to RAL 2004. Zinc die-cast, black, similar to RAL 9005.
Screw: stainless steel.
Inner parts: stainless steel.
Threaded part: stainless steel, hardened.

Technical Notes

Lifting the lever disengages the serrations and the lever can be positioned. On releasing the lever the serrations are automatically re-engaged.

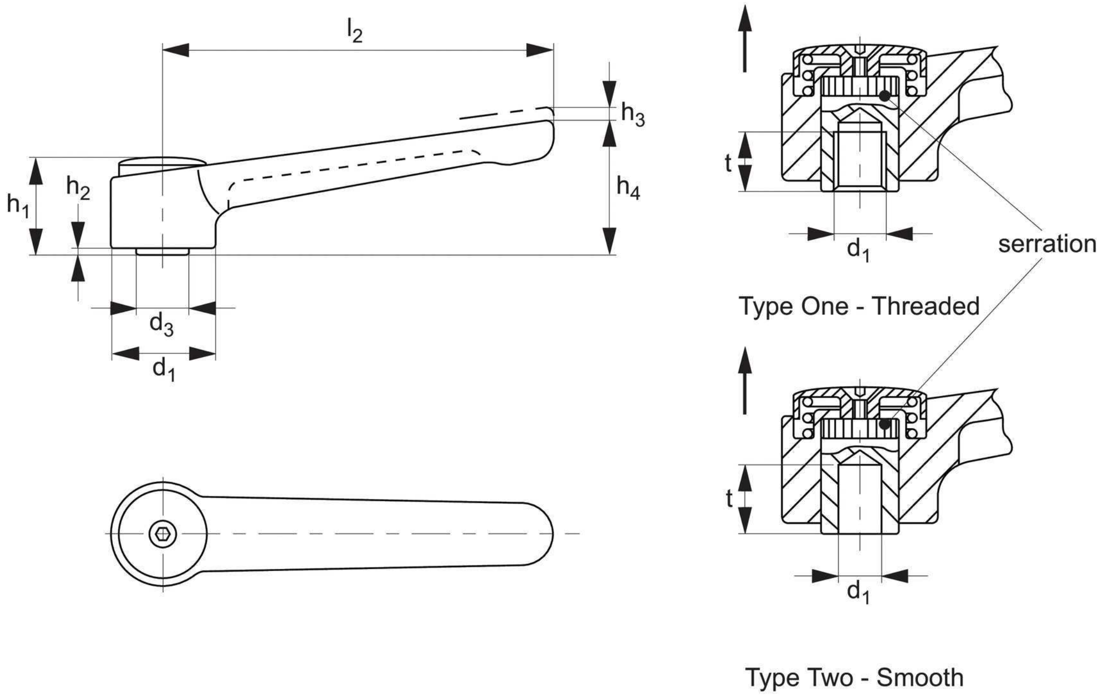
Tips

Benefits of axial bearing:
- clamping force is 100% greater than when using standard levers (see graph).
- smaller clamping levers can be used due to the improved clamping force.
- considerably less force loss due to setting.
- no releasing due to vibration.
- no damage to clamped parts, due to axial action.

Adjustable Clamping Levers

cast zinc, inner parts steel

74490



Material
Lever: Zinc die-cast, plastic coated, matt
Black - similar to RAL 9005
Silver - similar to RAL 9006
Inner: Steel, blackened
Cover: Plastic.

Technical Notes
By lifting up the lever, the serrations are disengaged and the handle can then be swung to any position. On releasing the serrations are automatically re-engaged.
Available with smooth bore.

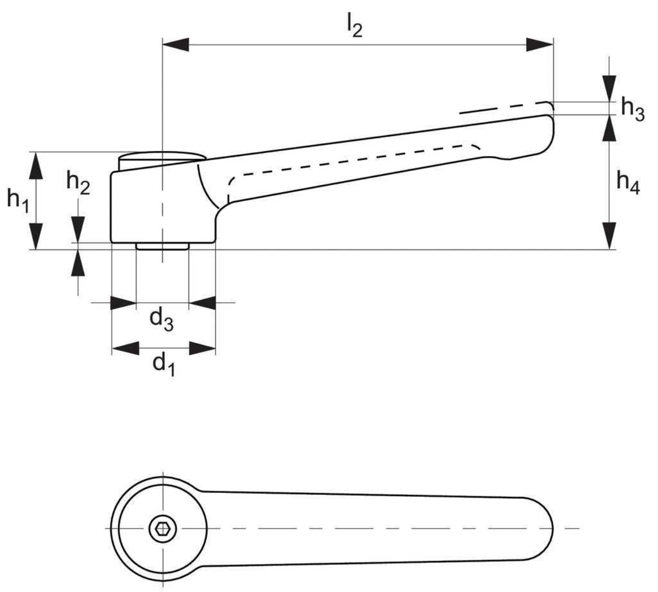
Tips
Suitable for use in restricted areas due to low height and adjustable lever.

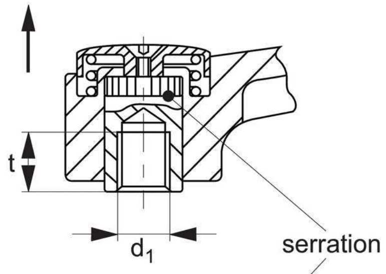
Order No.	Type, Colour	d_2	d_2 H7	l_2	d_1	d_3	h_1	h_2	h_3	h_4	t min.	g
74490.W0005	One, Black	M 8	16	120	32	16	29,5	2	2,5	41,5	14	186
74490.W0010	One, Black	M10	16	120	32	16	29,5	2	2,5	41,5	14	183
74490.W0015	One, Black	M12	16	120	32	16	29,5	2	2,5	41,5	14	179
74490.W0020	One, Black	M12	23	145	40	23	42,0	4	4,0	56,0	22	313
74490.W0025	One, Black	M16	23	145	40	23	42,0	4	4,0	56,0	22	373
74490.W0105	One, Silver	M 8	16	120	32	16	29,5	2	2,5	41,5	14	186
74490.W0110	One, Silver	M10	16	120	32	16	29,5	2	2,5	41,5	14	183
74490.W0115	One, Silver	M12	16	120	32	16	29,5	2	2,5	41,5	14	179
74490.W0120	One, Silver	M12	23	145	40	23	42,0	4	4,0	56,0	22	313
74490.W0125	One, Silver	M16	23	145	40	23	42,0	4	4,0	56,0	22	373
74490.W0050	Two, Black	-	8	120	32	16	29,5	2	2,5	41,5	14	188
74490.W0051	Two, Black	-	10	120	32	16	29,5	2	2,5	41,5	14	185
74490.W0052	Two, Black	-	12	145	40	23	42,0	4	4,0	56,0	22	387
74490.W0053	Two, Black	-	16	145	40	23	42,0	4	4,0	56,0	22	389
74490.W0150	Two, Silver	-	8	120	32	16	29,5	2	2,5	41,5	14	188
74490.W0151	Two, Silver	-	10	120	32	16	29,5	2	2,5	41,5	14	185
74490.W0152	Two, Silver	-	12	145	40	23	42,0	4	4,0	56,0	22	387
74490.W0153	Two, Silver	-	16	145	40	23	42,0	4	4,0	56,0	22	389

Adjustable Clamping Levers

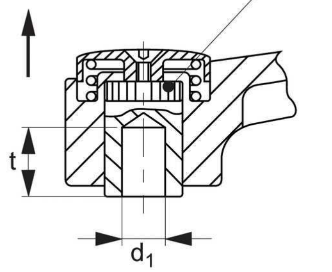
cast zinc, Inner parts stainless steel

74492





Type One - Threaded



Type Two - Smooth

Order No.	Type	d_2	d_2 H7	l_2	d_1	d_3	h_1	h_2	h_3	h_4	t min.	g
74492.W0205	One, Black	M 8	16	120	32	16	29,5	2	2,5	41,5	14	187
74492.W0210	One, Black	M10	16	120	32	16	29,5	2	2,5	41,5	14	187
74492.W0215	One, Black	M12	16	120	32	16	29,5	2	2,5	41,5	14	187
74492.W0220	One, Black	M12	23	145	40	23	42,0	4	4,0	56,0	22	390
74492.W0225	One, Black	M16	23	145	40	23	42,0	4	4,0	56,0	22	373
74492.W0305	One, Silver	M 8	16	120	32	16	29,5	2	2,5	41,5	14	187
74492.W0310	One, Silver	M10	16	120	32	16	29,5	2	2,5	41,5	14	187
74492.W0315	One, Silver	M12	16	120	32	16	29,5	2	2,5	41,5	14	187
74492.W0320	One, Silver	M12	23	145	40	23	42,0	4	4,0	56,0	22	390
74492.W0325	One, Silver	M16	23	145	40	23	42,0	4	4,0	56,0	22	373
74492.W0250	Two, Black	-	8	120	32	16	29,5	2	2,5	41,5	14	185
74492.W0255	Two, Black	-	10	120	32	16	29,5	2	2,5	41,5	14	187
74492.W0260	Two, Black	-	12	145	40	23	42,0	4	4,0	56,0	22	390
74492.W0265	Two, Black	-	16	145	40	23	42,0	4	4,0	56,0	22	367
74492.W0350	Two, Silver	-	8	120	32	16	29,5	2	2,5	41,5	14	185
74492.W0355	Two, Silver	-	10	120	32	16	29,5	2	2,5	41,5	14	187
74492.W0360	Two, Silver	-	12	145	40	23	42,0	4	4,0	56,0	22	390
74492.W0365	Two, Silver	-	16	145	40	23	42,0	4	4,0	56,0	22	367

Material

Lever: Zinc die-cast, plastic coated, matt
Black - similar to RAL 9005
Silver - similar to RAL 9006
Inner: Stainless steel
Cover: Plastic.

Technical Notes

By lifting up the lever, the serrations are disengaged and the handle can then be swung to any position. On releasing the serrations are automatically re-engaged.
Available with smooth bore.

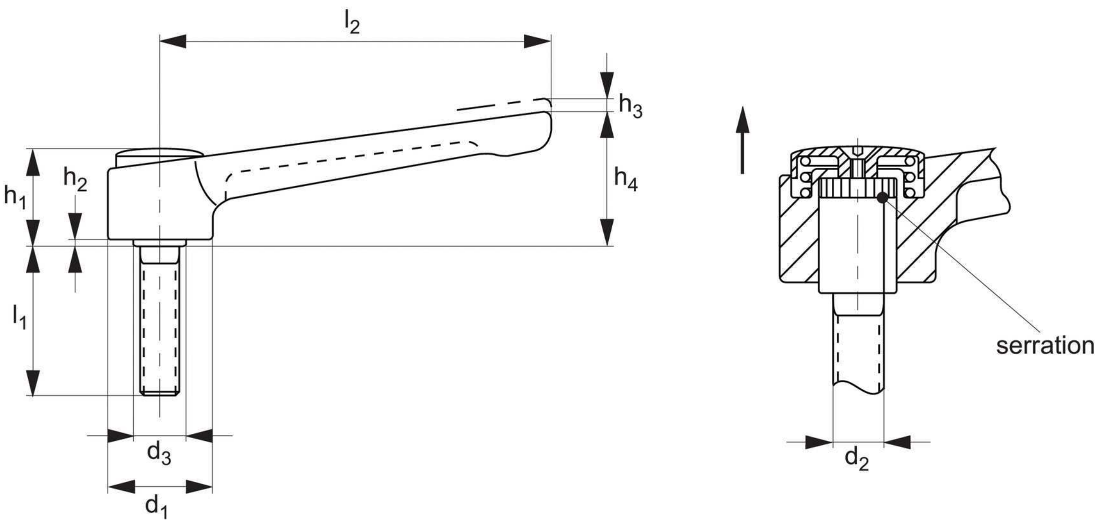
Tips

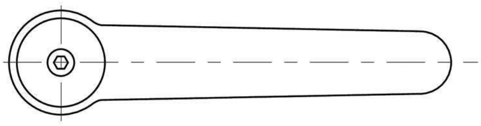
Suitable for use in restricted areas due to low height and adjustable lever.

Adjustable Clamping Levers

cast zinc, inner parts steel

74494





Order No. Black	Order No. Silver	d_1	d_2	l_1	d_3	h_1	h_2	h_3	h_4	l_2	g
74494.W0470	74494.W0870	32	M10	50	16	29,5	2	2,5	41,5	120	216
74494.W0450	74494.W0850	32	M10	20	16	29,5	2	2,5	41,5	120	202
74494.W0455	74494.W0855	32	M10	25	16	29,5	2	2,5	41,5	120	204
74494.W0460	74494.W0860	32	M10	32	16	29,5	2	2,5	41,5	120	207
74494.W0465	74494.W0865	32	M10	40	16	29,5	2	2,5	41,5	120	211
74494.W0475	74494.W0875	32	M10	63	16	29,5	2	2,5	41,5	120	222
74494.W0480	74494.W0880	32	M10	80	16	29,5	2	2,5	41,5	120	231
74494.W0485	74494.W0885	32	M12	20	16	29,5	2	2,5	41,5	120	206
74494.W0490	74494.W0890	32	M12	25	16	29,5	2	2,5	41,5	120	210
74494.W0495	74494.W0895	32	M12	32	16	29,5	2	2,5	41,5	120	215
74494.W0500	74494.W0900	32	M12	40	16	29,5	2	2,5	41,5	120	221
74494.W0505	74494.W0905	32	M12	50	16	29,5	2	2,5	41,5	120	228
74494.W0510	74494.W0910	32	M12	63	16	29,5	2	2,5	41,5	120	236
74494.W0915	74494.W0515	32	M12	80	16	29,5	2	2,5	41,5	120	248
74494.W0525	74494.W0925	40	M12	32	23	42,0	4	4,0	56,0	145	434
74494.W0530	74494.W0930	40	M12	40	23	42,0	4	4,0	56,0	145	440
74494.W0535	74494.W0935	40	M12	50	23	42,0	4	4,0	56,0	145	447
74494.W0540	74494.W0940	40	M12	63	23	42,0	4	4,0	56,0	145	455
74494.W0945	74494.W0545	40	M12	80	23	42,0	4	4,0	56,0	145	467
74494.W0550	74494.W0950	40	M16	32	23	42,0	4	4,0	56,0	145	449
74494.W0555	74494.W0955	40	M16	40	23	42,0	4	4,0	56,0	145	460
74494.W0560	74494.W0960	40	M16	50	23	42,0	4	4,0	56,0	145	472
74494.W0565	74494.W0965	40	M16	63	23	42,0	4	4,0	56,0	145	491
74494.W0570	74494.W0970	40	M16	80	23	42,0	4	4,0	56,0	145	513

Material
Lever: Zinc die-cast, plastic coated, matt
Black - similar to RAL 9005
Silver - similar to RAL 9006
Inner: Steel, blackened
Screw: Steel, blackened
Cover: Plastic.

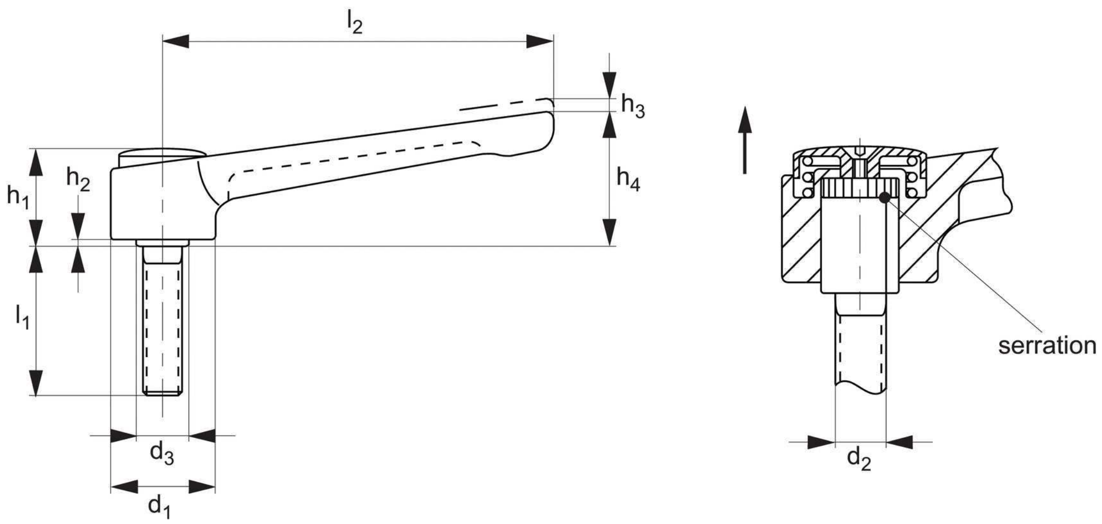
Technical Notes
By lifting up the lever, the serrations are disengaged and the handle can then be swung to any position. On releasing the serrations are automatically re-engaged. Screw part can be changed.

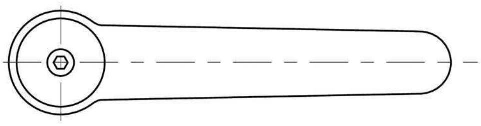
Tips
Suitable for use in restricted areas due to low height and adjustable lever.
Screw part can be changed.

Adjustable Clamping Levers

cast zinc, inner parts stainless steel

74496





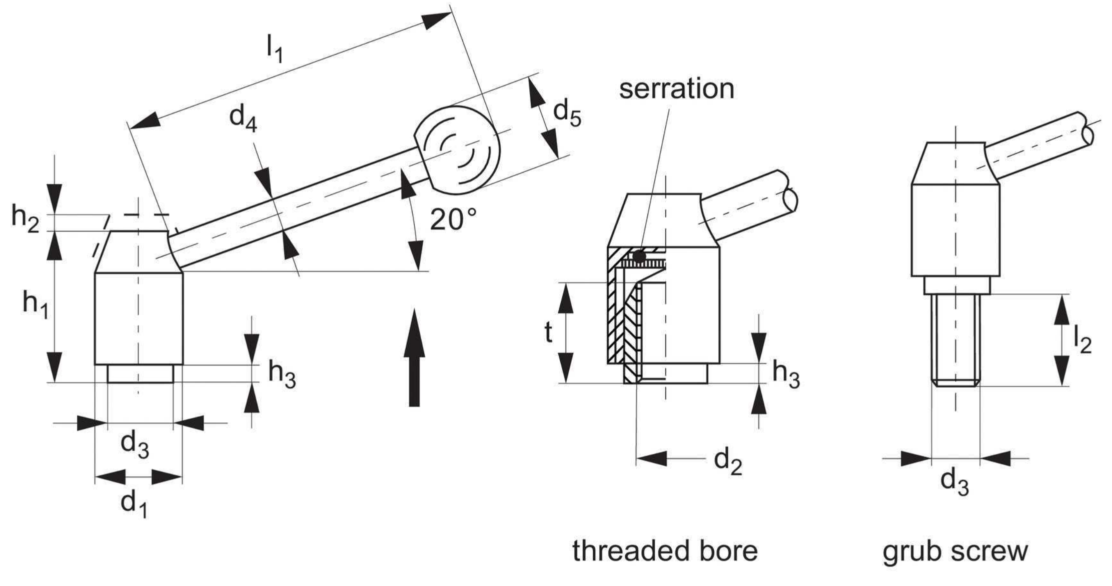
Material
Lever: Zinc die-cast, plastic coated, matt
Black - similar to RAL 9005
Silver - similar to RAL 9006
Inner: Stainless steel 1.4305
Screw: Stainless steel 1.4305
Cover: Plastic.

Technical Notes
By lifting up the lever, the serrations are disengaged and the handle can then be swung to any position. On releasing the serrations are automatically re-engaged.Screw part can be changed.

Tips
Suitable for use in restricted areas due to low height and adjustable lever.

Order No. Black	Order No. Silver	d_1	d_2	l_1	d_3	h_1	h_2	h_3	h_4	l_2	g
74496.W0670	74496.W1670	32	M10	50	16	29,5	2	2,5	41,5	120	217
74496.W0650	74496.W1650	32	M10	20	16	29,5	2	2,5	41,5	120	202
74496.W0655	74496.W1655	32	M10	25	16	29,5	2	2,5	41,5	120	204
74496.W0660	74496.W1660	32	M10	32	16	29,5	2	2,5	41,5	120	207
74496.W0665	74496.W1665	32	M10	40	16	29,5	2	2,5	41,5	120	212
74496.W0680	74496.W1680	32	M10	80	16	29,5	2	2,5	41,5	120	231
74496.W0685	74496.W1685	32	M12	20	16	29,5	2	2,5	41,5	120	206
74496.W0690	74496.W1690	32	M12	25	16	29,5	2	2,5	41,5	120	210
74496.W0695	74496.W1695	32	M12	32	16	29,5	2	2,5	41,5	120	215
74496.W0700	74496.W1700	32	M12	40	16	29,5	2	2,5	41,5	120	221
74496.W0705	74496.W1705	32	M12	50	16	29,5	2	2,5	41,5	120	228
74496.W0710	74496.W1710	32	M12	63	16	29,5	2	2,5	41,5	120	237
74496.W0715	74496.W1715	32	M12	80	16	29,5	2	2,5	41,5	120	249
74496.W0725	74496.W1725	40	M12	32	23	42,0	4	4,0	56,0	145	432
74496.W0730	74496.W1730	40	M12	40	23	42,0	4	4,0	56,0	145	440
74496.W0735	74496.W1735	40	M12	50	23	42,0	4	4,0	56,0	145	447
74496.W0740	74496.W1740	40	M12	63	23	42,0	4	4,0	56,0	145	455
74496.W0745	74496.W1745	40	M12	80	23	42,0	4	4,0	56,0	145	445
74496.W0750	74496.W1750	40	M16	32	23	42,0	4	4,0	56,0	145	449
74496.W0755	74496.W1755	40	M16	40	23	42,0	4	4,0	56,0	145	460
74496.W0760	74496.W1760	40	M16	50	23	42,0	4	4,0	56,0	145	472
74496.W0765	74496.W1765	40	M16	63	23	42,0	4	4,0	56,0	145	491
74496.W0770	74496.W1770	40	M16	80	23	42,0	4	4,0	56,0	145	513

74500



Order No.	Finish	d_1	d_2	l_2	d_3	d_4	d_5	h_1	h_2	h_3	l_1 ≈	t. min.	g
74500.W0101	Threaded Bore	21	M 6	-	13,5	8	20	33,5	4,0	1,0	70	11	91
74500.W0102	Threaded Bore	21	M 8	-	13,5	8	20	33,5	4,0	1,0	70	11	89
74500.W0201	Threaded Bore	24	M 8	-	16,0	10	25	40,0	4,5	2,5	96	14	159
74500.W0202	Threaded Bore	24	M10	-	16,0	10	25	40,0	4,5	2,5	96	14	153
74500.W0301	Threaded Bore	28	M10	-	19,0	12	30	48,5	4,5	4,5	110	17	255
74500.W0302	Threaded Bore	28	M12	-	19,0	12	30	48,5	4,5	4,5	110	17	248
74500.W0401	Threaded Bore	33	M12	-	23,0	12	32	55,0	5,5	6,0	124	23	361
74500.W0402	Threaded Bore	33	M16	-	23,0	12	32	55,0	5,5	6,0	124	23	347
74500.W0501	Threaded Bore	40	M16	-	30,0	14	35	68,0	5,5	6,0	138	36	622
74500.W0502	Threaded Bore	40	M20	-	30,0	14	35	68,0	5,5	6,0	138	36	599
74500.W0120	Grub Screw	21	M 8	12	13,5	8	20	33,5	4,0	1,0	70	-	98
74500.W0122	Grub Screw	21	M 8	16	13,5	8	20	33,5	4,0	1,0	70	-	99
74500.W0124	Grub Screw	21	M 8	20	13,5	8	20	33,5	4,0	1,0	70	-	103
74500.W0126	Grub Screw	21	M 8	25	13,5	8	20	33,5	4,0	1,0	70	-	102
74500.W0128	Grub Screw	21	M 8	32	13,5	8	20	33,5	4,0	1,0	70	-	105
74500.W0130	Grub Screw	21	M 8	40	13,5	8	20	33,5	4,0	1,0	70	-	112
74500.W0132	Grub Screw	21	M 8	50	13,5	8	20	33,5	4,0	1,0	70	-	109
74500.W0134	Grub Screw	21	M 8	63	13,5	8	20	33,5	4,0	1,0	70	-	114
74500.W0220	Grub Screw	24	M10	16	16,0	10	25	40,0	4,5	2,5	96	-	172
74500.W0222	Grub Screw	24	M10	20	16,0	10	25	40,0	4,5	2,5	96	-	173
74500.W0224	Grub Screw	24	M10	25	16,0	10	25	40,0	4,5	2,5	96	-	174
74500.W0226	Grub Screw	24	M10	32	16,0	10	25	40,0	4,5	2,5	96	-	177
74500.W0228	Grub Screw	24	M10	40	16,0	10	25	40,0	4,5	2,5	96	-	184
74500.W0230	Grub Screw	24	M10	50	16,0	10	25	40,0	4,5	2,5	96	-	185
74500.W0232	Grub Screw	24	M10	63	16,0	10	25	40,0	4,5	2,5	96	-	195
74500.W0234	Grub Screw	24	M10	80	16,0	10	25	40,0	4,5	2,5	96	-	205
74500.W0318	Grub Screw	28	M12	16	19,0	12	30	48,5	4,5	4,5	110	-	277
74500.W0320	Grub Screw	28	M12	20	19,0	12	30	48,5	4,5	4,5	110	-	282
74500.W0322	Grub Screw	28	M12	25	19,0	12	30	48,5	4,5	4,5	110	-	283
74500.W0324	Grub Screw	28	M12	32	19,0	12	30	48,5	4,5	4,5	110	-	287
74500.W0326	Grub Screw	28	M12	40	19,0	12	30	48,5	4,5	4,5	110	-	298
74500.W0328	Grub Screw	28	M12	50	19,0	12	30	48,5	4,5	4,5	110	-	302
74500.W0330	Grub Screw	28	M12	63	19,0	12	30	48,5	4,5	4,5	110	-	312
74500.W0332	Grub Screw	28	M12	80	19,0	12	30	48,5	4,5	4,5	110	-	320
74500.W0422	Grub Screw	33	M16	32	23,0	12	32	55,0	5,5	6,0	124	-	422
74500.W0424	Grub Screw	33	M16	40	23,0	12	32	55,0	5,5	6,0	124	-	439
74500.W0426	Grub Screw	33	M16	50	23,0	12	32	55,0	5,5	6,0	124	-	446
74500.W0428	Grub Screw	33	M16	63	23,0	12	32	55,0	5,5	6,0	124	-	461
74500.W0430	Grub Screw	33	M16	80	23,0	12	32	55,0	5,5	6,0	124	-	486
74500.W0520	Grub Screw	40	M20	40	30,0	14	35	68,0	5,5	6,0	138	-	772
74500.W0522	Grub Screw	40	M20	50	30,0	14	35	68,0	5,5	6,0	138	-	792
74500.W0524	Grub Screw	40	M20	63	30,0	14	35	68,0	5,5	6,0	138	-	826
74500.W0526	Grub Screw	40	M20	80	30,0	14	35	68,0	5,5	6,0	138	-	859

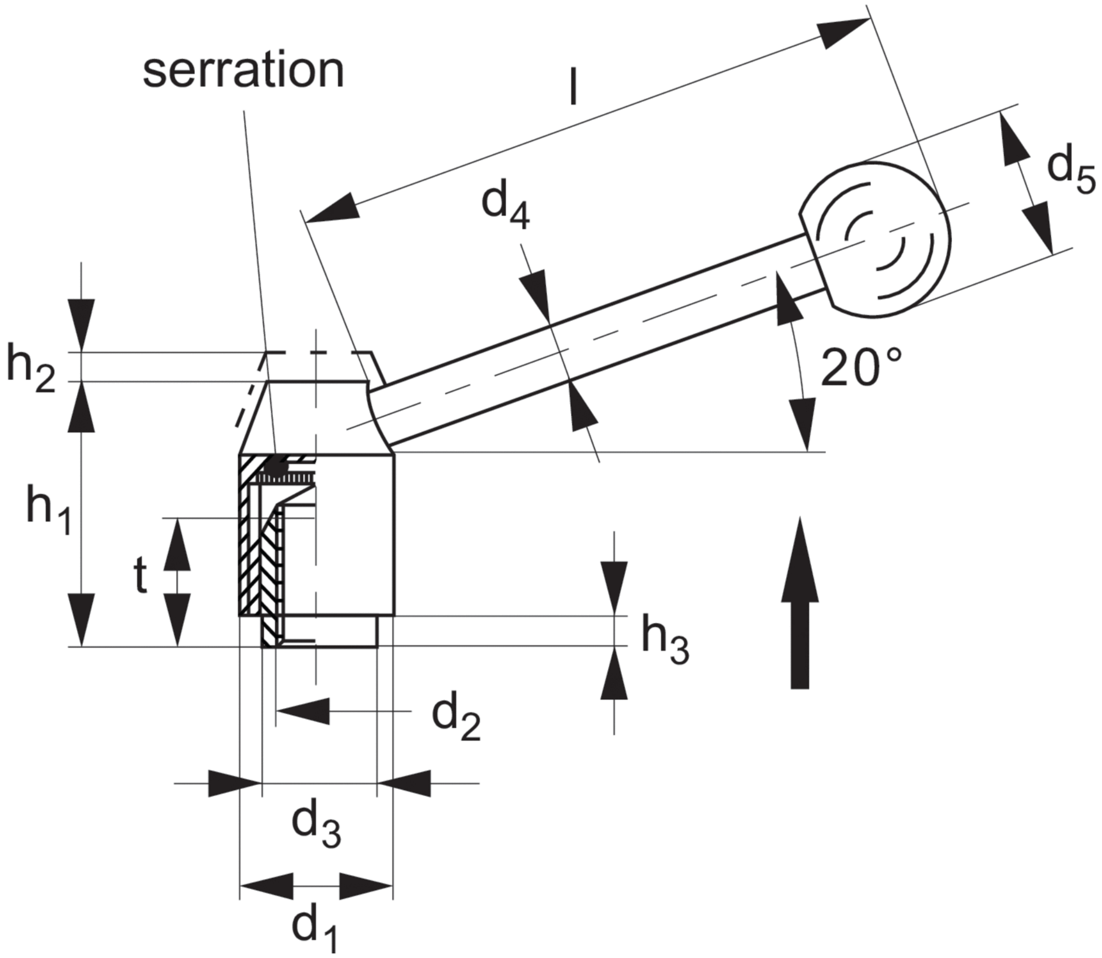
Material
Lever: free cutting steel, blackened.
Screw & inner parts: steel, quality 5.8, blackened.
Ball knob: DIN 319 plastic. (PF 31), black.

Technical Notes
By lifting up the lever, the serrations are disengaged and the handle can then be swung to any position. On releasing the serrations are automatically re-engaged.

Adjustable Clamping Lever

stainless steel - threaded bore

74520



Material

Stainless steel no. 1.4305 (AISI 303), matt shot-blasted. Ball knob DIN 319, plastic black.

Technical Notes

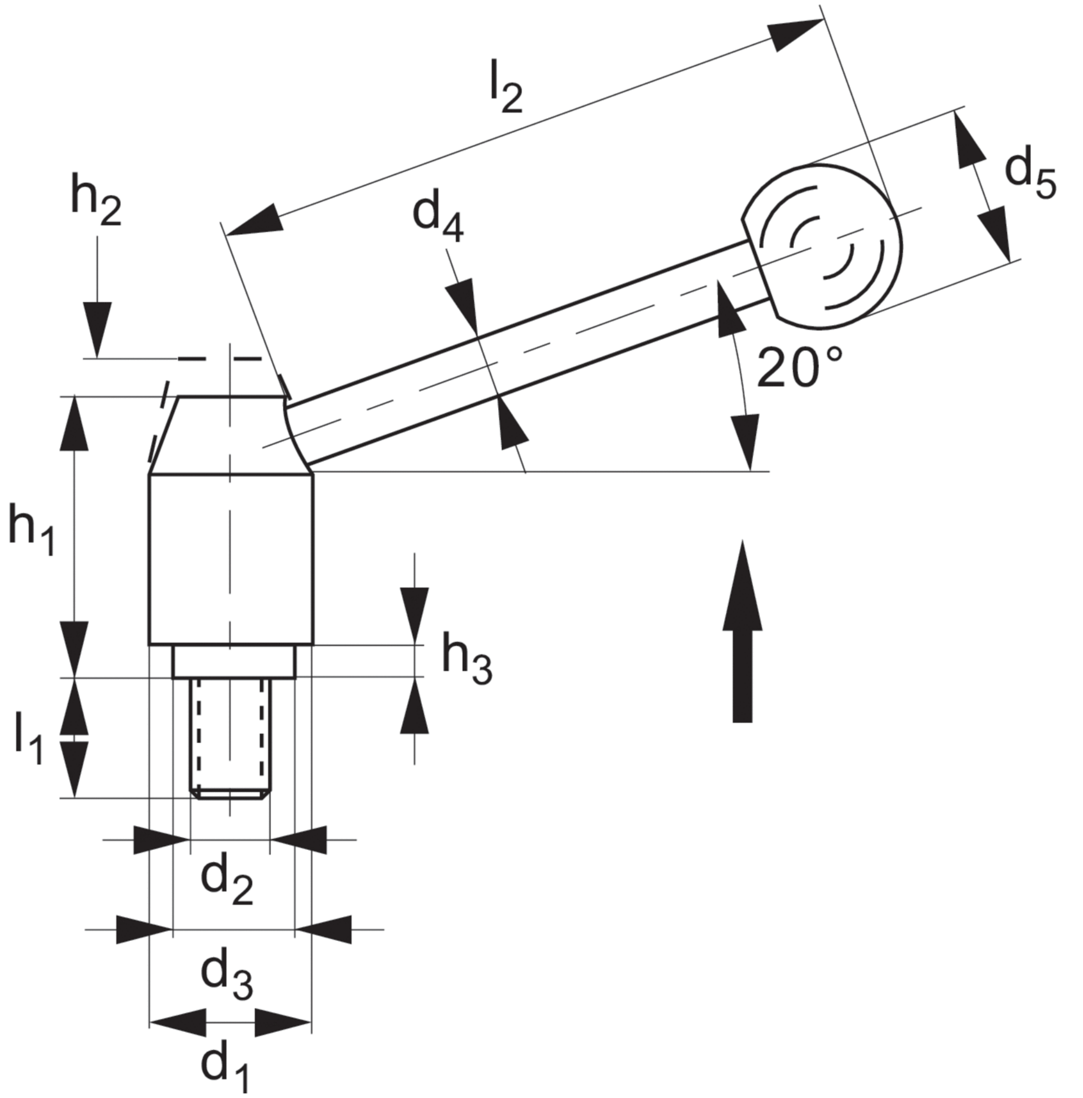
Ideal whenever parts have to be clamped in a confined space or a particular lever position is required. Pulling the lever, disengages the serrations allowing it to be swivelled to the ideal clamping position. On releasing the lever it will automatically re-engage.

Order No.	d_1	d_2	d_3	d_4	d_5	h_1	h_2	h_3	l	t min.	g
74520.W0006	21	M 6	13,5	8	20	33,5	4,0	1,0	70	11	91
74520.W0007	21	M 8	13,5	8	20	33,5	4,0	1,0	70	11	89
74520.W0008	24	M 8	16,0	10	25	40,0	4,5	2,5	96	14	159
74520.W0009	24	M10	16,0	10	25	40,0	4,5	2,5	96	14	153
74520.W0010	28	M10	19,0	12	30	48,5	4,5	4,5	110	17	255
74520.W0012	28	M12	19,0	12	30	48,5	4,5	4,5	110	17	248

Adjustable Clamping Lever

stainless steel - grub screw

74530



Material

Stainless steel no. 1.4305 (AISI 303), matt shot-blasted. Ball knob DIN 319, plastic black.

Technical Notes

Ideal whenever parts have to be clamped in a confined space or a particular lever position is required. Pulling the lever, disengages the serrations allowing it to be swivelled to the ideal clamping position. On releasing the lever it will automatically re-engage.

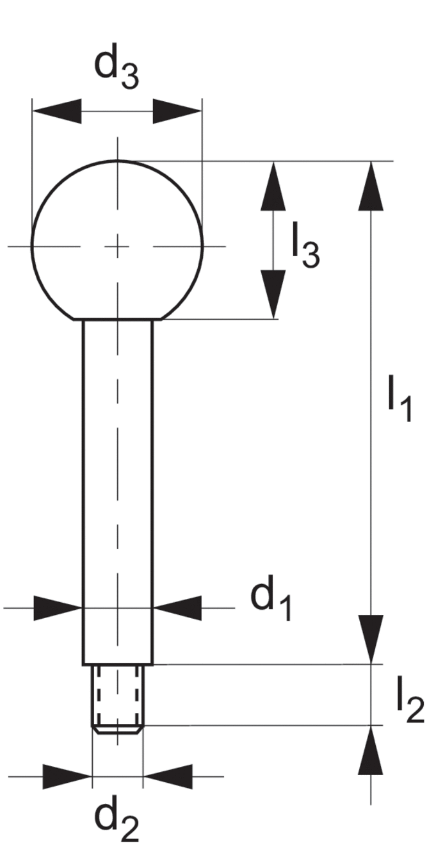
STAINLESS STEEL 303

Order No.	d_1	d_2	l_1	d_3	d_4	d_5	h_1	h_2 stroke	h_3	l_2 ≈	g
74530.W0080	21	M 8	16	13,5	8	20	33,5	4,0	1,0	70	99
74530.W0081	21	M 8	20	13,5	8	20	33,5	4,0	1,0	70	103
74530.W0082	21	M 8	25	13,5	8	20	33,5	4,0	1,0	70	102
74530.W0083	21	M 8	32	13,5	8	20	33,5	4,0	1,0	70	105
74530.W0084	21	M 8	40	13,5	8	20	33,5	4,0	1,0	70	112
74530.W0085	21	M 8	50	13,5	8	20	33,5	4,0	1,0	70	109
74530.W0086	21	M 8	63	13,5	8	20	33,5	4,0	1,0	70	114
74530.W0100	24	M10	20	16,0	10	25	40,0	4,5	2,5	96	173
74530.W0101	24	M10	25	16,0	10	25	40,0	4,5	2,5	96	174
74530.W0102	24	M10	32	16,0	10	25	40,0	4,5	2,5	96	177
74530.W0103	24	M10	40	16,0	10	25	40,0	4,5	2,5	96	184
74530.W0104	24	M10	50	16,0	10	25	40,0	4,5	2,5	96	185
74530.W0105	24	M10	63	16,0	10	25	40,0	4,5	2,5	96	195
74530.W0106	24	M10	80	16,0	10	25	40,0	4,5	2,5	96	205
74530.W0120	28	M12	25	19,0	12	30	48,5	4,5	4,5	110	283
74530.W0121	28	M12	32	19,0	12	30	48,5	4,5	4,5	110	287
74530.W0122	28	M12	40	19,0	12	30	48,5	4,5	4,5	110	298
74530.W0123	28	M12	50	19,0	12	30	48,5	4,5	4,5	110	302
74530.W0124	28	M12	63	19,0	12	30	48,5	4,5	4,5	110	312
74530.W0125	28	M12	80	19,0	12	30	48,5	4,5	4,5	110	320

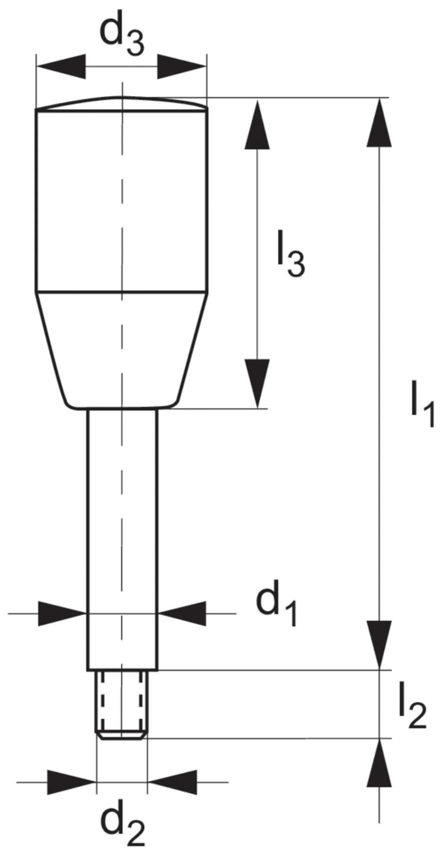
Gear Lever Handles

steel or stainless steel

74600



ball knob



cylindrical handle

Material

Shafts: steel,galavanized, passivated or stainless steel 1.4305 (AISI 303) - matt finish.
Temperature range 110°C.
Knobs: plastic, duroplast PF 31.

Technical Notes

Temperature range up to 110°C

STAINLESS STEEL 303

Order No.	Type	d_1	d_2	d_3	l_1	l_2	l_3	g
74600.W0020	Steel Shaft - Ball	8	M 6	20	63	9	18,0	30
74600.W0022	Steel Shaft - Ball	8	M 6	20	100	9	18,0	39
74600.W0025	Steel Shaft - Ball	10	M 8	25	80	11	22,5	50
74600.W0026	Steel Shaft - Ball	10	M 8	25	100	11	22,5	62
74600.W0027	Steel Shaft - Ball	10	M 8	25	125	11	22,5	76
74600.W0032	Steel Shaft - Ball	12	M10	32	100	14	29,0	96
74600.W0033	Steel Shaft - Ball	12	M10	32	125	14	29,0	118
74600.W0034	Steel Shaft - Ball	12	M10	32	160	14	29,0	146
74600.W0035	Steel Shaft - Ball	14	M12	35	125	16	32,5	157
74600.W0036	Steel Shaft - Ball	14	M12	35	160	16	32,5	203
74600.W0037	Steel Shaft - Ball	14	M12	35	200	16	32,5	251
74600.W0040	Steel Shaft - Ball	16	M14	40	160	18	37,0	310
74600.W0041	Steel Shaft - Ball	16	M14	40	200	18	37,0	326
74600.W0042	Steel Shaft - Ball	16	M14	40	250	18	37,0	397
74600.W0520	Stainless Shaft - Ball	8	M 6	20	63	9	18,0	30
74600.W0522	Stainless Shaft - Ball	8	M 6	20	100	9	18,0	44
74600.W0525	Stainless Shaft - Ball	10	M 8	25	80	11	22,5	55
74600.W0526	Stainless Shaft - Ball	10	M 8	25	100	11	22,5	63
74600.W0527	Stainless Shaft - Ball	10	M 8	25	125	11	22,5	78
74600.W0530	Stainless Shaft - Ball	12	M10	32	100	14	29,0	97
74600.W0531	Stainless Shaft - Ball	12	M10	32	125	14	29,0	120
74600.W0532	Stainless Shaft - Ball	12	M10	32	160	14	29,0	154
74600.W0535	Stainless Shaft - Ball	14	M12	35	125	16	32,5	159
74600.W0536	Stainless Shaft - Ball	14	M12	35	160	16	32,5	202
74600.W0537	Stainless Shaft - Ball	14	M12	35	200	16	32,5	250
74600.W0120	Steel Shaft - Taper	8	M 6	18	63	9	40,0	26
74600.W0122	Steel Shaft - Taper	8	M 6	18	100	9	40,0	42
74600.W0125	Steel Shaft - Taper	10	M 8	21	80	11	50,0	50
74600.W0126	Steel Shaft - Taper	10	M 8	21	100	11	50,0	62
74600.W0127	Steel Shaft - Taper	10	M 8	21	125	11	50,0	78
74600.W0130	Steel Shaft - Taper	12	M10	23	100	14	65,0	81
74600.W0131	Steel Shaft - Taper	12	M10	23	125	14	65,0	103

Gear Lever Handles

steel or stainless steel

74600

Order No.	Type	d_1	d_2	d_3	l_1	l_2	l_3	g
74600.W0132	Steel Shaft - Taper	12	M10	23	160	14	65,0	133
74600.W0135	Steel Shaft - Taper	14	M12	26	125	16	80,0	125
74600.W0136	Steel Shaft - Taper	14	M12	26	160	16	80,0	168
74600.W0137	Steel Shaft - Taper	14	M12	26	200	16	80,0	216
74600.W0140	Steel Shaft - Taper	16	M14	28	160	18	90,0	214
74600.W0141	Steel Shaft - Taper	16	M14	28	200	18	90,0	273
74600.W0142	Steel Shaft - Taper	16	M14	28	250	18	90,0	352
74600.W0620	Stainless Shaft - Taper	8	M 6	18	63	9	40,0	27
74600.W0622	Stainless Shaft - Taper	8	M 6	18	80	9	40,0	33
74600.W0624	Stainless Shaft - Taper	8	M 6	18	100	9	40,0	41
74600.W0630	Stainless Shaft - Taper	10	M 8	21	80	11	50,0	50
74600.W0632	Stainless Shaft - Taper	10	M 8	21	100	11	50,0	62
74600.W0634	Stainless Shaft - Taper	10	M 8	21	125	11	50,0	78
74600.W0640	Stainless Shaft - Taper	12	M10	23	100	14	65,0	81
74600.W0642	Stainless Shaft - Taper	12	M10	23	125	14	65,0	103
74600.W0644	Stainless Shaft - Taper	12	M10	23	160	14	65,0	133
74600.W0650	Stainless Shaft - Taper	14	M12	26	125	16	80,0	125
74600.W0652	Stainless Shaft - Taper	14	M12	26	160	16	80,0	168
74600.W0654	Stainless Shaft - Taper	14	M12	26	200	16	80,0	216

Material

Shafts: steel,galavanized, passivated or stainless steel 1.4305 (AISI 303) - matt finish.
Temperature range 110°C.
Knobs: plastic, duroplast PF 31.

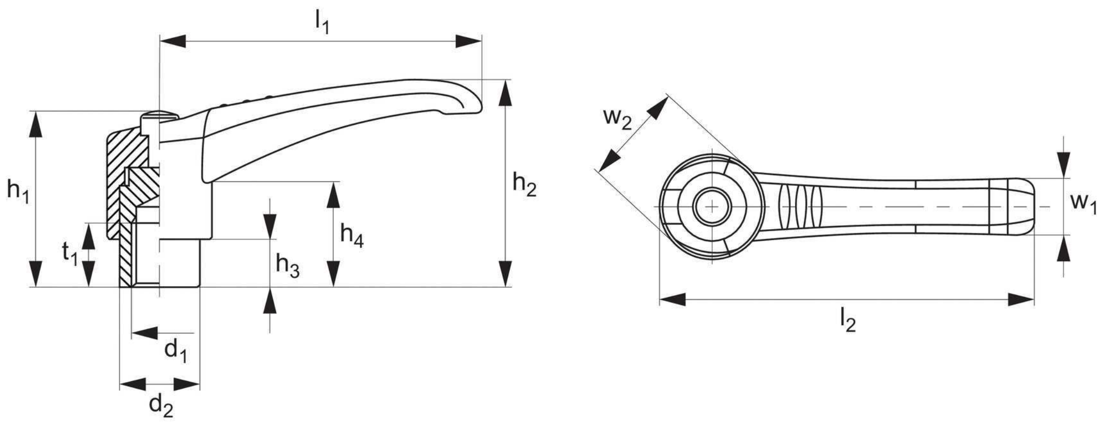
Technical Notes

Temperature range up to 110°C

Adjustable Clamping Levers

threaded insert

74760



Order No.	l_1	d_1	l_2	d_2	h_1	h_2	h_3	h_4	t_1	w_1	w_2	g
74760.W0452	45	M 5	53	12	30	33,5	7,5	18	8	10,5	16	22
74760.W0453	45	M 6	53	12	30	33,5	7,5	18	8	10,5	16	24
74760.W0652	65	M 6	75	15	35	41,0	7,5	19	11	13,5	20	26
74760.W0653	65	M 8	75	15	35	41,0	7,5	19	11	13,5	20	24
74760.W0801	80	M 8	92	20	45	53,0	12,0	26	16	16,5	24	55
74760.W0802	80	M10	92	20	45	53,0	12,0	26	16	16,5	24	56
74760.W0803	80	M12	92	20	45	53,0	12,0	26	16	16,5	24	57
74760.W0951	95	M12	108	21	50	61,0	13,0	30	22	19,0	27	83
74760.W0952	95	M14	108	21	50	61,0	13,0	30	22	19,0	27	94
74760.W0953	95	M16	108	21	50	61,0	13,0	30	22	19,0	27	89

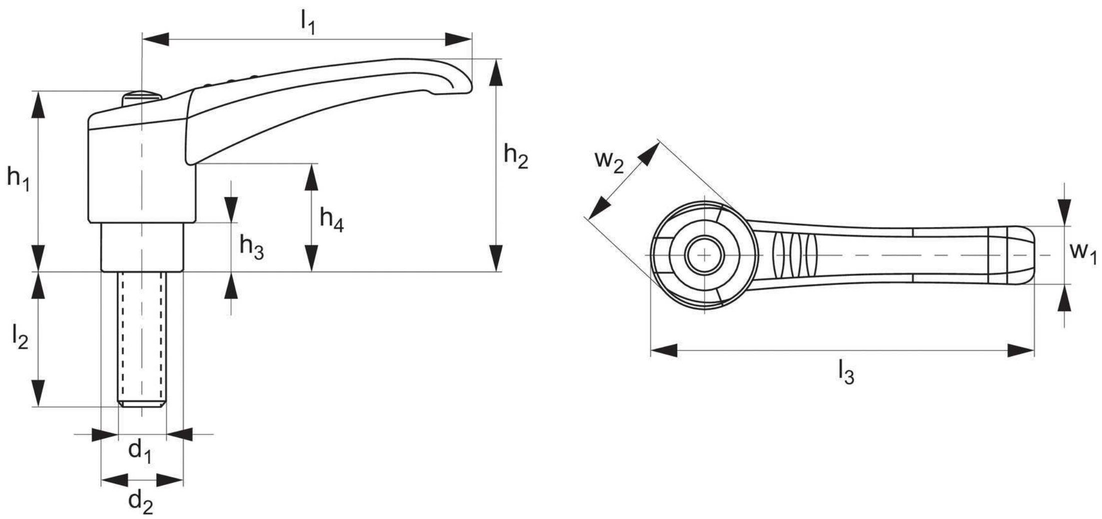
Material
Black, matt thermoplast, reinforced.
Insert: zinc plated steel.
Button: black.

Important Notes
Other button colours available on request subject to minimum quantities.

TP

Adjustable Clamping Levers
with grub screw

74780



Order No.	l_1	d_1	l_2	d_2	l_3	h_1	h_2	h_3	h_4	w_1	w_2	g
74780.W0452	45	M 5	20	12	53	29	33,5	7,5	18	10,5	16	19
74780.W0453	45	M 5	30	12	53	29	33,5	7,5	18	10,5	16	20
74780.W0455	45	M 6	20	12	53	29	33,5	7,5	18	10,5	16	20
74780.W0651	65	M 6	20	15	75	34	41,0	7,5	19	13,5	20	30
74780.W0652	65	M 6	40	15	75	34	41,0	7,5	19	13,5	20	33
74780.W0653	65	M 8	20	15	75	34	41,0	7,5	19	13,5	20	35
74780.W0654	65	M 8	30	15	75	34	41,0	7,5	19	13,5	20	38
74780.W0655	65	M 8	40	15	75	34	41,0	7,5	19	13,5	20	44
74780.W0801	80	M 8	30	20	92	44	53,0	12,0	26	16,5	24	61
74780.W0802	80	M 8	40	20	92	44	53,0	12,0	26	16,5	24	78
74780.W0803	80	M 8	50	20	92	44	53,0	12,0	26	16,5	24	81
74780.W0804	80	M10	20	20	92	44	53,0	12,0	26	16,5	24	74
74780.W0805	80	M10	40	20	92	44	53,0	12,0	26	16,5	24	85
74780.W0806	80	M10	50	20	92	44	53,0	12,0	26	16,5	24	89
74780.W0807	80	M12	40	20	92	44	53,0	12,0	26	16,5	24	101
74780.W0808	80	M12	50	20	92	44	53,0	12,0	26	16,5	24	108
74780.W0951	95	M12	50	21	108	50	61,0	13,0	30	19,0	27	139
74780.W0952	95	M12	70	21	108	50	61,0	13,0	30	19,0	27	154
74780.W0953	95	M14	40	21	108	50	61,0	13,0	30	19,0	27	150
74780.W0954	95	M14	50	21	108	50	61,0	13,0	30	19,0	27	166
74780.W0955	95	M16	50	21	108	50	61,0	13,0	30	19,0	27	193
74780.W0956	95	M16	60	21	108	50	61,0	13,0	30	19,0	27	220

Material
Black, matt thermoplast, reinforced.
Insert, zinc plated steel.
Button: black.

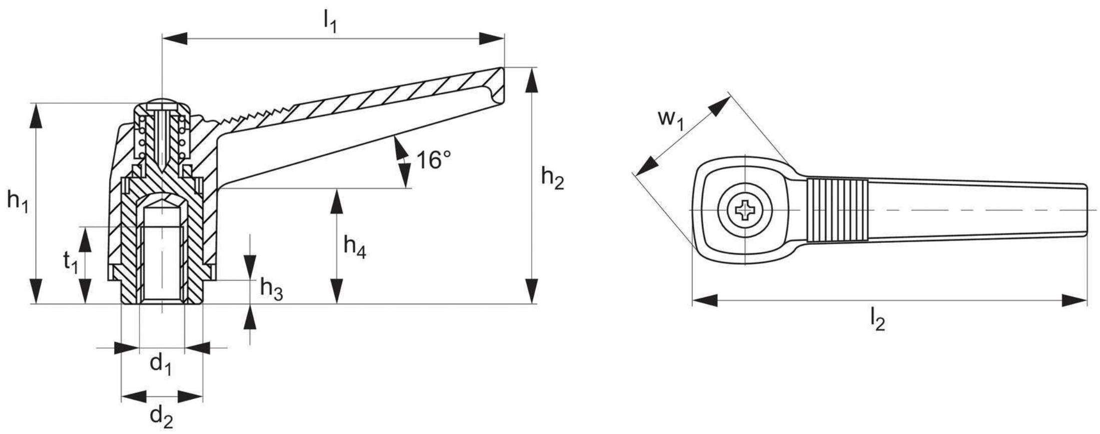
Important Notes
Other button colours available on request subject to minimum quantities.

TP

Adjustable Clamping Levers

threaded inserts

74800



Material
Black, matt thermoplastic, reinforced. Brass insert.

Technical Notes
Special size and colours available on request, subject to minimum order quantity.

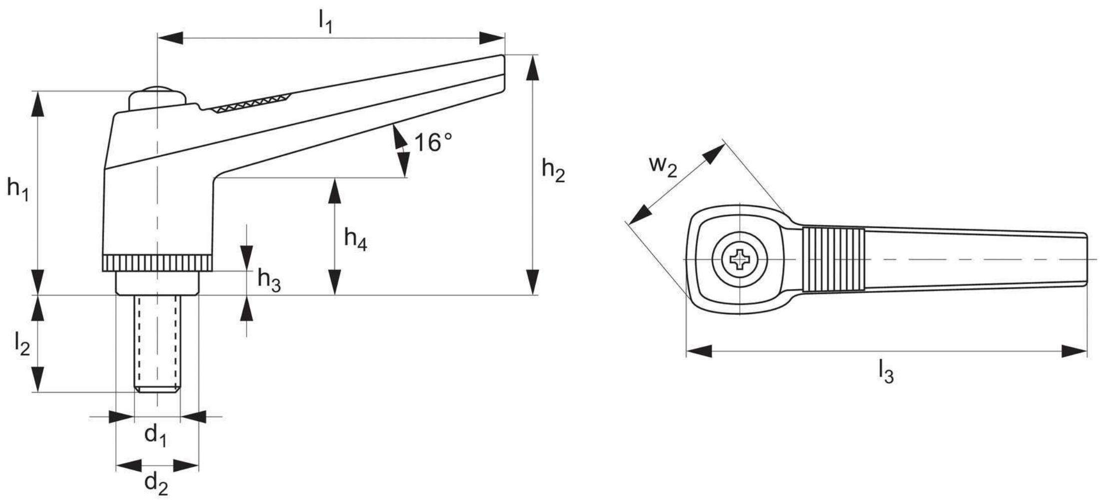
TP

Order No.	l_1	d_1	l_2	d_2	h_1	h_2	h_3	h_4	t_1	w_1	g
74800.W0421	42	M 4	50	12	29	32	3	17	9	19	11
74800.W0422	42	M 5	50	12	29	32	3	17	9	19	11
74800.W0423	42	M 6	50	12	29	32	3	17	9	19	11
74800.W0631	63	M 5	73	15	39	43	4	21	13	25	23
74800.W0632	63	M 6	73	15	39	43	4	21	13	25	23
74800.W0633	63	M 8	73	15	39	43	4	21	13	25	24
74800.W0801	80	M 8	92	19	48	54	6	27	15	30	44
74800.W0802	80	M10	92	19	48	54	6	27	16	30	44
74800.W0803	80	M12	92	19	48	54	6	27	18	30	45
74800.W0901	100	M12	115	25	58	66	8	30	18	36	83
74800.W0902	100	M14	115	25	58	66	8	30	20	36	84
74800.W0903	100	M16	115	25	58	66	8	30	20	36	87

Adjustable Clamping Levers

grub screw

74820



Order No.	l_1	d_1	l_2	d_2	h_1	h_2	h_3	h_4	l_3	w_2	g
74820.W0541	42	M 4	20	12	29	32	3	17	50	19	11
74820.W0542	42	M 5	20	12	29	32	3	17	50	19	13
74820.W0543	42	M 5	30	12	29	32	3	17	50	19	14
74820.W0544	42	M 6	20	12	29	32	3	17	50	19	15
74820.W0545	42	M 6	30	12	29	32	3	17	50	19	16
74820.W0560	63	M 5	20	15	39	43	4	21	73	25	24
74820.W0561	63	M 6	20	15	39	43	4	21	73	25	28
74820.W0562	63	M 6	25	15	39	43	4	21	73	25	25
74820.W0563	63	M 6	40	15	39	43	4	21	73	25	31
74820.W0564	63	M 8	20	15	39	43	4	21	73	25	33
74820.W0565	63	M 8	25	15	39	43	4	21	73	25	34
74820.W0566	63	M 8	30	15	39	43	4	21	73	25	36
74820.W0567	63	M 8	40	15	39	43	4	21	73	25	38
74820.W0568	63	M 8	50	15	39	43	4	21	73	25	39
74820.W0580	80	M 8	20	19	48	54	6	27	92	30	48
74820.W0581	80	M 8	30	19	48	54	6	27	92	30	51
74820.W0582	80	M 8	40	19	48	54	6	27	92	30	55
74820.W0583	80	M 8	50	19	48	54	6	27	92	30	58
74820.W0584	80	M10	25	19	48	54	6	27	92	30	58
74820.W0585	80	M10	40	19	48	54	6	27	92	30	66
74820.W0586	80	M10	50	19	48	54	6	27	92	30	71
74820.W0587	80	M10	60	19	48	54	6	27	92	30	78
74820.W0588	80	M12	30	19	48	54	6	27	92	30	82
74820.W0589	80	M12	60	19	48	54	6	27	92	30	102
74820.W0600	100	M12	40	25	58	66	8	30	115	36	120
74820.W0601	100	M12	50	25	58	66	8	30	115	36	126
74820.W0602	100	M12	70	25	58	66	8	30	115	36	149
74820.W0603	100	M14	40	25	58	66	8	30	115	36	146
74820.W0604	100	M14	50	25	58	66	8	30	115	36	162
74820.W0605	100	M14	70	25	58	66	8	30	115	36	181
74820.W0606	100	M16	40	25	58	66	8	30	115	36	170
74820.W0607	100	M16	50	25	58	66	8	30	115	36	184
74820.W0608	100	M16	70	25	58	66	8	30	115	36	210

Material

Black, thermoplastic, glass fibre reinforced. Zinc plated steel stud.

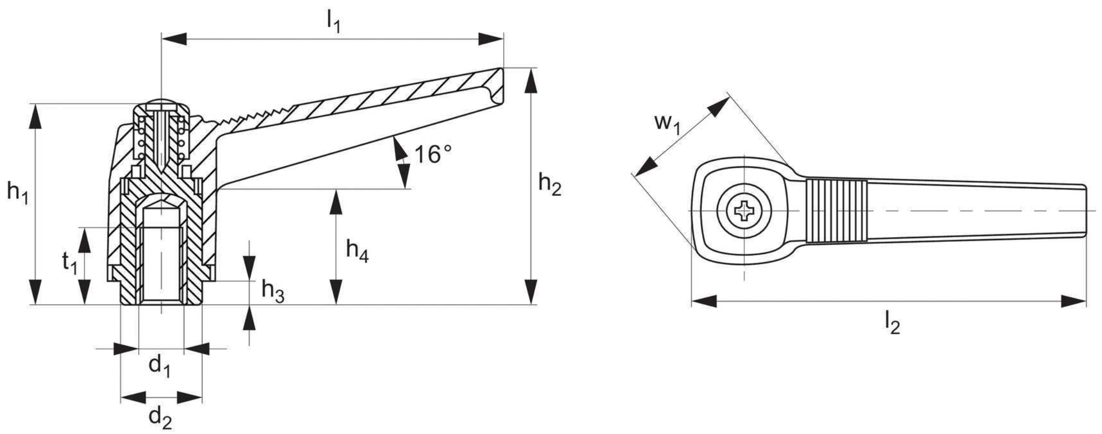
Technical Notes

Special size and colours available on request, subject to minimum order quantity.

Adjustable Clamping Levers

threaded insert, stainless steel insert

74830



Order No.	l_1	d_1	l_2	d_2	h_1	h_2	h_3	h_4	w_1	t_1	g
74830.W0423	42	M 6	50	12	29	32	3	17	19	9	11
74830.W0633	63	M 8	73	15	39	43	4	21	25	13	24
74830.W0802	80	M10	92	19	48	54	6	27	30	16	44

Material
Black, matt thermoplastic, reinforced.
Stainless steel insert.

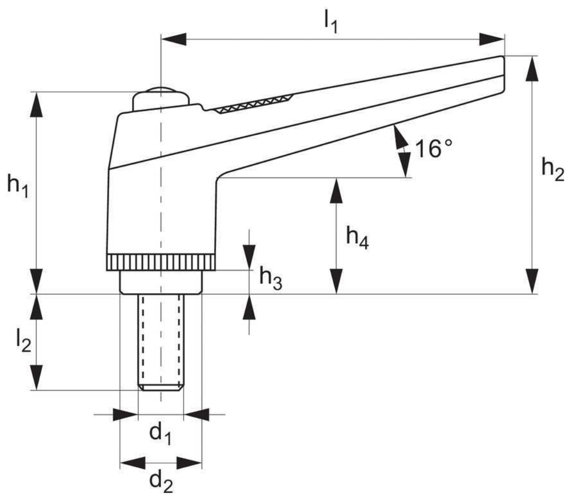
Technical Notes
For certain minimum quantities, colours are available on request.

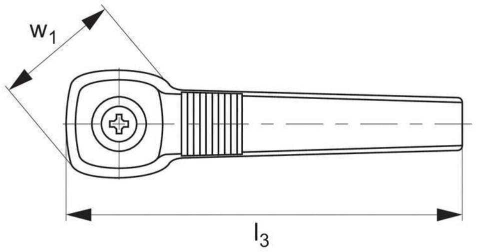
TP STAINLESS STEEL 303

Adjustable Clamping Levers

stainless steel thread - grub screw

74840





Order No.	l_1	d_1	l_2	d_2	h_1	h_2	h_3	h_4	l_3	w_1	g
74840.W0420	42	M 6	20	12	29	32	3	17	50	19	15
74840.W0430	42	M 6	30	12	29	32	3	17	50	19	16
74840.W0620	63	M 8	20	15	39	43	4	21	73	25	33
74840.W0625	63	M 8	25	15	39	43	4	21	73	25	34
74840.W0630	63	M 8	30	15	39	43	4	21	73	25	36
74840.W0825	80	M10	25	19	48	54	6	27	92	30	58
74840.W0830	80	M10	30	19	48	54	6	27	92	30	61

Material

Black, matt thermoplastic with stainless steel thread AISI 303 (1.4305).

Technical Notes

Special colours available on request, subject to minimum order quantity.

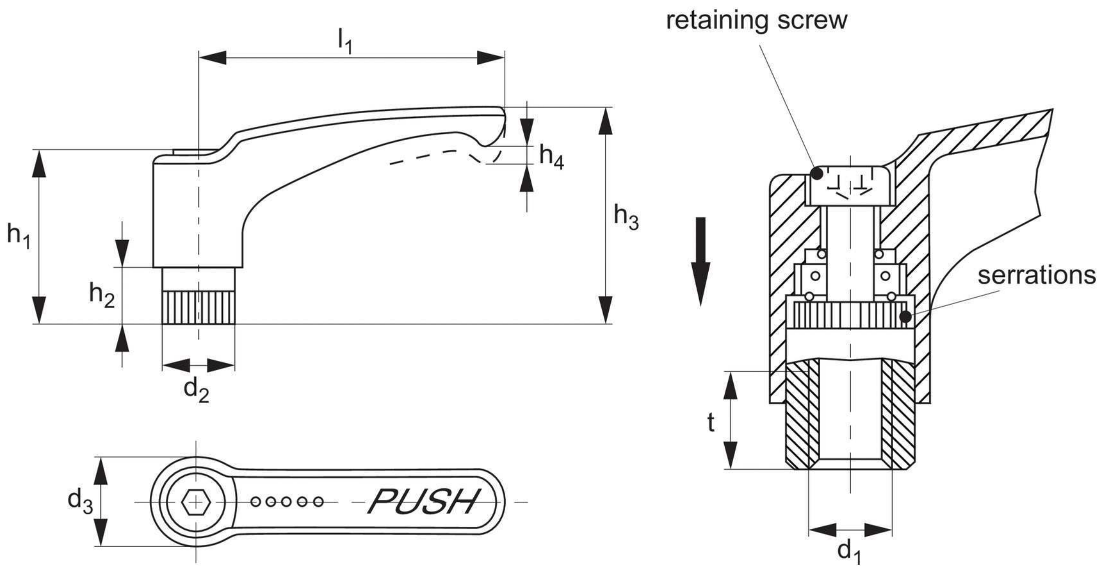
TP

STAINLESS STEEL 303

Free Running Safety Clamping Lever, Threaded Insert

free-running when not engaged

74860



Order No.	l_1	d_1	d_2	d_3	h_1	h_2	h_3	h_4 Stroke	t min.	g
74860.W0041	44	M 4	12	15,5	29	9	36	3,5	10	14
74860.W0042	44	M 5	12	15,5	29	9	36	3,5	10	13
74860.W0043	44	M 6	12	15,5	29	9	36	3,5	10	12
74860.W0061	63	M 6	15	19,0	37	12	48	4,0	13	25
74860.W0062	63	M 8	15	19,0	37	12	48	4,0	13	24

Material

Plastic technopolymer (polyamide PA) glass fibre reinforced, black.
Inner parts: steel, blackened embedded in black plastic.

Tips

Unique Safety Handle.
When not in use, the lever is not engaged with threaded insert, i.e. the adjustable lever turns freely.
As soon as the lever hub is pushed down, both serrations will engage, allowing the fixture to be released or clamped.
After "releasing", the lever disengages through spring tension.

Important Notes

Used where accidental loosening or readjustment can result in accidents.
Temperature resistant to +130°c.

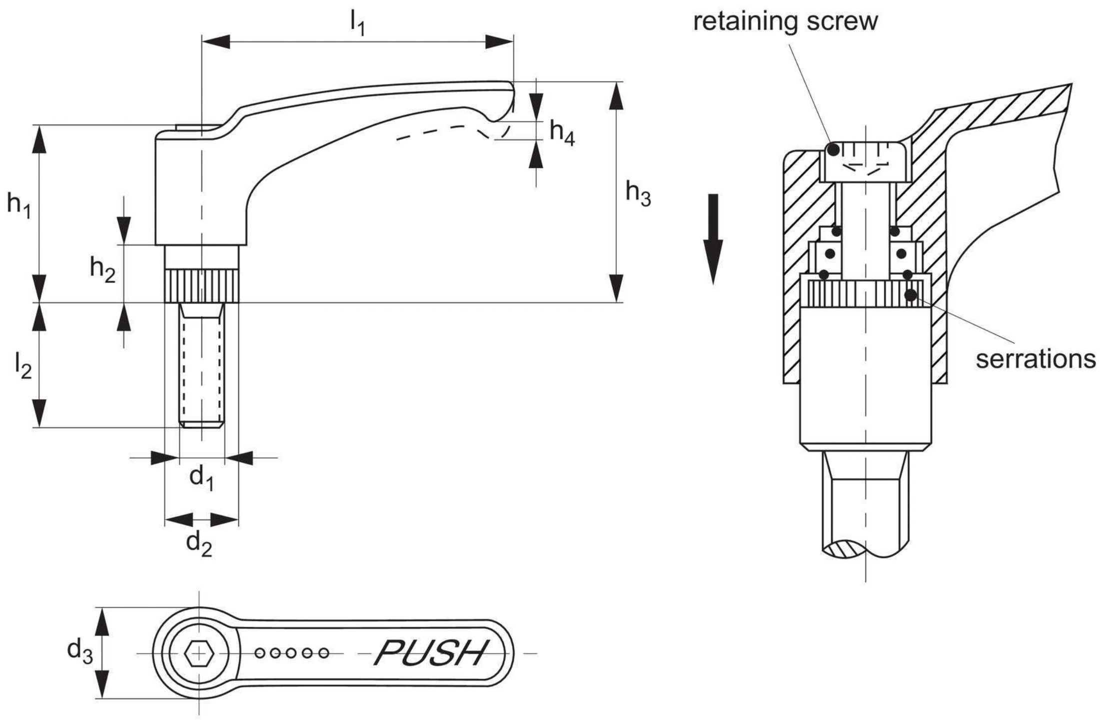
SAFETY HANDLE

PA

Free Running Safety Clamping Lever, Grub Screw

free-running when not engaged

74880



Order No.	l_1	d_1	l_2	d_2	d_3	h_1	h_2	h_3	h_4 Stroke	g
74880.W0061	44	M 6	16	12	15,5	29	9	36	3,5	18
74880.W0062	44	M 6	25	12	15,5	29	9	36	3,5	21
74880.W0081	63	M 8	20	15	19,0	37	12	48	4,0	38
74880.W0082	63	M 8	30	15	19,0	37	12	48	4,0	43

Material

Plastic technopolymer (polyamide PA) glass fibre reinforced, black.
Inner parts: steel, blackened embedded in black plastic.

Tips

Unique Safety Handle.
When not in use, the lever is not engaged with threaded insert, i.e. the adjustable lever turns freely.
As soon as the lever hub is pushed down, both serrations will engage, allowing the fixture to be released or clamped.
After "releasing", the lever disengages through spring tension.

Important Notes

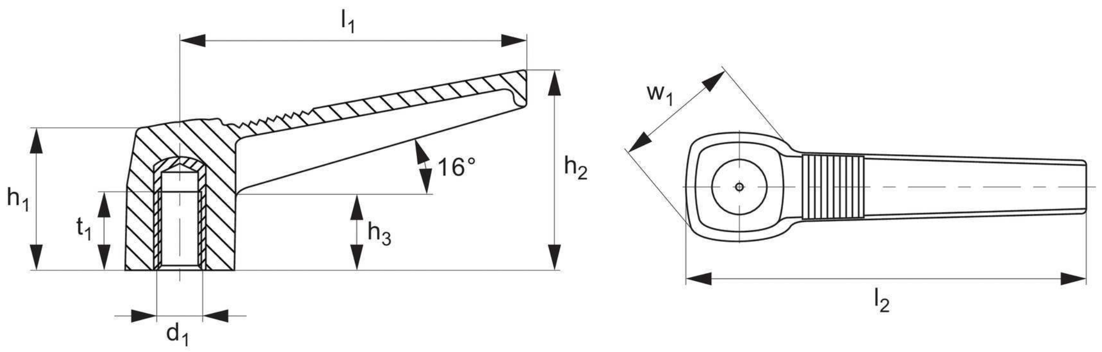
Used where accidental loosening or readjustment can result in accidents.
Temperature resistant to +130°C.

SAFETY HANDLE PA

Clamping Levers

threaded insert

74960



Material

Matt black, thermoplastic, glass fibre reinforced. Brass insert.

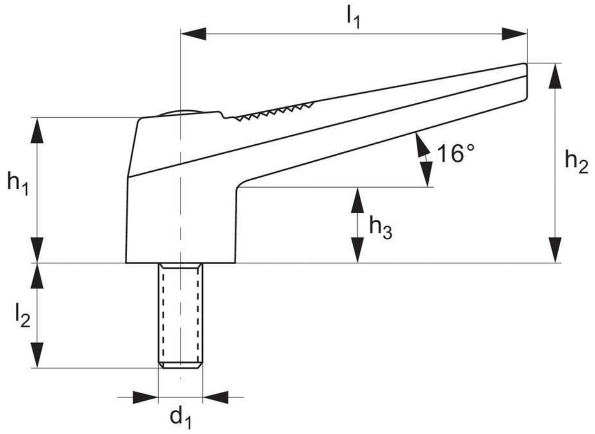
Technical Notes

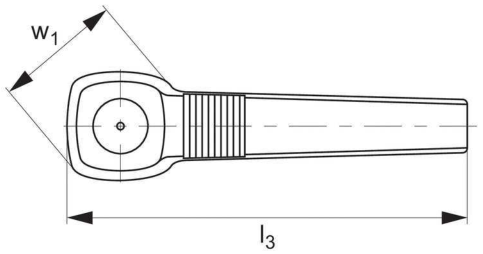
Special size and colours available on request, subject to minimum order quantity.

TP

Order No.	l_1	d_1	h_1	h_2	h_3	l_2	t_1	w_1	g
74960.W0041	42	M 5	20	25	11	50	9	19	8
74960.W0042	42	M 6	20	25	11	50	9	19	8
74960.W0063	63	M 6	26	35	14	73	13	25	20
74960.W0064	63	M 8	26	35	14	73	13	25	20
74960.W0080	80	M 8	33	45	17	92	15	30	37
74960.W0081	80	M10	33	45	17	92	16	30	38
74960.W0082	80	M12	39	45	17	92	18	30	33
74960.W0100	100	M12	39	55	18	115	18	36	68
74960.W0101	100	M14	39	55	18	36	20	115	72
74960.W0102	100	M16	39	55	18	115	20	36	76

74970





Order No.	l_1	d_1	l_2	l_3	h_1	h_2	h_3	w_1	g
74970.W0041	42	M 6	15	50	20	25	11	19	11
74970.W0042	42	M 6	20	50	20	25	11	19	12
74970.W0063	63	M 8	25	73	26	35	14	25	30
74970.W0080	80	M 8	20	92	33	45	17	30	52
74970.W0081	80	M10	30	92	33	45	17	30	57
74970.W0100	100	M12	50	115	39	55	18	36	121

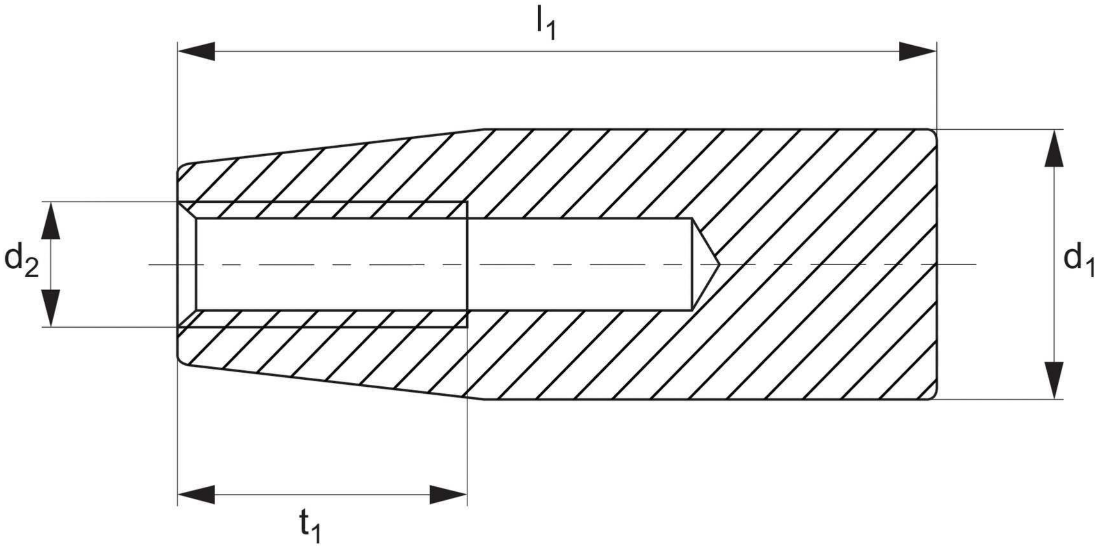
Material
Thermoplastic, black, matt, glass fibre reinforced. Zinc plated steel stud.

Technical Notes
Special size and colours available on request, subject to minimum order quantity.

TP

Cylindrical Handles
moulded thread

75010



Material
Duroplast, black, moulded thread.

Technical Notes
Special sizes and colours available on request, subject to minimum order quantity.

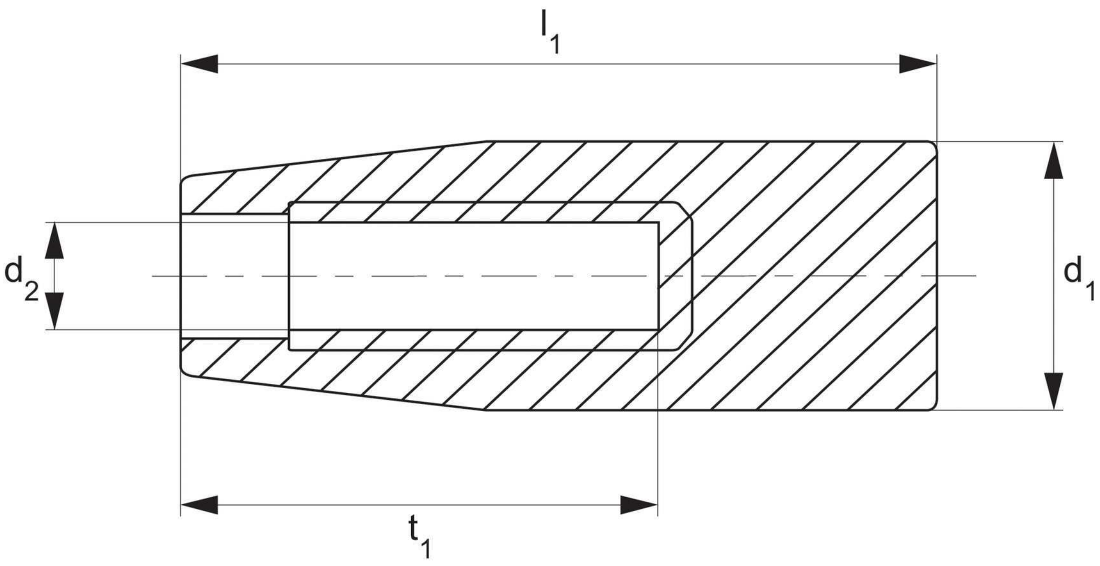
PF

Order No.	d_1	d_2	l_1	t_1	g
75010.W0013	13	M 5	27	14	4
75010.W0014	13	M 6	27	14	4
75010.W0017	17	M 6	40	20	9
75010.W0018	17	M 8	40	25	8
75010.W0021	21	M 6	50	25	20
75010.W0022	21	M 8	50	25	19
75010.W0023	21	M10	50	25	18
75010.W0025	25	M 8	65	30	36
75010.W0026	25	M10	65	30	35
75010.W0027	25	M12	65	30	34
75010.W0028	28	M 8	85	40	61
75010.W0029	28	M10	85	40	59
75010.W0030	28	M12	85	40	56
75010.W0031	28	M14	85	40	52

Cylindrical Handles Self Locking

plain bore

75012



Material

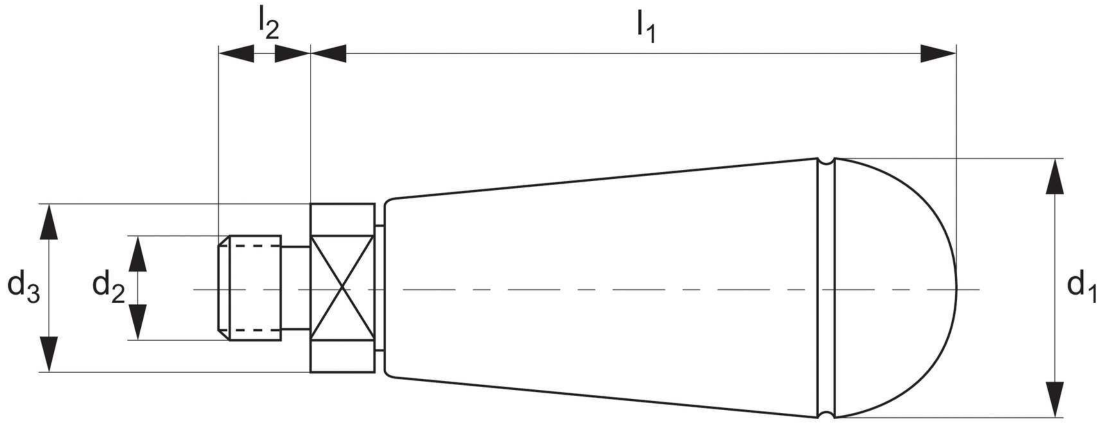
Phenolic plastic, black.

Technical Notes

Special sizes and colours available on request, subject to minimum order quantity.

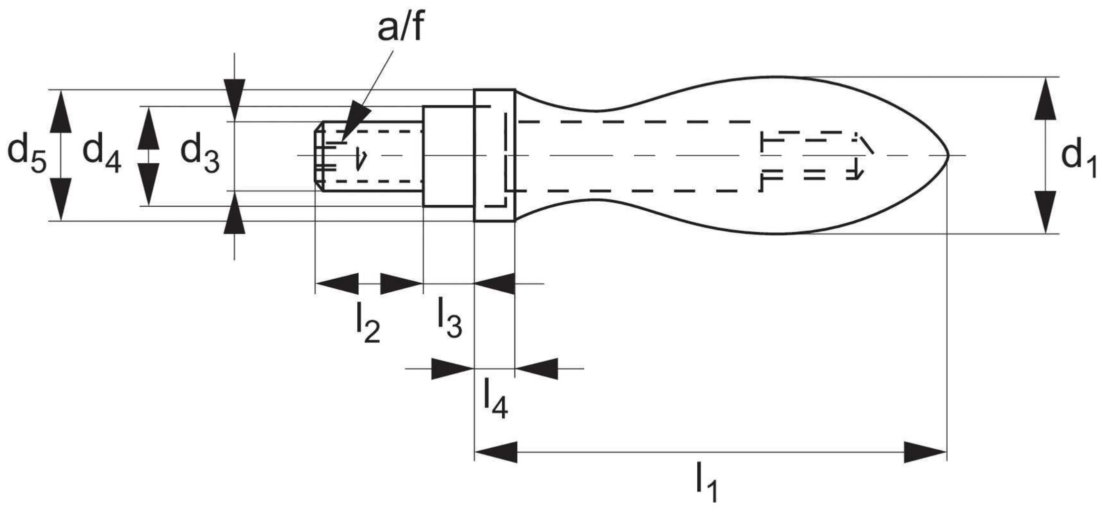
Order No.	d_1	d_2	l_1	t_1	g
75012.W1705	17	5	40	21	9
75012.W1706	17	6	40	21	9
75012.W2108	21	8	50	28	20
75012.W2110	21	10	50	28	18
75012.W2308	23	8	55	28	27
75012.W2310	23	10	55	28	25
75012.W2510	25	10	65	30	36
75012.W2512	25	12	65	30	35
75012.W2812	28	12	85	45	58
75012.W2814	28	14	85	45	55
75012.W2912	29	12	115	45	89
75012.W2914	29	14	115	45	84

75020

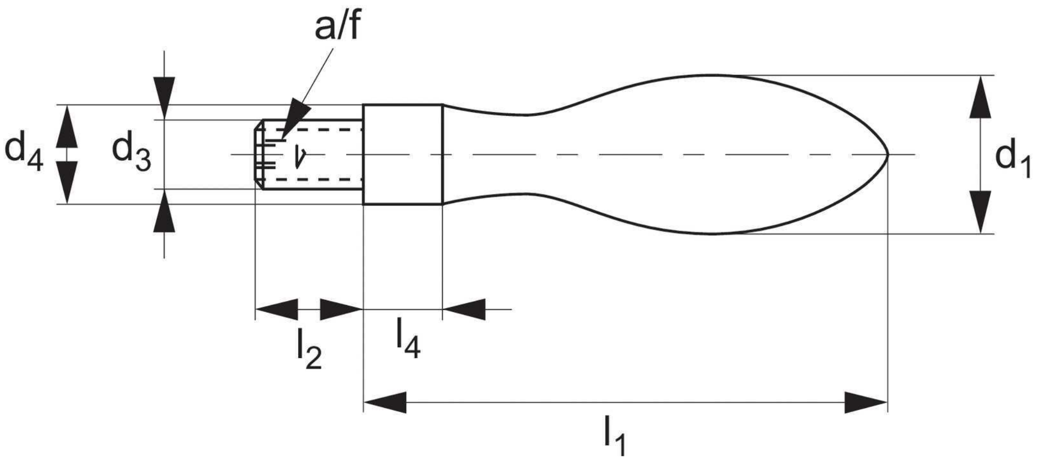


Material
Black, duroplast, with zinc plated steel stud.

Order No.	d_1	d_2	l_1	l_2	d_3	g
75020.W0025	25	M 8	61	10	16	52
75020.W0026	25	M10	61	10	16	55
75020.W0032	32	M10	75	13	20	110
75020.W0033	32	M12	75	13	20	114



rotating



fixed

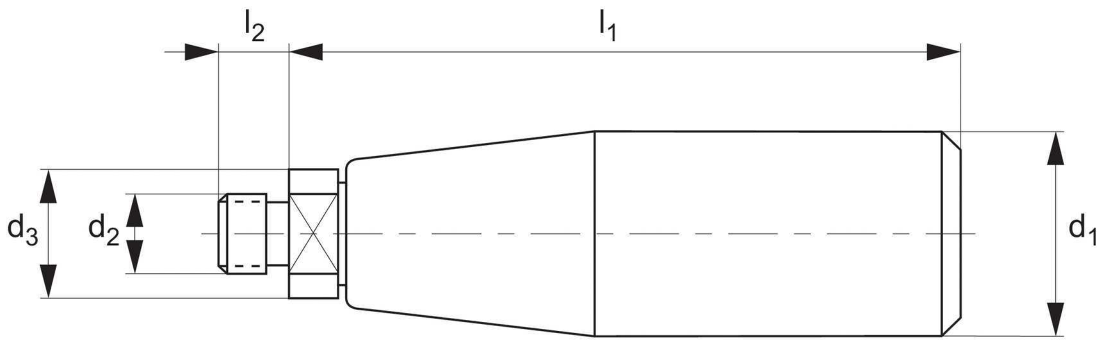
Material
Steel, turned, zinc coated by galvanization, passivated.

Order No.	Type	d_1	d_3	d_4 h13	d_5	l_1 ≈	l_2	l_3	l_4	a/f	g
75060.W0116	Rotating	16	M 6	10	14	49	11	5,5	5,0	3	51
75060.W0120	Rotating	20	M 8	13	18	61	13	6,0	6,0	4	101
75060.W0125	Rotating	25	M10	16	21	75	14	8,0	6,5	5	193
75060.W0132	Rotating	32	M12	20	26	95	21	10,5	8,0	6	387
75060.W0136	Rotating	36	M16	22	29	106	26	11,0	9,0	8	566
75060.W0216	Fixed	16	M 6	10	-	50	11	-	7,0	3	43
75060.W0220	Fixed	20	M 8	13	-	64	13	-	8,0	4	88
75060.W0225	Fixed	25	M10	16	-	80	14	-	10,0	5	175
75060.W0232	Fixed	32	M12	20	-	100	21	-	13,0	6	346
75060.W0236	Fixed	36	M16	22	-	112	26	-	14,0	8	509
75060.W0316	Stainless	16	M 6	10	-	50	11	-	7,0	-	45
75060.W0320	Stainless	20	M 8	13	-	64	13	-	8,0	-	92
75060.W0325	Stainless	25	M10	16	-	80	14	-	10,0	-	186

Revolving Handles

cylindrical

75100



Order No.	d_1	d_2	l_1	l_2	d_3
75100.W0117	17	M 6	45	8	12
75100.W0118	17	M 8	45	8	12
75100.W0121	21	M 8	56	10	16
75100.W0122	21	M10	56	10	16
75100.W0125	25	M 8	71	13	18
75100.W0126	25	M10	71	13	18
75100.W0128	28	M10	92	13	20
75100.W0129	28	M12	92	13	20

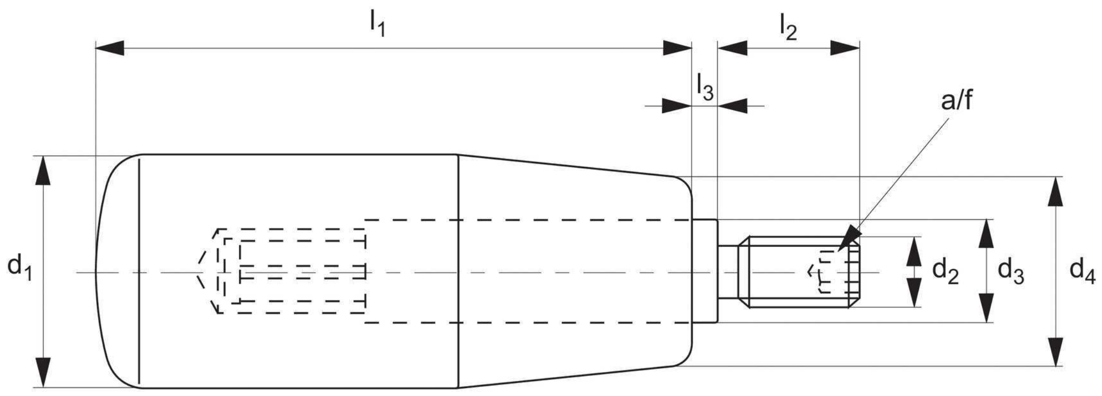
Material

Black, duroplast. Zinc plated steel stud.

Technical Notes

Special sizes and colours available on request, subject to minimum order quantity.

PF



Order No.	d_1	d_2	d_3	d_4	l_1	l_2	l_3	a/f	g
75120.W0014	14	M 6	8	11	28	10	0,5	3	13
75120.W0018	18	M 6	10	15	40	12	2,5	3	29
75120.W0020	21	M 6	10	17	50	13	2,5	3	42
75120.W0022	22	M 6	10	18	56	13	2,5	3	47
75120.W0023	23	M 8	13	19	65	14	2,5	4	79
75120.W0026	26	M 8	13	21	80	16	2,5	4	106
75120.W0031	31	M12	14	25	102	20	2,5	6	178
75120.W0120	21	M 8	10	17	50	13	2,5	4	43
75120.W0122	22	M 8	10	18	56	13	2,5	4	48
75120.W0028	28	M10	13	22	90	16	2,5	5	126
75120.W0123	23	M10	13	19	65	14	2,5	5	80
75120.W0126	26	M10	13	21	80	16	2,5	5	108

Material

Grip: duroplast PF 31, black matte.
75120.W0014 - Thermoplastic (PA).
Stud & housing: steel, galvanised.

Technical Notes

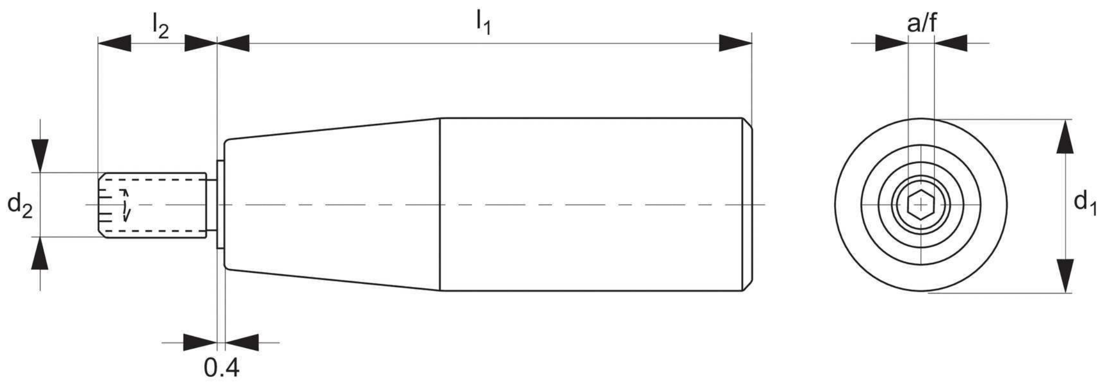
Temperature range up to 80°C.

PF

+110°

Rotating Handles

stainless steel



Order No.	d_1	d_2	l_1	l_2	a/f	g
75130.W0017	17	M 6	40	13	3	18
75130.W0020	21	M 6	50	13	3	35
75130.W0023	23	M 8	55	14	4	49
75130.W0025	25	M 8	65	15	4	73
75130.W0027	28	M 8	85	15	4	106
75130.W0028	28	M10	85	17	5	110

Material

Grip: duroplast PF 31, black matt.
Stud & housing: stainless steel, AISI 303.

Technical Notes

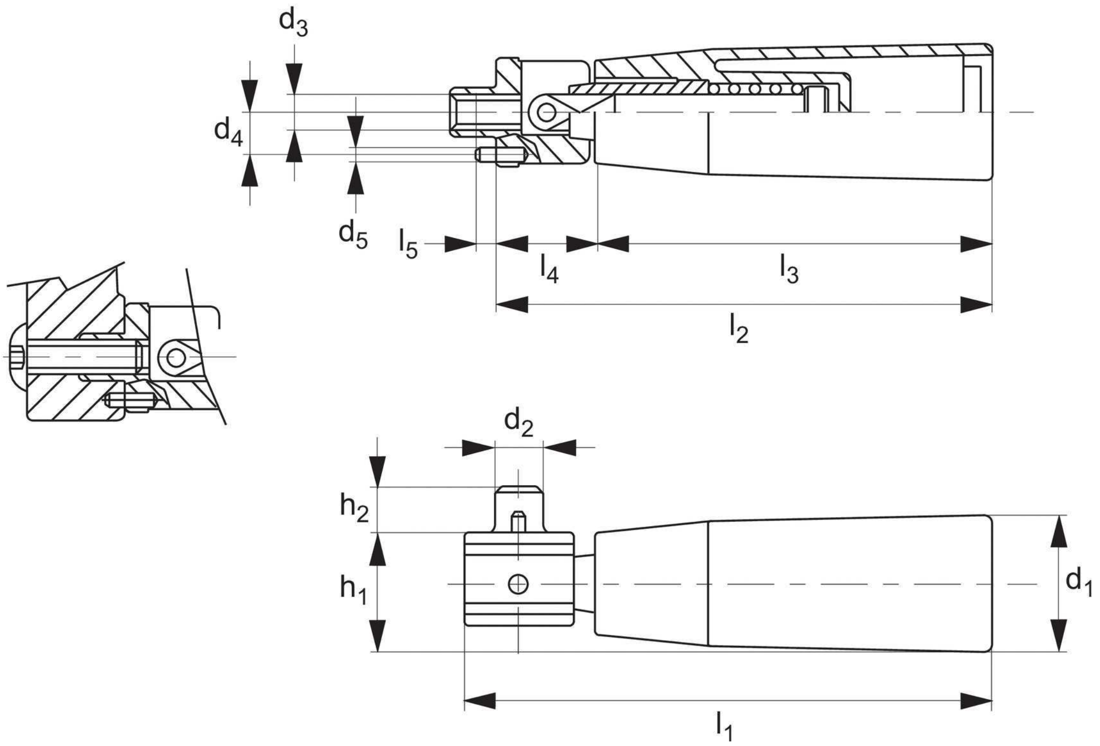
Temperature range 110°C. For certain minimum quantities custom colours available upon request.

PF

STAINLESS STEEL 303

Rotating Handles
fold-away type, stainless steel

75150



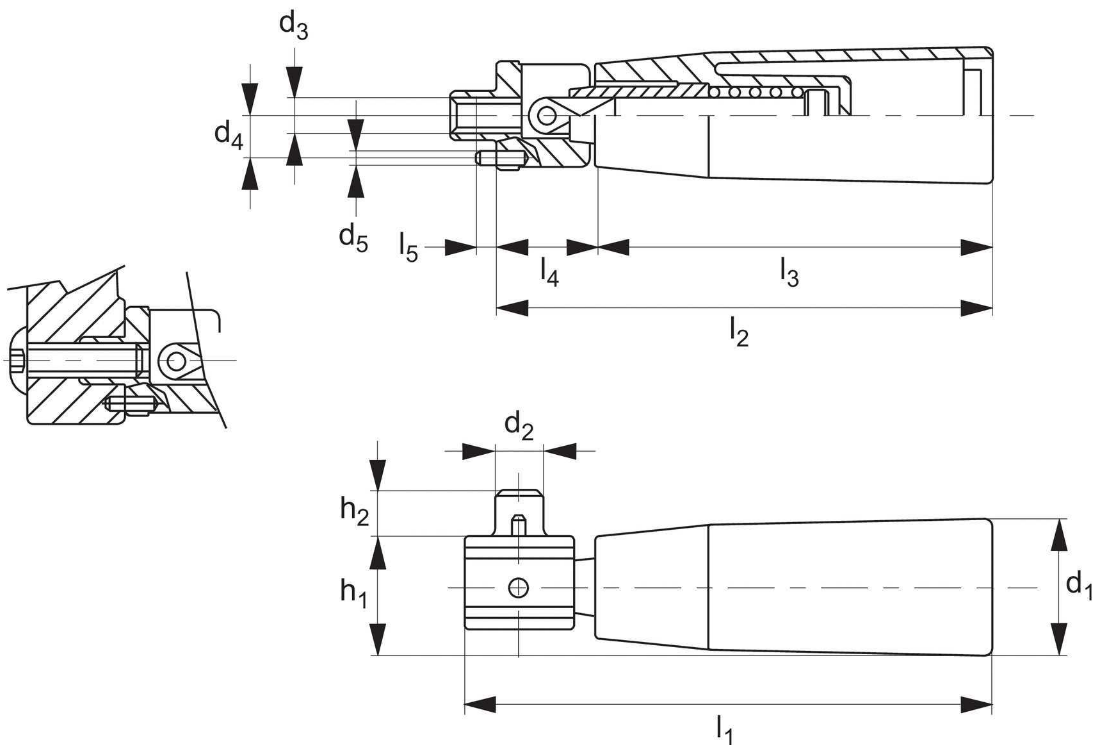
Order No. Steel	Order No. Stainless	d_1	d_2	d_3	l_1	l_2	d_4	d_5	h_1	h_2	l_3	l_4	l_5	g
75150.W0021	75150.W0521	21	7	M 5	69	66,5	6,3	2,5	19	8	50	16,5	4	55
75150.W0023	75150.W0523	23	8	M 6	92	86,5	7,5	2,5	21	8	70	16,5	4	67
75150.W0026	75150.W0526	26	8	M 6	114	110,0	7,5	2,5	24	10	90	20,0	4	102

Material
Steel Type: Grip: thermoplastic, black, matt.
Stud & housing: steel, chrome plated.
Stainless Type: Grip: thermoplastic, black, matte.
Stud & housing: stainless steel, AISI 303.
With retractable mechanism.

Technical Notes
Fold-away handles are ideal for applications where, due to lack of space or for safety, the handle must be folded down and out of the way. Handle spring loaded for quick return. For certain minimum quantities custom colours available upon request.

TP

75160



Material
Thermoplastic, black, matt. Steel stud and zinc plated steel retractable mechanism.

Technical Notes
Fold-away handles are ideal for applications where, due to lack of space or for safety, the handle must be folded down and out of the way. Handle spring loaded for quick return. For certain minimum quantities custom colours available upon request.

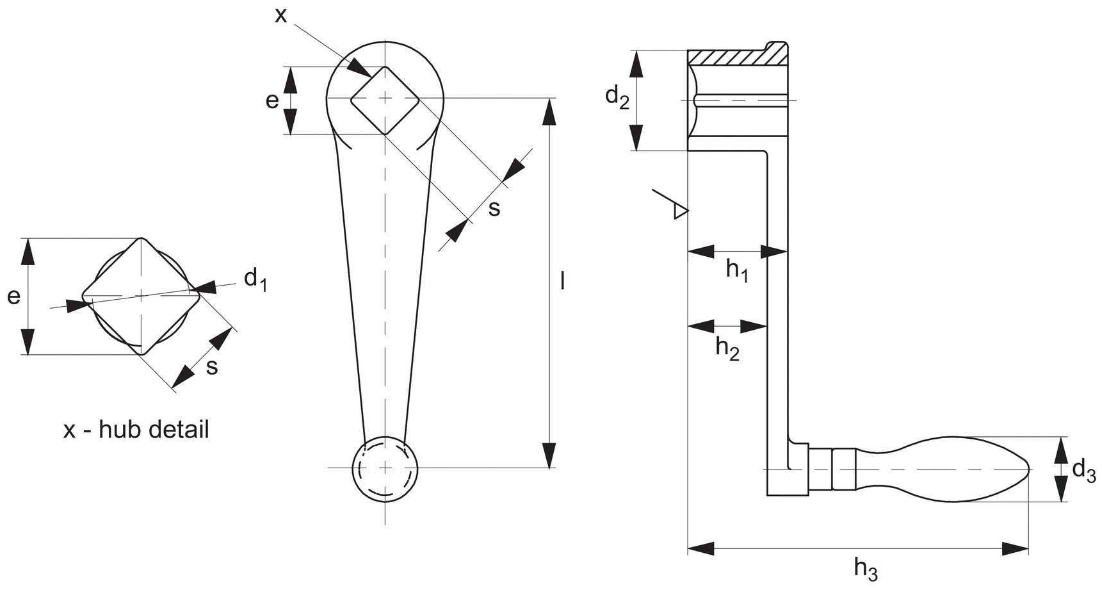
TP

Order No.	d_1	d_2	d_3	l_1	l_2	d_4	d_5	h_1	h_2	l_3	l_4	l_5	g
75160.W0021	21	7	M 5	63	57	6,3	2,5	27	8	50	7	4	46
75160.W0023	23	8	M 5	84	77	7,5	2,5	29	8	70	7	4	63
75160.W0024	26	8	M 6	107	97	7,5	2,5	32	10	90	7	4	105

Cranked Handles

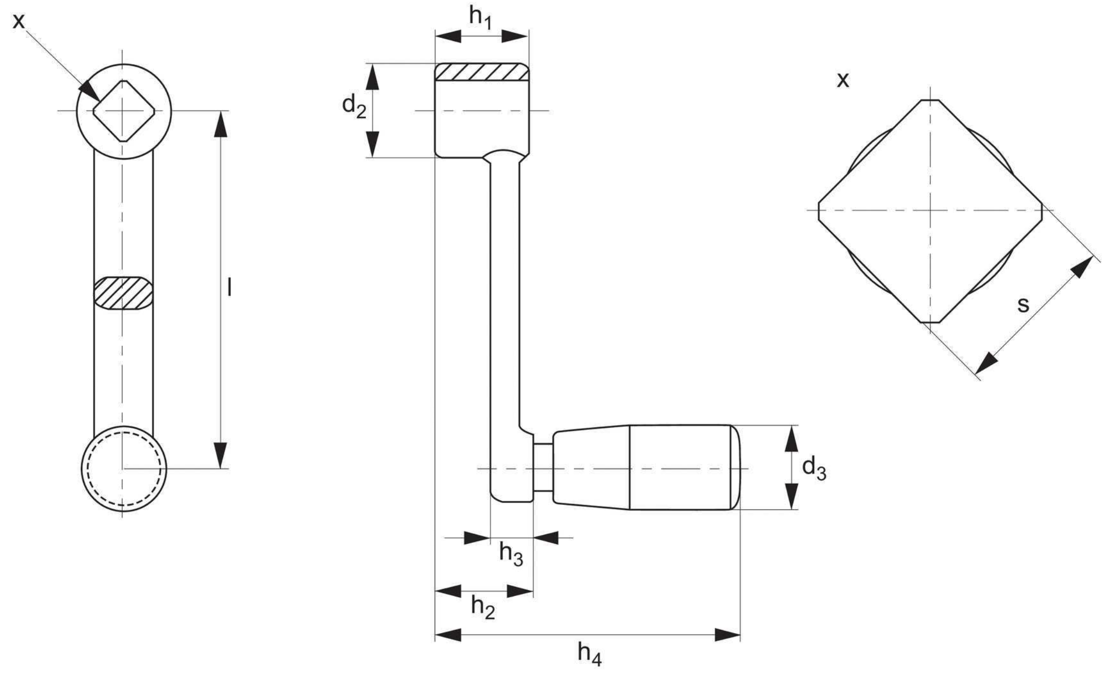
straight - DIN 469

75200



Material
Size 63 - malleable cast iron.
Size 80-250 - nodular cast iron.
Deburred, sand blasted and black plastic coated.
Handle body: cast iron (GTW), plastic coated, black.
For corresponding handle details see no.75060 (non-removable).
Hub-machined, with square bore details to DIN 79.

Order No.	Finish	size l	s H11	e min.	d_1	d_2	h_1	h_2 ≈	h_3	Corresp. Handle Ø d_3	g
75200.W0006	Fixed Handle	63	10	13,1	10,5	20	20	15	74	16	109
75200.W0008	Fixed Handle	80	10	13,1	10,5	24	24	18	94	18	183
75200.W0010	Fixed Handle	100	12	16,1	12,6	28	28	21	98	20	278
75200.W0012	Fixed Handle	125	14	18,1	14,7	34	34	26	120	22	444
75200.W0016	Fixed Handle	160	17	22,2	17,9	38	38	29	122	25	649
75200.W0020	Fixed Handle	200	19	25,2	20,0	44	44	34	154	28	962
75200.W0025	Fixed Handle	250	22	28,2	23,1	48	48	36	157	32	1360
75200.W0108	Fixed Handle	80	12	16,1	12,6	24	24	18	94	18	186
75200.W0110	Fixed Handle	100	14	18,1	14,7	28	28	21	98	20	259
75200.W0112	Fixed Handle	125	17	22,2	17,9	34	34	26	120	22	433
75200.W0116	Fixed Handle	160	19	25,2	20,0	38	38	29	122	25	633
75200.W0120	Fixed Handle	200	22	28,2	23,1	44	44	34	154	28	983
75200.W0125	Fixed Handle	250	24	32,2	25,3	48	48	36	157	32	1351
75200.W0506	Rotating Handle	63	10	13,1	10,5	20	20	15	79	16	118
75200.W0508	Rotating Handle	80	10	13,1	10,5	24	24	18	97	18	194
75200.W0510	Rotating Handle	100	12	16,1	12,6	28	28	21	100	20	272
75200.W0512	Rotating Handle	125	14	18,1	14,7	34	34	26	122	22	468
75200.W0516	Rotating Handle	160	17	22,2	17,9	38	38	29	126	25	667
75200.W0520	Rotating Handle	200	19	25,2	20,0	44	44	34	160	28	1054
75200.W0525	Rotating Handle	250	22	28,2	23,1	48	48	36	162	32	1441
75200.W0608	Rotating Handle	80	12	16,1	12,6	24	24	18	97	18	197
75200.W0610	Rotating Handle	100	14	18,1	14,7	28	28	21	100	20	280
75200.W0612	Rotating Handle	125	17	22,2	17,9	34	34	26	122	22	433
75200.W0616	Rotating Handle	160	19	25,2	20,0	38	38	29	126	25	651
75200.W0620	Rotating Handle	200	22	28,2	23,1	44	44	34	160	28	992
75200.W0625	Rotating Handle	250	24	32,2	25,3	48	48	36	162	32	1409



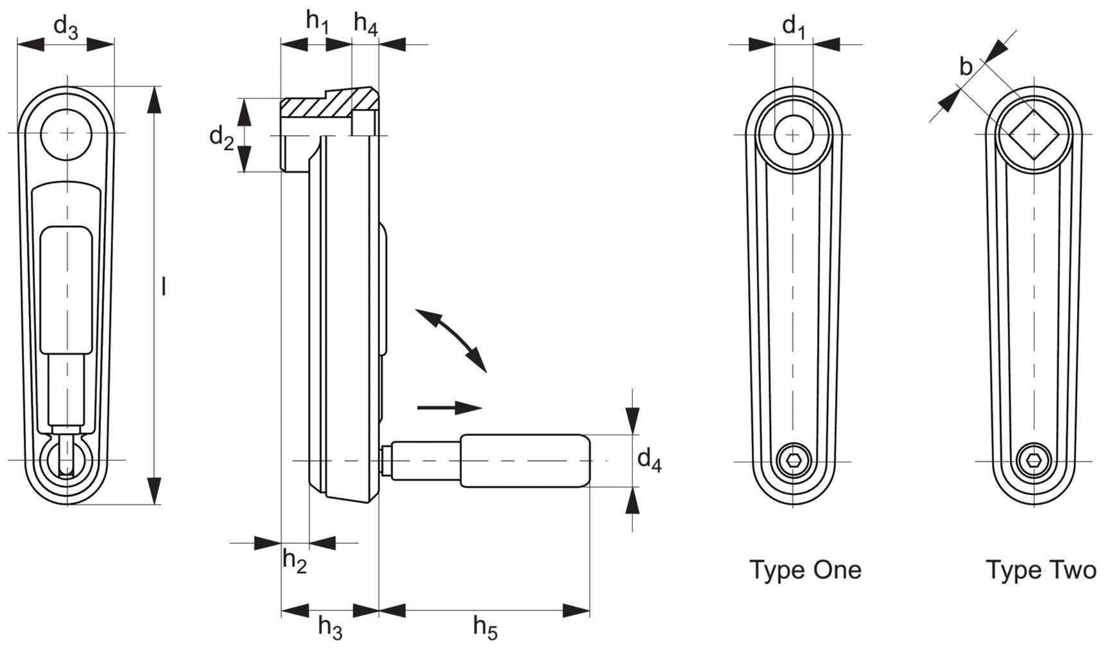
Material
Handle body: stainless steel 1.4308.
Cylindrical handle: Thermoset PF 31, black.
Axe part: stainless steel 1.4301.

Technical Notes
Flat side of the hub is machined.

Order No.	l	s H11	d_2	h_1	h_2 ≈	h_3	h_4 ≈	d_3 cylinder-grip 75120	g
75202.W0520	80	10	22	22	15,4	6,6	57,9	18	124
75202.W0530	100	12	22	26	17,7	8,3	70,2	21	187
75202.W0540	125	14	28	28	18,8	9,2	86,3	23	320
75202.W0550	160	17	32	32	22,6	9,4	90,1	23	370

Cranked Handles
folding handle

75210



Material
Axle: Steel, blackened.
Cover: plastic, grey.
Body: Aluminium, plastic coated, structural matt.
Silver - similar RAL 9006
Black - similar RAL9005
Handle: Plastic, black matt.

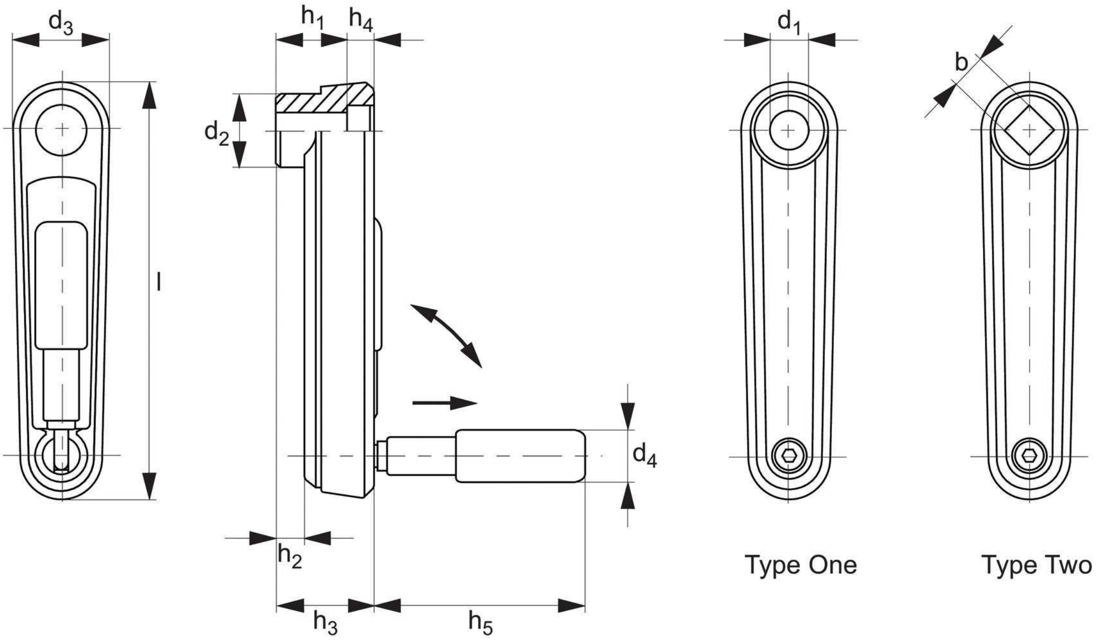
Technical Notes
Operating: Handle is locked in position.
To store: Pull handle along axis and lift into locked position.

Order No.	Type, colour	d_1 H7	b H11	d_2	d_3	h_1	h_2	h_3	h_4	h_5	d_4 dia.	g
75210.W0005	One, silver	10		23,0	30	19,5	4,0	25,5	4,3	43,0	16	131
75210.W0010	One, silver	12	-	26,7	35	23,5	5,5	29,5	4,2	57,5	18	180
75210.W0015	One, silver	14	-	28,0	37	30,5	10,5	36,5	4,2	76,5	24	305
75210.W0105	One, black	10	-	23,0	30	19,5	4,0	25,5	4,3	43,0	16	131
75210.W0110	One, black	12	-	26,7	35	23,5	5,5	29,5	4,2	57,5	18	180
75210.W0115	One, black	14	-	28,0	37	30,5	10,5	36,5	4,2	76,5	24	305
75210.W0205	Two, silver	-	10	23,0	30	19,5	4,0	25,5	4,3	43,0	16	131
75210.W0210	Two, silver	-	12	26,7	35	23,5	5,5	29,5	4,2	57,5	18	180
75210.W0215	Two, silver	-	14	28,0	37	30,5	10,5	36,5	4,2	76,5	24	280
75210.W0305	Two, black	-	10	23,0	30	19,5	4,0	25,5	4,3	43,0	16	131
75210.W0310	Two, black	-	12	26,7	35	23,5	5,5	29,5	4,2	57,5	18	180
75210.W0315	Two, black	-	14	28,0	37	30,5	10,5	36,5	4,2	76,5	24	280

Cranked Handles

stainless steel - folding handle

75212



Material

Axle: Stainless steel 1.4305.
Cover: plastic, grey.
Body: Aluminium, plastic coated, structural matt.
Silver - similar RAL 9006
Black - similar RAL9005
Handle: Plastic, black matt.

Technical Notes

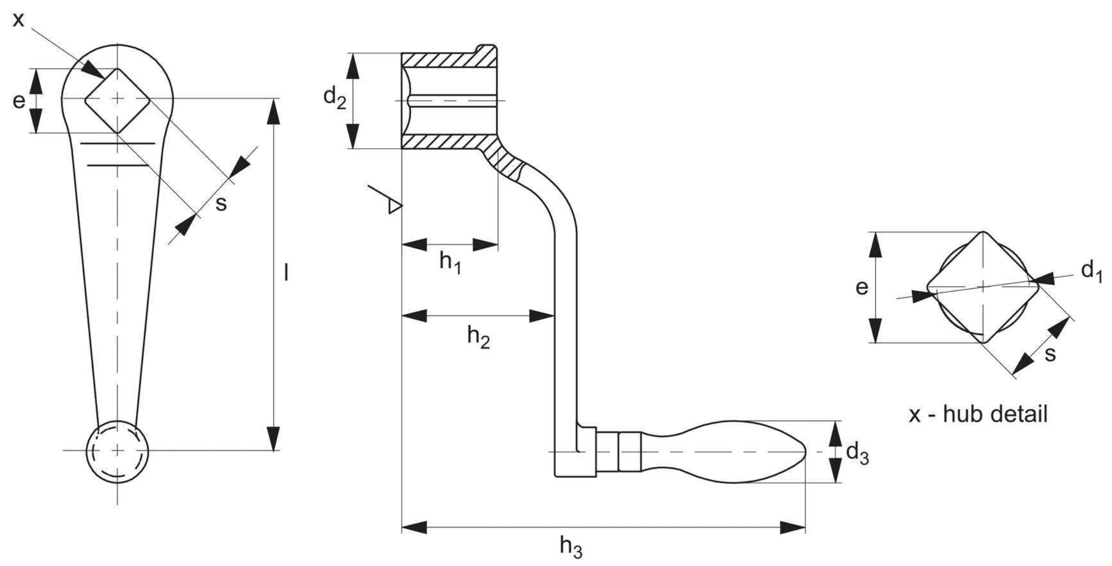
Operating: Handle is locked in position.
To store: Pull handle along axis and lift into locked position.

Order No.	Type, colour	d_1 H7	b H11	d_2	d_3	h_1	h_2	h_3	h_4	h_5	d_4 dia.	g
75212.W0405	One, silver	10	-	23,0	30	19,5	4,0	25,5	4,3	43,0	16	118
75212.W0410	One, silver	12	-	26,7	35	23,5	5,5	29,5	4,2	57,5	18	197
75212.W0415	One, silver	14	-	28,0	37	30,5	10,5	36,5	4,2	76,5	24	283
75212.W0505	One, black	10	-	23,0	30	19,5	4,0	25,5	4,3	43,0	16	118
75212.W0510	One, black	12	-	26,7	35	23,5	5,5	29,5	4,2	57,5	18	197
75212.W0515	One, black	14	-	28,0	37	30,5	10,5	36,5	4,2	76,5	24	283
75212.W0605	Two, silver	-	10	23,0	30	19,5	4,0	25,5	4,3	43,0	16	118
75212.W0606	Two, silver	-	12	26,7	35	23,5	5,5	29,5	4,2	57,5	18	197
75212.W0607	Two, silver	-	14	28,0	37	30,5	10,5	36,5	4,2	76,5	24	283
75212.W0705	Two, black	-	10	23,0	30	19,5	4,0	25,5	4,3	43,0	16	118
75212.W0710	Two, black	-	12	26,7	35	23,5	5,5	29,5	4,2	57,5	18	197
75212.W0715	Two, black	-	14	28,0	37	30,5	10,5	36,5	4,2	76,5	24	283

Cranked Handles

offset - DIN 468

75220



Material

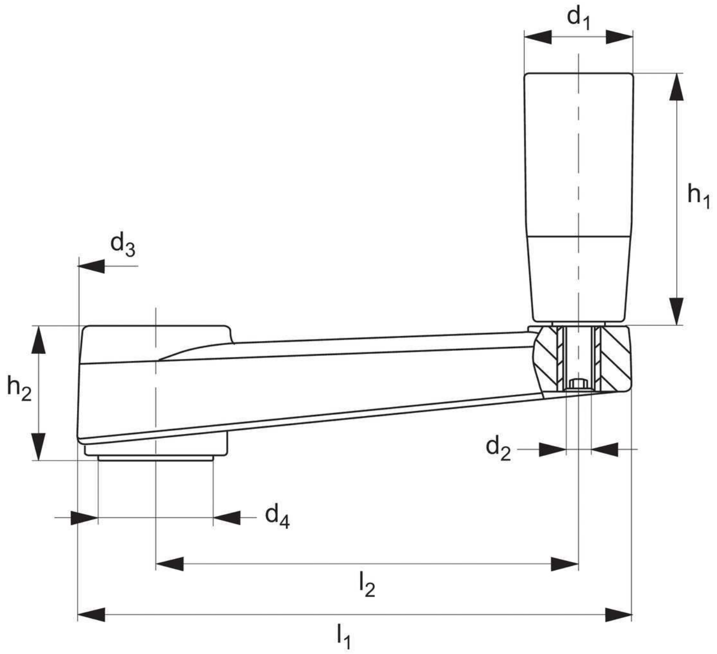
Size 63 - malleable cast iron.
Size 80-250 - nodular cast iron.
Deburred, sand blasted and black plastic coated.
Handle body: cast iron (GTW), plastic coated, black.
For corresponding handle details see no.75060 (non-removable).
Hub-machined, with square bore details to DIN 79.

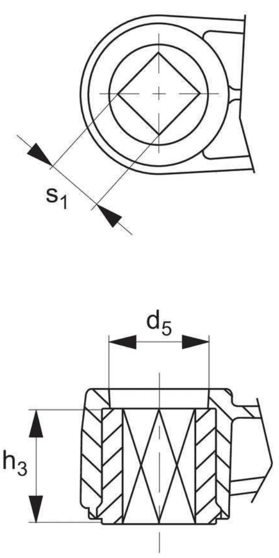
Order No.	Finish	size l	s H11	e min.	d_1	d_2	h_1	h_2 ≈	h_3	Corresp. Handle Ø d_3	g
75220.W0006	Fixed Handle	63	10	13,1	10,5	20	20	32	92	16	112
75220.W0008	Fixed Handle	80	10	13,1	10,5	24	24	38	114	18	187
75220.W0010	Fixed Handle	100	12	16,1	12,6	28	28	48	124	20	288
75220.W0012	Fixed Handle	125	14	18,1	14,7	34	34	55	148	22	460
75220.W0016	Fixed Handle	160	17	22,2	17,9	38	38	65	158	25	661
75220.W0020	Fixed Handle	200	19	25,2	20,0	44	44	78	197	28	1020
75220.W0025	Fixed Handle	250	22	28,2	23,1	48	48	90	209	32	1438
75220.W0108	Fixed Handle	80	12	16,1	12,6	24	24	38	114	18	183
75220.W0110	Fixed Handle	100	14	18,1	14,7	28	28	48	124	20	292
75220.W0112	Fixed Handle	125	17	22,2	17,9	34	34	55	148	22	439
75220.W0116	Fixed Handle	160	19	25,2	20,0	38	38	65	158	25	627
75220.W0120	Fixed Handle	200	22	28,2	23,1	44	44	78	197	28	1004
75220.W0125	Fixed Handle	250	24	32,2	25,3	48	48	90	209	32	1415
75220.W0130	Fixed Handle	315	24	32,2	25,3	54	54	105	192	36	2200
75220.W0132	Fixed Handle	315	27	36,2	28,4	54	54	105	192	36	2100
75220.W0506	Rotating Handle	63	10	13,1	10,5	20	20	32	96	16	118
75220.W0508	Rotating Handle	80	10	13,1	10,5	24	24	38	116	18	201
75220.W0510	Rotating Handle	100	12	16,1	12,6	28	28	48	126	20	310
75220.W0512	Rotating Handle	125	14	18,1	14,7	34	34	55	150	22	464
75220.W0516	Rotating Handle	160	17	22,2	17,9	38	38	65	160	25	674
75220.W0520	Rotating Handle	200	19	25,2	20,0	44	44	78	202	28	1083
75220.W0525	Rotating Handle	250	22	28,2	23,1	48	48	90	214	32	1497
75220.W0608	Rotating Handle	80	12	16,1	12,6	24	24	38	116	18	200
75220.W0610	Rotating Handle	100	14	18,1	14,7	28	28	48	126	20	291
75220.W0612	Rotating Handle	125	17	22,2	17,9	34	34	55	150	22	455
75220.W0616	Rotating Handle	160	19	25,2	20,0	38	38	65	160	25	664
75220.W0620	Rotating Handle	200	22	28,2	23,1	44	44	78	202	28	1034
75220.W0625	Rotating Handle	250	24	32,2	25,3	48	48	90	214	32	1478
75220.W0630	Rotating Handle	315	24	32,2	25,3	54	54	105	186	36	2220
75220.W0632	Rotating	315	27	36,2	28,4	54	54	105	186	36	2200

Cranked Handles

with rotating grip

75240





Material

Thermoplastic, black, matt. Glass fibre reinforced. Revolving handle. Revolving grip: duroplast, black. Handle arm: thermoplastic, black matte.

Technical Notes

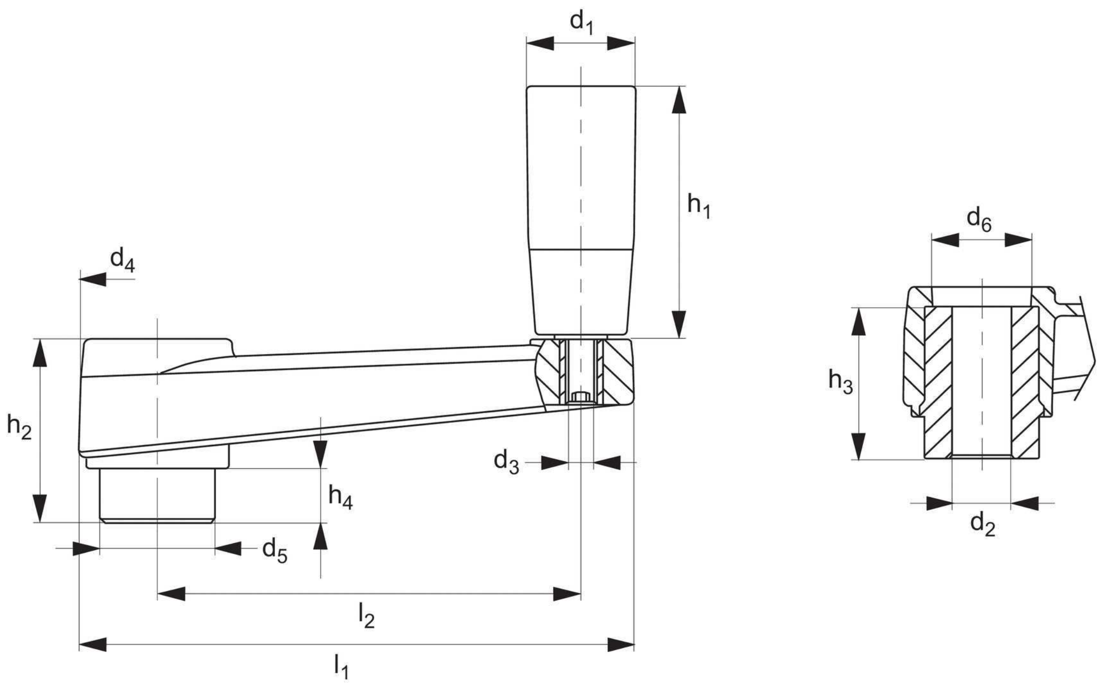
Special inch and metric bars, keyways, set screw holes etc. available on request. Corresponding machine handles are part number 75120.

TP

Order No.	d_1	l_1	s_1	d_2	d_3	d_4	d_5	l_2	h_1	h_2	h_3	g
75240.W0065	17	87	8x8	M 6	27	18	16	65	40	23	20	77
75240.W0080	21	105	10x10	M 6	30	22	19	80	50	26	22	120
75240.W0100	25	128	12x12	M 8	34	24	22	100	65	30	27	293
75240.W0130	28	162	14x14	M 8	40	28	25	130	85	35	30	236
75240.W0160	28	196	17x17	M10	45	34	28	160	85	40	34	369

Cranked Handles
with rotating grip

75260



Material
Thermoplast, black, matt. Glass fibre reinforced.
Revolving grip: duroplast, black.
Handle arm: thermoplast, black matte.

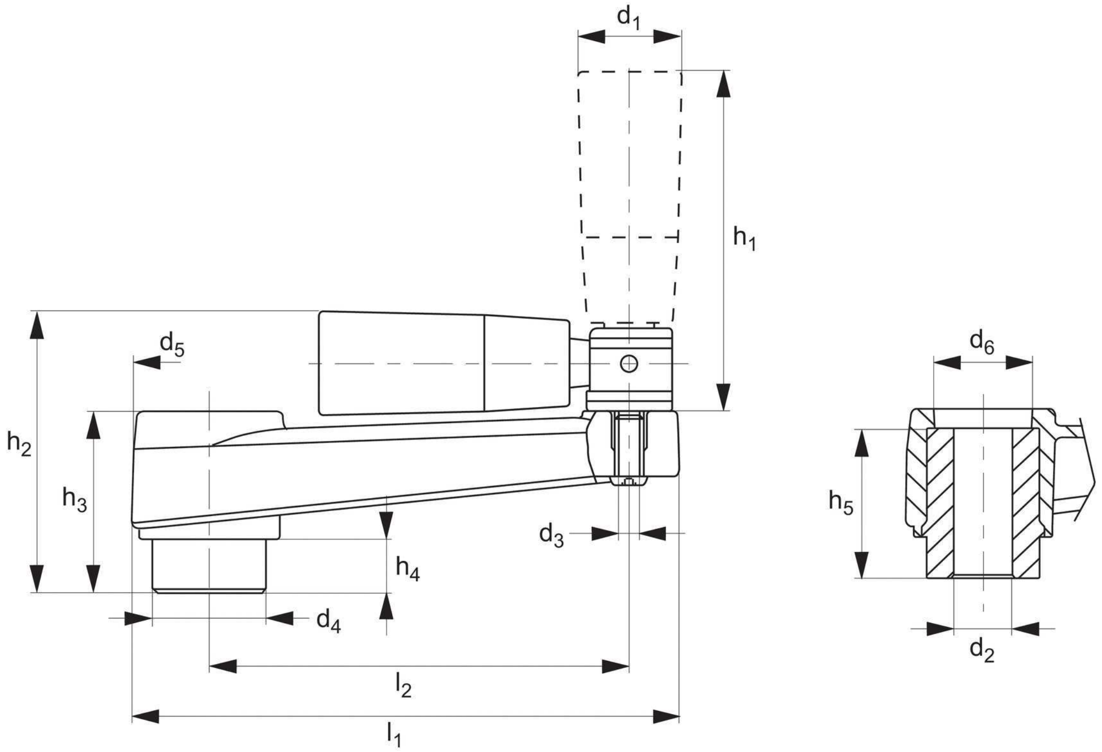
Technical Notes
Special inch and metric bars, keyways, set screw holes etc. available on request. Circular bore.

TP

Order No.	d_1	l_1	d_2	d_3	d_4	d_5	d_6	l_2	h_1	h_2	h_3	h_4	g
75260.W0065	10	87	8	M 6	27	18	16	65	40	33	30	17	92
75260.W0080	10	105	10	M 6	30	22	19	80	50	36	32	21	144
75260.W0100	10	128	12	M 8	34	24	22	100	65	40	37	25	232
75260.W0130	14	162	14	M 8	40	28	25	130	85	49	44	28	327
75260.W0160	15	196	16	M10	45	34	28	160	85	55	49	28	510

Cranked Handles
with fold-away grip

75280



Material
Thermoplastic, black, matt. Glass fibre reinforced. Fold-away revolving handle.
Revolving grip: duroplast, black.
Handle arm: thermoplastic, black matte.

Technical Notes
Special inch and metric bars, keyways, set screw holes etc available on request. Circular bore.

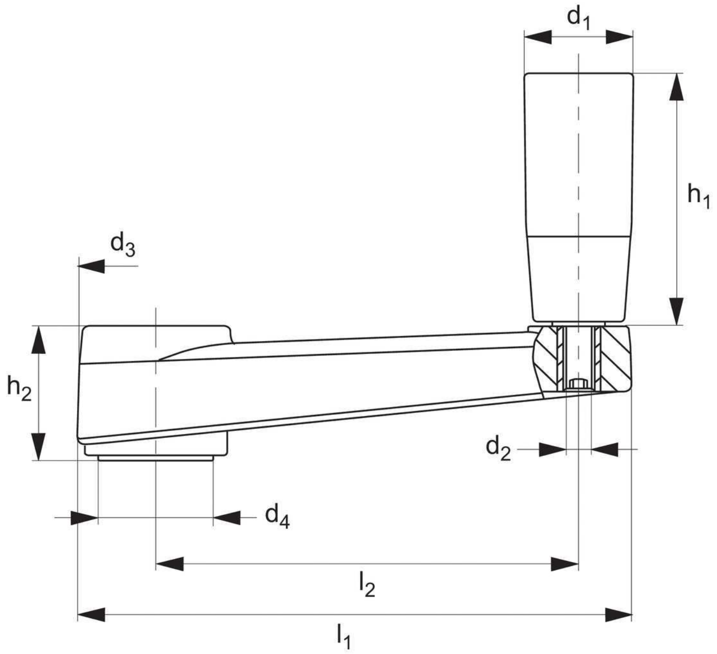
TP

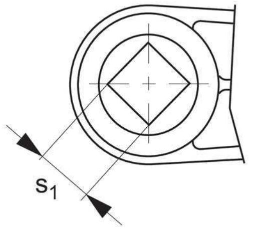
Order No.	d_1	l_1	d_2	d_3	d_4	d_5	d_6	l_2	h_1	h_2	h_3	h_4	h_5	g
75280.W0080	10	105	10	M 5	22	30	19	80	50	55	36	21	32	166
75280.W0100	10	128	12	M 6	24	34	22	100	70	65	40	23	37	241
75280.W0130	14	162	14	M 6	28	40	25	130	70	76	49	23	44	335
75280.W0160	15	196	16	M 6	34	45	28	160	90	87	55	26	49	529

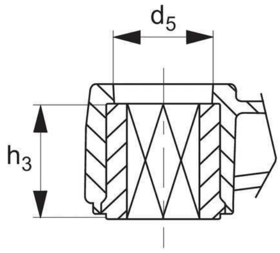
Cranked Handles

with rotating grip

75340







Order No.	d_1	l_1	s_1	d_2	d_3	d_4	d_5	l_2	h_1	h_2	h_3	g
75340.W0065	21	87	8x8	M 6	27	18	16	65	50	23	20	78
75340.W0080	21	105	10x10	M 6	30	22	19	80	50	26	22	102
75340.W0100	23	128	12x12	M 8	34	24	22	100	70	30	27	167
75340.W0130	26	162	14x14	M 8	40	28	25	130	90	35	30	236
75340.W0160	26	196	17x17	M10	45	34	28	160	90	40	34	367

Material
Thermoplastic, black, matt. Glass fibre reinforced. Revolving handle. Revolving grip and handle arm: thermoplastic, black matte.

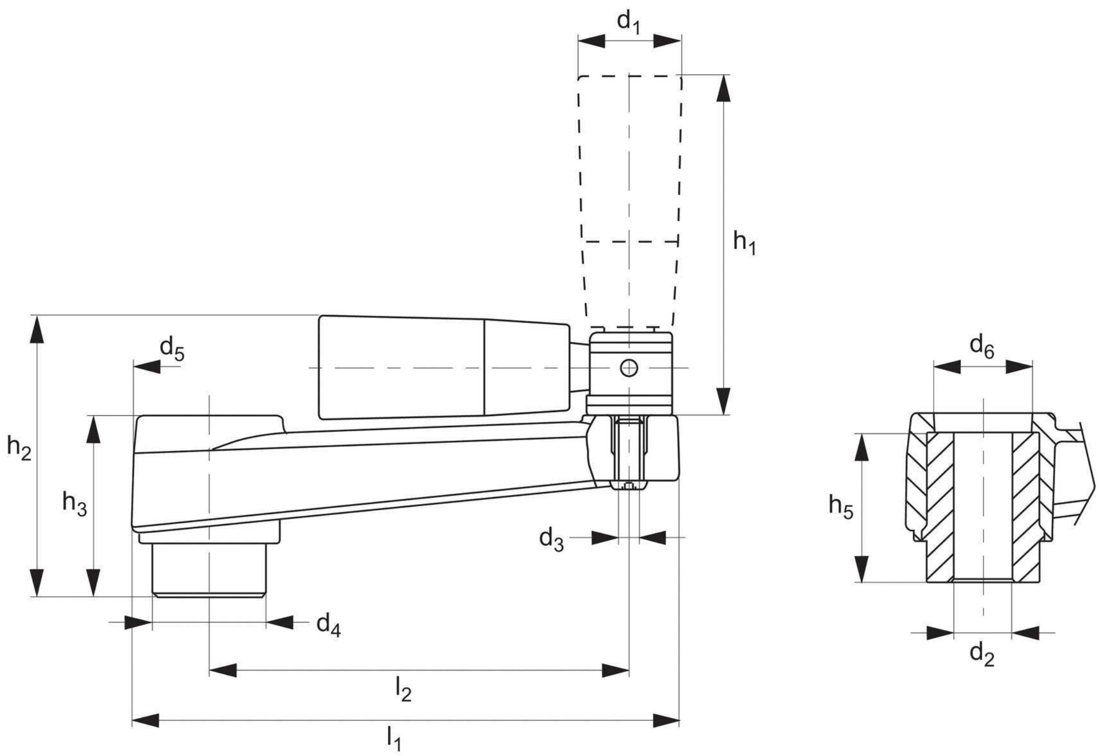
Technical Notes
Special inch and metric bores, keyways, set screw holes etc. available upon request.

TP

Cranked Handles

with fold-away rotating grip

75360



Material

Thermoplastic, black matt. Glass fibre reinforced. With fold-away revolving grip.
Revolving grip and handle arm: thermoplast, black matte.

Technical Notes

Circluar bore.

Tips

Fold-away grip can be retracted after use to ensure safety or where space is limited.

TP

Order No.	d_1	l_1	d_2	d_3	d_4	d_5	d_6	l_2	h_1	h_2	h_3	h_5	g
75360.W0080	10	105	10	M 5	22	30	19	80	50	63	36	32	125
75360.W0100	10	128	12	M 6	24	34	22	100	70	72	40	37	220
75360.W0130	14	162	14	M 6	28	40	25	130	70	83	49	44	312
75360.W0160	15	196	16	M 6	34	45	28	160	90	93	55	49	518

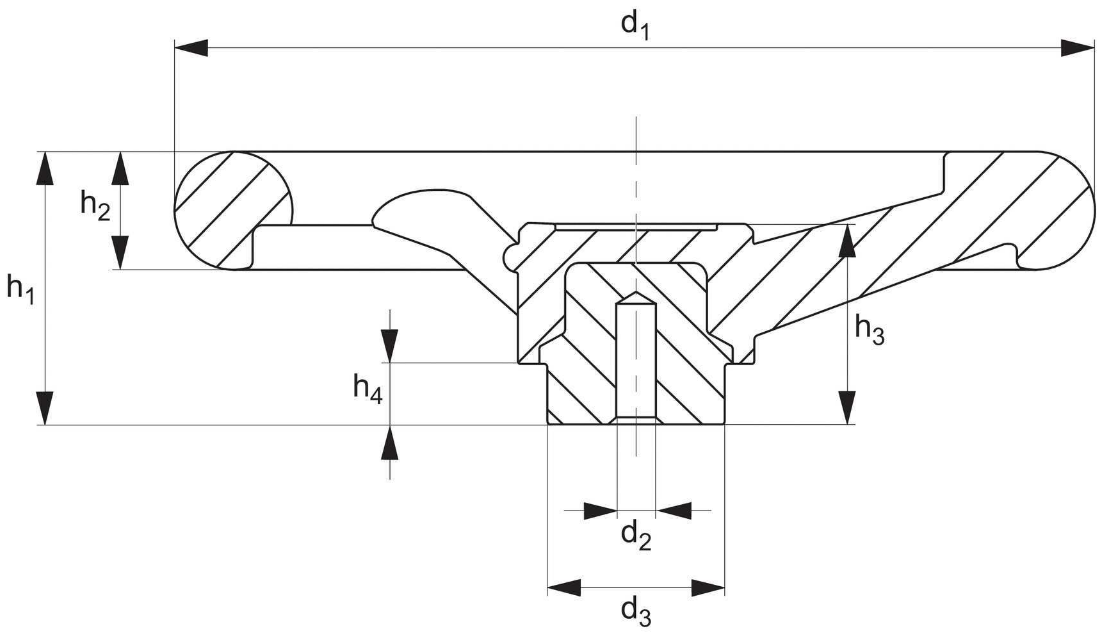
Wixroyd

handles & pulls

Handwheels

Three Spoked Handwheels

77010



Material

Standard: Duroplast, black. Zinc plated steel hub.

Reinforced: Duroplast with glass fibre beads of increased strength, black zinc plated steel hub.

Technical Notes

The pilot hole allows various sizes of holes, keyways etc. to be machined into the boss.

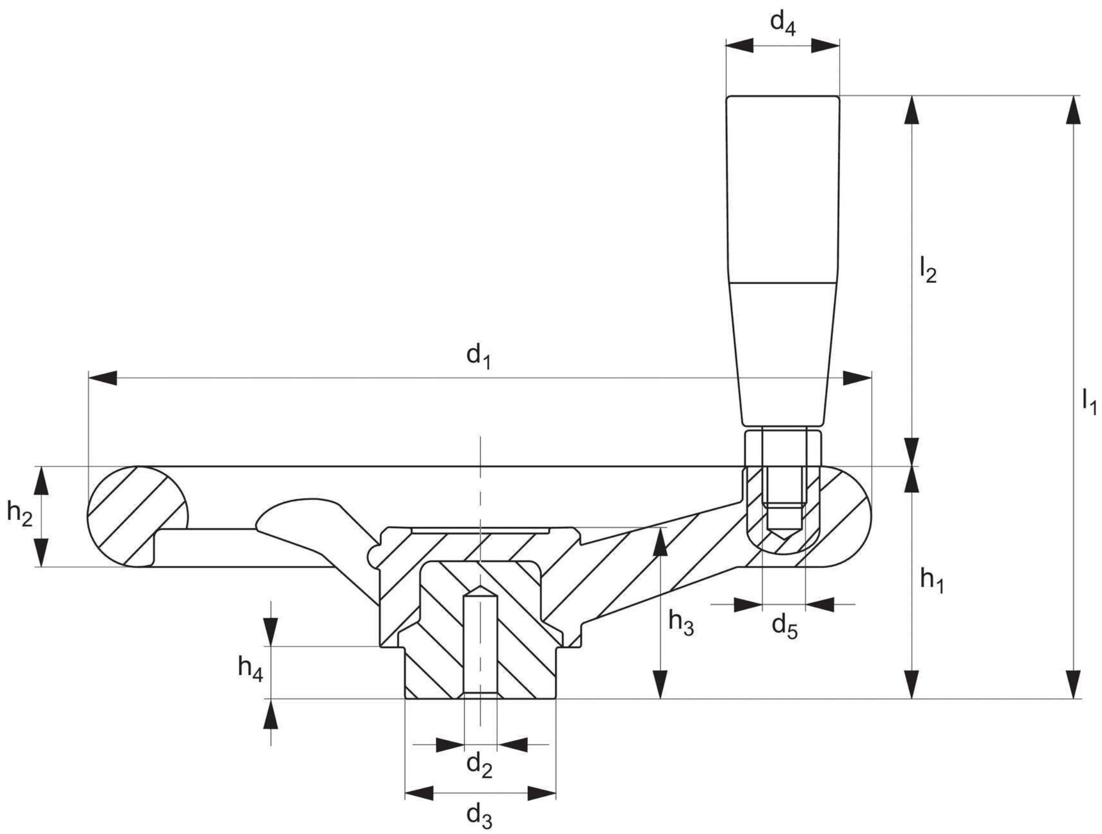
PF

Order No.	Type	d_1	d_2	d_3	h_1	h_2	h_3	h_4	g
77010.W0100	Standard	100	4	24	40	15	34	11	159
77010.W0125	Standard	125	6	24	46	17	37	13	240
77010.W0150	Standard	150	6	32	49	20	38	13	380
77010.W0175	Standard	175	6	40	56	22	42	16	603
77010.W0200	Standard	200	6	40	61	24	45	16	736
77010.W0250	Standard	250	8	48	72	28	50	17	1200
77010.W0300	Standard	300	8	58	78	34	56	18	2032
77010.W0500	Reinforced	100	4	24	40	15	34	11	162
77010.W0525	Reinforced	125	6	24	46	17	37	13	260
77010.W0550	Reinforced	150	6	32	49	20	38	13	385
77010.W0575	Reinforced	175	6	40	56	22	42	16	611
77010.W0700	Reinforced	200	6	40	61	24	45	16	761
77010.W0750	Reinforced	250	8	48	72	28	50	17	1210
77010.W0800	Reinforced	300	8	58	78	34	56	18	2015

Three Spoked Handwheels

with rotating grip

77030



Material

Standard: Duroplast, black. Zinc plated steel hub. Revolving handle.
Reinforced: Duroplast with glass fibre beads for increased strength, black zinc plated steel auto-revolving handle.

Technical Notes

The pilot hole allows various sizes of holes, keyways etc. to be machined into the hub.
Corresponding rotating handle 75100.

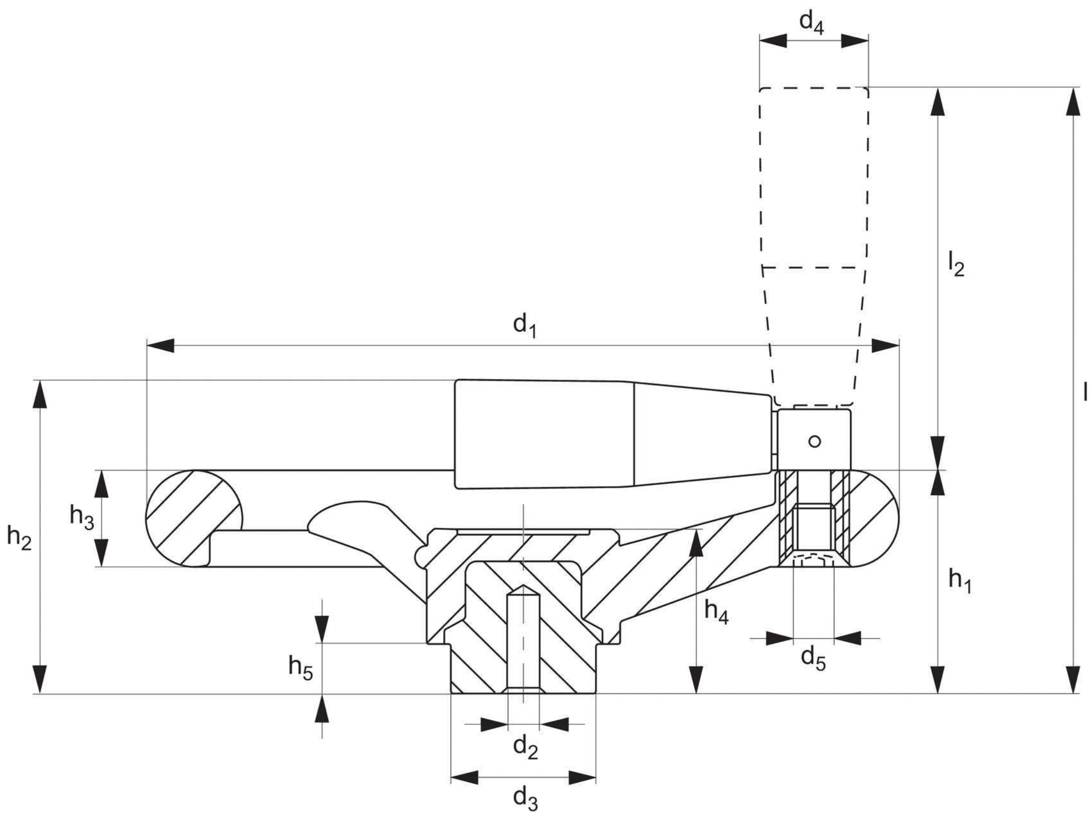
PF

Order No.	Type	d_1	d_2	d_3	l_1	l_2	h_1	h_2	h_3	h_4	d_4	d_5	g
77030.W0100	Standard	100	4	24	85	40	40	15	34	11	17	M 8	189
77030.W0125	Standard	125	6	24	107	55	46	17	37	13	23	M 8	300
77030.W0150	Standard	150	6	32	120	65	49	20	38	13	25	M10	470
77030.W0175	Standard	175	6	40	127	65	56	22	42	16	25	M10	695
77030.W0200	Standard	200	8	40	153	85	61	24	45	16	28	M10	880
77030.W0250	Standard	250	10	48	164	85	72	28	50	17	28	M10	1335
77030.W0300	Standard	300	10	58	170	85	78	34	56	18	28	M10	2165
77030.W0500	Reinforced	100	4	24	85	40	40	15	34	11	17	M 8	191
77030.W0525	Reinforced	125	6	24	107	55	46	17	37	13	23	M 8	309
77030.W0550	Reinforced	150	6	32	120	65	49	20	38	13	25	M10	484
77030.W0575	Reinforced	175	6	40	127	65	56	22	42	16	25	M10	694
77030.W0700	Reinforced	200	8	40	153	85	61	24	45	16	28	M10	897
77030.W0750	Reinforced	250	10	48	164	85	72	28	50	17	28	M10	1367
77030.W0800	Reinforced	300	10	58	170	85	78	34	56	18	28	M10	2130

Three Spoked Handwheels

with fold-away rotating grip

77040



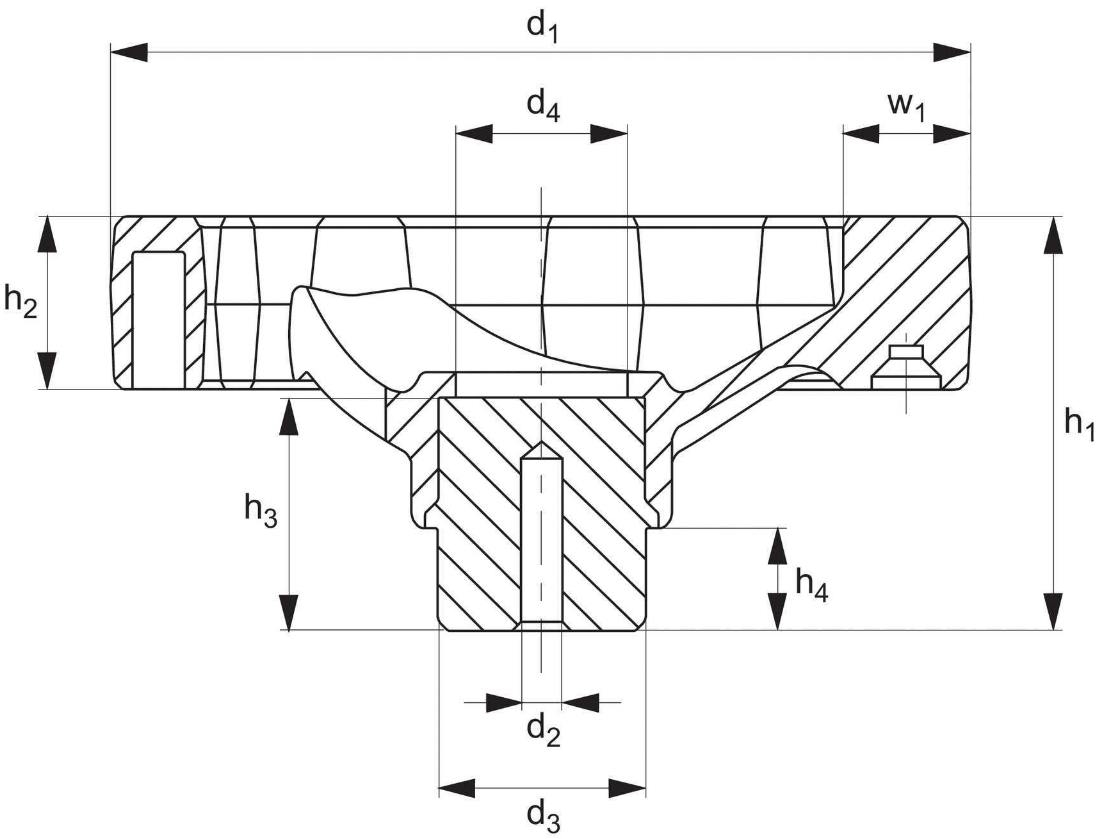
Material
Duroplast, black. Zinc plated steel hub. With fold-away revolving grip.

Technical Notes
The pilot hole allows various sizes of holes, keyways etc. to be machined into the hub.
Corresponding rotating handle 75150.

PF

Order No.	d_1	d_2	d_3	l_1	l_2	h_1	h_2	h_3	h_4	h_5	d_4	d_5	g
77040.W0125	125	6	24	118	55	46	66	17	37	13	23	M 5	322
77040.W0150	150	6	32	131	65	49	70	20	38	13	25	M 6	487
77040.W0175	175	6	40	138	65	56	77	22	42	16	25	M 6	698
77040.W0200	200	6	40	166	85	61	85	24	45	16	28	M 6	910
77040.W0250	250	8	48	177	85	72	96	28	50	17	28	M 6	1380
77040.W0300	300	8	58	183	85	78	102	34	56	18	28	M 6	2142

77060

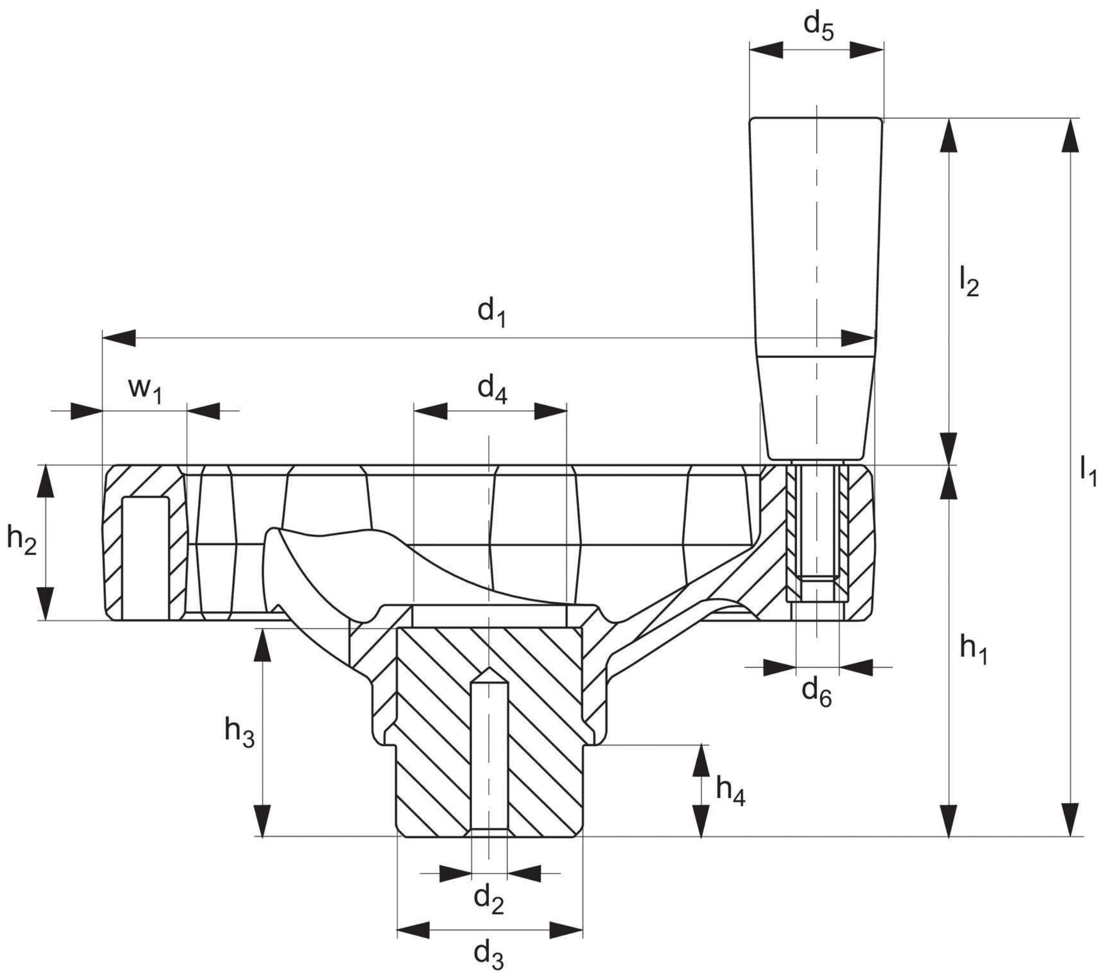


Material
Black, matt, thermoplastic, with zinc plated steel hub.

Technical Notes
The pilot hole allows various sizes of holes, keyways etc. to be machined into the hub.

TP

Order No.	d_1	d_2	d_3	d_4	h_1	h_2	h_3	h_4	w_1	g
77060.W0100	100	4	24	18	46	20	24	12	15	150
77060.W0125	125	6	24	20	51	24	28	12	17	241
77060.W0160	160	6	32	30	61	28	31	15	20	444
77060.W0200	200	6	40	35	74	32	40	15	24	834



Material
Thermoplastic, black, matt. Zinc plated steel hub. Revolving handle.

Technical Notes
The pilot hole allows various sizes of holes, keyways etc. to be machined into the hub.

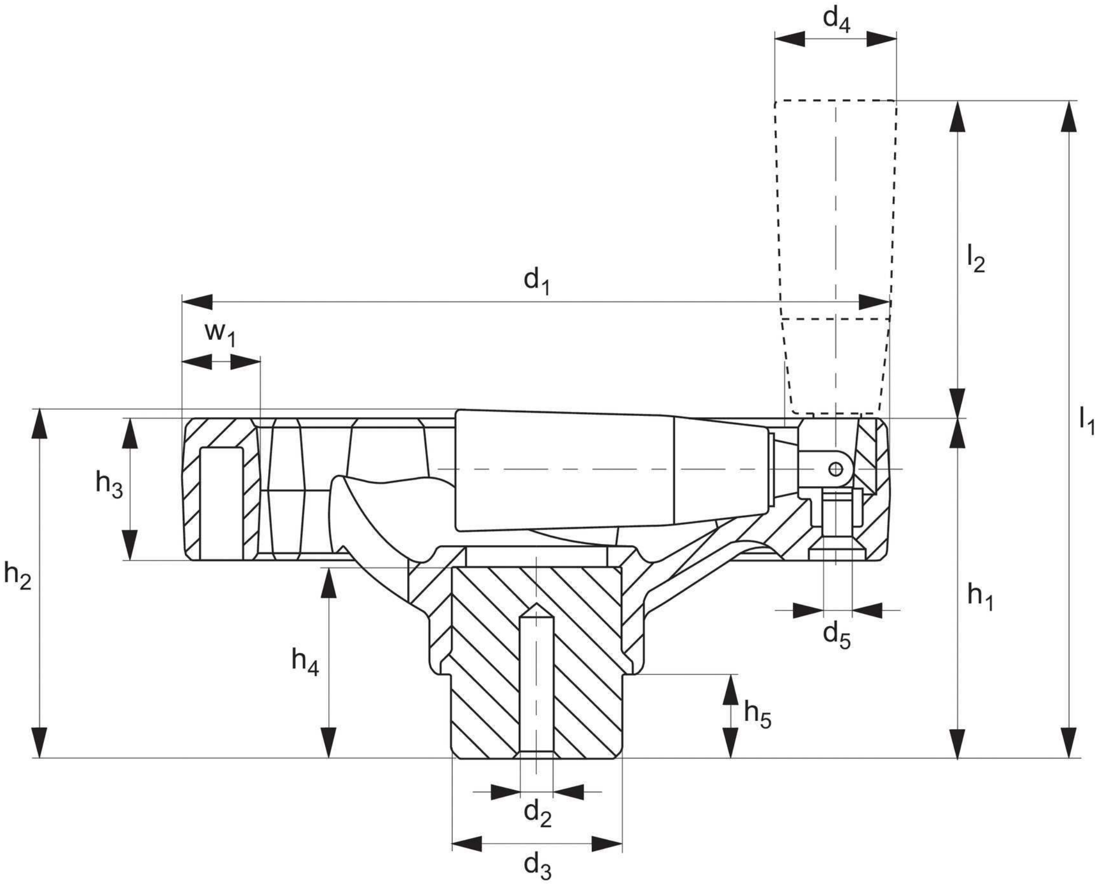
TP

Order No.	d_1	d_2	d_3	l_1	l_2	h_1	h_2	h_3	h_4	d_4	d_5	d_6	w_1	g
77070.W0100	100	4	24	96	50	46	20	24	12	18	21	M 6	15	192
77070.W0125	125	6	24	101	50	51	24	28	12	20	21	M 6	17	261
77070.W0160	160	6	32	131	70	61	28	31	15	30	23	M 8	20	484
77070.W0200	200	6	40	164	90	74	32	40	15	35	26	M10	24	906

Three Spoked Handwheels

with fold-away rotating grip

77080



Material
Thermoplastic, black, matt. Zinc plated steel hub. Fold-away revolving handle.

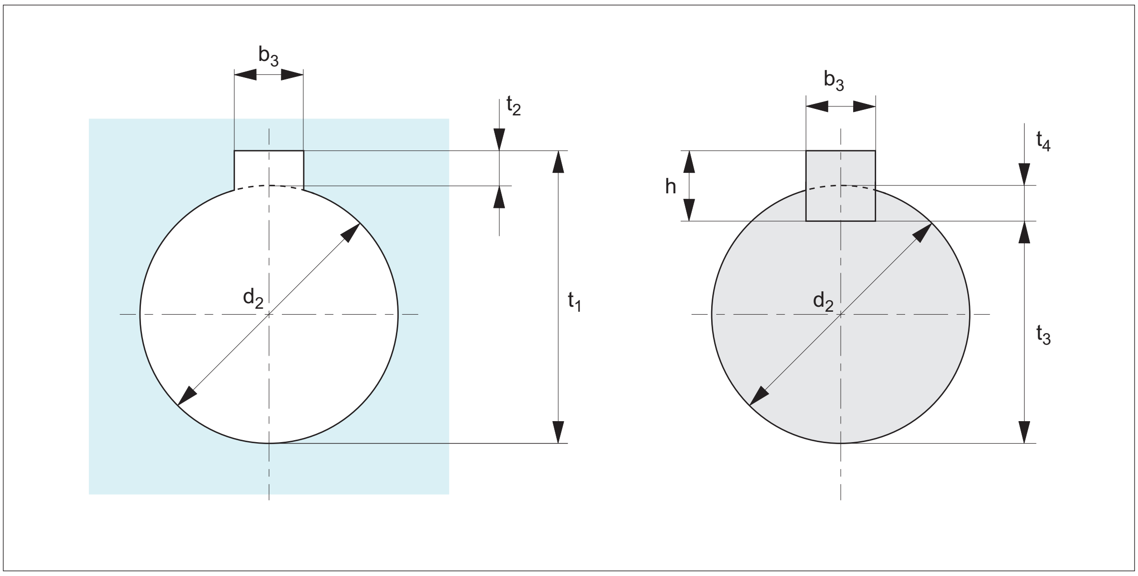
Technical Notes
The pilot hole allows various sizes of holes, keyways etc. to be machined into the hub.

TP

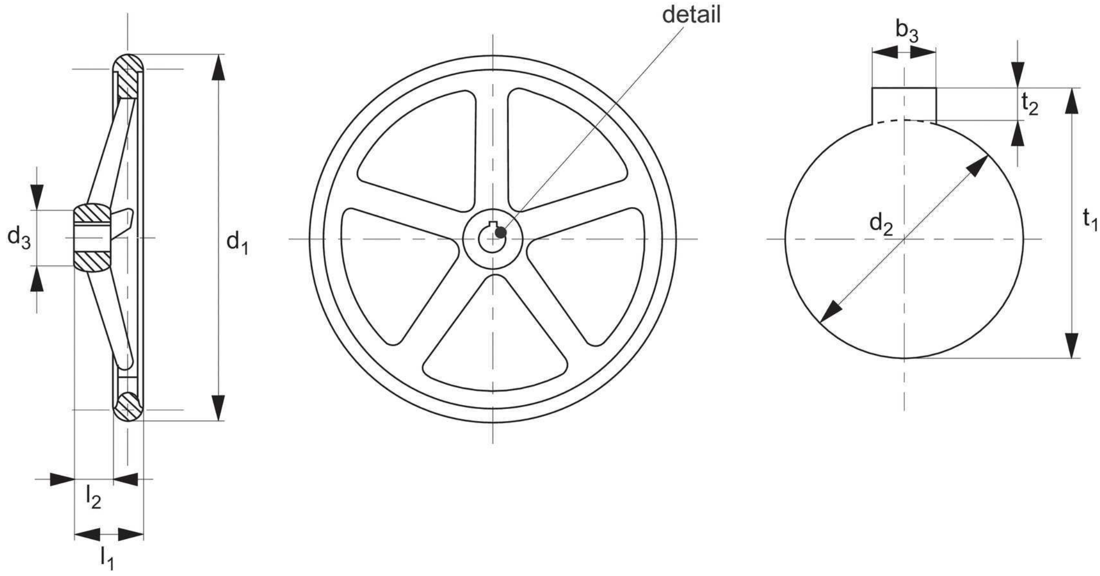
Order No.	d_1	d_2	d_3	l_1	l_2	h_1	h_2	h_3	h_4	h_5	d_4	d_5	w_1	g
77080.W0100	100	4	24	100	54	46	50	20	24	12	21	M 4	15	205
77080.W0125	125	6	24	105	54	51	54	24	28	12	21	M 4	17	277
77080.W0160	160	6	32	135	74	61	65	28	31	15	23	M 5	20	503
77080.W0200	200	6	40	168	94	74	79	32	40	15	26	M 6	24	935

Keyway Dimensions

to DIN 6885



d_2	b P9/JS9 hole	b P9/N9 shaft	h	$t_1 = d_2 + t_2$	t_2	$t_3 = d_2 - t_4$	t_4
7	2	2	2	8	1+0,1	5,8	1,2+0,1
8	2	2	2	9	1	6,8	1,2
9	3	3	3	10,4	1,4	7,2	1,8
10	3	3	3	11,4	1,4	8,2	1,8
11	4	4	4	12,8	1,8	8,5	2,5
12	4	4	4	13,8	1,8	9,5	2,5
13	5	5	5	15,3	2,3	10	3
14	5	5	5	16,3	2,3	11	3
15	5	5	5	17,3	2,3	12	3
16	5	5	5	18,3	2,3	13	3
17	5	5	5	19,3	2,3	14	3
18	6	6	6	20,8	2,8	14,5	3,5
20	6	6	6	22,8	2,8	16,5	3,5
22	6	6	6	24,8	2,8	18,5	3,5
24	8	8	7	27,3	3,3+0,2	20	4+0,2
25	8	8	7	28,3	3,3	21	4
26	8	8	7	29,3	3,3	22	4
28	8	8	7	31,3	3,3	24	4
30	8	8	7	33,3	3,3	26	4
32	10	10	8	35,3	3,3	27	5
34	10	10	8	37,3	3,3	29	5
35	10	10	8	38,3	3,3	30	5
36	10	10	8	39,3	3,3	31	5
38	10	10	8	41,3	3,3	33	5
40	12	12	8	43,3	3,3	35	5
42	12	12	8	45,3	3,3	37	5
44	12	12	8	47,3	3,3	39	5



Material
Handwheel: Grey cast iron GG. Hub machined; rim turned and mirror-finished on all sides, non-machined surfaces cleanly blasted.

Technical Notes
There are gripping indentations on the rear sides.
For keyways information (dim. t_1 **and b_3) to DIN 6885.**

Order No. d_2 Small	Order No. d_2 Large	Type	d_1	d_2 H7 small	d_2 H7 large	d_3	l_1 ~	l_2	No. of Spokes	Corresp. handle Ø	g
77100.W0000	77100.W0001	W/o Keyway, W/o Handle	80	10	12	24	29	16	3	-	311
77100.W0005	77100.W0006	W/o Keyway, W/o Handle	100	10	12	26	33	17	3	-	486
77100.W0010	77100.W0011	W/o Keyway, W/o Handle	125	12	14	28	36	18	3	-	720
77100.W0015	77100.W0016	W/o Keyway, W/o Handle	140	14	16	30	39	19	3	-	879
77100.W0020	77100.W0021	W/o Keyway, W/o Handle	160	14	16	32	40	20	3	-	1151
77100.W0030	77100.W0031	W/o Keyway, W/o Handle	200	18	22	38	45	24	3	-	2218
77100.W0040	77100.W0041	W/o Keyway, W/o Handle	250	22	26	45	50	28	5	-	3735
77100.W0045	77100.W0046	W/o Keyway, W/o Handle	315	26	30	53	56	33	5	-	6180
77100.W0050	77100.W0051	W/o Keyway, W/o Handle	400	30	34	65	63	38	5	-	9500
77100.W0100	77100.W0101	With Keyway, W/o Handle	80	10	12	24	29	16	3	-	360
77100.W0105	77100.W0106	With Keyway, W/o Handle	100	10	12	26	33	17	3	-	500
77100.W0110	77100.W0111	With Keyway, W/o Handle	125	12	14	28	36	18	3	-	750
77100.W0115	77100.W0116	With Keyway, W/o Handle	140	14	16	30	39	19	3	-	902
77100.W0120	77100.W0121	With Keyway, W/o Handle	160	14	16	32	40	20	3	-	1139
77100.W0130	77100.W0131	With Keyway, W/o Handle	200	18	22	38	45	24	3	-	2142
77100.W0140	77100.W0141	With Keyway, W/o Handle	250	22	26	45	50	28	5	-	3652
77100.W0145	77100.W0146	With Keyway, W/o Handle	315	26	30	53	56	33	5	-	5800
77100.W0150	77100.W0151	With Keyway, W/o Handle	400	30	34	65	63	38	5	-	9500
77100.W0200	77100.W0201	W/o keyway, Rotating Handle	80	10	12	24	29	16	3	16	410
77100.W0205	77100.W0206	W/o keyway, Rotating Handle	100	10	12	26	33	17	3	16	550
77100.W0210	77100.W0211	W/o keyway, Rotating Handle	125	12	14	28	36	18	3	20	850
77100.W0215	77100.W0216	W/o keyway, Rotating Handle	140	14	16	30	39	19	3	20	1040
77100.W0220	77100.W0221	W/o keyway, Rotating Handle	160	14	16	32	40	20	3	25	1390
77100.W0230	77100.W0231	W/o keyway, Rotating Handle	200	18	22	38	45	24	3	25	2190
77100.W0240	77100.W0241	W/o keyway, Rotating Handle	250	22	26	45	50	28	5	32	4185
77100.W0245	77100.W0246	W/o keyway, Rotating Handle	315	26	30	53	56	33	5	32	6185
77100.W0250	77100.W0251	W/o keyway, Rotating Handle	400	30	34	65	63	38	5	36	10500
77100.W0300	77100.W0301	With Keyway, Rotating Handle	80	10	12	24	29	16	3	16	410
77100.W0305	77100.W0306	With keyway, rotating handle	100	10	12	26	33	17	3	16	550
77100.W0310	77100.W0311	With Keyway, Rotating Handle	125	12	14	28	36	18	3	20	850
77100.W0315	77100.W0316	With Keyway, Rotating Handle	140	14	16	30	39	19	3	20	1040
77100.W0320	77100.W0321	With Keyway, Rotating Handle	160	14	16	32	40	20	3	25	1390
77100.W0330	77100.W0331	With Keyway, Rotating Handle	200	18	22	38	45	24	3	25	2190
77100.W0340	77100.W0341	With Keyway, Rotating Handle	250	22	26	45	50	28	5	32	4185
77100.W0345	77100.W0346	With Keyway, Rotating Handle	315	26	30	53	56	33	5	32	6185
77100.W0350	77100.W0351	With Keyway, Rotating Handle	400	30	34	65	63	38	5	36	10500
77100.W0400	77100.W0401	W/o Keyway, Fixed Handle	80	10	12	24	29	16	3	16	410
77100.W0400	77100.W0401	W/o Keyway, Fixed Handle	80	10	12	24	29	16	3	16	410
77100.W0410	77100.W0411	W/o Keyway, Fixed Handle	125	12	14	28	36	18	3	20	835
77100.W0415	77100.W0416	W/o Keyway, Fixed Handle	140	14	16	30	39	19	3	20	1025
77100.W0420	77100.W0421	W/o Keyway, Fixed Handle	160	14	16	32	40	20	3	25	1380
77100.W0430	77100.W0431	W/o Keyway, Fixed Handle	200	18	22	38	45	24	3	25	2180
77100.W0440	77100.W0441	W/o Keyway, Fixed Handle	250	22	26	45	50	28	5	32	4160
77100.W0445	77100.W0446	W/o Keyway, Fixed Handle	315	26	30	53	56	33	5	32	6160
77100.W0450	77100.W0451	W/o Keyway, Fixed Handle	400	30	34	65	63	38	5	36	10460

Cast Iron Handwheels

DIN 950

77100

Order No. d_2 Small	Order No. d_2 Large	Type	d_1	d_2 H7 small	d_2 H7 large	d_3	l_1 ~	l_2	No. of Spokes	Corresp. handle Ø	g
77100.W0500	77100.W0501	With Keyway, Fixed Handle	80	10	12	24	29	16	3	16	410
77100.W0505	77100.W0506	With Keyway, Fixed Handle	100	10	12	26	33	17	3	16	550
77100.W0510	77100.W0511	With Keyway, Fixed Handle	125	12	14	28	36	18	3	20	835
77100.W0515	77100.W0516	With Keyway, Fixed Handle	140	14	16	30	39	19	3	20	1025
77100.W0520	77100.W0521	With Keyway, Fixed Handle	160	14	16	32	40	20	3	25	1380
77100.W0530	77100.W0531	With Keyway, Fixed Handle	200	18	22	38	45	24	3	25	2180
77100.W0540	77100.W0541	With Keyway, Fixed Handle	250	22	26	45	50	28	5	32	4160
77100.W0545	77100.W0546	With Keyway, Fixed Handle	315	26	30	53	56	33	5	32	6160
77100.W0550	77100.W0551	With Keyway, Fixed Handle	400	30	34	65	63	38	5	36	10460

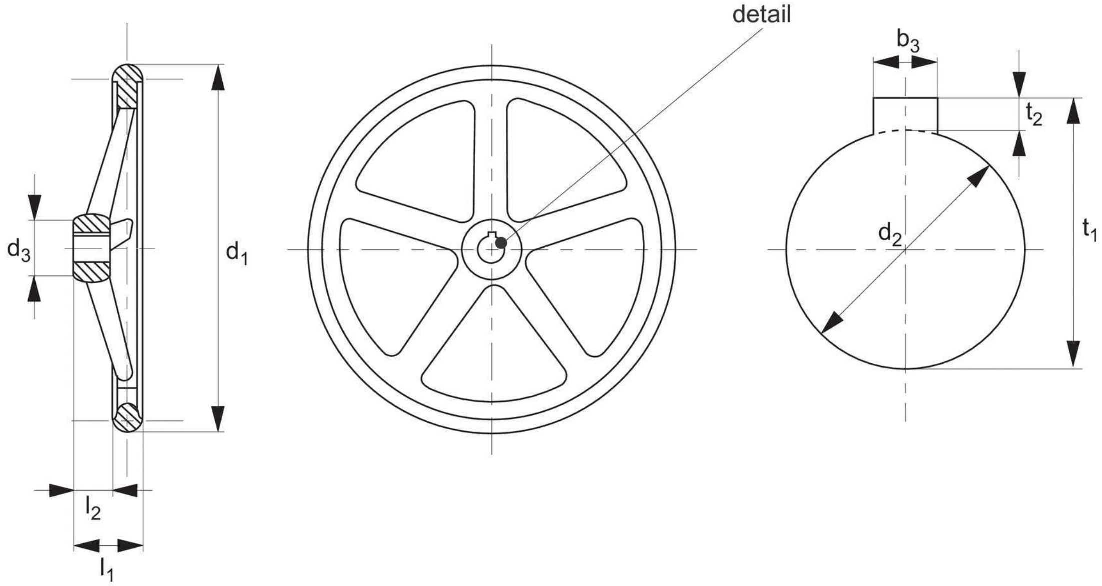
Material

Handwheel: Grey cast iron GG. Hub machined; rim turned and mirror-finished on all sides, non-machined surfaces cleanly blasted.

Technical Notes

There are gripping indentations on the rear sides.

For keyways information (dim. t_1 **and b_3) to DIN 6885.**



Material

Aluminium, deburred. Hub machined, rim polished. For corresponding handle details see no. 75060.

Technical Notes

For keyways information (dim. t_1 and b_3) to DIN 6885.

ALU.

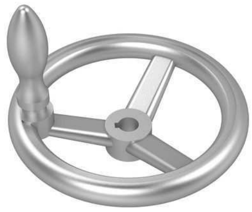
Order No. d_2 Small	Order No. d_2 Large	Type	d_1	d_2 H7 small	d_2 H7 large	d_3	l_1 ~	l_2	No. of Spokes	Corresp. handle Ø	g
77120.W0000	77120.W0001	W/o Keyway, W/o Handle	80	10	12	24	29	16	3	-	92
77120.W0005	77120.W0006	W/o Keyway, W/o Handle	100	10	12	26	33	17	3	-	160
77120.W0010	77120.W0011	W/o Keyway, W/o Handle	125	12	14	28	36	18	3	-	237
77120.W0015	77120.W0016	W/o Keyway, W/o Handle	140	14	16	30	39	19	3	-	295
77120.W0020	77120.W0021	W/o Keyway, W/o Handle	160	14	16	32	40	20	3	-	435
77120.W0030	77120.W0031	W/o Keyway, W/o Handle	200	18	22	38	45	24	3	-	783
77120.W0040	77120.W0041	W/o Keyway, W/o Handle	250	22	26	45	50	28	5	-	1509
77120.W0045	77120.W0046	W/o Keyway, W/o Handle	315	26	30	53	56	33	5	-	2440
77120.W0050	77120.W0051	W/o Keyway, W/o Handle	400	30	34	65	63	38	5	-	3740
77120.W0100	77120.W0101	With Keyway, W/o Handle	80	10	12	24	29	16	3	-	99
77120.W0105	77120.W0106	With Keyway, W/o Handle	100	10	12	26	33	17	3	-	171
77120.W0110	77120.W0111	With Keyway, W/o Handle	125	12	14	28	36	18	3	-	232
77120.W0115	77120.W0116	With Keyway, W/o Handle	140	14	16	30	39	19	3	-	309
77120.W0120	77120.W0121	With Keyway, W/o Handle	160	14	16	32	40	20	3	-	422
77120.W0130	77120.W0131	With Keyway, W/o Handle	200	18	22	38	45	24	3	-	779
77120.W0140	77120.W0141	With Keyway, W/o Handle	250	22	26	45	50	28	5	-	1511
77120.W0145	77120.W0146	With Keyway, W/o Handle	315	26	30	53	56	33	5	-	2500
77120.W0150	77120.W0151	With Keyway, W/o Handle	400	30	34	65	63	38	5	-	3600
77120.W0200	77120.W0201	W/o Keyway, Rotating Handle	80	10	12	24	29	16	3	16	150
77120.W0205	77120.W0206	W/o Keyway, Rotating Handle	100	10	12	26	33	17	3	16	210
77120.W0210	77120.W0211	W/o Keyway, Rotating Handle	125	12	14	28	36	18	3	20	340
77120.W0215	77120.W0216	W/o Keyway, Rotating Handle	140	14	16	30	39	19	3	20	430
77120.W0220	77120.W0221	W/o Keyway, Rotating Handle	160	14	16	32	40	20	3	25	615
77120.W0230	77120.W0231	W/o Keyway, Rotating Handle	200	18	22	38	45	24	3	25	970
77120.W0240	77120.W0241	W/o Keyway, Rotating Handle	250	22	26	45	50	28	5	32	1885
77120.W0245	77120.W0246	W/o Keyway, Rotating Handle	315	26	30	53	56	33	5	32	2885
77120.W0250	77120.W0251	W/o Keyway, Rotating Handle	400	30	34	65	63	38	5	36	4250
77120.W0300	77120.W0301	With Keyway, Rotating Handle	80	10	12	24	29	16	3	16	150
77120.W0305	77120.W0306	With Keyway, Rotating Handle	100	10	12	26	33	17	3	16	210
77120.W0310	77120.W0311	With Keyway, Rotating Handle	125	12	14	28	36	18	3	20	340
77120.W0315	77120.W0316	With Keyway, Rotating Handle	140	14	16	30	39	19	3	20	430
77120.W0320	77120.W0321	With Keyway, Rotating Handle	160	14	16	32	40	20	3	25	615
77120.W0330	77120.W0331	With Keyway, Rotating Handle	200	18	22	38	45	24	3	25	970
77120.W0340	77120.W0341	With Keyway, Rotating Handle	250	22	26	45	50	28	5	32	1885
77120.W0345	77120.W0346	With Keyway, Rotating Handle	315	26	30	53	56	33	5	32	2885
77120.W0350	77120.W0351	With Keyway, Rotating Handle	400	30	34	65	63	38	5	36	4250
77120.W0400	77120.W0401	W/o Keyway, Fixed Handle	80	10	12	24	29	16	3	16	150
77120.W0405	77120.W0406	W/o Keyway, Fixed Handle	100	10	12	26	33	17	3	16	210
77120.W0410	77120.W0411	W/o Keyway, Fixed Handle	125	12	14	28	36	18	3	20	340
77120.W0415	77120.W0416	W/o Keyway, Fixed Handle	140	14	16	30	39	19	3	20	420
77120.W0420	77120.W0421	W/o Keyway, Fixed Handle	160	14	16	32	40	20	3	25	615
77120.W0430	77120.W0431	W/o Keyway, Fixed Handle	200	18	22	38	45	24	3	25	970
77120.W0440	77120.W0441	W/o Keyway, Fixed Handle	250	22	26	45	50	28	5	32	1860
77120.W0445	77120.W0446	W/o Keyway, Fixed Handle	315	26	30	53	56	33	5	32	2860
77120.W0450	77120.W0451	W/o Keyway, Fixed Handle	400	30	34	65	63	38	5	36	4210

Aluminium Handwheels

DIN 950

77120

Order No. d_2 Small	Order No. d_2 Large	Type	d_1	d_2 H7 small	d_2 H7 large	d_3	l_1 ~	l_2	No. of Spokes	Corresp. handle Ø	g
77120.W0500	77120.W0501	With Keyway, Fixed Handle	80	10	12	24	29	16	3	16	150
77120.W0505	77120.W0506	With Keyway, Fixed Handle	100	10	12	26	33	17	3	16	210
77120.W0510	77120.W0511	With Keyway, Fixed Handle	125	12	14	28	36	18	3	20	330
77120.W0515	77120.W0516	With Keyway, Fixed Handle	140	14	16	30	39	19	3	20	420
77120.W0520	77120.W0521	With Keyway, Fixed Handle	160	14	16	32	40	20	3	25	610
77120.W0530	77120.W0531	With Keyway, Fixed Handle	200	18	22	38	45	24	3	25	960
77120.W0540	77120.W0541	With Keyway, Fixed Handle	250	22	26	45	50	28	5	32	1860
77120.W0545	77120.W0546	With Keyway, Fixed Handle	315	26	30	53	56	33	5	32	2860
77120.W0550	77120.W0551	With Keyway, Fixed Handle	400	30	34	65	65	38	5	36	4210



Material

Aluminium, deburred. Hub machined, rim polished. For corresponding handle details see no. 75060.

Technical Notes

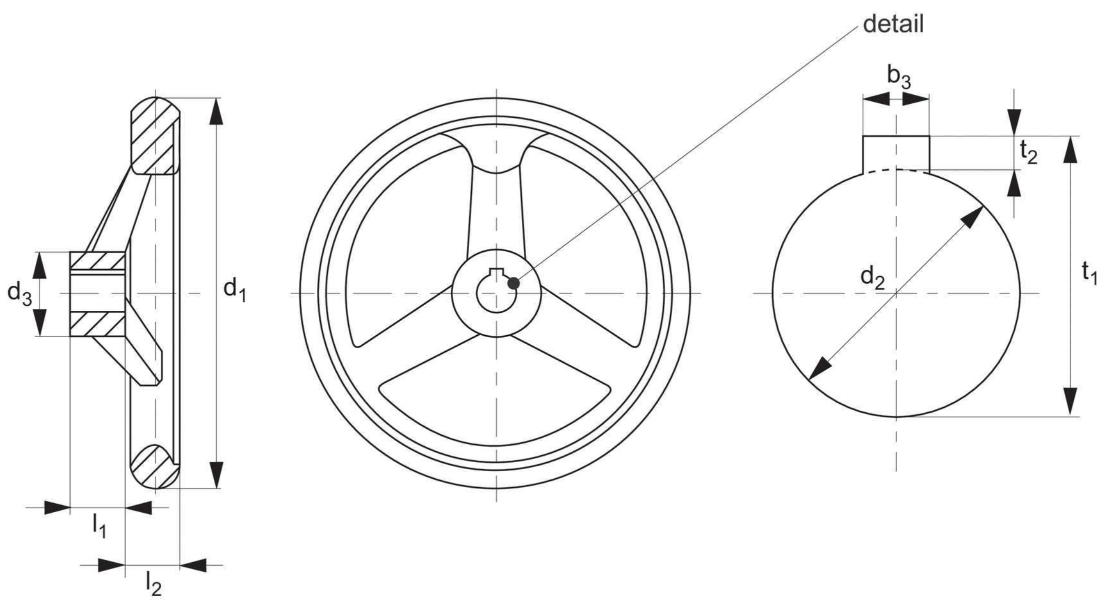
For keyways information (dim. t_1 and b_3) to DIN 6885.

ALU.

Stainless Steel Handwheels

DIN 950

77140



Order No.	Finish	d_1	d_2 h9	d_3	l_1	l_2	No. of spokes	Ø machine handles	g
77140.W0005	W/o Keyway, W/o Handle	100	10	25,5	17	14,5	3	-	431
77140.W0010	W/o Keyway, W/o Handle	125	12	27,0	18	15,8	3	-	655
77140.W0015	W/o Keyway, W/o Handle	140	14	29,0	19	17,0	3	-	851
77140.W0020	W/o Keyway, W/o Handle	160	14	27,0	18	17,5	3	-	1112
77140.W0030	W/o Keyway, W/o Handle	200	18	37,0	24	20,0	3	-	1877
77140.W0105	With Keyway, W/o Handle	100	10	25.5	17	14.5	3	-	434
77140.W0110	With Keyway, W/o Handle	125	12	27,0	18	15,8	3	-	854
77140.W0115	With Keyway, W/o Handle	140	14	29,0	19	17,0	3	-	854
77140.W0120	With Keyway, W/o Handle	160	14	31,0	20	17,5	3	-	1115
77140.W0130	With Keyway, W/o Handle	200	18	37,0	24	20,0	3	-	1882
77140.W0405	W/o Keyway, With Handle	100	10	25,5	17	14,5	3	16	472
77140.W0410	W/o Keyway, With Handle	125	12	27,0	18	15,8	3	20	748
77140.W0415	W/o Keyway, With Handle	140	14	29,0	19	17,0	3	20	939
77140.W0420	W/o Keyway, With Handle	160	14	31,0	20	17,5	3	25	1273
77140.W0430	W/o Keyway, With Handle	200	18	37,0	24	20,0	3	25	2044
77140.W0505	With Keyway, With Handle	100	10	25,5	17	14,5	3	16	473
77140.W0510	With Keyway, With Handle	125	12	27,0	18	15,8	3	20	753
77140.W0515	With Keyway, With Handle	140	14	29,0	19	17,0	3	20	939
77140.W0520	With Keyway, With Handle	160	14	31,0	20	17,5	3	25	1282
77140.W0530	With Keyway, With Handle	200	18	37,0	24	20,0	3	25	2049

Material

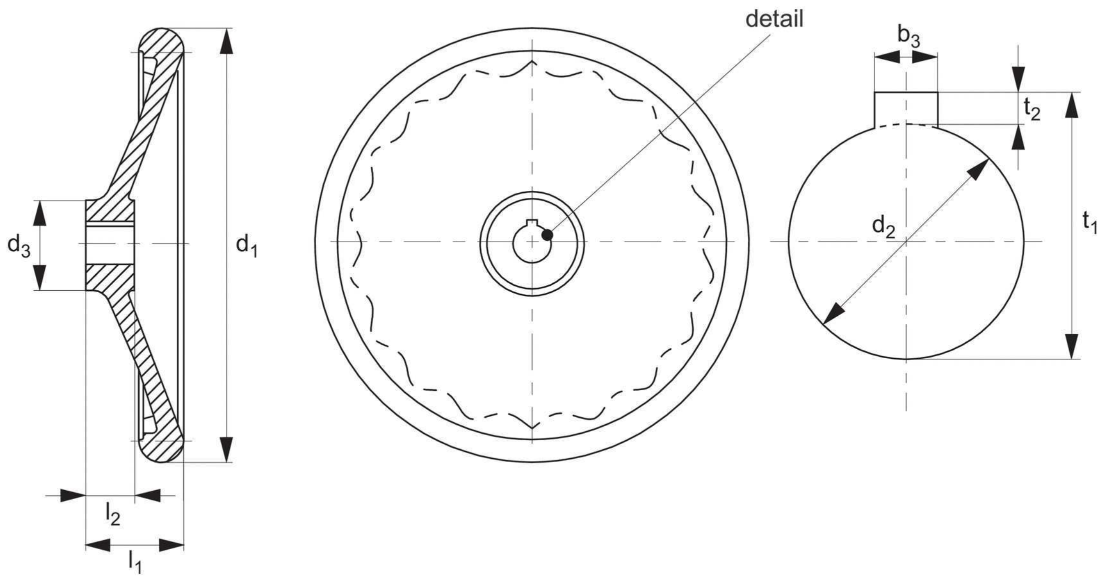
Stainless steel, deburred.
Hub machined;rim turned and mirror-finished on all sides, non-machined surfaces cleanly blasted.

Technical Notes

For keyways information (dim. t_1 and b_3) to DIN 6885.

Disc Type Handwheels

DIN 3670



Order No.	Type	d_1	d_2 H7	d_3	l_1 ~	l_2	b_3	t	g
77200.W0103	Without Keyway	80	10	26	29	16	-	-	119
77200.W0104	Without Keyway	80	12	26	29	16	-	-	116
77200.W0105	Without Keyway	100	10	28	33	17	-	-	194
77200.W0106	Without Keyway	100	12	28	33	17	-	-	194
77200.W0110	Without Keyway	125	12	31	36	18	-	-	288
77200.W0111	Without Keyway	125	14	31	36	18	-	-	288
77200.W0120	Without Keyway	160	14	36	40	20	-	-	477
77200.W0121	Without Keyway	160	16	36	40	20	-	-	477
77200.W0130	Without Keyway	200	18	42	45	24	-	-	955
77200.W0131	Without Keyway	200	22	42	45	24	-	-	955
77200.W0140	Without Keyway	250	22	48	50	28	-	-	1685
77200.W0141	Without Keyway	250	26	48	50	28	-	-	1685
77200.W0150	Without Keyway	315	26	56	56	33	-	-	2710
77200.W0151	Without Keyway	315	28	56	56	33	-	-	2700
77200.W0160	Without Keyway	400	30	65	63	38	-	-	4720
77200.W0161	Without Keyway	400	32	65	63	38	-	-	4660
77200.W0303	With Keyway	80	10	26	29	16	3	11,4	120
77200.W0304	With Keyway	80	12	26	29	16	4	13,8	129
77200.W0305	With Keyway	100	10	28	33	17	3	11,4	190
77200.W0306	With Keyway	100	12	28	33	17	4	13,8	190
77200.W0310	With Keyway	125	12	31	36	18	4	13,8	250
77200.W0311	With Keyway	125	14	31	36	18	5	16,3	250
77200.W0320	With Keyway	160	14	36	40	20	5	16,3	491
77200.W0321	With Keyway	160	16	36	40	20	5	18,3	491
77200.W0330	With Keyway	200	18	42	45	24	6	20,8	933
77200.W0331	With Keyway	200	22	42	45	24	6	24,8	933
77200.W0340	With Keyway	250	22	48	50	28	6	24,8	1662
77200.W0341	With Keyway	250	26	48	50	28	8	29,3	1662
77200.W0350	With Keyway	315	26	56	56	33	8	29,3	2700
77200.W0351	With Keyway	315	28	56	56	33	8	31,3	2670
77200.W0360	With Keyway	400	30	65	63	38	8	33,3	4760
77200.W0361	With Keyway	400	32	65	63	38	10	35,3	4720

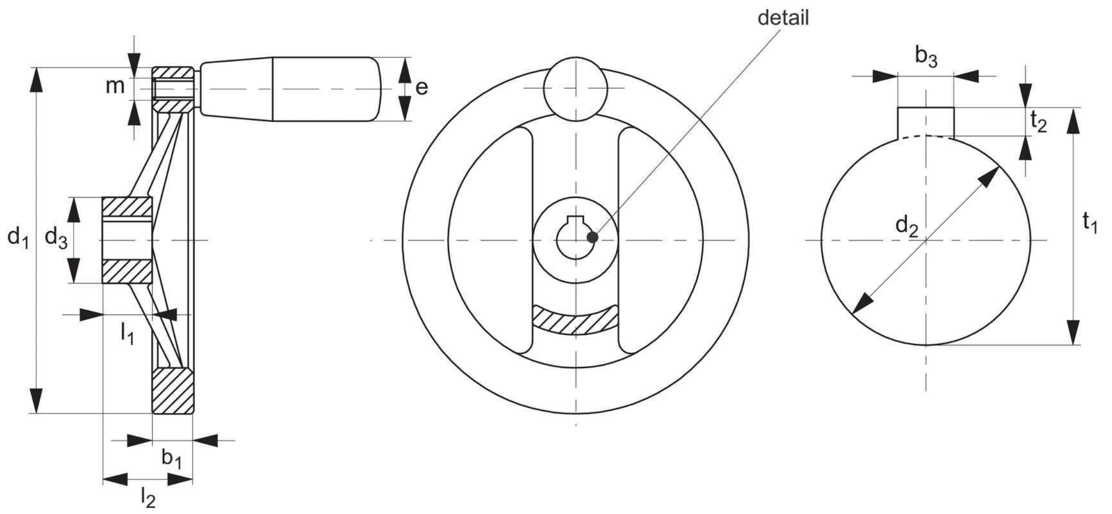
Material

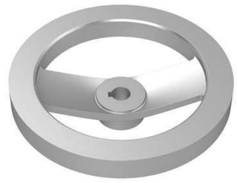
Hub machined; rim turned and mirror-finished on all sides, non-machined surfaces cleanly blasted.
Aluminium permanent-mould casting.

Technical Notes

There are gripping indentations on the rear sides.
For keyways information (dim. t_1 **and** b_3**) to DIN 6885.**

ALU.





Order No. d_2 Small	Order No. d_2 Large	Type	d_1	d_2 H7 small	d_2 H7 large	d_3	b_1	l_1	l_2 ≈	e	m	g
77300.W0012	77300.W0013	W/o Keyway, W/o Handle	125	12	14	31	15,0	18	33	-	-	301
77300.W0014	77300.W0015	W/o Keyway, W/o Handle	140	14	16	36	16,5	19	36	-	-	400
77300.W0016	77300.W0017	W/o Keyway, W/o Handle	160	14	16	36	18,0	20	39	-	-	520
77300.W0020	77300.W0021	W/o Keyway, W/o Handle	200	18	20	42	20,5	24	45	-	-	886
77300.W0025	77300.W0026	W/o Keyway, W/o Handle	250	22	26	48	23,0	28	51	-	-	1454
77300.W0112	77300.W0113	With Keyway, W/o Handle	125	12	14	31	15,0	18	33	-	-	303
77300.W0114	77300.W0115	With Keyway, W/o Handle	140	14	16	36	16,5	19	36	-	-	406
77300.W0116	77300.W0117	With Keyway, W/o Handle	160	14	16	36	18,0	20	39	-	-	542
77300.W0120	77300.W0121	With Keyway, W/o Handle	200	18	20	42	20,5	24	45	-	-	914
77300.W0125	77300.W0126	With Keyway, W/o Handle	250	22	26	48	23,0	28	51	-	-	1446
77300.W0512	77300.W0513	W/o Keyway, With Handle	125	12	14	31	15,0	18	33	23	M 8	390
77300.W0514	77300.W0515	W/o Keyway, With Handle	140	14	16	36	16,5	19	36	23	M 8	490
77300.W0516	77300.W0517	W/o Keyway, With Handle	160	14	16	36	18,0	20	39	26	M10	645
77300.W0520	77300.W0521	W/o Keyway, With Handle	200	18	20	42	20,5	24	45	26	M10	1000
77300.W0525	77300.W0526	W/o Keyway, With Handle	250	22	26	48	23,0	28	51	28	M10	1585
77300.W0612	77300.W0613	With Keyway, With Handle	125	12	14	31	15,0	18	33	23	M 8	390
77300.W0614	77300.W0615	With Keyway, With Handle	140	14	16	36	16,5	19	36	23	M 8	490
77300.W0616	77300.W0617	With Keyway, With Handle	160	14	16	36	18,0	20	39	26	M10	645
77300.W0620	77300.W0621	With Keyway, With Handle	200	18	20	42	20,5	24	45	26	M10	1000
77300.W0625	77300.W0626	With Keyway, With Handle	250	22	26	48	23,0	28	51	28	M10	1585

Material

Aluminium mould casting. Plastic handle PF 31, DIN 7708.
Hub machined;rim turned and mirror-finished on all sides, non-machined surfaces cleanly blasted.
For corresponding handle details see no. 75120 rotating handle.

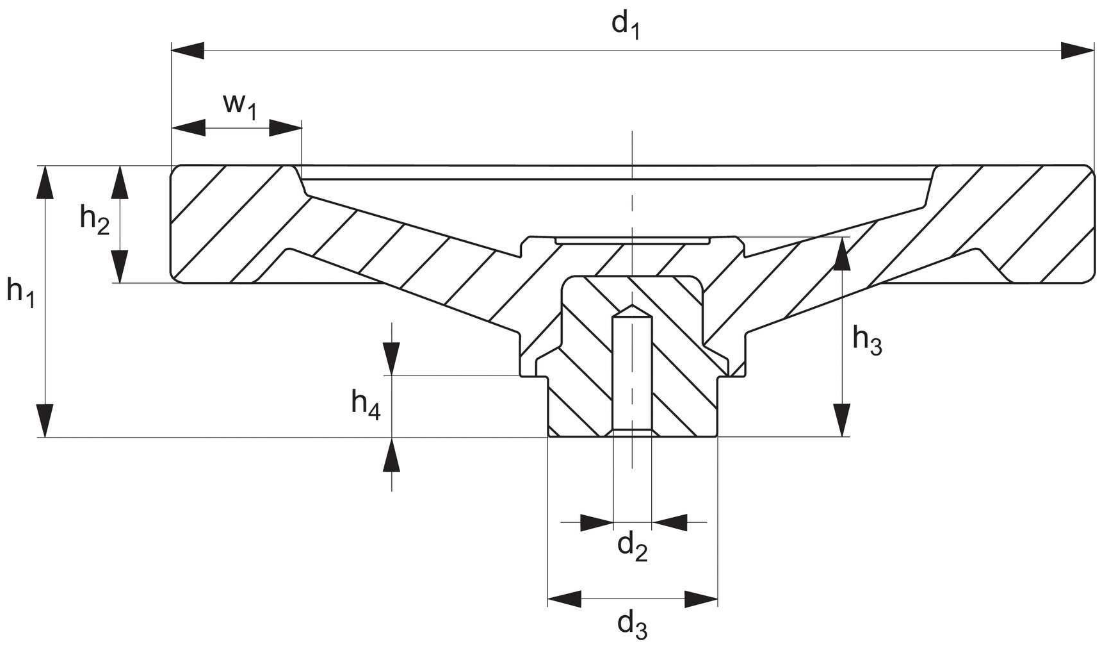
Technical Notes

The non-machined, raw surfaces are blasted; together with the mirror-polished rim these handwheels are therefore showing a finish which in most cases does not require additional lacquering.
For keyways information (dim. t_1 and b_3) to DIN 6885.

ALU.

Two Spoked Handwheels

77340



Material
Duroplast, black, matt. Zinc plated steel hub.

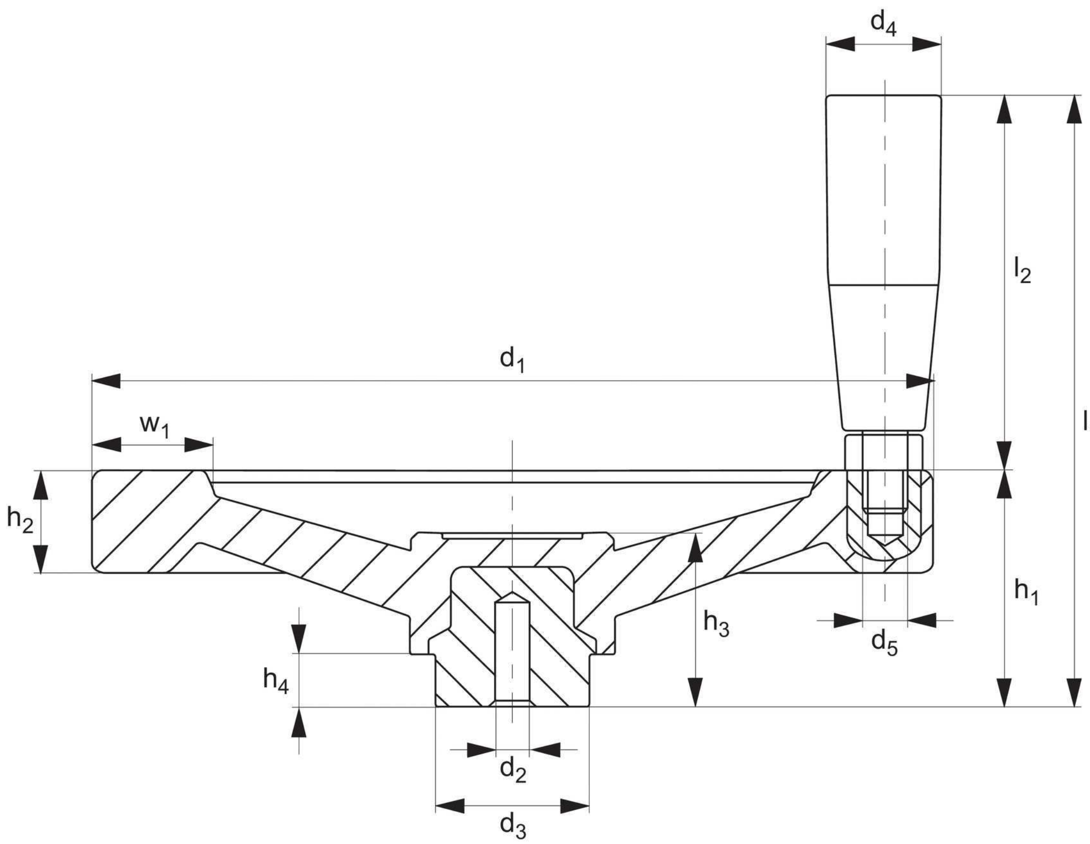
Technical Notes
The pilot hole allows various sizes of holes, keyways etc. to be machined into the hub upon request.

PF

Order No.	d_1	d_2	d_3	h_1	h_2	h_3	h_4	w_1	g
77340.W0100	100	4	24	36	14	30	11	15	169
77340.W0125	125	4	24	41	16	34	11	18	253
77340.W0150	125	6	32	46	20	38	13	21	433
77340.W0200	200	6	40	62	25	45	16	26	933
77340.W0250	250	8	48	70	28	50	17	30	1484

Two Spoked Handwheels
with rotating grip

77360



Material
Black duroplast. Zinc plated steel hub.

Technical Notes
The pilot hole allows various sizes of holes, keyways etc. to be machined into the hub upon request.

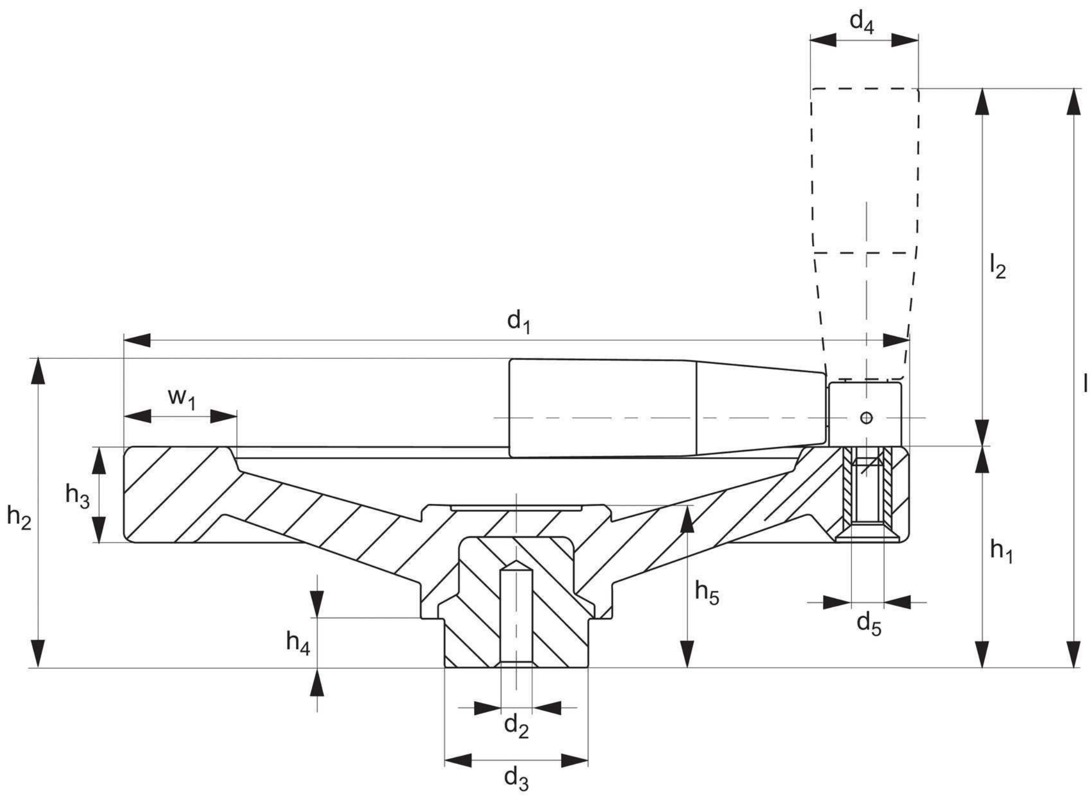
PF

Order No.	Type	d_1	d_2	d_3	l_1	l_2	h_1	h_2	h_3	h_4	d_4	d_5	w_1	g
77360.W0100	Standard	100	4	24	81	40	36	14	30	11	17	M 8	15	198
77360.W0125	Standard	125	4	24	102	55	41	16	34	11	23	M 8	18	312
77360.W0150	Standard	150	6	32	117	65	46	20	38	13	25	M10	21	525
77360.W0200	Standard	200	6	40	154	85	62	25	45	16	28	M10	26	1070
77360.W0250	Standard	250	8	48	162	85	70	28	50	17	28	M10	30	1628
77360.W0600	Reinforced	100	4	24	81	40	36	14	30	11	17	M 8	15	195
77360.W0625	Reinforced	125	4	24	102	55	41	16	34	11	23	M 8	18	317
77360.W0650	Reinforced	150	6	32	117	65	46	20	38	13	25	M10	21	519
77360.W0700	Reinforced	200	6	40	154	85	62	25	45	16	28	M10	26	1080
77360.W0750	Reinforced	250	8	48	162	85	70	28	50	17	28	M10	30	1662

Two Spoked Handwheels

with fold-away rotating grip

77380



Material

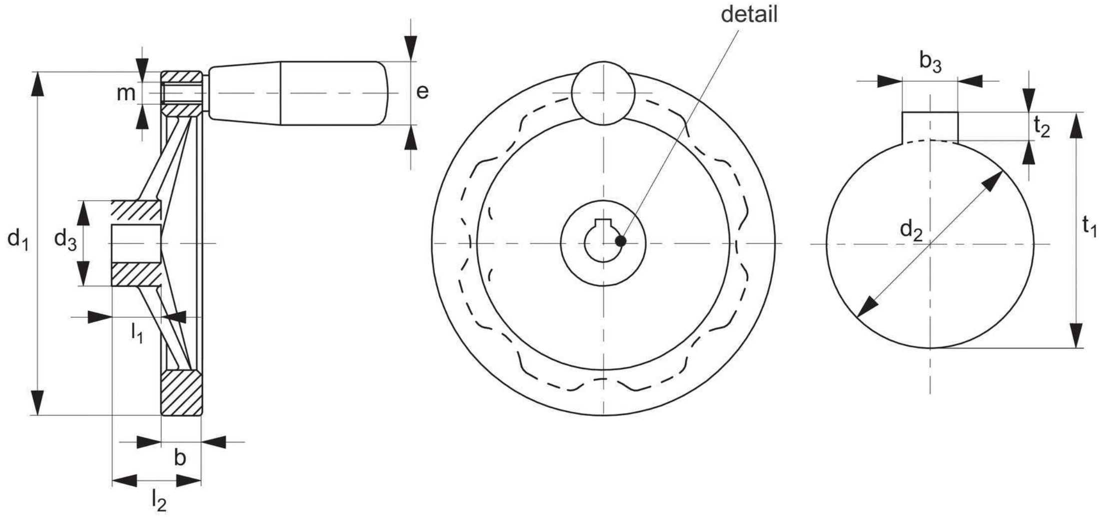
Duroplast, black. Zinc plated steel hub. Fold-away revolving handle.

Technical Notes

The pilot hole allows various sizes of holes, keyways etc. to be machined into the hub upon request.

PF

Order No.	d_1	d_2	d_3	l_1	l_2	h_1	h_2	h_3	h_4	h_5	d_4	d_5	w_1	g
77380.W0125	125	4	24	112	55	41	61	16	11	34	23	M 5	18	318
77380.W0150	150	6	32	128	65	46	67	20	13	38	25	M 6	21	500
77380.W0200	200	6	40	167	85	62	86	25	16	45	28	M 6	26	995
77380.W0250	250	8	48	175	85	70	94	28	17	50	28	M 6	30	1340



Order No. d_2 Small	Order No. d_2 Large	Finish	d_1	d_2 H7 small	d_2 H7 large	d_3	b	l_1	l_2 ≈	e	m	g
77400.W0008	77400.W0009	W/o Keyway, W/o Handle	80	10	12	26	13,0	16	26	-	-	130
77400.W0010	77400.W0011	W/o Keyway, W/o Handle	100	10	12	28	14,0	17	30	-	-	203
77400.W0012	77400.W0013	W/o Keyway, W/o Handle	125	12	14	31	15,0	18	33	-	-	307
77400.W0014	77400.W0015	W/o Keyway, W/o Handle	140	14	16	36	16,5	19	36	-	-	430
77400.W0016	77400.W0017	W/o Keyway, W/o Handle	160	14	16	36	18,0	20	39	-	-	540
77400.W0020	77400.W0021	W/o Keyway, W/o Handle	200	18	20	42	20,5	24	45	-	-	849
77400.W0025	77400.W0026	W/o Keyway, W/o Handle	250	22	26	48	23,0	28	51	-	-	1495
77400.W0108	77400.W0109	With Keyway, W/o Handle	80	10	12	26	13,0	16	26	-	-	139
77400.W0110	77400.W0111	With Keyway, W/o Handle	100	10	12	28	14,0	17	30	-	-	190
77400.W0112	77400.W0113	With Keyway, W/o Handle	125	12	14	31	15,0	18	33	-	-	291
77400.W0114	77400.W0115	With Keyway, W/o Handle	140	14	16	36	16,5	19	36	-	-	413
77400.W0116	77400.W0117	With Keyway, W/o Handle	160	14	16	36	18,0	20	39	-	-	529
77400.W0120	77400.W0121	With Keyway, W/o Handle	200	18	20	42	20,5	24	45	-	-	880
77400.W0125	77400.W0126	With Keyway, W/o Handle	250	22	26	48	23,0	28	51	-	-	1515
77400.W0508	77400.W0509	W/o Keyway, With Handle	80	10	12	26	13,0	16	26	18	M 6	160
77400.W0510	77400.W0511	W/o Keyway, With Handle	100	10	12	28	14,0	17	30	21	M 6	255
77400.W0512	77400.W0513	W/o Keyway, With Handle	125	12	14	31	15,0	18	33	23	M 8	390
77400.W0514	77400.W0515	W/o Keyway, With Handle	140	14	16	36	16,5	19	36	23	M 8	510
77400.W0516	77400.W0517	W/o Keyway, With Handle	160	14	16	36	18,0	20	39	26	M10	675
77400.W0520	77400.W0521	W/o Keyway, With Handle	200	18	20	42	20,5	24	45	26	M10	995
77400.W0525	77400.W0526	W/o Keyway, With Handle	250	22	26	48	23,0	28	51	28	M10	1625
77400.W0608	77400.W0609	With Keyway, With Handle	80	10	12	26	13,0	16	26	18	M 6	160
77400.W0610	77400.W0611	With Keyway, With Handle	100	10	12	28	14,0	17	30	21	M 6	255
77400.W0612	77400.W0613	With Keyway, With Handle	125	12	14	31	15,0	18	33	23	M 8	390
77400.W0614	77400.W0615	With Keyway, With Handle	140	14	16	36	16,5	19	36	23	M 8	510
77400.W0616	77400.W0617	With Keyway, With Handle	160	14	16	36	18,0	20	39	26	M10	675
77400.W0620	77400.W0621	With Keyway, With Handle	200	18	20	42	20,5	24	45	26	M10	995
77400.W0625	77400.W0626	With Keyway, With Handle	250	22	26	48	23,0	28	51	28	M10	1625

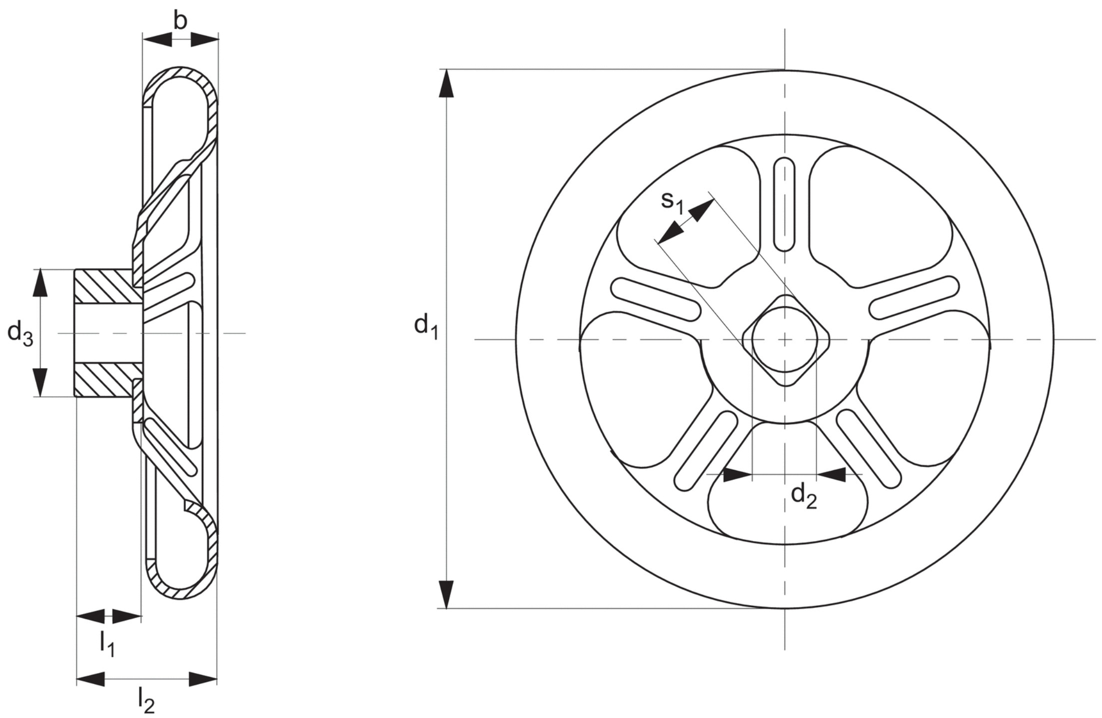
Material

Aluminium mould casting. Handle duroplast DF 31 black.
Hub machined;rim turned and mirror-finished on all sides, non-machined surfaces cleanly blasted.
For corresponding handle details see no. 75120 rotating handle.

Technical Notes

There are gripping indentations on the rear sides.
The non-machined, raw surfaces are blasted; together with the mirror-polished rim these handwheels are therefore showing a finish which in most cases does not require additional lacquering.
Temperature range up to110°C. Also available in black plastic coated - on request.
For keyways information (dim. t_1 and b_3) to DIN 6885.

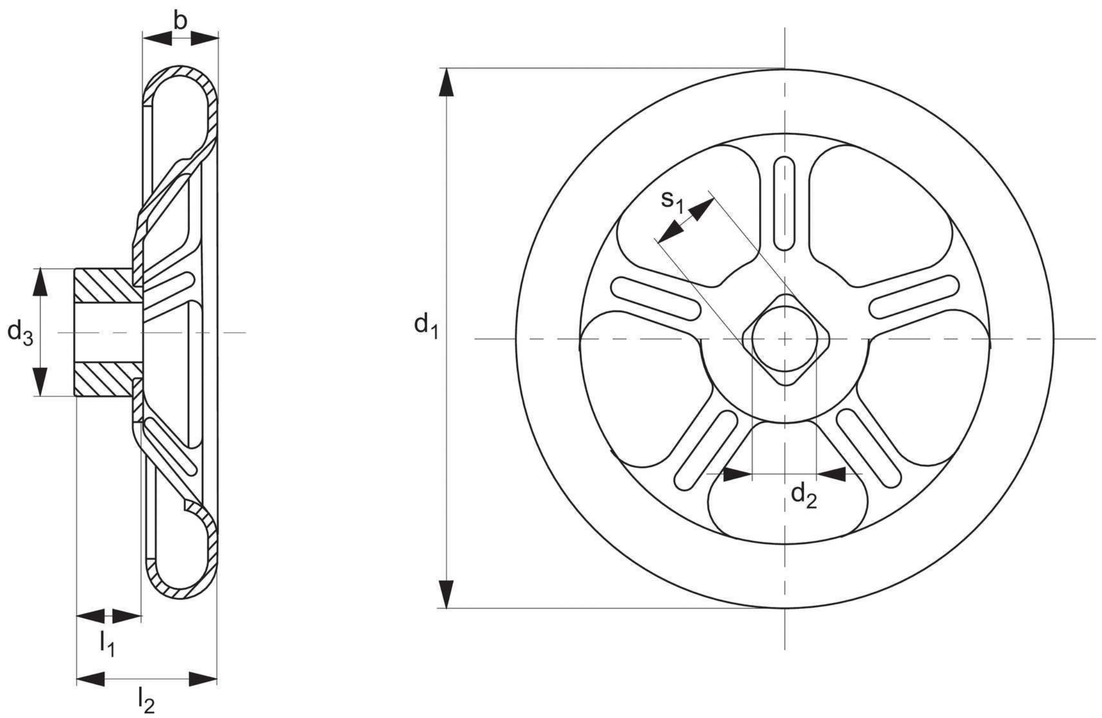
ALU.



Material
Pressed steel, plastic coated.
Black - RAL9005.

Technical Notes
This plastic coated handwheel is resistant to shock and impacts, is well designed and cost effective.

Order No. Round Bore	Order No. Square Bore	d_1	d_2 Round H9	s Square H11	b	d_3	l_1	l_2 ≈	No. of Spokes	g
77420.W0010	77420.W0110	125	B11	V11	18	30	18	29	3	300
77420.W0012	77420.W0112	160	B12	V12	22	30	20	37	4	400
77420.W0014	77420.W0114	200	B14	V14	22	40	24	46	4	800
77420.W0017	77420.W0117	250	B17	V17	30	45	28	52	5	1400
77420.W0019	77420.W0119	315	B19	V19	35	55	33	64	5	2300
77420.W0021	77420.W0121	400	B24	V24	40	65	38	82	5	9140



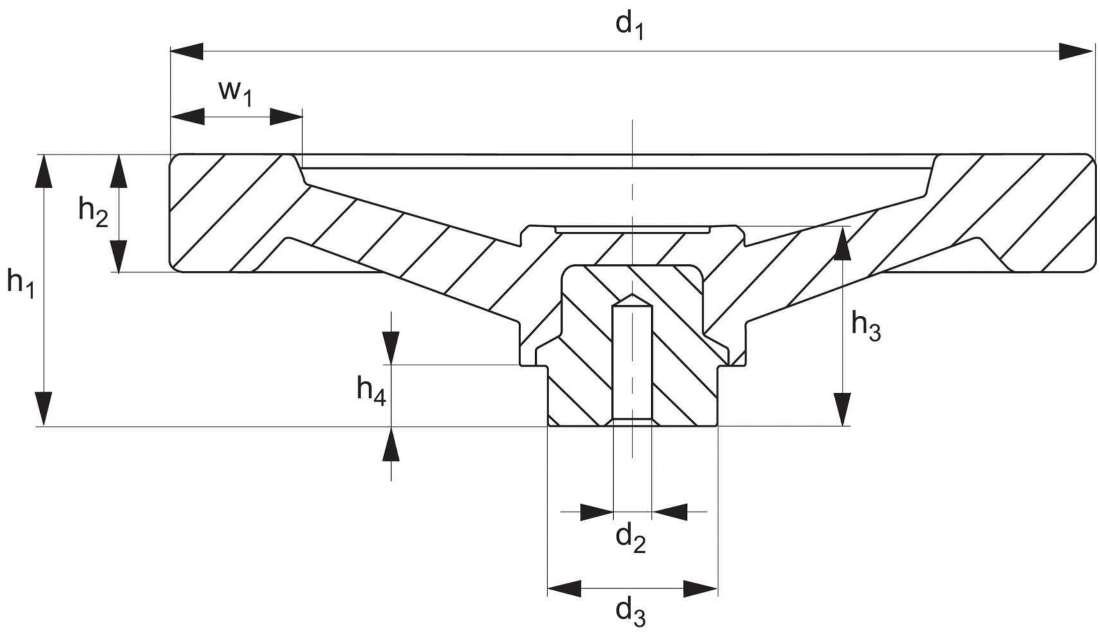
Material
Stainless steel 1.4301 (AISI 303), pressed. Hub welded. Matte shot-blasted.

STAINLESS STEEL 303

Order No. Round Bore	Order No. Square Bore	d_1	d_2 Round H9	s_1 Square H11	b	d_3	l_1	l_2 ≈	No. of Spokes	⚖ g
77430.W0012	77430.W0112	160	B12	V12	22	30	20	39	4	430
77430.W0014	77430.W0114	200	B14	V14	22	40	24	44	4	824
77430.W0017	77430.W0117	250	B17	V17	30	45	28	52	5	1477

Solid Disc Handwheels

77600

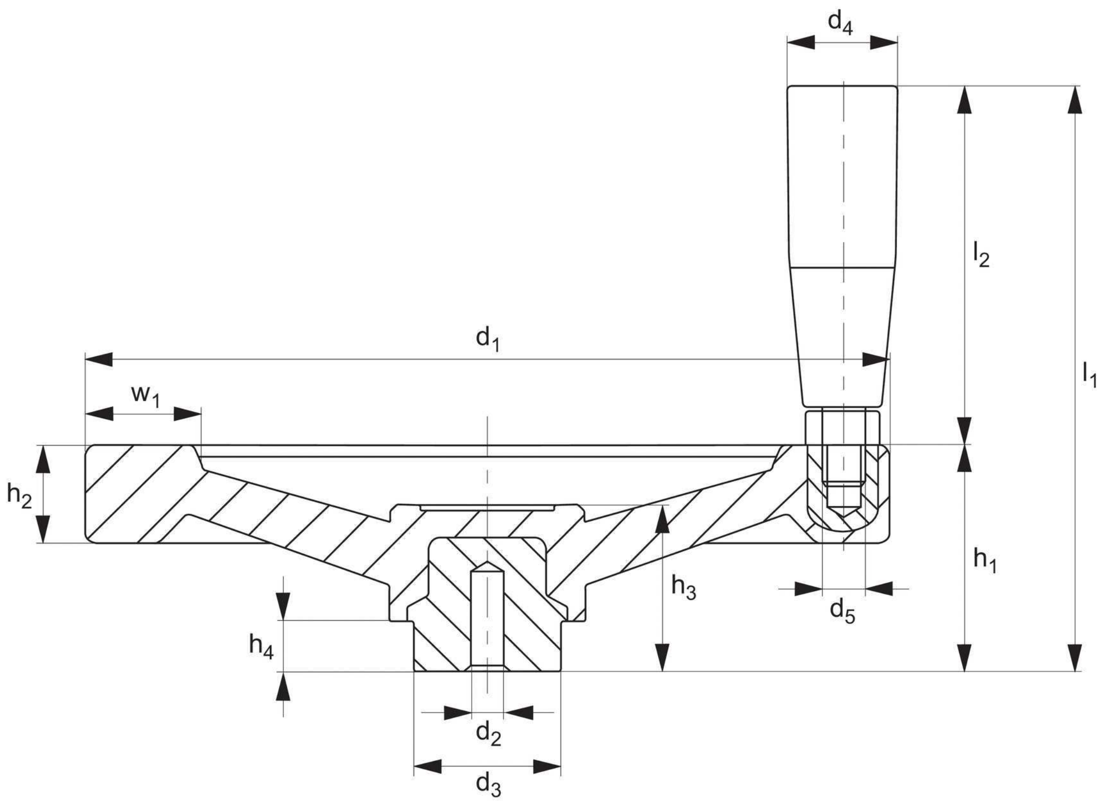


Material
Black, duroplast, with zinc plated steel hub.

Technical Notes
The pilot hole allows various sizes of holes, keyways etc. to be machined into the hub.

PF

Order No.	d_1	d_2	d_3	h_1	h_2	h_3	h_4	w_1	g
77600.W0100	100	4	24	35	14	30	11	16	200
77600.W0125	125	6	32	44	16	36	13	18	338
77600.W0150	150	6	32	48	18	38	13	20	458
77600.W0200	200	6	40	58	21	45	16	24	853
77600.W0250	250	8	48	66	22	50	17	30	1464
77600.W0300	300	8	58	76	24	57	18	35	2473



Material
Black, duroplast plastic with zinc plated steel hub.

Technical Notes
The pilot hole allows various sizes of holes, keyways etc. to be machined into the hub.

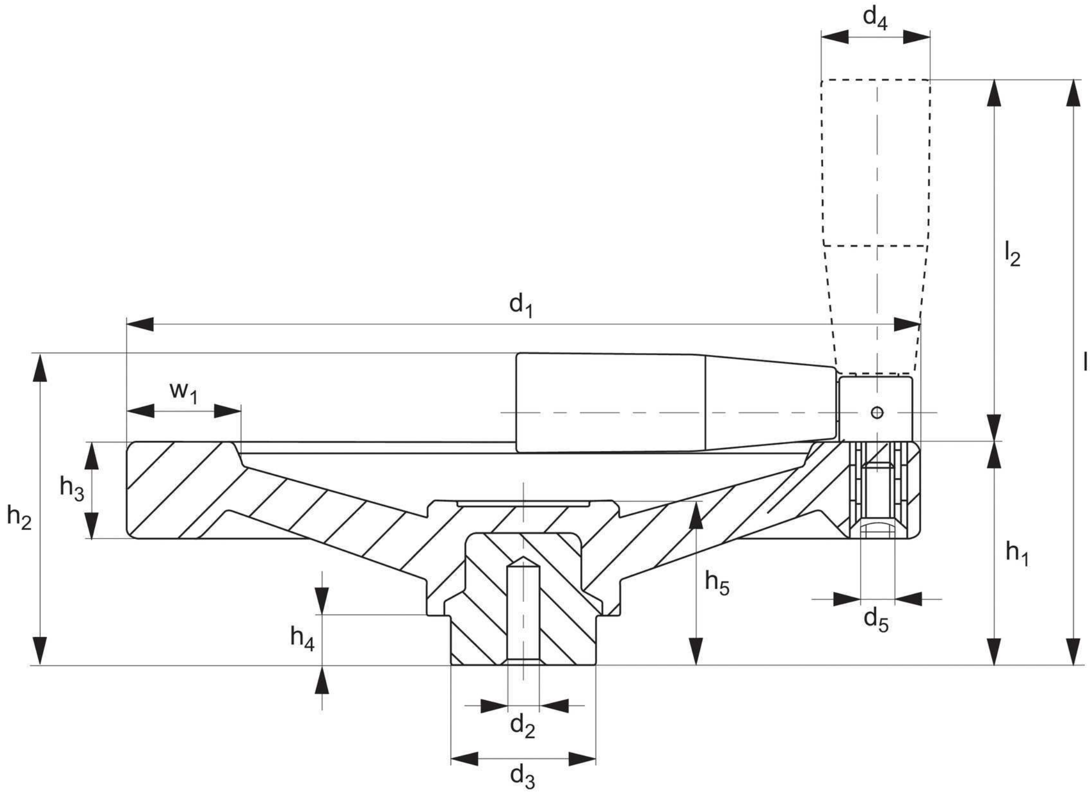
PF

Order No.	d_1	d_2	d_3	l_1	l_2	h_1	h_2	h_3	h_4	d_4	d_5	w_1	g
77620.W0100	100	4	24	85	50	35	14	30	21	21	M 8	16	231
77620.W0125	125	6	32	99	55	45	16	36	13	23	M 8	18	391
77620.W0150	150	6	32	113	65	48	18	38	13	25	M10	20	541
77620.W0200	200	6	40	143	85	58	21	45	16	28	M10	24	969
77620.W0250	250	8	48	151	85	66	22	50	17	28	M10	30	1589
77620.W0300	300	8	58	161	85	76	24	57	18	28	M10	35	2700

Solid Disc Handwheels

with fold-away rotating grip

77640



Material

Duroplast, black. Zinc plated steel hub.

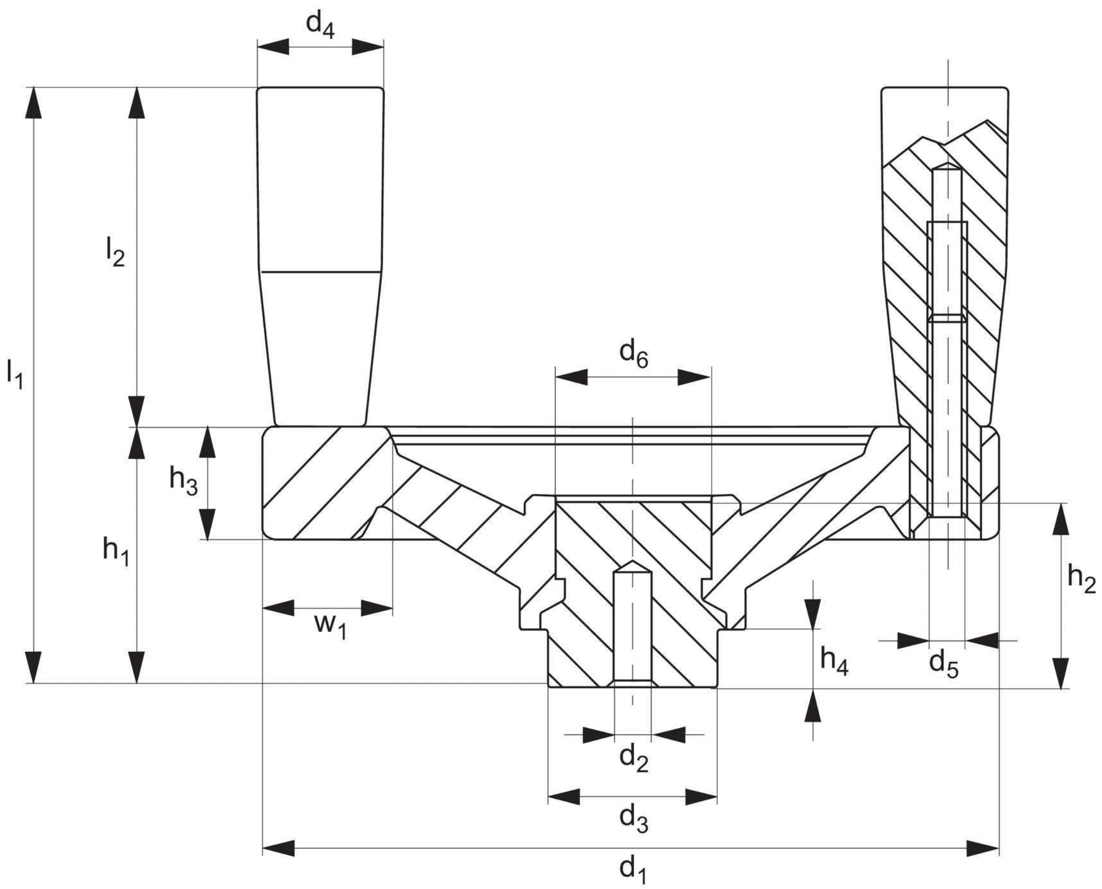
Technical Notes

The pilot hole allows various sizes of holes, keyways etc. to be machined into the hub.

Order No.	d_1	d_2	d_3	l_1	l_2	h_1	h_2	h_3	h_4	h_5	d_4	d_5	w_1	g
77640.W0100	100	4	24	102	50	35	54	14	11	30	21	M 5	16	251
77640.W0125	125	6	32	116	55	44	64	16	13	36	23	M 5	18	419
77640.W0150	150	6	32	130	65	48	69	18	13	38	25	M 6	20	539
77640.W0200	200	6	40	163	85	58	82	21	16	45	28	M 6	24	992
77640.W0250	250	8	48	171	85	66	90	22	17	50	28	M 6	30	1612
77640.W0300	300	8	58	181	85	76	100	24	18	57	28	M 6	35	2723

Solid Disc Handwheels

with double fixed handle



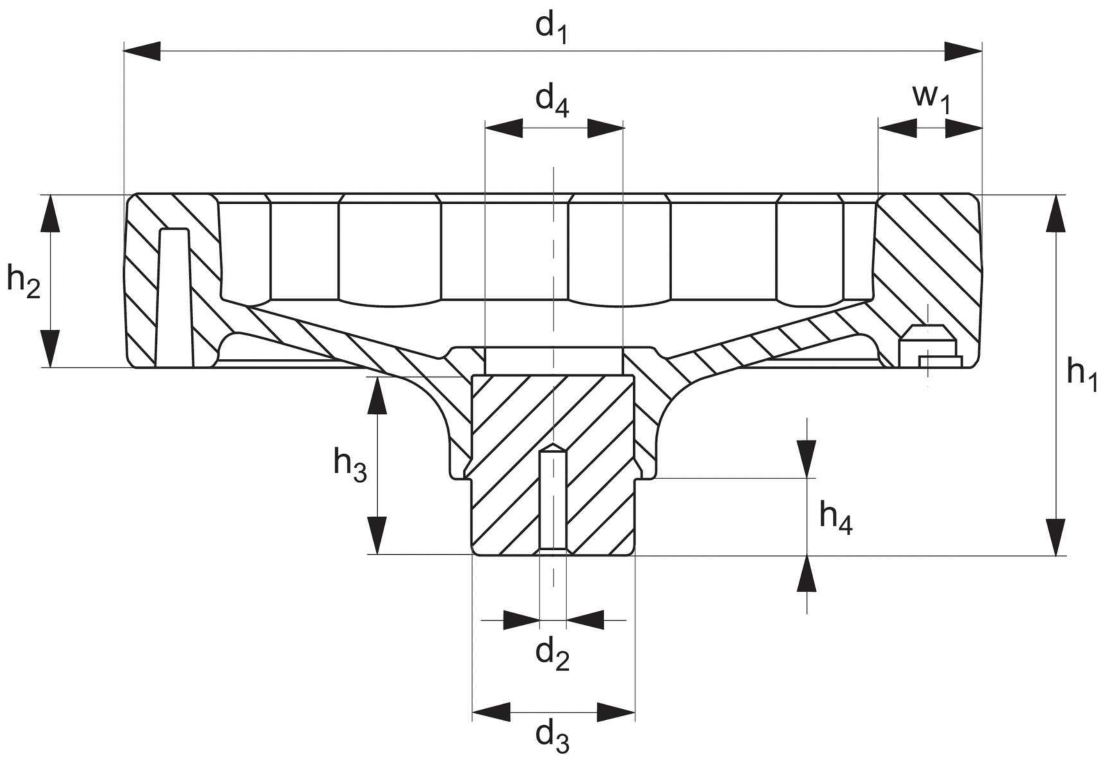
Material
Duroplast, black. Zinc plated steel hub.

Technical Notes
The pilot hole allows various sizes of holes, keyways etc. to be machined into the hub.

PF

Order No.	d_1	d_2	d_3	l_1	l_2	h_1	h_2	h_3	h_4	d_4	d_5	d_6	w_1	g
77680.W0065	65	4	20	55	27	28	24	13	13	10	M 5	15	13	111
77680.W0080	80	4	20	71	40	31	27	14	17	10	M 6	16	15	155
77680.W0100	100	4	24	85	50	35	29	14	21	11	M 6	20	16	265

77720



Material
Thermoplastic, black, matt. Zinc plated steel hub.

Technical Notes
The pilot hole allows various sizes of holes, keyways etc. to be machined into the hub.

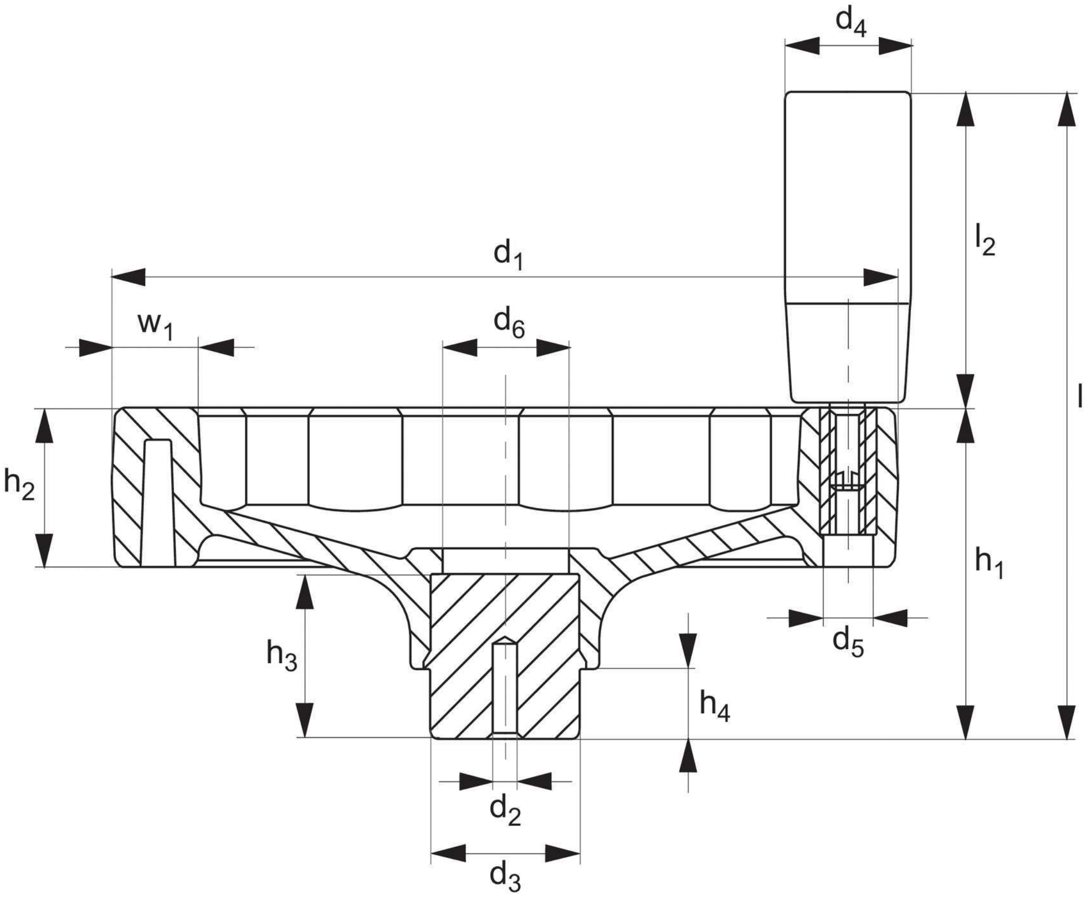
TP

Order No.	d_1	d_2	d_3	d_4	h_1	h_2	h_3	h_4	w_1	g
77720.W0100	100	4	24	18	46	20	24	12	15	174
77720.W0125	125	6	24	20	51	24	28	12	17	248
77720.W0160	160	6	32	30	61	28	31	15	20	460
77720.W0200	200	6	40	35	74	32	40	15	24	863

Solid Disc Handwheels

with rotating grip

77740



Material
Thermoplastic, black, matt. Zinc plated steel hub.

Technical Notes
The pilot hole allows various sizes of holes, keyways etc. to be machined into the hub.

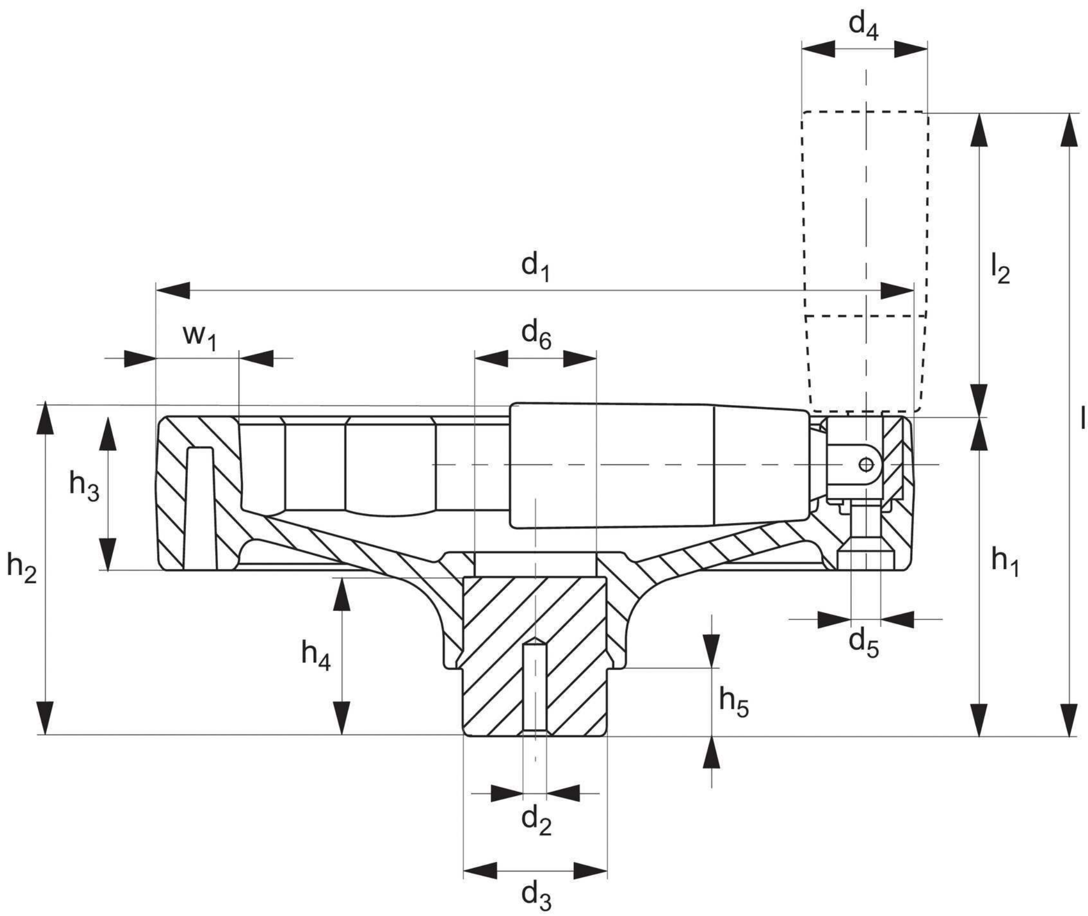
TP

Order No.	d_1	d_2	d_3	l_1	l_2	h_1	h_2	h_3	h_4	d_4	d_5	d_6	w_1	g
77740.W0100	100	4	24	96	50	46	20	24	21	12	M 6	18	15	196
77740.W0125	125	6	24	101	50	51	24	28	21	12	M 6	20	17	276
77740.W0160	160	6	32	131	70	61	28	31	23	15	M 8	30	20	504
77740.W0200	200	6	40	164	90	74	32	40	26	15	M10	35	24	950

Solid Disc Handwheels

with fold-away rotating grip

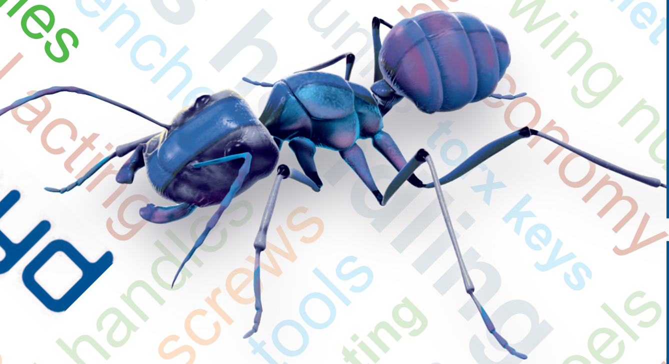
77760

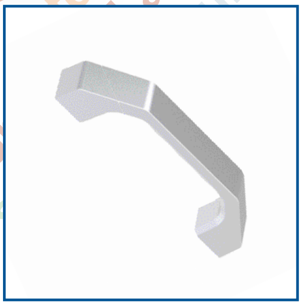


Material
Thermoplastic, black, matt. Zinc plated steel hub.

Technical Notes
The pilot hole allows various sizes of holes, keyways etc. to be machined into the hub.

Order No.	d_1	d_2	d_3	l_1	l_2	h_1	h_2	h_3	h_4	h_5	d_4	d_5	d_6	g
77760.W0100	100	4	24	98	52	46	50	20	24	12	21	M 4	18	213
77760.W0125	125	6	24	103	52	51	54	24	28	12	21	M 4	20	284
77760.W0160	160	6	32	133	72	61	65	28	31	15	23	M 5	30	507
77760.W0200	200	6	40	166	92	74	79	32	40	15	26	M 6	35	950



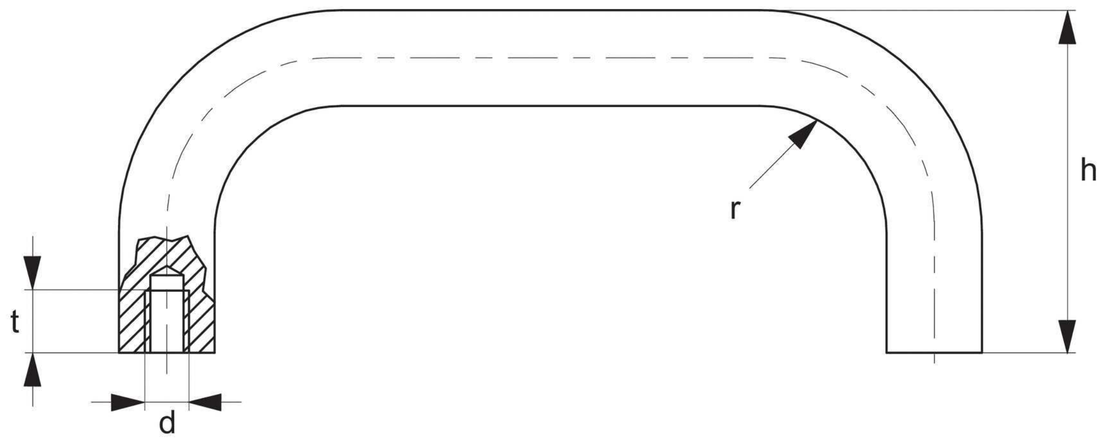


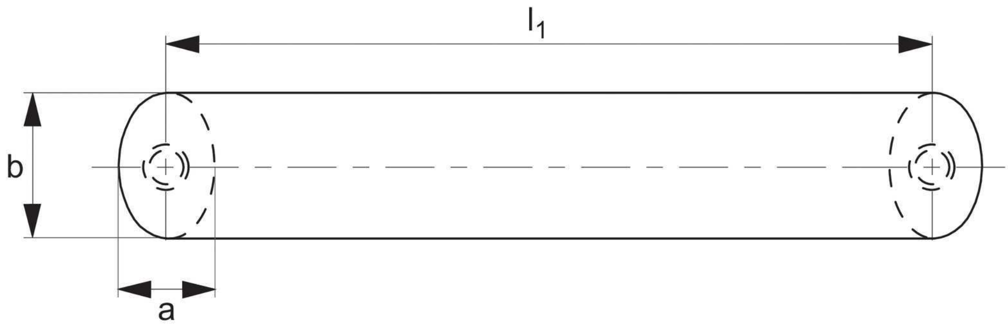
Pull Handles - Metal

Cabinet Handles

aluminium, rear mounting

78000





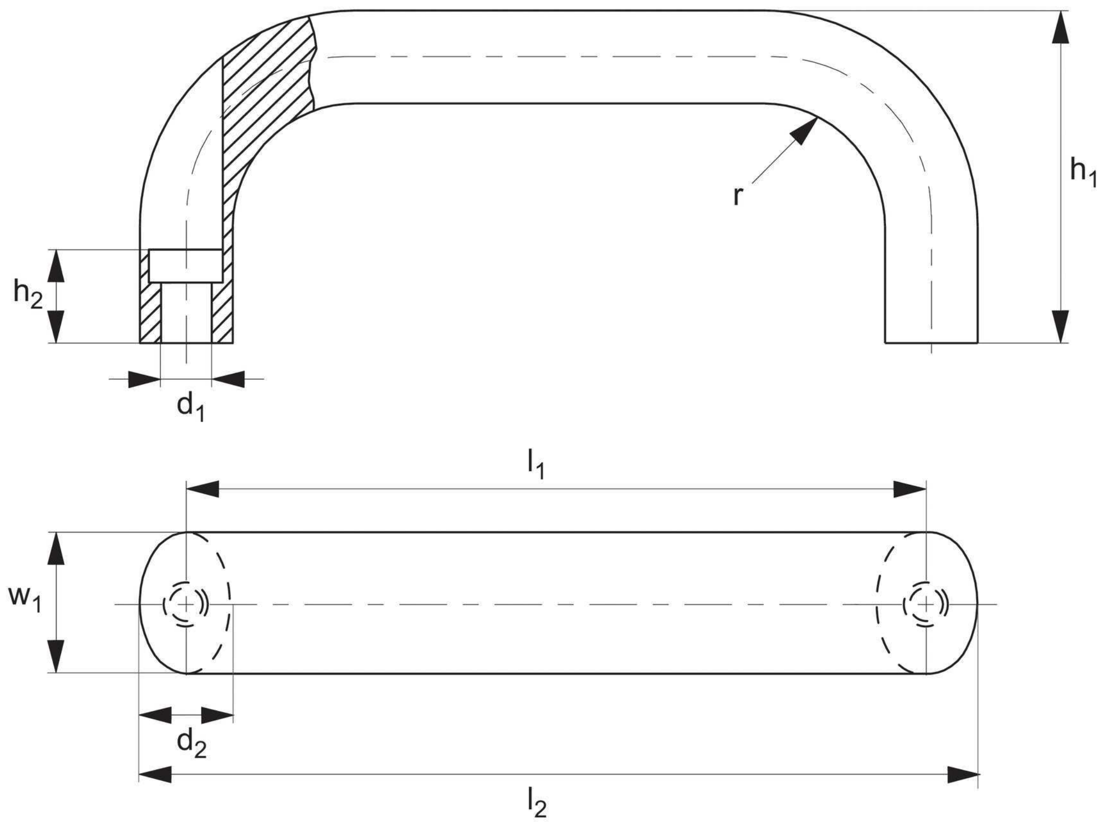
Material
Aluminium: plastic coated, black RAL905
Natural silver anodised, bright.

Technical Notes
Ergonomic design offering high stability and smooth surfaces.

ALU.

Order No. Black	Order No. Natural	b	l_1	a	d	h	r	t	g
78000.W0010	78000.W0210	20	100	13	M 6	47	13	10	92
78000.W0011	78000.W0211	20	112	13	M 6	49	13	10	97
78000.W0012	78000.W0212	20	128	13	M 6	51	13	10	110
78000.W0013	78000.W0213	20	117	13	M 6	49	13	10	100
78000.W0014	78000.W0214	20	120	13	M 6	49	13	10	97
78000.W0016	78000.W0216	20	160	13	M 6	51	13	10	126
78000.W0111	78000.W0311	26	112	17	M 8	53	17	12	165
78000.W0112	78000.W0312	26	128	17	M 8	55	17	12	181
78000.W0113	78000.W0313	26	117	17	M 8	55	17	12	166
78000.W0114	78000.W0314	26	120	17	M 8	55	17	12	200
78000.W0115	78000.W0315	26	125	17	M 8	55	17	12	180
78000.W0116	78000.W0316	26	160	17	M 8	57	17	12	219
78000.W0117	78000.W0317	26	179	17	M 8	57	17	12	234
78000.W0119	78000.W0319	26	192	17	M 8	57	17	12	250
78000.W0130	78000.W0330	26	300	17	M 8	57	17	12	347
78000.W0140	78000.W0340	26	400	17	M 8	57	17	12	445
78000.W0150	78000.W0350	26	500	17	M 8	57	17	12	538

78010



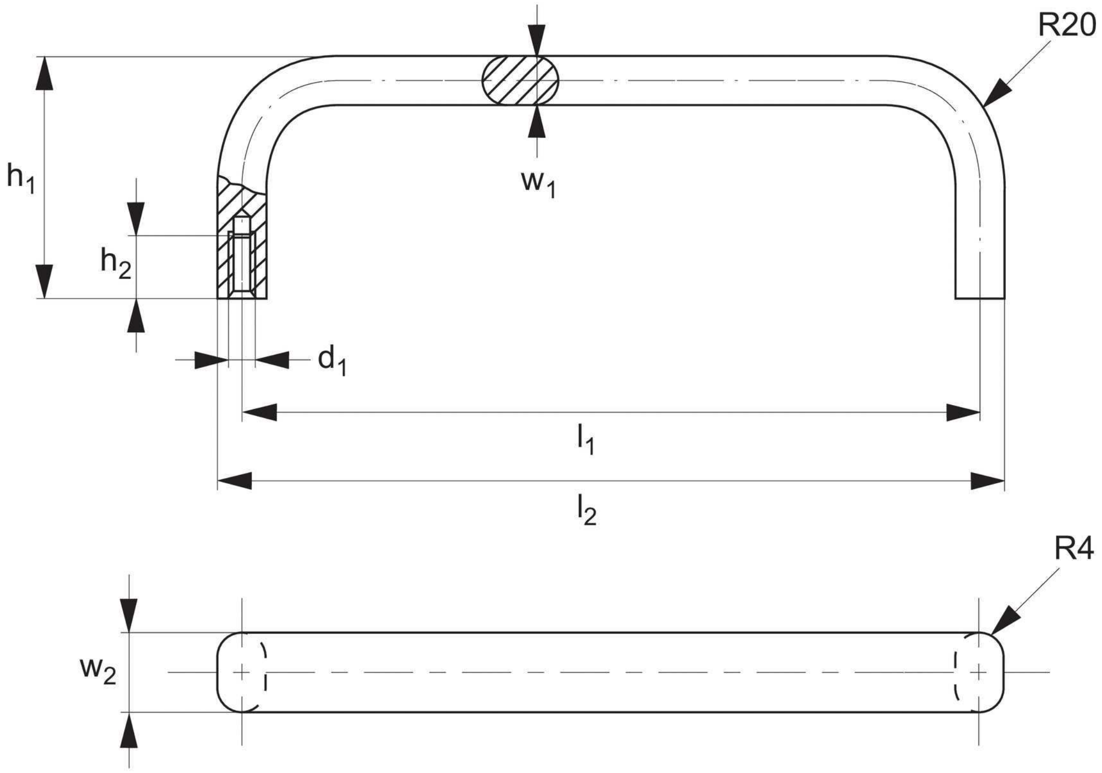
Material
Aluminium: plastic coated, black RAL 9005
Natural silver, bright.

Technical Notes
Ergonomic design offering high stability and smooth surfaces.

ALU.

Order No. Black	Order No. Natural	w_1	l_1	l_2	d_2	d_1	For cylinder screw	h_1	h_2	r	 g
78010.W0100	78010.W0300	20	100	112	13	5,4	M 5	49	19	13	80
78010.W0103	78010.W0303	20	112	124	13	5,4	M 5	49	19	13	82
78010.W0106	78010.W0306	20	128	140	13	5,4	M 5	51	19	13	100
78010.W0109	78010.W0309	20	160	172	13	5,4	M 5	51	919	13	100
78010.W0111	78010.W0311	26	116	130	17	6,4	M 6	55	17	17	146
78010.W0113	78010.W0313	26	132	146	17	6,4	M 6	55	17	17	164
78010.W0116	78010.W0316	26	164	178	17	6,4	M 6	57	17	17	206
78010.W0119	78010.W0319	26	196	210	17	6,4	M 6	57	17	17	232
78010.W0511	78010.W0521	20	160	124	13	5,4	M5	49	19	13	258
78010.W0531	-	20	160	172	13	5,4	M5	51	19	13	345

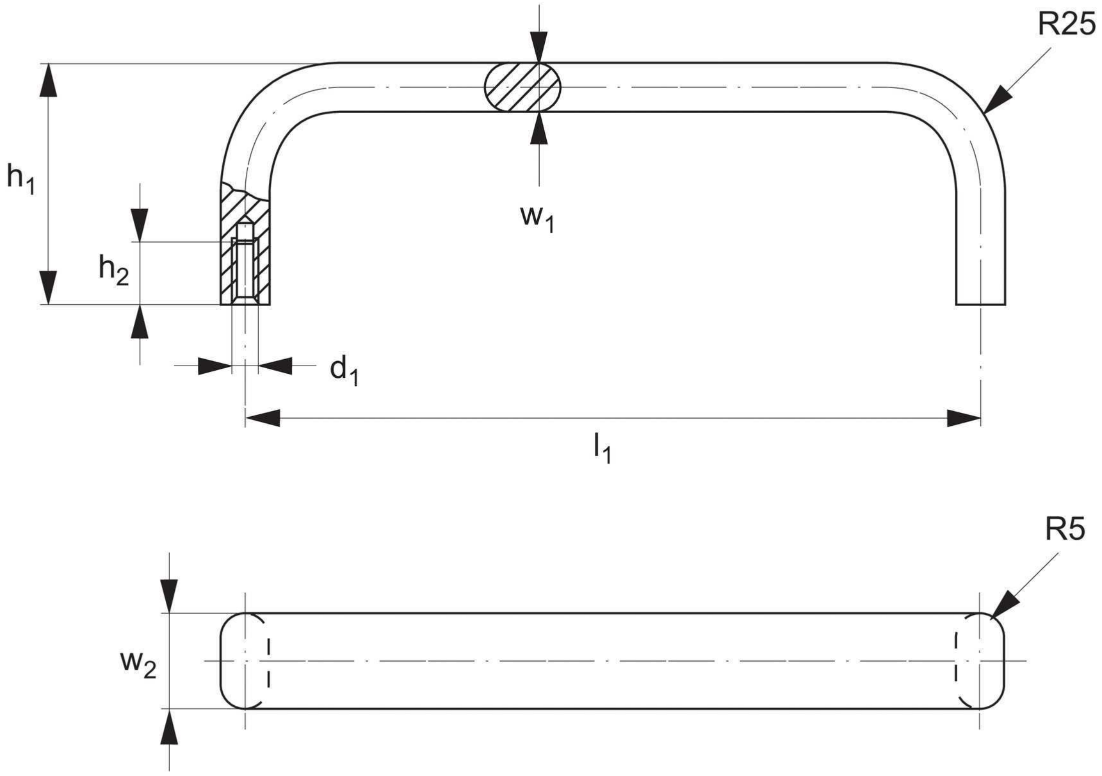
Pull Handles - Oval
aluminium



Material
Oval aluminium, Al Mg Si 0,5.
Finish: anodized with matt finish in natural colour or black.

Technical Notes
Minimum stress resistance 500N.

Order No. Natural	Order No. Black	l_1	l_2	d_1	h_1	h_2	w_1	w_2
78020.W0055-1	78020.W0055-4	55	63	M 5	40	10	8	12
78020.W0088-1	78020.W0088-4	88	96	M 5	40	10	8	12
78020.W0100-1	78020.W0100-4	100	108	M 5	40	10	8	12
78020.W0120-1	78020.W0120-4	120	128	M 5	40	10	8	12
78020.W0180-1	78020.W0180-4	180	180	M 5	40	10	8	12
78020.W0200-1	78020.W0200-4	200	208	M 5	40	10	8	12
78020.W0235-1	78020.W0235-4	235	243	M 5	40	10	8	12
78020.W0250-1	78020.W0250-4	250	258	M 5	40	10	8	12



Material

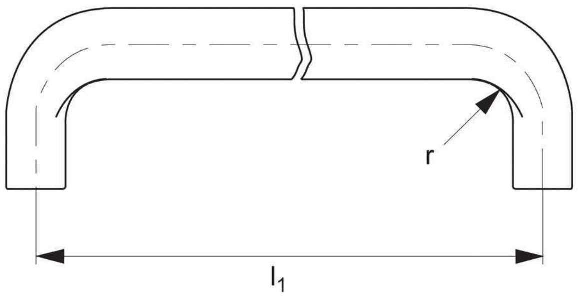
Flat-oval profiled aluminium AlMgSi 0.5.
Finish: ground and anodized with a matte finish in natural or black colour.

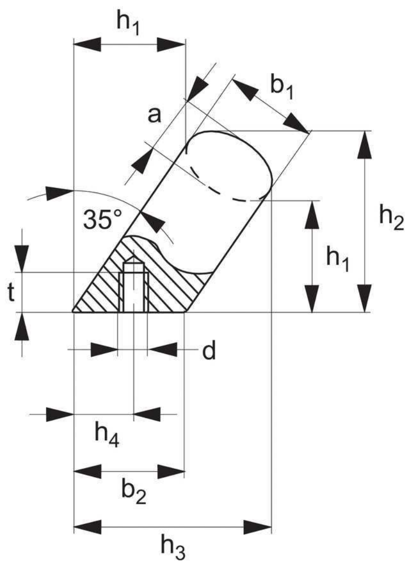
Technical Notes

Minimum stress resistance 500N.
Suitable for engineering, instrument and apparatus building.

ALU.

Order No. Natural	Order No. Black	l_1	d_1	h_1	h_2	w_1	w_2
78030.W0120-1	78030.W0120-4	120	5	45	10	10	20
78030.W0140-1	78030.W0140-4	140	5	45	10	10	20
78030.W0180-1	78030.W0180-4	180	5	45	10	10	20
78030.W0200-1	78030.W0200-4	200	5	45	10	10	20
78030.W0350-1	78030.W0350-4	350	6	45	12	10	20





Order No.	Finish	b_1	l_1	a	b_2	d	h_1	h_2	h_3	h_4 +1	r	t min.	g
78040.W0004	Black	20	112	13	24	M 6	32	48	50	13,5	13	10	105
78040.W0006	Black	20	128	13	24	M 6	32	48	50	13,5	13	10	110
78040.W0008	Black	26	128	17	32	M 8	34	54	57	18,0	17	12	195
78040.W0018	Black	26	160	17	32	M 8	34	54	57	18,0	17	12	220
78040.W0104	Natural	20	112	13	24	M 6	32	48	50	13,5	13	10	99
78040.W0106	Natural	20	128	13	24	M 6	32	48	50	13,5	13	10	112
78040.W0108	Natural	26	128	17	32	M 8	34	54	57	18,0	17	12	190
78040.W0118	Natural	26	160	17	32	M 8	34	54	57	18,0	17	12	222

Material

Aluminium: natural silver - matt anodized, or plastic coated. Black - RAL 9005, matte, textured finish.

Technical Notes

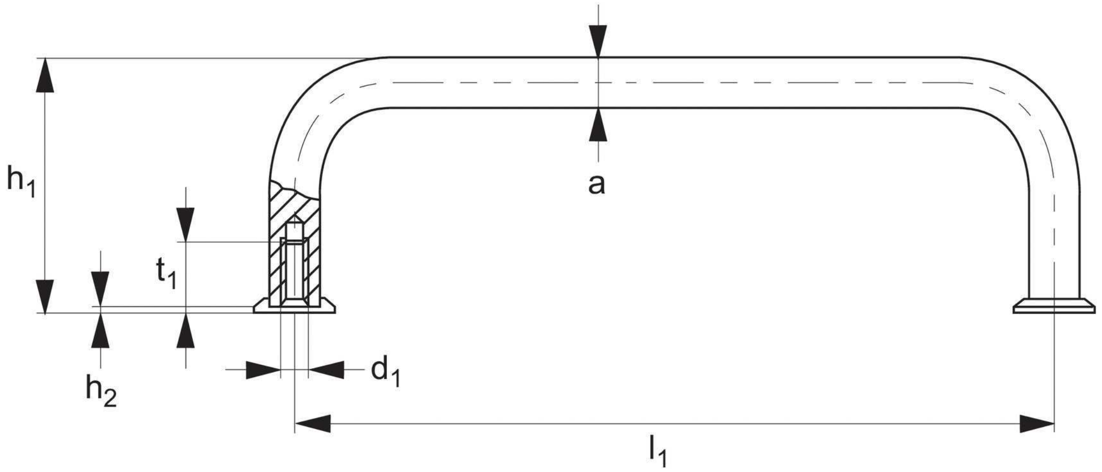
These handles feature modern and ergonomic styling for a sure and comfortable grip. Handle inclined 35°.

ALU.

Pull Handles - Tubular

aluminium

78050



Order No. Natural	Order No. Black	l1	d1	h1	h2	t1	a
78050.W0055-1	78050.W0055-4	55	M 5	41	1	10	10
78050.W0088-1	78050.W0088-4	88	M 5	41	1	10	10
78050.W0100-1	78050.W0100-4	100	M 5	41	1	10	10
78050.W0120-1	78050.W0120-4	120	M 5	41	1	10	10
78050.W0180-1	78050.W0180-4	180	M 5	41	1	10	10
78050.W0200-1	78050.W0200-4	200	M 5	41	1	10	10
78050.W0235-1	78050.W0235-4	235	M 5	41	1	10	10
78050.W0250-1	78050.W0250-4	250	M 5	41	1	10	10

Material
Round bar aluminium dia. 10mm. Al Mg Si 0,5.
Finish: anodized with matt finish in natural colour or black.

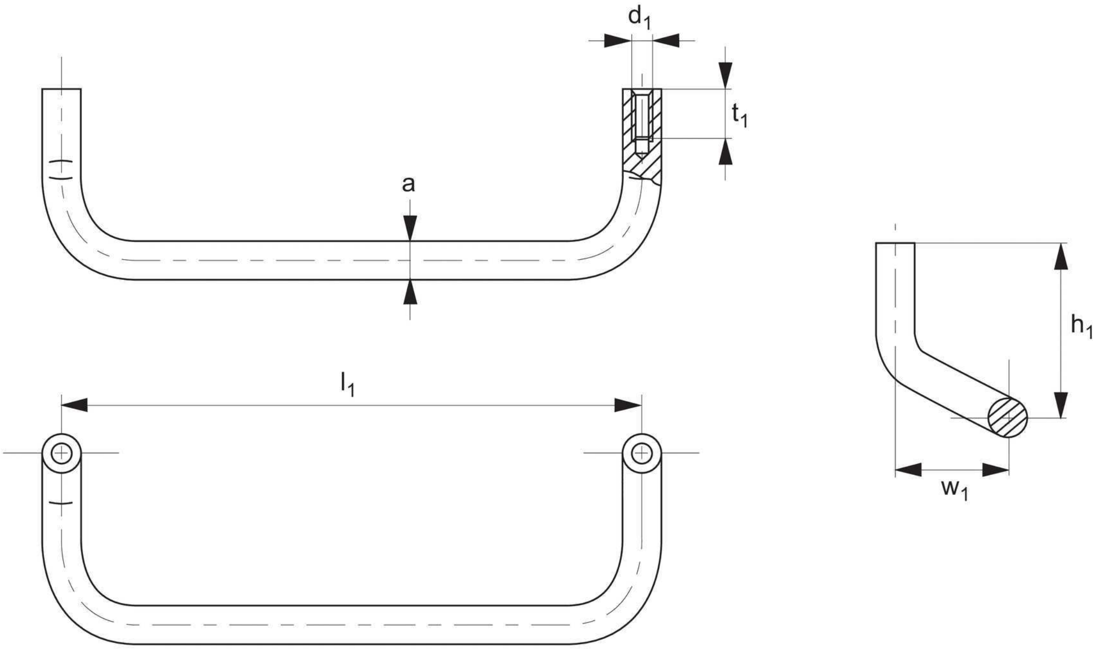
Technical Notes
Minimum stress resistance 500N.

ALU.

Pull Handles - Offset

aluminium

78070



Order No.	Finish	l_1	d_1	h_1	t_1	a	w_1
78070.W0086-1	Natural	86	M 5	40	10	10	30
78070.W0086-4	Black	86	M 5	40	10	10	30
78070.W0120-1	Natural	120	M 5	40	10	10	30
78070.W0120-4	Black	120	M 5	40	10	10	30
78070.W0180-1	Natural	180	M 5	40	10	10	30
78070.W0180-4	Black	180	M 5	40	10	10	30

Material

Round aluminium bar, Al Mg Si 0,5. Finish: vibration ground, and anodized with a matt finish in natural or black colour.

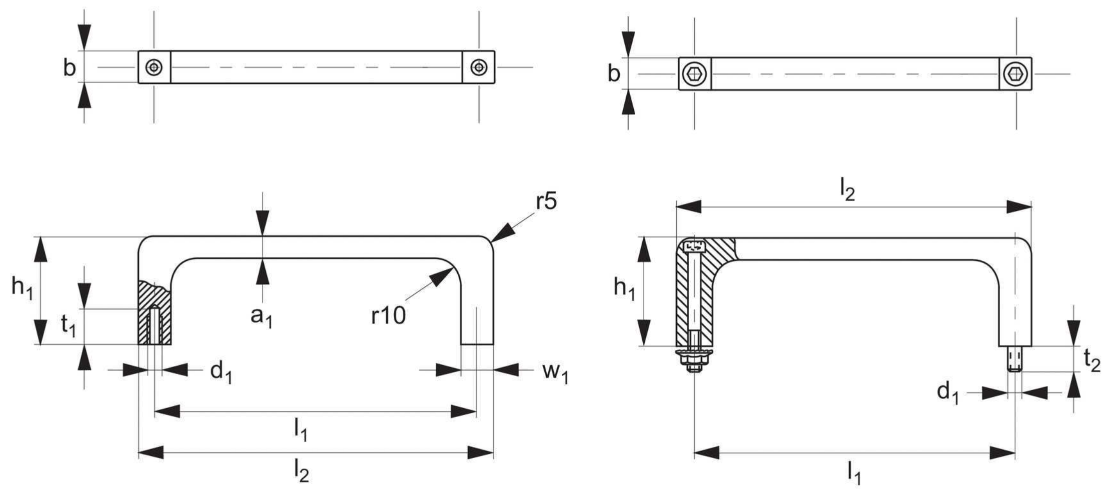
Technical Notes

Minimum stress resistance 500N.

ALU.

Pull Handles - Aluminium

for 19" drawers and instrument panels



rear mounting

front mounting

Order No.	Type	Finish	h Height of front panel	Mounting type	l_1	l_2	d_1	h_1	a_1	b_1	t_1	t_2	w_1
78120.W0005-1	Rear Mounting	Natural	88,1	1	55,0	67,0	M 5	40	8	12	10	9	12
78120.W0008-1	Rear Mounting	Natural	132,5	1	88,0	100,	M 5	40	8	12	10	9	12
78120.W0012-1	Rear Mounting	Natural	177,0	1	120,0	132,0	M 5	40	8	12	10	9	12
78120.W0018-1	Rear Mounting	Natural	221,5	1	180,0	192,0	M 5	40	8	12	10	9	12
78120.W0023-1	Rear Mounting	Natural	266,0	1	235,0	247,0	M 5	40	8	12	10	9	12
78120.W0505-1	Rear Mounting	Natural	44,0	2	32,0	43,5	M 5	40	8	12	10	9	12
78120.W0508-1	Rear Mounting	Natural	88,1	2	75,5	87,5	M 5	40	8	12	10	9	12
78120.W0512-1	Rear Mounting	Natural	132,5	2	120,0	132,0	M 5	40	8	12	10	9	12
78120.W0523-1	Rear Mounting	Natural	266,0	2	253,5	265,5	M 5	40	8	12	10	9	12
78120.W0005-4	Rear Mounting	Black	88,1	1	55,0	67,0	M 5	40	8	12	10	9	12
78120.W0008-4	Rear Mounting	Black	132,5	1	88,0	100,0	M 5	40	8	12	10	9	12
78120.W0012-4	Rear Mounting	Black	177,0	1	120,0	132,0	M 5	40	8	12	10	9	12
78120.W0018-4	Rear Mounting	Black	221,5	1	180,0	192,0	M 5	40	8	12	10	9	12
78120.W0023-4	Rear Mounting	Black	266,0	1	235,0	247,0	M 5	40	8	12	10	9	12
78120.W0505-4	Rear Mounting	Black	44,0	2	32,0	43,5	M 5	40	8	12	10	9	12
78120.W0508-4	Rear Mounting	Black	88,1	2	75,5	87,5	M 5	40	8	12	10	9	12
78120.W0512-4	Rear Mounting	Black	132,5	2	120,0	132,0	M 5	40	8	12	10	9	12
78120.W0523-4	Rear Mounting	Black	266,0	2	253,5	265,5	M 5	40	8	12	10	9	12
78120.W0105-1	Front Mounting	Natural	88,1	1	55,0	67,0	M 5	40	8	12	10	9	12
78120.W0108-1	Front Mounting	Natural	132,5	1	88,0	100,	M 5	40	8	12	10	9	12
78120.W0112-1	Front Mounting	Natural	177,0	1	120,0	132,0	M 5	40	8	12	10	9	12
78120.W0118-1	Front Mounting	Natural	221,5	1	180,0	192,0	M 5	40	8	12	10	9	12
78120.W0123-1	Front Mounting	Natural	266,0	1	235,0	247,0	M 5	40	8	12	10	9	12

Material

Profile aluminium Al Mg Si 0,5. Finish: vibration ground and anodized to a matt finish in natural or black colour. Stainless steel hexagon screws to DIN 912, with self locking nuts, are supplied for front mounting type.

Technical Notes

Minimum stress resistance 500N.

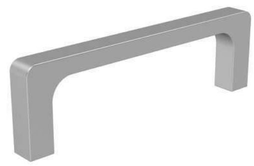
ALU.

Pull Handles - Aluminium

for 19" drawers and instrument panels

78120

Order No.	Type	Finish	h Height of front panel	Mounting type	l_1	l_2	d_1	h_1	a_1	b_1	t_1	t_2	w_1
78120.W0605-1	Front Mounting	Natural	44,0	2	32,0	43,5	M 5	40	8	12	10	9	12
78120.W0608-1	Front Mounting	Natural	88,1	2	75,5	87,5	M 5	40	8	12	10	9	12
78120.W0612-1	Front Mounting	Natural	132,5	2	120,0	132,0	M 5	40	8	12	10	9	12
78120.W0623-1	Front Mounting	Natural	266,0	2	253,5	265,5	M 5	40	8	12	10	9	12
78120.W0105-4	Front Mounting	Black	88,1	1	55,0	67,0	M 5	40	8	12	10	9	12
78120.W0108-4	Front Mounting	Black	132,5	1	88,0	100,0	M 5	40	8	12	10	9	12
78120.W0112-4	Front Mounting	Black	177,0	1	120,0	132,0	M 5	40	8	12	10	9	12
78120.W0118-4	Front Mounting	Black	221,5	1	180,0	192,0	M 5	40	8	12	10	9	12
78120.W0123-4	Front Mounting	Black	266,0	1	235,0	247,0	M 5	40	8	12	10	9	12
78120.W0605-4	Front Mounting	Black	44,0	2	32,0	43,5	M 5	40	8	12	10	9	12
78120.W0608-4	Front Mounting	Black	88,1	2	75,5	87,5	M 5	40	8	12	10	9	12
78120.W0612-4	Front Mounting	Black	132,5	2	120,0	132,0	M 5	40	8	12	10	9	12
78120.W0623-4	Front Mounting	Black	266,0	2	253,5	265,5	M 5	40	8	12	10	9	12



Material

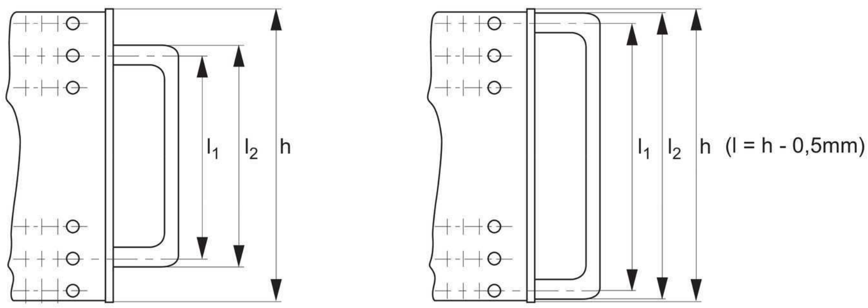
Profile aluminium Al Mg Si 0,5. Finish: vibration ground and anodized to a matt finish in natural or black colour. Stainless steel hexagon screws to DIN 912, with self locking nuts, are supplied for front mounting type.

Technical Notes

Minimum stress resistance 500N.

ALU.

mounting of 19" front panels



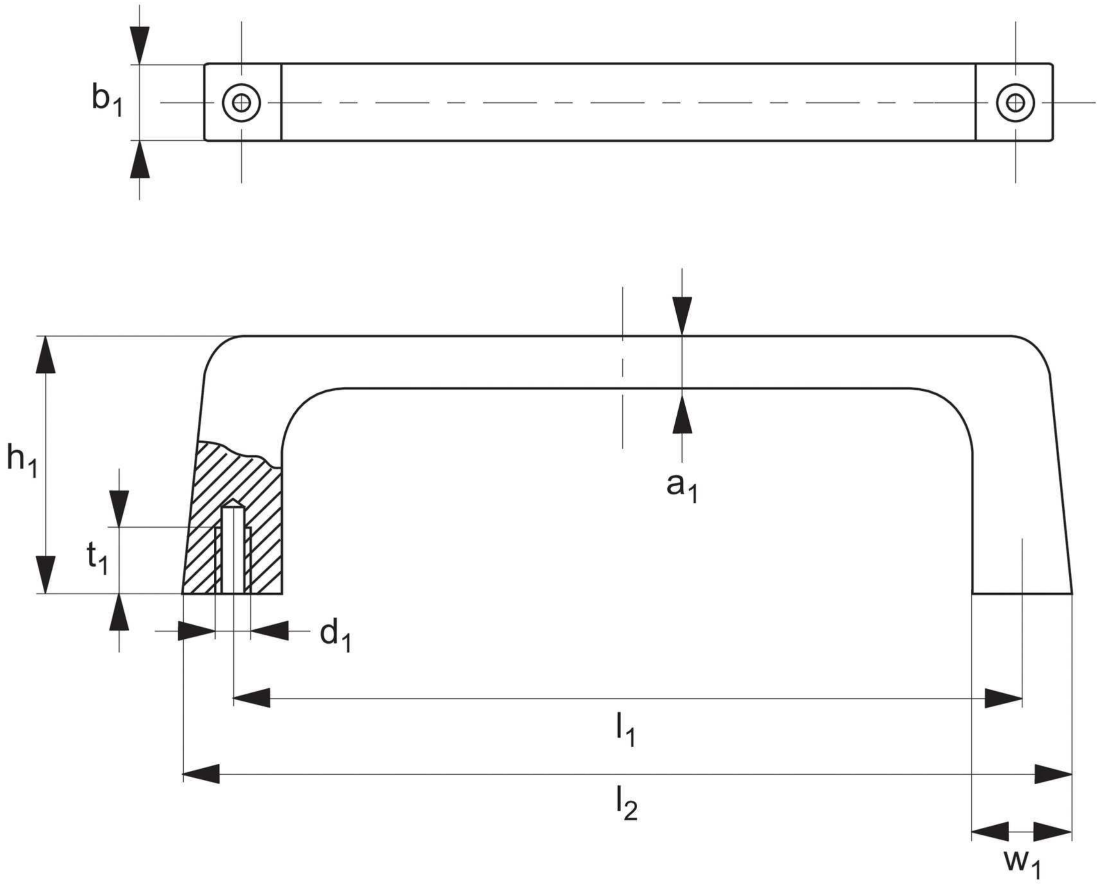
rear mounting

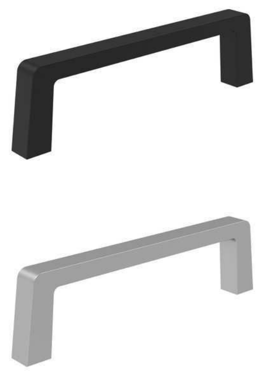
front mounting

Pull Handles - Aluminium

for 19" drawers and instrument panels

78130





Material

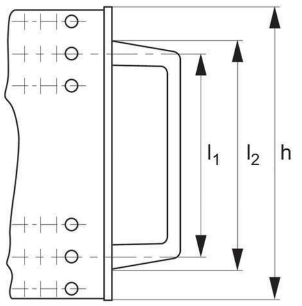
Cut profiled aluminium AIMgSi 0.5.
Finish: anodized with a matt finish in natural colour or black.

Technical Notes

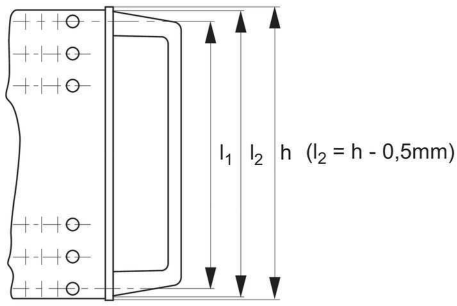
Minimum stress resistance 500N.

Order No. Natural	Order No. Black	h_1	t_1	l_1	l_2	w_1	a_1	d_1	b_1	Suitable Mounting Version	h Height of Front Panel
78130.W0025-1	78130.W0025-4	40	10	25,0	40,0	12	5	M 5	12	1	44,0
78130.W0055-1	78130.W0055-4	40	10	55,0	69,0	12	8	M 5	12	1	88,1
78130.W0088-1	78130.W0088-4	40	10	88,0	102,0	12	8	M 5	12	1	132,5
78130.W0120-1	78130.W0120-4	40	10	120,0	134,0	12	8	M 5	12	1	177,0
78130.W0133-1	78130.W0133-4	40	10	133,4	146,5	12	8	M 5	12	-	-
78130.W0177-1	78130.W0177-4	40	10	177,8	191,0	12	8	M 5	12	-	-
78130.W0180-1	78130.W0180-4	40	10	180,0	194,0	12	8	M 5	12	1	221,5
78130.W0235-1	78130.W0235-4	40	10	235,0	249,0	12	8	M 5	12	1	266,0
78130.W0251-1	78130.W0251-4	40	10	251,5	265,5	12	8	M 5	12	2	266,0
78130.W0588-1	78130.W0588-4	46	10	88,0	102,0	12	8	M 5	12	1	132,5
78130.W0620-1	78130.W0620-4	46	10	120,0	132,0	12	8	M 5	12	2	132,5

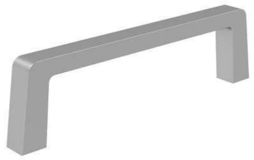
mounting of 19" front panels



mounting version one



mounting version two



Material
Cut profiled aluminium AIMgSi 0.5.
Finish: anodized with a matt finish in natural colour or black.

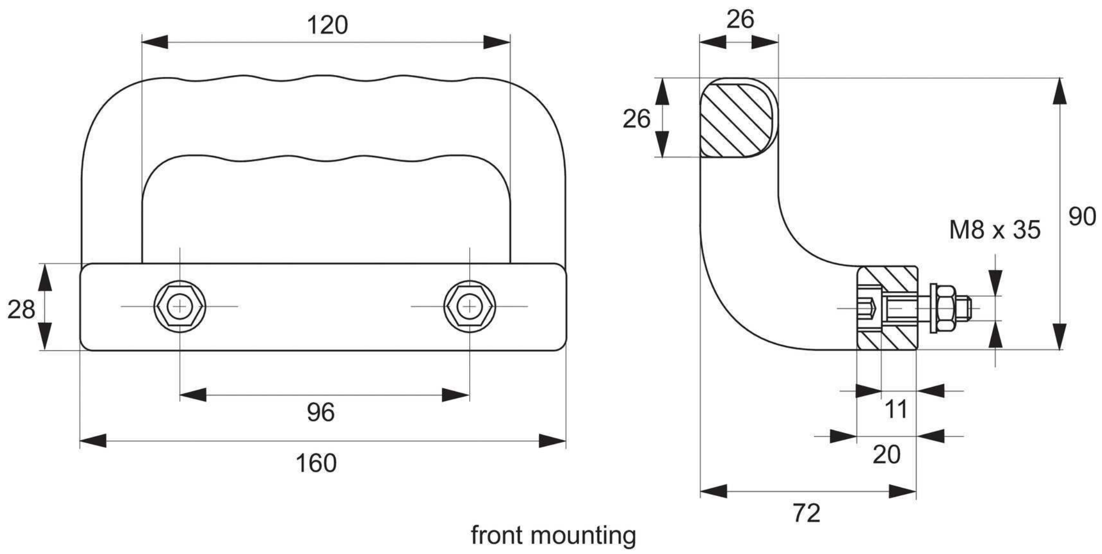
Technical Notes
Minimum stress resistance 500N.

ALU.

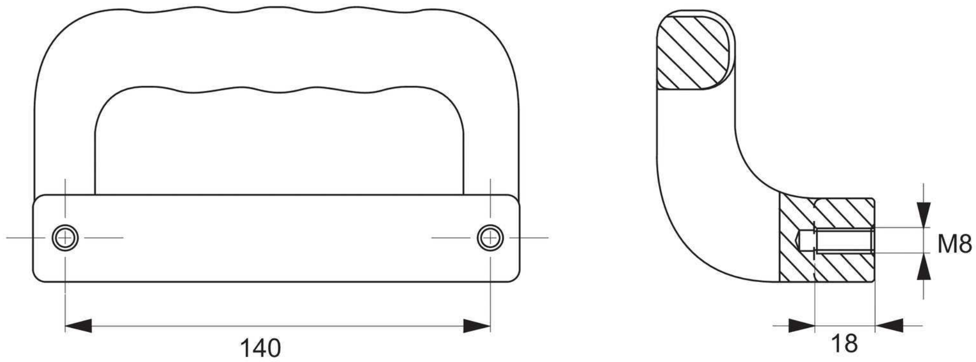
Pull Handles - Cranked, Heavy Duty

aluminium

78180



front mounting



rear mounting

Material
Die cast aluminium AlSiCu 12.
Finish: vibration ground and black powder coated, semi-matt.

Technical Notes
Front mounting version comes with stainless steel hexagon socket head cap screw DIN M 8x35, nuts DIN 934 and washers DIN125.
Stress resistance: 1000N.

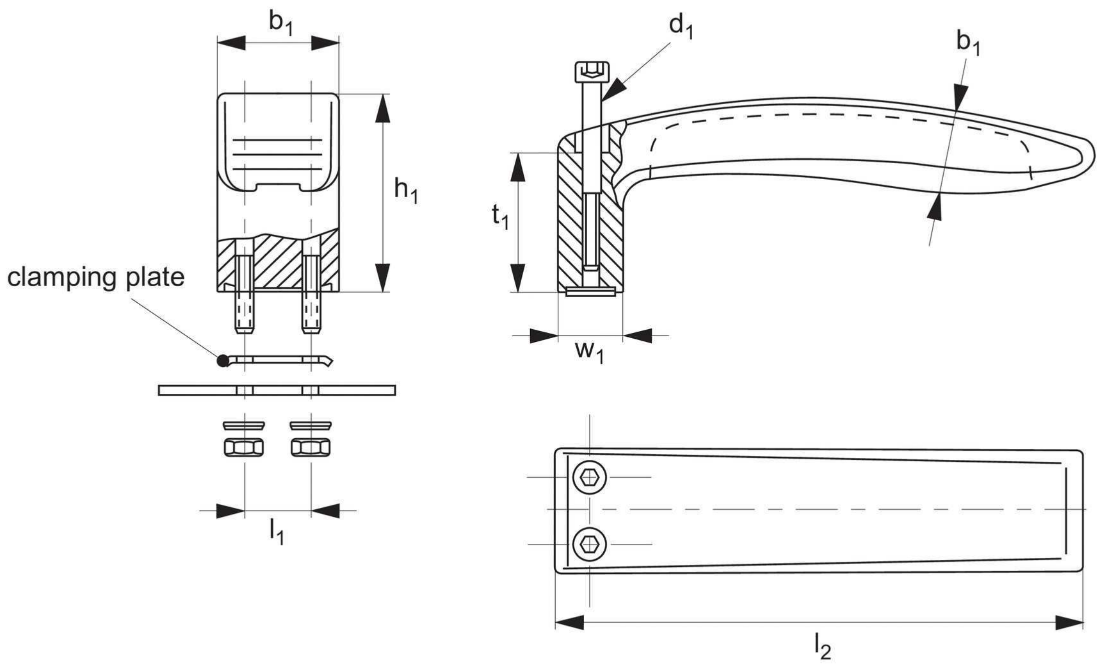
ALU.

Order No.	Type
78180.W0096	Front Mounting
78180.W0140	Rear Mounting

Pull Handles

plastic

78190



Material

Thermoplastic PA 6, glass ball reinforced, matt black.

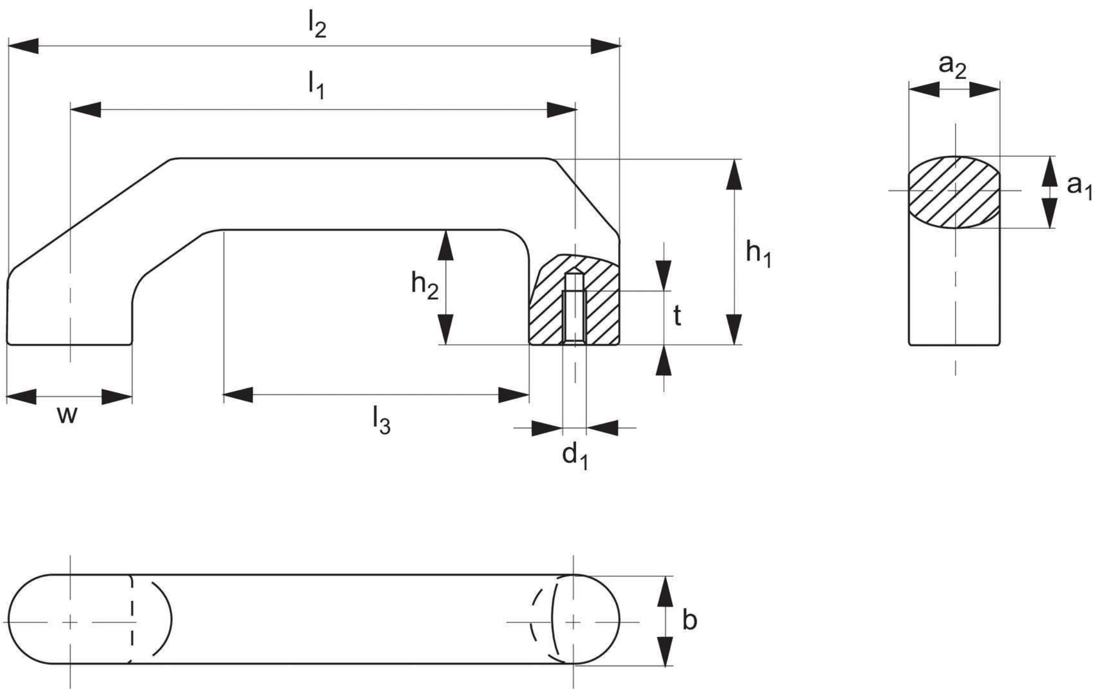
Technical Notes

Ideal for applications where one-sided fastening required. Minimum stress resistance 800N per handle.

Order No.	l_1	l_2	d_1	t_1	b_1	h_1	b_1	w_1
78190.W0017	17	128	M 5x45	33	30	48	20	18
78190.W0020	20	154	M 6x55	40	36	58	24	22

Pull Handles
aluminium

78200



Material
Die cast aluminium AlMg3.
Finish: vibration ground, raw or black powder coated, semi-matt.

Technical Notes
Stress resistance: min. 500N.

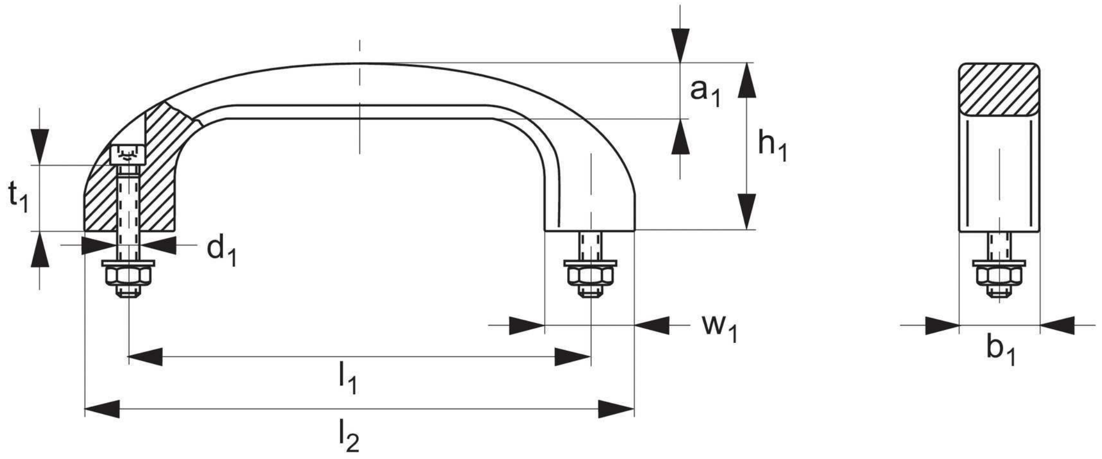
ALU.

Order No.	Finish	d_1	l_1	l_2	l_3	h_1	h_2	t	a_1	a_2	w	b
78200.W0140-1	Natural	M 6	140	170	89	52	32	15	20	25	35	25
78200.W0140-4	Black	M 6	140	170	89	52	32	15	20	25	35	25

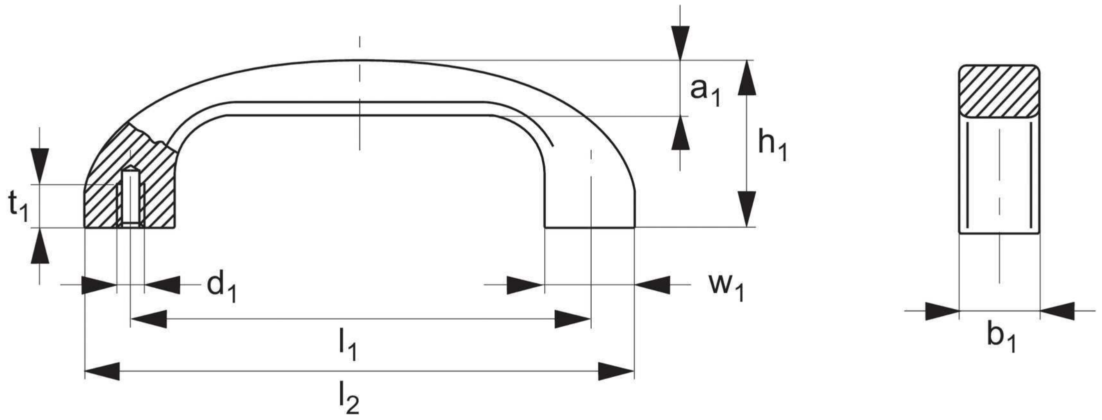
Pull Handles - Bow type

aluminium

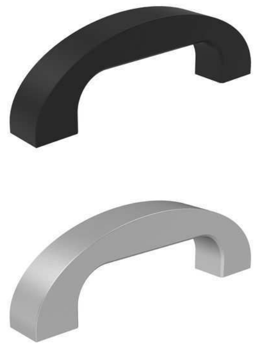
78210



front mounting



rear mounting



Material
Aluminium section AlMgSi 0.5.
Finish: anodized in a special quality glass ball blasted, satin finish.

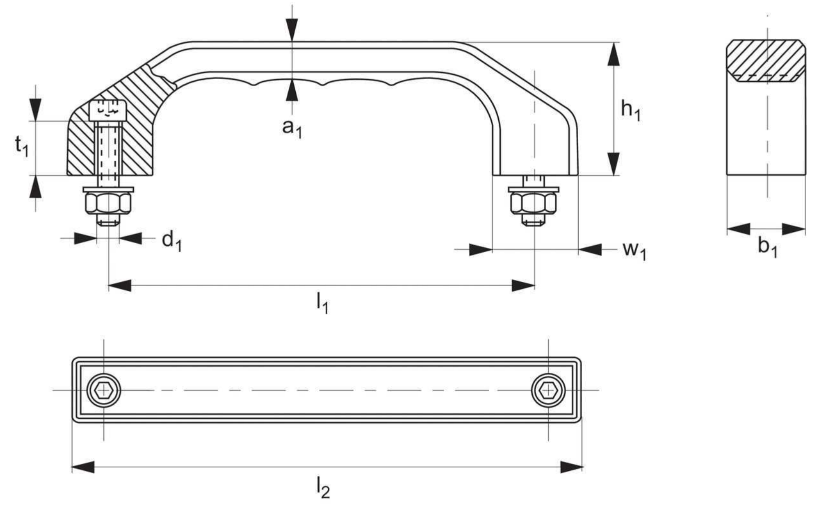
Technical Notes
Minimum stress resistance <1000N.
Front mounted version supplied with cheese head screws (with hex socket) DIN 912, nuts DIN 934 and washer DIN125 - made of made os stainless steel.

ALU.

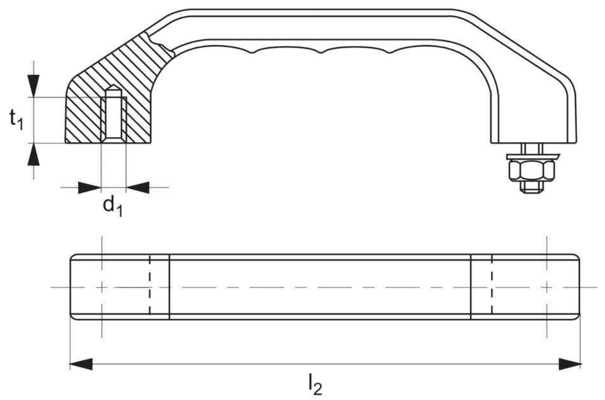
Order No. Natural	Order No. Black	Type	l_1	l_2	d_1	t_1	h_1	b_1	a_1	w_1
78210.W0120-1	78210.W0120-4	Rear Mounting	120	144	M 6	12	46	22	15	24
78210.W0140-1	78210.W0140-4	Rear Mounting	140	168	M 8	12	53	25	17	28
78210.W0220-1	78210.W0220-4	Front Mounting	120	144	M 6x25	15	46	22	15	24
78210.W0240-1	78210.W0240-4	Front Mounting	140	168	M 8x30	15	53	25	17	28

Pull Handles - Grip type

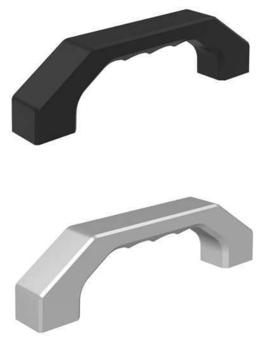
aluminium



front mounting



rear mounting



Material

Aluminium section AlMgSi 0.5. Finish: anodized in a special quality, glass ball blasted, satin finish. RHL 9002, grey, white.

Technical Notes

Solid aluminium handles in industrial design. Minimum stress resistance >1000N.

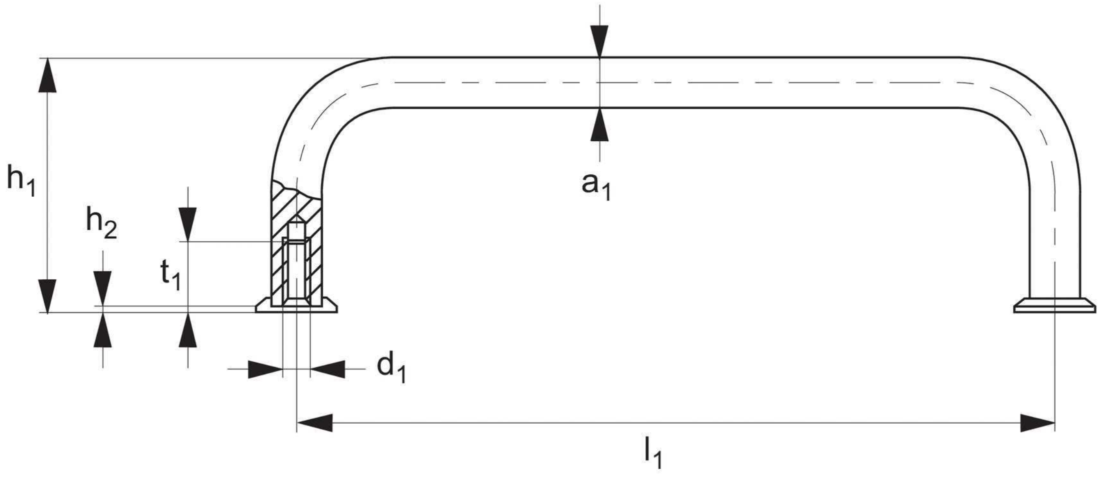
ALU.

Order No. Natural	Order No. Black	Type	l_1	l_2	d_1	t_1	h_1	b_1	a_1	w_1
78240.W0120-1	78240.W0120-4	Rear Mounting	120	146	M 6	12	39	22	10,5	24
78240.W0140-1	78240.W0140-4	Rear Mounting	140	170	M 8	15	45	25	12,0	28
78240.W0160-1	78240.W0160-4	Rear Mounting	160	194	M 8	15	52	28	13,5	32
78240.W0220-1	78240.W0220-4	Front Mounting	120	146	M 6	12	39	22	10,5	24
78240.W0240-1	78240.W0240-4	Front Mounting	140	170	M 8	15	45	25	12,0	28
78240.W0260-1	78240.W0260-4	Front Mounting	160	194	M 8	15	52	28	13,5	32

Pull Handles

steel

78700



Material

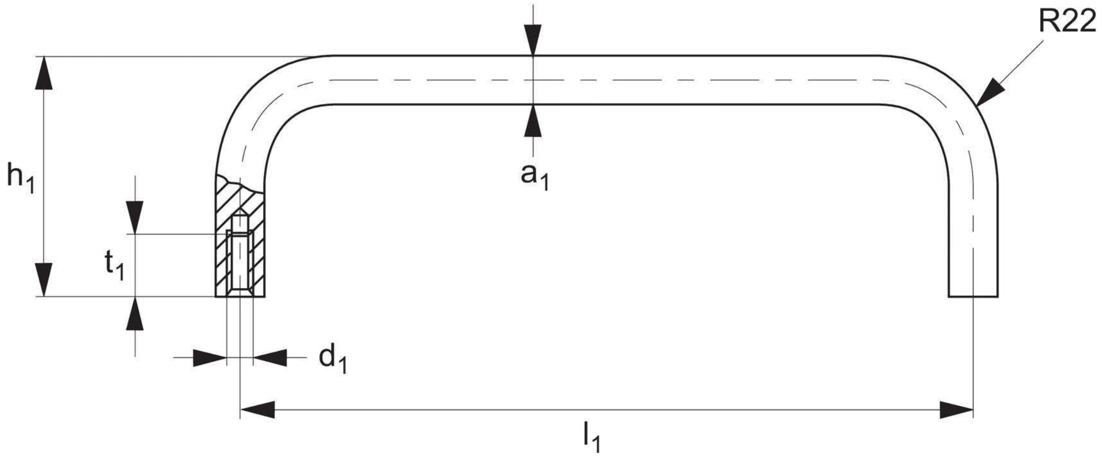
Round steel bar.
Finish: precision ground and high gloss chromium plated surface.
Chromium coloured brass cover washers included.

Technical Notes

Minimum stress resistance 1000N.

Order No.	l_1	a_1 Ø	h_1	h_2	d_1	t_1
78700.W0003	32	5	21	1	M 3	6
78700.W0004	42	5	25	1	M 3	6
78700.W0005	55	5	25	1	M 3	6
78700.W0007	76	5	25	1	M 3	6
78700.W0008	88	5	25	1	M 3	6
78700.W0103	32	8	33	1	M 4	8
78700.W0105	55	8	33	1	M 4	8
78700.W0106	64	8	33	1	M 4	8
78700.W0108	88	8	33	1	M 4	8
78700.W0109	96	8	33	1	M 4	8
78700.W0110	102	8	33	1	M 4	8
78700.W0112	120	8	33	1	M 4	8
78700.W0113	128	8	33	1	M 4	8
78700.W0114	136	8	33	1	M 4	8
78700.W0505	55	10	41	1	M 5	10
78700.W0508	88	10	41	1	M 5	10
78700.W0509	100	10	41	1	M 5	10
78700.W0510	102	10	41	1	M 5	10
78700.W0511	115	10	41	1	M 5	10
78700.W0512	120	10	41	1	M 5	10
78700.W0514	136	10	41	1	M 5	10
78700.W0518	180	10	41	1	M 5	10
78700.W0520	200	10	41	1	M 5	10
78700.W0523	235	10	41	1	M 5	10
78700.W0525	250	10	41	1	M 5	10

Pull Handles
steel



Material
Round steel bar Ø20mm.
Finish: ground, brushed matt chromium plated or black powder coated.

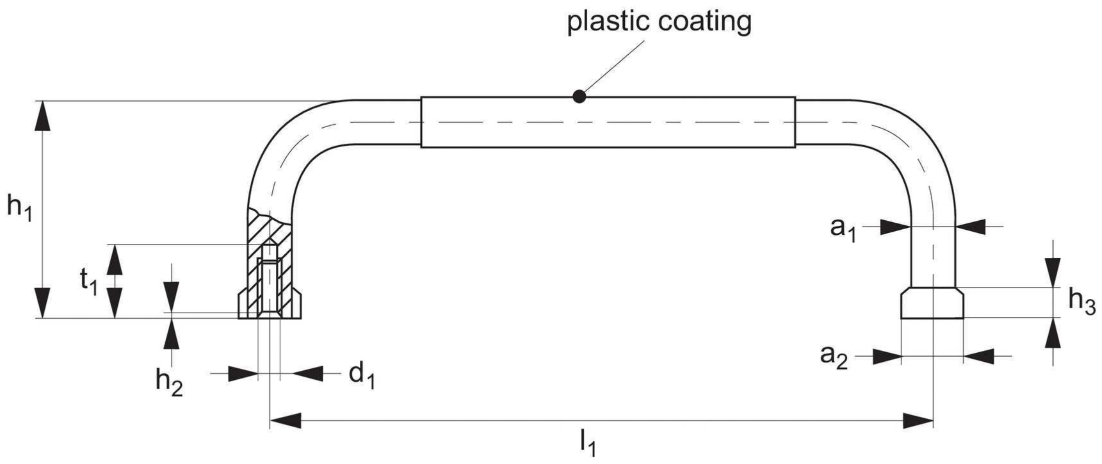
Technical Notes
Minimum stress resistance >1000N.

Order No.	Finish	l_1	a_1	h_1	d_1	t_1
78720.W0200-1	Matte Chromium Plated	200	20	70	M 8	15
78720.W0250-1	Matte Chromium Plated	250	20	70	M 8	15
78720.W0300-1	Matte Chromium Plated	300	20	70	M 8	15
78720.W0350-1	Matte Chromium Plated	350	20	70	M 8	15
78720.W0400-1	Matte Chromium Plated	400	20	70	M 8	15
78720.W0200-4	Black Powder Coated	200	20	70	M 8	15
78720.W0250-4	Black Powder Coated	250	20	70	M 8	15
78720.W0300-4	Black Powder Coated	300	20	70	M 8	15
78720.W0350-4	Black Powder Coated	350	20	70	M 8	15
78720.W0400-4	Black Powder Coated	400	20	70	M 8	15

Pull Handles with Plastic Cover

steel

78740



Order No.	l_1	a_1	h_1	h_2	h_3	a_2	d_1	t_1
78740.W0005	55	10	41	1	8	14	M 5	10
78740.W0088	88	10	41	1	8	14	M 5	10
78740.W0100	100	10	41	1	8	14	M 5	10
78740.W0102	102	10	41	1	8	14	M 5	10
78740.W0115	115	10	41	1	8	14	M 5	10
78740.W0120	120	10	41	1	8	14	M 5	10
78740.W0136	136	10	41	1	8	14	M 5	10
78740.W0180	180	10	41	1	8	14	M 5	10
78740.W0200	200	10	41	1	8	14	M 5	10
78740.W0235	235	10	41	1	8	14	M 5	10
78740.W0250	250	10	41	1	8	14	M 5	10

Material

Round steel bar.
Finish: precision ground and matt gloss chromium plated surface, handle arms with smooth plastic covering. High quality handles for front panels and similar applications.

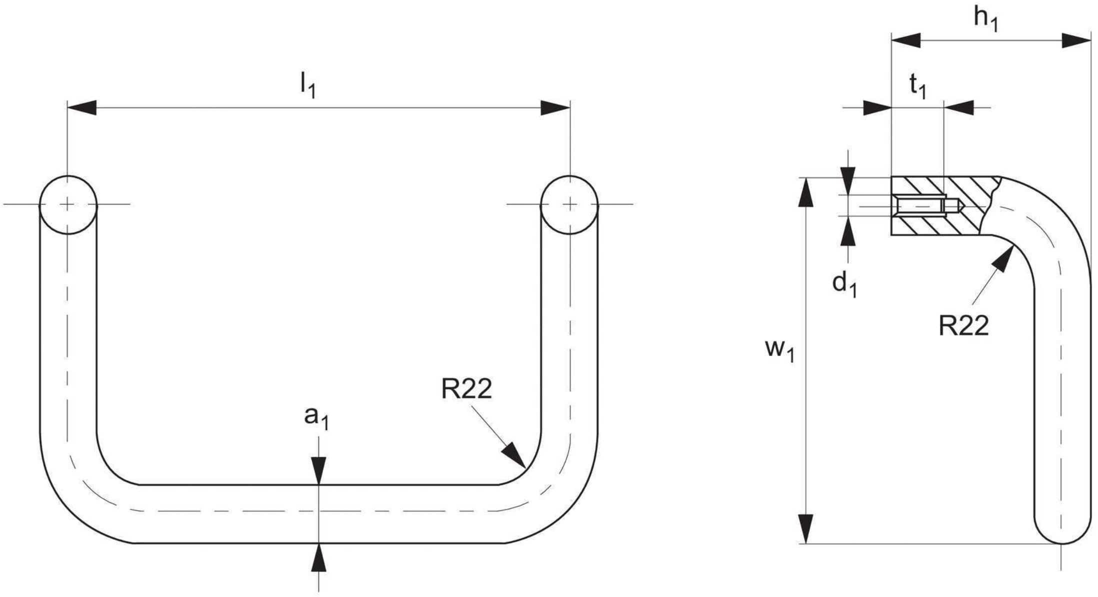
Technical Notes

Matte gloss chromium plated brass end bushes included. Minimum stress resistance 1000N.

Pull Handles - Cranked

steel

78760



Material
Round bar steel, Ø20mm.
Finish: ground, brushed matt chromium plated or black powder coated with fine structure.

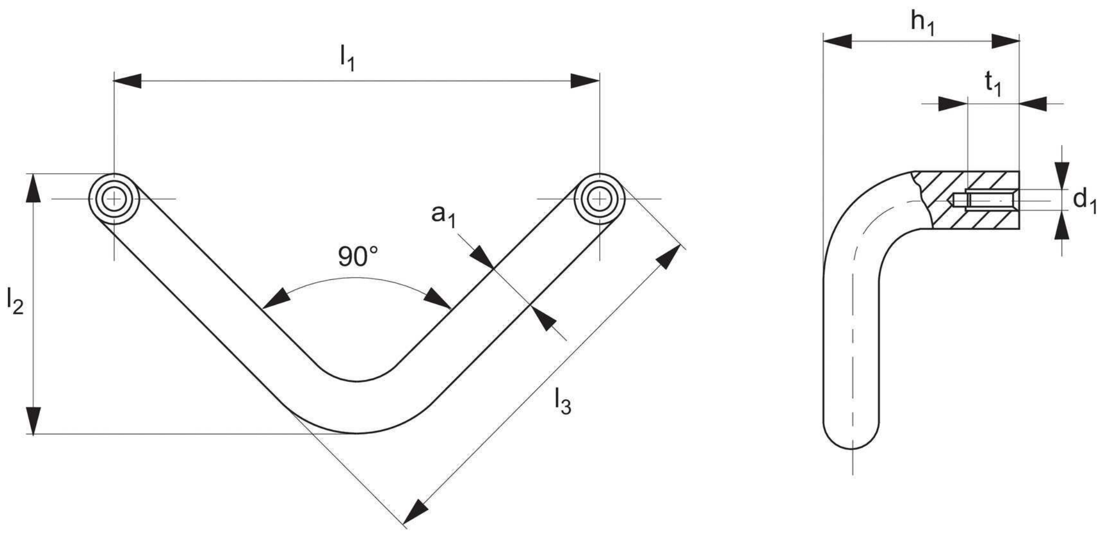
Technical Notes
Minimum stress resistance >1000N.
Handles with other bore clearances are available on request.

Order No.	Finish	l_1	a_1	h_1	d_1	t_1	w_1
78760.W0200-1	Matte Chromium Plated	200	20	70	M 8	15	130
78760.W0200-4	Black Powder Coated	200	20	70	M 8	15	130
78760.W0350-1	Matte Chromium Plated	350	20	70	M 8	15	130
78760.W0350-4	Black Powder Coated	350	20	70	M 8	15	130

Pull Handles - Angular

steel

78770



Material

Round steel bar.
Finish: polished and bright chromium-plated surface finish.

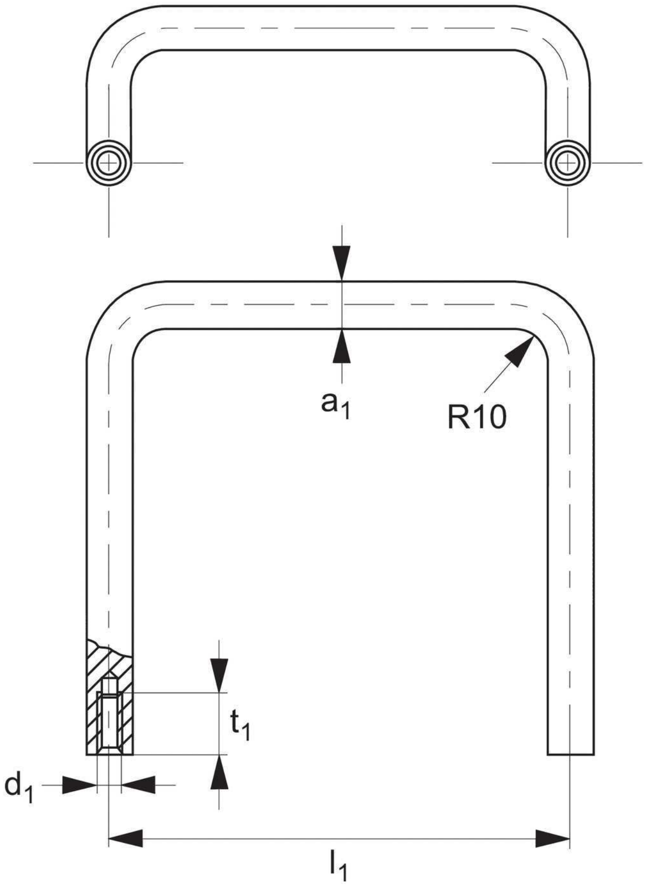
Technical Notes

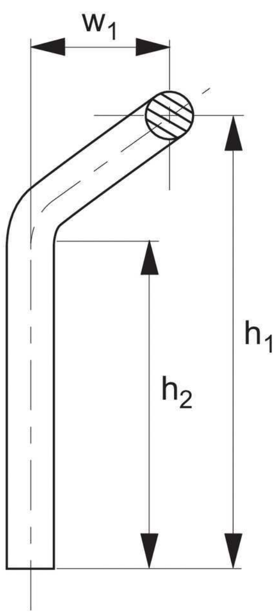
Concentric threaded hole. Minimum stress resistance 500N.

Order No.	l_1	a_1	h_1	l_2	l_3	d_1	t_1
78770.W0075	75	8	32	41	61	M 4	8
78770.W0090	90	10	40	49	73	M 5	10

Pull Handles - Offset

steel





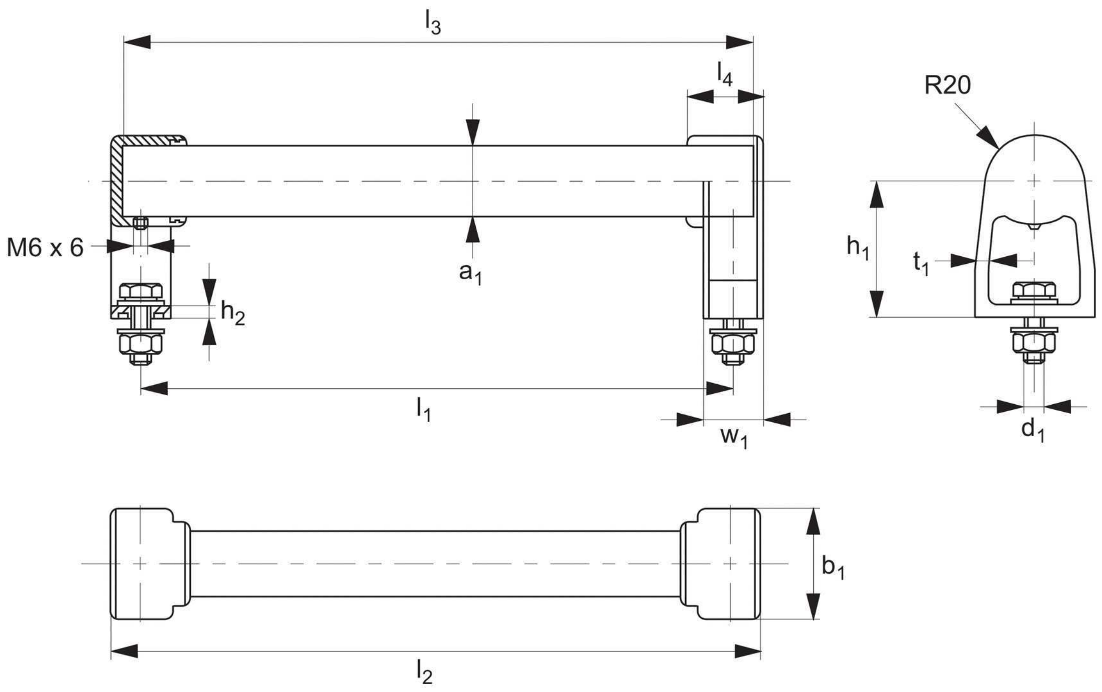
Order No.	l_1	a_1	h_1	h_2	d_1	t_1	w_1
78780.W0060	120	12	60	27	M 8	15	35
78780.W0120	120	12	120	87	M 8	15	35

Material

Round bar steel,12mm.
Finish: precision-ground and chromium-plated mirror finish.

Technical Notes

Minimum stress resistance 1000N.
Additional sizes or surface versions on request.



Order No. Standard Mounting	Order No. Safety Mounting	l_1	a_1 Ø	h_1	h_2	b_1	d_1	l_2	l_3	l_4	t_1	w_1
78800.W0200	78800.W0210	200	30x1,5	60	5	48	M 8x25	225	215	32	5	25
78800.W0250	78800.W0260	250	30x1,5	60	5	48	M 8x25	275	265	32	5	25
78800.W0300	78800.W0310	300	30x1,5	60	5	48	M 8x25	325	315	32	5	25
78800.W0350	78800.W0360	350	30x1,5	60	5	48	M 8x25	375	365	32	5	25
78800.W0400	78800.W0410	400	30x1,5	60	5	48	M 8x25	425	415	32	5	25
78800.W0500	78800.W0510	500	30x1,5	60	5	48	M 8x25	525	515	32	5	25
78800.W0600	78800.W0610	600	30x1,5	60	5	48	M 8x25	625	615	32	5	25

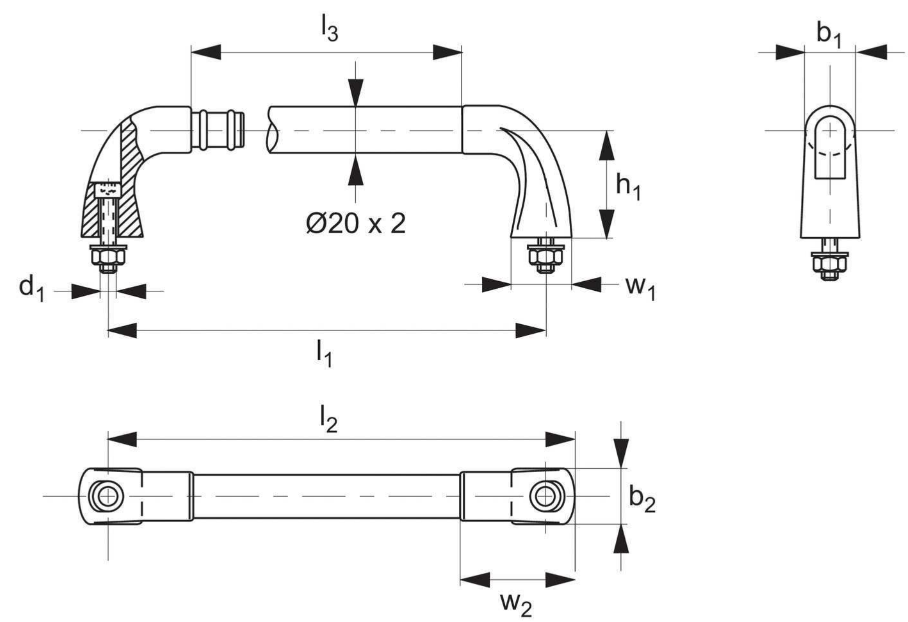
Material

Handle shank: cast stainless steel, G-X7 CrNiMoNb 18 10. Glass blasted, satin matt finish.
Connecting tube: stainless steel, X5 CrNi189, 1.4301. Ground and blasted.
Packing ring: food quality silicon rubber.
Connection tubes finish grounded and brushed. Handle shanks glass blasted and electro polished with half matte finish.

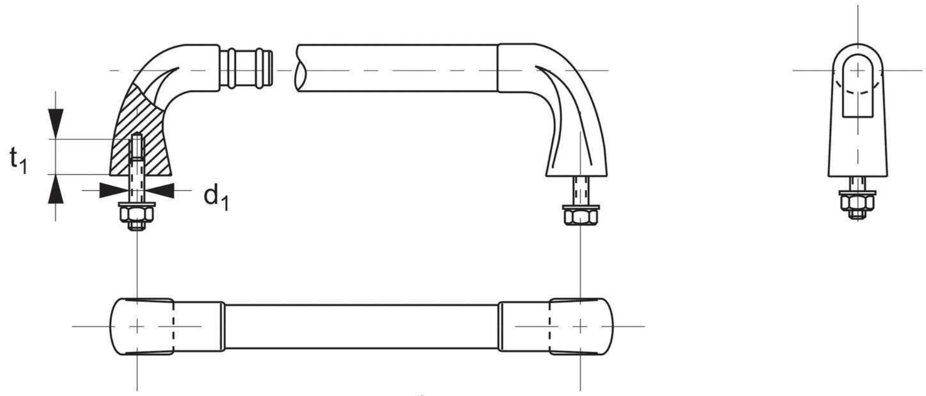
Technical Notes

Standard mounting type (front or rear): with hex screws to DIN 933, M 8x25, washers & nuts.
Safety mounting type (rear only): with bolts to DIN603, M8x25, washers & nuts.
Long term temperature resistance -60°C to + 200°C. Minimum stress resistance >1000N.
Ideal for use in food industry applications.

STAINLESS STEEL 304



front mounting



rear mounting

Material

Handle shank: cast stainless steel, Gx7 CrNiMoNb 18 10, abrasive blasted and electro-polished, dull bright finish.
Connecting tube: stainless steel x5 CrNi 189, 1.4301. Precision ground or grooved plastic coating.
Connection tubes finish grounded and brushed. Handle shanks glass blasted and electro polished with half matte finish.

Technical Notes

Front mounting: supplied with hex screws to DIN 912, M 8x35 and suitable washer and nut. Rear Mounting: supplied with hex screws to DIN 913 and suitable washer.
Minimum stress resistance >1000N.

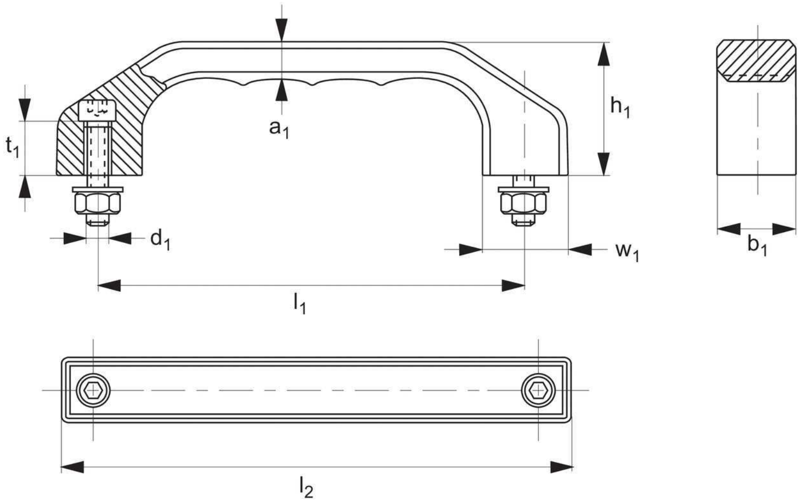
STAINLESS STEEL 304

Order No.	Tube Finish	Type	l_1	l_2	l_3	d_1	b_1	b_2	h_1	t_1	w_1	w_2
78820.W0020	Natural	Front Mount	200	226	120	M 8 x 35	22	26	50	-	29	53
78820.W0025	Natural	Front Mount	250	276	170	M 8 x 35	22	26	50	-	29	53
78820.W0030	Natural	Front Mount	300	326	220	M 8 x 35	22	26	50	-	29	53
78820.W0035	Natural	Front Mount	350	376	270	M 8 x 35	22	26	50	-	29	53
78820.W0040	Natural	Front Mount	400	426	320	M 8 x 35	22	26	50	-	29	53
78820.W0120	Plastic Covered	Front Mount	200	226	120	M 8 x 35	22	26	50	-	29	53
78820.W0125	Plastic Covered	Front Mount	250	276	170	M 8 x 35	22	26	50	-	29	53
78820.W0130	Plastic Covered	Front Mount	300	326	220	M 8 x 35	22	26	50	-	29	53
78820.W0135	Plastic Covered	Front Mount	350	376	270	M 8 x 35	22	26	50	-	29	53
78820.W0140	Plastic Covered	Front Mount	400	426	320	M 8 x 35	22	26	50	-	29	53
78820.W0520	Natural	Rear Mount	200	226	120	M 8 x 20	22	26	50	16	29	53
78820.W0525	Natural	Rear Mount	250	276	170	M 8 x 20	22	26	50	16	29	53
78820.W0530	Natural	Rear Mount	300	326	220	M 8 x 20	22	26	50	16	29	53
78820.W0535	Natural	Rear Mount	350	376	270	M 8 x 20	22	26	50	16	29	53
78820.W0540	Natural	Rear Mount	400	426	320	M 8 x 20	22	26	50	16	29	53
78820.W0620	Plastic Covered	Rear Mount	200	226	120	M 8 x 20	22	26	50	16	29	53
78820.W0625	Plastic Covered	Rear Mount	250	276	170	M 8 x 20	22	26	50	16	29	53
78820.W0630	Plastic Covered	Rear Mount	300	326	220	M 8 x 20	22	26	50	16	29	53
78820.W0635	Plastic Covered	Rear Mount	350	376	270	M 8 x 20	22	26	50	16	29	53
78820.W0640	Plastic Covered	Rear Mount	400	426	320	M 8 x 20	22	26	50	16	29	53

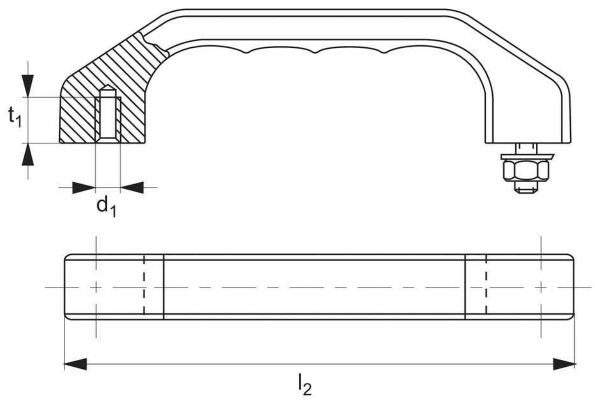
Pull Handles

stainless steel

78830



front mounting



rear mounting

Material
Stainless steel (304) precision casting (G X6 CrNi 18 9, material no. G4308). Finish: blasted and electropolished with a semi-matt finish.

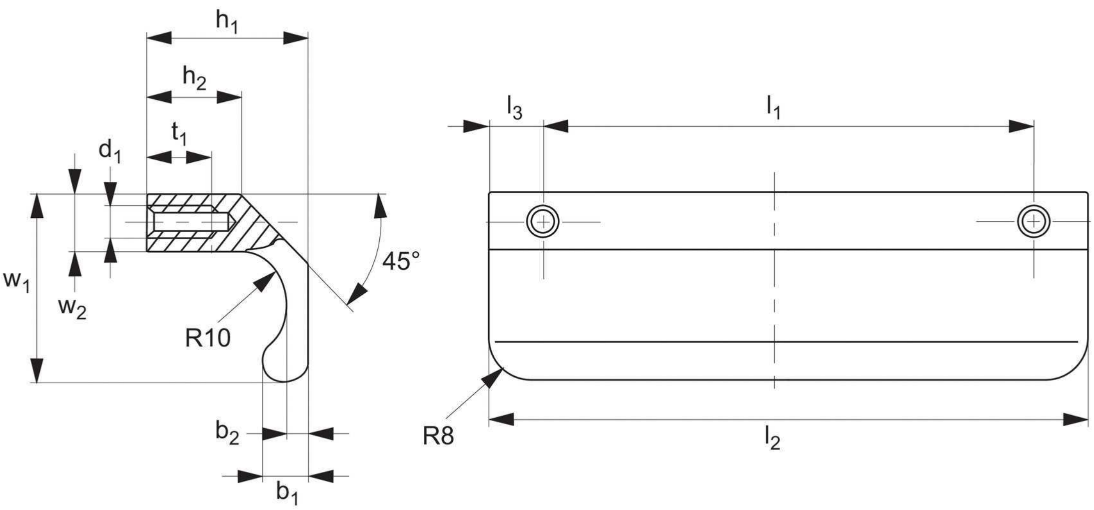
Technical Notes
Front mounting: supplied with hex screws to DIN 912, and suitable washer and nut.
Rear Mounting: supplied with hex head screws to DIN 933 and suitable washer.
Minimum stress resistance >1000N.

Order No.	Type	l_1	l_2	d_1	t_1	h_1	b_1	a_1	w_1
78830.W0140	Front Mounting	140	170	M 8x30	15	45	25	12	28
78830.W0180	Front Mounting	180	218	M10x40	18	58	32	15	36
78830.W0540	Rear Mounting	140	170	M 8x18	15	45	25	12	28
78830.W0580	Rear Mounting	180	218	M10x20	18	58	32	15	36

Ledge Handles

stainless steel

78850



Order No.	l_1	l_2	d_1	t_1	h_1	h_2	b_1	b_2	w_1	w_2
78850.W0060	60	80	M 6	12	30	20	8	4	35	10
78850.W0080	80	100	M 6	12	30	20	8	4	35	10
78850.W0100	100	120	M 6	12	30	20	8	4	35	10
78850.W0130	130	150	M 6	12	30	20	8	4	35	10

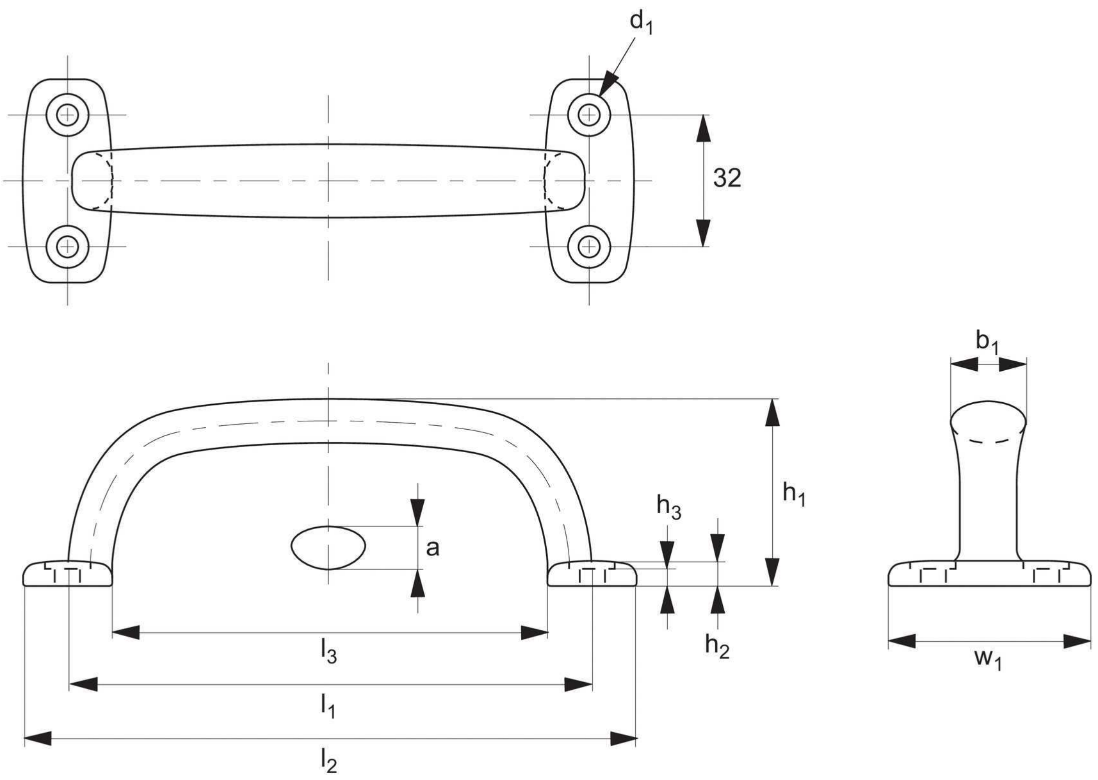
Material

Profiled stainless steel 316 (X2 CrNiMo 17 13 2, material no. 1.4404). Finish: blasted and electropolished with a semi-matt finish.

Technical Notes

Minimum stress resistance 500N. Any other handle lengths available on request.

STAINLESS STEEL 316



Order No.	l_1	l_2	l_3	w_1	b_1	h_1	h_2	h_3	a	d_1	g
78890.W0064	64	82	46	48	16	36,5	5,5	4,0	8	4-Ø5, 4-Ø9,5	110
78890.W0096	96	114	78	48	16	40,0	6,0	4,5	9	4-Ø5, 4-Ø9,5	148
78890.W0128	128	150	106	50	18	45,0	6,0	4,5	10	4-Ø6, 4-Ø11,0	210
78890.W0160	160	180	140	50	20	48,0	6,5	5,0	10	4-Ø6, 4-Ø11,0	270

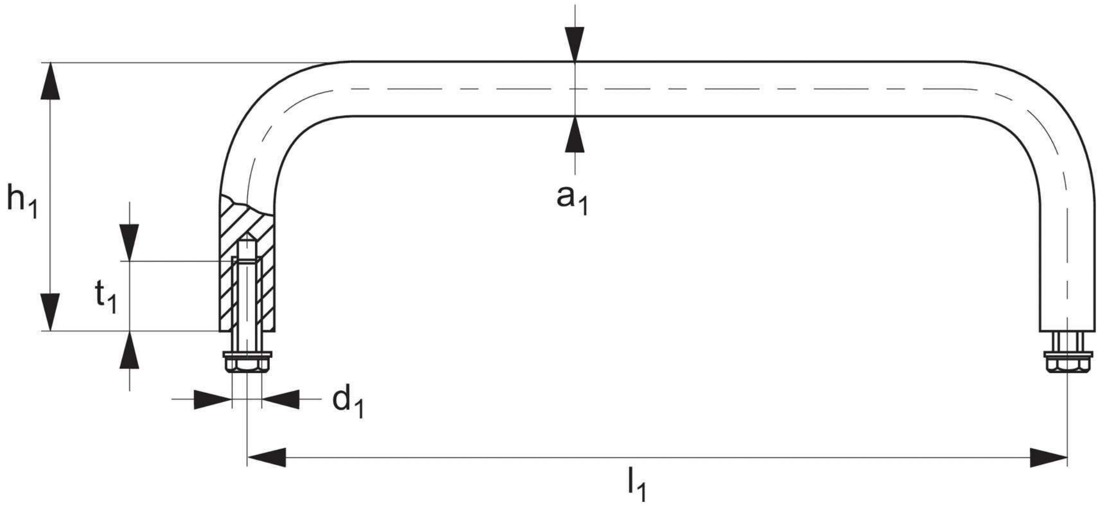
Material
AISI 316 stainless steel, mirror finish.

Technical Notes
Supplied with stainless steel screws. Ideal for harsh and high corrosive environments.

Pull Handles - Bar Type

stainless steel

78900



Material
Stainless steel rod X12 CrNiS 18 8, 1.4305 (AISI 303). Finish: matt gloss.

Technical Notes
Minimum stress resistance 1000N.

Tips
For medical technology, laboratory instruments with high chemical resistance.

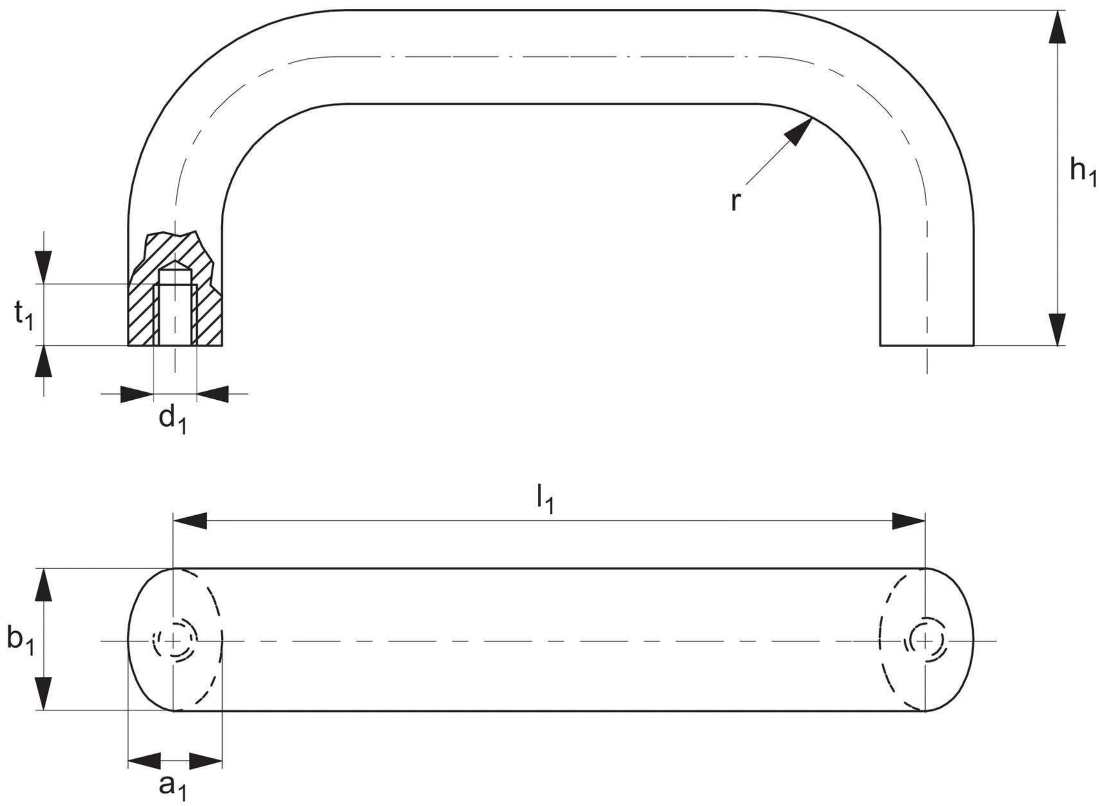
STAINLESS STEEL 304

Order No.	a_1 Ø	l_1	h_1	d_1	t_1
78900.W0064	8	64	35	M 5x10	10
78900.W0088	8	88	35	M 5x10	10
78900.W0100	8	100	35	M 5x10	10
78900.W0120	10	120	40	M 5x10	10
78900.W0180	10	180	40	M 5x10	10
78900.W0250	10	250	40	M 5x10	10
78900.W0350	10	350	40	M 5x10	10
78900.W0400	15	150	55	M 6x16	12
78900.W0410	15	200	55	M 6x16	12
78900.W0420	15	250	55	M 6x16	12
78900.W0430	15	300	55	M 6x16	12
78900.W0440	15	350	55	M 6x16	12

Pull Handles - Oval Type

stainless steel

78910



Material
Stainless steel 1.4301, dull blasted

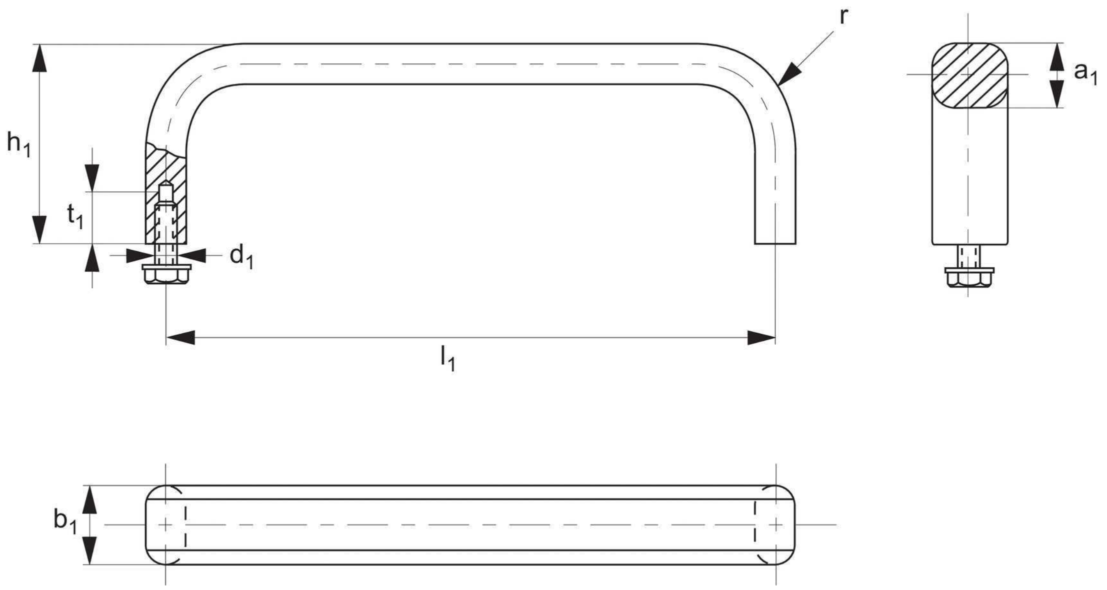
Technical Notes
Ergonomic design offering high stability and smooth surfaces.

Order No.	b_1	l_1	a_1	d_1	h_1	r	t_1	g
78910.W0510	20	112	13	M 6	49	13	10	270
78910.W0520	20	128	13	M 6	51	13	10	305
78910.W0530	20	160	13	M 6	51	13	10	366
78910.W0540	20	200	13	M 6	51	13	10	440
78910.W0550	20	250	13	M 6	51	13	10	517
78910.W0560	20	300	13	M 6	51	13	10	597
78910.W0580	20	400	13	M 6	51	13	10	737

Pull Handles - Oval Type

stainless steel

78920



Material
Stainless steel X12 CrNiS 18 8, 1.4305 (AISI 303).
Finish: vibration ground with a semi-matte finish.

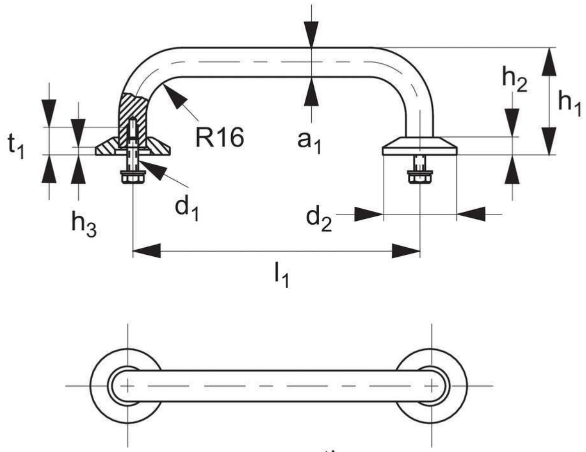
Technical Notes
Supplied with hex screws DIN 933 and suitable washer. Minimum stress resistance >1000N.

Tips
Attractively shaped handles for all applications, with high corrosive and chemical resistance. Other dimensions on request.

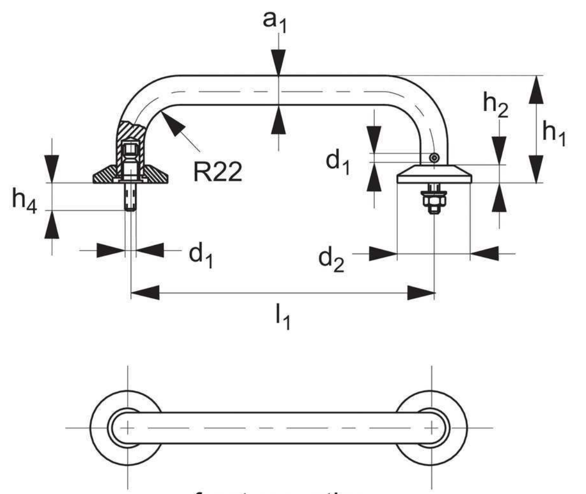
STAINLESS STEEL 304

Order No.	Type	b_1	l_1	d_1	t_1	h_1	d_1	r
78920.W0010	Narrow	12,0	100	M 5x10	10	40	8	22
78920.W0012	Narrow	12,0	120	M 5x10	10	40	8	22
78920.W0015	Narrow	12,0	150	M 5x10	10	40	8	22
78920.W0018	Narrow	12,0	180	M 5x10	10	40	8	22
78920.W0025	Narrow	12,0	250	M 5x10	10	40	8	22
78920.W0035	Narrow	12,0	350	M 5x10	10	40	8	22
78920.W0110	Wide	19,5	100	M 6x12	12	45	10	24
78920.W0112	Wide	19,5	120	M 6x12	12	45	10	24
78920.W0115	Wide	19,5	150	M 6x12	12	45	10	24
78920.W0118	Wide	19,5	180	M 6x12	12	45	10	24
78920.W0125	Wide	19,5	250	M 6x12	12	45	10	24
78920.W0135	Wide	19,5	350	M 6x12	12	45	10	24

78940



rear mounting



front mounting

Material
Round stainless steel X12 CrNiS 18 8, material no. 1.4305. Finish: ground and brushed for a matt finish.

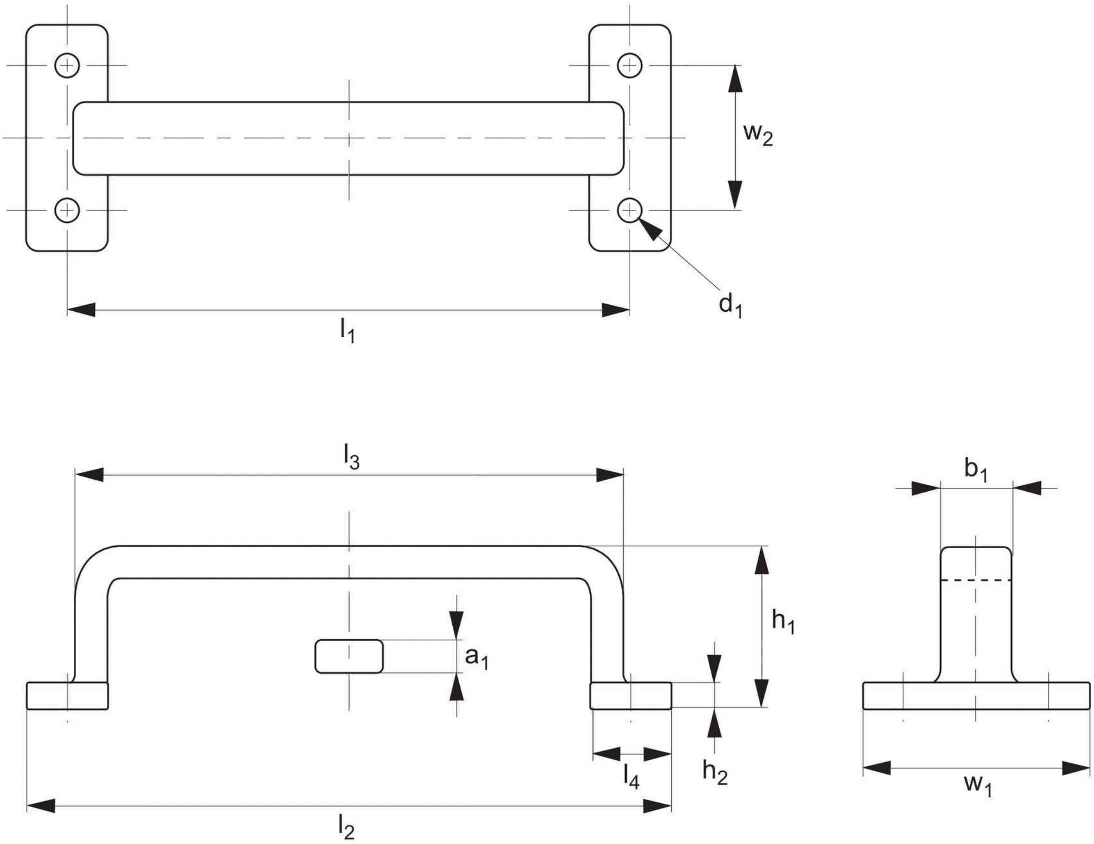
Technical Notes
Front mounting: supplied with hex screws DIN 933 and washers.
Rear mounting: supplied with mounting adapter and suitable nuts and washer. Minimum stress resistance >1000N.

Tips
Where maximum load-bearing capacity is required. Other dimensions on request.

Order No.	Type	l_1	a_1	d_1	d_2	h_1	h_2	h_3	h_4	t_1
78940.W0015	Rear Mounting	150	15	M 6 x 20	38	58	9	4	-	16
78940.W0020	Rear Mounting	200	15	M 6 x 20	38	58	9	4	-	16
78940.W0025	Rear Mounting	250	15	M 6 x 20	38	58	9	4	-	16
78940.W0120	Front Mounting	200	20	M 8	50	75	12	5	16	21
78940.W0125	Front Mounting	250	20	M 8	50	75	12	5	16	21
78940.W0130	Front Mounting	300	20	M 8	50	75	12	5	16	21
78940.W0220	Rear Mounting	200	20	M 8 x 25	50	75	12	5	-	-
78940.W0225	Rear Mounting	250	20	M 8 x 25	50	75	12	5	-	-
78940.W0230	Rear Mounting	300	20	M 8 x 25	50	75	12	5	-	-

Pull Handles, Stainless Steel

78950



Material
AISI 316 stainless steel, mirror finish.

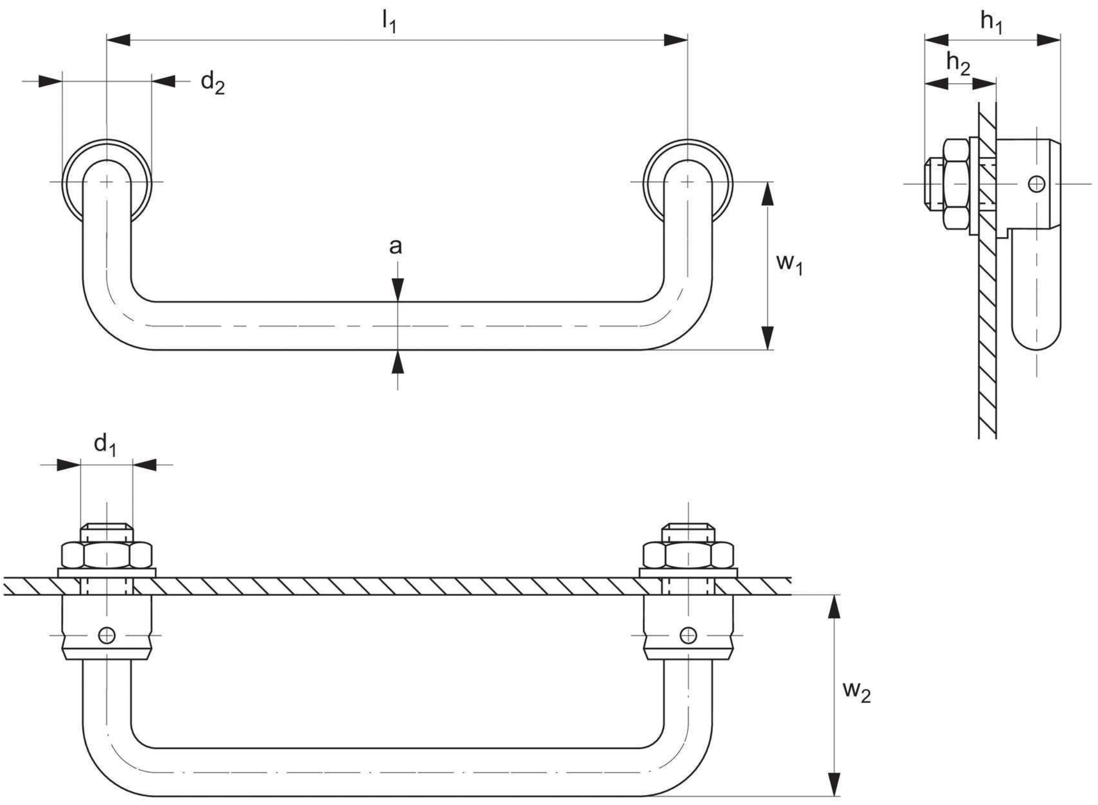
Technical Notes
Supplied with stainless steel screws.

Important Notes
Ideal for harsh and high corrosive environments. Higher profile allows for easy gripping with gloved hand.

Order No.	l_2	l_3	w_1	b_1	h_1	h_2	a_1	l_4	l_1	w_2	g
78950.W0200	200	170	70	22	50	8	10	25	175	45	586
78950.W0280	280	250	80	26	62	10	12	27	253	55	1088

Pull Handles - Collapsible

stainless steel



extended

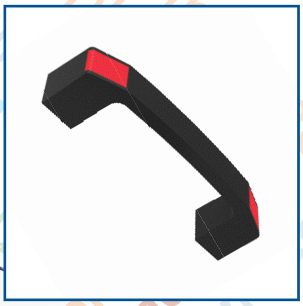
Material
All components made of round bar stainless steel, material no. 1.4305. Finish: vibration ground to a semi-matt finish.

Technical Notes
Spring-arrest in both retracted and extended positions. One piece pivot bushing. Minimum stress resistance 500N.

Tips
Supplied complete with nuts and washers.

STAINLESS STEEL 303

Order No.	l_1	d_1	d_2	h_1	h_2	a	w_1	w_2
78970.W0100	100	M10x1	18	28	14	10	34	43
78970.W0120	120	M10x1	18	28	14	10	34	43
78970.W0180	180	M10x1	18	28	14	10	34	43

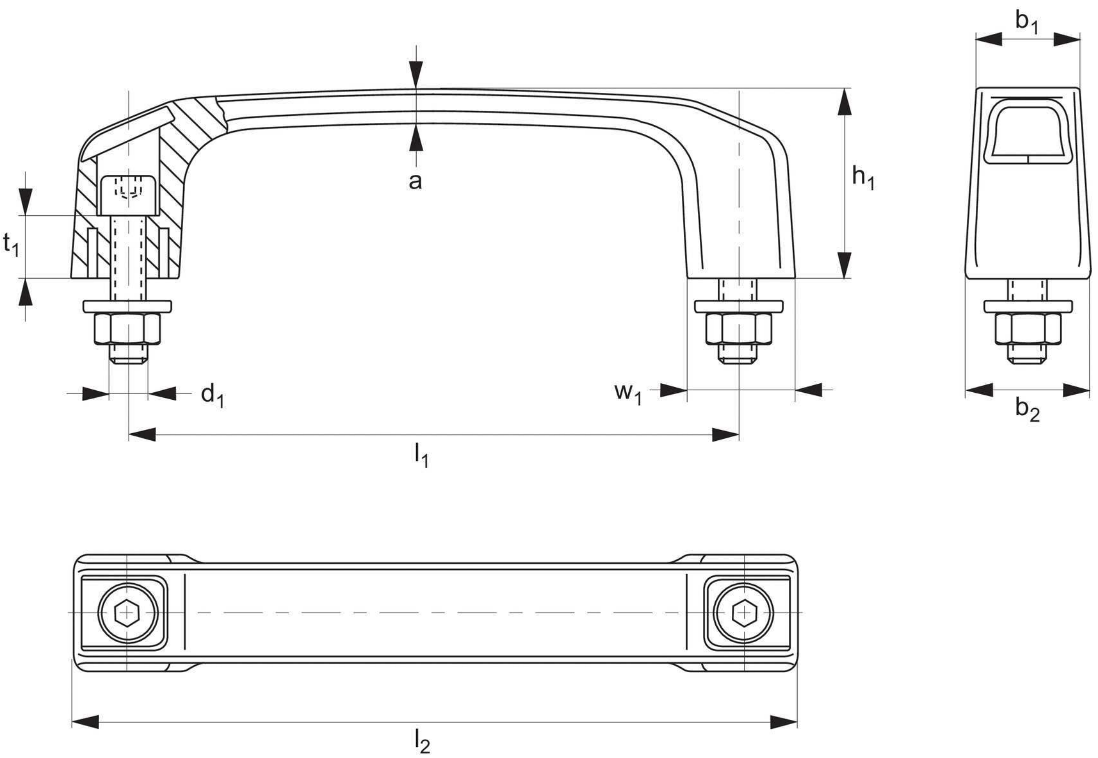


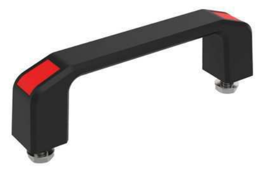
Pull Handles - Plastic

Pull Handles

plastic, with coloured caps

79100





Material
Handle: thermoplastic PA 6 glass-ball reinforced. Matt black with attractive fine-grain structure. Blanking caps: in the same surface structure available in black, red, green, blue and yellow.

Technical Notes
Includes electrogalvanized socket-head cap bolts DIN 912, nuts DIN 934 and washers DIN 125. Minimum stress resistance 1000N.

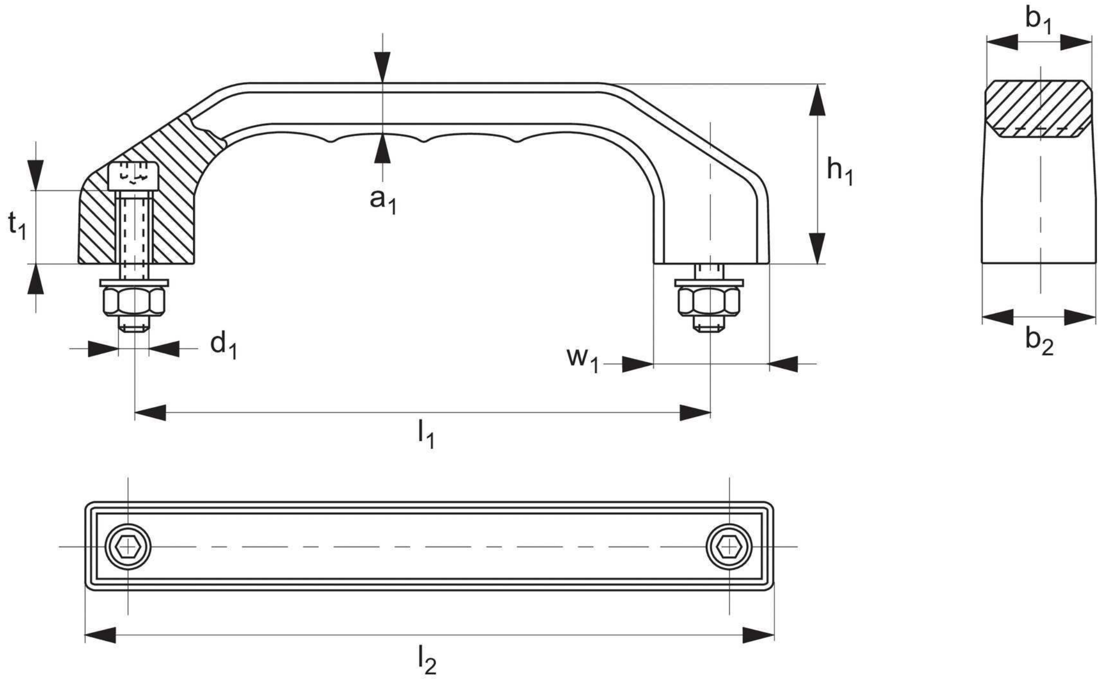
Tips
Red - similar to RAL 3020
Green - similar to RAL 6024
Blue - similar to RAL 5017
Yellow - similar to RAL 1023

TP

Order No.	Cap Colour	l_1	l_2	d_1	t_1	h_1	b_1	b_2	a	w_1
79100.W0120-9	Black	120	141	M 6x25	13	39	21	24	7	21
79100.W0140-9	Black	140	164	M 8x30	15	45	24	28	8	24
79100.W0120-3	Red	120	141	M 6x25	13	39	21	24	7	21
79100.W0140-3	Red	140	164	M 8x30	15	45	24	28	8	24
79100.W0120-6	Green	120	141	M 6x25	13	39	21	24	7	21
79100.W0140-6	Green	140	164	M 8x30	15	45	24	28	8	24
79100.W0120-5	Blue	120	141	M 6x25	13	39	21	24	7	21
79100.W0140-5	Blue	140	164	M 8x30	15	45	24	28	8	24
79100.W0120-1	Yellow	120	141	M 6x25	13	39	21	24	7	21
79100.W0140-1	Yellow	140	164	M 8x30	15	45	24	28	8	24
79100.W0120-0	W/o Caps & Screws	120	141	M 6x25	13	39	21	24	7	21
79100.W0140-0	W/o Caps & Screws	140	164	M 8x30	15	45	24	28	8	24

Pull Handles

plastic



Order No.	Finish	l_1	l_2	d_1	t_1	h_1	b_1	b_2	a_1	w_1
79120.W0100-8	Black	100	122	M 5x22	13	33	17,0	19	8,5	20
79120.W0120-8	Black	120	146	M 6x25	15	39	20,5	24	10,5	24
79120.W0140-8	Black	140	170	M 8x30	16	45	24,0	27	12,0	28
79120.W0160-8	Black	160	194	M 8x35	20	52	27,5	31	13,5	32
79120.W0180-8	Black	180	218	M10x40	20	58	31,0	35	15,5	36
79120.W0100-0	Orange	100	122	M 5x22	13	33	17,0	19	8,5	20
79120.W0120-0	Orange	120	146	M 6 x25	15	39	20,5	24	10,5	24
79120.W0140-0	Orange	140	170	M 8 x30	16	45	24,0	27	12,0	28
79120.W0160-0	Orange	160	194	M 8x35	20	52	27,5	31	13,5	32
79120.W0180-0	Orange	180	218	M10x40	20	58	31,0	35	15,5	36

Material

Solid thermoplastic PA 6, glass ball reinforced. Matt black or orange with attractive, fine grain structure.

Technical Notes

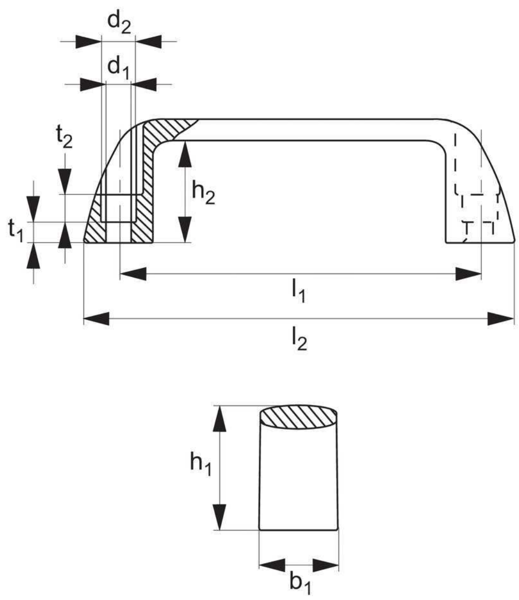
Including hex screws DIN912 with suitable nuts and washer. Solid plastic. Modern industrial design for the highest demands. Extremely resistant to torsion and easy to grip. Minimum stress resistance >1000N. And scope of supply.
Including black galvanised cheese head screws (chromium VI free) with hexagon sockets DIN 912 and galvanised nuts DIN 934 with washers DIN 125.

TP

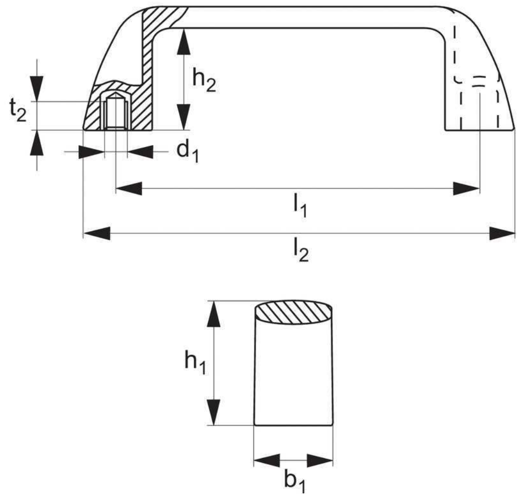
Plastic Pull Handles

through hole or threaded bush

79150



front mount



rear mount

Material
Thermoplastic, black, matt, glass fibre reinforced.
Threaded bush: brass.

Technical Notes
Other colours on request: red, orange, white & grey - subject to minimum quantity.

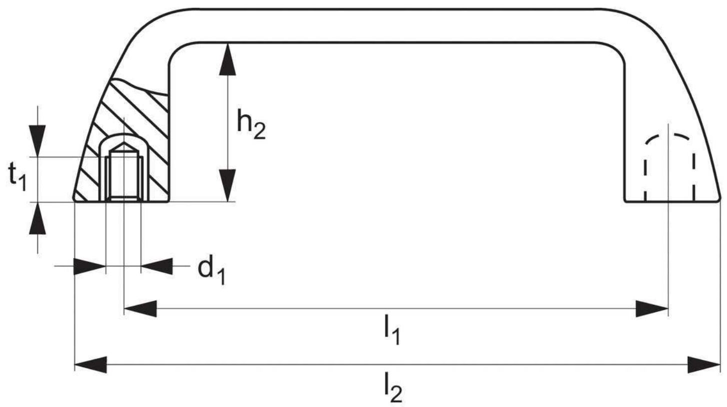
TP

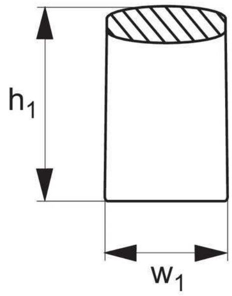
Order No.	Type	l_1	d_2	l_2	b_1	h_1	h_2	t_1	t_2	$Ød_1$	g
79150.W0010	Front Mount	93,5	Ø10,5	112	21	36	30	6	7	6,5	26
79150.W0011	Front Mount	117,0	Ø10,5	139	26	41	34	6	9	6,5	41
79150.W0012	Front Mount	117,0	Ø13,0	139	26	41	34	6	9	8,5	40
79150.W0013	Front Mount	132,0	Ø10,5	156	27	45	37	9	7	6,5	56
79150.W0014	Front Mount	132,0	Ø13,0	156	27	45	37	7	9	8,5	54
79150.W0018	Front Mount	179,0	Ø13,0	204	28	50	42	8	9	8,5	72
79150.W0509	Rear Mount	93,5	-	112	21	36	30	-	9	M 5	33
79150.W0510	Rear Mount	93,5	-	112	21	36	30	-	9	M 6	33
79150.W0511	Rear Mount	117,0	-	139	26	41	34	-	9	M 6	47
79150.W0512	Rear Mount	117,0	-	139	26	41	34	-	9	M 8	49
79150.W0513	Rear Mount	132,0	-	156	27	45	37	-	9	M 6	62
79150.W0514	Rear Mount	132,0	-	156	27	45	37	-	9	M 8	64
79150.W0518	Rear Mount	179,0	-	204	28	50	42	-	9	M 8	82

Plastic Pull Handles

rear mounting

79180





Material

Thermoplastic, black, matt. Glass fibre reinforced.
Brass insert with tapped blind hole.

Technical Notes

Other colours on request:- red, orange, white & grey - subject to minimum quantity.

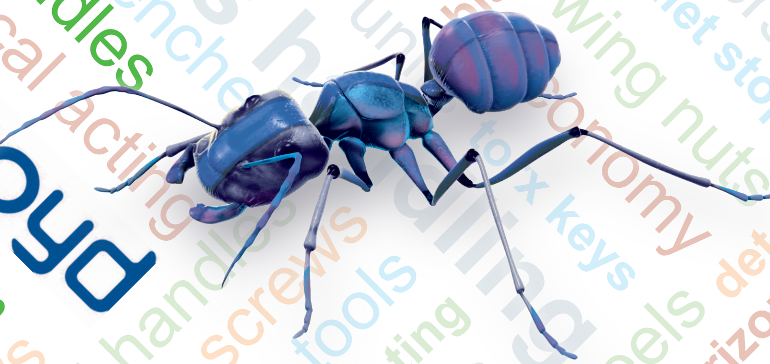
TP

Order No.	l_1	d_1	l_2	w_1	h_1	h_2	t_1	g
79180.W0009	105	M 5	121	26	37	29	9	46
79180.W0010	105	M 6	121	26	37	29	9	48
79180.W0011	110	M 5	133	26	40	32	9	58
79180.W0012	110	M 6	133	26	40	32	9	60
79180.W0016	117	M 5	133	26	40	32	9	57
79180.W0017	117	M 6	133	26	40	32	9	59
79180.W0018	117	M 8	133	26	40	32	9	61

Wixroyd

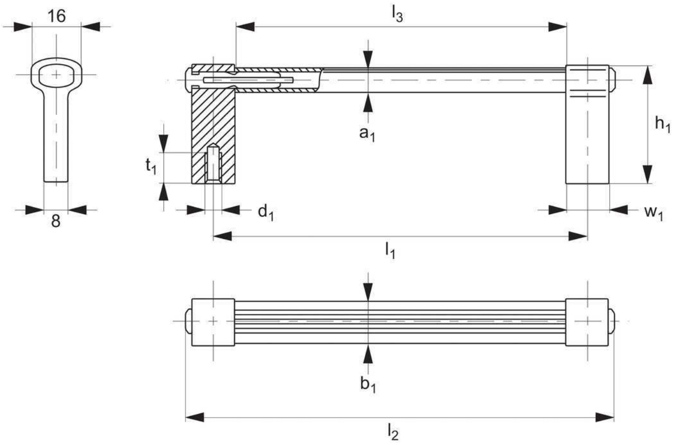
heavy duty pull handles

enclosure handles

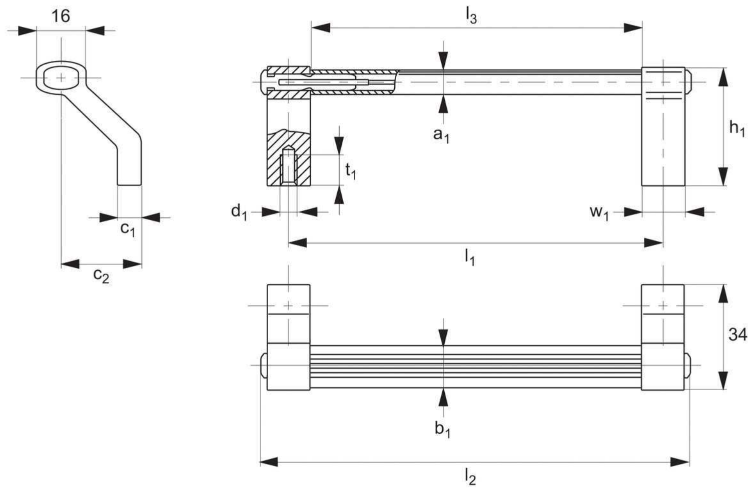


handles & pulls

Pull Handles - Heavy Duty



straight type



off-set type

Material

Handle shank and grip: profiled aluminium Al Mg Si 0,5. Connecting moulded components made of black polyamide with stainless steel pin. Handle shank vibration ground and matte finished. Grip

Technical Notes

Minimum stress resistance 1000N. Handle with tangent bent aluminium shanks, completely assembled.

Tips

For 19" front panels and appliances. Provides high stability under load. Black grips available on request.

ALU.

Order No. Shank & Grip Natural	Order No. Shank & Grip Black	Type	l_1	l_2	l_3	a_1	h_1	d_1	t_1	b_1	c_1	c_2	w_1
79200.W0055-0	79200.W0055-1	Straight	55	73	41	9	40	M 5	10	14	-	-	14
79200.W0069-0	79200.W0069-1	Straight	69	87	55	9	40	M 5	10	14	-	-	14
79200.W0088-0	79200.W0088-1	Straight	88	106	74	9	40	M 5	10	14	-	-	14
79200.W0100-0	79200.W0100-1	Straight	100	118	86	9	40	M 5	10	14	-	-	14
79200.W0114-0	79200.W0114-1	Straight	114	132	100	9	40	M 5	10	14	-	-	14
79200.W0120-0	79200.W0120-1	Straight	120	138	104	9	40	M 5	10	14	-	-	14
79200.W0180-0	79200.W0180-1	Straight	180	198	166	9	40	M 5	10	14	-	-	14
79200.W0555-0	79200.W0555-1	Offset	55	73	41	9	40	M 5	10	14	8	22	14
79200.W0569-0	79200.W0569-1	Offset	69	87	55	9	40	M 5	10	14	8	22	14
79200.W0588-0	79200.W0588-1	Offset	88	106	74	9	40	M 5	10	14	8	22	14
79200.W0600-0	79200.W0600-1	Offset	100	118	86	9	40	M 5	10	14	8	22	14
79200.W0620-0	79200.W0620-1	Offset	120	138	104	9	40	M 5	10	14	8	22	14
79200.W0614-0	79200.W0614-1	Offset	114	132	100	9	40	M 5	10	14	8	22	14

Pull Handles - Heavy Duty

aluminium

79200

Order No. Shank & Grip Natural	Order No. Shank & Grip Black	Type	l_1	l_2	l_3	a_1	h_1	d_1	t_1	b_1	c_1	c_2	w_1
79200.W0680-0	79200.W0680-1	Offset	180	198	166	9	40	M 5	10	14	8	22	14

Material

Handle shank and grip: profiled aluminium Al Mg Si 0,5. Connecting moulded components made of black polyamide with stainless steel pin. Handle shank vibration ground and matte finished. Grip

Technical Notes

Minimum stress resistance 1000N. Handle with tangent bent aluminium shanks, completely assembled.

Tips

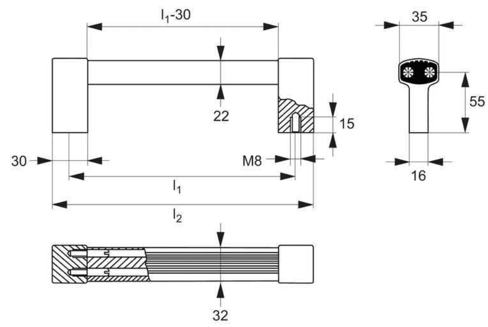
For 19" front panels and appliances. Provides high stability under load. Black grips available on request.

ALU.

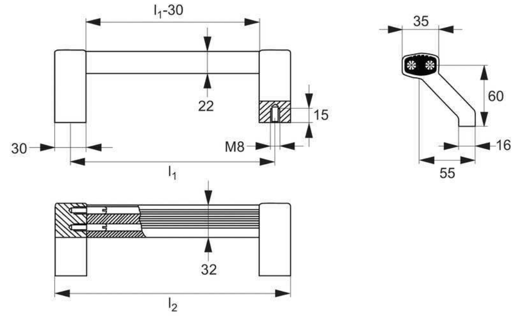
Pull Handles - Heavy Duty

aluminium

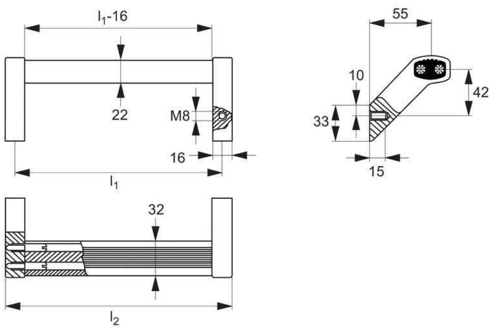
79210



standard type



off-set type



angled type

Material

Handle shank and grip: aluminium section Al Mg Si 0,5. Glass bead blasted and semi-glossed, anodised.

Technical Notes

Supplied with hex screws DIN 933, M8x16 and suitable washers. Minimum stress resistance >1000N.

Tips

Black grips available on request. Any desired handle lengths and surfaces available on request.

ALU.

Order No. Straight	**Order No. Offset**	Shank finish	Grip finish	l_1	l_2
79210.W0020-0	79210.W0220-0	Natural	Natural	200	230
79210.W0025-0	79210.W0225-0	Natural	Natural	250	280
79210.W0030-0	79210.W0230-0	Natural	Natural	300	330
79210.W0035-0	79210.W0235-0	Natural	Natural	350	380
79210.W0040-0	79210.W0240-0	Natural	Natural	400	430
79210.W0050-0	79210.W0250-0	Natural	Natural	500	530
79210.W0060-0	79210.W0260-0	Natural	Natural	600	630
79210.W0020-1	79210.W0220-1	Black	Natural	200	230
79210.W0025-1	79210.W0225-1	Black	Natural	250	280
79210.W0030-1	79210.W0230-1	Black	Natural	300	330
79210.W0035-1	79210.W0235-1	Black	Natural	350	380
79210.W0040-1	79210.W0240-1	Black	Natural	400	430
79210.W0050-1	79210.W0250-1	Black	Natural	500	530
79210.W0060-1	79210.W0260-1	Black	Natural	600	630

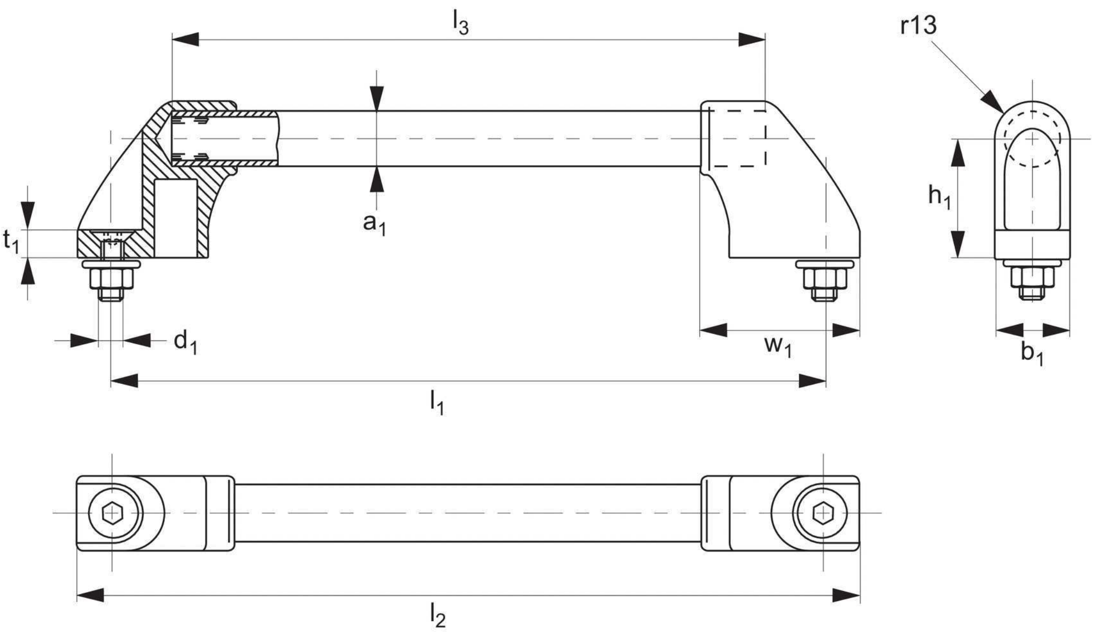
79210

Material
Handle shank and grip: aluminium section Al Mg Si 0,5. Glass bead blasted and semi-glossed, anodised.

Technical Notes
Supplied with hex screws DIN 933, M8x16 and suitable washers. Minimum stress resistance >1000N.

Tips
Black grips available on request. Any desired handle lengths and surfaces available on request.

ALU.



Order No. Natural	Order No. Black	l_1	l_2	l_3	h_1	d_1	a_1	b_1	t_1	w_1
79240.W0010	79240.W0110	180	204	140	42	M 8 x 20	Ø20 x 2	26	10	55
79240.W0020	79240.W0120	200	224	160	42	M 8 x 20	Ø20 x 2	26	10	55
79240.W0025	79240.W0125	250	274	210	42	M 8 x 20	Ø20 x 2	26	10	55
79240.W0030	79240.W0130	300	324	260	42	M 8 x 20	Ø20 x 2	26	10	55
79240.W0035	79240.W0135	350	374	310	42	M 8 x 20	Ø20 x 2	26	10	55
79240.W0040	79240.W0140	400	424	360	42	M 8 x 20	Ø20 x 2	26	10	55
79240.W0050	79240.W0150	500	524	460	42	M 8 x 20	Ø20 x 2	26	10	55
79240.W0060	79240.W0160	600	624	560	42	M 8 x 20	Ø20 x 2	26	10	55

Material

Handle shank: polyamide, PA 6 glass ball reinforced, black, semi-matt, with fine structure.
Connecting tube: aluminium AlMgSi 0.5, ground and anodized in natural colour or with grooved plastic cover.

Technical Notes

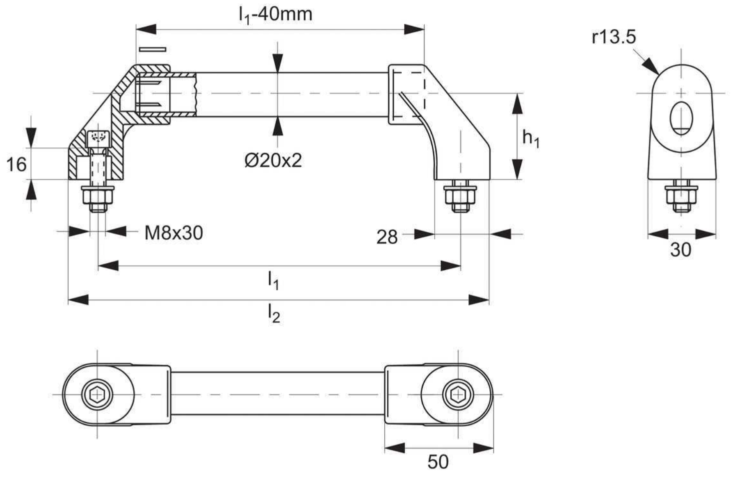
Supplied with hex screws DIN 7991 M8 x 20, and suitable nuts and washers.
Minimum stress resistance 500N.

Tips

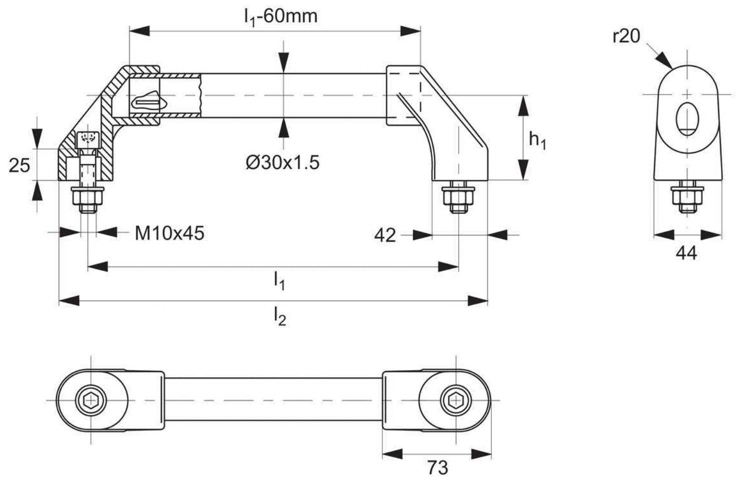
The handle shank is fitted with 4 clamping pins, when the connection tube is pressed in the pins form around the tube and provide a firm hold.

PA

79250



type one



type two

Material

Handle shank: polyamide, PA 6 glass ball reinforced, black, semi-matt with fine structure.
Connection tube: aluminium Al Mg Si 0,5.
Surface finishes: ground and anodised in natural colour. Grooved plastic cover, black. Powder coated, black.

Technical Notes

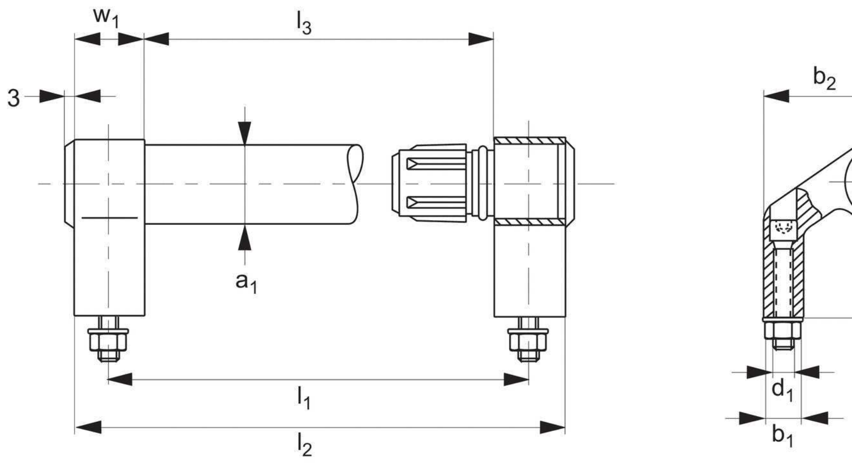
Type one: supplied with hex screws DIN 912 M8x30, and suitable nuts and washers.
Type two: supplied with hex screws DIN912 M10x45 and suitable nuts and washers.
Minimum stress resistance 1000N.

Tips

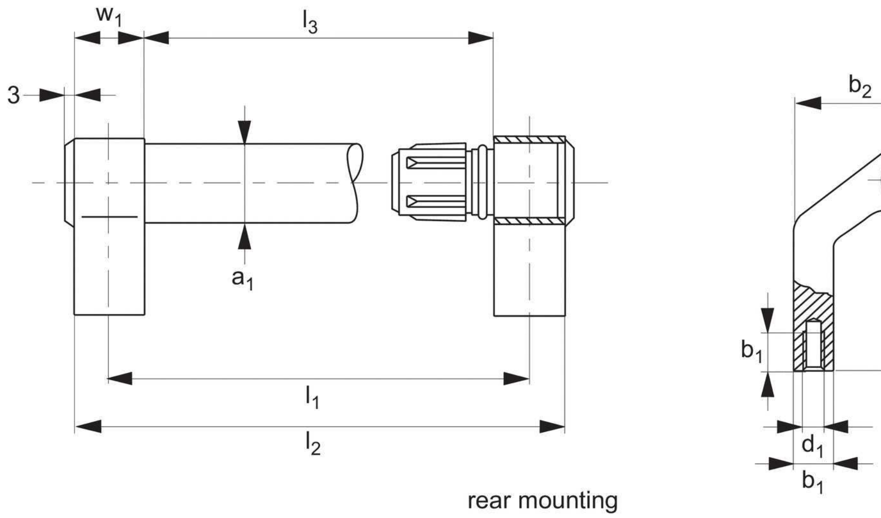
The handle shank is fitted with 4 clamping pins, when the connection tube is pressed in the pins form around the tube and provide a firm hold.

PA

Order No. Natural	Order No. Plastic coating	Type	l_1	l_2	h_1 height to centre
79250.W0018	79250.W0118	One	180	210	42
79250.W0020	79250.W0120	One	200	230	42
79250.W0025	79250.W0125	One	250	280	42
79250.W0030	79250.W0130	One	300	330	42
79250.W0035	79250.W0135	One	350	380	42
79250.W0040	79250.W0140	One	400	430	42
79250.W0050	79250.W0150	One	500	530	42
79250.W0060	79250.W0160	One	600	630	42
79250.W0525	79250.W0625	Two	250	294	60
79250.W0530	79250.W0630	Two	300	344	60
79250.W0535	79250.W0635	Two	350	394	60
79250.W0540	79250.W0640	Two	400	444	60
79250.W0550	79250.W0650	Two	500	544	60
79250.W0560	79250.W0660	Two	600	644	60



front mounting



rear mounting

Material
Handle shank: extruded aluminium Al Mg Si 0,5. Anodised, matt black. Insert of black reinforced polyamide (PA6).
Connecting tube: aluminium Al Mg Si 0,5 Ø30 x 1,5mm. Precision ground and anodised.

Technical Notes
Minimum stress resistance >1000N. Wide shank includes stainless steel cylinder head socket screws M6x45 DIN 912, nuts DIN 934 and washers DIN 125.

ALU.

Order No.	Mounting type	Shank type	Shank finish	Tube finish	l_1	l_2	l_3	w_1	d_1	h_1	a_1	a_2	b_1	b_2
79270.W0020-1	Rear	Narrow	Black	Natural	200	225	175	25	M 8	50	Ø30 x 1,5	33	15	45
79270.W0025-1	Rear	Narrow	Black	Natural	250	275	225	25	M 8	50	Ø30 x 1,5	33	15	45
79270.W0030-1	Rear	Narrow	Black	Natural	300	325	275	25	M 8	50	Ø30 x 1,5	33	15	45
79270.W0035-1	Rear	Narrow	Black	Natural	350	375	325	25	M 8	50	Ø30 x 1,5	33	15	45
79270.W0040-1	Rear	Narrow	Black	Natural	400	425	375	25	M 8	50	Ø30 x 1,5	33	15	45
79270.W0050-1	Rear	Narrow	Black	Natural	500	525	475	25	M 8	50	Ø30 x 1,5	33	15	45
79270.W0060-1	Rear	Wide	Black	Natural	600	625	575	25	M 8	50	Ø30 x 1,5	33	15	45
79270.W0520-1	Rear	Wide	Black	Natural	200	250	150	50	M 8	50	Ø30 x 1,5	33	15	45
79270.W0525-1	Rear	Wide	Black	Natural	250	300	200	50	M 8	50	Ø30 x 1,5	33	15	45
79270.W0530-1	Rear	Wide	Black	Natural	300	350	250	50	M 8	50	Ø30 x 1,5	33	15	45
79270.W0535-1	Rear	Wide	Black	Natural	350	400	300	50	M 8	50	Ø30 x 1,5	33	15	45
79270.W0540-1	Rear	Wide	Black	Natural	400	450	350	50	M 8	50	Ø30 x 1,5	33	15	45
79270.W0550-1	Rear	Wide	Black	Natural	500	550	450	50	M 8	50	Ø30 x 1,5	33	15	45

Pull Handle System

aluminium

79270

Order No.	Mounting type	Shank type	Shank finish	Tube finish	l_1	l_2	l_3	w_1	d_1	h_1	a_1	a_2	b_1	b_2
79270.W0560-1	Rear	Wide	Black	Natural	600	650	550	50	M 8	50	Ø30 x 1,5	33	15	45
79270.W0020-4	Front	Narrow	Black	Black	200	225	175	25	M 6 x 45	50	Ø30 x 1,5	33	15	45
79270.W0025-4	Front	Narrow	Black	Black	250	275	225	25	M 6 x 45	50	Ø30 x 1,5	33	15	45
79270.W0030-4	Front	Narrow	Black	Black	300	325	275	25	M 6 x 45	50	Ø30 x 1,5	33	15	45
79270.W0035-4	Front	Narrow	Black	Black	350	375	325	25	M 6 x 45	50	Ø30 x 1,5	33	15	45
79270.W0040-4	Front	Narrow	Black	Black	400	425	375	25	M 6 x 45	50	Ø30 x 1,5	33	15	45
79270.W0050-4	Front	Narrow	Black	Black	500	525	475	25	M 6 x 45	50	Ø30 x 1,5	33	15	45
79270.W0060-4	Front	Narrow	Black	Black	600	625	575	25	M 6 x 45	50	Ø30 x 1,5	33	15	45

Material

Handle shank: extruded aluminium Al Mg Si 0,5. Anodised, matt black. Insert of black reinforced polyamide (PA6).
Connecting tube: aluminium Al Mg Si 0,5 Ø30 x 1,5mm. Precision ground and anodised.

Technical Notes

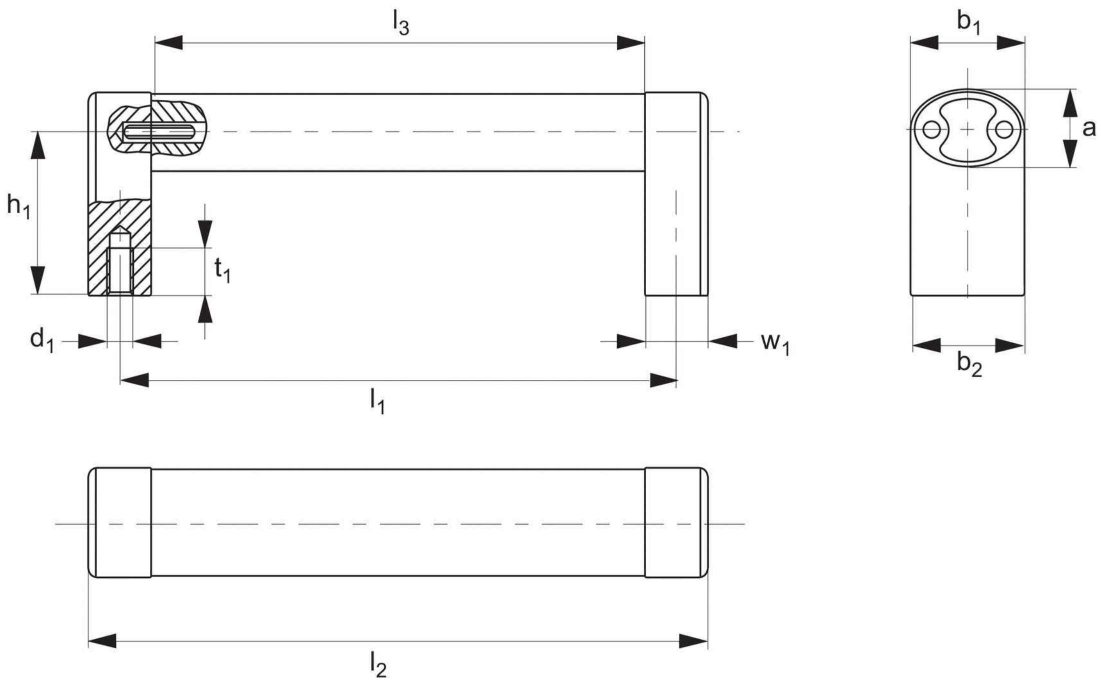
Minimum stress resistance >1000N.
Wide shank includes stainless steel cylinder head socket screws M6x45 DIN 912, nuts DIN 934 and washers DIN 125.

ALU.

Pull Handles

aluminium

79280

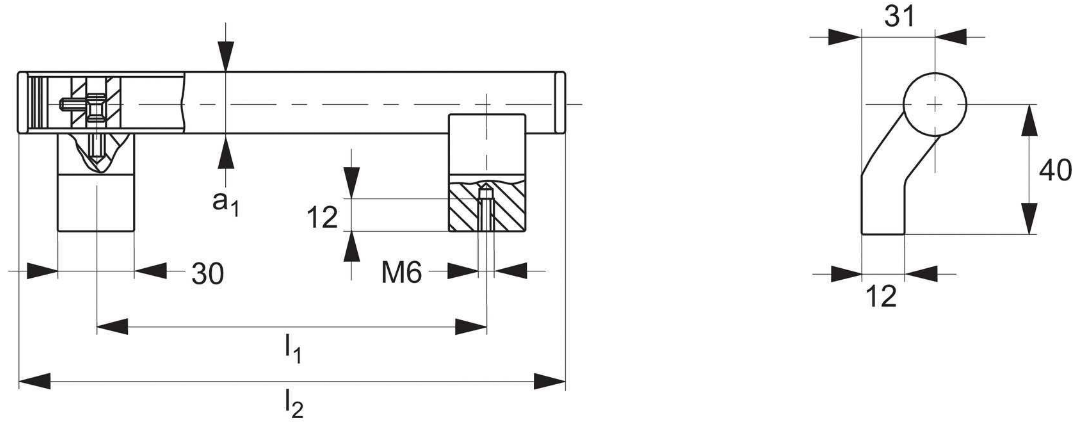


Material
Handle shank and connecting tube: extruded aluminium Al Mg Si 0,5. Anodised matt, natural or black.

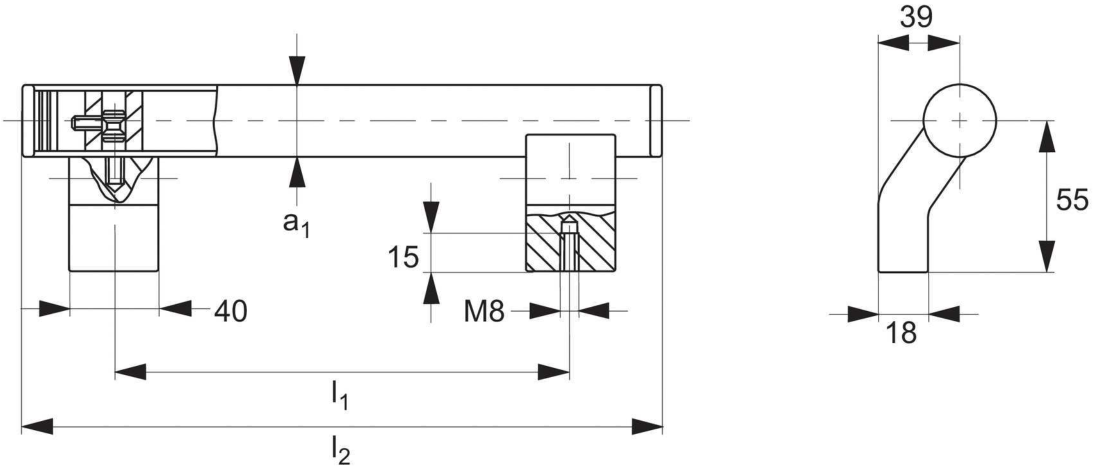
Technical Notes
Minimum stress resistance >1000N.

Important Notes
Other handle lengths or colour combinations on request.

Order No. Natural	Order No. Black	l_1	l_2	l_3	h_1	d_1	a	b_1	b_2	t_1	w_1
79280.W0200-1	79280.W0200-4	200	220	180	52	M 8	25	35	36	15	20
79280.W0250-1	79280.W0250-4	250	270	230	52	M 8	25	35	36	15	20
79280.W0300-1	79280.W0300-4	300	320	280	52	M 8	25	35	36	15	20
79280.W0400-1	79280.W0400-4	400	420	380	52	M 8	25	35	36	15	20
79280.W0500-1	79280.W0500-4	500	520	480	52	M 8	25	35	36	15	20



type one



type two

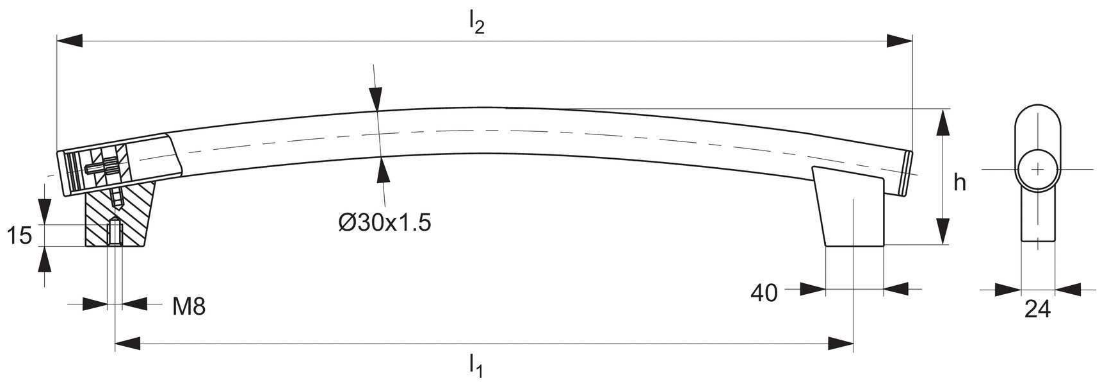
Material
Type one: handle shank and connecting tube - extruded aluminium Al Mg Si 0,5. Anodized, natural or black. Fixing sleeves of anodised aluminium, clamping screws and pegs made of stainless steel.
Type two: handle shank - extruded aluminium Al Mg Si 0,5, anodized black.
Connecting tube: stainless steel.

Technical Notes
Minimum stress resistance >1000N.

Important Notes
Other handle lengths or colours combinations on request.

ALU.

Order No. Natural	Order No. Black	Type	a_1	l_1	l_2
79290.W0220-1	79290.W0220-4	One	20 x 2,0	200	260
79290.W0225-1	79290.W0225-4	One	20 x 2,0	250	310
79290.W0230-1	79290.W0230-4	One	20 x 2,0	300	360
79290.W0330-1	79290.W0330-4	Two	30 x 1,5	300	390
79290.W0335-1	79290.W0335-4	Two	30 x 1,5	350	440
79290.W0340-1	79290.W0340-4	Two	30 x 1,5	400	490
79290.W0350-1	79290.W0350-4	Two	30 x 1,5	500	590
79290.W0360-1	79290.W0360-4	Two	30 x 1,5	600	690



type one

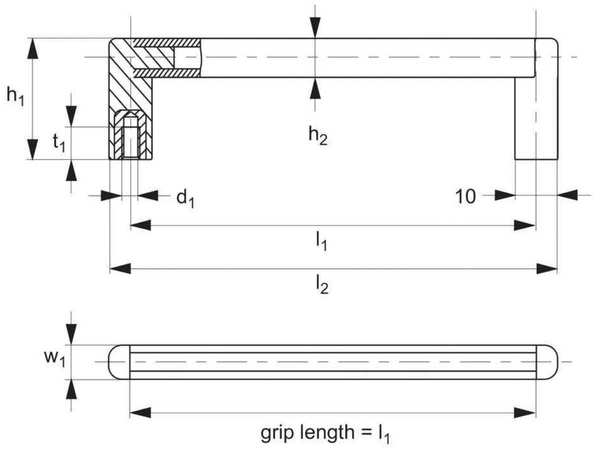
Order No.	Type	l_1	l_2	h
79310.W0500	One	500	600	90
79310.W0600	One	600	700	100

Material
Connecting tube: stainless steel fine ground, material 1.4301. Tube Ø30 x 1.5mm, end caps material no 1.4305, stainless steel, fine ground. Tube holders: aluminium, AlMgSi 0.5 powder coated with fine structure.

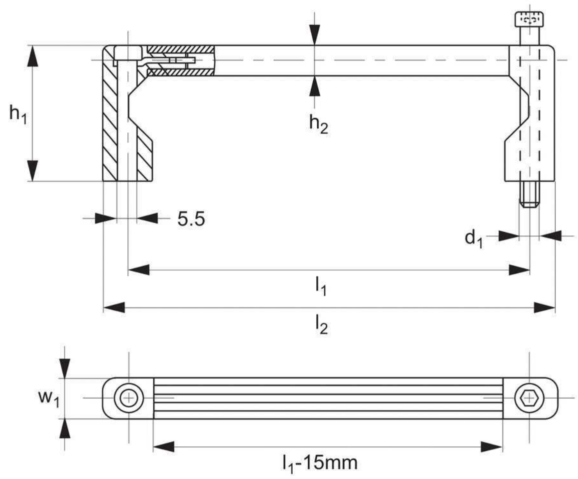
Technical Notes
Bent tube handle in modern industrial design. Minimum stress resistance > 1000N.

Equipment Handles

79350



rear mounting



front mounting

Material
Connection tube: special aluminium section, matt finishing in natural colour or black anodized.
Handle shank: heavy-duty polyamide, glass bead reinforced with fine structure and brass threaded bush. Screw attachment from front, steel plate reinforced.

Technical Notes
Minimum stress resistance 200N.

Tips
For small appliances, front panels and similar applications.

Order No.	Colour	Type	l_1	l_2	d_1	h_1	h_2	w_1	t_1
79350.W0032-1	Natural	Rear Mounting	32	42	M 4	30	9	8	8
79350.W0055-1	Natural	Rear Mounting	55	65	M 4	30	9	8	8
79350.W0062-1	Natural	Rear Mounting	62	72	M 4	30	9	8	8
79350.W0086-1	Natural	Rear Mounting	86	96	M 4	30	9	8	8
79350.W0088-1	Natural	Rear Mounting	88	98	M 4	30	9	8	8
79350.W0090-1	Natural	Rear Mounting	90	100	M 4	30	9	8	8
79350.W0120-1	Natural	Rear Mounting	120	130	M 4	30	9	8	8
79350.W0134-1	Natural	Rear Mounting	134	144	M 4	30	9	8	8
79350.W0032-4	Black	Rear Mounting	32	42	M 4	30	9	8	8
79350.W0055-4	Black	Rear Mounting	55	65	M 4	30	9	8	8
79350.W0062-4	Black	Rear Mounting	62	72	M 4	30	9	8	8
79350.W0086-4	Black	Rear Mounting	86	96	M 4	30	9	8	8
79350.W0088-4	Black	Rear Mounting	88	98	M 4	30	9	8	8
79350.W0090-4	Black	Rear Mounting	90	100	M 4	30	9	8	8

Equipment Handles

79350

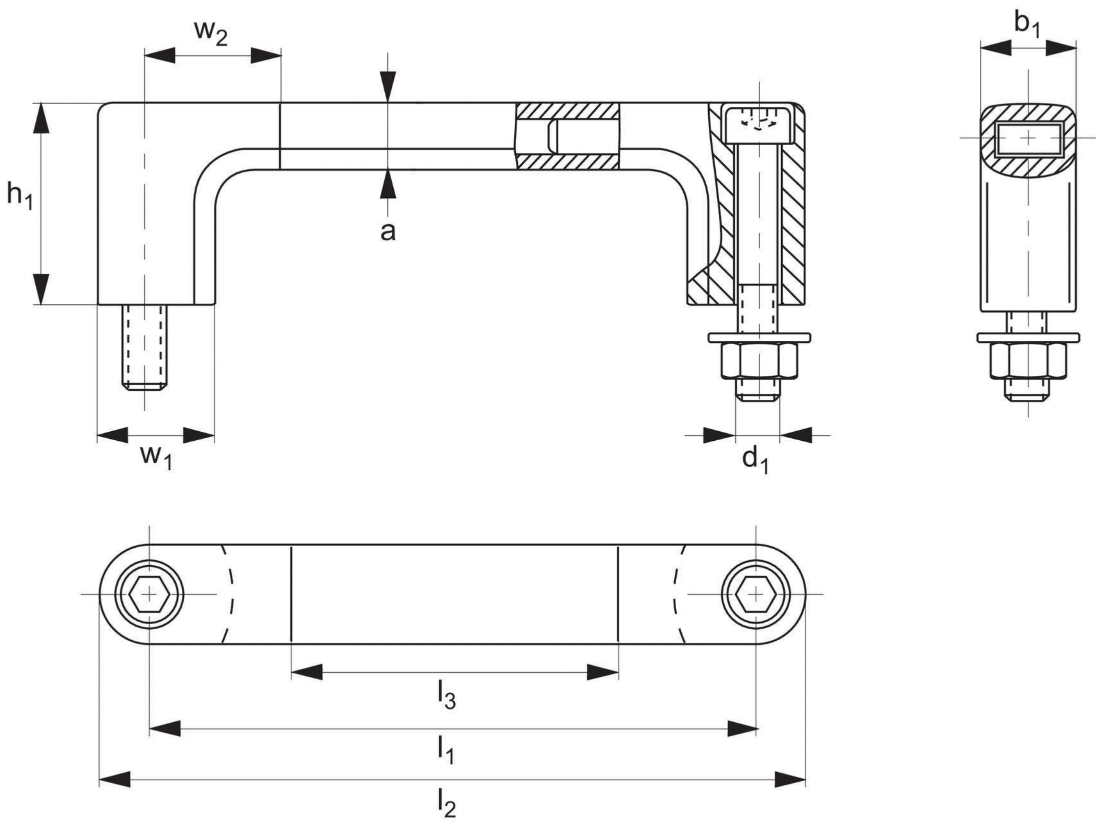
Order No.	Colour	Type	l_1	l_2	d_1	h_1	h_2	w_1	t_1
79350.W0120-4	Black	Rear Mounting	120	130	M 4	30	9	8	8
79350.W0134-4	Black	Rear Mounting	134	144	M 4	30	9	8	8
79350.W0255-1	Natural	Front Mounting	55	70	M 5	40	9	12	-
79350.W0288-1	Natural	Front Mounting	88	103	M 5	40	9	12	-
79350.W0300-1	Natural	Front Mounting	100	115	M 5	40	9	12	-
79350.W0320-1	Natural	Front Mounting	120	135	M 5	40	9	12	-
79350.W0380-1	Natural	Front Mounting	180	195	M 5	40	9	12	-
79350.W0435-1	Natural	Front Mounting	235	250	M 5	40	9	12	-
79350.W0255-4	Black	Front Mounting	55	70	M 5	40	9	12	-
79350.W0288-4	Black	Front Mounting	88	103	M 5	40	9	12	-
79350.W0300-4	Black	Front Mounting	100	115	M 5	40	9	12	-
79350.W0320-4	Black	Front Mounting	120	135	M 5	40	9	12	-
79350.W0380-4	Black	Front Mounting	180	195	M 5	40	9	12	-
79350.W0435-4	Black	Front Mounting	235	250	M 5	40	9	12	-

Material
Connection tube: special aluminium section, matt finishing in natural colour or black anodized.
Handle shank: heavy-duty polyamide, glass bead reinforced with fine structure and brass threaded bush. Screw attachment from front, steel plate reinforced.

Technical Notes
Minimum stress resistance 200N.

Tips
For small appliances, front panels and similar applications.

79360



Material
Connection shank: die-cast aluminium, black powder coated, semi-matte.
Connection tube: die-cast aluminium, anodised, natural, satin finish. RAL 7043.

Technical Notes
Supplied with hex screw DIN 912, M12x70 with suitable nuts and washers.
Minimum stress resistance >1000N.

Tips
Machine, instrument and equipment handles for universal use and for any hole spacing.
Extra rugged design. Handle ledge and elbow section plug press-connected.

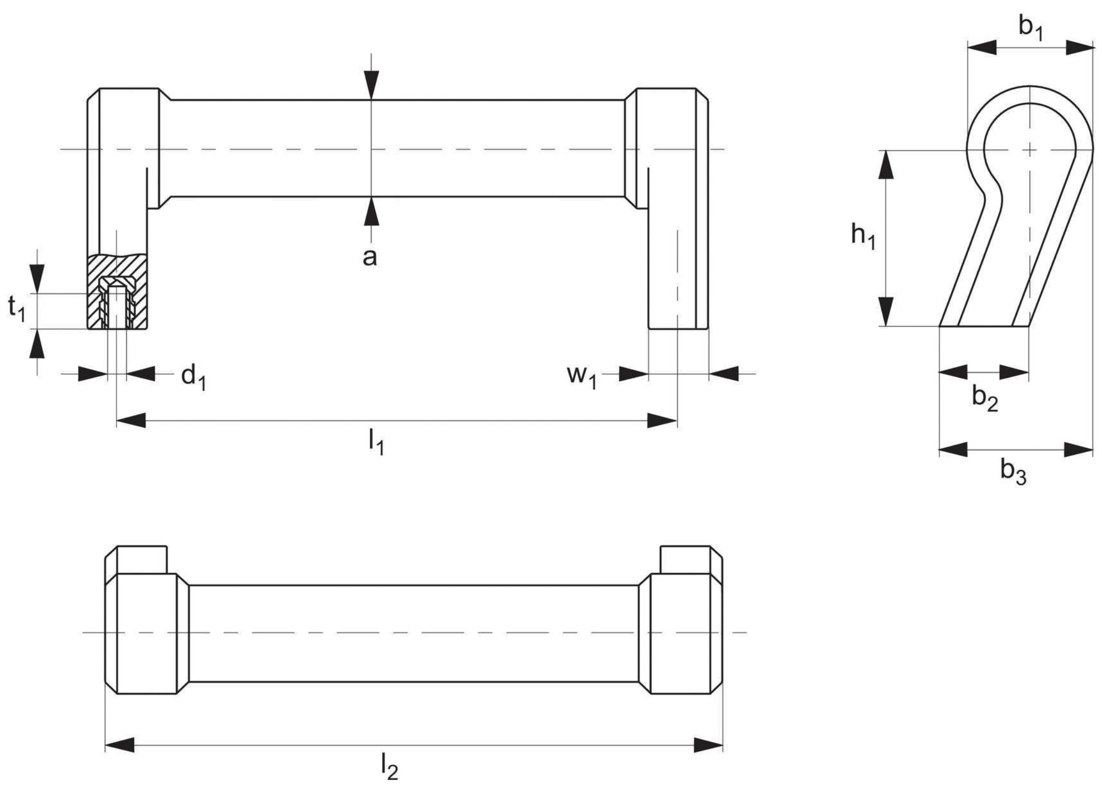
ALU.

Order No.	l_1	l_2	l_3	a_1	b_1	d_1	h_1	w_1	w_2
79360.W0180	180	208	100	20	28	M 12	60	34	40
79360.W0200	200	228	220	20	28	M 12	60	34	40
79360.W0250	250	278	170	20	28	M 12	60	34	40
79360.W0300	300	328	220	20	28	M 12	60	34	40
79360.W0350	350	378	270	20	28	M 12	60	34	40
79360.W0400	400	428	320	20	28	M 12	60	34	40
79360.W0500	500	528	420	20	28	M 12	60	34	40
79360.W0600	600	628	520	20	28	M 12	60	34	40

Pull Handle, Angled

plastic

79380



Material

Handle of polyamide PA 6, glass ball reinforced with threaded brass bushings.
Black or light grey semi matte with fine-grain structure.

Technical Notes

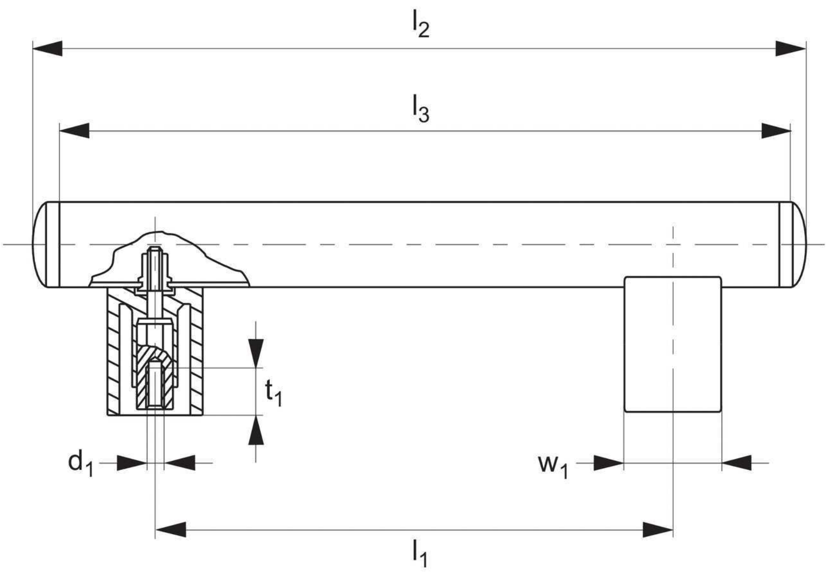
Stress resistance: min. 1000N.

PA

Order No.	Finish	l_1	l_2	d_1	h_1	a	b_1	b_2	b_3	t_1	w_1
79380.W0140-4	Black	140	155	M 6	45	Ø24	30	22	37	9	15
79380.W0140-7	Light grey	140	155	M 6	45	Ø24	30	22	37	9	15

Pull Handles - Tube Type

79400



Order No. Natural	Order No. Black	l_2	l_1	l_3	d_1	h_1	b_1	b_2	t_1	w_1
79400.W0200-4	79400.W0200-1	288	200	270	M 6	60	30 x 1,5	20	17	34
79400.W0250-1	79400.W0250-4	338	250	320	M 6	60	30 x 1,5	20	17	34
79400.W0300-1	79400.W0300-4	388	300	370	M 6	60	30 x 1,5	20	17	34
79400.W0350-1	79400.W0350-4	438	350	420	M 6	60	30 x 1,5	20	17	34
79400.W0400-1	79400.W0400-4	488	400	470	M 6	60	30 x 1,5	20	17	34
79400.W0500-1	79400.W0500-4	588	500	570	M 6	60	30 x 1,5	20	17	34

Material

Connection shank: Polyamide (PA 6), glass bead reinforced, black, semi-matte. With steel threaded insert.
Connection tube: aluminium Al Mg Si 0,5, Ø30x1,5mm. Precision ground and anodised.

Technical Notes

Minimum stress resistance 800N.

Tips

Screwed connection from the shank to the tube with non-detachable blind rivet to prevent it being pulled off.

Important Notes

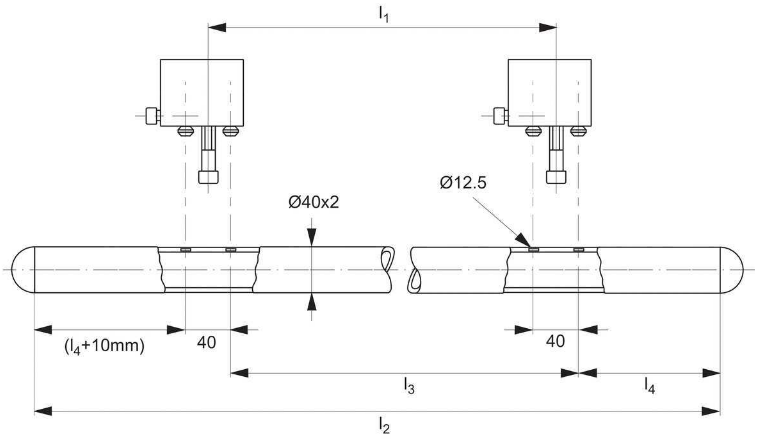
Handle lengths and screw down spacers available as required on request.

PA

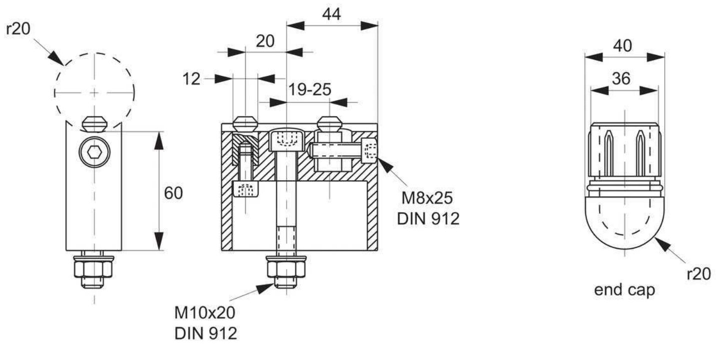
Pull Handles - Heavy Duty

stainless steel and aluminium

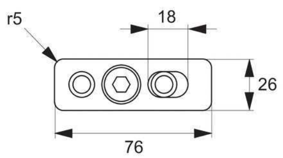
79410



standard handle



end cap



fastener

Material

Connection shank: die-cast aluminium, black powder coated, silk matte.
Connection tube: stainless steel 1.4301, Ø40x2, precision ground.
End cap: polyamide (PA 6), glass ball reinforced, black, silk matte.

Technical Notes

Simplest fixing of components from the front. The same length handle can be fixed at any support spacing. Minimum stress resistance >1000N.

Tips

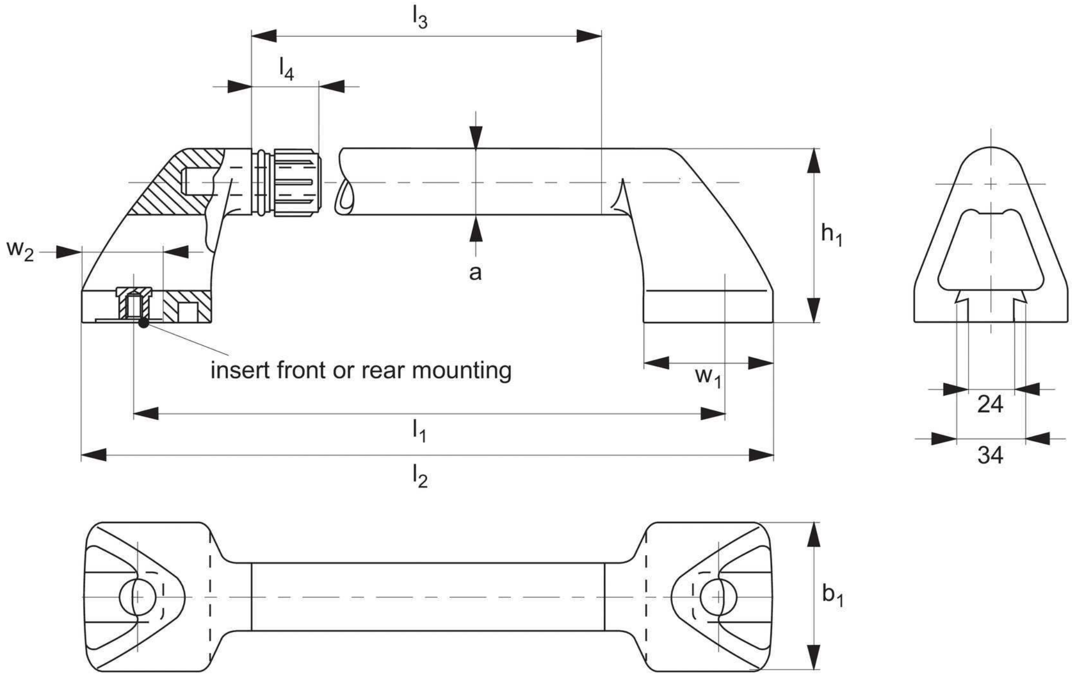
Heavy-duty pipe handles for mechanical and process equipment engineering purposes. Part nos. 79410.W0380 to .W0700 supplied complete with two fasteners and end caps.

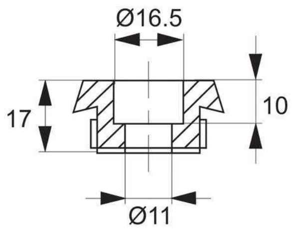
Order No.	Type	l_1	l_2	l_3	l_4
79410.W0380	Handle	380	600	380	85
79410.W0480	Handle	480	700	480	85
79410.W0500	Handle	500	800	500	125
79410.W0600	Handle	600	900	600	125
79410.W0700	Handle	700	1000	700	125
79410.W0901	Fastener	-	-	-	-
79410.W0902	End Cap	-	-	-	-

Pull Handles - Heavy Duty

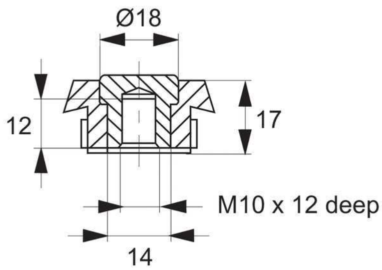
stainless steel and plastic

79420





insert - front mounting



insert - rear mounting

Material

Handle shank: polyamide (PA 6), glass ball reinforced, black, silk matte finish.
Connection tube: stainless steel 1.4301 AISI 304, pipe Ø35x2mm, precision ground.

Technical Notes

Front mounting: supplied with stainless steel hex screws DIN 912, M10x25 and suitable nuts and washers.
Rear mounting: no screws supplied.
Minimum stress resistance >1000N.

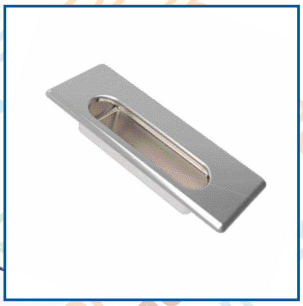
Tips

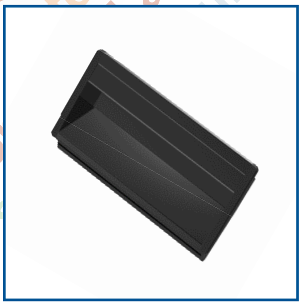
Clamp ridges on handle shanks hold connection tube firmly, O-rings provide splash proof water tight seal. Any handle length on request.

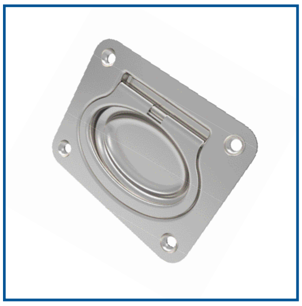
Order No.	Type	l_1	l_2	l_3	l_4	h_1	a	b_1	w_1	w_2
79420.W0300	Front Mounting	300	350	180	35	90	35 x 2	80	62	40
79420.W0301	Rear Mounting	300	350	180	35	90	35 x 2	80	62	40
79420.W0350	Front Mounting	350	400	230	35	90	35 x 2	80	62	40
79420.W0351	Rear Mounting	350	400	230	35	90	35 x 2	80	62	40
79420.W0400	Front Mounting	400	450	280	35	90	35 x 2	80	62	40
79420.W0401	Rear Mounting	400	450	280	35	90	35 x 2	80	62	40
79420.W0450	Front Mounting	450	500	330	35	90	35 x 2	80	62	40
79420.W0451	Rear Mounting	450	500	330	35	90	35 x 2	80	62	40
79420.W0500	Front Mounting	500	550	380	35	90	35 x 2	80	62	40
79420.W0501	Rear Mounting	500	550	380	35	90	35 x 2	80	62	40
79420.W0600	Front Mounting	600	650	480	35	90	35 x 2	80	62	40
79420.W0601	Rear Mounting	600	650	480	35	90	35 x 2	80	62	40
79420.W0700	Front Mounting	700	750	580	35	90	35 x 2	80	62	40
79420.W0701	Rear Mounting	700	750	580	35	90	35 x 2	80	62	40
79420.W0800	Front Mounting	800	850	680	35	90	35 x 2	80	62	40
79420.W0801	Rear Mounting	800	850	680	35	90	35 x 2	80	62	40
79420.W0901	Handle Shank	-	-	-	-	-	-	-	-	-
79420.W0902	Front Mounting Insert	-	-	-	-	-	-	-	-	-
79420.W0903	Rear Mounting Insert	-	-	-	-	-	-	-	-	-

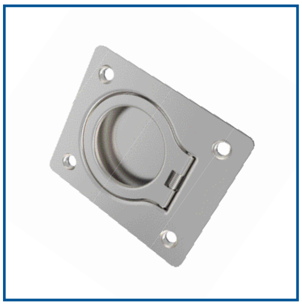
ring pulls

recessed pulls







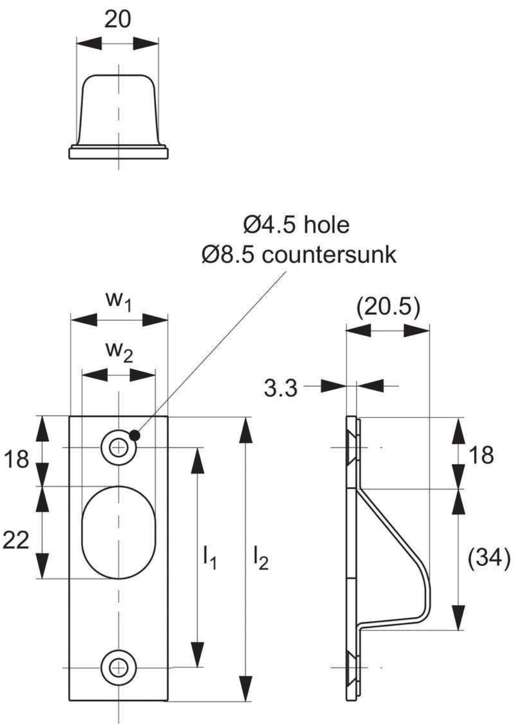


handles & pulls

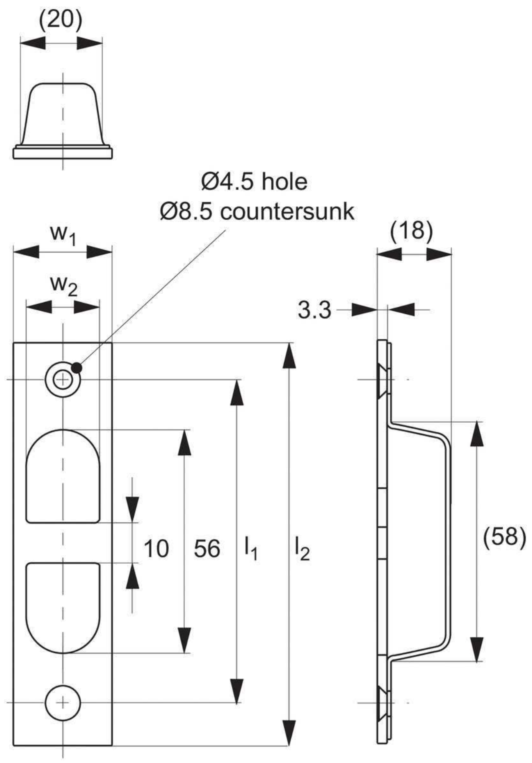
Recessed & Ring Pulls

Finger Pulls, Recessed

stainless steel



79430. W0070



79430. W0100

Order No.	Type	l_1	l_2	w_1	w_2	g
79430.W0070	Type one	54	70	24	18	37
79430.W0100	Type two	80	100	24	18	45

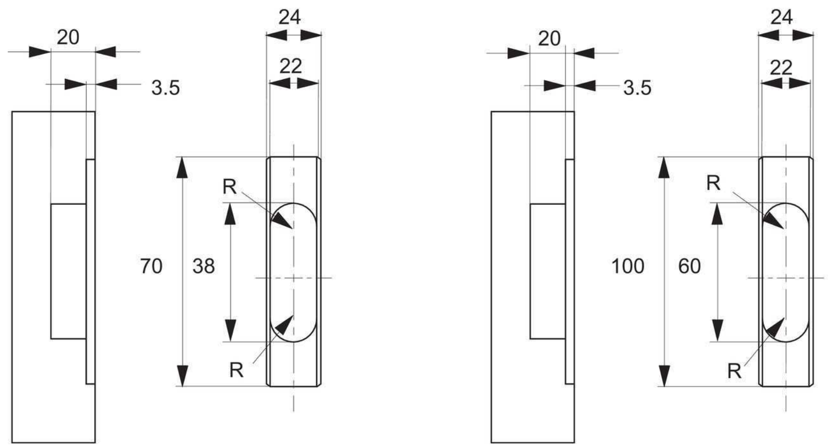
Material

AISI 304 stainless steel, satin finish.

Technical Notes

Compact finger pulls, for doors/enclosures of minimum thickness 30mm.

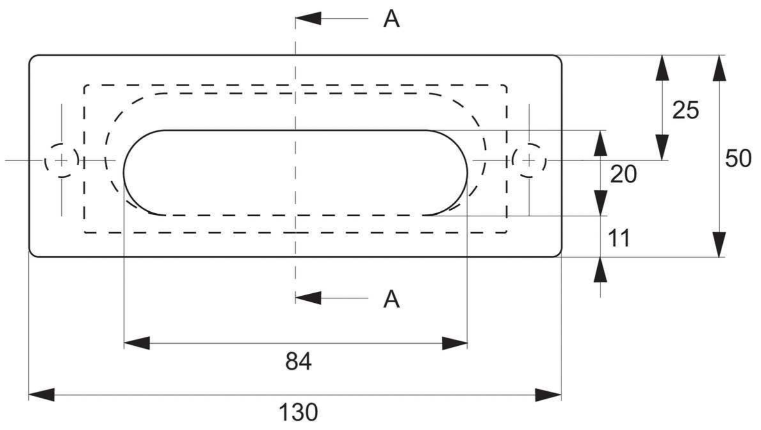
installation dimensions:

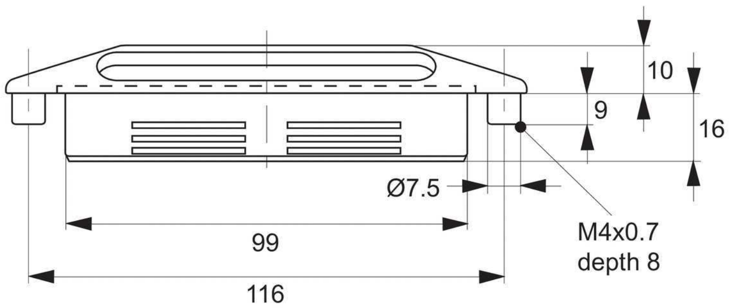


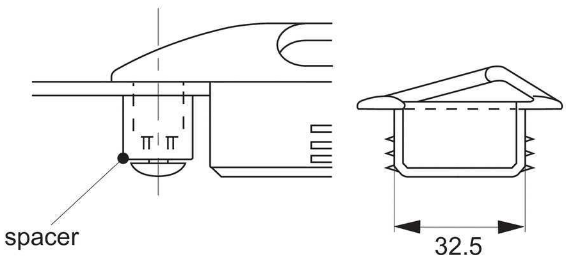
Pull Handles - Recessed

plastic - rear mounting

79440





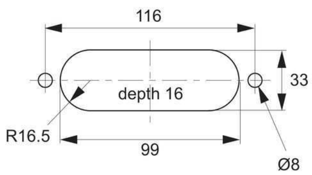


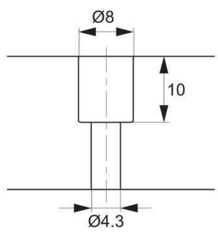
Material
Body: black plastic.
Cover: zinc alloy, chrome, satin nickel or satin brass finish.

Technical Notes
Supplied with spacer and screws (M4x8).

Order No.	Finish	g
79440.W0130	Chrome	105
79440.W0131	Nickel, Satin	105
79440.W0132	Brass, Satin	105

installation dimesions:

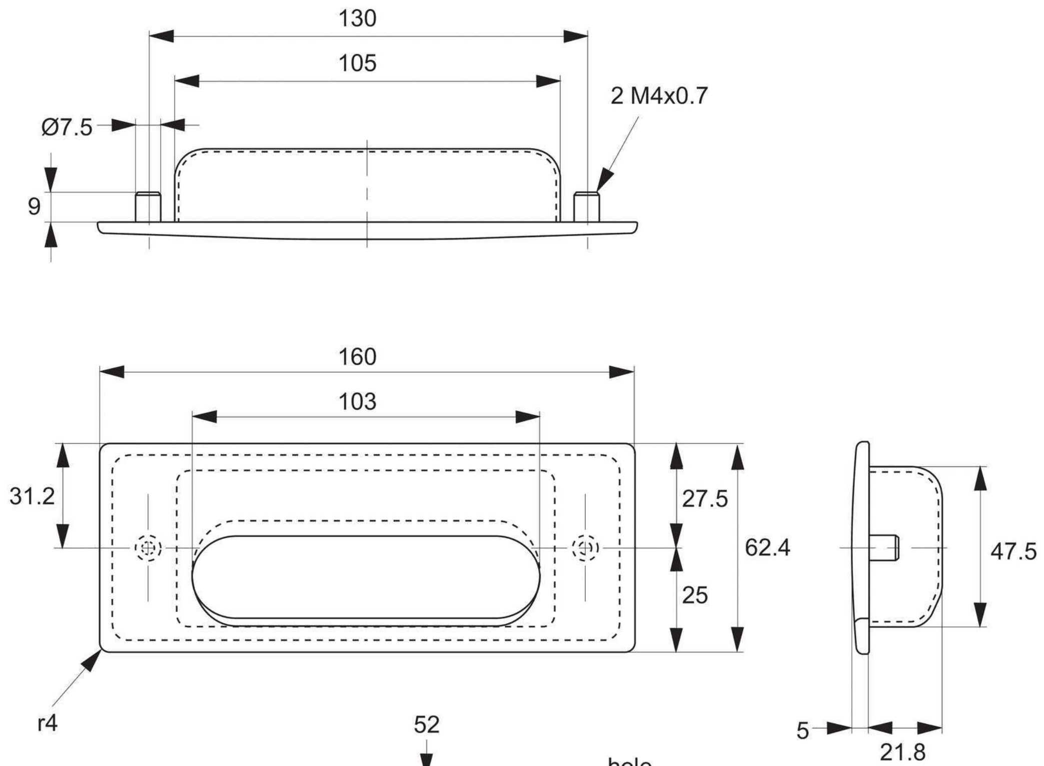


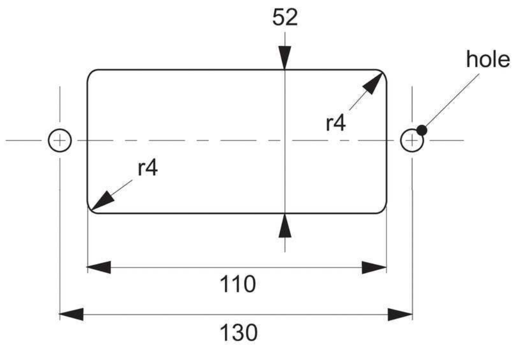


Recessed Pull Handles

stainless steel

79460





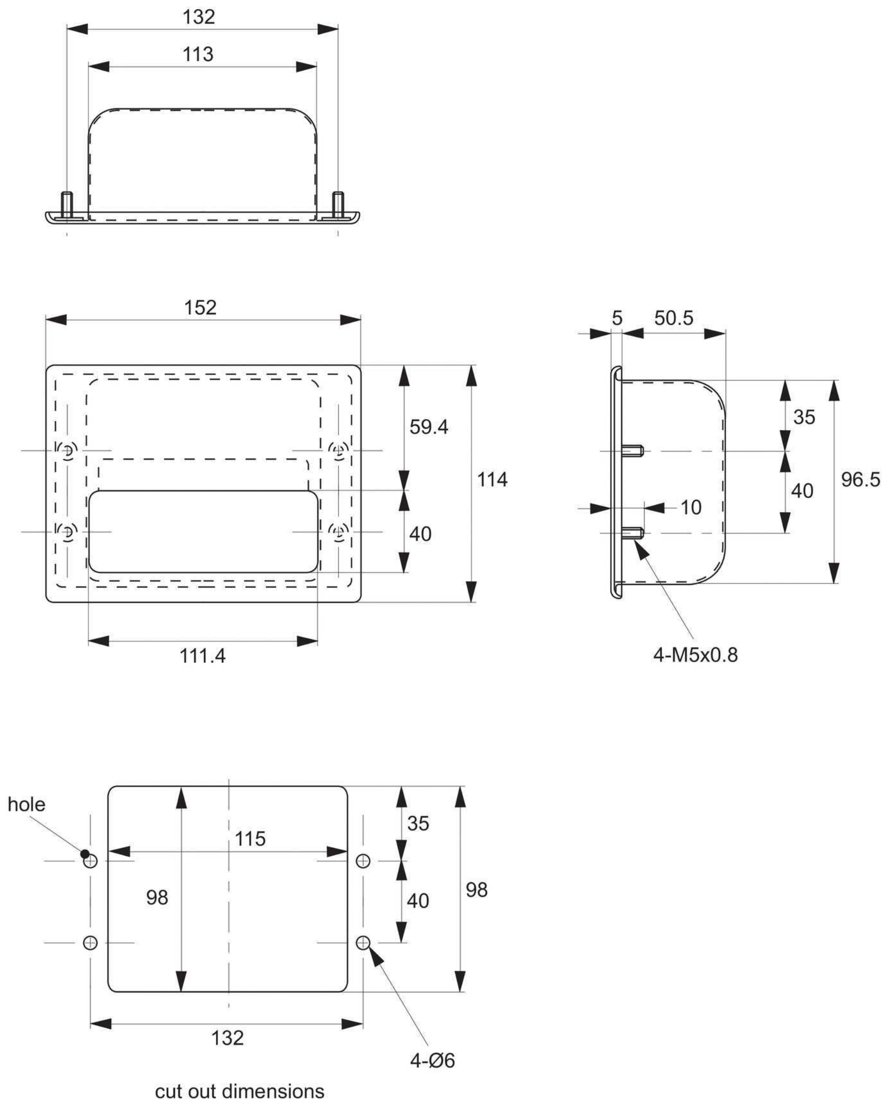
cut out dimensions

Material
AISA 304 stainless steel, satin finish.

Technical Notes
M 4 mounting screws required, not supplied.

Important Notes
Ideal for harsh and high corrosive environments.

Order No.	g
79460.W0160	260



Material
AISI 304 stainless steel, satin finish.

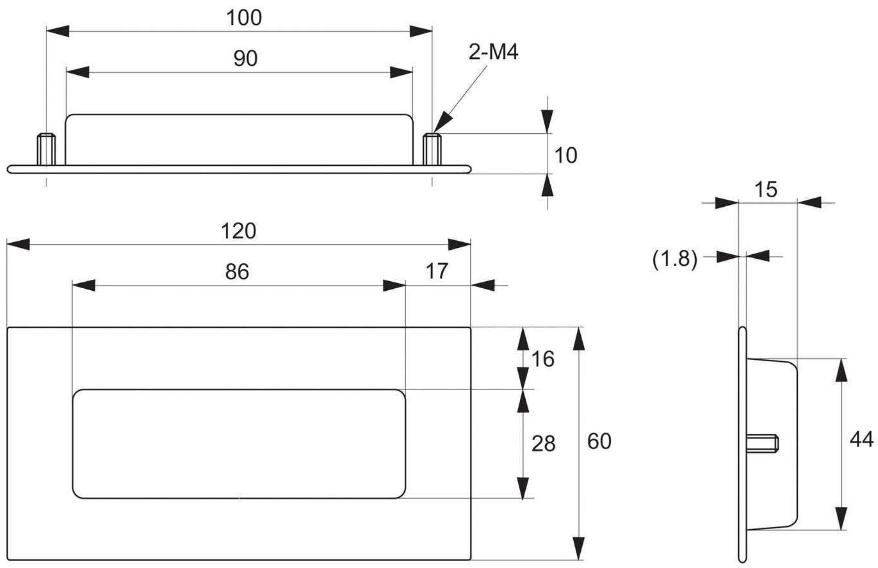
Technical Notes
Supplied with stainless steel M 5 nut.

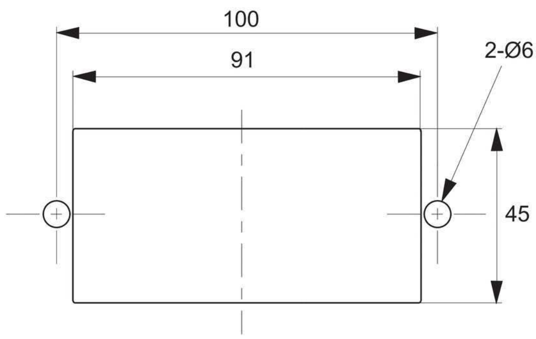
Order No.	g
79470.W0150	390

Pull Handles - Recessed

stainless steel - rear mounting

79480





cut out dimensions

Material

Stainless steel, AISI 304, satin finish.

Technical Notes

Supplied with stainless steel M 4 nut.

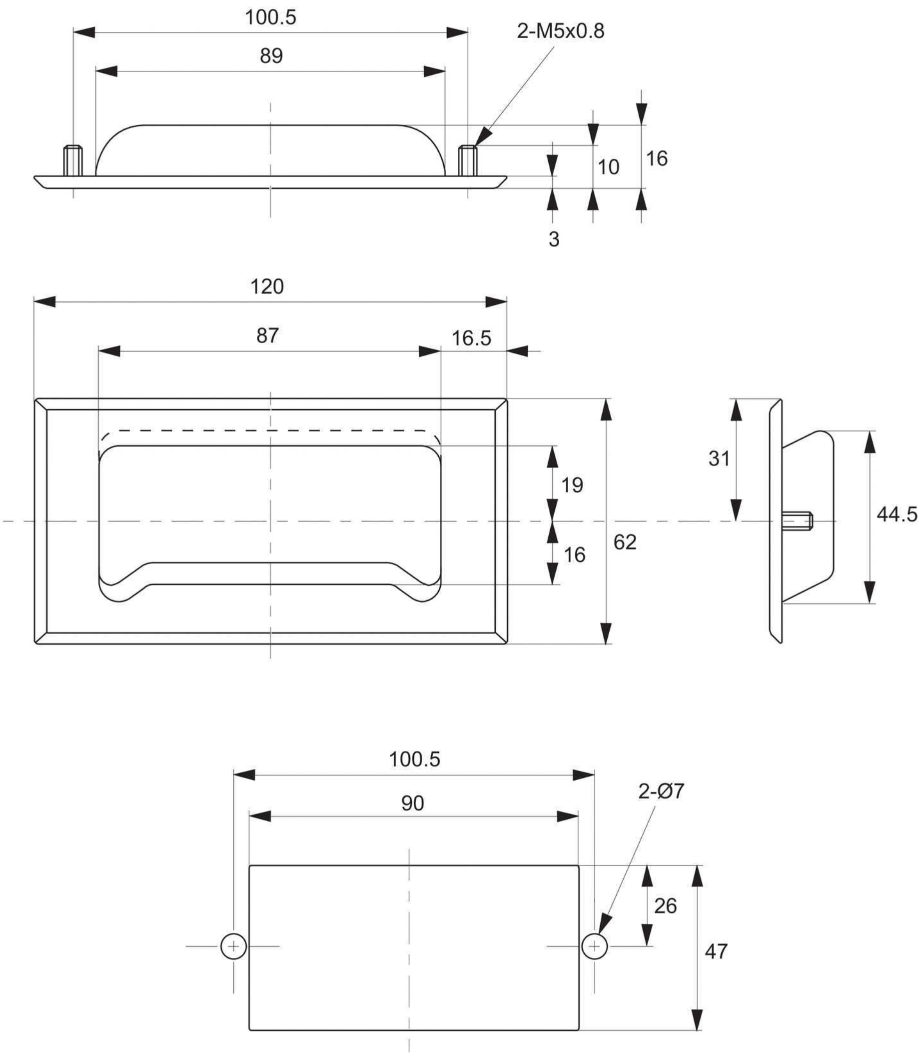
STAINLESS STEEL 304

Order No.	g
79480.W0010	50

Recessed Pull Handles

stainless steel

79490

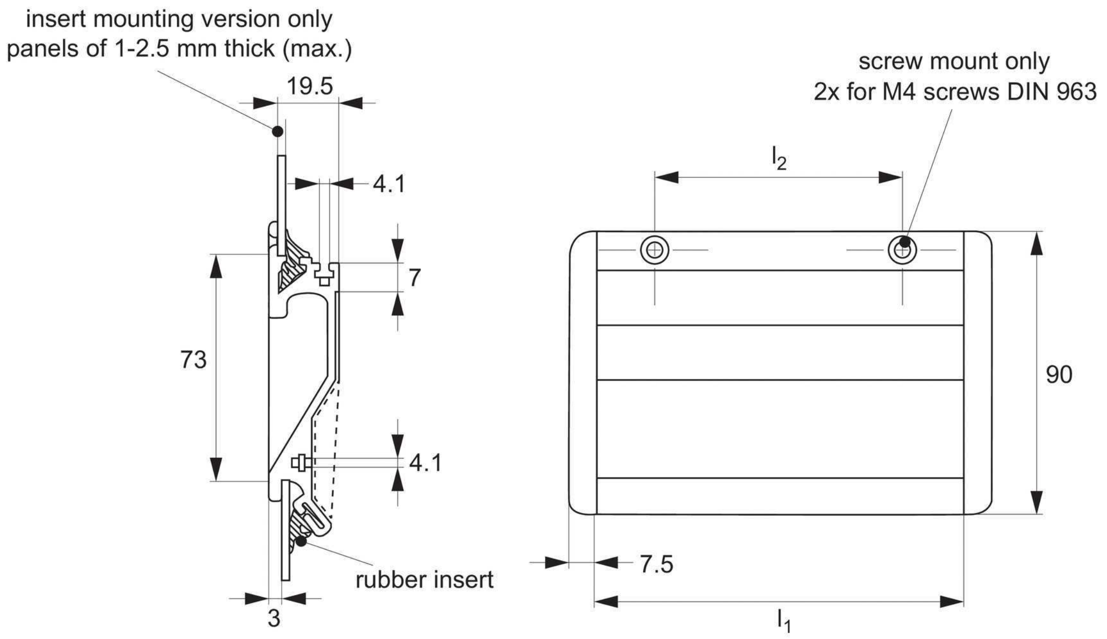


cut out dimensions

Material
AISI 304 stainless steel, satin finish.

Technical Notes
Supplied with clear zinc chromate M 5 nuts.

Order No.	g
79490.W0010	50



Material

Profiled aluminium, with black polyamide end caps PA 6. Handle glass blasted and anodised, natural or black, satin finish.

Technical Notes

Two possible mounting options:

1) Mounting via screws (for panels >2,5mm thick): two countersunk holes for DIN966, M4x8 included on model.

2) Mounting via rubber insert (for panels 1 to 2,5mm thick): additional rubber insert at top of the handle pushes in from the back, securing the handle.

Minimum stress resistance 500N.

Tips

Mounting method:

- Make mounting cut-out in panel/material.
- Insert bottom rubber insert.
- Attach end caps.
- Press handle over lower edge of mounting cut-out at a 45° angle, ensuring correct position of rubber insert on the inside of the cut-out.
- If using additional rubber insert for mounting, hold handle against cut-out and fit insert. Alternatively use two countersunk screws with spacing equal to l_1-40mm (as shown).

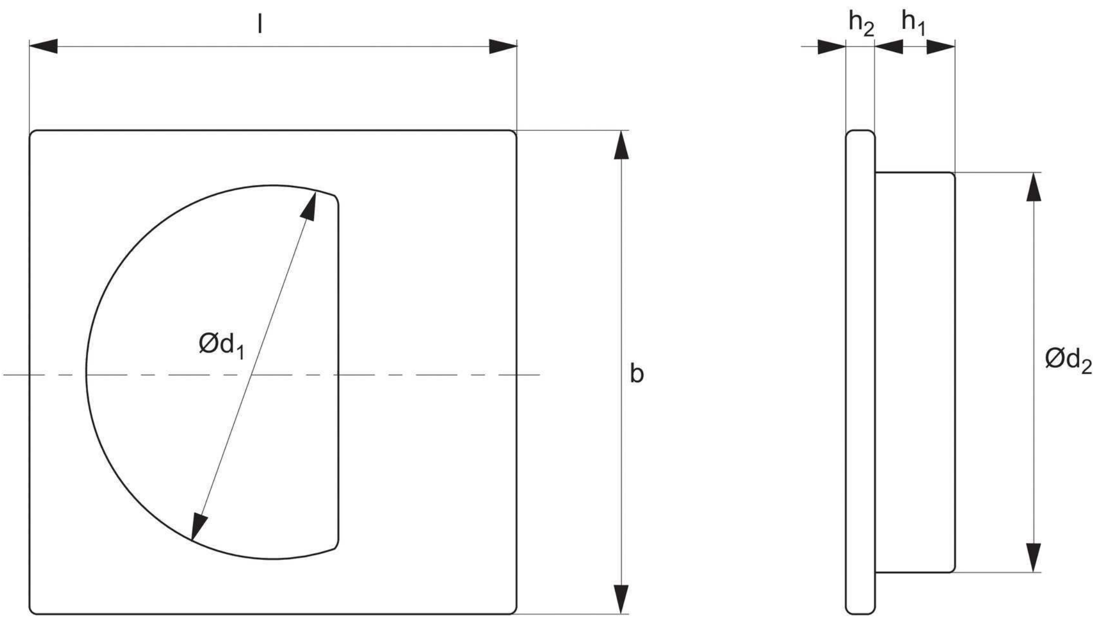
ALU.

Order No.	Type	Finish	l_1	l_2	Mounting cutout
79500.W0100-1	Via Screw	Natural	100	60	104x73
79500.W0100-4	Via Screw	Black	100	60	104x73
79500.W0118-1	Via Screw	Natural	118	78	122x73
79500.W0118-4	Via Screw	Black	118	78	122x73
79500.W0167-1	Via Screw	Natural	167	127	171x73
79500.W0167-4	Via Screw	Black	167	127	171x73
79500.W0500-1	Via Insert	Natural	100	60	104x73
79500.W0500-4	Via Insert	Black	100	60	104x73
79500.W0618-1	Via Insert	Natural	118	78	122x73
79500.W0618-4	Via Insert	Black	118	78	122x73
79500.W0667-1	Via Insert	Natural	167	127	171x73
79500.W0667-4	Via Insert	Black	167	127	171x73

Recessed Pull Handles

stainless steel

79510

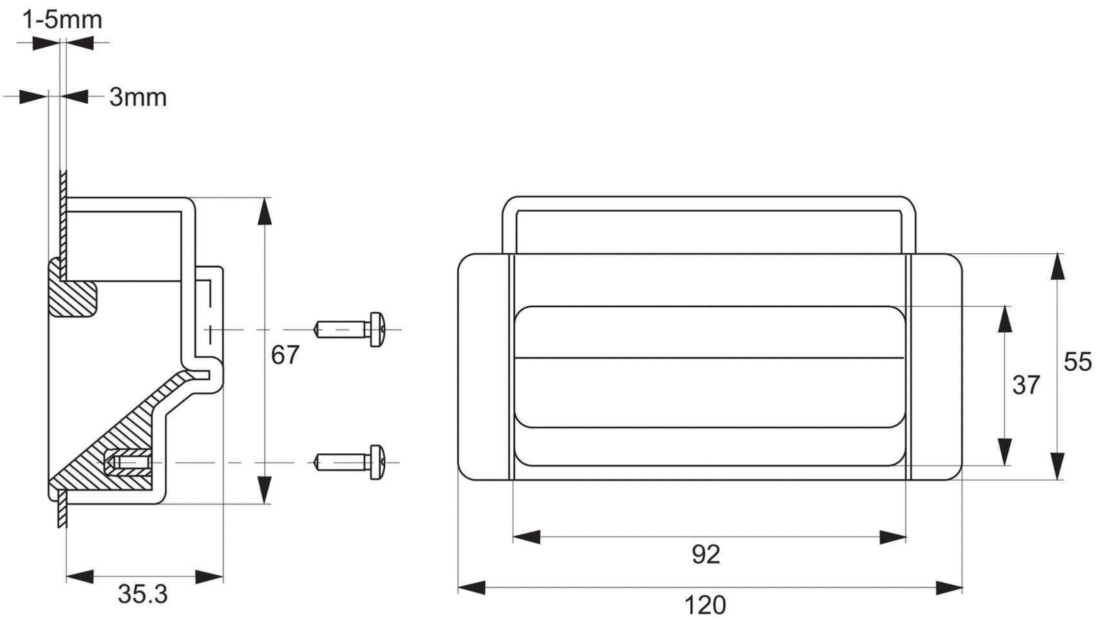


Material
Stainless type: AISI 304 stainless steel, polished.

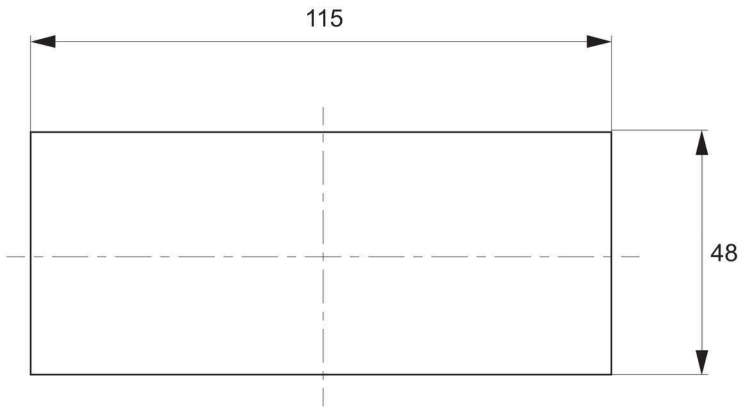
Technical Notes
Press fit.

Order No.	Finish	l	b	h_1	h_2	$Ød_1$	$Ød_2$	g
79510.W0035	Stainless	44	44	9,8	2,2	31	35,1	10
79510.W0038	Stainless	47	47	10,3	2,2	34	37,6	11
79510.W0048	Stainless	57	57	10,3	2,2	44	48,6	16

79520



Order No.	Finish
79520.W0107	Stone Grey
79520.W0108	Light Grey
79520.W0109	Greyish White



cut-out dimensions

Material
Thermoplastic PA 6, glass bead reinforcement, fine-grain structure. Threaded brass insert.

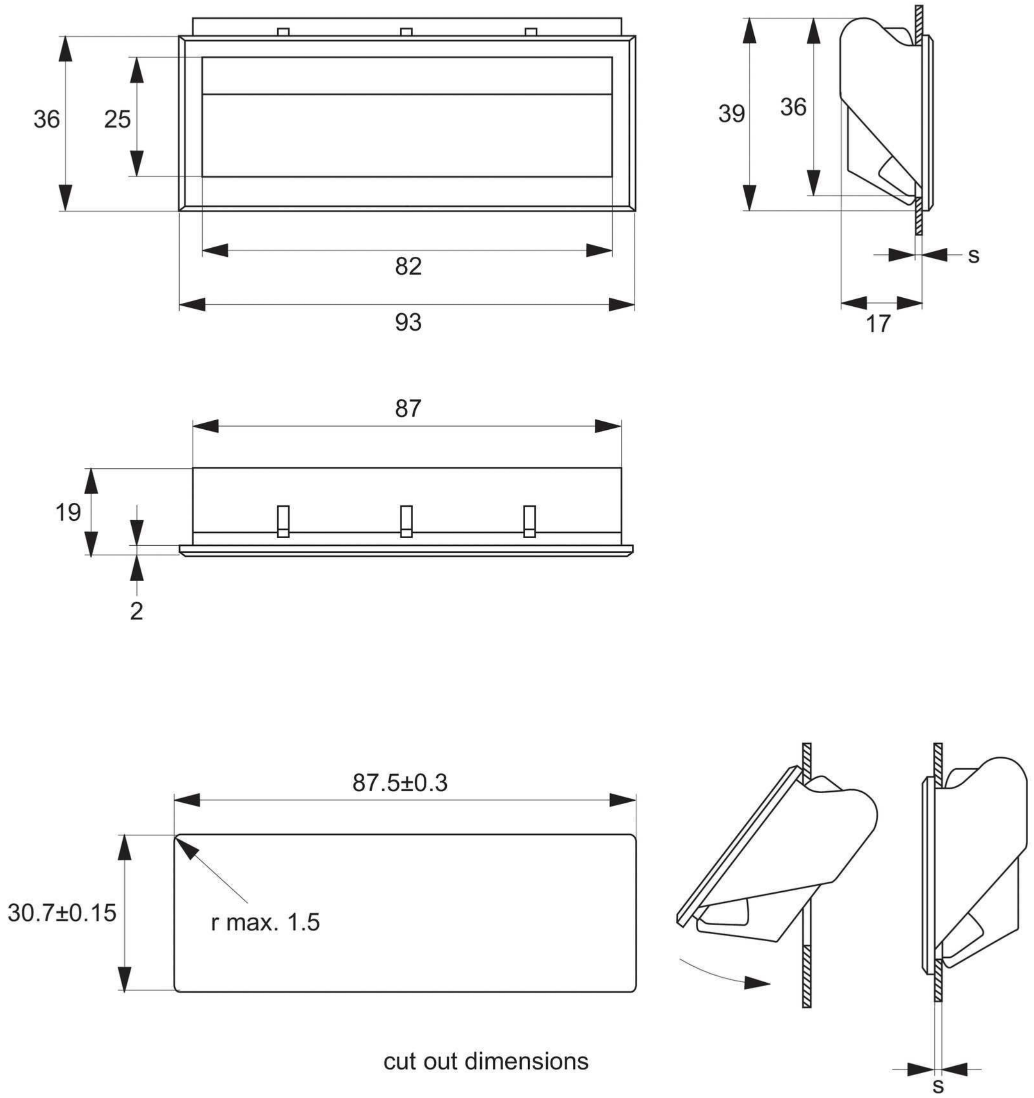
Technical Notes
Mounting: the front section is first set into the mounting cut-out. The rear section is then fitted to front section from the interior of the panel, and fixed with three screws (supplied).
Minimum stress resistance 1000N.

Tips
This handle is suitable for different degrees of panel thickness 1 to 5mm. Its design guarantees that it fits securely at all times.

TP

Handle

79522



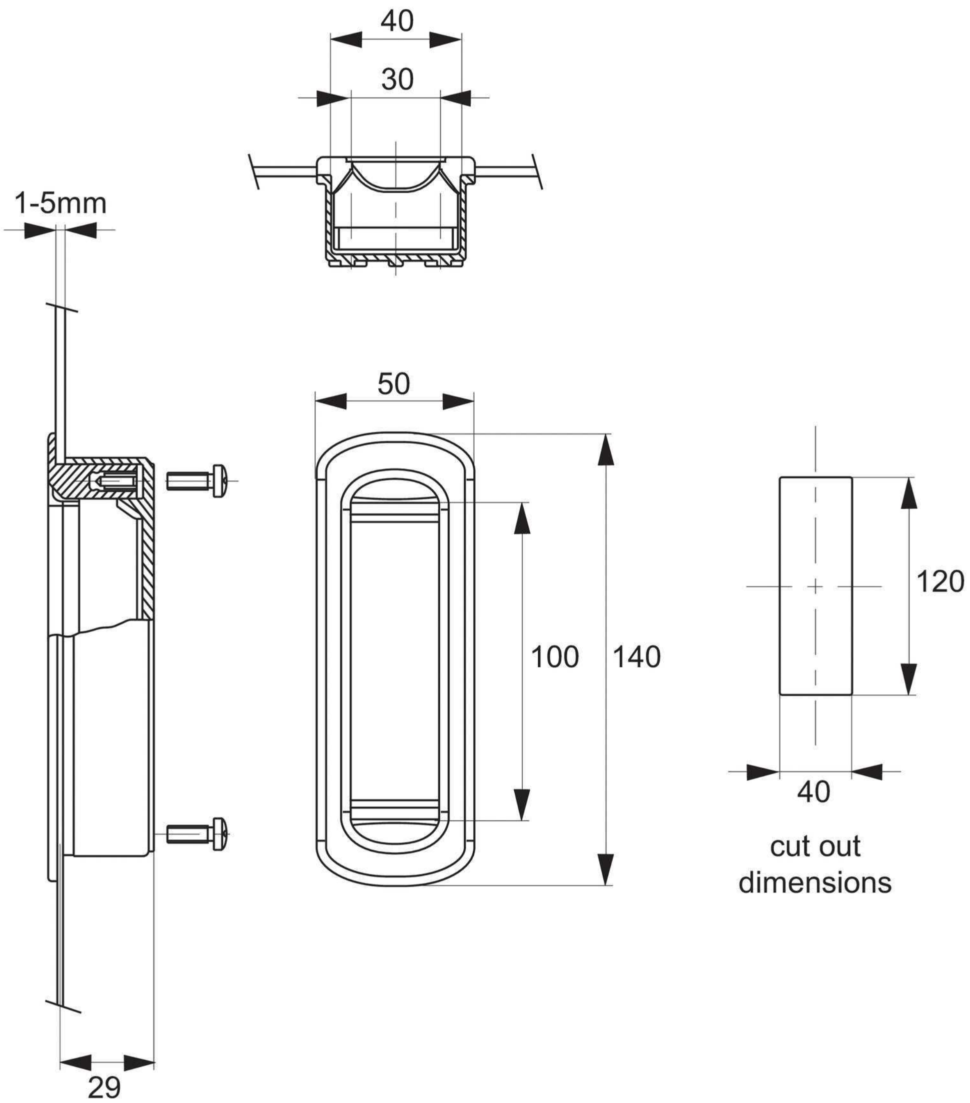
Material
ABS resin, black, similar to RAL 9005, with fine structure on the visible surfaces.

Technical Notes
Flush inset handle for lifting and pulling.
Unilateral, tool-less single-hole installation through self-locking, recessed handle.
Stress resistance: min. 400N when installed in 1,2mm sheet steel. Max. values depend on the strength of the mounting wall.

Tips
Assembly: place the trough inset handle in the cutout, so that the upper edge of the cutout lies in the gap being the face of the handle. Then press the bottom edge of the handle into the cutout until it clearly locks into place.

Order No.	Panel thickness s mm
79522.W0100	1,0-1,4
79522.W0140	1,4-1,8
79522.W0180	1,8-2,1
79522.W0210	2,1-2,5

79530



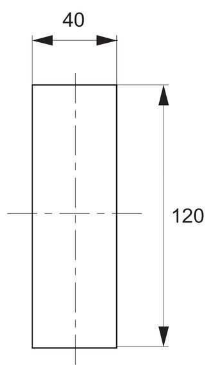
Material
Thermoplast (PA 6), glass bead reinforced. Threaded brass insert. Supplied with four oval-head screws to DIN 7985.

Technical Notes
Mounting: the front section is first set into the mounting cut-out. The rear section is then fitted to front section from the interior of the panel, and fixed with four screws (supplied).

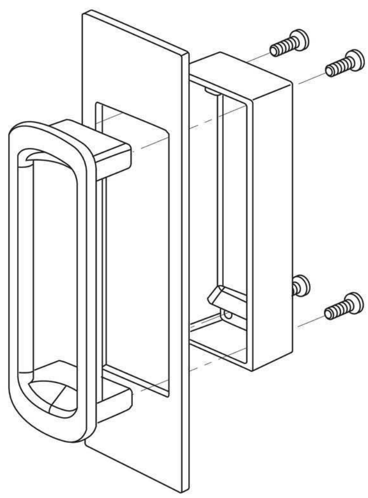
Tips
Simple and stable design for use on panels 1 to 5mm thick.

TP

Order No.	Finish
79530.W0107	Stone Grey
79530.W0108	Light Grey
79530.W0109	Greyish White
79530.W0110	Black



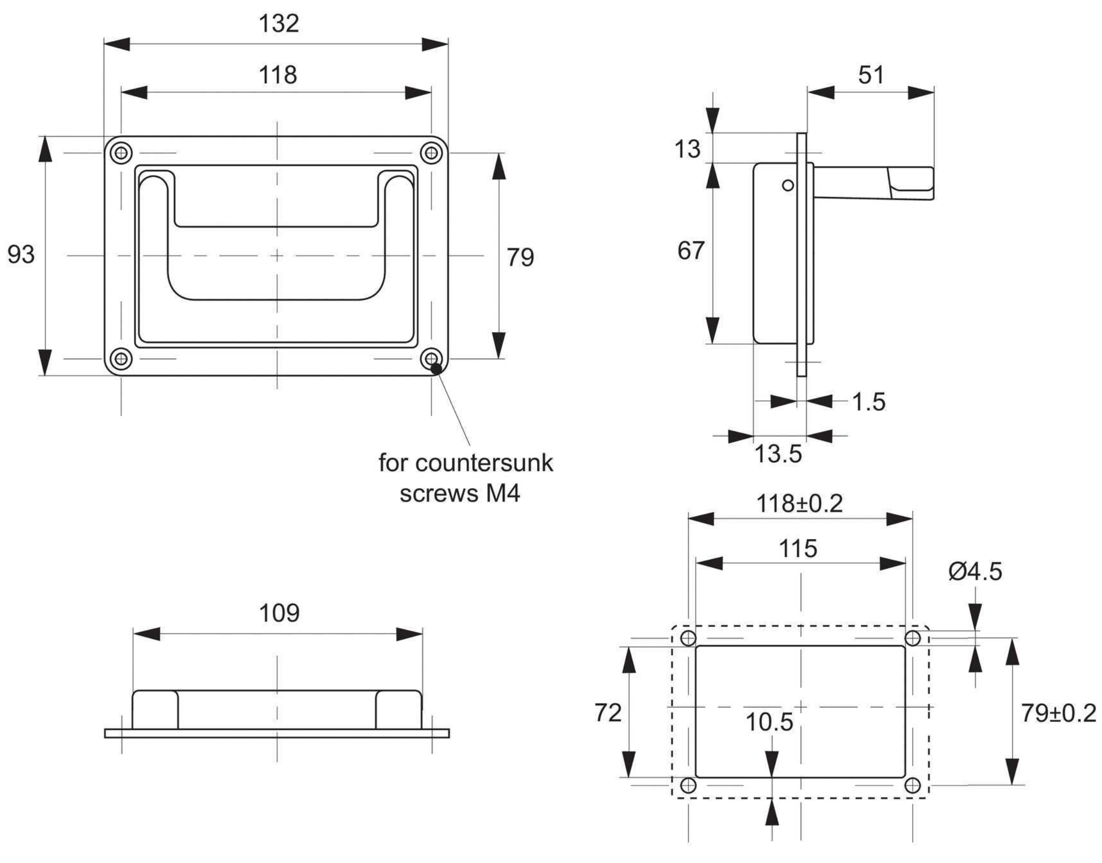
cut-out dimensions



Tray Handle, Collapsible

stainless steel

79540



cut out dimensions

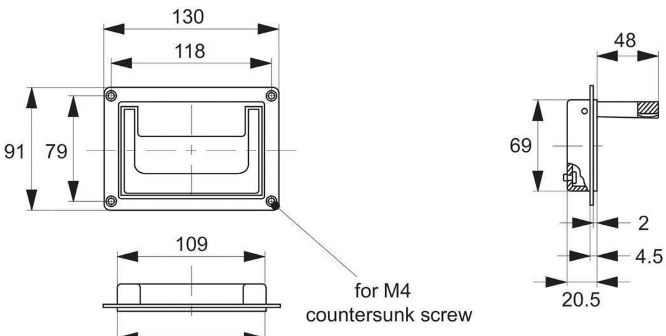
Material

Stainless steel. AISI 304, polished.

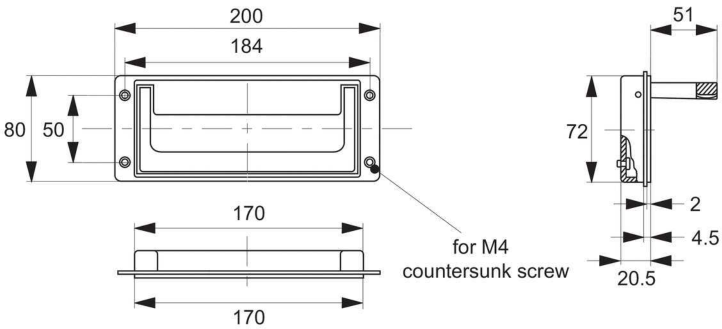
Technical Notes

Spring return handle, returns from working to resting position when released.
See cut-out details for mounting dimensions.
Stress resistance: min. 200N

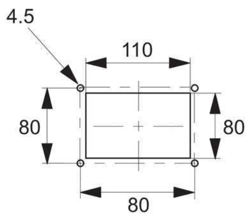
Order No.	Type	Finish	Hole centres
79540.W0118	Spring Return	Electropolished	118
79540.W0218	Spring Return	Brushed	118



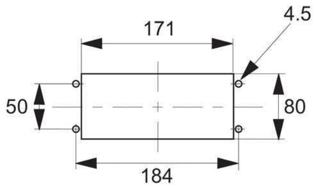
type one



type two



cut out - type one



cut out - type two

Order No.	Type	Finish	Handle action
79550.W0118-4	Type One	Black	Snap Lock
79550.W0118-7	Type One	Light Grey	Snap Lock
79550.W0118-9	Type One	Greyish White	Snap Lock
79550.W0119-4	Type One	Black	Pull Back
79550.W0119-7	Type One	Light Grey	Pull Back
79550.W0119-9	Type One	Greyish White	Pull Back
79550.W0184-4	Type Two	Black	Snap Lock
79550.W0184-7	Type Two	Light Grey	Snap Lock
79550.W0184-9	Type Two	Greyish White	Snap Lock
79550.W0185-4	Type Two	Black	Pull Back
79550.W0185-7	Type Two	Light Grey	Pull Back
79550.W0185-9	Type Two	Greyish White	Pull Back

Material
Pressure moulded aluminium, GD Al Si dCu 3.

Technical Notes
Snap-lock type-
with snap lock in both extended and retracted position.
Pull-back type-
with spring retraction from extended to retracted position.
Front or rear mounting possible.
Natural finger profiling within the hinged handle. Can also be used for lifting in the retracted position.
Minimum stress resistance 500N.

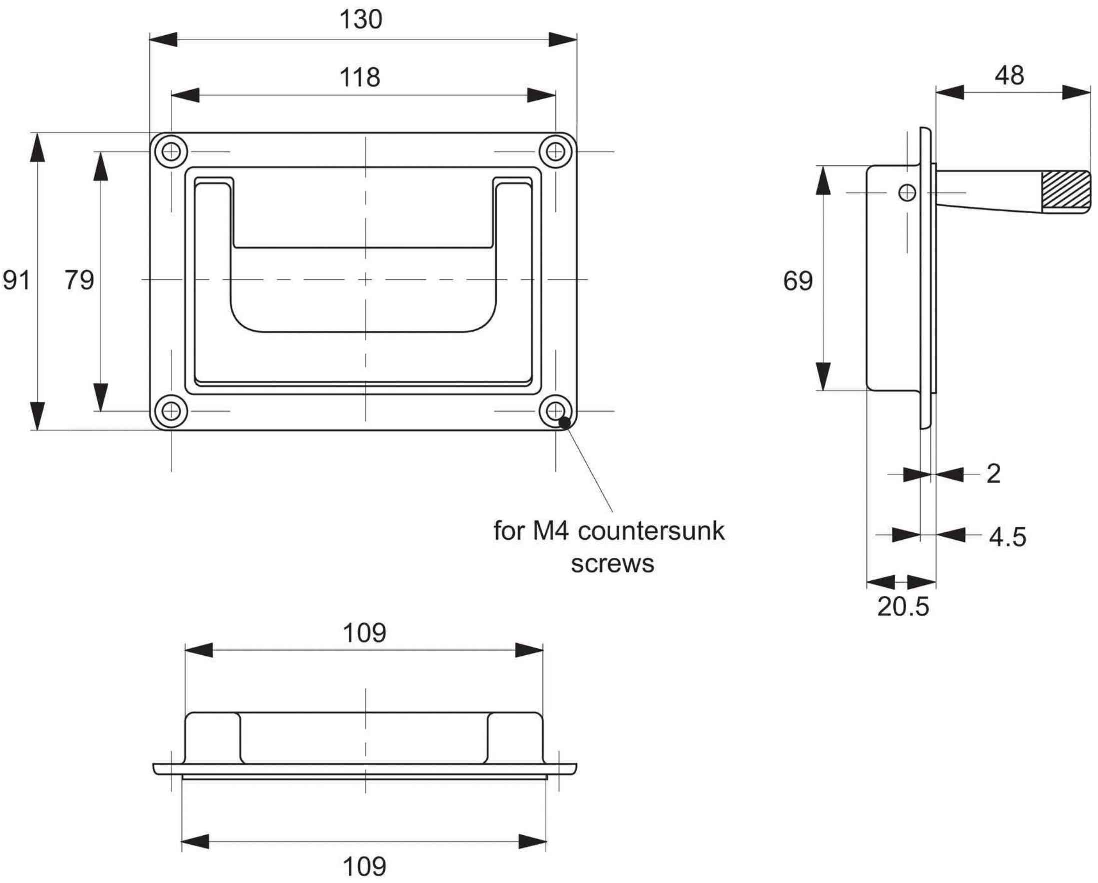
Tips
Collapsible tray handles are of contemporary design and can be used wherever durability and styling are required.

ALU.

Tray Handle

plastic

79552



Material

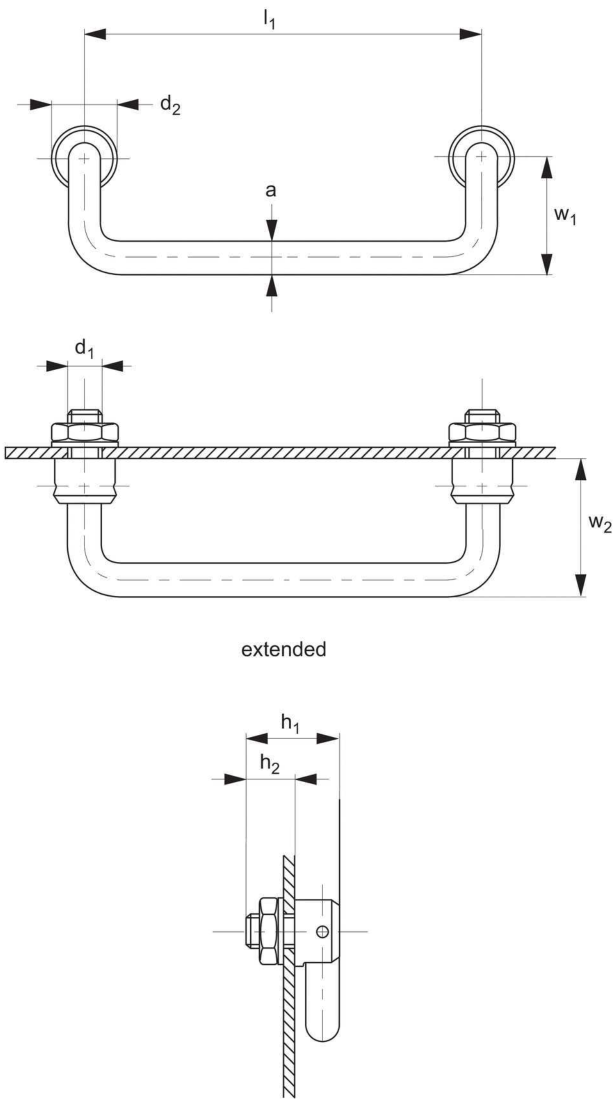
Tray and handle made of polyamide Pa 6, black similar to RAL 9005.

Technical Notes

Moutnable in front of or behind housing wall with the same housing cut-out. Natural finger profiling at the rear of the hinged handle.
79552.W0118: with snap locks both in rest and work position.
79552.W0218: with pull back spring from the working to the rest position.
Stress resistance: min. 250N.

Order No.	Handle Action	Hole Centres
79552.W0118	Snap Lock	118
79552.W0218	Pull Back	118

79570



Material

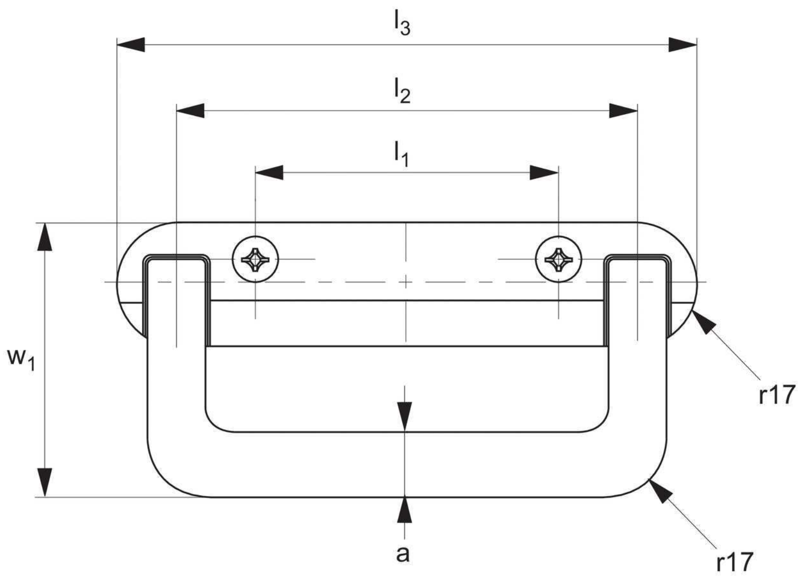
Round steel bar, precision ground and chromium plated, mirror finish. Plastic grip.

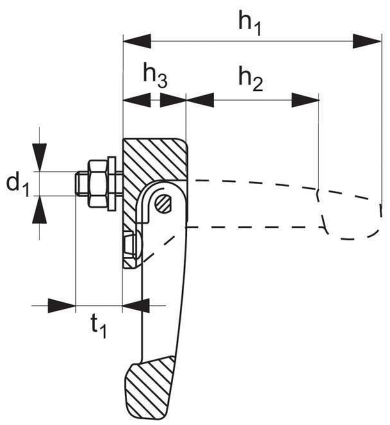
Technical Notes

Spring-arrest in both extended and retracted positions. Supplied with suitable nuts and washers. Minimum stress resistance to 1000N per pair due to one-piece shank.

Order No.	Type	l_1	d_1	d_2	h_1	h_2	a	w_1	w_2
79570.W0100	Without Plastic Grip	100	M10 x 1	18	28	14	Ø10	34	44
79570.W0120	Without Plastic Grip	120	M10 x 1	18	28	14	Ø10	34	44
79570.W0180	Without Plastic Grip	180	M10 x 1	18	28	14	Ø10	34	44
79570.W0500	With Plastic Grip	100	M10 x 1	18	28	14	Ø10	34	44
79570.W0520	With Plastic Grip	120	M10 x 1	18	28	14	Ø10	34	44
79570.W0680	With Plastic Grip	180	M10 x 1	18	28	14	Ø10	34	44

79580





Material
Polyamide, glass reinforced plastic PA 6, black, semi-gloss. Arbors and springs from stainless steel. With screws to DIN9656, M 6x30, suitable nuts & washers.

Technical Notes
Minimum stress resistance 300N. Stability under load 500N.

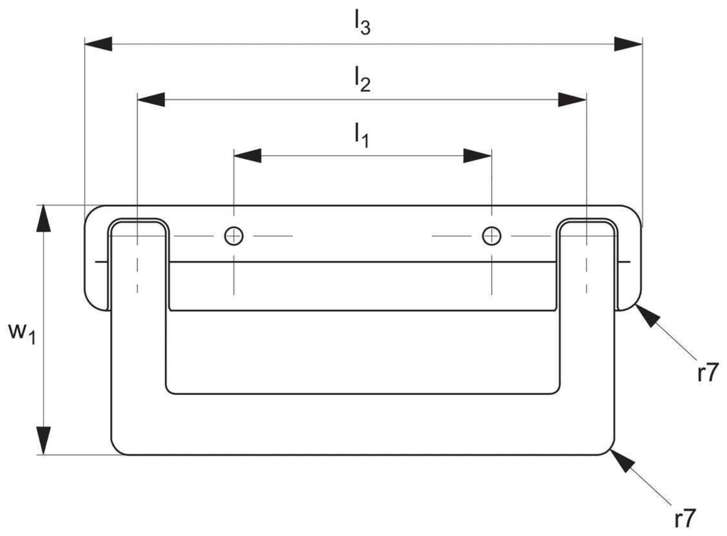
Tips
Springs back automatically.

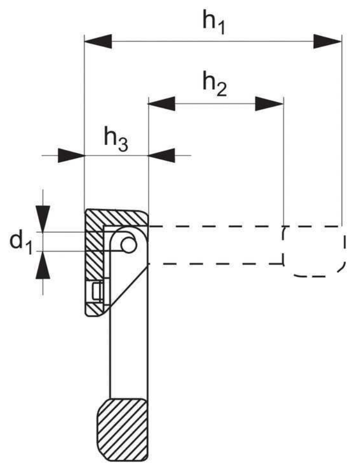
PA

Order No.	Type	l_1	l_2	l_3	d_1	h_1	h_2	h_3	a	t	w_1
79580.W0120	Spring Loaded	80	120	154	M 6	71	35	18	18	12	77

Hinged Carrying Handle

79582





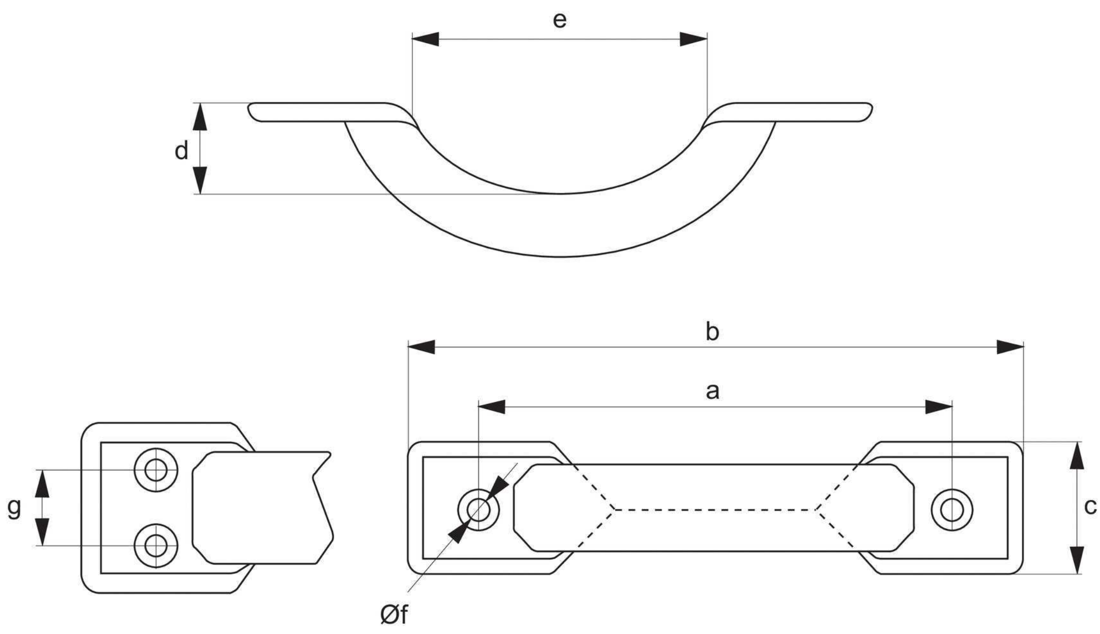
Order No.	Type	l_1	l_2	l_3	d_1	h_1	h_2	h_3	w_1
79582.W0145	Black	84	145	180	M 6	83	44	20	80
79582.W1145	Orange	84	145	180	M 6	83	44	20	80

Material
Holder & handle: die-cast aluminium GD-AlSi9Cu3 (alloy 226). Powder coated, hallf matt in black (similar to RAL 9005) or orange (RAL 2009).
Arbors & restoring springs: stainless steel.
Self-acting resilient handle made of aluminium for backside screw mounting.

Technical Notes
Stress resistance: min. 800N.
Screw attachment from the front available on request. Other colour combinations available on request.

Cold Forming Handles

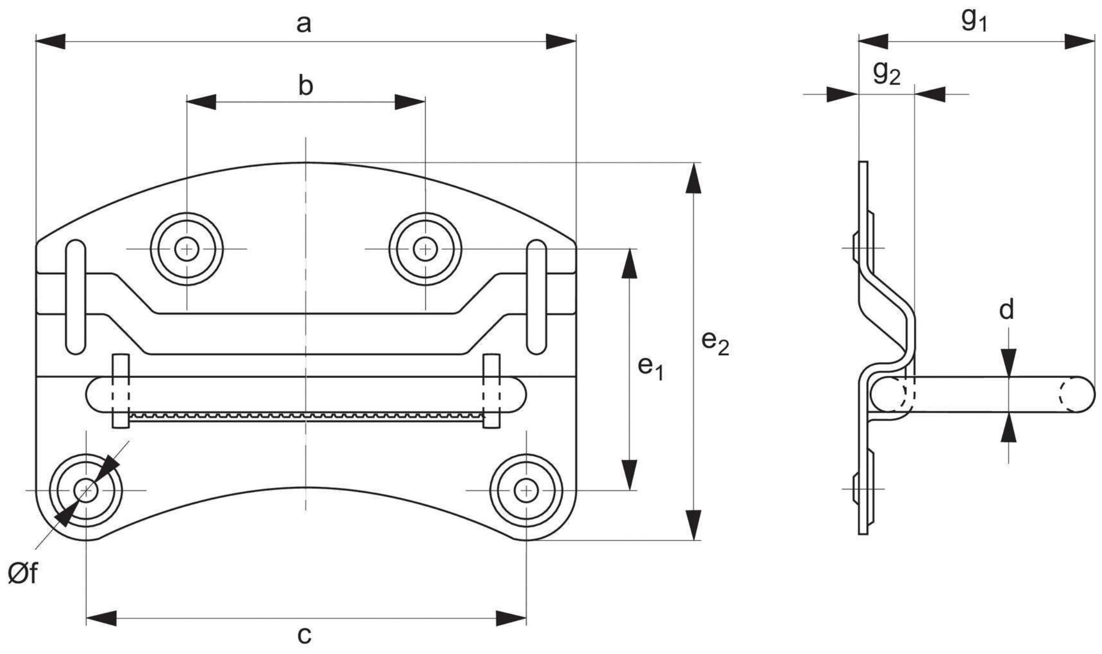
79583



Material
Steel, nickel plated.

Order No.	Finish	a	b	c	d	e	Øf	g	g
79583.W0001	Nickel Plated Steel	66	80	18,5	13	38	3,2	-	20
79583.W0101	Nickel Plated Steel	83	100	21,5	13	48	3,2	-	20
79583.W0121	Nickel Plated Steel	99	120	24,5	16	60	3,2	-	20
79583.W0141	Nickel Plated Steel	121	140	28,5	19	70	3,2	13	20
79583.W0161	Nickel Plated Steel	140	160	29,5	24	80	3,2	13	20

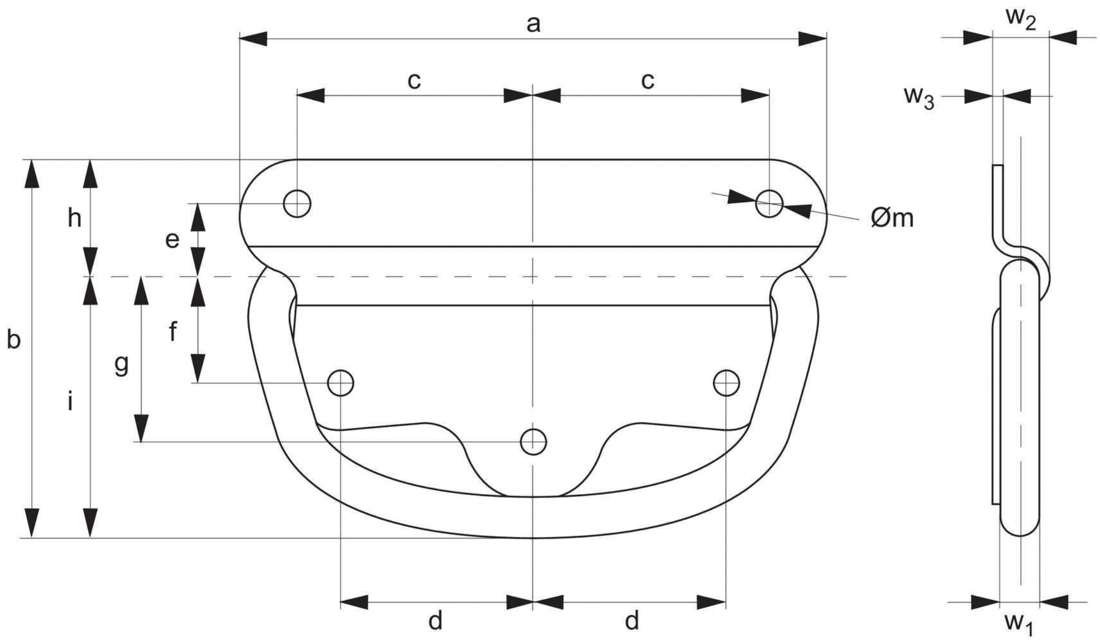
79584



Material
Steel, brass or zinc plated.

Order No.	Finish	a	b	c	d	e_1	e_2	Øf	g_1	g_2	g
79584.W0002	Brass Plated Steel	90	42	72	6,5	40	67	4,2	40	9	90
79584.W0112	Brass Plated Steel	110	57	84	6,5	48	84	4,5	55	13	90
79584.W0004	Zinc Plated Steel	90	42	72	6,5	40	67	4,2	40	9	90
79584.W0114	Zinc Plated Steel	110	57	84	6,5	48	84	4,5	55	13	90

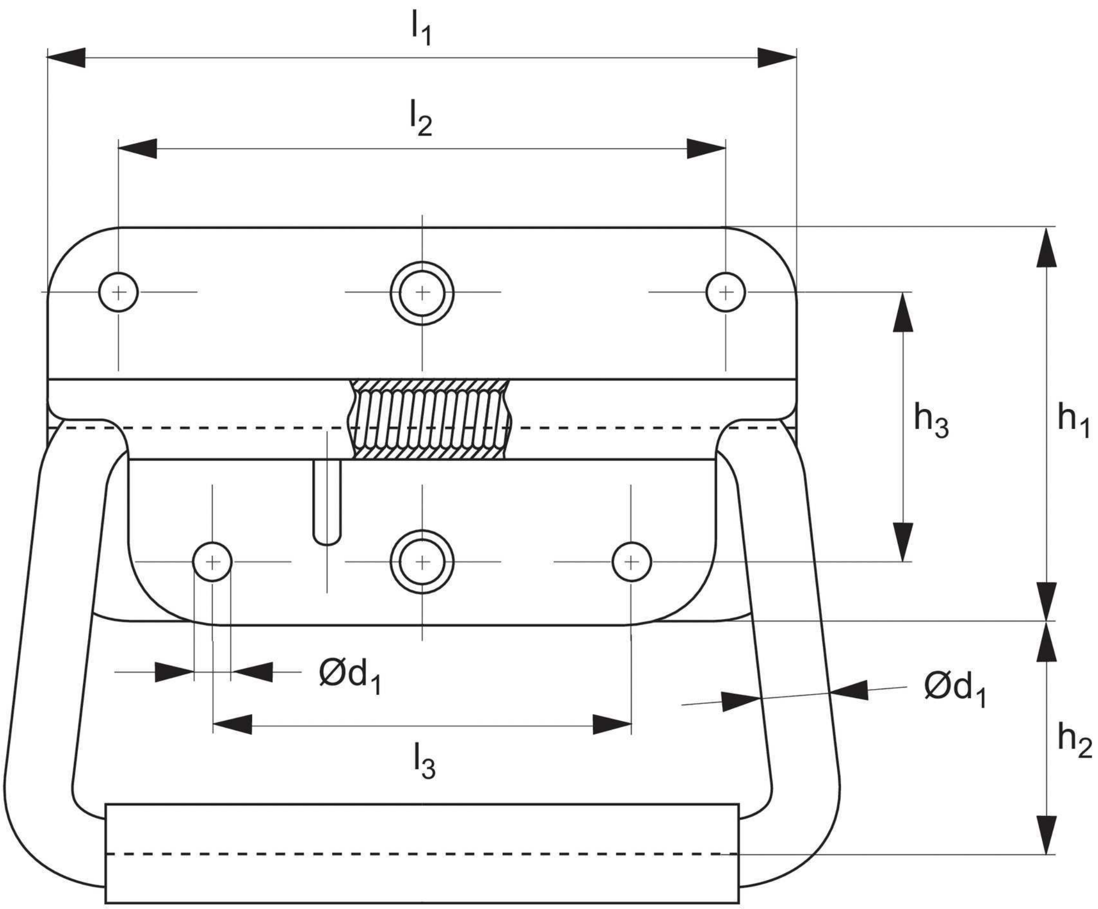
79585



Material
Steel, brass or zinc plated.

Order No.	Finish	a	b	c	d	e	f	g	h	i	w_1	w_2	w_3	Øm	g
79585.W0008	Brass	80	56,0	33,0	27,0	11	13	20	18	38,0	6,0	9	1	4,0	90
79585.W0009	Brass	90	61,0	37,5	30,0	11	20	28	17	44,0	6,5	9	1	4,4	90
79585.W0010	Brass	100	62,5	40,0	32,5	12	18	28	19	43,5	6,5	9	1	4,4	90
79585.W0011	Brass	110	66,5	45,0	37,5	13	25	37	19	47,5	7,0	9	1	5,0	90
79585.W0408	Zinc	80	56,0	33,0	27,0	11	13	20	18	38,0	6,0	9	1	4,0	90
79585.W0409	Zinc	90	61,0	37,5	30,0	11	20	28	17	44,0	6,5	9	1	4,4	90
79585.W0410	Zinc	100	62,5	40,0	32,5	12	18	28	19	43,5	6,5	9	1	4,4	90
79585.W0411	Zinc	110	66,5	45,0	37,5	13	25	37	19	47,5	7,0	9	1	5,0	90

79586

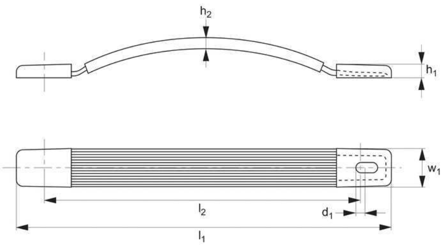


Material
Steel, zinc plated.

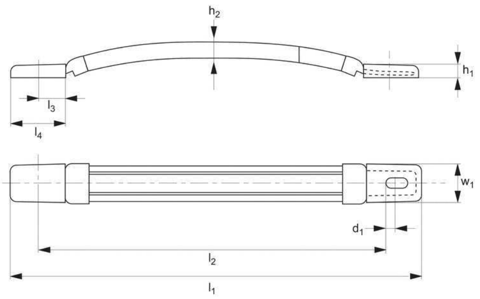
Order No.	Finish	Length available	Ød1	Ød2	h1	h2	h3	l1	l2	l3	g
79586.W0004	Zinc plated steel	100mm	8	5,2	54	30	36,5	103	82,5	57	120

Pull Out Carrying Handles

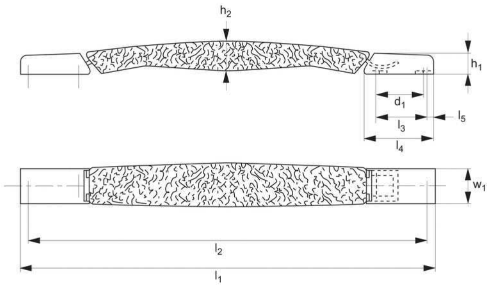
79587



79587.W0187



79587.W0205



79587.W0228

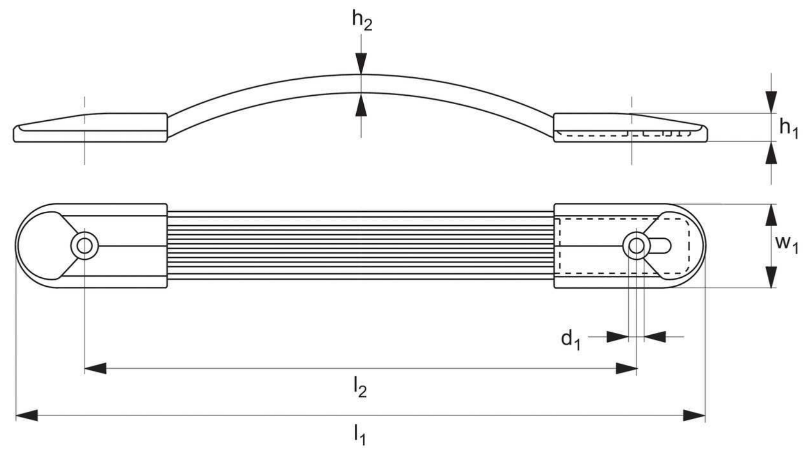
Material
Black handles of soft plastic, 49620.W0187 & 49620.W0205 with steel spring inside. Nickel plated steel cover caps.

Technical Notes
For instruments, cases and similar applications.

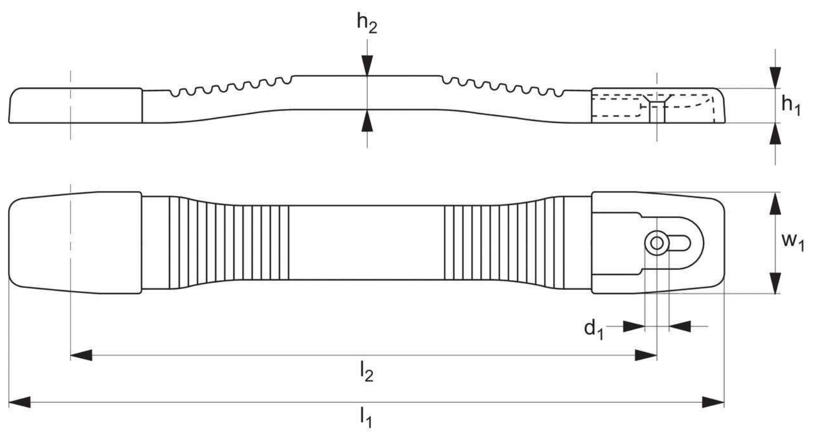
Order No.	d_1	h_1	h_2	l_1	l_2	l_3	l_4	l_5	w_1	Stress resistance N
79587.W0187	4,5	8,6	8,0	223	187	-	-	-	23,3	300

Pull Out Carry Handle

79588



79588.W0160



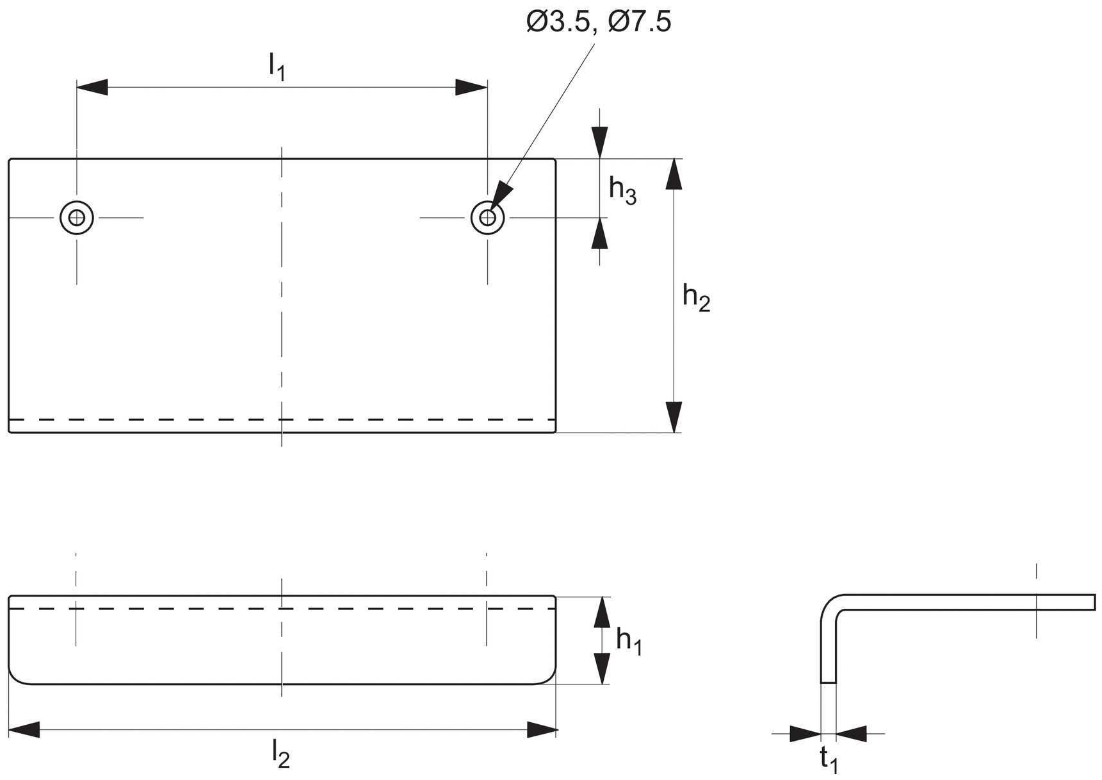
79588.W0215

Order No.	d_1	h_1	h_2	l_1	l_2	w_1	Stress resistance N
79588.W0215	5,3	13	12	268	215	37	400
79588.W0160	4,3	8,5	5	203	160	25	400

Material
Handles made of black soft plastic with a steel spring inside and black plastic cover caps. For front mounting with countersunk screws (not included in delivery).

Ledge Pulls
stainless steel

79590



Material
AISI 304 stainless steel, mirror finish.

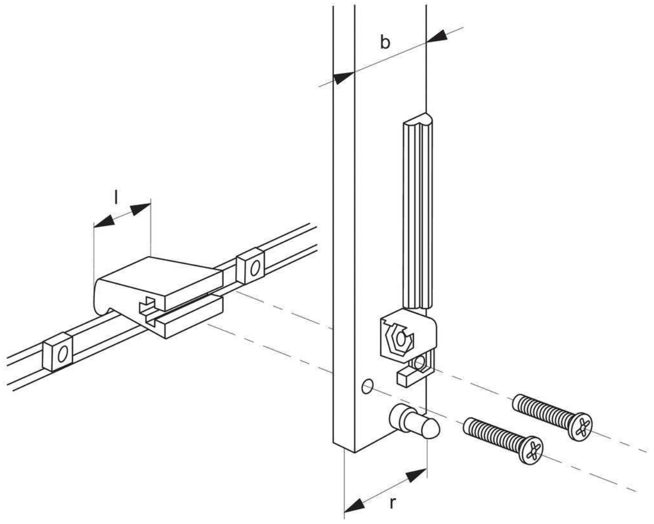
Technical Notes
Supplied with stainless steel screws (3.5x20).

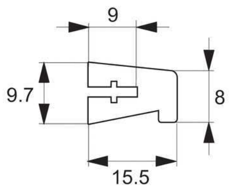
STAINLESS STEEL 304

Order No.	l_2	h_1	h_2	h_3	l_1	t_1	g
79590.W0050	50	17	38	8	30	2,5	47
79590.W0070	70	17	38	8	46	2,5	65
79590.W0095	95	18	38	8	65	2,5	90

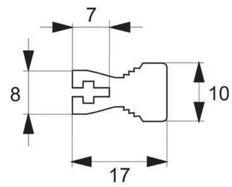
Panel Handles
aluminium

79600

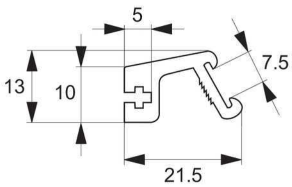




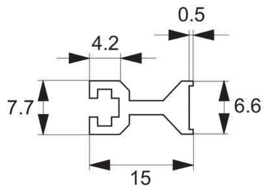
type 1



type 3



type 2



type 4

Material
Profiled aluminium AlMgSi 0,5. Vibration ground and anodised, matt finish.

Technical Notes
All panel handles have a cross slot to suit either M2,5 screw heads (DIN 933) or nuts DIN 935/562 or 934. TE = unit of grid division (grid scale 5,08mm)
R = TE x 5,08mm. B is approx. R - 0,3mm. L is approx. R - 0,6mm.

ALU.

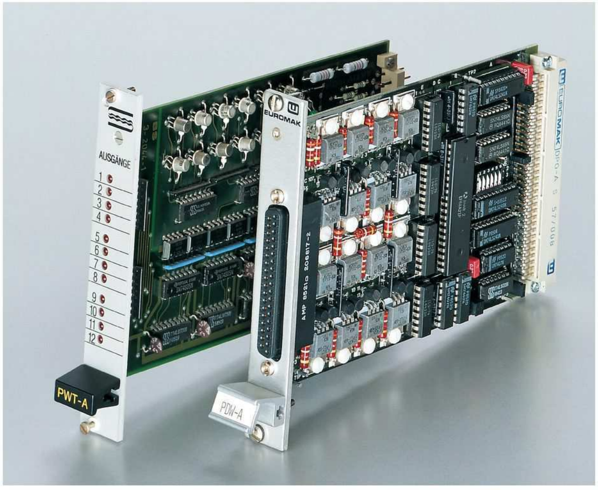
Order No. Type One	Order No. Type Two	Colour	te	r	l
79600.W0114-1	79600.W0214-1	Natural	3	15,24	14,6
79600.W0119-1	79600.W0219-1	Natural	4	20,32	19,7
79600.W0124-1	79600.W0224-1	Natural	5	25,40	24,8
79600.W0129-1	79600.W0229-1	Natural	6	30,48	29,9
79600.W0140-1	79600.W0240-1	Natural	8	40,64	40,0
79600.W0160-1	79600.W0260-1	Natural	12	60,69	60,3
79600.W0170-1	79600.W0270-1	Natural	14	71,12	70,5
79600.W0199-1	79600.W0299-1	Natural	20	101,60	101,0
79600.W0114-4	79600.W0214-4	Black	3	15,24	14,6
79600.W0119-4	79600.W0219-4	Black	4	20,32	19,7
79600.W0124-4	79600.W0224-4	Black	5	25,4	24,8
79600.W0129-4	79600.W0229-4	Black	6	30,48	29,9
79600.W0140-4	79600.W0240-4	Black	8	40,64	40
79600.W0160-4	79600.W0260-4	Black	12	60,69	60,3

Panel Handles

aluminium

79600

Order No. Type One	Order No. Type Two	Colour	te	r	l
79600.W0170-4	79600.W0270-4	Black	14	71,12	70,5
79600.W0199-4	79600.W0299-4	Black	20	101,60	101,0



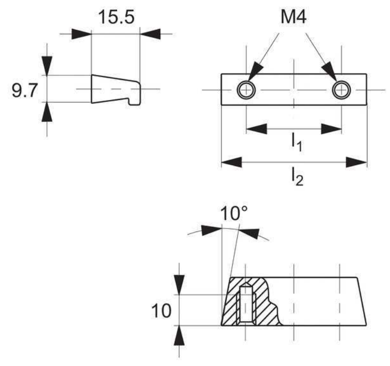
Material

Profiled aluminium AlMgSi 0,5. Vibration ground and anodised, matt finish.

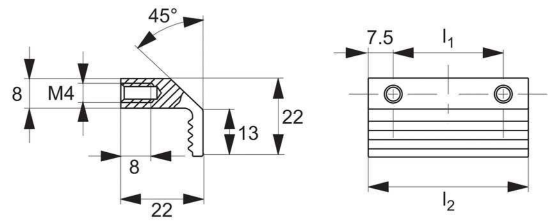
Technical Notes

All panel handles have a cross slot to suit either M2,5 screw heads (DIN 933) or nuts DIN 935/562 or 934. TE = unit of grid division (grid scale 5,08mm)
R = TE x 5,08mm. B is approx. R - 0,3mm. L is approx. R - 0,6mm.

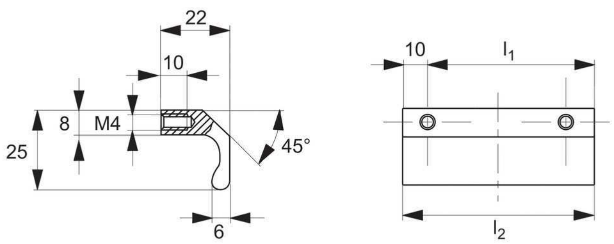
ALU.



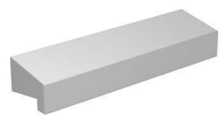
type one

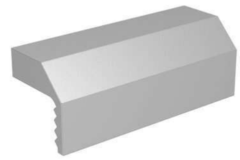


type two



type three





Material
Profiled aluminium AlMgSi 0.5. Vibration ground, and anodized with a matt finish in natural colour or black.

Technical Notes
Minimum stress resistance 200N.

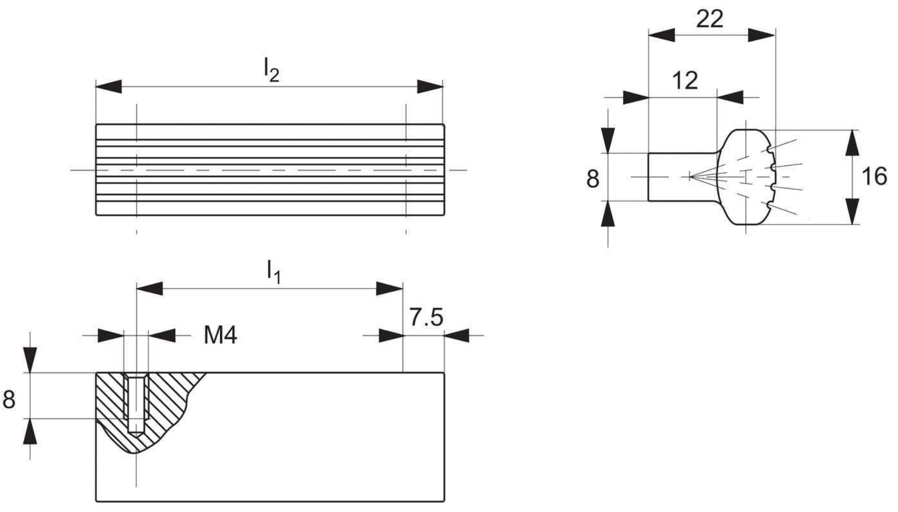
Important Notes
Any other handle lengths available upon request.

ALU.

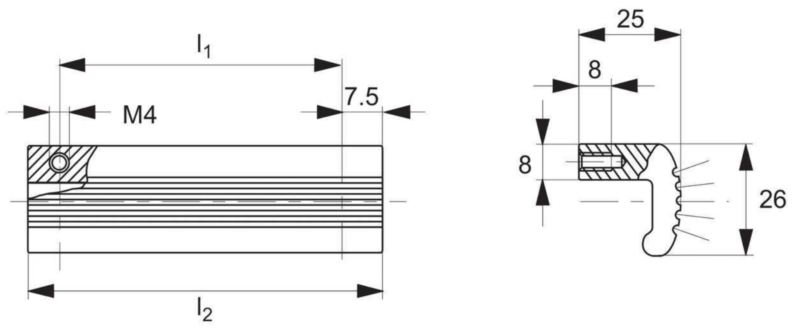
Order No. Natural	Order No. Black	Type	l_1	l_2
79610.W0045-1	79610.W0045-4	Type One	45	60
79610.W0070-1	79610.W0070-4	Type One	70	85
79610.W0090-1	79610.W0090-4	Type One	90	105
79610.W0099-1	79610.W0099-4	Type One	105	120
79610.W0145-1	79610.W0145-4	Type Two	45	60
79610.W0170-1	79610.W0170-4	Type Two	70	85
79610.W0190-1	79610.W0190-4	Type Two	90	105
79610.W0199-1	79610.W0199-4	Type Two	105	120
79610.W0245-1	79610.W0245-4	Type Three	45	65
79610.W0264-1	79610.W0264-4	Type Three	64	84
79610.W0270-1	79610.W0270-4	Type Three	70	90
79610.W0280-1	79610.W0280-4	Type Three	80	100
79610.W0290-1	79610.W0290-4	Type Three	90	110

Ledge Pulls
aluminium

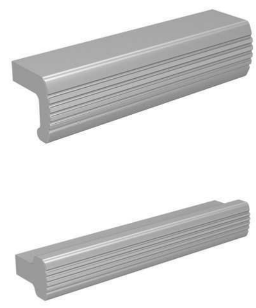
79620



type one



type two

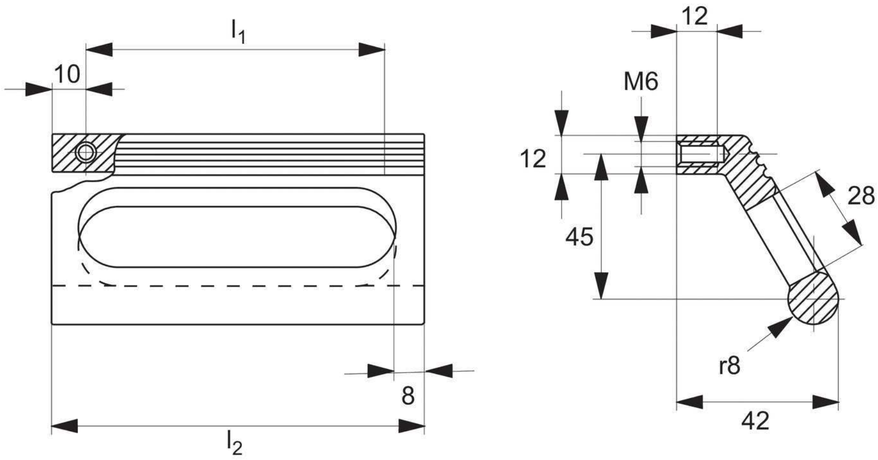


Material
Profiled aluminium AlMgSi 0.5. Vibropolished and anodized to a matt finish.

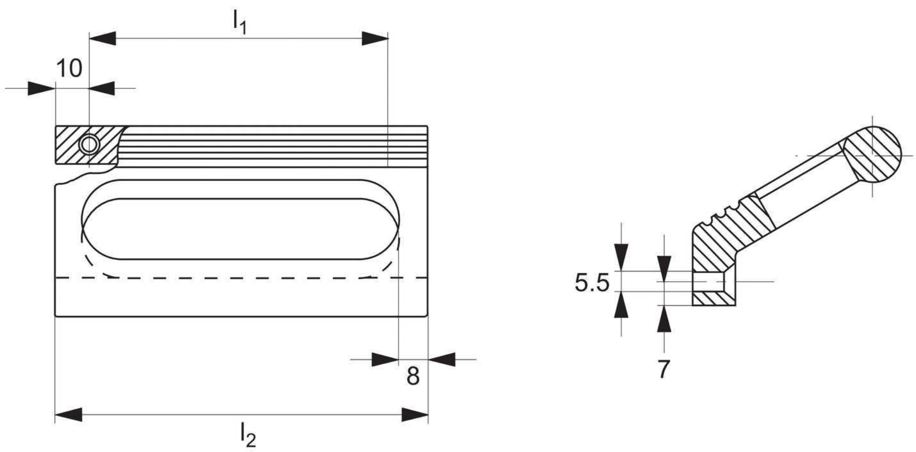
Technical Notes
Minimum stress resistance 200N.

ALU.

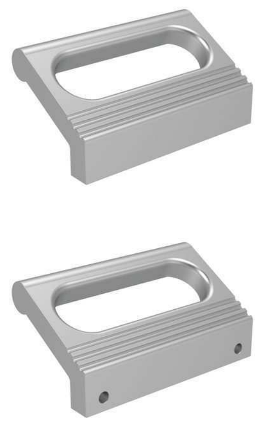
Order No. Type One	Order No. Type Two	Finish	l_1	l_2
79620.W0030-1	79620.W0530-1	Natural	30	45
79620.W0045-1	79620.W0545-1	Natural	45	60
79620.W0070-1	79620.W0570-1	Natural	70	85
79620.W0090-1	79620.W0590-1	Natural	90	105
79620.W0105-1	79620.W0605-1	Natural	105	120
79620.W0120-1	79620.W0620-1	Natural	120	135
79620.W0030-4	79620.W0530-4	Black	30	45
79620.W0045-4	79620.W0545-4	Black	45	60
79620.W0070-4	79620.W0570-4	Black	70	85
79620.W0090-4	79620.W0590-4	Black	90	105
79620.W0105-4	79620.W0605-4	Black	105	120
79620.W0120-4	79620.W0620-4	Black	120	135



type one - rear mount



type two - lateral front mount



Material

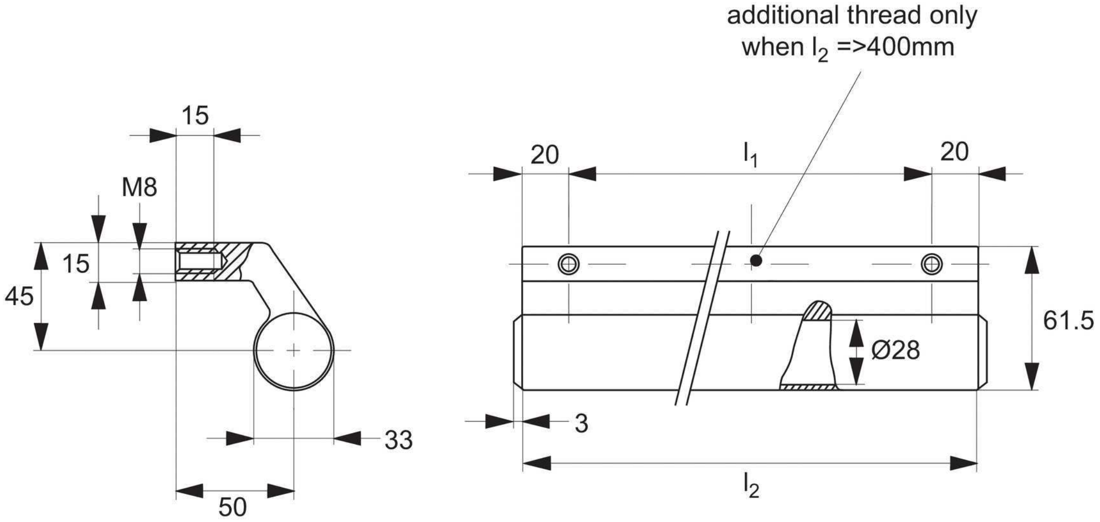
Profile aluminium AlMgSi 0,5. Satin finish anodized in 3 colours.

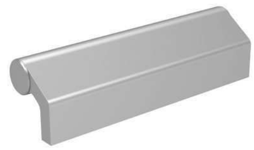
Technical Notes

Type one: internal thread M 6. Minimum stress resistance 500N.
Type two: through hole for M 5 counter sunk screw, lateral assembly.

ALU.

Order No. Type One	Order No. Type Two	Finish	l_1	l_2
79630.W0086-1	79630.W0586-1	Natural	86	106
79630.W0100-1	79630.W0600-1	Natural	100	120
79630.W0120-1	79630.W0620-1	Natural	120	140
79630.W0086-4	79630.W0586-4	Black	86	106
79630.W0100-4	79630.W0600-4	Black	100	120
79630.W0120-4	79630.W0620-4	Black	120	140





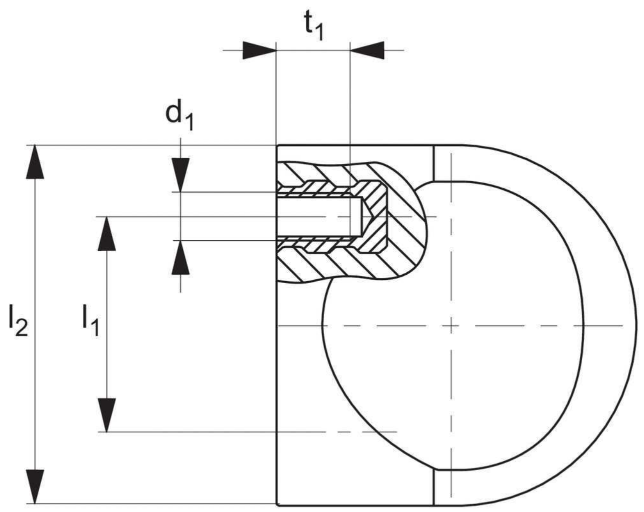
Order No. Natural	Order No. Black	l_1	l_2
79650.W0110-1	79650.W0110-4	110	150
79650.W0160-1	79650.W0160-4	160	200
79650.W0210-1	79650.W0210-4	210	250
79650.W0260-1	79650.W0260-4	260	300
79650.W0310-1	79650.W0310-4	310	350
79650.W0360-1	79650.W0360-4	360	400
79650.W0460-1	79650.W0460-4	460	500
79650.W0560-1	79650.W0560-4	560	600

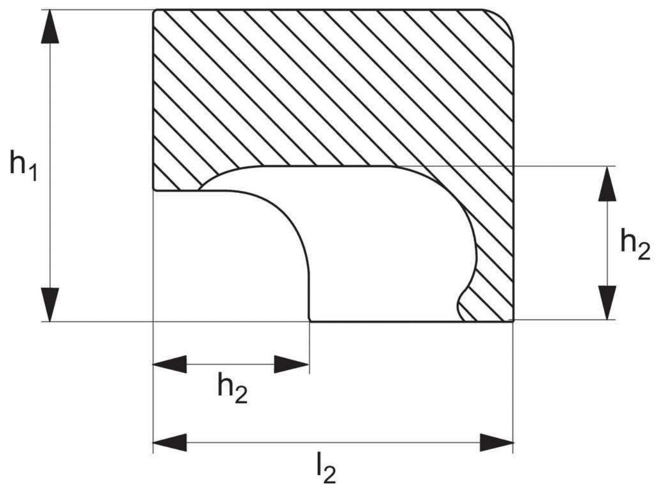
Material
Handle: aluminium section AlMgSi 0.5. Semi-gloss anodizing in natural colour or black powder coated with fine structure.
End caps: polyamide, black, with fine-grain structure.

Technical Notes
Minimum stress resistance >1000N.

Tips
For sliding doors and drawers in machinery and technical plants, also suitable as edge protection.

ALU.



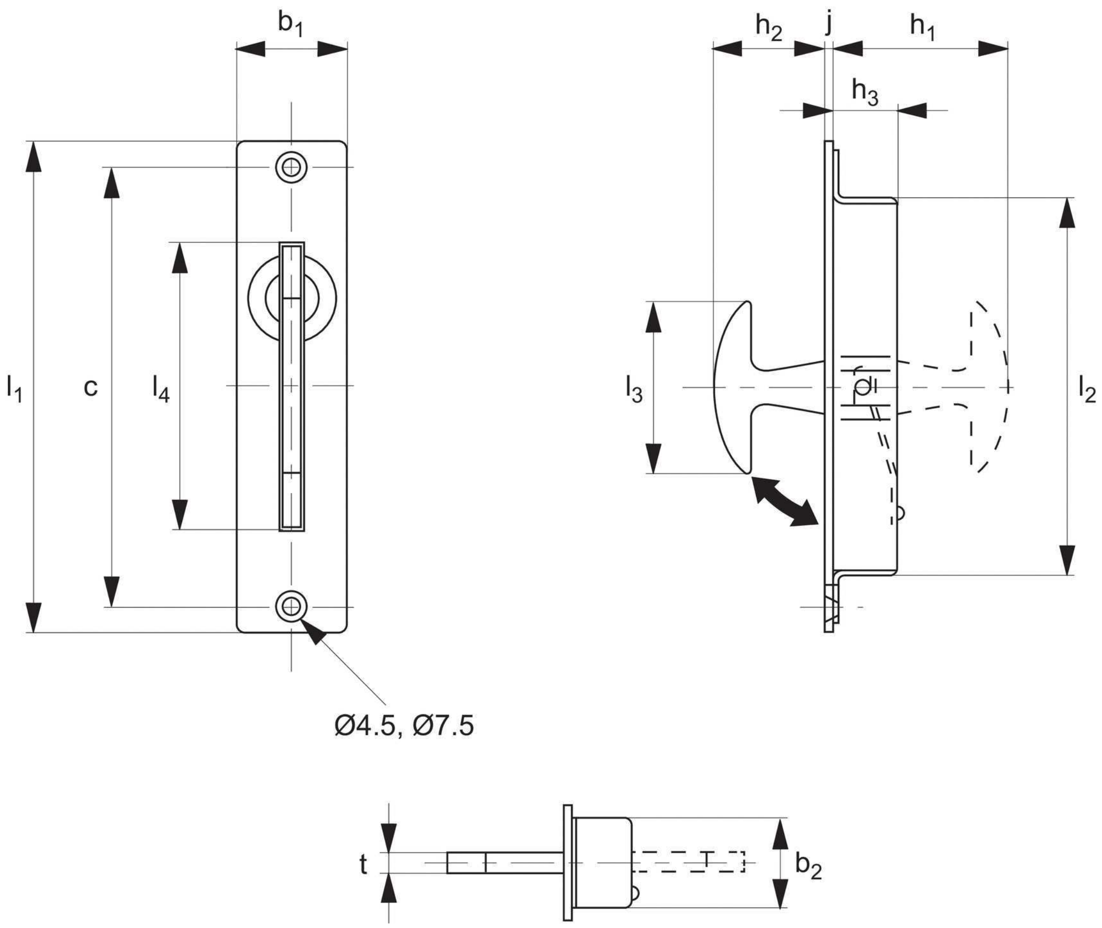


Material
Polyamide PA 6, glass ball reinforced, fine grain semi-matt finish.
Insert: threaded brass bushing.

Technical Notes
Ideal finger pull for cabinets, enclosures or furniture.

PA

Order No.	Type	l_1	l_2	h_1	h_2	d_1	t_1
79660.W0014	Black	14	26	22	11	M 4	6
79660.W0018	Black	18	30	26	13	M 4	6
79660.W0114	Grey	14	26	22	11	M 4	6
79660.W0118	Grey	18	30	26	13	M 4	6



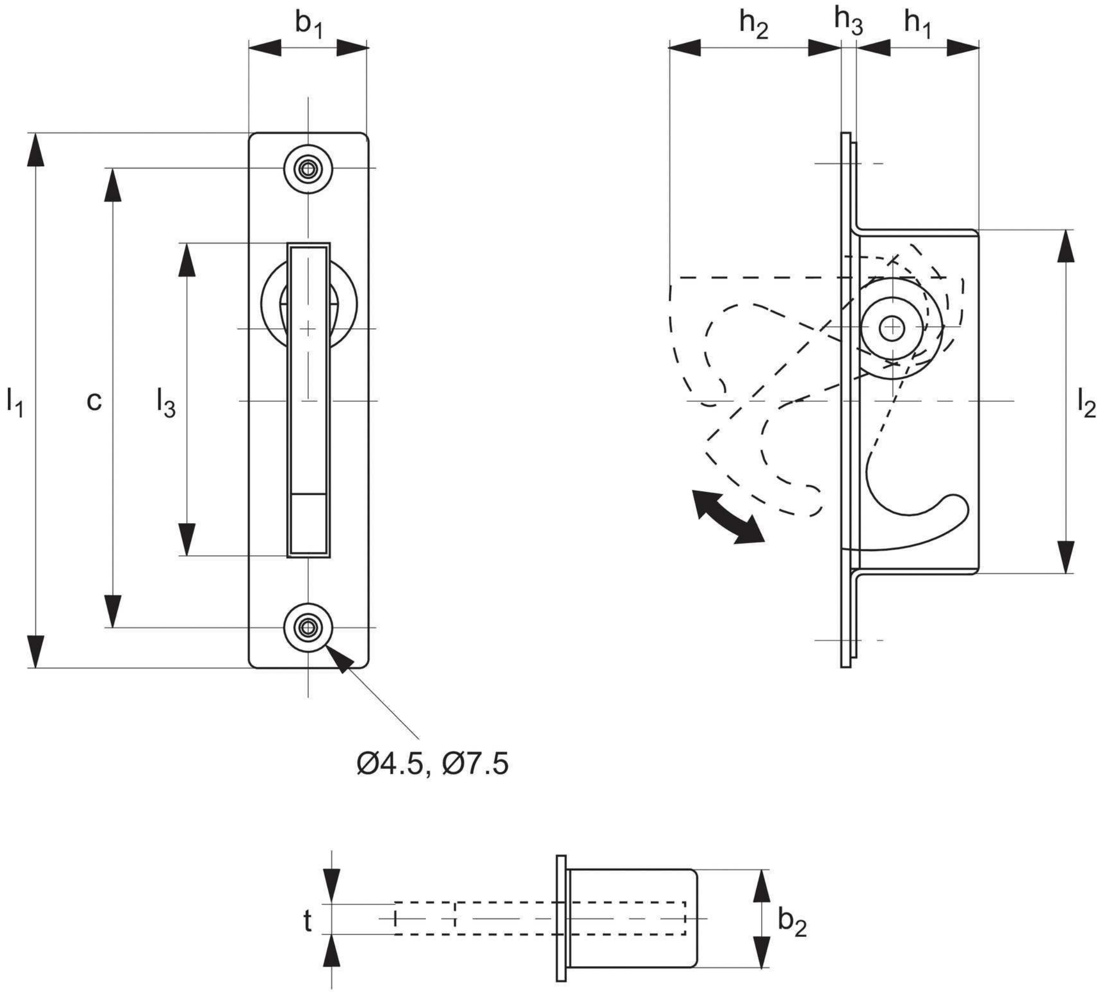
Material
AISI 304 stainless steel, satin finish.

Technical Notes
Supplied with stainless steel screws.

Important Notes
T-handle design. Handle is concealed when not in use.

Order No.	l_1	l_2	l_3	l_4	h_1	h_2	h_3	j	b_1	b_2	t	c	g
79690.W0090	90	66,2	30,2	57	35,5	23,2	10,5	2,2	22	18,5	3,8	80	68
79690.W0115	115	86,2	40,0	67	42,0	26,0	13,0	2,5	25	20,0	4,0	102	102

79700

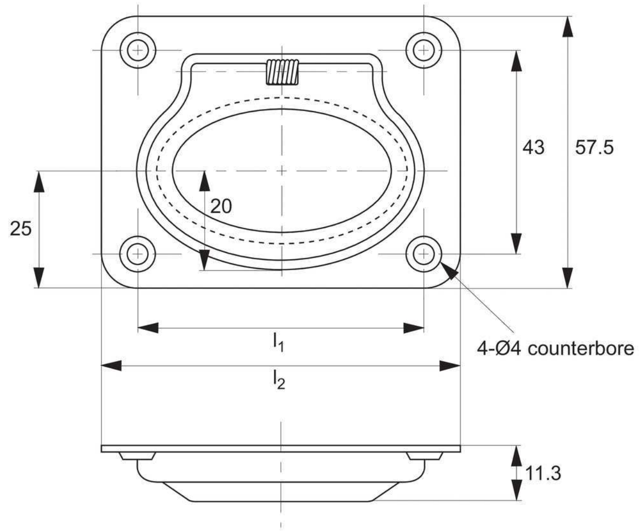


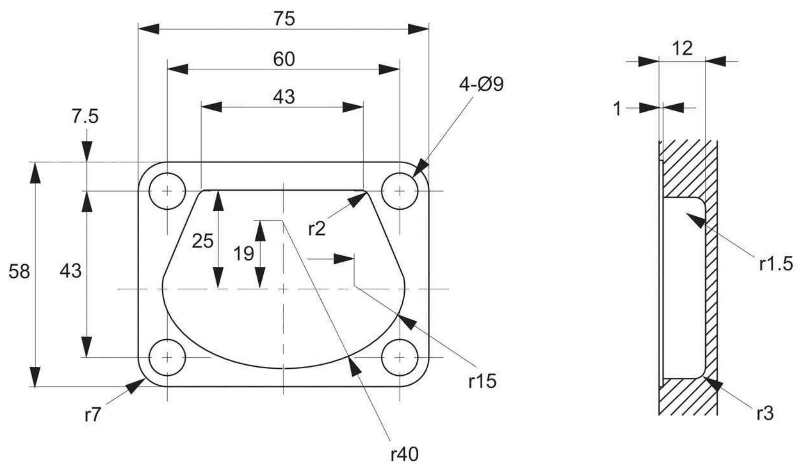
Material
AISI 304 stainless steel, satin finish.

Technical Notes
Supplied with stainless steel screws.

Important Notes
Hook design. Handle is concealed when not in use.

Order No.	l_1	l_2	l_3	h_1	h_2	h_3	b_1	b_2	t	c	g
79700.W0080	80	50	44	18	25	2	18	15	5	68	48
79700.W0100	100	63	54	21	32	2	20	15	5	85	66



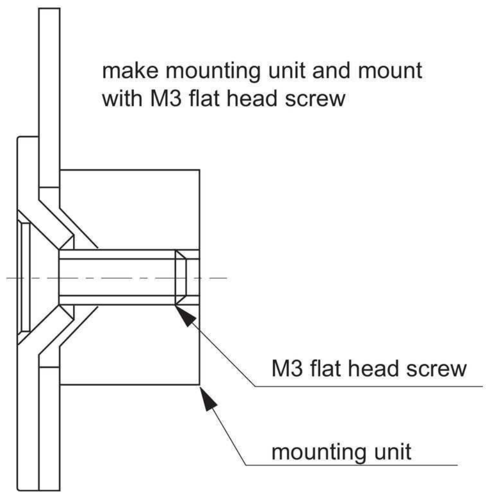


cut out

Material
AISI 304 stainless steel, polished.

Technical Notes
Supplied with stainless steel screws (3.8x16).

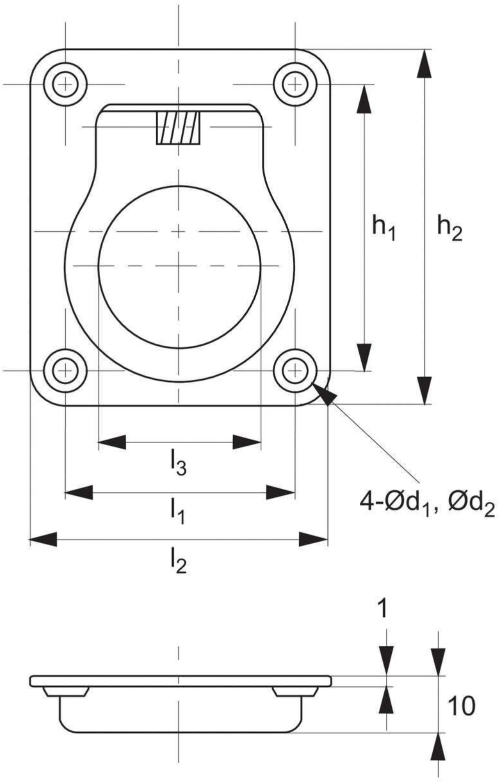
Order No.	l_1	l_2	g
79711.W0110	60	75	51

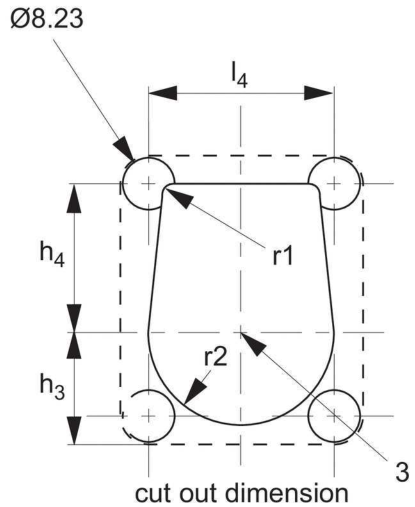


Ring Pulls, Recessed

stainless steel

79720

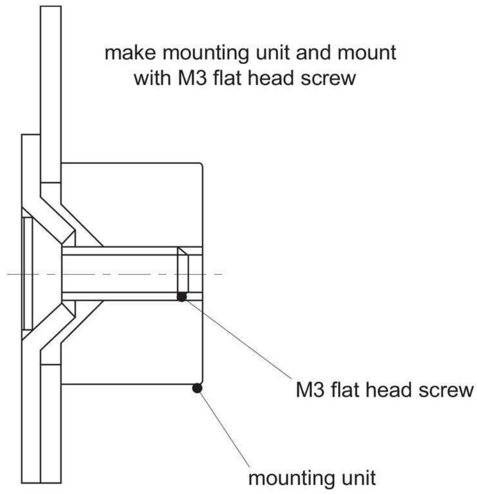




Material
AISI 304 stainless steel, polished.

Technical Notes
Supplied with stainless steel screws.

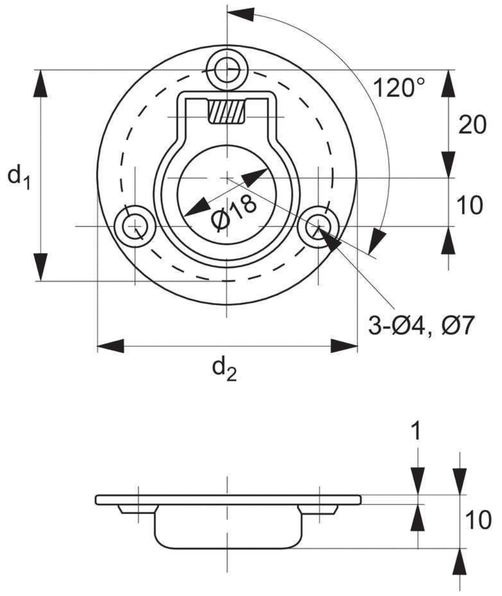
Order No.	l_1	d_1	d_2	h_1	h_2	h_3	h_4	l_2	l_3	l_4	r_1	Ør2	g
79720.W0010	28	4,0	6,2	34	44	19	19,5	38	18	24,5	14,2	14,2	35,0
79720.W0020	35	4,4	7,0	45	60	25	25,0	50	27	25,0	19,5	19,5	52,5

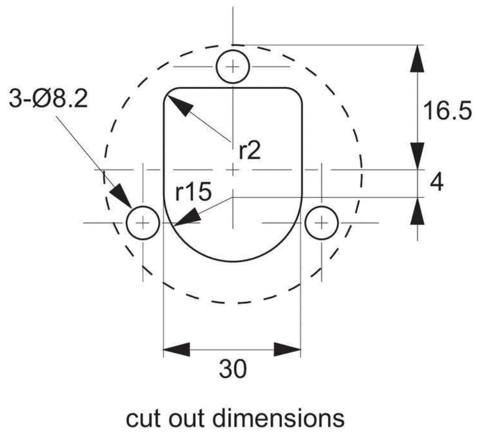


Ring Pulls, Recessed

stainless steel

79730

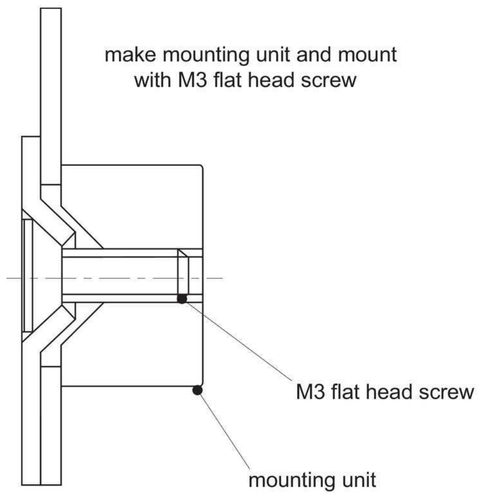




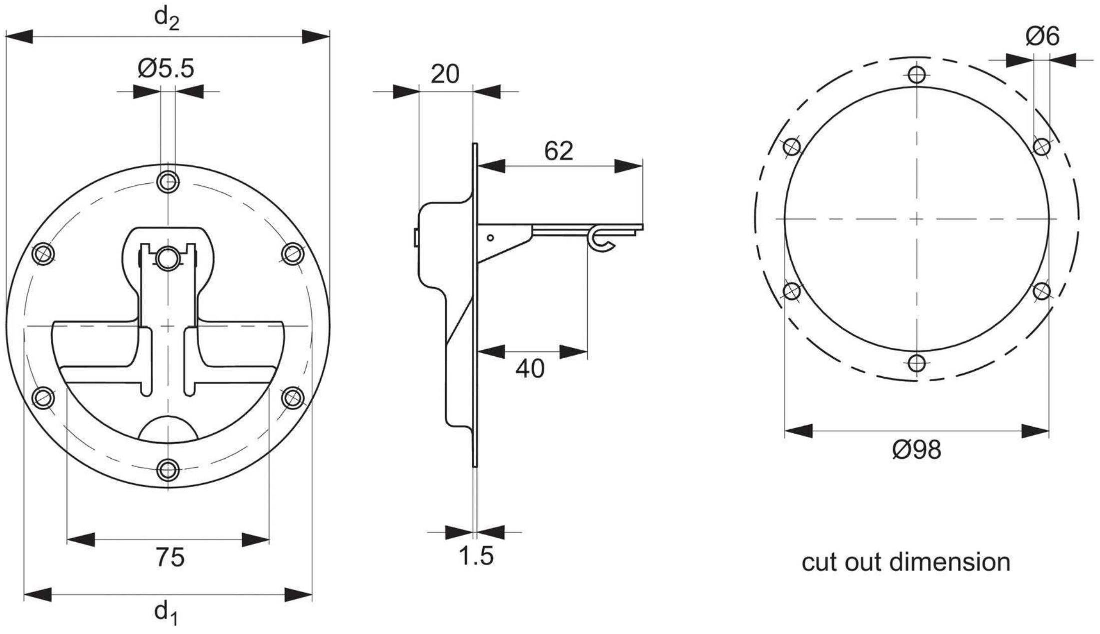
Material
AISI 304 stainless steel, polished.

Technical Notes
Supplied with stainless steel screws (3.8x16).

Order No.	d_1	d_2	g
79730.W0010	40	50	23



79740



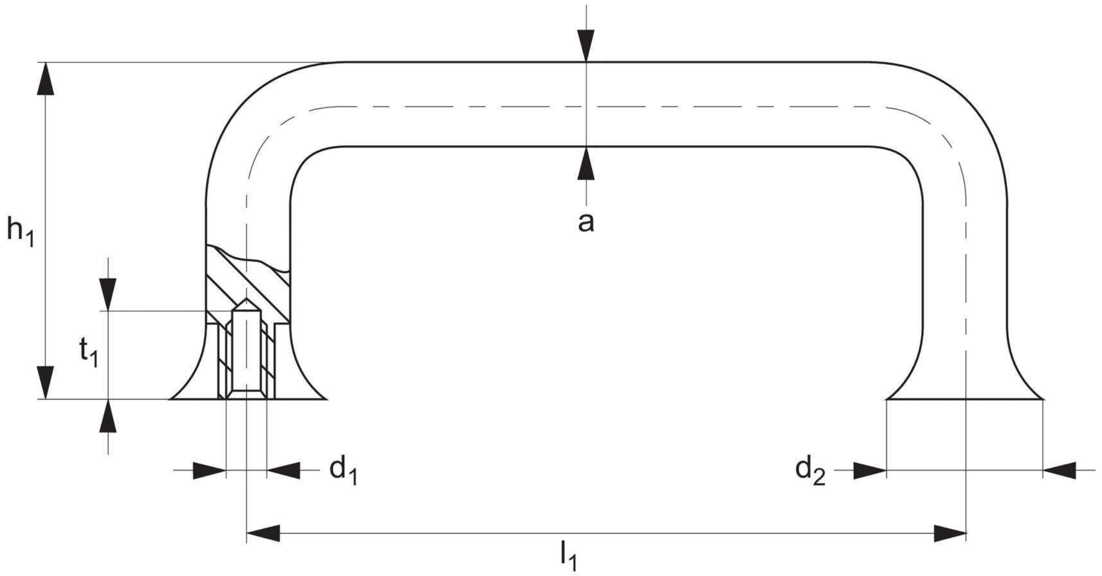
type two

cut out dimension

Order No.	Type	d_1	d_2
79740.W0120	Type Two	107	120

Material
AISI 304 stainless steel, polished.

Technical Notes
Incorporates a pull-back spring which returns the handle to its resting position when released.



Order No.	l_1	d_1	a	d_2	h_1	t_1
79750.W0119	120	M 5	10	20	45	10
79750.W0120	120	M 6	15	30	60	12
79750.W0140	140	M 6	15	30	60	12
79750.W0100	100	M 5	10	20	45	10
79750.W0200	200	M 6	15	30	60	12

Material
Round bar stainless steel 1.4305 (AISI 303), vibration ground, semi-matte finish. Supplied with stainless steel hex screws, DIN933 and suitable nuts and washers.

Technical Notes
Minimum stress resistance >1000N.

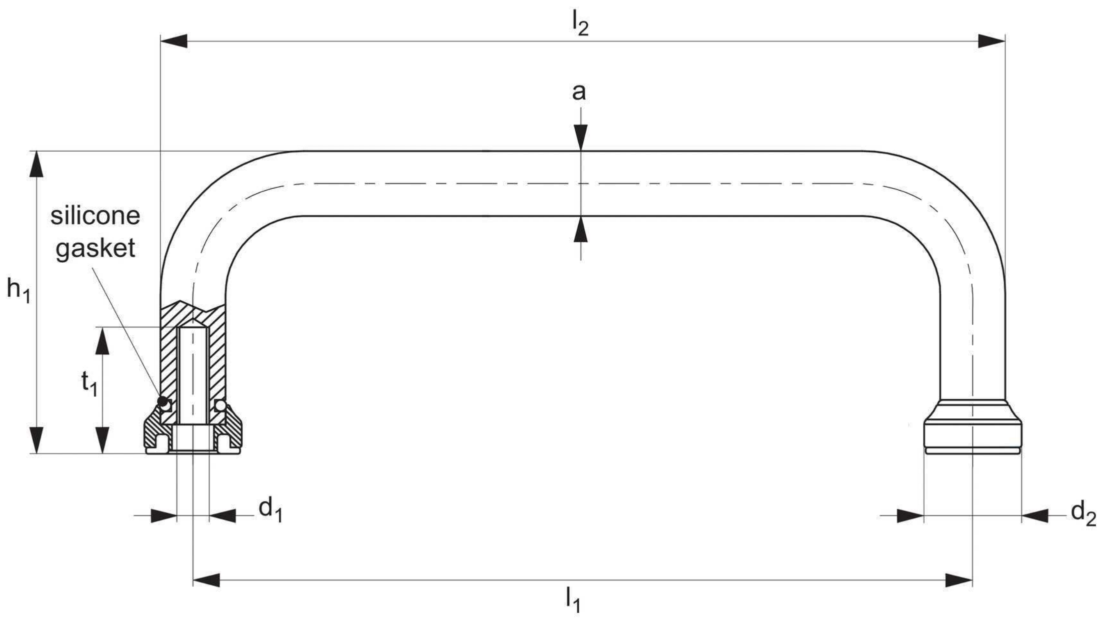
Tips
The trumpet like design of the handle base makes them easy to clean thoroughly. The handles are therefore particularly suitable for hygienic areas.

STAINLESS STEEL 304

Pull Handles - 3A Standard

hygienic line, stainless steel

79760



Order No.	l_1	l_2	d_1	a	h_1	d_2	t_1
79760.W0088	88	98	M5	10	46	15	10
79760.W0100	100	110	M5	10	46	15	10
79760.W0120	120	130	M5	10	46	15	10
79760.W0180	180	190	M5	10	46	15	10

Material

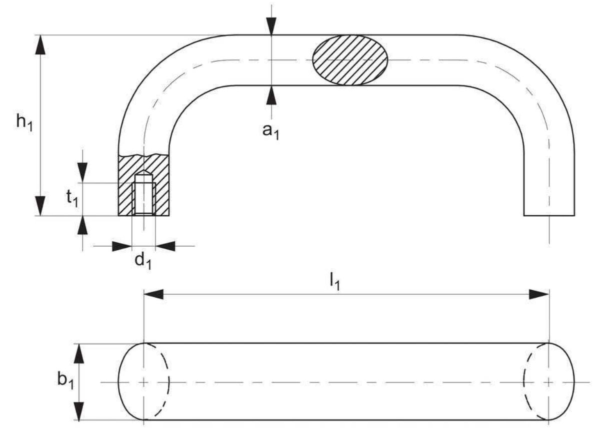
Round bar stainless steel AISI304
Blue gasket: silicone

Tips

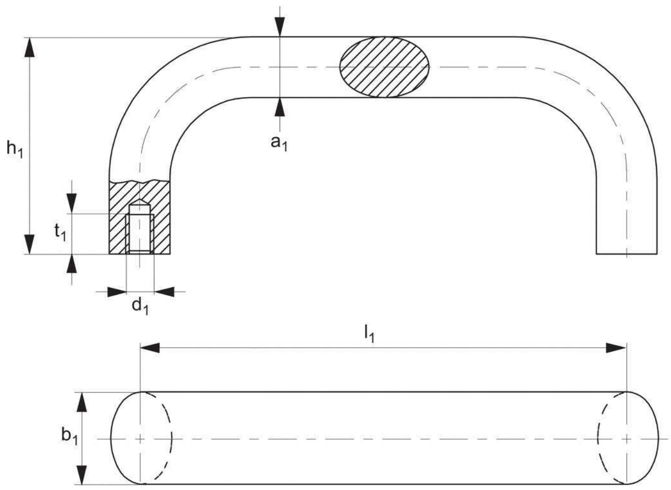
Made to the high "3A" standard. This ensures it meets the high standards required for use in food, beverage, pharmaceutical and medical applications.
Hygienically designed for effective and easy cleaning, corrosion resistant, non-toxic.
Design precludes contamination by dirt, food particles and organic matter.

Referral

AISI316 available on request.



type one



type two

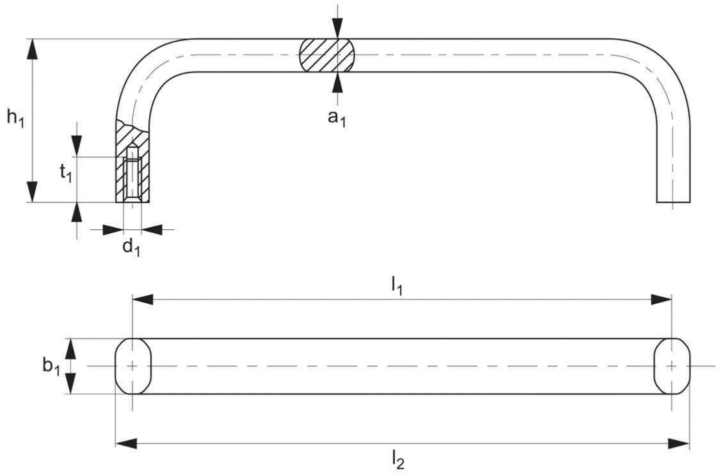
Order No.	Type	l_1	d_1	h_1	a_1	b_1	t_1
79820.W0010	Type One	100	M 6	50	13	20	12
79820.W0013	Type One	128	M 6	50	13	20	12
79820.W0016	Type One	160	M 6	50	13	20	12
79820.W0114	Type Two	140	M 8	55	17	26	14
79820.W0116	Type Two	160	M 8	55	17	26	14
79820.W0118	Type Two	180	M 8	55	17	26	14
79820.W0119	Type Two	192	M 8	55	17	26	14
79820.W0135	Type Two	350	M 8	55	17	26	14

Material
Oval profiled aluminium AlMgSi 0.5. Vibration ground and powder coated in RAL 9002 grey white.

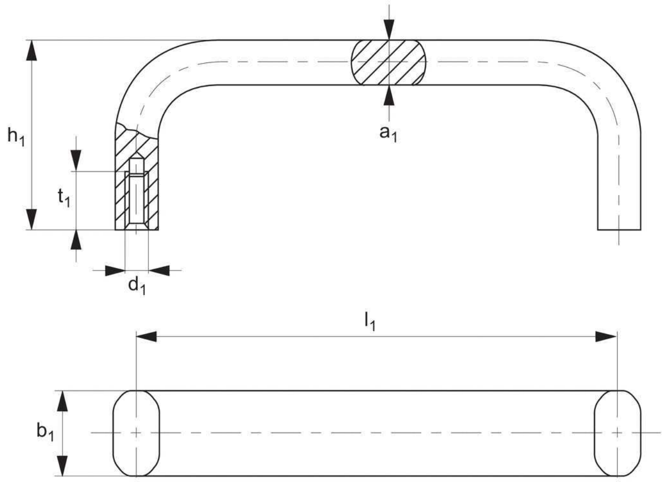
Technical Notes
Minimum stress resistance >1000N.

Tips
Especially suited for food and medical industries. Other RAL shades available on request.

CLEAN LINE



type one



type two

Order No.	Type	l_1	d_1	t_1	h_1	l_2	a_1	b_1
79830.W0005	Type One	55	M 5	10	40	63	8	12
79830.W0008	Type One	88	M 5	10	40	96	8	12
79830.W0010	Type One	100	M 5	10	40	108	8	12
79830.W0012	Type One	120	M 5	10	40	128	8	12
79830.W0018	Type One	180	M 5	10	40	188	8	12
79830.W0020	Type One	200	M 5	10	40	208	8	12
79830.W0023	Type One	235	M 5	10	40	243	8	12
79830.W0025	Type One	250	M 5	10	40	258	8	12
79830.W0112	Type Two	120	M 5	10	45	130	10	20
79830.W0114	Type Two	140	M 5	10	45	150	10	20
79830.W0118	Type Two	180	M 5	10	45	190	10	20
79830.W0120	Type Two	200	M 5	10	45	210	10	20
79830.W0135	Type Two	350	M 6	12	45	360	10	20

Material
Flat-oval profiled aluminum AlMgSi 0.5. Vibration ground and powder coated in RAL 9002 grey white.

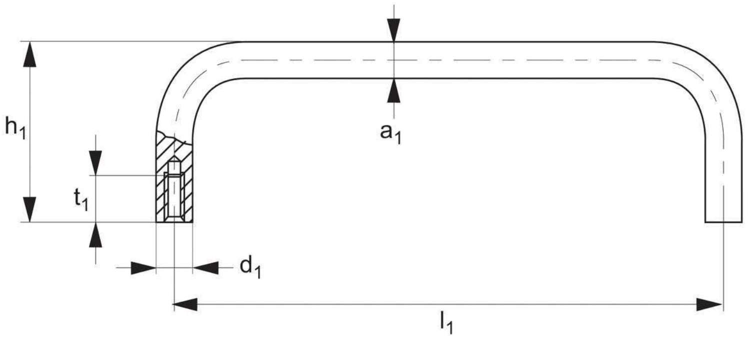
Technical Notes
Minimum stress resistance 500N.

Tips
Especially suited for food and medical industries. Other RAL shades are available on request.

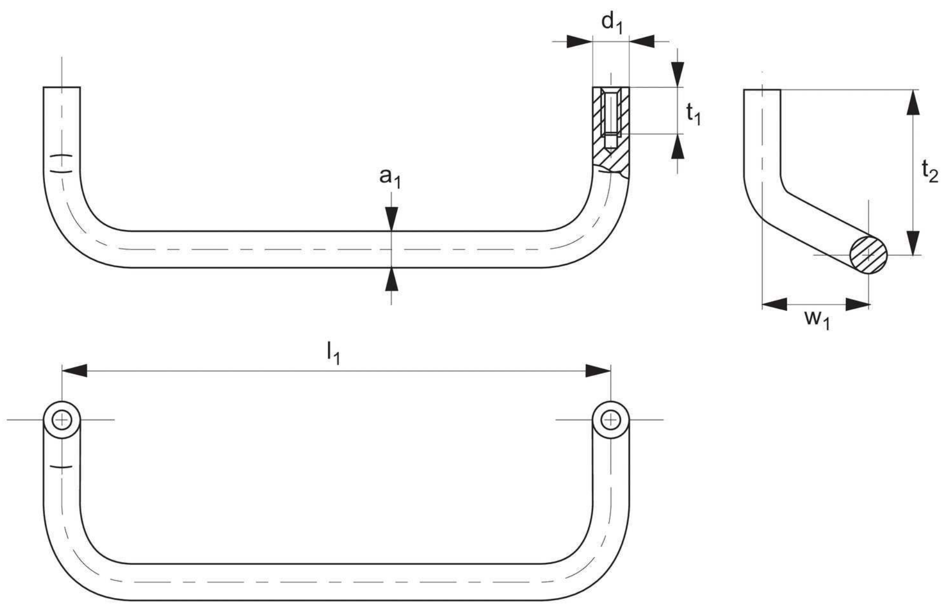
CLEAN LINE

Pull Handles
aluminium, Clean line

79840



standard type



angled type

Material
Profile aluminium AlMgSi 0.5. Vibration ground and powder-coated in RAL 9002 grey white.

Technical Notes
Minimum stress resistance 500N.

Tips
Especially suited for food and medical industries.

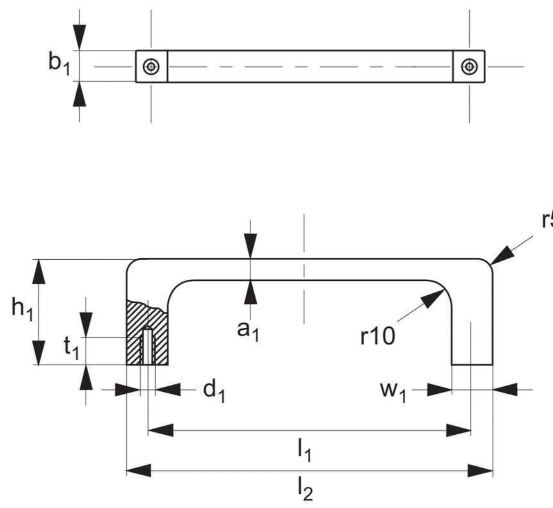
CLEAN LINE

Order No.	Type	l_1	d_1	h_1	a_1	t_1	t_2	w_1
79840.W0005	Standard	55	M 5	40	Ø10	10	-	-
79840.W0008	Standard	88	M 5	40	Ø10	10	-	-
79840.W0010	Standard	100	M 5	40	Ø10	10	-	-
79840.W0012	Standard	120	M 5	40	Ø10	10	-	-
79840.W0018	Standard	180	M 5	40	Ø10	10	-	-
79840.W0020	Standard	200	M 5	40	Ø10	10	-	-
79840.W0023	Standard	235	M 5	40	Ø10	10	-	-
79840.W0025	Standard	250	M 5	40	Ø10	10	-	-
79840.W0108	Angled	86	M 5	-	Ø10	10	40	30
79840.W0112	Angled	120	M 5	-	Ø10	10	40	30
79840.W0118	Angled	180	M 5	-	Ø10	10	40	30

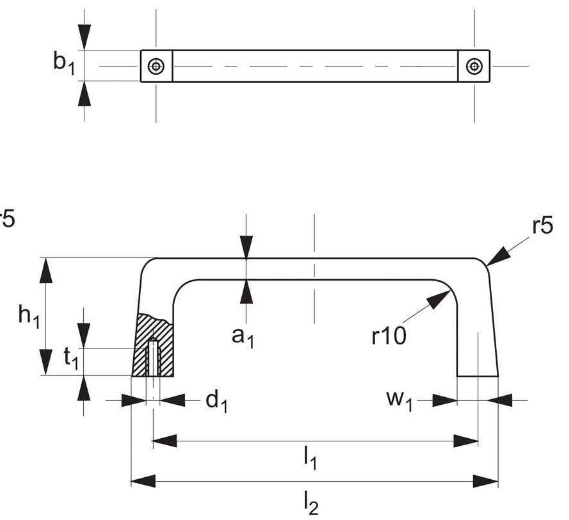
Pull Handles

aluminium, Clean line

79860



square



angular

Material
Cut profiled, aluminium AlMgSi 0.5. Vibration ground and powder coated in RAL 9002 grey white.

Technical Notes
Minimum stress resistance 500N.

Tips
Especially suited for food and medical industries. Other RAL shades are available on request.

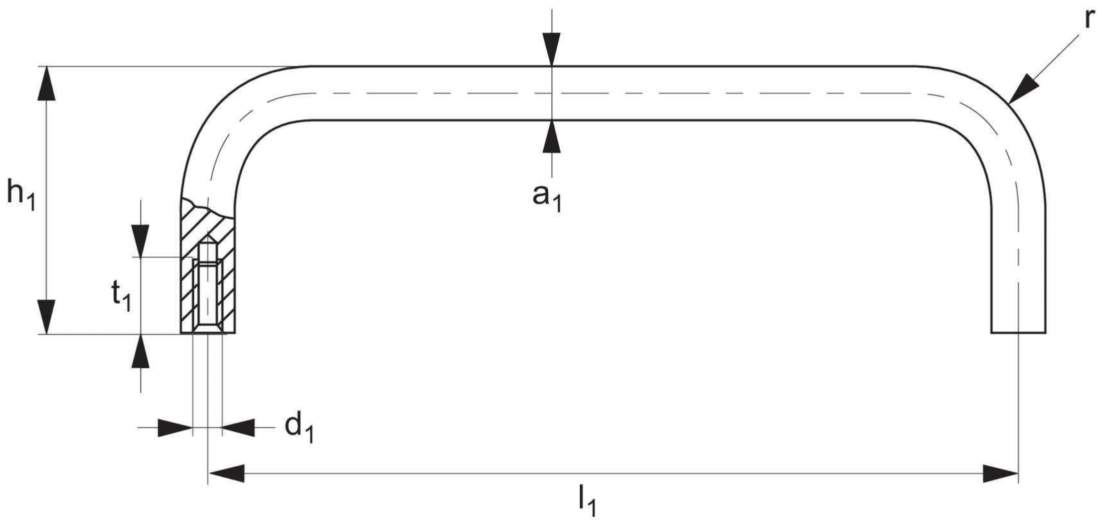
CLEAN LINE

Order No.	Type	l_1	l_2	d_1	h_1	a_1	b_1	t_1	w_1
79860.W0005	Square	55	67	M 5	40	8	12	10	12
79860.W0008	Square	88	100	M 5	40	8	12	10	12
79860.W0012	Square	120	132	M 5	40	8	12	10	12
79860.W0018	Square	180	192	M 5	40	8	12	10	12
79860.W0023	Square	235	247	M 5	40	8	12	10	12
79860.W0102	Angular	25	40	M 5	46	8	12	10	12
79860.W0105	Angular	55	69	M 5	46	8	12	10	12
79860.W0108	Angular	88	102	M 5	46	8	12	10	12
79860.W0112	Angular	120	134	M 5	46	8	12	10	12
79860.W0118	Angular	180	194	M 5	46	8	12	10	12
79860.W0123	Angular	235	249	M 5	46	8	12	10	12

Pull Handles

aluminium, Clean line

79880



Material

Round bar aluminium AlMgSi 0.5. Vibration ground and powder coated in RAL 9002 grey white.

Technical Notes

Minimum stress resistance >1000N.

Tips

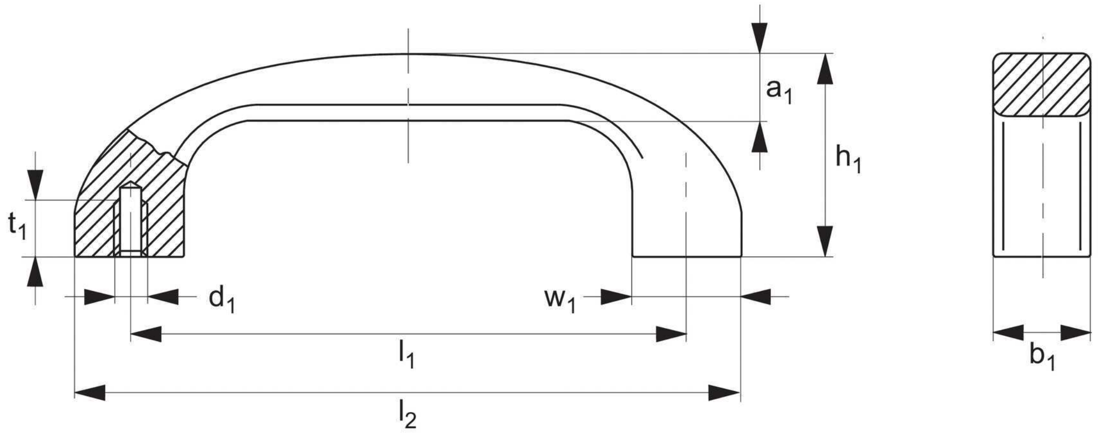
Especially suited for food and medical industries. Other RAL shades are available on request.

CLEAN LINE

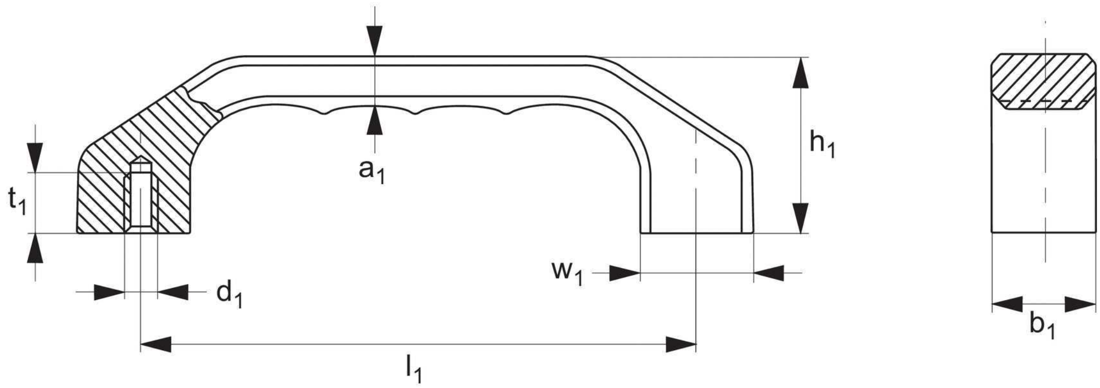
Order No.	Type	l_1	d_1	a	h_1	t_1	r
79880.W0120	Standard	200	M 8	20	70	15	22
79880.W0125	Standard	250	M 8	20	70	15	22
79880.W0130	Standard	300	M 8	20	70	15	22
79880.W0135	Standard	350	M 8	20	70	15	22
79880.W0140	Standard	400	M 8	20	70	15	22
79880.W0160	Standard	600	M 8	20	70	15	22
79880.W0220	Standard	200	M 8	25	85	15	28
79880.W0225	Standard	250	M 8	25	85	15	28
79880.W0230	Standard	300	M 8	25	85	15	28
79880.W0240	Standard	400	M 8	25	85	15	28
79880.W0260	Standard	600	M 8	25	85	15	28
79880.W0330	Standard	300	M10	30	100	15	34
79880.W0340	Standard	400	M10	30	100	15	34
79880.W0360	Standard	600	M10	30	100	15	34

Pull Handles Bow Type
aluminium, Clean line

79900



type one



type two

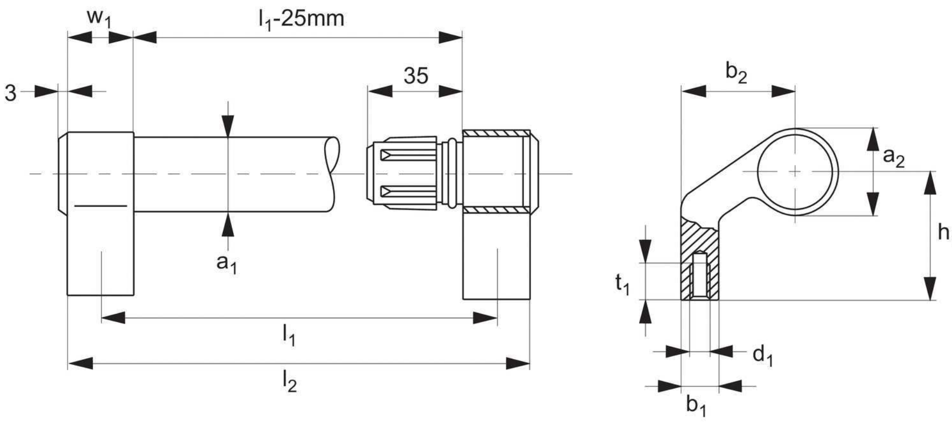
Material
Solid aluminium handles in a modern industrial design. Aluminium section AlMgSi 0.5. Vibration ground and powder coated in RAL 9002 grey white.

Technical Notes
Minimum stress resistance >1000N.

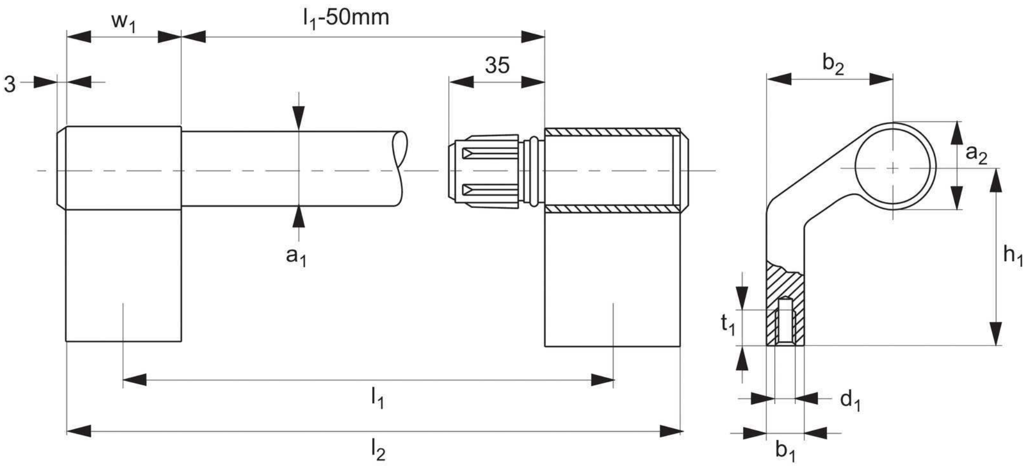
Tips
Especially suited for food and medical industries. Other RAL shades available on request.

CLEAN LINE

Order No.	Type	l_1	d_1	a_1	b_1	h_1	l_2	t_1	w_1
79900.W0120	Type One	120	M 6	15,0	22	46	144	12	24
79900.W0140	Type One	140	M 8	17,0	25	53	168	15	28
79900.W0520	Type Two	120	M 6	10,5	22	39	-	12	24
79900.W0540	Type Two	140	M 8	12,0	25	45	-	15	28
79900.W0560	Type Two	160	M 8	13,5	28	52	-	15	32



narrow shank



wide shank

Material
Handle shank: extruded aluminium AlMg Si 0,5, powder coated to RAL9002, grey white.
Handle tube: extruded aluminium, AlMg Si 0,5, Ø30x1,5mm, powder coated to RAL9002, grey white.
Shank insert: polyamide PA 6, glass ball reinforced in similar colour shade.

Technical Notes
Torsionally stiff and splash-proof seat; edges rounded by vibratory grinding. Minimum stress resistance >1000N.

Tips
Especially suited for food and medical industries. All handle lengths and RAL shades are available on request.

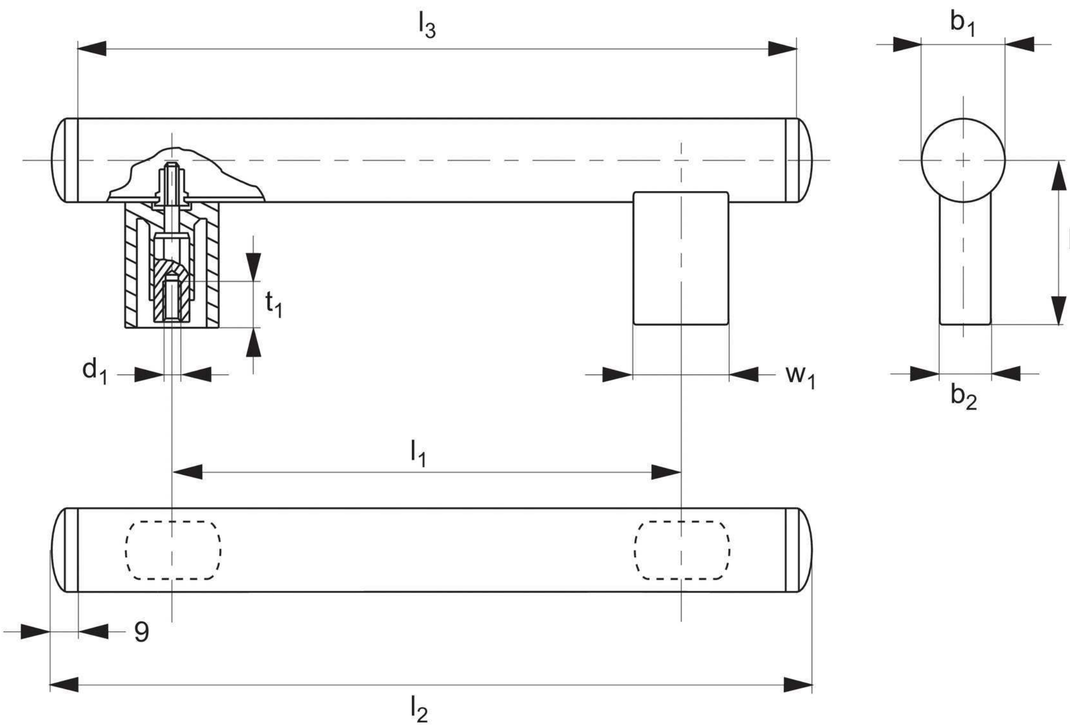
CLEAN LINE

Order No.	Type	l_1	l_2	d_1	h_1	a_1	a_2	b_1	b_2	w_1
79920.W0020	Narrow Shank	200	250	M 8	50	Ø30 x 1,5	33	15	45	25
79920.W0025	Narrow Shank	250	300	M 8	50	Ø30 x 1,5	33	15	45	25
79920.W0030	Narrow Shank	300	350	M 8	50	Ø30 x 1,5	33	15	45	25
79920.W0035	Narrow Shank	350	400	M 8	50	Ø30 x 1,5	33	15	45	25
79920.W0040	Narrow Shank	400	450	M 8	50	Ø30 x 1,5	33	15	45	25
79920.W0050	Narrow Shank	500	550	M 8	50	Ø30 x 1,5	33	15	45	25
79920.W0060	Narrow Shank	600	650	M 8	50	Ø30 x 1,5	33	15	45	25
79920.W0120	Wide Shank	200	250	M 8	70	Ø30 x 1,5	33	15	55	50
79920.W0125	Wide Shank	250	300	M 8	70	Ø30 x 1,5	33	15	55	50
79920.W0130	Wide Shank	300	350	M 8	70	Ø30 x 1,5	33	15	55	50
79920.W0135	Wide Shank	350	400	M 8	70	Ø30 x 1,5	33	15	55	50
79920.W0140	Wide Shank	400	450	M 8	70	Ø30 x 1,5	33	15	55	50
79920.W0150	Wide Shank	500	550	M 8	70	Ø30 x 1,5	33	15	55	50
79920.W0160	Wide Shank	600	650	M 8	70	Ø30 x 1,5	33	15	55	50

Tube Pull Handles

Clean line

79930



Material

Handle shank: polyamide (PA 6), glass bead reinforced, semi -gloss in RAL9002 grey white.
Handle tube: aluminium section, ALMgSi 0,5, Ø30x1,5mm, powered coated in RAL9002 grey white.
Tube holder and tube cap: polyamide PA6 glass ball reinforced in similar RAL colour shade.

Technical Notes

Non detatchable blind rivet nuts ensure that the handle tube cannot be torn out of its connection to the shank. Minimum stress resistance 800N.

Tips

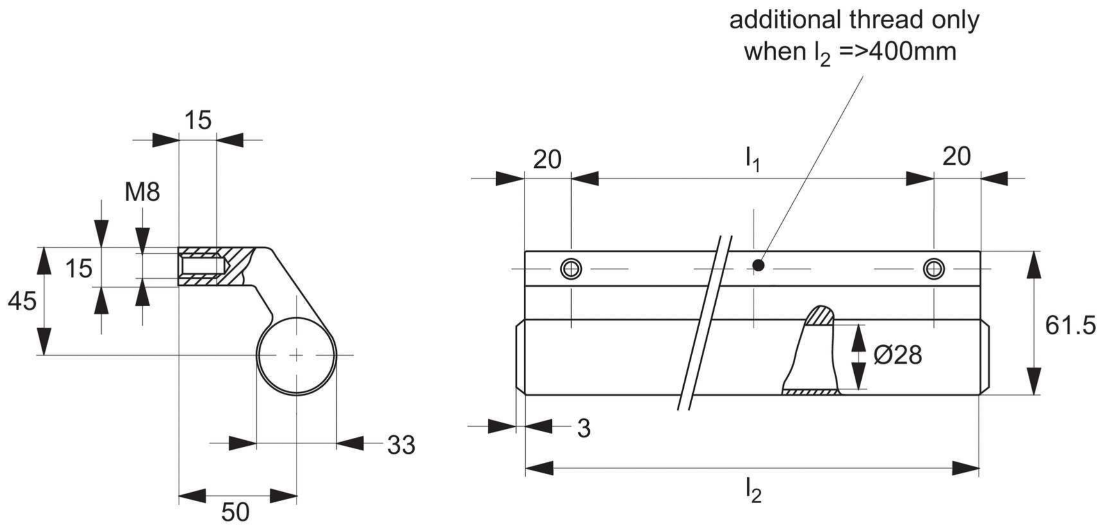
Especially suited for food and medical industries. All handle lengths and RAL shades are available on request.

Order No.	l_1	d_1	b_1	b_2	h_1	l_2	l_3	t_1	w_1
79930.W0200	200	M 6	30 x 1,5	20	60	288	270	17	34
79930.W0250	250	M 6	30 x 1,5	20	60	338	320	17	34
79930.W0300	300	M 6	30 x 1,5	20	60	388	300	17	34
79930.W0350	350	M 6	30 x 1,5	20	60	438	420	17	34
79930.W0400	400	M 6	30 x 1,5	20	60	488	470	17	34
79930.W0500	500	M 6	30 x 1,5	20	60	588	570	17	34
79930.W0600	600	M 6	30 x 1,5	20	60	688	670	17	34

Handle Offset

Clean line

79960



Order No.	l_1	l_2
79960.W0110	110	150
79960.W0160	160	200
79960.W0210	210	250
79960.W0260	260	300
79960.W0310	310	350
79960.W0360	360	400
79960.W0460	460	500
79960.W0560	560	600

Material
Aluminium section AlMgSi 0.5 powder coated in RAL 9002 grey white. Cover caps made of polyamide PA 6, glass-bead reinforced in similar colour shade.

Technical Notes
Minimum stress resistance >1000N.

Tips
Handles in a special heavy-duty design. All handle lengths and RAL shades available on request.

CLEAN LINE

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Technical Appendices

Disclaimer: While every effort has been made to ensure the accuracy of data, Wixroyd shall have no liability for any loss or damage suffered by any party, caused directly or indirectly, by the use of this data. If accuracy of such information is critical please double check with the relevant institution or body.

ov-technical-appendices - Updated - 12-01-2017

General Tolerances

DIN ISO 2768

DIN ISO 2768 part 1

Table 1

[1] For nominal sizes below 0,5mm, the limit deviations are to be indicated directly on the relevant nominal size(s).

Limit deviations for linear sizes with the exception of cut-off edges - values in mm (for radius of curvature and chamfer heights, please refer to table 2).

Tolerance class		Limit deviations for ranges of nominal sizes							
Symbol	Designation	From 0,51 - 3	Over 3 - 6	Over 6 - 30	Over 30 - 120	Over 120 - 400	Over 400 -1000	Over 1000 - 2000	Over 2000 - 4000
f	Fine	±0,05	±0,05	±0,1	±0,15	±0,2	±0,3	±0,5	-
m	Medium	±0,1	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2
c	Coarse	±0,2	±0,3	±0,5	±0,8	±1,2	±2	±3	±4
v	Very coarse	-	±0,5	±1	±1,5	±2,5	±4	±6	±8

Table 2

[1] For nominal sizes below 0,5mm, the limit deviations are to be indicated directly on the relevant nominal size(s).

Limit deviations for cut off edges - values in mm (radius of curvature and chamfer heights).

Tolerance class		Limit deviations for ranges of nominal sizes		
Symbol	Designation	From 0,51 - 3	Over 3 - 6	Over 6
f	Fine	±0,2	±0,5	±1
m	Medium			
c	Coarse	±0,4	±1	±2
v	Very coarse			

Table 3

Limit deviations for angular dimensions.

Tolerance class		Limit deviations for linear ranges, expressed in mm, for the shorter leg of the relevent angle				
Symbol	Designation	Up to 10	Over 10 - 50	Over 50 - 120	Over 120 - 400	Over 400
f	Fine	±1°	±0°30’	±0°20’	±0°10’	±0°05’
m	Medium					
c	Coarse	±1°30’	±1°	±0°30’	±0°15’	±0°10’
v	Very coarse	±3°	±2°	±1°	±0°30’	±0°20’

DIN ISO 2768 part 2

Table 1

General tolerances for straightness and evenness - values in mm.

Tolerance class	General tolerances for straightness and evenness for ranges of nominal sizes					
	Up to 10	Over 10 - 30	Over 30 - 100	Over 100 - 300	Over 300 - 1000	Over 1000
H	0,02	0,5	0,1	0,2	0,3	0,4
K	0,05	0,1	0,2	0,4	0,6	0,8
L	0,1	0,2	0,4	0,8	1,2	1,6

Table 2

General tolerances for perpendicularity - values in mm.

Tolerance class	Perpendicularity tolerances for ranges of nominal sizes			
	Up to 100	Over 100 - 300	Over 300 - 1000	Over 1000 - 3000
H	0,2	0,3	0,4	0,5
K	0,4	0,6	0,8	1
L	0,6	1,0	1,5	2

Table 3

General tolerances for symmetry - values in mm.

Tolerance class	Symmetry tolerances for ranges of nominal sizes			
	Up to 100	Over 100 - 300	Over 300 - 1000	Over 1000 - 3000
H	0,2	0,5	0,5	0,5
K	0,6	0,6	0,8	1
L	0,6	1,0	1,5	2

ov-general-tolerances - Updated - 25-09-2017

ISO 286-2 DIN 7154

Nominal sizes in mm — Deviation in µm

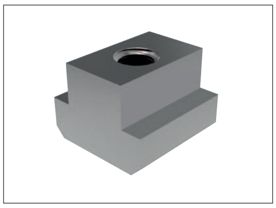
Tolerance zone	Limiting deviation	over 3	6	10	18	30	40	50	65	80	100	120	140	160	180	200	225	250	280	315	355	400	450	500	560	630	710	800	900
		incl. 6	10	18	30	40	50	65	80	100	120	140	160	180	200	225	250	280	315	355	400	450	500	560	630	710	800	900	1000
E6	Upper	+28	+34	+43	+53	+66		+79		+94		+110			+129			+142		+161		+175		+189		+210		+226	
	Lower	+20	+25	+32	+40	+50		+60		+72		+85			+100			+110		+125		+135		+145		+160		+170	
E7	Upper	+32	+40	+50	+61	+75		+90		+107		+125			+146			+162		+182		+198		+215		+240		+260	
	Lower	+20	+25	+32	+40	+50		+60		+72		+85			+100			+110		+125		+135		+145		+160		+170	
E11	Upper	+95	+115	+142	+170	+210		+250		+292		+335			+390			+430		+485		+535		+585		+660		+730	
	Lower	+20	+25	+32	+40	+50		+60		+72		+85			+100			+110		+125		+135		+145		+160		+170	
E12	Upper	+140	+175	+212	+250	+300		+360		+422		+485			+560			+630		+695		+765		+845		+960		+1070	
	Lower	+20	+25	+32	+40	+50		+60		+72		+85			+100			+110		+125		+135		+145		+160		+170	
E13	Upper	+200	+245	+302	+370	+440		+520		+612		+715			+820			+920		+1015		+1105		+1245		+1410		+1570	
	Lower	+20	+25	+32	+40	+50		+60		+72		+85			+100			+110		+125		+135		+145		+160		+170	
F6	Upper	+18	+22	+27	+33	+41		+49		+58		+68			+79			+88		+98		+108		+120		+130		+142	
	Lower	+10	+13	+16	+20	+25		+30		+36		+43			+50			+56		+62		+68		+76		+80		+86	
F7	Upper	+22	+28	+34	+41	+50		+60		+71		+83			+96			+108		+119		+131		+146		+160		+176	
	Lower	+10	+13	+16	+20	+25		+30		+36		+43			+50			+56		+62		+68		+76		+80		+86	
F8	Upper	+28	+35	+43	+53	+64		+76		+90		+106			+122			+137		+151		+165		+186		+205		+226	
	Lower	+10	+13	+16	+20	+25		+30		+36		+43			+50			+56		+62		+68		+76		+80		+86	
G6	Upper	+12	+14	+17	+20	+25		+29		+34		+39			+44			+49		+54		+60		+66		+74		+82	
	Lower	+4	+5	+6	+7	+9		+10		+12		+14			+15			+17		+18		+20		+22		+24		+26	
G7	Upper	+16	+20	+24	+28	+34		+40		+47		+54			+61			+69		+75		+83		+92		+104		+116	
	Lower	+4	+5	+6	+7	+9		+10		+12		+14			+15			+17		+18		+20		+22		+24		+26	
G8	Upper	+22	+27	+33	+40	+48		+56		+66		+77			+87			+98		+107		+117		+132		+149		+166	
	Lower	+4	+5	+6	+7	+9		+10		+12		+14			+15			+17		+18		+20		+22		+24		+26	
H6	Upper	+8	+9	+11	+13	+16		+19		+22		+25			+29			+32		+36		+40		+44		+50		+56	
	Lower	0	0	0	0	0		0		0		0			0			+0		0		0		0		0		0	
H7	Upper	+12	+15	+18	+21	+25		+30		+35		+40			+46			+52		+57		+63		+70		+80		+90	
	Lower	0	0	0	0	0		0		0		0			0			+0		0		0		0		0		0	
H8	Upper	+18	+22	+27	+33	+39		+46		+54		+63			+72			+81		+89		+97		+110		+125		+140	
	Lower	0	0	0	0	0		0		0		0			0			+0		0		0		0		0		0	
H9	Upper	+30	+36	+43	+52	+62		+74		+87		+100			+115			+130		+140		+155		+175		+200		+230	
	Lower	0	0	0	0	0		0		0		0			0			+0		0		0		0		0		0	
H10	Upper	+48	+58	+70	+84	+100		+120		+140		+160			+185			+210		+230		+250		+280		+320		+360	
	Lower	0	0	0	0	0		0		0		0			0			+0		0		0		0		0		0	
H11	Upper	+75	+90	+110	+130	+160		+190		+220		+250			+290			+320		+360		+400		+440		+500		+560	
	Lower	0	0	0	0	0		0		0		0			0			+0		0		0		0		0		0	
J6	Upper	+5	+5	+6	+8	+10		+13		+16		+18			+22			+25		+29		+33		-		-		-	
	Lower	-3	-4	-5	-5	-6		-6		-6		-7			-7			-7		-7		-7							
J7	Upper	+6	+8	+10	+12	+14		+18		+22		+26			+30			+36		+39		+43		-		-		-	
	Lower	-6	-7	-8	-9	-11		-12		-13		-14			-16			-16		-18		-20							
J8	Upper	+10	+12	+15	+20	+24		+28		+34		+41			+47			+55		+60		+66		-		-		-	
	Lower	-8	-10	-12	-13	-15		-18		-20		-22			-25			-26		-29		-31							
JS6	Upper	+4	+4,5	+5,5	+6,5	+8		+9,5		+11		+12,5			+14,5			+16		+18		+20		+22		+25		+28	
	Lower	-4	-4,5	-5,5	-6,5	-8		-9,5		-11		-12,5			-14,5			-16		-18		-20		-22		-25		-28	
JS7	Upper	+6	+7,5	+9	+10,5	+12,5		+15		+17,5		+20			+23			+26		+28,5		+31,5		+35		+40		+45	
	Lower	-6	-7,5	-9	-10,5	-12,5		-15		-17,5		-20			-23			-26		-28,5		-31,5		-35		-40		-45	
JS8	Upper	+9	+11	+13,5	+16,5	+19,5		+23		+27		+31,5			+36			+40,5		+44,5		+48,5		+55		+62,5		+70	
	Lower	-9	-11	-13,5	-16,5	-19,5		-23		-27		-31,5			-36			-40,5		-44,5		-48,5		-55		-62,5		-70	
K6	Upper	+2	+2	+2	+2	+3		+4		+4		+4			+5			+5		+7		+8		0		0		0	
	Lower	-6	-7	-9	-11	-13		-15		-18		-21			-24			-27		-29		-32		-44		-50		-56	
K7	Upper	+3	+5	+6	+6	+7		+9		+10		+12			+13			+16		+17		+18		+0		+0		+0	
	Lower	-9	-10	-12	-15	-18		-21		-25		-28			-33			-36		-40		-45		-70		-80		-90	
K8	Upper	+5	+6	+8	+10	+12		+14		+16		+20			+22			+25		+28		+29		+0		+0		+0	
	Lower	-13	-16	-19	-23	-27		-32		-38		-43			-50			-56		-61		-68		-110		-125		-140	
M6	Upper	-1	-3	-4	-4	-4		-5		-6		-8			-8			-9		-10		-10		-26		-30		-34	
	Lower	-9	-12	-15	-17	-20		-24		-28		-33			-37			-41		-46		-50		-70		-80		-90	
M7	Upper	0	0	0	0	0		0		0		0			0			0		0		0		-26		-30		-34	
	Lower	-12	-15	-18	-21	-25		-30		-35		-40			-46			-52		-57		-63		-96		-110		-124	
M8	Upper	+2	+1	+2	+4	+5		+5		+6		+8			+9			+9		+11		+11		-26		-30		-34	
	Lower	-16	-21	-25	-29	-34		-41		-48		-55			-63			-72		-78		-86		-136		-155		-174	
N6	Upper	-5	-7	-9	-11	-12		-14		-16		-20			-22			-25		-26		-27		-44		-50		-56	
	Lower	-13	-16	-20	-24	-28		-33		-38		-45			-51			-57		-62		-67		-88		-100		-112	
N7	Upper	-4	-4	-5	-7	-8		-9		-10		-12			-14			-14		-16		-17		-44		-50		-56	
	Lower	-16	-19	-23	-28	-33		-39		-45		-52			-60			-66		-73		-80		-114		-130		-146	
N8	Upper	-2	-3	-3	-3	-3		-4		-4		-4			-5			-5		-5		-6		-44		-50		-56	
	Lower	-20	-25	-30	-36	-42		-50		-58		-67			-77			-86		-94		-103		-154		-175		-196	
P6	Upper	-9	-12	-15	-18	-21		-26		-30		-36			-41			-47		-51		-55		-78		-88		-100	
	Lower	-17	-21	-26	-31	-37		-45		-52		-61			-70			-79		-87		-95		-122		-138		-156	
P7	Upper	-8	-9	-11	-14	-17		-21		-24		-28			-33			-36		-41		-45		-78		-88		-100	
	Lower	-20	-24	-29	-35	-42		-51		-59		-68			-79			-88		-98		-108		-148		-168		-190	
P8	Upper	-12	-15	-18	-22	-26		-32		-37		-43			-50			+142		-62		-68		-78		-88		-100	
	Lower	-30	-37	-45	-55	-65		-78		-91		-106			-122			+110		-151		-165		-188		-213		-240	
R6	Upper	-12	-16	-20	-24	-29		-35	-37	-44	-47	-56	-58	-61	-68	-71	-75	-89	-89	-97	-103	-113	-119	-150	-155	-175	-185	-210	-220
	Lower	-20	-25	-31	-37	-45		-54	-56	-66	-69	-81	-83	-86	-97	-100	-104	-121	-121	-133	-139	-153	-159	-194	-199	-225	-235	-266	-276
R7	Upper	-11	-13	-16	-20	-25		-30	-32	-38	-41	-48	-50	-53	-60	-63	-67	-78	-78	-87	-93	-103	-109	-150	-155	-175	-185	-210	-220
	Lower	-23	-28	-34	-41	-50		-60	-62	-73	-76	-88	-90	-93	-106	-109	-113	-130	-130	-144	-150	-166	-172	-220	-225	-225	-265	-300	-310

ISO 286-2 DIN 7154

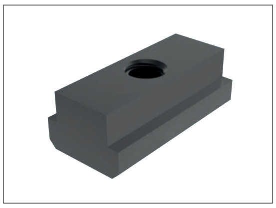
Tolerance zone	Limiting deviation	Nominal sizes in mm																					
	over	3	6	10	18	30	40	50	65	80	100	120	140	160	180	200	225	250	280	315	355	400	450
	incl.	6	10	18	30	40	50	65	80	100	120	140	160	180	200	225	250	280	315	355	400	450	500
		Deviation in µm																					
a12	Upper	-270	-280	-290	+300	-310	-320	-340	-360	-380	-410	-460	-520	-580	-660	-740	-820	-920	-1050	-1200	-1350	-1500	-1650
	Lower	-390	-430	-470	-510	-560	-570	-640	-660	-730	-760	-860	-920	-980	-1120	-1200	-1280	-1440	-1570	-1770	-1920	-2130	-2280
a13	Upper	-270	-280	-290	-300	-310	-320	-340	-360	-380	-410	-460	-520	-580	-660	-740	-820	-920	-1050	-1200	-1350	-1500	-1650
	Lower	-450	-500	-560	-630	-700	-710	-800	-820	-920	-950	-1090	-1150	-1210	-1380	-1460	-1540	-1730	-1860	-2090	-2240	-2470	-2620
c13	Upper	-70	-80	-95	-110	-120	-130	-140	-150	-170	-180	-200	-210	-230	-240	-260	-280	-300	-330	-360	-400	-440	-480
	Lower	-250	-300	-365	-440	-510	-520	-600	-610	-710	-720	-830	-840	-860	-960	-980	-1000	-1110	-1140	-1250	-1290	-1410	-1450
d6	Upper	-30	-40	-50	-65	-80		-100		-120		-145			-170			-190		-210		-230	
	Lower	-38	-49	-61	-78	-96		-119		-142		-170			-199			-222		-246		-270	
e6	Upper	-20	-25	-32	-40	-50		-60		-72		-85			-100			-110		-125		-135	
	Lower	-28	-34	+3	-53	-66		-79		-94		-110			-129			-142		-161		-175	
e13	Upper	-20	-25	-32	-40	-50		-60		-72		-85			-100			-110		-125		-135	
	Lower	-200	-245	-302	-370	-440		-520		-612		-715			-820			-920		-1015		-1105	
f5	Upper	-10	-13	-16	-20	-25		-30		-36		-43			-50			-56		-62		-68	
	Lower	-15	-19	-24	-29	-36		-43		-51		-61			-70			-79		-87		-95	
f6	Upper	-10	-13	-16	-20	-25		-30		-36		-43			-50			-56		-62		-68	
	Lower	-18	-22	-27	-33	-41		-49		-58		-68			-79			-88		-98		-108	
f7	Upper	-10	-13	-16	-20	-25		-30		-36		-43			-50			-56		-62		-68	
	Lower	-22	-28	-34	-41	-50		-60		-71		-83			-96			-108		-119		-131	
g5	Upper	-4	-5	-6	-7	-9		-10		-12		-14			-15			-17		-18		-20	
	Lower	-9	-11	-14	-16	-20		-23		-27		-32			-35			-40		-43		-47	
g6	Upper	-4	-5	-6	-7	-9		-10		-12		-14			-15			-17		-18		-20	
	Lower	-12	-14	-17	-20	-25		-29		-34		-39			-44			-49		-54		-60	
g7	Upper	-4	-5	-6	-7	-9		-10		-12		-14			-15			-17		-18		-20	
	Lower	-16	-20	-24	-28	-34		-40		-47		-54			-61			-69		-75		-83	
h4	Upper	0	0	0	0	0		0		0		0			0			0		0		0	
	Lower	-4	-4	-5	-6	-7		-8		-10		-12			-14			-16		-18		-20	
h5	Upper	0	0	0	0	0		0		0		0			0			0		0		0	
	Lower	-5	-6	-8	-9	-11		-13		-15		-18			-20			-23		-25		-27	
h6	Upper	0	0	0	0	0		0		0		0			0			0		0		0	
	Lower	-8	-9	-11	-13	-16		-19		-22		-25			-29			-32		-36		-40	
h7	Upper	0	0	0	0	0		0		0		0			0			0		0		0	
	Lower	-12	-15	-18	-21	-25		-30		-35		-40			-46			-52		-57		-63	
h8	Upper	0	0	0	0	0		0		0		0			0			0		0		0	
	Lower	-18	-22	-27	-33	-39		-46		-54		-63			-72			-81		-89		-97	
h9	Upper	0	0	0	0	0		0		0		0			0			0		0			
	Lower	-30	-36	-43	-52	-62		-74		-87		-100			-115			-130		-140			
h10	Upper	0	0	0	0	0		0		0		0			0			0		0		0	
	Lower	-48	-58	-70	-84	-100		-120		-140		-160			-185			-210		-230		-250	
h11	Upper	0	0	0	0	0		0		0		0			0			0		0		0	
	Lower	-75	-90	-110	-130	-160		-190		-220		-250			-290			-320		-360		-400	
h12	Upper	0	0	0	0	0		0		0		0			0			0		0		0	
	Lower	-120	-150	-180	-210	-250		-300		-350		-400			-460			-520		-570		-630	
j5	Upper	+3	+4	+5	+5	+6		+6		+6		+7			+7			+7		+7		+7	
	Lower	-2	-2	-3	-4	-5		-7		-9		-11			-13			-16		-18		-20	
j6	Upper	+6	+7	+8	+9	+11		+12		+13		+14			+16			+16		+18		+20	
	Lower	-2	-2	-3	-4	-5		-7		-9		-11			-13			-16		-18		-20	
j7	Upper	+8	+10	+12	+13	+15		+18		+20		+22			+25			+26		+29		+31	
	Lower	-4	-5	-6	-8	-10		-12		-15		-18			-21			-26		-28		-32	
js5	Upper	+2,5	+3	+4	+4,5	+5,5		+6,5		+7,5		+9			+10			+11,5		+12,5		+13,5	
	Lower	-2,5	-3	-4	-4,5	-5,5		-6,5		-7,5		-9			-10			-11,5		-12,5		-13,5	
js6	Upper	+4	+4,5	+5,5	+6,5	+8		+9,5		+11		+12,5			+14,5			+16		+18		+20	
	Lower	-4	-4,5	-5,5	-6,5	-8		-9,5		-11		-12,5			-14,5			-16		-18		-20	
js7	Upper	+6	+7,5	+9	+10,5	+12,5		+15		+17,5		+20			+23			+26		+28,5		+31,5	
	Lower	-6	-7,5	-9	-10,5	-12,5		-15		-17,5		-20			-23			-26		-28,5		-31,5	
k5	Upper	+6	+7	+9	+11	+13		+15		+18		+21			+24			+27		+29		+32	
	Lower	+1	+1	+1	+2	+2		+2		+3		+3			+4			+4		+4		+5	
k6	Upper	+9	+10	+12	+15	+18		+21		+25		+28			+33			+36		+40		+45	
	Lower	+1	+1	+1	+2	+2		+2		+3		+3			+4			+4		+4		+5	
k7	Upper	+13	+16	+19	+23	+27		+32		+38		+43			+50			+56		+61		+68	
	Lower	+1	+1	+1	+2	+2		+2		+3		+3			+4			+4		+4		+5	
m5	Upper	+9	+12	+15	+17	+20		+24		+28		+33			+37			+43		+46		+50	
	Lower	+4	+6	+7	+8	+9		+11		+13		+15			+17			+20		+21		+23	
m6	Upper	+12	+15	+18	+21	+25		+30		+35		+40			+46			+52		+57		+63	
	Lower	+4	+6	+7	+8	+9		+11		+13		+15			+17			+20		+21		+23	
m7	Upper	+16	+21	+25	+29	+34		+41		+48		+55			+63			+72		+78		+86	
	Lower	+4	+6	+7	+8	+9		+11		+13		+15			+17			+20		+21		+23	
n5	Upper	+13	+16	+20	+24	+28		+33		+38		+45			+51			+57		+62		+67	
	Lower	+8	+10	+12	+15	+17		+20		+23		+27			+31			+34		+37		+40	
n6	Upper	+16	+19	+23	+28	+33		+39		+45		+52			+60			+66		+73		+80	
	Lower	+8	+10	+12	+15	+17		+20		+23		+27			+31			+34		+37		+40	
n7	Upper	+20	+25	+30	+36	+42		+50		+58		+67			+77			+86		+94		+103	
	Lower	+8	+10	+12	+15	+17		+20		+23		+27			+31			+34		+37		+40	
p5	Upper	+17	+21	+26	+31	+37		+45		+52		+61			+70			+79		+87		+95	
	Lower	+12	+15	+18	+22	+26		+32		+37		+43			+50			+56		+62		+68	
p6	Upper	+20	+24	+29	+35	+42		+51		+59		+68			+79			+88		+98		+108	
	Lower	+12	+15	+18	+22	+26		+32		+37		+43			+50			+56		+62		+68	
r6	Upper	+23	+28	+34	+41	+50		+60	+62	+73	+76	+88	+90	+93	+106	+109	+113	+126	+130	+144	+150	+166	+172
	Lower	+15	+19	+23	+28	+34		+41	+43	+51	+54	+63	+65	+68	+77	+80	+84	+94	+98	+108	+114	+126	+132

ov-iso-tolerances-for-shafts - Updated - 25-09-2017

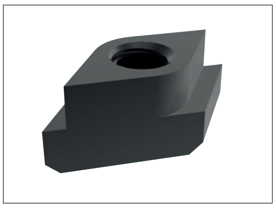
Tightening moments



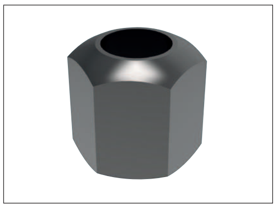
24000 - T-nuts DIN 508.



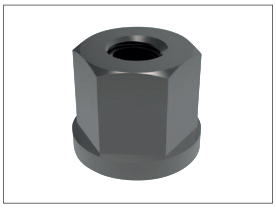
24100 - T-nuts extended.



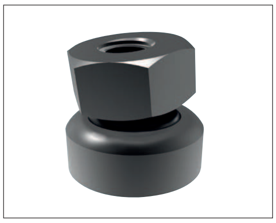
24120 - T-nuts rhombus.



24300 - Fixture-nuts DIN 6330.

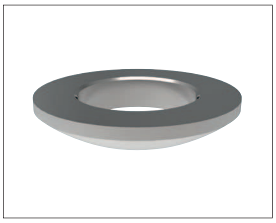


24400 - Collar nuts DIN 6331.



24620 - Swivel nuts.

24600 - Extension nuts.



25100 - 25500 - Spherical washers conical seats, DIN 6319.

21000 - T-bolts DIN 787.

21100 - Studs DIN 6379.

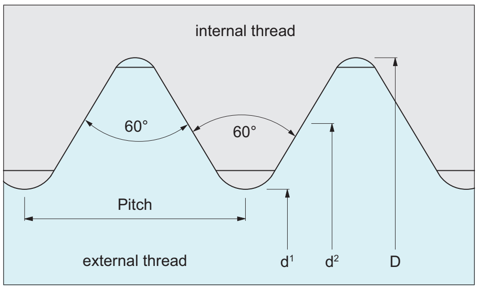
Thread		Strength class	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30	M36	M42	M48
Nuts Pitch	mm	class	1	1,25	1,50	1,75	2	2	2,50	2,50	2,50	3	3	3,50	4	4,50	5
Hardness, DIN 6330/6331	HRC	10	22 - 32														
Test Force (As-Sp) DIN ISO 898, part 2	kN	10	20,9	38,1	60	88	121	165	203	260	321	374	486	595	866	-	-
Screws																	
Hardness	HRC	8,8	22 - 32	23 - 34													
		10,9	32 - 39	32 - 39													
		12,9	39 - 44	39 - 44													
Tightening values																	
Specified failing load (A_s-R_m)	kN	8,8 10,9 12,9	16 21 24	29 38 45	46 60 71	67 88 103	92 120 140	125 163 192	159 200 234	203 255 299	252 315 370	293 367 431	381 477 560	466 583 684	678 850 997	930 1165 1367	1222 1531 1797
Permissable load on screws max. 80% of yield point	kN	8,8 10,9 12,9	10 14 17	19 27 32	30 43 51	43 63 74	59 86 101	80 118 138	101 144 169	129 184 215	160 228 266	186 265 310	242 345 404	296 421 493	431 614 719	591 843 986	777 1107 1296
Test Force (AS-SP) acc. to DIN ISO 898 part 1	kN	8,8 10,9 12,9	12 17 20	21 30 35	34 48 56	49 70 82	67 96 112	91 130 152	115 159 186	147 203 238	182 252 294	212 293 342	275 381 445	337 466 544	490 678 792	672 930 1087	882 1222 1428
Permissable prestressing force with 90% utilisation of yield point and friction μ = 0,14	kN	8,8 10,9 12,9	9 13 15	17 25 29	26 38 44	38 55 65	53 77 91	73 107 125	91 130 152	117 167 196	146 208 243	168 240 281	221 315 369	269 384 449	394 561 657	542 773 904	714 1018 1191
Required tightening moment for permissable prestressing force and friction μ = 0,14	Nm	8,8 10,9 12,9	10 14 17	25 36 43	46 67 79	82 120 141	130 191 223	206 302 354	284 405 474	407 580 679	542 772 903	698 994 1163	1021 1455 1703	1355 1930 2258	2372 3378 3953	3802 5415 6337	5730 8162 9571
Required lever length to obtain the permissable prestressing force with normal manual force	mm	8,8 10,9 12,9	30 42 51	65 90 110	125 175 210	215 300 360	330 450 550	490 700 830	650 920 1100	870 1200 1470	1100 1560 1860	1350 - -	- - -	- - -	- - -	- - -	- - -
Possible torque with normal ring spanner and torsional force. *Prestressing force resulting thereof	Nm kN	- -	60 54	80 53	90 48	100 45	110 43	125 43	140 43	150 42	170 42	185 43	225 45	240 43	300 45	330 46	410 50
*When applying this prestressing force, there is a danger of...		8,8 10,9 12,9	Breaking hazard		Yeilding hazard			Danger of loosening of clamped parts on application of operational forces									

A_s = nominal load cross section in mm² / Sp = test load in N/ mm² / R_m = minimum tensile strength in N/mm² / μ = coefficient of friction.

Table of Screw Threads

Standard threads

Diagram of thread



ISO metric fine threads (mm)

0. Dia. (D)	Core (d1)	Pitch (P)	Depth	Flat	Effec. (d2)	Tapp'g drill	Clearance drill
M8	6,773	1,00	0,6134	0,125	7,350	7,00	9,00
M10	8,467	1,25	0,7668	0,156	9,180	8,75	11,00
M12	10,467	1,25	0,7668	0,156	11,180	10,75	13,50
M16	14,160	1,50	0,9200	0,187	15,025	14,50	17,50
M20	18,160	1,50	0,9200	0,187	19,025	18,50	21,50
M24	21,546	2,00	1,2260	0,250	22,700	22,00	25,50
M30	27,546	2,00	1,2260	0,250	28,700	28,00	31,50
M36	32,319	3,00	1,8410	0,375	34,050	32,75	38,00
M42	38,265	3,00	1,8410	0,375	40,050	38,75	44,00
M48	44,280	3,00	1,8410	0,375	46,050	44,75	51,00
M56	51,093	4,00	2,4550	0,500	53,400	51,75	59,00
M64	59,065	4,00	2,4550	0,500	61,400	59,75	67,00

ISO metric coarse threads (mm)

0. dia. (D)	Core (d1)	Pitch (P)	Depth	Flat	Effec. (d2)	Tapp'g drill	Clearance drill
M1,6	1,1706	0,35	0,2147	0,04375	1,373	1,25	1,65
M1,8	1,3706	0,35	0,2147	0,04375	1,573	1,45	1,85
M2	1,5092	0,40	0,2454	0,05000	1,740	1,60	2,05
M2,2	1,6480	0,45	0,2760	0,05625	1,908	1,75	2,25
M2,5	1,9480	0,45	0,2760	0,05625	2,208	2,05	2,60
M3	2,3866	0,50	0,3067	0,06250	2,675	2,50	3,10
M3,5	2,7638	0,60	0,3681	0,07500	3,110	2,90	3,60
M4	3,1412	0,70	0,4294	0,08750	3,545	3,30	4,10
M4,5	3,5798	0,75	0,4601	0,09375	4,013	3,80	4,60
M5	4,0184	0,80	0,4908	0,10000	4,480	4,20	5,10
M6	4,7732	1,00	0,6134	0,12500	5,350	5,00	6,10
M7	5,7732	1,00	0,6134	0,12500	6,350	6,00	7,20
M8	6,4664	1,25	0,7668	0,15625	7,118	6.80	8,20
M10	8,5196	1,50	0,9202	0,18750	9,026	8,50	10,20
M12	9,8530	1,75	1,0735	0,21875	10,863	10,20	12,20
M14	11,5462	2,00	1,2259	0,25000	12,701	12,00	14,25
M16	13,5462	2,00	1,2269	0,25000	14,701	14,00	16,25
M18	14,9328	2,50	1,5336	0,31250	16,376	15,50	18,25
M20	16,9328	2,50	1,5336	0,31250	18,376	17,50	20,25
M22	18,9328	2,50	1,5336	0,31250	20,376	19,50	22,25
M24	20,3194	3,00	1,8403	0,37500	22,051	21,00	24,25
M27	23,3194	3,00	2,1470	0,37500	25,051	24,00	27,25
M30	25,7060	3,50	2,1470	0,43750	27,727	26,50	30,50
M33	28,7060	3,50	2,1470	0,43750	30,727	29,50	33,50
M36	31,0924	4,00	2,4538	0,50000	33,402	32,00	36,50
M39	34,0924	4,00	2,4538	0,50000	36,402	35,00	39,50
M42	36,4790	4,50	2,7605	0,56250	39,077	37,50	42,50
M45	39,4790	4,50	2,7605	0,56250	42,077	40,50	45,50
M48	41,8646	5,00	3,0672	0,62500	44,752	43,00	48,75
M52	45,8646	5,00	3,0672	0,62500	48,752	47,00	52,75
M56	49,2522	5,50	3,3739	0,68750	52,428	50,50	56,75
M60	53,2522	5,50	3,3739	0,68750	52,428	54,50	60,75
M64	56,6388	6,00	3,6806	0,75000	60,103	58,00	64,75
M68	60,6388	6,00	3,6806	0,75000	64,103	62,00	68,75

British Standard pipe threads (inch)

Size	0. dia. (D)	Core (d1)	Pitch (P)	Depth	Radius	Effec. (d2)	Threads per inch	Clearance drill
D	0,383	0,337	0,0357	0,0229	0,0049	0,3601	28	13/32
B	0,158	0,451	0,0526	0,0335	0,0072	0,4845	19	17/32
E	0,656	0,589	0,0526	0,0335	0,0072	0,6225	19	11/16
A	0,825	0,734	0,0714	0,0457	0,0098	0,7793	14	27/32
F	0,902	0,811	0,0714	0,0457	0,0098	0,8563	14	15/16
C	1,041	0,95	0,0714	0,0457	0,0098	0,9953	14	1-1/6
G	1,189	1,098	0,0714	0,0457	0,0098	1,1433	14	1-7/32
1	1,309	1,193	0,0909	0,0582	0,0125	1,2508	11	1-3/8
1B	1,650	1,534	0,0909	0,0582	0,0125	1,5918	11	1-11/16
1A	1,882	1,766	0,0909	0,0582	0,0125	1,8238	11	1-29/32
1C	2,116	2,000	0,0909	0,0582	0,0125	2,0578	11	2-5/32
2	2,347	2,231	0,0909	0,0582	0,0125	2,2888	11	2-3/8

Conversion Tables

Unit of measure

Temperature

To convert from:	To:	Substitute in formula
Degrees celcius	Degrees fahrenheit	(°C x 9/ 5) +32
Degrees celcius	Kelvin	(°C + 273,16)
Degrees fahrenheit	Degrees celcius	(°F-32) x 5/ 9
Degrees fahrenheit	Degrees rankin	(°F + 459,69)

Torque

To convert from: To:	Newton metres	Kilogram force metres	Foot pounds	Inch pounds
Newton metres	1	0,1020	0,7376	8,651
Kilogram force metres	9,807	1	7,233	86,80
Foot pounds	1,356	0,1383	1	12,00
Inch pounds	0,1130	0,01152	0,08333	1

Force

To convert from: To:	Kilonewtons	Kilogram force	Pound force	Poundals
Kilonewtons	1	102,0	224,8	7233
Kilogram force	0,009807	1	2,205	70,93
Pound force	0,004448	0,4536	1	32,17
Poundals	0,0001383	0,01410	0,03108	1

Density

To convert from: To:	Grams per millilitre	Kgs per cubic metre	Pounds per cubic foot	Pounds per cubic inch
Grams per millimetre	1	1000	62,43	0,03613
Kilograms per cubic metre	0,001000	1	0,06243	0,00003613
Kilograms per cubic foot	0,01602	16,02	1	0,0005787
Pounds per cubic inch	27,68	27,680	1728	1

Length

To convert from: To:	Metres	Inches	Feet	Millimetres	Miles	Kilometers
Metres	1	39,37	3,2808	1000	0,0006214	0,001
Inches	0,0254	1	0,0833	25,4	0,00001578	0,0000254
Feet	0,3048	12	1	304,8	0,0001894	0,0003048
Millimetres	0,001	0,03937	0,0032808	1	0,0000006214	0,000001
Miles	1609,35	63,360	5,286	1,609,350	1	1,60935
Kilometres	1,000	39,370	3280,83	1,000,000	0,62137	1

Volume

To convert from: To:	Cubic decimetres (litres)	Cubic inches	Cubic feet	US quart	US gallon	Imperial gallon	US barrel (petroleum)
Cubic decimetres (litres)	1	61,0234	0,03531	1,05668	0,264178	0,220083	0,00629
Cubic inches	0,01639	1	5,787x10-4	0,1732	0,004329	0,003606	0,000103
Cubic feet	28,317	1728	1	29,9221	7,48055	6,22888	0,1781
US quart	0,94636	57,75	0,03342	1	0,25	0,2062	0,00595
US gallon	3,78543	231	0,13368	4	1	0,833	0,02381
Imperial gallon	4,54374	277,274	0,16054	4,80128	1,20032	1	0,02877
US barrel (petroleum)	158,98	9702	5,6146	168	42	34,973	1

Pressure

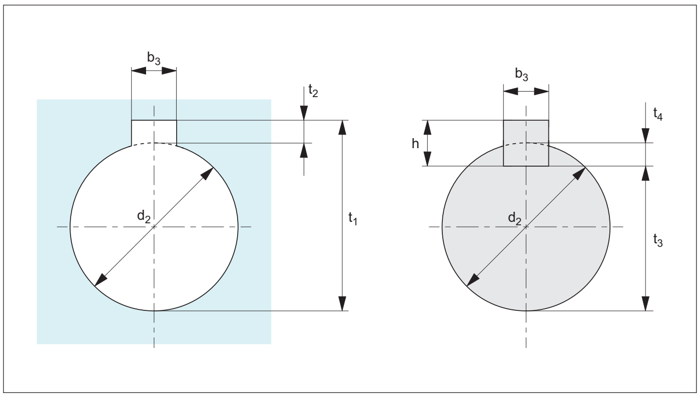
To convert from: To:	Pounds per square inch	Inches of water Column	Feet of water column	Inches of mercury	Ounces per square inch	Bar	Millibar mBar	Kilo-pascals kPa	Kilograms per square centimetre
Pounds per square inch	1	27,68	2,307	2,036	16	0,06895	68,95	6,895	0,0703
Inches of water column	0,0361	1	0,8333	0,7355	0,5776	0,002491	2,491	0,2491	0,00254
Feet of water column	0,4336	12	1	0,8826	6,936	0,02989	29,89	2,989	0,0305
Inches of mercury	0,4911	13,60	1,133	1	7,858	0,03386	33,86	3,386	0,03453
Ounces per square inch	0,9625	1,73	0,144	0,127	1	0,00431	4,309	0,4309	0,0044
Bar	14,50	401,5	33,45	29,53	232	1	1000	100	1,020
Millibar mBar	0,0145	0,4015	0,03345	0,02953	0,232	0,001	1	0,100	0,00102
Kilopascals kPa	0,1450	4015	0,3345	0,2953	2,32	0,01	10	1	0,0102
Kilograms per square cm	14,22	393,7	32,81	28,96	227,5	0,9807	980,7	98,07	1

Volumetric rate of flow

To convert from: To:	Litres per second	Litres per minute	Cubic metres per hour	Cubic feet per hour	Gallons per minute	Imperial gallons per minute	US gallons per minute	US barrels per day (24US gal)
Litres per second	1	60	3,600	127,1	21,19	13,20	15,85	543,4
Litres per minute	0,1667	1	0,06000	2,119	0,03532	0,2200	0,2642	9,057
Cubic metres per mour	0,2778	16,67	1	35,31	0,5886	3,666	4,403	150,9
Cubic feet per hour	0,007865	0,4719	0,02832	1	0,01667	0,1038	0,1247	4,275
Gallons per minute	0,4719	28,32	1,6999	60,00	1	6,229	7,481	256,5
Imperial gallon per minute	0,07577	4,546	0,2727	9,633	0,1606	1	1,201	41,17
US gallons per minute	0,06309	3,785	0,2271	8,021	0,1337	0,8327	1	34,29
US barrels per day (24US gal)	0,001840	0,1104	0,006624	0,2339	0,003899	0,02428	0,02917	1

ov-conversion-tables - Updated - 25-09-2017

Keyways to DIN 6885 - Sheet 1



d_2	b P9/JS9 hole	b P9/N9 shaft	h	$t_1 = d_2 + t_2$	t_2	$t_3 = d_2 - t_4$	t_4
7	2	2	2	8	1+0,1	5,8	1,2+0,1
8	2	2	2	9	1	6,8	1,2
9	3	3	3	10,4	1,4	7,2	1,8
10	3	3	3	11,4	1,4	8,2	1,8
11	4	4	4	12,8	1,8	8,5	2,5
12	4	4	4	13,8	1,8	9,5	2,5
13	5	5	5	15,3	2,3	10	3
14	5	5	5	16,3	2,3	11	3
15	5	5	5	17,3	2,3	12	3
16	5	5	5	18,3	2,3	13	3
17	5	5	5	19,3	2,3	14	3
18	6	6	6	20,8	2,8	14,5	3,5
20	6	6	6	22,8	2,8	16,5	3,5
22	6	6	6	24,8	2,8	18,5	3,5
24	8	8	7	27,3	3,3+0,2	20	4+0,2
25	8	8	7	28,3	3,3	21	4
26	8	8	7	29,3	3,3	22	4
28	8	8	7	31,3	3,3	24	4
30	8	8	7	33,3	3,3	26	4
32	10	10	8	35,3	3,3	27	5
34	10	10	8	37,3	3,3	29	5
35	10	10	8	38,3	3,3	30	5
36	10	10	8	39,3	3,3	31	5
38	10	10	8	41,3	3,3	33	5
40	12	12	8	43,3	3,3	35	5
42	12	12	8	45,3	3,3	37	5
44	12	12	8	47,3	3,3	39	5

Commonly accepted symbols and abbreviations

Term	Abbreviation or symbols	Term	Abbreviation or symbols
Across flats	AF	Number	No
Assembly	ASSY	Pattern number	PATT NO.
British Standard	BS	Pitch circle diameter	PCD
Centres	CRS	Radius (in a note)	RAD
Centre line on a view	C	Radius (preceding a diameter)	R *
Centre line in a note	CL	Reference	REF
Centre of gravity	CG	Required	REQD
Chamfered, chamfer (in a note)	CHAM	Right hand	RH
Cheese head	CH HD	Round head	RD HD
Countersink	CSK	Screw (or screwed)	SCR
Countersunk head	CSK HD	Sheet	SH
Counterbore	CBORE	Sketch	SK
Cylinder or cylindrical	CYL	Specification	SPEC
Diameter (in a note)	DIA	Spherical	SPHERE
Diameter (preceding a dimension)	Ø *	Spherical diameter (only preceding a dimension)	SØ*
Dimension	DIM.	Spherical radius (only preceding a dimension)	SR*
Drawing	DRG		
Equally spaced	EQUI SP	Spotface	SFACE
External	EXT	Square (in a note)	SQ
Figure	FIG.	Square (preceding a dimension)	* or
Full indicated movement	FIM		
Hexagon	HEX	Standard	STD
Hexagon head	HEX HD	Taper, on diameter or width	*(orientated to direction of taper)
Insulated or insulation	INSUL	Thread	THD
Internal	INT	Thick	THK
Left hand	LH	Tolerance	TOL
Long	LG	Typical or typically	TYP
Machine	MC	Undercut	UCUT
Material	MATL	Volume	VOL
Maximum	MAX	Weight	WT
Maximum material condition	MMC		
Minimum	MIN		
Not to scale (A dimension not to scale underlined)	NTS	*These symbols are recognised internationally	

Wixroyd quality materials

Wixroyd hand tools are made in a strict quality controlled environment, ensuring a continually high standard of product. Buying the best quality now saves time and money normally caused by the failure of low quality alternatives. The low quality alternatives are a false economy in the long run.

Chrome-vanadium steel of the highest quality is used to make these products, and is either blackened or nickel plated. In addition, our hexagon keys are chamfered to provide a quality you can feel.

A/F of hex keys and screw sizes

A/F mm	Test torque		Min hardness HRC	Hexagon headed screws				
	Hexagon Nm	Ball ended Nm		ISO 4762 (DIN 912)	DIN 6912	DIN 7984	ISO 10642 (DIN 7991)	ISO 4026-4029 DIN 913-916
0,7	0,08	-	52-55	-	-	-	-	M1,4 M1,6 (M1,8)
0,9	0,18	-	52-55	-	-	-	-	M2
1,3	0,53	-	52-55	(M1,4)	-	-	-	M2,5
1,5	0,82	0,40	52-55	M1,6 M2	-	-	-	M3
2,0	1,90	0,98	52-55	M2,5	-	M3	M3	M4
2,5	3,80	1,60	52-55	M3	-	M4	M4	M5
3	6,60	2,90	52-55	M4	M4	M5	M5	M6
4	16	6,40	52-55	M5	M5	M6	M6	M8
5	30	12	52-55	M6	M6	M8	M8	M10
6	52	21	52-55	M8	M8	-	M10	M12 (M14)
7	78	-	50-54	-	-	M10	-	-
8	120	50	50-54	M10	M10	M12	M12	M16
10	220	92	48-52	M12	M12	M14	M14 M16	(M18) M20
12	370	250	48-52	M14	M14	M16 M18	(M18) M20	(M22) M24
14	590	-	48-52	M16 M18	M16 M18	M20 M22	(M22 M24)	-
17	980	-	45-50	M20 (M22)	M20 M22	M24	-	-
19	1360	-	45-50	M24 (M27)	M24 M27	-	-	-
22	2110	-	45-50	M30	M30	-	-	-
24	2750	-	45-50	M33	M33	-	-	-
27	3910	-	45-50	M36	M36	-	-	-
32	6510	-	45-50	M42	-	-	-	-
36	9260	-	45-50	M48	-	-	-	-

*** Special Screws () no ISO Standard.**

Torx key and screw sizes

Torx®			Torx® headed screws								
			Metric (M)						Sheet metal		
Size	mm	Nm	DIN 4762 DIN 912	DIN 963 DIN 965	DIN 964 DIN 966	DIN 7984 DIN 6912	DIN 7985	DIN 7991	DIN 7981	DIN 7972 DIN 7982	DIN 7973 DIN 7983
T6	1,70	0,75	*	*	*	*	*	*	*	*	*
T7	1,99	1,4	*	*	*	*	*	*	*	*	*
T8	2,31	2,2	2,5	2,5	2,5	-	2,5	-	2,9	2,9	2,9
T9	2,50	2,8	*	*	-	-	-	-	-	-	-
T10	2,74	3,7	3	3	3	3	3	3	3,5	3,5	3,5
T15	3,27	6,4	*	3,5	3,5	-	3,5	-	3,9	3,9	3,9
T20	3,86	10,5	4	4	4	4	4	4	4,2	4,2	4,2
T25	4,43	15,9	5	5	5	5	5	5	4,8 / 5,5	4,8 / 5,5	4,8 / 5,5
T27	4,99	22,5	*	*	*	*	*	*	*	*	*
T30	5,52	31,1	6	6	6	6	6	6	6,3	6,3	6,3
T40	6,65	54,1	8	8	8	8	8	8	-	-	-
T45	7,82	86,2	*	*	*	*	*	*	*	*	*
T50	8,83	132	10	10	10	10	10	10	-	-	-
T55	11,22	252	12	-	-	12	-	12	-	-	-

*** Special Screws.**

Related Steel Specifications

Carbon steel

Steel	BS 970 1991	BS 970 1983	BS 970 1955 En	AISI/SAE	WERK-STOFF	KURZ-NAME
040A04	040A04	040A04	2A, 2A/1, 2B	1006	1,0313	D 8-2
040A10	040A10	040A10	2A	1010	1,0301	Ck 10
040A12	040A12	030A12	2A, 2A/1, 2B	1012		
040A15		040A15		1015	1,0401	C 15
040A22			2C, 2D	1023	1,0402	C 22
045A10	045A10	045A10		1010	1,0301	C 10
045M10	045M10	045M10	32A	1010	1,0301	C 10
050A20			2C, 2D	1020		
055M15	055M15	055M15	2	1016	1,0402	C 22
060A32		060A32		1035	1,1180	Cm 35
060A40		060A40		1040	1,1186	Ck 40
060A45		060A45		1045	1,1191	Ck 45
060A47		060A47		1045	1,1191	Ck 45
060A57		060A57		1055	1,0535	C 55
060A62	060A62	060A62	43D	1060	1,0601	C 60
060A67	060A67	060A67		1064		
060A72	060A72	060A72				
060A78	060A78	060A78				
060A81	060A81	060A81		1080		
060A96			44, 44B			
070A72			42	1070		
070A78			42			
070M20	070M20	070M20	3B	1020	1,0402	C 22
070M26		070M26		1026		
070M55	070M55	070M55	9	1055	1,0535	C 55
080A15	080A15	080A15	3B	1016	1,1141	C 15
080A20	080A20			1021		
080A30	080A30	080A30	5B	1030		
080A32		080A32	5C	1035	1,1180	Cm 35
080A35		080A35	8A	1035	1,1180	Cm 35
080A37		070A37	8B	1035		
080A40		080A40	8C	1040	1,1186	Ck 40
080A42	080A42	080A42	8D	1042		
080A47	080A47	080A47	43B	1046	1,1730	C 45
080A52		080A52	43C	1053		
080A57		080A57		1055	1,05335	C 55
080A67	080A67	080A67	43E	1065		C 67
080H36		080H36		1035		
080H41		080H41		1039		
080H46		080H46		1046		
080M15	080M15	080M15	32C	1016	1,1141	C 15
080M30	080M30	080M30	6	1030	1,1178	Ck 30
080M36		080M36		1035		
080M40	080M40	080M40	8	1040	1,1186	Ck 40
080M46		080M46		1045	1,1191	Ck 45
080M50	080M50	080M50	43A	1049		

Carbon and carbon manganese freecutting steels

210A15	210A15	210A15		1117		
210M15	210M15	210M15	32M	1117	1,0723	15 S 20
212A37		212A37	8BM			
212A42	212A42	212A42	8DM	1139	1,0727	45 S 20
212M36		212M36	8M	1140	1,0726	35 S 20
214A15	214A15	214A15		1118		
214M15	214M15	214M15	202	1118		
216M28		216M28		1132		
216M36	216M36	216M36	15AM	1137		
216M44		216M44				
220M07		220M07	1A	1113	1,0711	9 S 20
225M36		225M36				
226M44	226M44	226M44	8M	1144	1,0727	45 S 20
230M07	230M07	230M07	1A	1213	1,0715	9 SMn 28
230M07Pb	230M07Pb	230M07Pb	1A Pb	12L14	1,0718	9 SMnPb 28

Stainless and heat resisting steels

302S31	302S31	302S31		302		
303S31	303S31	303S31	58M	303	1,4305	X10 CrNis 18 9
303S42	303S42	303S42	58AM	303Se	1,4305	X10 CrNis 18 9
304S11	304S11	304S11		304L	1,4306	X2 CrNi 19 11
304S15	304S15	304S15	58E	304	1,4301	X5 CrNi 18 10
304S31	304S31	304S31		304	1,4301	X5 CrNi 18 10
310S31	310S31	310S31		310	1,4845	X12 CrNi 25 21
316S11	316S11	316S11		316L	1,4404	X2 CrNiMo 17 13 2
316S13	316S13	316S13		316L	1,4435	X2 CrNiMo 18 14 3
316S31	316S31	316S31		316	1,4401	X5 CrNiMo 17 12 2
316S33	316S33	316S33		316	1,4436	X5 CrNiMO 17 13 2
320S31	320S31	320S31		316Ti	1,4571	X6 CrNiMoTi 17 12 2
321S31	321S31	321S31		321	1,4541	X6 CrNiTi 18 10
325S31	325S31	325S31				
326S36			58JM	316Se		
347S31	347S31	347S31		347	1,4550	X6 CrNiNb 18 10
403S17	403S17	403S17		403	1,4000	X6 Cr 13
410S21	410S21	410S21	56A	410S	1,4006	X10 Cr 13
416S21	416S21	416S21	56AM	416	1,4005	X12 Cr S 13
416S29	416S29	416S29	56BM			
416S37	416S37	416S37	56CM			
416S41	416S41	416S41	56AM	416Se		
420S29	420S29	420S29	56B	420	1,4021	X20 Cr 13
420S37	420S37	420S37	56C			
430S17	430S17	430S17		430	1,4016	X6 Cr 17
431S29	431S29	431S29	57	431	1,4057	X20 CrNi 17 2

Alloy steels

Steel	BS 970 1991	BS 970 1983	BS 970 1955 En	AISI/SAE	WERK-STOFF	KURZ-NAME
523H15	523H15	523H15		5015	1,7012	13 Cr 2
523M15	523M15	523M15		5015	1,7015	15 Cr 3
527A17	527A17	527A17		5115		
527A60			48	5160	1,7176	55 Cr 3
527H17	527H17	527H17		5115		
527H60				5160	1,7176	55 Cr 3
527M17	527M17	527M17		5115		
530A30		530A30	18A	5130	1,7030	28 Cr 4
530A32		530A32	18B	5130	1,7033	34 Cr 4
530A36		530A36	18C	5132	1,7034	37 Cr 4
530A40		530A40	18D	5140	1,7035	41 Cr 4
530H32		530H32		5130	1,7033	34 Cr 4
530H36		530H36		5132	1,7034	37 Cr 4
530H40		530H40		5140	1,7035	41 Cr 4
530M40	530M40	530M40	18	5140	1,7035	41 Cr 4
534A99		534A99	31	52100	1,3505	100 Cr 6
590A15	590A15	590A15			1,7131	16 Mn Cr 5
590H17	590H17	590H17			1,7131	16 Mn Cr 5
590M17	590M17	590M17			1,7131	16 Mn Cr 5
605A32		605A32	16B			
605A37		605A37	16C			
605H32		605H32				
605H37		605H37				
605M36	605M36	605M36	16			
606M36	606M36	606M36	16M			
635A14	635A14	635A14				
635H15	635H15	635H15				
635M15	635M15	635M115	351			
637A16	637A16	637A16				
637H17	637H17	637H17				
637M17	637M17	637M17	352			
655H13	655H13	655H13		3415	1,5752	14 NiCr 14
655M13	655M13	655M13	36	3415	1,5752	14 NiCr 14
665H17	665H17	665H17		4615		
665H20	665H20	665H20		4620H		
665H23	665H23	665H23				
665M17	665M17	665M17	34	4615		
665M20	665M20	665M20		4620		
665M23	665M23	665M23	25			
708A25		708A25				
708A30		708A30		4130		
708A37		708A37	19B	4137	1,7220	34 CrMo 4
708A40		708A40		4140	1,7225	42 CrMo 4
708A42		708A42	19C	4142	1,7225	42 CrMo 4
708A47		708A47		4147	1,7228	50 CrMo 4
708H20	708H20	708H20				
708H37		708H37		4137H	1,722	34 CrMo 4
708H42		708H42		4142H	1,7227	42 CrMo 4
708H45		708H45		4145H		
708M20	708M20	708M20				
708M40	708M40	708M40	19	4140	1,7225	42 CrMo 4
709M40	709M40	709M40	19		1,7225	42 CrMo 4
720M32	720M32	720M32			1,7361	32 CrMo 12
722M24	722M24	722M24	40B		1,7361	32 CrMo 12
735A50			47	6150	1,8159	50 CrV 4
805A17	805A17	805A17		8617	1,6523	21 NiCrMo 2
805A20	805A20	805A20		8620	1,6543	21 NiCrMo 22
805A22	805A22	805A22		8622	1,6543	21 NiCrMo 22
805A60				8660		
805H17	805H17	805H17		8617H	1,6523	21 NiCrMo 2
805H20	805H20	805H20		8620H	1,6543	21 NiCrMo 22
805H22	805H22	805H22		8622H	1,6543	21 NiCrMo 22
805H60		805H60*		8660H		
805M17	805M17	805M17	361	8617	1,6523	21 NiCrMo 2
805M20	805M20	805M20	362	8620	1,6543	21 NiCrMo 22
805M22	805M22	805M22		8622	1,6543	21 NiCrMo 22
808H17	808H17	808H17				
808M17	808M17	808M17				
815H17	815H17	815H17				
805M17	815M17	805M17	353			
817A37		817A37		4340		
817A42		817A42		4340		
817M40	817M40	807M40	24	4340	1,6565	40 CrNiMo 6
820H17	820H17	820H17				
820M17	820M17	820M17	354			
822H17	822H17	822M17				
822M17	822M17	822M17	355			
826M31	826M31	826M31	25		1,6743	32 NiCrMo 10 4
826M40	826M40	826M40	26		1,6745	40 NiMoCr 10 5
832H13	832H13	832H13			1,6657	14 NiCrMo 13 4
832M13	832M13	832M13	36C	9310	1,6657	14 NiCrMo 13 4
835H15	835H15	835H15			1,6723	15 NiCrMo 16 5
835M15	835M15	835M15	39B		1,6723	15 NiCrMo 16 5
835M30		835M30	30B		1,6747	30 NiCrMo 16 6
897M39	897M39	897M39	40C		1,8523	39 CrMoV 13 9
905M39	905M39	905M39	41B		1,8509	41 CrAlMo 7
925A60		925A60*				
945M38	945M38	945M38	100			

Austenitic steels are non-magnetic and it is not possible to harden them by heat treatment. The only method of hardening these steels is through cold forming or deformation when strain hardening takes place rapidly. The steel can be restored to a fully softened condition by annealing, often referred to as solution treatment.

Chemical agent	Stainless steel	
	Grade 316	Grade 303
Acetaldehyde	A	A
Acetic acid	A	A
Acetone	A	A
Acetylene gas	A	A
Aluminium chloride	C	C
Ammonia, aqueous liquid	A	A
Ammonium chloride	A	B
Anlline	A	A
Benzene (Benzol)	A	A
Borax solutions	A	A
Butane	A	A
Butyl acetate	A	A
Butyl alcohol	A	A
Calcium chloride	A	B
Calcium hydroxide	A	A
Carbon tetrachloride	A	A
Chloroform	A	A
Chromic acid	B	C
Citric acid	A	A
Cyclohexane	A	A
Diesel oil	A	B
Ethayl acetate	A	A
Ethyl alcohol	A	A
Ethylene glycol	A	A
Ferric chloride	B	C
Formic acid	A	B
Freon 1	B	B
Freon 21	N/A	N/A
Freon 22	N/A	N/A
Gasoline	A	A
Glycerine	A	A
Hydrogen gas	N/A	N/A
Hydrogen peroxide	A	B
Hydrogen sulphide	A	B
Kerosene	A	A
Lye	A	A
Lubricating oils SAE	A	A
Magnesium chloride	A	B
Magnesium sulphate	A	A
Methane	A	A
Methyl alcohol	A	A
Motor oil	A	A
Naphtha	A	A
Nitric acid	A	A
Phosphoric acid	A	A
Potassium dichromate	A	A
Potassium hydroxide	A	A
Sodium carbonate	A	A
Sodium hydroxide	A	A
Sodium hypochloride	A	B
Sodium sulphate	A	A
Steam	A	A
Stearic acid	A	A
Sulphur dioxide gas	B	B
Sulphuric acid	A	C
Toluene	N/A	N/A
Trichloroethylene	A	A
Turpentine	A	A
Vegetable oils	A	A
Vinyl acetate	N/A	N/A
Water	A	A
Xylene	N/A	N/A
Zinc chloride	B	C

Type AISI 303 S21 (form EN58AM)

Colour Code: White (Austenitic - non magnetic). Free machining quality (contains sulphur). Good corrosion resistance and weldability is fair, but oxy-acetylene is not generally recommended. Can be cold formed but severe sharp corner bends should be avoided.

Typical application - repetitive machining, automatics etc.

Type AISI 304 S15 (form EN58E)

Colour Code: Yellow (Austenitic - non magnetic). General purpose stainless, machineability is fair, has good general corrosion resistance, weldability is good. (Oxy-acetylene is not generally recommended.) Cold forming is very good: also has good polishing qualities. Non-magnetic when annealed, slightly magnetic when cold worked.

Typical application - suitable for general engineering, hospital, laundry etc.

Type AISI 316 S16 (form EN58J)

Colour Code: Red (Austenitic - non-magnetic). High corrosion resistance, especially salt water/acid. Machineability fair. Weldability good. Cold forming good. Non-magnetic when annealed, slightly magnetic when cold worked.

A - Good Resistance
B - Medium Resistance
C - Low Resistance
N/R - Not Recommended
N/A - Information not available

Material Specification and Properties

for austenitic stainless steel fasteners

Austenitic stainless steel fasteners

Stainless steel fasteners are specified in BS EN ISO 3506.

Chemical compositions

The chemical compositions of austenitic stainless steel fasteners with the designations A1, A2 & A4 are shown in table 1.

Table 1

Chemical Compositions for Austenitic Stainless Steel Fasteners.

Grade	Chemical composition (% maxima unless stated)									Types included
	C	Si	Mn	S	P	Cr	Mo	Ni	Cu	
A1	0.12	1	6.5	0.15-0.35	0.20	16-19	0.7	5-10	1.75-2.25	303, 1.4305
A2	0.1	1	2	0.03	0.05	15-20	-	8-19	4	304,349S17 (BS3111) 1.4567
A4	0.08	1	2	0.03	0.045	16-18.5	2-3	10-15	1	316,396S17 (BS3111)

Table 2

Mechanical Properties for A1, A2 and A4 Austenitic Stainless Steel Bolts, Screws, Studs and Nuts.

Property class	Bolts, screws and studs					Nuts
	Diameter range	Tensile strength R_m (Nmm^{-2})	0.2% Proof stress $R_{p0.2}$ (Nmm^{-2})	Elongation A (mm)		Stress under proof load S_p (Nmm^{-2})
50 Annealed	<M39	500	210	0.6d		500
70 Cold drawn	<M24	700	450	0.4d		700
80 Hard cold drawn	<M24	800	600	0.3d		800

Notes

The most common and readily available supply condition is property class 70, which represents a “cold drawn” for the bar stock from which the fasteners are made.

Wixroyd 0845 26 66 577 info@wixroyd.com

Duroplast

1. **All the values reported in the tables are the result of tests carried out in our laboratories under controlled temperate and humidity (23C - 58% rh) in given conditions of use for a relatively limited time. The technical designer should consider using an adequate safety factor for particularly heavy conditions of use.**
2. **"Max. limit static load" means the value over which the applied load to the element, in certain conditions of use, may cause material deformation. To establish the admissible load on the element, designers should consider an appropriate safety factor according to specific conditions of use to vibrations, and dynamic loads.**

●	Good resistance
❐	Fair resistance (limited use according to working conditions)
❐	Poor resistance (should not be used)
N.B	Blanks stand for data not available

Chemical agents resistance	Duroplast (PF) 23C	Painted Duroplast clean 23C
Alcohol (methanol, ethanol, isopropanol, ...)	●	●
Boiling water	❐	❐
Edible oils	●	●
Esters (methyl acetate, ethyl acetate, ...)	●	N/A
Ether (ethyl eter, oil ether, ...)	●	N/A
Fat	●	N/A
Ketons (acetone)	●	●
Mineral oils	●	●
Petrol, gas oil, benzene	●	●
Strong acids (hydrolic, nitric, sulphuric, ...	▲	▲
Strong alkali	▲	▲
Toluene	●	❐ (milk effect)
Water	●	●
Weak acids (butyric, oleic, lactic, ...)	❐	good
Weak alkali	❐	good
Xylene	●	❐ (milk effect)

Delrin Polyacetal 150

Mechanical Properties	ASTM Method	Values Polyac. 150
Density	D792	1,42 g/cm²
Tensile strength @ yield	D628	
-55°C		101 N/mm²
-40°C		-N/mm²
12°C		69 N/mm²
70°C		48 N/mm²
100°C		36 N/mm²
122°C		26 N/mm²
Elongation @ break	D638	
-55°C		0,38%
-40°C		- %
12°C		75%
70°C		230%
100°C		>260%
122°C		>260%
Tensile E modulus	D638	3100 N/mm²
Shear strength	D732	66 N/mm²
Flexural modulus	D790	
-55°C		3650 N/mm²
-40°C		2620 N/mm²
-23°C		1550 N/mm²
-70°C		895 N/mm²
-100°C		620 N/mm²
Flexural fatigue endurance limit	D671	32 N/mm²
Compressive stress	D695	
1% deformation		36 N/mm²
10% deformation		124 N/mm²
Izod impact strength	D256	
Unnotched		no break J/m
Notched		
-40°C		96 J/m
23°C		123 J/m
Tensile impact strength	D1822	350 KJ/m²
Deformation under load	D621	
(14N/mm² @ 50°C)		0,5%
Hardness, Rockell	D785	M94
		R120
Water absorption	D570	
24 hours immersion		0,25%
Equilibrium 50% R.H.		0,22%
Equilibrium, continuous		
Immersion		0,90%

Delrin Polyacetal 150

Mechanical properties	ASTM method	Values
Coefficient of dynamic friction against steel	D1894	
No lubricant	-61T	0,10 - 0,30
Water lubricated		0,10 - 0,20
Oil lubricated		0,05 - 0,10
Against brass		0,15
Against aluminium		0,15
Against polyacetal		0,35
Thermal properties		
Melting point	D2133	175°C
Deflection temperature under flexural load	D648	
1,8 N/mm²		38°C
0,5 N/mm²		172°C
Thermal conductivity		0,37 W/mK
Specific heat		1,47 Kj/kgK
Coefficient of linear thermal expansion	D696	
-40°C - 30°C		10,4 1x10-50°C
30°C - 60°C		12,1 1x10-50°C
60°C - 105°C		13,7 1x10-50°C
105°C - 150°C		14,9 1x10-50°C
Flamability	UL94	HB
Maximum continuous use temperature		
In air		90°C
In water		65°C
Maximum intermittent use temperature		
In air		150°C
In water		80°C
Minimum continuous use temperature		-40°C
Electrical properties		
Volume resistivity	D257	10-25 ohm cm
Surface resistivity	D257	10-25 ohm
Dielectric strength short time (2,3mm sheet)	D149	20 kV/mm
Dielectric constant 10-2HZ - 106HZ	D150	3,7
Dissipation factor (1mm sheet)	D150	
100HZ		
1kHZ		
10kHZ		
1MHZ		0,005

Plastics and Rubbers

	Tensile strength PSI	Elongation %	Max. continuous °C	Service temperture Min. °C	Resistance to weak acids	Resistance to strong acids	Resistance to weak alkalis	Resistance to strong alkalis	Resistance to organic solvents	Resistance to oils and greases	Resistance to sunlight	Shore A hardness	Dielectric constant volts/mm	Tear strength N/m
Low-density polyethylene	600 - 2300	90 - 800	50	-30	Fair	Fair except for oxidising acids	Good	Good	Resistant below 60°C	Attcked by some	Poor if unprotected	-	-	-
High-density polyethylene	3100 - 4500	10 - 150	60	-65	Good	Attacked by some	Good	Good	Unaffected below 80°C	Limited	Crazes if unprotected	-	-	-
Standard PVC	700 - 2000	700 - 2000	50	-35	Limited	Limited	Limited	Limited	Poor	Limited	Good	-	-	-
Polypropylene	3900 - 5000	50 - 600	110	-25	Good	Poor	Good	Good	Unaffected below 80°C	Poor	Poor	-	-	-
EVA	1750 - 2500	700 - 800	45	-20	Good	Attacked by oxidising acids	Good	Good	Poor	Poor	Poor degrades slowly	-	-	-
PA6,6 plyamide (nylon) 66	7600	50 - 300	120	-80	Poor	Poor	Poor	Poor	Attacked by some	Attacked by some	Discolours slightly	-	-	-
PA6 plyamide (nylon) 6	5800	50 - 250	100	-70	Poor	Poor	Poor	Poor	Attacked by some	Attacked by some	Discolours slightly	-	-	-
Polystyrene	3000 - 7000	1 - 60	65	-20	Good	Attacked by oxidising acids	Good	Good	Soluble in some	Attacked by some	Some attack	-	-	-
Thermoplastic rubber	980 - 1100	980 - 1100	135	-40	Excellent	Good	Excellent	Good	Attacked by some	Attacked by some	Good	-	-	-
Silicone rubber	8,5 Mpa	230	200	-60	Poor	Poor	Fair	Fair	Poor	Attacked	Good	-	-	-
Flexible PVC	2971	300% min	66	-29	Good	Poor	Good	Poor	Poor	Poor	Fair	76 - 80	7442	35023
POM-polyacetal	8800	50 - 70	80	-40	Poor	Poor	Good	Good	Soluble in some	Good	Fair	-	-	-
EPDM	17,6 - 21 (Mpa)	500 - 800	121	-37,2	Good	Good	Fair	Fair	Attacked by some	Poor	Good	-	-	-
High-Temp PVC	16MNm - 2	225 - 275	200	-25	Good	Good	Good	Fair	Poor	Poor	Fair	83 - 93	7442	31521

Technopolymer Part 1

Chemical agents and solvents	Polymide (PA)			Polypropylene (PP)			NBR rubber			Thermoplastic elastomer (TP)		Acetal resin (POM)		
	Notes	Conc.%	23C	Notes	Conc.%	23C	Notes	Conc.%	23C	Notes	23C	Notes	Conc.%	23C
Acetic acid	Sol.	10	▲		40	•			▲		•	Sol.	20	▲
Acetone		100	•		10	•			▲		•			•
Acrylonitrile		100	•						▲		❐			
Alimentary oils			•		10	•			•	Up to 60°C	•			•
Aluminium chloride	Sol.	10	•		10	•	Sol.		•		•			
Aluminium sulphate	Sol.	10	•		10	•	Sol.		•		•			
Amonia	Sol.	10	•	Conc.		•	Sol.		❐		❐			
Amonia - gaseous			❐			•			•		❐			
Ammonium chloride	Sol.	10	•			•	Sol.		•		•	Sol.	10	•
Amyl alcohol		100	•			•			•		•			•
Aniline		100	❐			•			▲		▲			•
Beer	Sol.	10	•			•			•		•			•
Benzoic acid	Sol.	Sat.	❐		Sat.	▲	Sol.		❐	Up to 60°C	•			
Benzol/benzene		100	•			•			▲		▲			•
Boiling water	Swell.		❐			•			❐		❐			
Boric acid	Sol.	10	•		Sat.	•	Sol.		•		•			
Butter			•			•			•		•			•
Butyl acetate		100	•			•					❐			
Butyl alcohol		100	•			•			•		•			•
Calcium chloride	Sol.	10	•	Sol.	50	•	Sol.		•		•			•
Carbon disulphide		100	•			•			▲		▲			
Carbon tetrachloride			•			▲			▲		▲			•
Caustic soda 10%	Sol.	5, 10	•	Sol.	5,10	•	Sol.	5,10	❐		•	Sol.	10	•
Caustic sode 50%	Sol.	50	❐	Sol.	50	•	Sol.	50	▲		•			
Citric acid	Sol.	10	❐		10	•	Sol.		•	Up to 60°C	•			•
Cloroform		100	▲			▲			▲		▲			
Copper sulphate		10	•			•	Sol.		•		•			•
Dichloropan						❐					▲			
Distilled water			•			•			•		•			•
Edible fat			•						•		•			•
Ethyl acetate		100	•			•			▲		❐			•
Ethyl alcohol		96	•		96	•			❐		•			•
Ethyl chloride		100	•			▲			•					
Ethyl ether		100	•			•			❐		▲			
Ethylene glycol			•			•			•		❐			
Ferric chloride	Sol.	10	•			•	Sol.		•		•			•
Formaldehyde (formalin)	Sol.	30	•	Sol.	40	•	Sol.	40	❐		▲			
Formic acid	Sol.	10	•	Sol.	10	•	Sat.		▲	Up to 60°C	•		100	▲
Freon 11						❐			•					•
Freon 12	Liq.		•			❐			•					•
Freon 13						❐			•					•
Gas oil			•			•			•		▲			•
Glycerine			•			•			•		▲			
Glycol butylene		100	•						•		❐			
Hydrochloric acid	Sol.	10	•	Sol.	30	•	Sol.	10	❐	Up to 60°C	•	Sol.	10	▲
Hydrofluoric acid	Sol.	40	•	Sol.	40	•		50	▲		❐			▲
Hydrogen peroxide	Sol.	3	•	Sol.	30	•	Sol.	80	▲		❐	Sol.	90	▲
Iodine tincture-alcoholic			▲			•					•			
Isopropyl alcohol			•			•			❐		•			•

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Conc. = Concentration	• = Good resistance
Sol. = Solution	❐ = Fair resistance (limited use according to working conditions)
Liq. = Liquid	▲ = Poor resistance (should not be used)
Sat. = Saturated	N.B. = Blanks stand for data not
Swell. = Swelling	

Technopolymer Part 2

Chemical agents and solvents	Polymide (PA)			Polypropylene (PP)			NBR rubber			Thermoplastic elastomer (TP)		Acetal resin (POM)		
	Notes	Conc.%	23C	Notes	Conc.%	23C	Notes	Conc.%	23C	Notes	23C	Notes	Conc.%	23C
Kerosene			●			❐			🚍		▲			●
Lactic acid	Sol.	10	●	Sol.	20	●	Sol.				●			●
Linseed oil			●			●			●	Up to 60°C	●			●
Magnesium chloride	Sol.	10	●	Sol.	Sat.	●	Sol.		●	Up to 60°C	●			●
Mercuric chloride	Sol.	6	▲			●					●			
Mercury			●			●			●		●			
Methyl acetate		100	●								●			
Methyl alcohol		100	●		100	●			❐		❐			●
Methyl ethyl ketone			●			❐			▲		●			▲
Methylene chloride		100	●			❐			▲		▲			
Milk			●			●			●		▲			●
Mineral oil			●			●			●		●			●
Nitric acid		10	▲	Sol.	10	●	Sol.	10	❐	Up to 60°C	●	Sol.	10	▲
Oil			●			❐			●		❐			●
Oil ether			●			●					▲			●
Oils for transformers			●			❐			●		▲			●
Oleic acid		100	●	Sol.		●			❐	Up to 60°C	❐			●
Paraffin oil			●			●			●	Up to 60°C	●			
Petrol			●			❐	Swell.		❐	Up to 60°C	●			●
Petrol vapor			●	Swell.		❐			❐		▲			●
Phenol	Sol.		▲			●			▲		▲			▲
Phosporic acid	Sol.	10	▲	Sol.	85	●	Sol.	20	❐		▲	Sol.	10	▲
(Caustic potash) Potassium hydroxide 50%	Sol.	50	❐	Sol.	50	❐	Sol.	5, 10	▲	Up to 60°C	●			
(Caustic potash) Potassium hydroxide 10%	Sol.	5, 10	●	Sol.	5, 10	●	Sol.	5, 10	❐		●	Sol.	10	❐
Potassium nitrate	Sol.	10	●	Sat.		●			●		●			
Sea, river and drinkable water			●			●			●		●			●
Silicon oil			●			●			●					
Silver nitrate			●	Sol.	20	●	Sol.		❐		●			
Soap solution	Sol.		●	Sol.		●	Sol.		●		●			●
Sodium carbonate	Sol.	10	●	Sol.	Sat.	●	Sol.		●		●			●
Sodium chloride	Sol.	10	●	Sol.	Sat.	●	Sol.		●		●			●
Sodium hypochlorite	Sol.		●	Sol.	20	●	Sol.	10	▲		●	Sol.	5	▲
Sodium nitrate	Sol.	10	●	Sol.		●			●		●			
Sodium silicate			●			●	Sol.		●	●	●			
Sodium sulphate	Sol.	10	●			●	Sol.		●		●			●
Steam			●			●			❐		●			
Sulphuric acid	Sol.	10	●		98	●	Sol.	20	❐	Up to 60°C	●	Sol.	10	▲
Tartaric acid			●	Sol.	10	●	Sol.		●	Up to 60°C	●			●
Tetralin			●			▲			▲		▲			
Toluol/toluene			●			❐			▲		▲			●
Trichloroethylene			❐			▲			▲		▲			
Unleaded petrol			●	Swell.		❐	Swell.		❐		▲			●
Vaseline			●			●			●		❐			
Vinegar						●			❐		●			
Whisky			●			●			●		●			●
Wine			●			●			●		●			●
Xiyol			●			▲			▲		▲			●

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Liq. = Liquid	▲ = Poor resistance (should not be used)
Sat. = Saturated	N.B. = Blanks stand for data not
Swell. = Swelling	

Terms and Conditions of Sale

1. Definitions in these conditions

'Buyer' means any person, company or organisation which buys or has agreed to buy any Goods.

'Conditions' means these terms and conditions (as amended from time to time).

'Contract' means a contract between the Seller and the Buyer for the sale and purchase of Goods in accordance with these Conditions.

'Goods' means any item which is to be sold by the Seller.

'Order' means an order for the supply Goods placed by the Buyer with the Seller.

'Seller' means Wixroyd International Ltd.

1.1 No employee, agent or salesman has any authority to waive or vary any of these Conditions on behalf of the Seller and any variation to these Conditions shall be inapplicable unless in writing and signed by a Director on behalf of the Seller.

2. Acceptance of order

2.1 These Conditions apply to each Contract to the exclusion of any other terms that the Buyer seeks to impose or incorporate, or which are implied by trade, custom, practice or course of dealing.

2.2 These Conditions shall form part of every contract of sale of Goods entered into by the Seller and the placing of an Order shall be deemed to be conclusive evidence of the Buyer's acceptance of these Conditions.

2.2 An Order constitutes an offer by the Buyer to purchase Goods in accordance with these Conditions. The placing of an Order by the Buyer, whether or not based upon a quotation, shall not be binding on the Seller, unless accepted in writing, at which point a Contract shall come into existence.

2.3 The Seller reserves the right to reject any Order and shall be under no obligation to acknowledge receipt of an Order from the Buyer.

2.4 The Buyer is responsible for ensuring the accuracy of any Order placed with the Seller.

2.5 No representations or undertakings made or given on the Seller's behalf prior to contract shall be binding on the Seller, unless incorporated expressly in writing in a Contract. A Contract constitutes the entire agreement between the parties with respect to the relevant Goods.

2.6 Goods ordered by the Buyer which are out of stock will be placed on back order unless the Buyer shall specify ex-stock or cancel in its Order.

2.7 If the Buyer shall require any change in the terms or arrangements for the performance of a Contract it shall inform the Seller promptly and no change will be effective unless and until agreed in writing by the Seller.

2.8 If the Buyer wishes to cancel an Order, the Buyer must notify the Seller in writing within 5 days of receipt by the Seller of the Order, and any cancellation will only be deemed to have been accepted by the Seller upon the issue by the Seller of an order cancellation acknowledgement.

2.8.1 In the case of a Buyer placing with the Seller an order for goods specifically to the Buyer's own drawing or design, and in the event of the Buyer cancelling the order within 5 days of receipt by the Seller of the Order, the Seller reserves the right to make a charge on the Buyer for any reasonable costs incurred in the acquisition of material, design time or tooling costs which the seller may reasonably have incurred having received the order from the Buyer in good faith.

2.9 The Seller will only accept a call-off Order (subject to its absolute discretion) if it is for a maximum duration of 12 months and is accompanied by a detailed delivery schedule. In the event that the Buyer fails to complete the call-off Order in accordance with the delivery schedule submitted, the Seller shall be entitled to charge the Buyer, in addition to the price of any Goods that have been supplied, 100% of the list price of any Goods that are subject to the Order but which have not actually been supplied.

3. Specification

3.1 All specifications, drawings and data contained in the Seller's catalogues or brochures or on the Seller's website or otherwise supplied by the Seller are approximate only and shall not form part of a Contract or have any contractual force unless otherwise stated in writing.

3.2 The Seller reserves the right without prior notice to effect modifications and design changes and to discontinue manufacture of any Goods as part of a continuous programme of product development.

4. Selection

4.1 The Buyer shall be responsible for selection of the Goods ordered and determining whether they are suitable and sufficient for the Buyer's purpose unless specific advice about this is given in writing by the Seller.

4.2 The Seller shall have no liability for the failure of the Goods to perform in accordance with any specifications when such failure shall be caused by their operation in conditions which shall be unsuitable unless the Buyer shall have stated in its Order that such conditions would apply and the Seller shall have accepted such stipulation in writing.

4.3 Where the Seller manufactures any special item based on a design or drawing submitted by the Buyer, the Seller will request written approval by the Buyer of the production drawing prior to manufacture and the Buyer shall be responsible for ensuring the accuracy of the production drawing in all respects.

5. Prices

5.1 Prices quoted by the Seller are based upon its prices ruling at the date of quotation and the Seller reserves the right to adjust its prices at the time of acceptance of order to reflect any increase in the cost of supplying the Goods or the publication of a new price list occurring after quotation.

5.2 Unless otherwise stated in writing prices quoted by the Seller are exclusive of the cost of packaging and delivery and VAT.

5.3 While the Seller makes every effort to ensure that prices stated in its sales literature and on its website are up-to-date and accurate the Buyer shall not rely on prices stated there and should contact the Seller's sales office to verify prices before placing an Order.

5.4 The Buyer shall not be entitled to make any deduction from the price of Goods by way of setoff or counter-claim.

6. Payment

6.1 Save where the Buyer has a credit account with the Seller, the Buyer is requested to make payment by debit or credit card or alternatively cleared funds via cheque or bank transfer.

6.2 Where the Buyer makes payment for Goods by means of a debit or credit card the Buyer must notify the Seller that it chooses to pay by this method at the time of placing an Order. The Seller reserves the right to decline to accept payment by credit card in any particular instance. The payment will be deducted from the Buyer's card account on or before despatch of the Goods from the Seller's premises.

6.3 If the Buyer is a trade customer or a regular customer, the Seller will upon request open a credit account for the Buyer provided that the price of the Buyer's first Order for Goods exceeds £100. For credit account customers the Seller requires payment to be made within 30 days after the date of invoice.

6.4 If the Buyer is from outside the United Kingdom payment for the Goods in full is required at the time the Order is placed. Paragraph 6.1 indicates accepted methods of payment.

6.5 Any cheque payment should be made out to Wixroyd International Ltd. The Seller's bank details will be provided upon request to enable the Buyer to make any payment by means of bank transfer.

6.6 Payment made by means of a cheque, bill or documentary credit shall be deemed to be effected when honoured and all costs of discounting and encashing shall be borne by the Buyer.

6.7 Time for payment shall be of the essence of each Contract.

6.8 In the event of delay in payment the Seller shall be entitled to charge interest at the rate of 4% per annum above Barclays Bank plc base rate from time to time from the date of invoice until the date on which payment is actually made, without prejudice to its other rights.

6.9 During any period of default in payment and at any time when the Seller shall have reasonable grounds for doubting that any payment by the Buyer will be made on the due date, the Seller shall be entitled to suspend the fulfillment of any Orders and withhold delivery of any Goods, without prejudice to its right to payment for Goods delivered and costs and expenses incurred in connection with undelivered Goods which shall become immediately due and payable.

6.10 If such default or other circumstances shall continue for a period of 14 days, the Seller shall be entitled to terminate a Contract by written notice to the Buyer, without prejudice to its other rights.

6.11 The granting by the Seller to the Buyer of time or other indulgence shall not prejudice or constitute a waiver of any of the Seller's rights under these Conditions.

6.12 The Seller shall have a general lien over any money or other property of the Buyer in its possession for all money due to it from the Buyer. If any lien is not satisfied within 14 days of such money becoming due, the Seller may apply such money, or as the case may be, sell such property as agent for the Buyer and apply the proceeds, after deducting the expenses of the sale, in each case towards the monies due and the balance (if any) shall be paid to the Buyer.

7. Delivery times

7.1 The Buyer should contact the Seller's sales office for current delivery times.

7.2 Any time for delivery given by the Seller shall not be of the essence of a Contract.

7.3 The Seller shall endeavour to meet the Buyer's delivery requirements but shall not be liable for any loss or damage caused by delay in delivery and the Buyer shall not be entitled to cancel a Contract because of such delay.

7.4 Each delivery shall be considered a separate transaction and the failure of any one delivery shall not affect the due performance of a Contract as regards other deliveries.

7.5 The Seller shall be entitled to make partial deliveries and these Conditions shall apply to each delivery.

8. Delivery

8.1 Unless otherwise agreed, delivery shall be effected at the premises of the Buyer or other place specified in a Contract for delivery and the method of carriage and choice of carrier for delivery within the United Kingdom shall be determined by the Seller.

8.2 The Buyer shall be responsible for paying the Seller's carriage costs unless it shall make its own arrangements with the agreement of the Seller prior to the Seller arranging carriage. If the Goods shall be collected by the Buyer or by a carrier pursuant to arrangement made by the Buyer, delivery shall be deemed to take place on collection.

8.3 If the Buyer requires delivery to be made outside the United Kingdom, the Seller recommends that the choice of carrier shall be determined by the Buyer and that the Buyer notifies such choice to the Seller at the time of placing its Order. In the absence of such notification the Seller will choose the carrier.

8.4 If delivery should be delayed at the request of the Buyer, the Seller may place the Goods in store at the Buyer's risk and the Buyer shall pay such storage costs and other costs incurred by the Seller as a result of such delay.

9. Title and risk

9.1 Title to the Goods shall remain with the Seller until payment in full is made by the Buyer.

9.2 The provisions of Condition 9.1 shall not prevent the Buyer from fixing the Goods to any other product or selling the Goods in the normal course of business but in the event of sale to the extent of the Buyer's indebtedness to the Seller in respect to the Goods, the Buyer shall hold the proceeds of sale or the right to receive the same on trust for the Seller and shall, at its request, either (i) place the proceeds of sale in a separate account of the Buyer in such a way as to be identifiable as in the beneficial ownership of the Seller, or (ii) assign the right to receive the proceeds of sale to the Seller.

9.3 If before title to the Goods passes to the Buyer the Seller becomes subject to any of the events listed in Condition 9.5, or the Seller reasonably believes that any such event is about to happen and notifies the Buyer accordingly, then, provided that the Goods have not been resold, or irrevocably incorporated into another product, and without limiting any other right or remedy the Buyer may have, the Seller may at any time require the Buyer to deliver up the Goods and, if the Buyer fails to do so promptly, enter any premises of the Buyer or of any third party where the Goods are stored in order to recover them.

9.4 The risk in the Goods shall pass to the Buyer on delivery or placing in store in accordance with Condition 8.

9.5 For the purposes of Condition 9.3, the relevant events are:

(a) the Buyer suspends, or threatens to suspend, payment of its debts, or is unable to pay its debts as they fall due or admits inability to pay its debts, or (being a company) is deemed unable to pay its debts within the meaning of section 123 of the Insolvency Act 1986, or (being an individual) is deemed either unable to pay its debts or as having no reasonable prospect of so doing, in either case, within the meaning of section 268 of the Insolvency Act 1986, or (being a partnership) has any partner to whom any of the foregoing apply;

(b) the Buyer commences negotiations with all or any class of its creditors with a view to rescheduling any of its debts, or makes a proposal for or enters into any compromise or arrangement with its creditors;

(c) (being a company) a petition is filed, a notice is given, a resolution is passed, or an order is made, for or in connection with the winding up of the Buyer;

(d) (being an individual) the Buyer is the subject of a bankruptcy petition or order;

(e) a creditor or encumbrancer of the Buyer attaches or takes possession of, or a distress, execution, sequestration or other such process is levied or enforced on or sued against, the whole or any part of its assets;

(f) (being a company) an application is made to court, or an order is made, for the appointment of an administrator or if a notice of intention to appoint an administrator is given or if an administrator is appointed over the Buyer;

(g) (being a company) a floating charge holder over the Buyer's assets has become entitled to appoint or has appointed an administrative receiver;

(h) a person becomes entitled to appoint a receiver over the Buyer's assets or a receiver is appointed over the Buyer's assets;

(i) any event occurs, or proceeding is taken, with respect to the Buyer in any jurisdiction to which it is subject that has an effect equivalent or similar to any of the events mentioned in Conditions 9.5 (a) 0 to (h) (inclusive);

(j) the Buyer suspends, threatens to suspends, ceases or threatens to cease to carry on all or substantially the whole of its business;

(k) the Buyer's financial position deteriorates to such an extent that in the Seller's opinion the Buyer's capability to adequately fulfil its obligations under a Contract has been placed in jeopardy; and

(l) (being an individual) the Buyer dies or, by reason of illness or incapacity (whether mental or physical), is incapable of managing his or her own affairs or becomes a patient under any mental health legislation.

10. Inspection, transit delays and non delivery

10.1 The Buyer must inspect the Goods as soon as is reasonably practicable after delivery and shall within 7 days of delivery give notice to the Seller in detail of any defect in the Goods or of any other complaint which the Buyer may have in relation to the Goods. If the Buyer fails to give such notice the Goods shall be conclusively presumed to be in all respects in accordance with the relevant Contract and free from any defect which would be apparent on reasonable examination, and the Buyer shall be deemed to have accepted the Goods accordingly.

10.2 In the event that the Buyer establishes to the Seller's reasonable satisfaction that the Goods are not in accordance with the relevant Contract or are so defective, the Buyer's sole remedy in respect of such non-accordance or defects shall be limited as the Seller may elect to the replacement of the Goods or refund of the purchase price or, where sums are owed by the Buyer to the Seller, the issue of a credit note or a credit card account refund against return of the Goods.

10.3 Queries regarding shortages of Goods must be made within 7 days of the despatch date and must be accompanied by the despatch note. Queries regarding Goods invoiced but not delivered must be made within 10 days of invoice date and the invoice number must be quoted. In no circumstances shall the Seller be liable to compensate the Buyer in damages or otherwise for non delivery of late delivery of the Goods or any of them for whatever reason or for any loss consequential or otherwise arising from non delivery or late delivery.

11. Returns

11.1 The Seller shall be under no obligation to accept the return of any Goods unless they are faulty or are found to be damaged upon delivery.

11.2 In exceptional cases the Seller may at its discretion accept the return of Goods in which case the Buyer will be credited with the price of the Goods set out in the invoice less a handling charge of 20% of that price. A return will only be accepted if the Seller's sales office has first agreed to the return and issued a goods return number, if the return is made within 30 days of the date of the invoice, and if the Goods are returned with their packaging intact and unmarked.

12. Liability

12.1 Save as expressly provided in these conditions, all warranties, conditions or other terms implied by statute or common law are hereby excluded.

12.2 Where any valid warranty claim in respect of any of the Goods which is based on any defect in the quality of condition of the Goods is notified to the Seller, then the Seller shall be entitled to repair or replace the Goods free of charge or, at the Seller's sole discretion, refund to the Buyer the price of the Goods (or a proportionate part of the price) but the Seller shall have no further liability to the Buyer.

12.3 The Seller shall have no limit on its liability for death or personal injury caused by the Seller's negligence or the negligence of its employees.

12.4 Subject to Condition 12.3, the Seller shall have no liability to the Buyer in contract, tort (including negligence or breach of statutory duty) or otherwise howsoever and whatever the cause thereof:

(a) for any increased costs or expenses;

(b) for any loss of profit, business, contracts, revenues, opportunity or anticipated savings, or

(c) for any special, indirect or consequential loss or damage of any nature whatsoever.

12.5 Subject to Conditions 12.3 and 12.4 and notwithstanding anything contained in these Conditions, the Seller's liability in contract, tort (including negligence or breach of statutory duty) or otherwise arising by reason of or in connection with the supply of the Goods shall be limited to a sum equivalent to the price of the Goods supplied.

13. Indemnity

Subject to any statutory provision to the contrary, the Seller shall have no liability for any loss of damage suffered by any third party caused directly or indirectly by the Goods, whether as the result of their operation or use or otherwise and whether as the result of any defect there in or otherwise and the Buyer shall indemnify the Seller from any claim arising from any such loss or damage.

14. Force majeure

The Seller shall not be liable for any loss or damage sustained by the Buyer caused by delay or failure to perform a Contract arising from any act of God, war, riot, strike, lock-out, government control or regulation, abnormal weather conditions, accident, breakdown or any other circumstances beyond the Seller's control and in such event, insofar as a Contract shall not have performed, the Seller may either terminate such Contract and return any advance payment received or delay for such period as may be necessary.

15. Confidentiality

15.1 All drawings and other documents supplied by one party to the other shall remain the copyright and property of the party supplying the same and may not be copied or reproduced without its consent and such documents shall be returned in the event of a Contract not being made or completed.

15.2 Any trade secret or confidential information supplied by either party to the other shall be kept confidential and shall not be disclosed to any party without the consent of the party supplying the same.

16. Infringement

16.1 The Buyer shall notify the Seller immediately of any circumstances coming to its attention which may be likely to give rise to any claim that the Goods infringe the rights of any third party and shall permit the Seller to conduct any action or negotiations in respect there of in the name of the Buyer but at the Seller's expense.

16.2 In the event of any such claim being successful, the Seller shall indemnify the Buyer against any liability it may sustain to such third party, but shall have no other liability to the Buyer in respect thereof.

17. Notices

Any notice to be given by either party to the other shall be properly given if sent by telex, e-mail or post to the party to be served at its head office or last known address and shall be deemed to have been served, in the case of postal delivery, when the normal course of post it would have been delivered.

18. Assignment and subcontracting

18.1 The Seller may at any time assign, transfer, charge, subcontract or deal in any other manner with all or any of its rights or obligations under a Contract.

18.2 The Buyer may not assign, transfer, charge, subcontract or deal in any other manner with all or any of its rights or obligations under a Contract without the prior written consent of the Seller.

19. Third party rights

A person who is not a party to a Contract shall not have any rights under or in connection with it.

20. Variation

Except as set out in these Conditions, any variation to a Contract, including the introduction of any additional terms and conditions, shall only be binding when agreed in writing and signed by the Seller.

21. Sale to consumers

If the Buyer is a consumer purchasing Goods under a distance contract, as those terms are defined in the Consumer Protection (Distance Selling) Regulations 2000 ("the Distance Selling Regulations") these conditions shall be subject to the provisions of the Distance Selling Regulations and in the event of there being any conflict between these conditions and the Distance Selling Regulations, the Distance Selling Regulations shall prevail.

22. Law

Each Contract shall be governed by, and construed in accordance with, English law and the parties irrevocably submit to exclusive jurisdiction of the courts of England and Wales to determine any dispute between them in relation thereto.

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