



NEW PRODUCTS CATALOGUE

WELCOME TO ESSENTRA

We're manufacturers and distributors of vital component parts, working with over 70% of the world's top 100 global manufacturers. With 65 years of experience, we offer a global reach with local support.

We think you'll especially like how we work. By combining the expertise and flexibility of a manufacturer with the service and range of a distributor, we make your job easier.



GLOBAL REACH WITH LOCAL SUPPORT

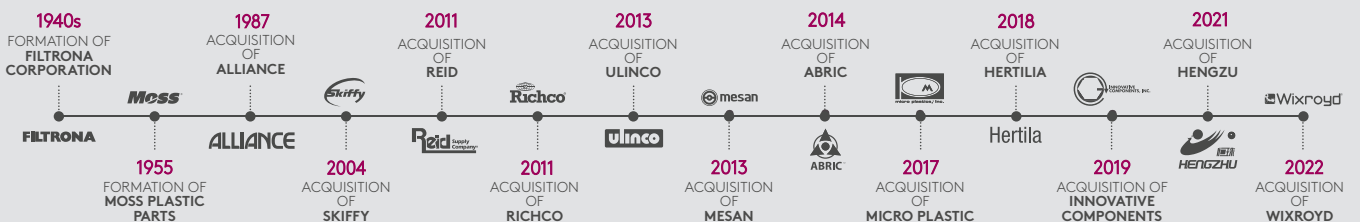


14
Manufacturing Facilities

>1
BILLION
Parts in stock

45,000
Products available

40
Sale & Distribution Operations





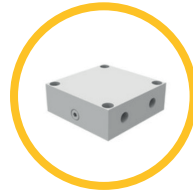
Ball Screw & Nuts



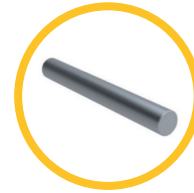
Lead Screws & Nuts



Bearing Supports



Linear Bearings



Linear Shaft Bars



Linear Shaft Supports



Linear Guideways



Linear Rail Sets



Ball & Socket Joints



Clevis Joints & Clips



Rod Ends



Universal Joints



Anti-Vibration Components



Levelling Feet



Precision Levelling Adjusters



Captive Screws



Sealing Screws & Plugs



Shoulder Screws



Vented Screws



Standard Screws



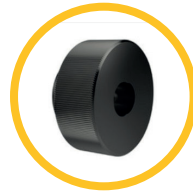
Expansion Sealing Plugs



Threaded Inserts Stainless



Threaded Inserts Steel



Thump Screws



Blanking Plugs



Grips



Pull Handles



Lifting Points



Thrust Screws



One Touch Fasteners



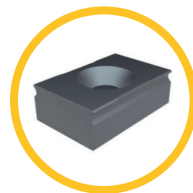
Spring Plunger & Detent Pins



Lid & Door Stays



Multi-Clamping Systems



Vice Clamping



Nuts



Swing Bolts



Washers



Bore Clamping



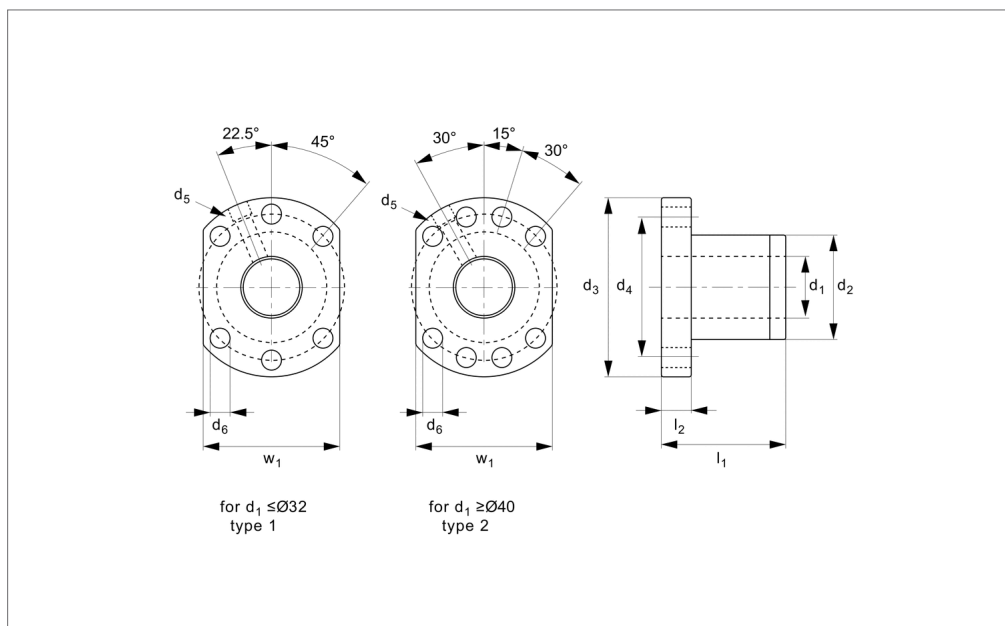
Low Profile Side Clamping



Pull Back Inserts



EL1370



Material

Steel (16MnCr5 or 100Cr6), with Vulkolan seals.

Technical Notes

To DIN 69051 form B.

Axial play for 5mm pitch = 0,05mm; for 10mm pitch = 0,10mm; for multi-starts = 0,20mm.

Preload max. 5% of max. dynamic load.

For axial run-out, concentricity and parallelism figures see technical pages.

With lubrication and fixing holes.

For use with ball screws no. EL1375.

Tips

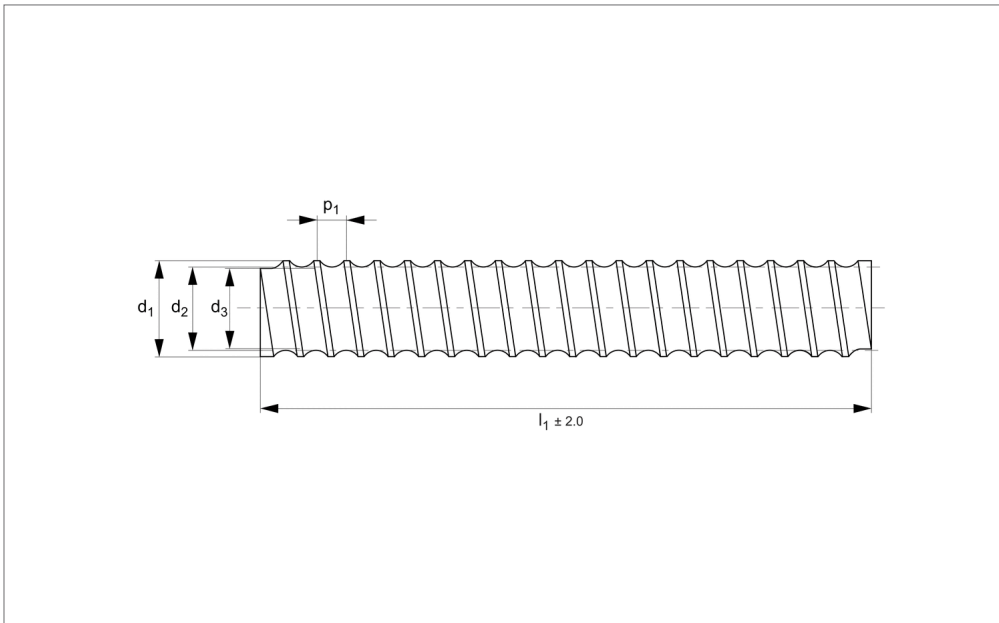
For easy mounting of the ball screw nuts see the nut bracket - part EL1377.

For miniature ball screws Ø6 to Ø14 see part no. EL1379.

Important Notes

Fit ball nut to screw using the sleeve provided. Offer up the ball nut to the screw and slide carefully on. Do not remove the ball nut from the sleeve provided - the ball bearings can come loose rendering the ball nut unusable.

Order No.	d ₁ for screw	Pitch	Type	d ₂ tol. G6	d ₃ ±0.15	d ₄ ±0.15	d ₅ for	d ₆	l ₁	l ₂	w ₁ ±0.15	Ball dia.	Dyn. load C _{max.} kN	Static load C _{0max.} kN	Stiffness C ₀ N/μm
20176013	16	5	Type 1	28	48	38	M 6	5,5	45	10	40	3,175	13,53	29,92	314
20176020	16	10	Type 1	28	48	38	M 6	5,5	57	10	40	3,175	10,82	23,55	255
20176037	20	5	Type 1	36	58	47	M 6	6,6	51	10	44	3,175	15,21	38,00	382
20176044	25	5	Type 1	40	62	51	M 6	6,6	51	10	48	3,175	16,91	48,09	441
20176051	25	10	Type 1	40	62	51	M 6	6,6	80	12	48	4,762	28,96	71,54	490
20176068	32	5	Type 1	50	80	65	M 6	9,0	52	12	62	3,175	18,85	62,21	529
20176075	32	10	Type 1	50	80	65	M 6	9,0	85	12	62	6,350	47,12	119,72	598
20176082	40	5	Type 2	63	93	78	M 8	9,0	55	14	70	3,175	20,69	78,34	617
20176099	40	10	Type 2	63	93	78	M 8	9,0	88	14	70	6,340	52,95	152,00	715
20176105	50	10	Type 2	75	110	93	M 8	11,0	88	16	85	6,350	58,88	192,35	833
20176112	63	10	Type 2	90	125	108	M 8	11,0	93	18	95	6,350	65,89	248,68	970
20176129	80	10	Type 2	105	145	125	M 8	13,5	93	20	110	6,350	72,04	313,36	1068



EL1375.16

Material

Steel (CF53 or C55R), induction hardened to 60 HRC ± 2 , polished.

Technical Notes

Gothic profile with a 5 or 10mm lead.
Tolerance T7 - 50 μ /300mm. Shorter lengths or longer lengths up to a maximum

of 3000mm available.

For ball screw nuts see parts EL1370-EL1374 & EL1377.

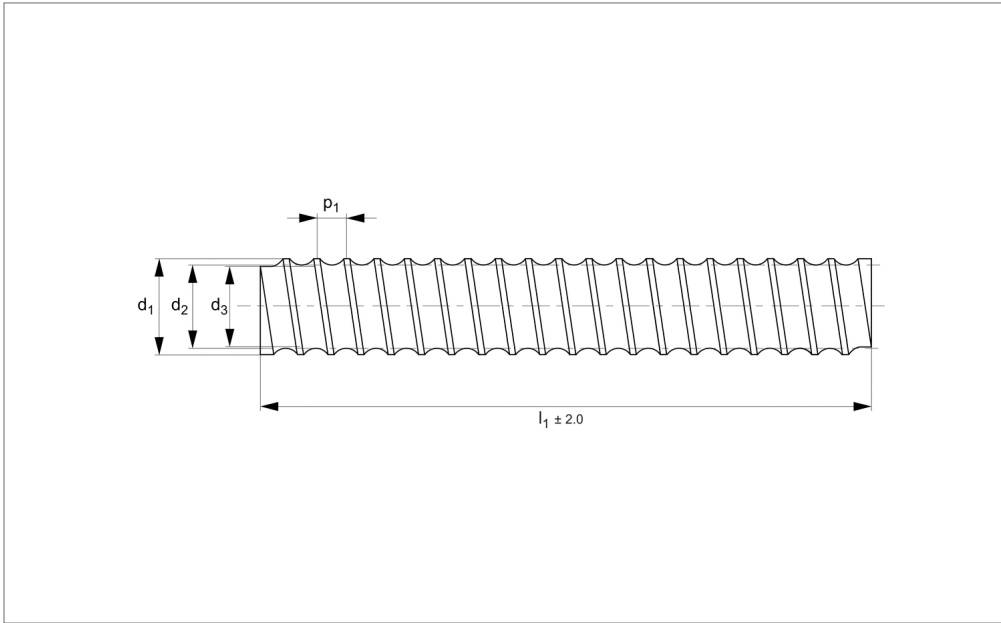
For end screw machining to suit ball screw support units see relevant ball screw supports (EL1388-EL1406). End machining on request.

Important Notes

Ensure the ball nut can be fitted to the ball screw after machining. Do not remove the ball nut from the sleeve prior to installation - the balls come free rendering the ball nut unusable.

Order No.	Screw dia. x lead	Lead	d ₁	d ₂	d ₃	l ₁	Mass moment of inertia kg·m ²	Weight kg
20176174	16x 5	5	17.08	16	13.90	500	4,45x10 ⁻⁵	0.71
20176181	16x 5	5	17.08	16	13.90	600	4,45x10 ⁻⁵	0.85
20176198	16x 5	5	17.08	16	13.90	800	4,45x10 ⁻⁵	1.13
20176204	16x 5	5	17.08	16	13.90	1000	4,45x10 ⁻⁵	1.41
20176211	16x 5	5	17.08	16	13.90	1500	4,45x10 ⁻⁵	2.12
20176228	16x 5	5	17.08	16	13.90	2000	4,45x10 ⁻⁵	2.82
20176235	16x 5	5	17.08	16	13.90	2500	4,45x10 ⁻⁵	3.53
20176242	16x 5	5	17.08	16	13.90	3000	4,45x10 ⁻⁵	4.23
20176259	16x10	10	17.08	16	12.90	500	4,36x10 ⁻⁵	0.73
20176266	16x10	10	17.08	16	12.90	600	4,36x10 ⁻⁵	0.88
20176273	16x10	10	17.08	16	12.90	800	4,36x10 ⁻⁵	1.17
20176280	16x10	10	17.08	16	12.90	1000	4,36x10 ⁻⁵	1.46
20176297	16x10	10	17.08	16	12.90	1500	4,36x10 ⁻⁵	2.19
20176303	16x10	10	17.08	16	12.90	2000	4,36x10 ⁻⁵	2.92
20176310	16x10	10	17.08	16	12.90	2500	4,36x10 ⁻⁵	3.65
20176327	16x10	10	17.08	16	12.90	3000	4,36x10 ⁻⁵	4.38
20176334	16x16	16	17.08	16	12.90	500	4,36x10 ⁻⁵	0.73
20176341	16x16	16	17.08	16	12.90	600	4,36x10 ⁻⁵	0.88
20176358	16x16	16	17.08	16	12.90	800	4,36x10 ⁻⁵	1.17
20176365	16x16	16	17.08	16	12.90	1000	4,36x10 ⁻⁵	1.46
20176372	16x16	16	17.08	16	12.90	1500	4,36x10 ⁻⁵	2.19
20176389	16x16	16	17.08	16	12.90	2000	4,36x10 ⁻⁵	2.92
20176396	16x16	16	17.08	16	12.90	2500	4,36x10 ⁻⁵	3.65
20176402	16x16	16	17.08	16	12.90	3000	4,36x10 ⁻⁵	4.38
20176419	16x20	20	17.08	16	12.90	500	4,36x10 ⁻⁵	0.73
20176426	16x20	20	17.08	16	12.90	600	4,36x10 ⁻⁵	0.88
20176433	16x20	20	17.08	16	12.90	800	4,36x10 ⁻⁵	1.17
20176440	16x20	20	17.08	16	12.90	1000	4,36x10 ⁻⁵	1.46
20176457	16x20	20	17.08	16	12.90	1500	4,36x10 ⁻⁵	2.19
20176464	16x20	20	17.08	16	12.90	2000	4,36x10 ⁻⁵	2.92

Order No.	Screw dia. x lead	Lead	d ₁	d ₂	d ₃	l ₁	Mass moment of inertia kg·m ²	Weight kg
20176471	16x20	20	17.08	16	12.90	2500	4,36x10 ⁻⁵	3.65
20176488	16x20	20	17.08	16	12.90	3000	4,36x10 ⁻⁵	4.38
20176495	16x32	32	17.08	16	12.90	500	4,36x10 ⁻⁵	0.73
20176501	16x32	32	17.08	16	12.90	600	4,36x10 ⁻⁵	0.88
20176518	16x32	32	17.08	16	12.90	800	4,36x10 ⁻⁵	1.17
20176525	16x32	32	17.08	16	12.90	1000	4,36x10 ⁻⁵	1.46
20176532	16x32	32	17.08	16	12.90	1500	4,36x10 ⁻⁵	2.19
20176549	16x32	32	17.08	16	12.90	2000	4,36x10 ⁻⁵	2.92
20176556	16x32	32	17.08	16	12.90	2500	4,36x10 ⁻⁵	3.65
20176563	16x32	32	17.08	16	12.90	3000	4,36x10 ⁻⁵	4.38



EL1375.20

Material

Steel (CF53 or C55R), induction hardened to 60 HRC ± 2 , polished.

Technical Notes

Gothic profile with a 5,20 or 50mm lead.
Tolerance T7 - 50 μ /300mm. Shorter lengths or longer lengths up to a maximum of 3000mm available.

For ball screw nuts see parts EL1370-EL1374 & EL1377.

For end screw machining to suit ball screw support units see relevant ball screw supports (EL1388-EL1406). End machining on request.

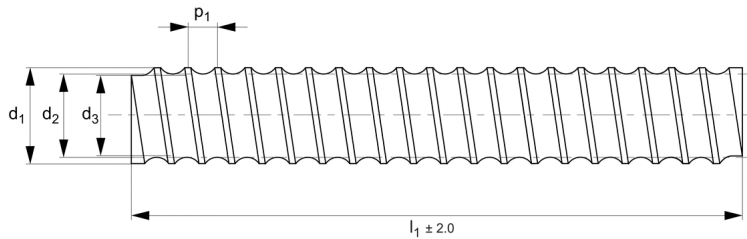
Also available as a left hand thread for 5mm pitch.

Important Notes

Ensure the ball nut can be fitted to the ball screw after machining. Do not remove the ball nut from the sleeve prior to installation - the balls come free rendering the ball nut unusable.

Order No.	Screw dia. x lead	Lead w_1	d_1	d_2	d_3	l_1	Mass moment of inertia $kg \cdot m^2$	Weight kg
20176570	20x 5	5	21.08	20	17.9	500	$1,12 \times 10^{-4}$	1.18
20176587	20x 5	5	21.08	20	17.9	600	$1,12 \times 10^{-4}$	1.41
20176594	20x 5	5	21.08	20	17.9	800	$1,12 \times 10^{-4}$	1.88
20176600	20x 5	5	21.08	20	17.9	1000	$1,12 \times 10^{-4}$	2.35
20176167	20x 5	5	21.08	20	17.9	1500	$1,12 \times 10^{-4}$	3.53
20176617	20x 5	5	21.08	20	17.9	2000	$1,12 \times 10^{-4}$	4.70
20176624	20x 5	5	21.08	20	17.9	2500	$1,12 \times 10^{-4}$	5.88
20176631	20x 5	5	21.08	20	17.9	3000	$1,12 \times 10^{-4}$	7.05
20176648	20x10	10	21.08	10	17.9	500	$1,18 \times 10^{-4}$	1.21
20176655	20x10	10	21.08	10	17.9	600	$1,18 \times 10^{-4}$	1.45
20176662	20x10	10	21.08	10	17.9	800	$1,18 \times 10^{-4}$	1.93
20176679	20x10	10	21.08	10	17.9	1000	$1,18 \times 10^{-4}$	2.41
20176686	20x10	10	21.08	10	17.9	1500	$1,18 \times 10^{-4}$	3.62
20176693	20x10	10	21.08	10	17.9	2000	$1,18 \times 10^{-4}$	4.82
20176709	20x10	10	21.08	10	17.9	2500	$1,18 \times 10^{-4}$	6.03
20176716	20x10	10	21.08	10	17.9	3000	$1,18 \times 10^{-4}$	7.23
20176723	20x20	20	20.76	20	17.6	500	$1,00 \times 10^{-4}$	1.11
20176730	20x20	20	20.76	20	17.6	600	$1,00 \times 10^{-4}$	1.33
20176747	20x20	20	20.76	20	17.6	800	$1,00 \times 10^{-4}$	1.77
20176754	20x20	20	20.76	20	17.6	1000	$1,00 \times 10^{-4}$	2.21
20176761	20x20	20	20.76	20	17.6	1500	$1,00 \times 10^{-4}$	3.32
20176778	20x20	20	20.76	20	17.6	2000	$1,00 \times 10^{-4}$	4.42
20176785	20x20	20	20.76	20	17.6	2500	$1,00 \times 10^{-4}$	5.53
20176792	20x20	20	20.76	20	17.6	3000	$1,00 \times 10^{-4}$	6.63
20176808	20x40	40	20.76	20	17.6	500	$1,00 \times 10^{-4}$	1.11
20176815	20x40	40	20.76	20	17.6	600	$1,00 \times 10^{-4}$	1.33
20176822	20x40	40	20.76	20	17.6	800	$1,00 \times 10^{-4}$	1.77
20176839	20x40	40	20.76	20	17.6	1000	$1,00 \times 10^{-4}$	2.21
20176846	20x40	40	20.76	20	17.6	1500	$1,00 \times 10^{-4}$	3.32

Order No.	Screw dia. x lead	Lead w_1	d_1	d_2	d_3	l_1	Mass moment of inertia $\text{kg}\cdot\text{m}^2$	Weight kg
20176853	20x40	40	20.76	20	17.6	2000	$1,00 \times 10^{-4}$	4.42
20176860	20x40	40	20.76	20	17.6	2500	$1,00 \times 10^{-4}$	5.53
20176877	20x40	40	20.76	20	17.6	3000	$1,00 \times 10^{-4}$	6.63



EL1375.25

Material

Steel (CF53 or C55R), induction hardened to 60 HRC ± 2 , polished.

Technical Notes

Gothic profile with a 5, 10 or 2mm lead.
Tolerance T7 - 50 μ /300mm. Shorter lengths or longer lengths up to a maximum

of 6000mm available.

For ball screw nuts see parts EL1370-EL1374 & EL1377.

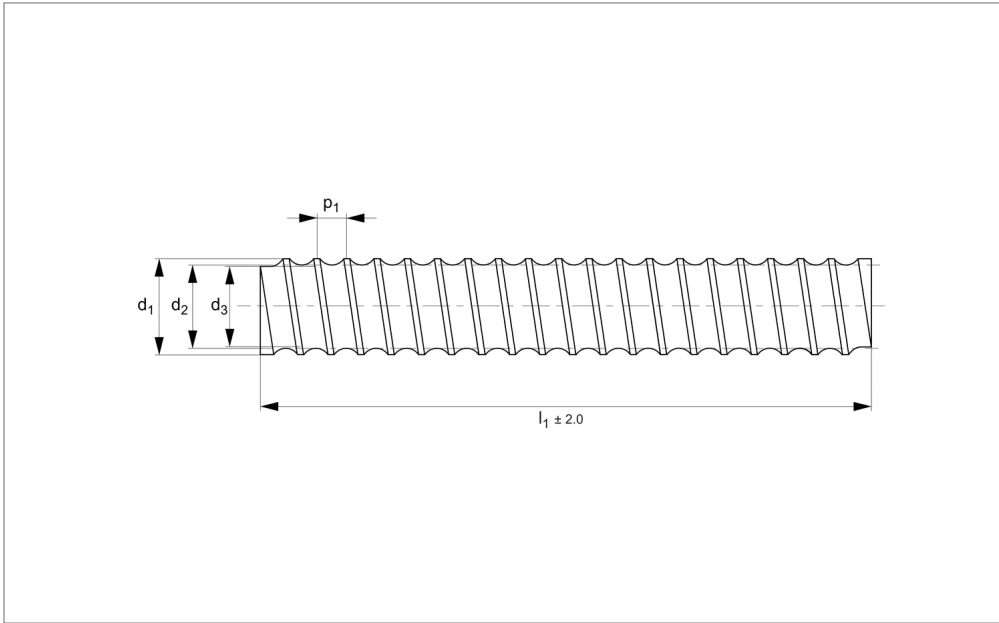
For end screw machining to suit ball screw support units see relevant ball screw supports (EL1388-EL1406). End machining on request.

Important Notes

Ensure the ball nut can be fitted to the ball screw after machining. Do not remove the ball nut from the sleeve prior to installation - the balls come free rendering the ball nut unusable.

Order No.	Screw dia. x lead	Lead w_1	d_1	d_2	d_3	l_1	Mass moment of inertia $kg \cdot m^2$	Weight kg
20176884	25x 5	5	26.08	25	22.9	500	$2,62 \times 10^{-4}$	1.80
20176891	25x 5	5	26.08	25	22.9	600	$2,62 \times 10^{-4}$	2.15
20176907	25x 5	5	26.08	25	22.9	800	$2,62 \times 10^{-4}$	2.87
20176914	25x 5	5	26.08	25	22.9	1000	$2,62 \times 10^{-4}$	3.59
20176921	25x 5	5	26.08	25	22.9	1500	$2,62 \times 10^{-4}$	5.39
20176938	25x 5	5	26.08	25	22.9	2000	$2,62 \times 10^{-4}$	7.18
20176945	25x 5	5	26.08	25	22.9	2500	$2,62 \times 10^{-4}$	8.98
20176952	25x 5	5	26.08	25	22.9	3000	$2,62 \times 10^{-4}$	10.77
20176969	25x 5	5	26.08	25	22.9	3500	$2,62 \times 10^{-4}$	2.87
20176976	25x 5	5	26.08	25	22.9	4000	$2,62 \times 10^{-4}$	3.59
20176983	25x 5	5	26.08	25	22.9	4500	$2,62 \times 10^{-4}$	5.39
20176990	25x 5	5	26.08	25	22.9	5000	$2,62 \times 10^{-4}$	7.18
20177003	25x 5	5	26.08	25	22.9	5500	$2,62 \times 10^{-4}$	8.98
20177010	25x 5	5	26.08	25	22.9	6000	$2,62 \times 10^{-4}$	10.77
20177027	25x10	10	27.15	25	20.8	500	$2,94 \times 10^{-4}$	1.91
20177034	25x10	10	27.15	25	20.8	600	$2,94 \times 10^{-4}$	2.29
20177041	25x10	10	27.15	25	20.8	800	$2,94 \times 10^{-4}$	3.05
20177058	25x10	10	27.15	25	20.8	1000	$2,94 \times 10^{-4}$	3.81
20177065	25x10	10	27.15	25	20.8	1500	$2,94 \times 10^{-4}$	5.72
20177072	25x10	10	27.15	25	20.8	2000	$2,94 \times 10^{-4}$	7.62
20177089	25x10	10	27.15	25	20.8	2500	$2,94 \times 10^{-4}$	9.53
20177096	25x10	10	27.15	25	20.8	3000	$2,94 \times 10^{-4}$	11.43
20177102	25x10	10	26.08	25	22.9	3500	$2,62 \times 10^{-4}$	2.87
20177119	25x10	10	26.08	25	22.9	4000	$2,62 \times 10^{-4}$	3.59
20177126	25x10	10	26.08	25	22.9	4500	$2,62 \times 10^{-4}$	5.39
20177133	25x10	10	26.08	25	22.9	5000	$2,62 \times 10^{-4}$	7.18
20177140	25x10	10	26.08	25	22.9	5500	$2,62 \times 10^{-4}$	8.98
20177157	25x10	10	26.08	25	22.9	6000	$2,62 \times 10^{-4}$	10.77
20177164	25x25	25	26.09	25	22.9	500	$2,60 \times 10^{-4}$	1.82
20177171	25x25	25	26.09	25	22.9	600	$2,60 \times 10^{-4}$	2.18

Order No.	Screw dia. x lead	Lead w_1	d_1	d_2	d_3	l_1	Mass moment of inertia $kg \cdot m^2$	Weight kg
20177188	25x25	25	26.09	25	22.9	800	$2,60 \times 10^{-4}$	2.91
20177195	25x25	25	26.09	25	22.9	1000	$2,60 \times 10^{-4}$	3.64
20177201	25x25	25	26.09	25	22.9	1500	$2,60 \times 10^{-4}$	5.46
20177218	25x25	25	26.09	25	22.9	2000	$2,60 \times 10^{-4}$	7.28
20177225	25x25	25	26.09	25	22.9	2500	$2,60 \times 10^{-4}$	9.10
20177232	25x25	25	26.09	25	22.9	3000	$2,60 \times 10^{-4}$	10.92
20177249	25x25	25	26.08	25	22.9	3500	$2,62 \times 10^{-4}$	2.87
20177256	25x25	25	26.08	25	22.9	4000	$2,62 \times 10^{-4}$	3.59
20177263	25x25	25	26.08	25	22.9	4500	$2,62 \times 10^{-4}$	5.39
20177270	25x25	25	26.08	25	22.9	5000	$2,62 \times 10^{-4}$	7.18
20177287	25x25	25	26.08	25	22.9	5500	$2,62 \times 10^{-4}$	8.98
20177294	25x25	25	26.08	25	22.9	6000	$2,62 \times 10^{-4}$	10.77
20177300	25x50	50	26.09	25	22.9	500	$2,60 \times 10^{-4}$	1.82
20177317	25x50	50	26.09	25	22.9	600	$2,60 \times 10^{-4}$	2.18
20177324	25x50	50	26.09	25	22.9	800	$2,60 \times 10^{-4}$	2.91
20177331	25x50	50	26.09	25	22.9	1000	$2,60 \times 10^{-4}$	3.64
20177348	25x50	50	26.09	25	22.9	1500	$2,60 \times 10^{-4}$	5.46
20177355	25x50	50	26.09	25	22.9	2000	$2,60 \times 10^{-4}$	7.28
20177362	25x50	50	26.09	25	22.9	2500	$2,60 \times 10^{-4}$	9.10
20177379	25x50	50	26.09	25	22.9	3000	$2,60 \times 10^{-4}$	10.92
20177386	25x50	50	26.08	25	22.9	3500	$2,62 \times 10^{-4}$	2.87
20177393	25x50	50	26.08	25	22.9	4000	$2,62 \times 10^{-4}$	3.59
20177409	25x50	50	26.08	25	22.9	4500	$2,62 \times 10^{-4}$	5.39
20177416	25x50	50	26.08	25	22.9	5000	$2,62 \times 10^{-4}$	7.18
20177423	25x50	50	26.08	25	22.9	5500	$2,62 \times 10^{-4}$	8.98
20177430	25x50	50	26.08	25	22.9	6000	$2,62 \times 10^{-4}$	10.77



EL1375.32

BALL-SCREW & NUTS

Material

Steel (CF53 or C55R), induction hardened to 60 HRC ± 2 , polished.

Technical Notes

Gothic profile with a 5, 10, 20 or 40mm lead.

Tolerance T7 - 50 μ /300mm. Shorter lengths or longer lengths up to a maximum

of 6000mm available.

For ball screw nuts see parts EL1370-EL1374 & EL1377.

For end screw machining to suit ball screw support units see relevant ball screw supports (EL1388-EL1406). End machining on request.

Also available as a left hand thread for

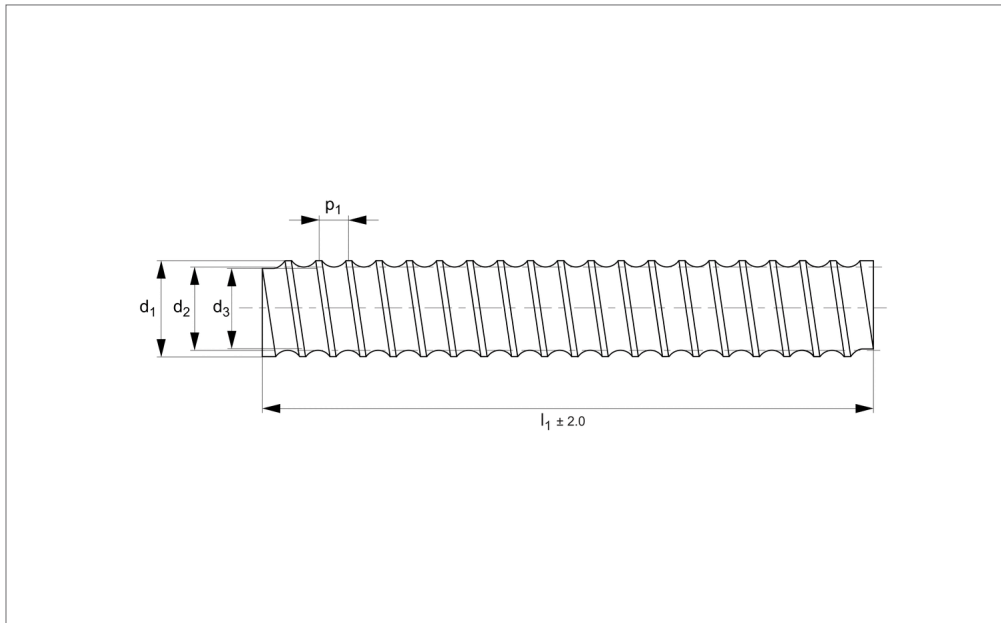
5mm pitch.

Important Notes

Ensure the ball nut can be fitted to the ball screw after machining. Do not remove the ball nut from the sleeve prior to installation - the balls come free rendering the ball nut unusable.

Order No.	Screw dia. x lead	Lead w_1	d_1	d_2	d_3	l_1	Mass moment of inertia $kg \cdot m^2$	Weight kg
20177447	32x 5	5	33.08	32	29.90	500	$7,25 \times 10^{-4}$	2.99
20177454	32x 5	5	33.08	32	29.90	600	$7,25 \times 10^{-4}$	3.59
20177461	32x 5	5	33.08	32	29.90	800	$7,25 \times 10^{-4}$	4.78
20177478	32x 5	5	33.08	32	29.90	1000	$7,25 \times 10^{-4}$	5.98
20177485	32x 5	5	33.08	32	29.90	1500	$7,25 \times 10^{-4}$	8.97
20177492	32x 5	5	33.08	32	29.90	2000	$7,25 \times 10^{-4}$	11.96
20177508	32x 5	5	33.08	32	29.90	2500	$7,25 \times 10^{-4}$	14.95
20177515	32x 5	5	33.08	32	29.90	3000	$7,25 \times 10^{-4}$	17.94
20177522	32x 5	5	33.08	32	29.90	3500	$7,25 \times 10^{-4}$	4.78
20177539	32x 5	5	33.08	32	29.90	4000	$7,25 \times 10^{-4}$	5.98
20177546	32x 5	5	33.08	32	29.90	4500	$7,25 \times 10^{-4}$	8.97
20177553	32x 5	5	33.08	32	29.90	5000	$7,25 \times 10^{-4}$	11.96
20177560	32x 5	5	33.08	32	29.90	5500	$7,25 \times 10^{-4}$	14.95
20177577	32x 5	5	33.08	32	29.90	6000	$7,25 \times 10^{-4}$	14.95
20177584	32x10	10	34.15	32	27.80	500	$7,69 \times 10^{-4}$	3.08
20177591	32x10	10	34.15	32	27.80	600	$7,69 \times 10^{-4}$	3.70
20177607	32x10	10	34.15	32	27.80	800	$7,69 \times 10^{-4}$	4.93
20177614	32x10	10	34.15	32	27.80	1000	$7,69 \times 10^{-4}$	6.16
20177621	32x10	10	34.15	32	27.80	1500	$7,69 \times 10^{-4}$	9.24
20177638	32x10	10	34.15	32	27.80	2000	$7,69 \times 10^{-4}$	12.32
20177645	32x10	10	34.15	32	27.80	2500	$7,69 \times 10^{-4}$	15.40
20177652	32x10	10	34.15	32	27.80	3000	$7,69 \times 10^{-4}$	18.48
20177669	32x10	10	33.08	32	29.90	3500	$7,25 \times 10^{-4}$	4.78
20177676	32x10	10	33.08	32	29.90	4000	$7,25 \times 10^{-4}$	5.98
20177683	32x10	10	33.08	32	29.90	4500	$7,25 \times 10^{-4}$	8.97
20177690	32x10	10	33.08	32	29.90	5000	$7,25 \times 10^{-4}$	11.96
20177706	32x10	10	33.08	32	29.90	5500	$7,25 \times 10^{-4}$	14.95
20177713	32x10	10	33.08	32	29.90	6000	$7,25 \times 10^{-4}$	14.95
20177720	32x20	20	33.35	32	29.38	500	$7,76 \times 10^{-4}$	3.19

Order No.	Screw dia. x lead	Lead w_1	d_1	d_2	d_3	l_1	Mass moment of inertia $kg \cdot m^2$	Weight kg
20177737	32x20	20	33.35	32	29.38	600	$7,76 \times 10^{-4}$	3.82
20177744	32x20	20	33.35	32	29.38	800	$7,76 \times 10^{-4}$	5.10
20177751	32x20	20	33.35	32	29.38	1000	$7,76 \times 10^{-4}$	6.37
20177768	32x20	20	33.35	32	29.38	1500	$7,76 \times 10^{-4}$	9.56
20177775	32x20	20	33.35	32	29.38	2000	$7,76 \times 10^{-4}$	12.74
20177782	32x20	20	33.35	32	29.38	2500	$7,76 \times 10^{-4}$	15.93
20177799	32x20	20	33.35	32	29.38	3000	$7,76 \times 10^{-4}$	19.11
20177805	32x20	20	33.08	32	29.90	3500	$7,25 \times 10^{-4}$	4.78
20177812	32x20	20	33.08	32	29.90	4000	$7,25 \times 10^{-4}$	5.98
20177829	32x20	20	33.08	32	29.90	4500	$7,25 \times 10^{-4}$	8.97
20177836	32x20	20	33.08	32	29.90	5000	$7,25 \times 10^{-4}$	11.96
20177843	32x20	20	33.08	32	29.90	5500	$7,25 \times 10^{-4}$	14.95
20177850	32x20	20	33.08	32	29.90	6000	$7,25 \times 10^{-4}$	14.95
20177867	32x32	32	32.35	32	28.40	500	$6,89 \times 10^{-4}$	2.91
20177874	32x32	32	32.35	32	28.40	600	$6,89 \times 10^{-4}$	3.49
20177881	32x32	32	32.35	32	28.40	800	$6,89 \times 10^{-4}$	4.65
20177898	32x32	32	32.35	32	28.40	1000	$6,89 \times 10^{-4}$	5.81
20177904	32x32	32	32.35	32	28.40	1500	$6,89 \times 10^{-4}$	8.72
20177911	32x32	32	32.35	32	28.40	2000	$6,89 \times 10^{-4}$	11.62
20177928	32x32	32	32.35	32	28.40	2500	$6,89 \times 10^{-4}$	14.53
20177935	32x32	32	32.35	32	28.40	3000	$6,89 \times 10^{-4}$	17.43
20177942	32x32	32	32.35	32	28.40	3500	$6,89 \times 10^{-4}$	4.65
20177959	32x32	32	32.35	32	28.40	4000	$6,89 \times 10^{-4}$	5.81
20177966	32x32	32	32.35	32	28.40	4500	$6,89 \times 10^{-4}$	8.72
20177973	32x32	32	32.35	32	28.40	5000	$6,89 \times 10^{-4}$	11.62
20177980	32x32	32	32.35	32	28.40	5500	$6,89 \times 10^{-4}$	14.53
20177997	32x32	32	32.35	32	28.40	6000	$6,89 \times 10^{-4}$	17.43
20178000	32x64	64	32.35	32	28.40	500	$6,89 \times 10^{-4}$	2.91
20178017	32x64	64	32.35	32	28.40	600	$6,89 \times 10^{-4}$	3.49
20178024	32x64	64	32.35	32	28.40	800	$6,89 \times 10^{-4}$	4.65
20178031	32x64	64	32.35	32	28.40	1000	$6,89 \times 10^{-4}$	5.81
20178048	32x64	64	32.35	32	28.40	1500	$6,89 \times 10^{-4}$	8.72
20178055	32x64	64	32.35	32	28.40	2000	$6,89 \times 10^{-4}$	11.62
20178062	32x64	64	32.35	32	28.40	2500	$6,89 \times 10^{-4}$	14.53
20178079	32x64	64	32.35	32	28.40	3000	$6,89 \times 10^{-4}$	17.43
20178086	32x64	64	32.35	32	28.40	3500	$6,89 \times 10^{-4}$	4.65
20178093	32x64	64	32.35	32	28.40	4000	$6,89 \times 10^{-4}$	5.81
20178109	32x64	64	32.35	32	28.40	4500	$6,89 \times 10^{-4}$	8.72
20178116	32x64	64	32.35	32	28.40	5000	$6,89 \times 10^{-4}$	11.62
20178123	32x64	64	32.35	32	28.40	5500	$6,89 \times 10^{-4}$	14.53
20178130	32x64	64	32.35	32	28.40	6000	$6,89 \times 10^{-4}$	17.43



EL1375.40

Material

Steel (CF53 or C55R), induction hardened to 60 HRC ± 2 , polished.

Technical Notes

Gothic profile with a 5, 10 or 20mm lead.
Tolerance T7 - 50 μ /300mm. Shorter lengths or longer lengths up to a maximum

of 6000mm available.

For ball screw nuts see parts EL1370-EL1374 & EL1377.

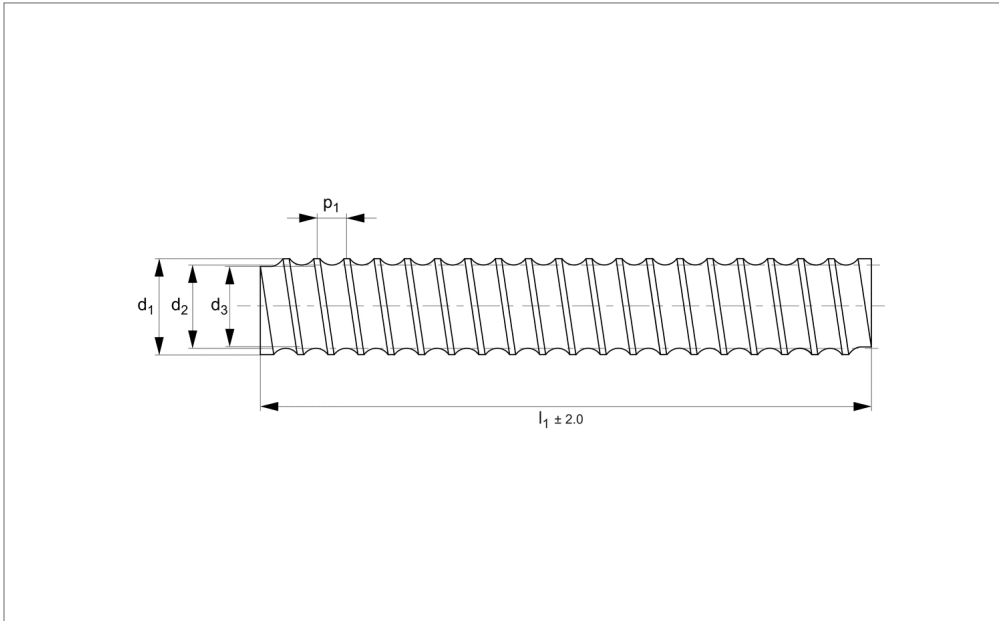
For end screw machining to suit ball screw support units see relevant ball screw supports (EL1388-EL1406). End machining on request.

Important Notes

Ensure the ball nut can be fitted to the ball screw after machining. Do not remove the ball nut from the sleeve prior to installation - the balls come free rendering the ball nut unusable.

Order No.	Screw dia. x lead	Lead w_1	d_1	d_2	d_3	l_1	Mass moment of inertia $kg \cdot m^2$	Weight kg
20178147	40x 5	5	41.08	40	37.9	500	$1,81 \times 10^{-3}$	4.72
20178154	40x 5	5	41.08	40	37.9	600	$1,81 \times 10^{-3}$	5.66
20178161	40x 5	5	41.08	40	37.9	800	$1,81 \times 10^{-3}$	7.55
20178178	40x 5	5	41.08	40	37.9	1000	$1,81 \times 10^{-3}$	9.44
20178185	40x 5	5	41.08	40	37.9	1500	$1,81 \times 10^{-3}$	14.16
20178192	40x 5	5	41.08	40	37.9	2000	$1,81 \times 10^{-3}$	18.88
20178208	40x 5	5	41.08	40	37.9	2500	$1,81 \times 10^{-3}$	23.60
20178215	40x 5	5	41.08	40	37.9	3000	$1,81 \times 10^{-3}$	28.32
20178222	40x 5	5	41.08	40	37.9	3500	$1,81 \times 10^{-3}$	7.55
20178239	40x 5	5	41.08	40	37.9	4000	$1,81 \times 10^{-3}$	9.44
20178246	40x 5	5	41.08	40	37.9	4500	$1,81 \times 10^{-3}$	14.16
20178253	40x 5	5	41.08	40	37.9	5000	$1,81 \times 10^{-3}$	18.88
20178260	40x 5	5	41.08	40	37.9	5500	$1,81 \times 10^{-3}$	23.60
20178277	40x 5	5	41.08	40	37.9	6000	$1,81 \times 10^{-3}$	28.32
20178284	40x10	10	42.15	40	35.8	500	$1,66 \times 10^{-3}$	4.51
20178291	40x10	10	42.15	40	35.8	600	$1,66 \times 10^{-3}$	5.41
20178307	40x10	10	42.15	40	35.8	800	$1,66 \times 10^{-3}$	7.22
20178314	40x10	10	42.15	40	35.8	1000	$1,66 \times 10^{-3}$	9.02
20178321	40x10	10	42.15	40	35.8	1500	$1,66 \times 10^{-3}$	13.53
20178338	40x10	10	42.15	40	35.8	2000	$1,66 \times 10^{-3}$	18.04
20178345	40x10	10	42.15	40	35.8	2500	$1,66 \times 10^{-3}$	22.55
20178352	40x10	10	42.15	40	35.8	3000	$1,66 \times 10^{-3}$	27.06
20178369	40x10	10	42.15	40	37.9	3500	$1,81 \times 10^{-3}$	7.55
20178376	40x10	10	42.15	40	37.9	4000	$1,81 \times 10^{-3}$	9.44
20178383	40x10	10	42.15	40	37.9	4500	$1,81 \times 10^{-3}$	14.16
20178390	40x10	10	42.15	40	37.9	5000	$1,81 \times 10^{-3}$	18.88
20178406	40x10	10	42.15	40	37.9	5500	$1,81 \times 10^{-3}$	23.60
20178413	40x10	10	42.15	40	37.9	6000	$1,81 \times 10^{-3}$	28.32
20178420	40x20	20	42.15	40	35.8	500	$1,66 \times 10^{-3}$	4.51
20178437	40x20	20	42.15	40	35.8	600	$1,66 \times 10^{-3}$	5.41

Order No.	Screw dia. x lead	Lead w_1	d_1	d_2	d_3	l_1	Mass moment of inertia $kg \cdot m^2$	Weight kg
20178444	40x20	20	42.15	40	35.8	800	$1,66 \times 10^{-3}$	7.22
20178451	40x20	20	42.15	40	35.8	1000	$1,66 \times 10^{-3}$	9.02
20178468	40x20	20	42.15	40	35.8	1500	$1,66 \times 10^{-3}$	13.53
20178475	40x20	20	42.15	40	35.8	2000	$1,66 \times 10^{-3}$	18.04
20178482	40x20	20	42.15	40	35.8	2500	$1,66 \times 10^{-3}$	22.55
20178499	40x20	20	42.15	40	35.8	3000	$1,66 \times 10^{-3}$	27.06
20178505	40x20	20	41.08	40	37.9	3500	$1,81 \times 10^{-3}$	7.55
20178512	40x20	20	41.08	40	37.9	4000	$1,81 \times 10^{-3}$	9.44
20178529	40x20	20	41.08	40	37.9	4500	$1,81 \times 10^{-3}$	14.16
20178536	40x20	20	41.08	40	37.9	5000	$1,81 \times 10^{-3}$	18.88
20178543	40x20	20	41.08	40	37.9	5500	$1,81 \times 10^{-3}$	23.60
20178550	40x20	20	41.08	40	37.9	6000	$1,81 \times 10^{-3}$	28.32
20178567	40x40	40	39.52	40	33.2	500	$1,43 \times 10^{-3}$	4.15
20178574	40x40	40	39.52	40	33.2	600	$1,43 \times 10^{-3}$	4.97
20178581	40x40	40	39.52	40	33.2	800	$1,43 \times 10^{-3}$	6.63
20178598	40x40	40	39.52	40	33.2	1000	$1,43 \times 10^{-3}$	8.29
20178604	40x40	40	39.52	40	33.2	1500	$1,43 \times 10^{-3}$	12.44
20178611	40x40	40	39.52	40	33.2	2000	$1,43 \times 10^{-3}$	16.58
20178628	40x40	40	39.52	40	33.2	2500	$1,43 \times 10^{-3}$	20.73
20178635	40x40	40	39.52	40	33.2	3000	$1,43 \times 10^{-3}$	24.87
20178642	40x40	40	41.08	40	37.9	3500	$1,81 \times 10^{-3}$	7.55
20178659	40x40	40	41.08	40	37.9	4000	$1,81 \times 10^{-3}$	9.44
20178666	40x40	40	41.08	40	37.9	4500	$1,81 \times 10^{-3}$	14.16
20178673	40x40	40	41.08	40	37.9	5000	$1,81 \times 10^{-3}$	18.88
20178680	40x40	40	41.08	40	37.9	5500	$1,81 \times 10^{-3}$	23.60
20178697	40x40	40	41.08	40	37.9	6000	$1,81 \times 10^{-3}$	28.32
20178703	40x80	80	39.52	40	33.2	500	$1,43 \times 10^{-3}$	4.15
20178710	40x80	80	39.52	40	33.2	600	$1,43 \times 10^{-3}$	4.97
20178727	40x80	80	39.52	40	33.2	800	$1,43 \times 10^{-3}$	6.63
20178734	40x80	80	39.52	40	33.2	1000	$1,43 \times 10^{-3}$	8.29
20178741	40x80	80	39.52	40	33.2	1500	$1,43 \times 10^{-3}$	12.44
20178758	40x80	80	39.52	40	33.2	2000	$1,43 \times 10^{-3}$	16.58
20178765	40x80	80	39.52	40	33.2	2500	$1,43 \times 10^{-3}$	20.73
20178772	40x80	80	39.52	40	33.2	3000	$1,43 \times 10^{-3}$	24.87
20178789	40x80	80	41.08	40	37.9	3500	$1,81 \times 10^{-3}$	7.55
20178796	40x80	80	41.08	40	37.9	4000	$1,81 \times 10^{-3}$	9.44
20178802	40x80	80	41.08	40	37.9	4500	$1,81 \times 10^{-3}$	14.16
20178819	40x80	80	41.08	40	37.9	5000	$1,81 \times 10^{-3}$	18.88
20178826	40x80	80	41.08	40	37.9	5500	$1,81 \times 10^{-3}$	23.60
20178833	40x80	80	41.08	40	37.9	6000	$1,81 \times 10^{-3}$	28.32



EL1375.50

Material

Steel (CF53 or C55R), induction hardened to 60 HRC ± 2 , polished.

Technical Notes

Gothic profile with a 10 or 20mm lead.
Tolerance T7 - 50 μ /300mm. Shorter lengths or longer lengths up to a maximum

of 6000mm available.

For ball screw nuts see parts EL1370-EL1374 & EL1377.

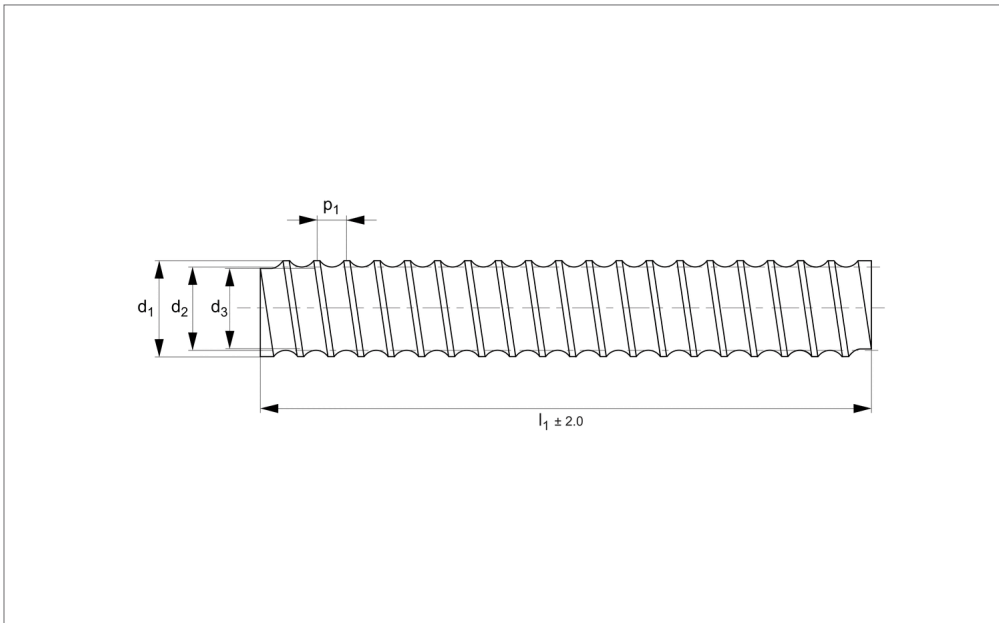
For end screw machining to suit ball screw support units see relevant ball screw supports (EL1388-EL1406). End machining on request.

Important Notes

Ensure the ball nut can be fitted to the ball screw after machining. Do not remove the ball nut from the sleeve prior to installation - the balls come free rendering the ball nut unusable.

Order No.	Screw dia. x lead	Lead w_1	d_1	d_2	d_3	l_1	Mass moment of inertia $kg \cdot m^2$	Weight kg
20178840	50x05	05	52.15	50	45.80	500	$4,19 \times 10^{-3}$	7.18
20178857	50x05	05	52.15	50	45.80	600	$4,19 \times 10^{-3}$	8.61
20178864	50x05	05	52.15	50	45.80	800	$4,19 \times 10^{-3}$	11.48
20178871	50x05	05	52.15	50	45.80	1000	$4,19 \times 10^{-3}$	14.35
20178888	50x05	05	52.15	50	45.80	1500	$4,19 \times 10^{-3}$	21.53
20178895	50x05	05	52.15	50	45.80	2000	$4,19 \times 10^{-3}$	28.70
20178901	50x05	05	52.15	50	45.80	2500	$4,19 \times 10^{-3}$	35.88
20178918	50x05	05	52.15	50	45.80	3000	$4,19 \times 10^{-3}$	43.05
20178925	50x05	05	52.15	50	45.80	3500	$4,19 \times 10^{-3}$	11.48
20178932	50x05	05	52.15	50	45.80	4000	$4,19 \times 10^{-3}$	14.35
20178949	50x05	05	52.15	50	45.80	4500	$4,19 \times 10^{-3}$	21.53
20178956	50x05	05	52.15	50	45.80	5000	$4,19 \times 10^{-3}$	28.70
20178963	50x05	05	52.15	50	45.80	5500	$4,19 \times 10^{-3}$	35.88
20178970	50x05	05	52.15	50	45.80	6000	$4,19 \times 10^{-3}$	43.05
20178987	50x10	10	52.15	50	45.80	500	$4,19 \times 10^{-3}$	7.18
20178994	50x10	10	52.15	50	45.80	600	$4,19 \times 10^{-3}$	8.61
20179007	50x10	10	52.15	50	45.80	800	$4,19 \times 10^{-3}$	11.48
20179014	50x10	10	52.15	50	45.80	1000	$4,19 \times 10^{-3}$	14.35
20179021	50x10	10	52.15	50	45.80	1500	$4,19 \times 10^{-3}$	21.53
20179038	50x10	10	52.15	50	45.80	2000	$4,19 \times 10^{-3}$	28.70
20179045	50x10	10	52.15	50	45.80	2500	$4,19 \times 10^{-3}$	35.88
20179052	50x10	10	52.15	50	45.80	3000	$4,19 \times 10^{-3}$	43.05
20179069	50x10	10	52.15	50	45.80	3500	$4,19 \times 10^{-3}$	11.48
20179076	50x10	10	52.15	50	45.80	4000	$4,19 \times 10^{-3}$	14.35
20179083	50x10	10	52.15	50	45.80	4500	$4,19 \times 10^{-3}$	21.53
20179090	50x10	10	52.15	50	45.80	5000	$4,19 \times 10^{-3}$	28.70
20179106	50x10	10	52.15	50	45.80	5500	$4,19 \times 10^{-3}$	35.88
20179113	50x10	10	52.15	50	45.80	6000	$4,19 \times 10^{-3}$	43.05
20179120	50x20	20	53.58	50	44.05	500	$4,45 \times 10^{-3}$	7.41
20179137	50x20	20	53.58	50	44.05	600	$4,45 \times 10^{-3}$	8.89

Order No.	Screw dia. x lead	Lead w_1	d_1	d_2	d_3	l_1	Mass moment of inertia $\text{kg}\cdot\text{m}^2$	Weight kg
20179144	50x20	20	53.58	50	44.05	800	$4,45 \times 10^{-3}$	11.86
20179151	50x20	20	53.58	50	44.05	1000	$4,45 \times 10^{-3}$	14.82
20179168	50x20	20	53.58	50	44.05	1500	$4,45 \times 10^{-3}$	22.23
20179175	50x20	20	53.58	50	44.05	2000	$4,45 \times 10^{-3}$	29.64
20179182	50x20	20	53.58	50	44.05	2500	$4,45 \times 10^{-3}$	37.05
20179199	50x20	20	53.58	50	44.05	3000	$4,45 \times 10^{-3}$	44.46
20179205	50x20	20	53.58	50	44.05	3500	$4,45 \times 10^{-3}$	11.86
20179212	50x20	20	53.58	50	44.05	4000	$4,45 \times 10^{-3}$	14.82
20179229	50x20	20	53.58	50	44.05	4500	$4,45 \times 10^{-3}$	22.23
20179236	50x20	20	53.58	50	44.05	5000	$4,45 \times 10^{-3}$	29.64
20179243	50x20	20	53.58	50	44.05	5500	$4,45 \times 10^{-3}$	37.05
20179250	50x20	20	53.58	50	44.05	6000	$4,45 \times 10^{-3}$	44.46
20179267	50x50	50	53.58	50	44.05	500	$4,45 \times 10^{-3}$	7.30
20179274	50x50	50	53.58	50	44.05	600	$4,45 \times 10^{-3}$	8.76
20179281	50x50	50	53.58	50	44.05	800	$4,45 \times 10^{-3}$	11.68
20179298	50x50	50	53.58	50	44.05	1000	$4,45 \times 10^{-3}$	14.59
20179304	50x50	50	53.58	50	44.05	1500	$4,45 \times 10^{-3}$	21.89
20179311	50x50	50	53.58	50	44.05	2000	$4,45 \times 10^{-3}$	29.18
20179328	50x50	50	53.58	50	44.05	2500	$4,45 \times 10^{-3}$	36.48
20179335	50x50	50	53.58	50	44.05	3000	$4,45 \times 10^{-3}$	43.77
20179342	50x50	50	53.58	50	44.05	3500	$4,45 \times 10^{-3}$	11.68
20179359	50x50	50	53.58	50	44.05	4000	$4,45 \times 10^{-3}$	14.59
20179366	50x50	50	53.58	50	44.05	4500	$4,45 \times 10^{-3}$	21.89
20179373	50x50	50	53.58	50	44.05	5000	$4,45 \times 10^{-3}$	29.18
20179380	50x50	50	53.58	50	44.05	5500	$4,45 \times 10^{-3}$	36.48
20179397	50x50	50	53.58	50	44.05	6000	$4,45 \times 10^{-3}$	43.77



EL1375.63

Material

Steel (CF53 or C55R), induction hardened to 60 HRC ± 2 , polished.

Technical Notes

Gothic profile with a 10mm lead.
Tolerance T7 - 50 μ /300mm. Shorter lengths or longer lengths up to a maximum

of 6000mm available.

For ball screw nuts see parts EL1370-EL1374 & EL1377.

For end screw machining to suit ball screw support units see relevant ball screw supports (EL1388-EL1406). End machining on request.

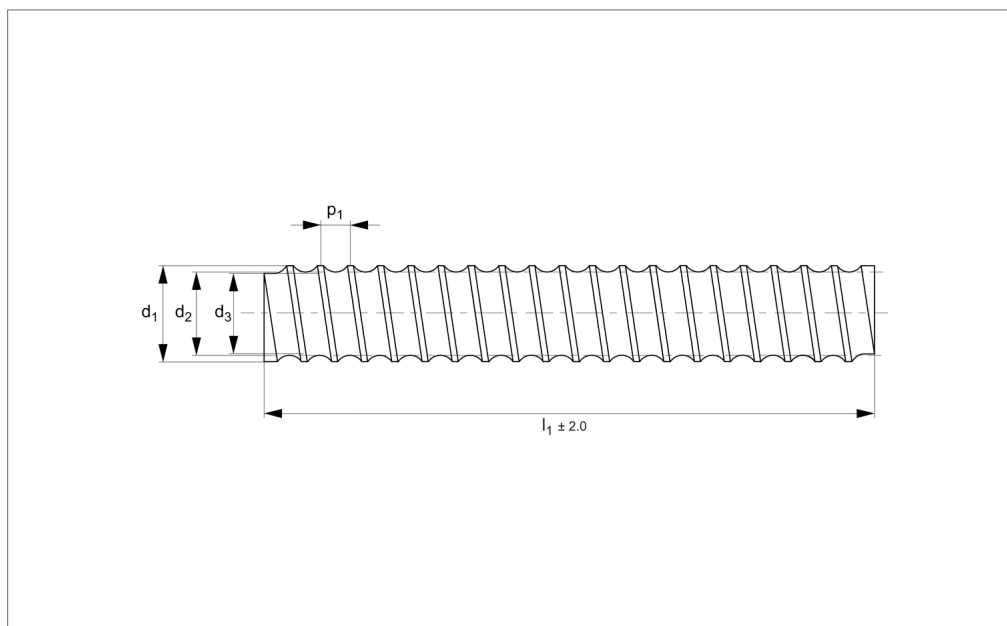
Important Notes

Ensure the ball nut can be fitted to the ball screw after machining. Do not remove the ball nut from the sleeve prior to installation - the balls come free rendering the ball nut unusable.

Order No.	Screw dia. x lead	Lead w_1	d_1	d_2	d_3	l_1	Mass moment of inertia $\text{kg}\cdot\text{m}^2$	Weight kg
20179403	63x10	10	65.15	63	58.8	500	$1,09 \times 10^{-2}$	11.56
20179410	63x10	10	65.15	63	58.8	600	$1,09 \times 10^{-2}$	13.87
20179427	63x10	10	65.15	63	58.8	700	$1,09 \times 10^{-2}$	16.18
20179434	63x10	10	65.15	63	58.8	800	$1,09 \times 10^{-2}$	18.50
20179441	63x10	10	65.15	63	58.8	1000	$1,09 \times 10^{-2}$	23.12
20179458	63x10	10	65.15	63	58.8	1500	$1,09 \times 10^{-2}$	34.68
20179465	63x10	10	65.15	63	58.8	2000	$1,09 \times 10^{-2}$	46.24
20179472	63x10	10	65.15	63	58.8	2500	$1,09 \times 10^{-2}$	57.80
20179489	63x10	10	65.15	63	58.8	3000	$1,09 \times 10^{-2}$	69.36
20179496	63x10	10	65.15	63	58.8	3500	$1,09 \times 10^{-2}$	18.50
20179502	63x10	10	65.15	63	58.8	4000	$1,09 \times 10^{-2}$	23.12
20179519	63x10	10	65.15	63	58.8	4500	$1,09 \times 10^{-2}$	34.68
20179526	63x10	10	65.15	63	58.8	5000	$1,09 \times 10^{-2}$	46.24
20179533	63x10	10	65.15	63	58.8	5500	$1,09 \times 10^{-2}$	57.80
20179540	63x10	10	65.15	63	58.8	6000	$1,09 \times 10^{-2}$	69.36
20179557	63x10	10	65.15	63	58.8	6500	$1,09 \times 10^{-2}$	69.36



EL1375.80



Material

Steel (CF53 or C55R), induction hardened to 60 HRC ±2, polished.

Technical Notes

Gothic profile with a 10mm lead.
Tolerance T7 - 50µ/300mm. Shorter lengths or longer lengths up to a maximum

of 6500mm available.

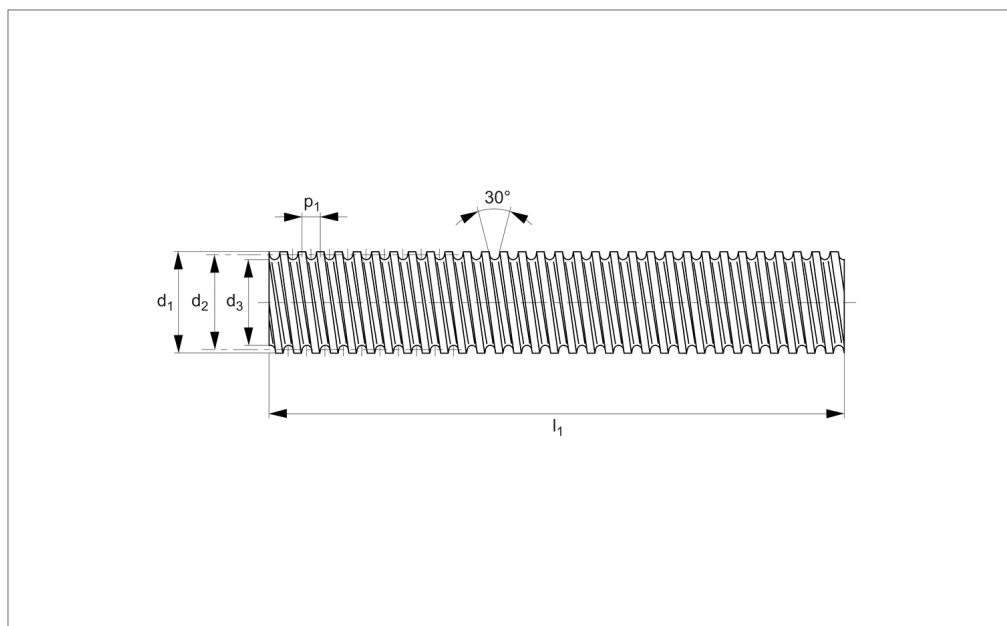
For ball screw nuts see parts EL1370-EL1374 & EL1377.

For end screw machining to suit ball screw support units see relevant ball screw supports (EL1388-EL1406). End machining on request.

Important Notes

Ensure the ball nut can be fitted to the ball screw after machining. Do not remove the ball nut from the sleeve prior to installation - the balls come free rendering the ball nut unusable.

Order No.	Screw dia. x lead	Lead w_1	d_1	d_2	d_3	l_1	Mass moment of inertia $kg \cdot m^2$	Weight kg
20179564	80x10	10	82.15	80	75.8	500	$2,89 \times 10^{-2}$	18.88
20179571	80x10	10	82.15	80	75.8	600	$2,89 \times 10^{-2}$	22.66
20179588	80x10	10	82.15	80	75.8	700	$2,89 \times 10^{-2}$	26.43
20179595	80x10	10	82.15	80	75.8	800	$2,89 \times 10^{-2}$	30.21
20179601	80x10	10	82.15	80	75.8	1000	$2,89 \times 10^{-2}$	37.76
20179618	80x10	10	82.15	80	75.8	1500	$2,89 \times 10^{-2}$	56.64
20179625	80x10	10	82.15	80	75.8	2000	$2,89 \times 10^{-2}$	75.52
20179632	80x10	10	82.15	80	75.8	2500	$2,89 \times 10^{-2}$	94.40
20179649	80x10	10	82.15	80	75.8	3000	$2,89 \times 10^{-2}$	113.28
20179656	80x10	10	82.15	80	75.8	3500	$2,89 \times 10^{-2}$	30.21
20179663	80x10	10	82.15	80	75.8	4000	$2,89 \times 10^{-2}$	37.76
20179670	80x10	10	82.15	80	75.8	4500	$2,89 \times 10^{-2}$	56.64
20179687	80x10	10	82.15	80	75.8	5000	$2,89 \times 10^{-2}$	75.52
20179694	80x10	10	82.15	80	75.8	5500	$2,89 \times 10^{-2}$	94.40
20179700	80x10	10	82.15	80	75.8	6000	$2,89 \times 10^{-2}$	113.28
20179717	80x10	10	82.15	80	75.8	6500	$2,89 \times 10^{-2}$	113.28



EL1320

Material

Rolled trapezoidal thread, steel EN 10083-2 (C35, DIN 1.0501) or (C45, DIN 1.0503). Manufactured to ISO 2901/2903 (DIN 103). Surface hardness approx. 250HB.

Technical Notes

Lead' refers to the distance that a nut will travel for a complete revolution of the screw.

Select a suitable lead screw nut (part nos. EL1330 to EL1343) to suit the lead screw - the most popular nuts are the flanged, bronze nuts part no. EL1331. Single start lead screws are less expensive than twin start lead screws.

Tips

These are the standard right hand thread lead screws - for left hand thread versions

see part no. EL1321.

For stainless steel right hand lead screws see part no. EL1322.

Cutting to required length and machining of ends - on request.

Lead screw lengths of up to 6 metres can be provided for a diameter >30mm.

Order No.	Size	No. of starts	d ₁ tol. 7e	Lead	p ₁	d ₂ tol. 7e min.	d ₂ tol. 7e max.	d ₃ tol. 7h min.	d ₃ tol. 7h max.	l ₁	Lead angle	Pitch accuracy mm/300mm	Straightness mm/300mm	Weight kg
20150877	TR10x2	1	10	2	2	8,739	8,929	6,891	7,500	1000	4°07'	0,2	0,5	0,48
20150860	TR10x2	1	10	2	2	8,739	8,929	6,891	7,500	1500	4°07'	0,2	0,5	0,72
20152987	TR10x2	1	10	2	2	8,739	8,929	6,891	7,500	2000	4°07'	0,2	0,5	0,96
20150891	TR10x2	1	10	2	2	8,739	8,929	7,685	7,500	3000	4°07'	0,2	0,5	1,44
20150914	TR10x4	2	10	4	2	8,716	8,929	7,685	7,500	1000	8°12'	0,3	0,5	0,48
20151935	TR10x4	2	10	4	2	8,716	8,929	9,685	7,500	1500	8°12'	0,3	0,5	0,72
20152994	TR10x4	2	10	4	2	8,716	8,929	9,685	7,500	2000	8°12'	0,3	0,5	0,96
20150921	TR10x4	2	10	4	2	8,716	8,929	6,891	7,500	3000	8°12'	0,3	0,5	1,44
20150952	TR12x3	1	12	3	3	10,191	10,415	7,685	8,500	1000	5°17'	0,2	0,5	0,65
20150945	TR12x3	1	12	3	3	10,191	10,415	7,685	8,500	1500	5°17'	0,2	0,5	0,97
20153014	TR12x3	1	12	3	3	10,191	10,415	7,685	8,500	2000	5°17'	0,2	0,5	1,30
20150976	TR12x3	1	12	3	3	10,191	10,415	7,685	8,500	3000	5°17'	0,2	0,5	1,95
20150990	TR12x6	2	12	6	3	10,164	10,415	7,685	8,500	1000	10°30'	0,3	0,5	0,65
20151966	TR12x6	2	12	6	3	10,164	10,415	7,685	8,500	1500	10°30'	0,3	0,5	0,97
20153021	TR12x6	2	12	6	3	10,164	10,415	7,685	8,500	2000	10°30'	0,3	0,5	1,30
20151003	TR12x6	2	12	6	3	10,164	10,415	7,685	8,500	3000	10°30'	0,3	0,5	1,95
20151027	TR14x3	1	14	3	3	12,191	12,415	9,685	10,500	1000	4°26'	0,2	0,5	0,93
20151010	TR14x3	1	14	3	3	12,191	12,415	9,685	10,500	1500	4°26'	0,2	0,5	1,39
20153038	TR14x3	1	14	3	3	12,191	12,415	9,685	10,500	2000	4°26'	0,2	0,5	1,86
20151041	TR14x3	1	14	3	3	12,191	12,415	9,685	10,500	3000	4°26'	0,2	0,5	2,79
20151065	TR14x6	2	14	6	3	12,164	12,415	9,685	10,500	1000	8°49'	0,3	0,5	0,93
20151980	TR14x6	2	14	6	3	12,164	12,415	9,685	10,500	1500	8°49'	0,3	0,5	1,39
20153045	TR14x6	2	14	6	3	12,164	12,415	9,685	10,500	2000	8°49'	0,3	0,5	1,86
20152253	TR14x6	2	14	6	3	12,164	12,415	9,685	10,500	3000	8°49'	0,3	0,5	2,79
20151089	TR16x4	1	16	4	4	13,640	13,905	10,474	11,500	1000	5°16'	0,05	0,5	1,17

Steel Lead Screws

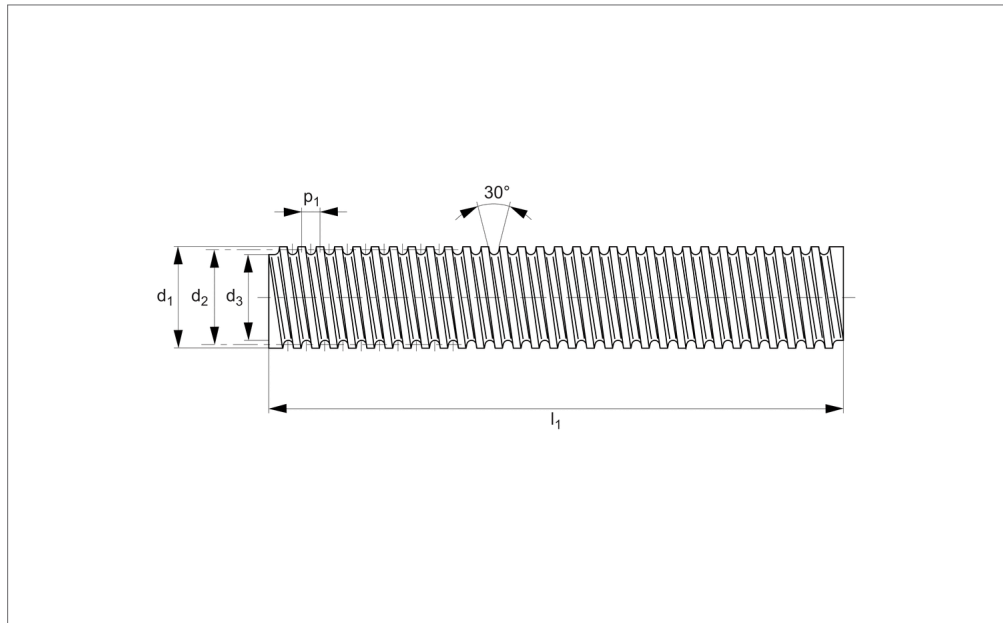
right hand thread

Lead Screws & Nuts

Order No.	Size	No. of starts	d ₁ tol. 7e	Lead	p ₁	d ₂ tol. 7e min.	d ₂ tol. 7e max.	d ₃ tol. 7h min.	d ₃ tol. 7h max.	l ₁	Lead angle	Pitch accuracy mm/300mm	Straightness mm/300mm	Weight kg
20151539	TR32x6	1	32	6	6	28,547	28,882	23,563	25,000	3000	3°48'	0,07	0,2	15,09
20152383	TR32x12	2	32	12	6	28,507	28,882	23,563	25,000	1000	7°34'	0,2	0,3	5,03
20152147	TR32x12	2	32	12	6	28,547	28,882	23,563	25,000	1500	7°34'	0,2	0,3	7,54
20152666	TR32x12	2	32	12	6	28,547	28,882	23,563	25,000	2000	7°34'	0,2	0,3	10,06
20152390	TR32x12	2	32	12	6	28,547	28,882	23,563	25,000	3000	7°34'	0,2	0,3	15,09
20151560	TR36x6	1	36	6	6	32,547	32,882	27,563	29,000	1000	3°20'	0,07	0,2	6,54
20151553	TR36x6	1	36	6	6	32,547	32,882	27,563	29,000	1500	3°20'	0,07	0,2	9,81
20153182	TR36x6	1	36	6	6	32,547	32,882	27,563	29,000	2000	3°20'	0,07	0,2	13,08
20151584	TR36x6	1	36	6	6	32,547	32,882	27,563	29,000	3000	3°20'	0,07	0,2	19,62
20152406	TR36x12	2	36	12	6	32,507	32,882	27,563	29,000	1000	6°39'	0,2	0,3	6,54
20152161	TR36x12	2	36	12	6	32,547	32,882	27,563	29,000	1500	6°39'	0,2	0,3	9,81
20153199	TR36x12	2	36	12	6	32,547	32,882	27,563	29,000	2000	6°39'	0,2	0,3	13,08
20152413	TR36x12	2	36	12	6	32,547	32,882	27,563	29,000	3000	6°39'	0,2	0,3	19,62
20151614	TR40x7	1	40	7	7	36,020	36,375	30,381	32,000	1000	3°31'	0,08	0,2	7,98
20151607	TR40x7	1	40	7	7	36,020	36,375	30,381	32,000	1500	3°31'	0,08	0,2	11,97
20152680	TR40x7	1	40	7	7	36,020	36,375	30,381	32,000	2000	3°31'	0,08	0,2	15,96
20151638	TR40x7	1	40	7	7	36,020	36,375	30,381	32,000	3000	3°31'	0,08	0,2	23,94
20152420	TR40x14	2	40	14	7	35,977	36,375	30,381	32,000	1000	7°01'	0,2	0,3	7,98
20152185	TR40x14	2	40	14	7	36,020	36,375	30,381	32,000	1500	7°01'	0,2	0,3	11,97
20153205	TR40x14	2	40	14	7	36,020	36,375	30,381	32,000	2000	7°01'	0,2	0,3	15,96
20153519	TR40x14	2	40	14	7	36,020	36,375	30,381	32,000	3000	7°01'	0,2	0,3	23,94
20151669	TR44x7	1	44	7	7	40,020	40,375	34,381	36,000	1000	3°10'	0,08	0,2	9,85
20151652	TR44x7	1	44	7	7	40,020	40,375	34,381	36,000	1500	3°10'	0,08	0,2	14,78
20153212	TR44x7	1	44	7	7	40,020	40,375	34,381	36,000	2000	3°10'	0,08	0,2	19,70
20151683	TR44x7	1	44	7	7	40,020	40,375	34,381	36,000	3000	3°10'	0,08	0,2	29,55
20153908	TR44x14	2	44	14	7	39,977	40,375	34,381	36,000	1000	6°20'	0,2	0,3	9,85
20153915	TR44x14	2	44	14	7	39,977	40,375	34,381	36,000	1500	6°20'	0,2	0,3	14,78
20153922	TR44x14	2	44	14	7	39,977	40,375	34,381	36,000	2000	6°20'	0,2	0,3	19,70
20153939	TR44x14	2	44	14	7	39,977	40,375	34,381	36,000	3000	6°20'	0,2	0,3	29,55
20151713	TR50x8	1	50	8	8	45,468	45,868	39,168	41,000	1000	3°11'	0,1	0,2	12,69
20151706	TR50x8	1	50	8	8	45,468	45,868	39,168	41,000	1500	3°11'	0,1	0,2	19,03
20153229	TR50x8	1	50	8	8	45,468	45,868	39,168	41,000	2000	3°11'	0,1	0,2	25,38
20151737	TR50x8	1	50	8	8	45,468	45,868	39,168	41,000	3000	3°11'	0,1	0,2	38,07
20151768	TR55x9	1	55	9	9	49,935	50,360	42,979	45,000	1000	3°16'	0,1	0,2	15,40
20151751	TR55x9	1	55	9	9	49,935	50,360	42,979	45,000	1500	3°16'	0,1	0,2	23,10
20153236	TR55x9	1	55	9	9	49,935	50,360	42,979	45,000	2000	3°16'	0,1	0,2	30,80
20151775	TR55x9	1	55	9	9	49,935	50,360	42,979	45,000	3000	3°16'	0,1	0,2	46,20
20151799	TR60x9	1	60	9	9	54,935	55,360	47,979	50,000	1000	2°58'	0,1	0,2	18,49
20151782	TR60x9	1	60	9	9	54,935	55,360	47,979	50,000	1500	2°58'	0,1	0,2	27,73
20153243	TR60x9	1	60	9	9	54,935	55,360	47,979	50,000	2000	2°58'	0,1	0,2	36,98
20151812	TR60x9	1	60	9	9	54,935	55,360	47,979	50,000	3000	2°58'	0,1	0,2	55,47
20151836	TR70x10	1	70	10	10	64,425	64,850	56,819	59,000	1000	2°49'	0,1	0,4	25,62
20152437	TR70x10	1	70	10	10	64,425	64,850	56,819	59,000	1500	2°49'	0,1	0,4	38,43
20153250	TR70x10	1	70	10	10	64,425	64,850	56,819	59,000	2000	2°49'	0,1	0,4	51,24
20151843	TR70x10	1	70	10	10	64,425	64,850	56,819	59,000	3000	2°49'	0,1	0,4	76,86
20151850	TR80x10	1	80	10	10	74,425	74,850	66,819	69,000	1000	2°27'	0,1	0,4	34,18
20152468	TR80x10	1	80	10	10	74,425	74,850	66,819	69,000	1500	2°27'	0,1	0,4	51,27
20153267	TR80x10	1	80	10	10	74,425	74,850	66,819	69,000	2000	2°27'	0,1	0,4	68,36
20151867	TR80x10	1	80	10	10	74,425	74,850	66,819	69,000	3000	2°27'	0,1	0,4	102,54
20151874	TR90x12	1	90	12	12	83,365	83,840	74,446	77,000	1000	2°36'	0,2	0,5	43,00
20152499	TR90x12	1	90	12	12	83,365	83,840	74,446	77,000	1500	2°36'	0,2	0,5	64,50
20153274	TR90x12	1	90	12	12	83,365	83,840	74,446	77,000	2000	2°36'	0,2	0,5	86,00
20151881	TR90x12	1	90	12	12	83,365	83,840	74,446	77,000	3000	2°36'	0,2	0,5	129,00
20151898	TR95x16	1	95	16	16	86,250	86,810	73,710	77,000	1000	3°22'	0,2	1,0	45,60
20152505	TR95x16	1	95	16	16	86,250	86,810	73,710	77,000	1500	3°22'	0,2	1,0	68,40
20153281	TR95x16	1	95	16	16	86,250	86,810	73,710	77,000	2000	3°22'	0,2	1,0	91,20
20151904	TR95x16	1	95	16	16	86,250	86,810	73,710	77,000	3000	3°22'	0,2	1,0	136,80



EL1321



Material

Rolled trapezoidal thread, steel EN 10083-2 (C35, DIN 1.0501) or (C45, DIN 1.0503). Manufactured to ISO 2901/2903 (DIN 103). Surface hardness approx. 250HB.

Technical Notes

Lead' refers to the distance that a nut will travel for a complete revolution of the screw.

Select a suitable lead screw nut (part nos. EL1330 to EL1343) to suit the lead screw - the most popular nuts are the flanged, bronze nuts part no. EL1331. Single start lead screws are less expensive than twin start lead screws.

Tips

These are left hand thread lead screws - for the standard right hand threads see part

no. EL1320.

For stainless steel left hand lead screws see part no. EL1323.

Cutting to required length and machining of ends - on request.

Lead screw lengths of up to 6 metres can be provided for a diameter >30mm.

Order No.	Size	No. of starts	d_1 tol. 7e	Lead	p_1	d_2 tol. 7e min.	d_2 tol. 7e max.	d_3 tol. 7h min.	d_3 tol. 7h max.	l_1	Lead angle	Pitch accuracy mm/300mm	Straightness mm/300mm	Weight kg
20150884	TR10x2	1	10	2	2	8,739	8,929	6,891	7,500	1000	4°07'	0,2	0,5	0,48
20151928	TR10x2	1	10	2	2	8,739	8,929	6,891	7,500	1500	4°07'	0,2	0,5	0,72
20153298	TR10x2	1	10	2	2	8,739	8,929	6,891	7,500	2000	4°07'	0,2	0,5	0,96
20150907	TR10x2	1	10	2	2	8,739	8,929	6,891	7,500	3000	4°07'	0,2	0,5	1,44
20150969	TR12x3	1	12	3	3	10,191	10,415	7,685	8,500	1000	5°17'	0,2	0,5	0,65
20151959	TR12x3	1	12	3	3	10,191	10,415	7,685	8,500	1500	5°17'	0,2	0,5	0,97
20153304	TR12x3	1	12	3	3	10,191	10,415	7,685	8,500	2000	5°17'	0,2	0,5	1,30
20150983	TR12x3	1	12	3	3	10,191	10,415	7,685	8,500	3000	5°17'	0,2	0,5	1,95
20151034	TR14x3	1	14	3	3	12,191	12,415	9,685	10,500	1000	4°26'	0,2	0,5	0,93
20151973	TR14x3	1	14	3	3	12,191	12,415	9,685	10,500	1500	4°26'	0,2	0,5	1,39
20153311	TR14x3	1	14	3	3	12,191	12,415	9,685	10,500	2000	4°26'	0,2	0,5	1,86
20151058	TR14x3	1	14	3	3	12,191	12,415	9,685	10,500	3000	4°26'	0,2	0,5	2,79
20151096	TR16x4	1	16	4	4	13,640	13,905	10,474	11,500	1000	5°16'	0,05	0,5	1,17
20151997	TR16x4	1	16	4	4	13,640	13,905	10,474	11,500	1500	5°16'	0,05	0,5	1,75
20153328	TR16x4	1	16	4	4	13,640	13,905	10,474	11,500	2000	5°16'	0,05	0,5	2,34
20151119	TR15x4	1	16	4	4	13,640	13,905	10,474	11,500	3000	5°16'	0,05	0,5	3,51
20151157	TR18x4	1	18	4	4	15,640	15,905	12,474	13,500	1000	4°36'	0,05	0,5	1,52
20152017	TR18x4	1	18	4	4	15,640	15,905	12,474	13,500	1500	4°36'	0,05	0,5	2,28
20153335	TR18x4	1	18	4	4	15,640	15,905	12,474	13,500	2000	4°36'	0,05	0,5	3,04
20151171	TR18x4	1	18	4	4	15,640	15,905	12,474	13,500	3000	4°36'	0,05	0,5	4,56
20151218	TR20x4	1	20	4	4	17,640	17,905	14,474	15,500	1000	4°05'	0,05	0,5	1,94
20152031	TR20x4	1	20	4	4	17,640	17,905	14,474	15,500	1500	4°05'	0,05	0,5	2,91
20153342	TR20x4	1	20	4	4	17,640	17,905	14,474	15,500	2000	4°05'	0,05	0,5	3,88
20151232	TR20x4	1	20	4	4	17,640	17,905	14,474	15,500	3000	4°05'	0,05	0,5	5,82
20151294	TR22x5	1	22	5	5	19,114	19,394	15,294	16,500	1000	4°43'	0,05	0,2	2,29

Steel Lead Screws

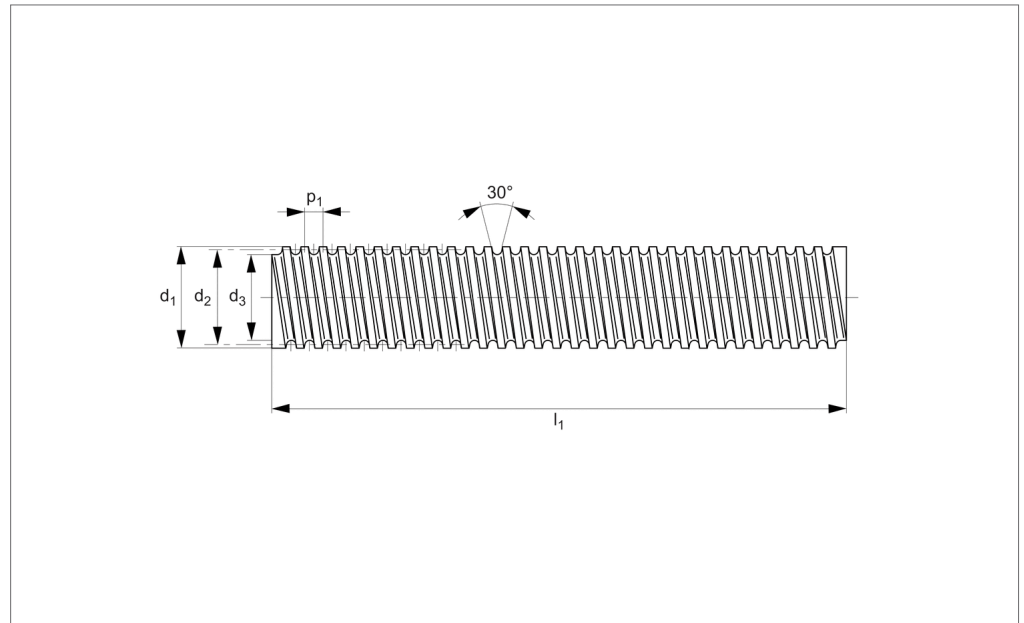
left hand thread

Lead Screws & Nuts

Order No.	Size	No. of starts	d ₁ tol. 7e	Lead	p ₁	d ₂ tol. 7e min.	d ₂ tol. 7e max.	d ₃ tol. 7h min.	d ₃ tol. 7h max.	l ₁	Lead angle	Pitch accuracy mm/300mm	Straightness mm/300mm	Weight kg
20152055	TR22x5	1	22	5	5	19,114	19,394	15,294	16,500	1500	4°43'	0,05	0,2	3,43
20153359	TR22x5	1	22	5	5	19,114	19,394	15,294	16,500	2000	4°43'	0,05	0,2	4,58
20151317	TR22x5	1	22	5	5	19,114	19,394	15,294	16,500	3000	4°43'	0,05	0,2	6,87
20151348	TR24x5	1	24	5	5	21,094	21,394	17,269	18,500	1000	4°17'	0,05	0,2	2,78
20152079	TR24x5	1	24	5	5	21,094	21,394	17,269	18,500	1500	4°17'	0,05	0,2	4,17
20153366	TR24x5	1	24	5	5	21,094	21,394	17,269	18,500	2000	4°17'	0,05	0,2	5,56
20151362	TR24x5	1	24	5	5	21,094	21,394	17,269	18,500	3000	4°17'	0,05	0,2	8,34
20151393	TR26x5	1	26	5	5	23,094	23,394	19,269	25,500	1000	3°55'	0,05	0,2	3,32
20152093	TR26x5	1	26	5	5	23,094	23,394	19,269	25,500	1500	3°55'	0,05	0,2	4,98
20153373	TR26x5	1	26	5	5	23,094	23,394	19,269	25,500	2000	3°55'	0,05	0,2	6,64
20151416	TR26x5	1	26	5	5	23,094	23,394	19,269	25,500	3000	3°55'	0,05	0,2	9,96
20151447	TR28x5	1	28	5	5	25,094	25,394	21,269	22,500	1000	3°36'	0,05	0,2	3,90
20152116	TR28x5	1	28	5	5	25,094	25,394	21,269	22,500	1500	3°36'	0,05	0,2	5,85
20153380	TR28x5	1	28	5	5	25,094	25,394	21,269	22,500	2000	3°36'	0,05	0,2	7,80
20151461	TR28x5	1	28	5	5	25,094	25,394	21,269	22,500	3000	3°36'	0,05	0,2	11,7
20152628	TR30x6	1	30	6	6	26,547	26,882	21,563	23,000	1000	4°05'	0,07	0,2	4,35
20152130	TR30x6	1	30	6	6	26,547	26,882	21,563	23,000	1500	4°05'	0,07	0,2	6,52
20152703	TR30x6	1	30	6	6	26,547	26,882	21,563	23,000	2000	4°05'	0,07	0,2	8,70
20151508	TR30x6	1	30	6	6	26,547	26,882	21,563	23,000	3000	4°05'	0,07	0,2	13,05
20151522	TR32x6	1	32	6	6	28,547	28,882	23,563	25,000	1000	3°48'	0,07	0,2	5,03
20152154	TR32x6	1	32	6	6	28,547	28,882	23,563	25,000	1500	3°48'	0,07	0,2	7,54
20153397	TR32x6	1	32	6	6	28,547	28,882	23,563	25,000	2000	3°48'	0,07	0,2	10,06
20151546	TR32x6	1	32	6	6	28,547	28,882	23,563	25,000	3000	3°48'	0,07	0,2	15,09
20151577	TR36x6	1	36	6	6	32,547	32,882	27,563	29,000	1000	3°20'	0,07	0,2	6,54
20152178	TR36x6	1	36	6	6	32,547	32,882	27,563	29,000	1500	3°20'	0,07	0,2	9,81
20153403	TR36x6	1	36	6	6	32,547	32,882	27,563	29,000	2000	3°20'	0,07	0,2	13,08
20151591	TR36x6	1	36	6	6	32,547	32,882	27,563	29,000	3000	3°20'	0,07	0,2	19,62
20151621	TR40x7	1	40	7	7	36,020	36,375	30,381	32,000	1000	3°31'	0,08	0,2	7,98
20152192	TR40x7	1	40	7	7	36,020	36,375	30,381	32,000	1500	3°31'	0,08	0,2	11,97
20153410	TR40x7	1	40	7	7	36,020	36,375	30,381	32,000	2000	3°31'	0,08	0,2	15,96
20151645	TR40x7	1	40	7	7	36,020	36,375	30,381	32,000	3000	3°31'	0,08	0,2	23,94
20151676	TR44x7	1	44	7	7	40,020	40,375	34,381	36,000	1000	3°10'	0,08	0,2	9,58
20152208	TR44x7	1	44	7	7	40,020	40,375	34,381	36,000	1500	3°10'	0,08	0,2	14,37
20153427	TR44x7	1	44	7	7	40,020	40,375	34,381	36,000	2000	3°10'	0,08	0,2	19,16
20151690	TR44x7	1	44	7	7	40,020	40,375	34,381	36,000	3000	3°10'	0,08	0,2	28,74
20151720	TR50x8	1	50	8	8	45,468	45,868	39,168	41,000	1000	3°11'	0,1	0,2	12,69
20152215	TR50x8	1	50	8	8	45,468	45,868	39,168	41,000	1500	3°11'	0,1	0,2	19,03
20153434	TR50x8	1	50	8	8	45,468	45,868	39,168	41,000	2000	3°11'	0,1	0,2	25,38
20151744	TR50x8	1	50	8	8	45,468	45,868	39,168	41,000	3000	3°11'	0,1	0,2	38,07
20151805	TR60x9	1	60	9	9	54,935	55,360	47,979	50,000	1000	2°58'	0,1	0,2	18,49
20152222	TR60x9	1	60	9	9	54,935	55,360	47,979	50,000	1500	2°58'	0,1	0,2	27,73
20153441	TR60x9	1	60	9	9	54,935	55,360	47,979	50,000	2000	2°58'	0,1	0,2	36,98
20151829	TR60x9	1	60	9	9	54,935	55,360	47,979	50,000	3000	2°58'	0,1	0,2	55,47
20152444	TR70x10	1	70	10	10	64,425	64,850	56,819	59,000	1000	2°49'	0,1	0,4	25,62
20152239	TR70x10	1	70	10	10	64,425	64,850	56,819	59,000	1500	2°49'	0,1	0,4	38,43
20153458	TR70x10	1	70	10	10	64,425	64,850	56,819	59,000	2000	2°49'	0,1	0,4	51,24
20152451	TR70x10	1	70	10	10	64,425	64,850	56,819	59,000	3000	2°49'	0,1	0,4	76,86
20152475	TR80x10	1	80	10	10	74,425	74,850	66,819	69,000	1000	2°27'	0,1	0,4	34,18
20152246	TR80x10	1	80	10	10	74,425	74,850	66,819	69,000	1500	2°27'	0,1	0,4	51,27
20153465	TR80x10	1	80	10	10	74,425	74,850	66,819	69,000	2000	2°27'	0,1	0,4	68,36
20152482	TR80x10	1	80	10	10	74,425	74,850	66,819	69,000	3000	2°27'	0,1	0,4	102,54



EL1322



Material

Rolled trapezoidal thread, stainless steel (AISI 316L, A4). Resistant to nearly all types of corrosion (can be used in a wet or corrosive environment). Manufactured to ISO 2901/2093, DIN103. Surface hardness approx. 280HB.

travel for a complete revolution of the screw.

Select a suitable lead screw nut (part nos. EL1330 to EL1343) to suit the lead screw - the most popular nuts are the flanged, bronze nuts part no. EL1331.

For left hand stainless steel threads see part no. EL1323.

Cutting to required length and machining of ends - on request.

Lead screw lengths of up to 6 metres can be provided for a diameter >30mm.

Technical Notes

Lead' refers to the distance that a nut will

Tips

Right hand thread lead screws are standard.

Order No.	Size	No. of starts	d ₁ tol. 7e	Lead	p ₁	d ₂ tol. 7e min.	d ₂ tol. 7e max.	d ₃ tol. 7h min.	d ₃ tol. 7h max.	l ₁	Lead angle	Pitch accuracy mm/300mm	Straightness mm/300mm	Weight kg
20150143	TR10x2	1	10	2	2	8,739	8,929	6,891	7,500	1000	4°07'	0,3	1,5	0,48
20150136	TR10x2	1	10	2	2	8,739	8,929	6,891	7,500	1500	4°07'	0,3	1,5	0,72
20153472	TR10x2	1	10	2	2	8,739	8,929	6,891	7,500	2000	4°07'	0,3	1,5	0,96
20150150	TR10x2	1	10	2	2	8,739	8,929	6,891	7,500	3000	4°07'	0,3	1,5	1,44
20150174	TR12x3	1	12	3	3	10,191	10,415	7,685	8,500	1000	5°17'	0,3	1,5	0,65
20152512	TR12x3	1	12	3	3	10,191	10,415	7,685	8,500	1500	5°17'	0,3	1,5	0,97
20152734	TR12x3	1	12	3	3	10,191	10,415	7,685	8,500	2000	5°17'	0,3	1,5	1,30
20150198	TR12x3	1	12	3	3	10,191	10,415	7,685	8,500	3000	5°17'	0,3	1,5	1,95
20150228	TR14x3	1	14	3	3	12,191	12,415	9,685	10,500	1000	4°26'	0,3	1,5	0,93
20150211	TR14x3	1	14	3	3	12,191	12,415	9,685	10,500	1500	4°26'	0,3	1,5	1,39
20152741	TR14x3	1	14	3	3	12,191	12,415	9,685	10,500	2000	4°26'	0,3	1,5	1,86
20150235	TR14x3	1	14	3	3	12,191	12,415	9,685	10,500	3000	4°26'	0,3	1,5	2,79
20150259	TR16x4	1	16	4	4	13,640	13,905	10,474	11,500	1000	5°16'	0,1	1,5	1,17
20152529	TR16x4	1	16	4	4	13,640	13,905	10,474	11,500	1500	5°16'	0,1	1,5	1,75
20152758	TR16x4	1	16	4	4	13,640	13,905	10,474	11,500	2000	5°16'	0,1	1,5	2,34
20150273	TR16x4	1	16	4	4	13,640	13,905	10,474	11,500	3000	5°16'	0,1	1,5	3,51
20150303	TR18x4	1	18	4	4	15,640	15,905	12,474	13,500	1000	4°36'	0,1	1,5	1,52
20150297	TR18x4	1	18	4	4	15,640	15,905	12,474	13,500	1500	4°36'	0,1	1,5	2,28
20152765	TR18x4	1	18	4	4	15,640	15,905	12,474	13,500	2000	4°36'	0,1	1,5	3,04
20150310	TR18x4	1	18	4	4	15,640	15,905	12,474	13,500	3000	4°36'	0,1	1,5	4,56
20150334	TR20x4	1	20	4	4	17,640	17,905	14,474	15,500	1000	4°05'	0,1	1,5	1,94
20152536	TR20x4	1	20	4	4	17,640	17,905	14,474	15,500	1500	4°05'	0,1	1,5	2,91
20152772	TR20x4	1	20	4	4	17,640	17,905	14,474	15,500	2000	4°05'	0,1	1,5	3,88
20150358	TR20x4	1	20	4	4	17,640	17,905	14,474	15,500	3000	4°05'	0,1	1,5	5,82
20150389	TR22x5	1	22	5	5	19,114	19,394	15,294	16,500	1000	4°43'	0,1	1,5	2,29

Stainless Lead Screws

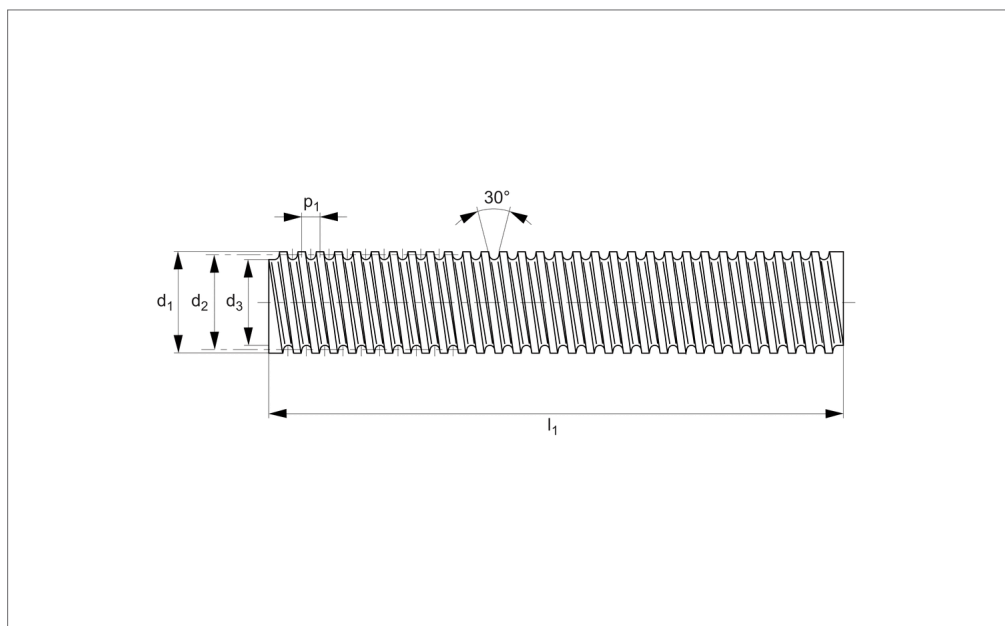
right hand thread

Lead Screws & Nuts

Order No.	Size	No. of starts	d ₁ tol. 7e	Lead	p ₁	d ₂ tol. 7e min.	d ₂ tol. 7e max.	d ₃ tol. 7h min.	d ₃ tol. 7h max.	l ₁	Lead angle	Pitch accuracy mm/300mm	Straightness mm/300mm	Weight kg
20150372	TR22x5	1	22	5	5	19,114	19,394	15,294	16,500	1500	4°43'	0.1	1.5	3,43
20152789	TR22x5	1	22	5	5	19,114	19,394	15,294	16,500	2000	4°43'	0.1	1.5	4,58
20150396	TR22x5	1	22	5	5	19,114	19,394	15,294	16,500	3000	4°43'	0.1	1.5	6,87
20150419	TR24x5	1	24	5	5	21,094	21,394	17,269	18,500	1000	4°17'	0.1	1.5	2,78
20152543	TR24x5	1	24	5	5	21,094	21,394	17,269	18,500	1500	4°17'	0.1	1.5	4,17
20152673	TR24x5	1	24	5	5	21,094	21,394	17,269	18,500	2000	4°17'	0.1	1.5	5,56
20150433	TR24x5	1	24	5	5	21,094	21,394	17,269	18,500	3000	4°17'	0.1	1.5	8,34
20150464	TR26x5	1	26	5	5	23,094	23,394	19,269	20,500	1000	3°55'	0.1	1.5	3,32
20150457	TR26x5	1	26	5	5	23,094	23,394	19,269	20,500	1500	3°55'	0.1	1.5	4,98
20152796	TR26x5	1	26	5	5	23,094	23,394	19,269	20,500	2000	3°55'	0.1	1.5	6,64
20150471	TR26x5	1	26	5	5	23,094	23,394	19,269	20,500	3000	3°55'	0.1	1.5	9,96
20150495	TR28x5	1	28	5	5	25,094	25,394	21,269	22,500	1000	3°36'	0.1	1.5	3,90
20150488	TR28x5	1	28	5	5	25,094	25,394	21,269	22,500	1500	3°36'	0.1	1.5	5,85
20152802	TR28x5	1	28	5	5	25,094	25,394	21,269	22,500	2000	3°36'	0.1	1.5	7,80
20150501	TR28x5	1	28	5	5	25,094	25,394	21,269	22,500	3000	3°36'	0.1	1.5	11,7
20150525	TR30x6	1	30	6	6	26,547	26,882	21,563	23,000	1000	4°05'	0.1	1.5	4,35
20152550	TR30x6	1	30	6	6	26,547	26,882	21,563	23,000	1500	4°05'	0.1	1.5	6,52
20152819	TR30x6	1	30	6	6	26,547	26,882	21,563	23,000	2000	4°05'	0.1	1.5	8,70
20150549	TR30x6	1	30	6	6	26,547	26,882	21,563	23,000	3000	4°05'	0.1	1.5	13,05
20150570	TR32x6	1	32	6	6	28,547	28,882	23,563	25,000	1000	3°48'	0.1	1.5	5,03
20152567	TR32x6	1	32	6	6	28,547	28,882	23,563	25,000	1500	3°48'	0.1	1.5	7,54
20152826	TR32x6	1	32	6	6	28,547	28,882	23,563	25,000	2000	3°48'	0.1	1.5	10,06
20150594	TR32x6	1	32	6	6	28,547	28,882	23,563	25,000	3000	3°48'	0.1	1.5	15,09
20150617	TR36x6	1	36	6	6	32,547	32,882	27,563	29,000	1000	3°20'	0.1	1.5	6,54
20152574	TR36x6	1	36	6	6	32,547	32,882	27,563	29,000	1500	3°20'	0.1	1.5	9,81
20152833	TR36x6	1	36	6	6	32,547	32,882	27,563	29,000	2000	3°20'	0.1	1.5	13,08
20150631	TR36x6	1	36	6	6	32,547	32,882	27,563	29,000	3000	3°20'	0.1	1.5	19,62
20150662	TR40x7	1	40	7	7	36,020	36,375	30,381	32,000	1000	3°31'	0.015	1.5	7,98
20152581	TR40x7	1	40	7	7	36,020	36,375	30,381	32,000	1500	3°31'	0.015	1.5	11,97
20152727	TR40x7	1	40	7	7	36,020	36,375	30,381	32,000	2000	3°31'	0.015	1.5	15,96
20150686	TR40x7	1	40	7	7	36,020	36,375	30,381	32,000	3000	3°31'	0.015	1.5	23,94
20150709	TR50x8	1	50	8	8	45,468	45,868	39,168	41,000	1000	3°11'	0.015	0.2	12,69
20152598	TR50x8	1	50	8	8	45,468	45,868	39,168	41,000	1500	3°11'	0.015	0.2	19,03
20152840	TR50x8	1	50	8	8	45,468	45,868	39,168	41,000	2000	3°11'	0.015	0.2	25,38
20150723	TR50x8	1	50	8	8	45,468	45,868	39,168	41,000	3000	3°11'	0.015	0.2	38,07
20150754	TR60x9	1	60	9	9	54,935	55,360	47,979	50,000	1000	2°58'	0.015	0.2	18,49
20152604	TR60x9	1	60	9	9	54,935	55,360	47,979	50,000	1500	2°58'	0.015	0.2	27,73
20152857	TR60x9	1	60	9	9	54,935	55,360	47,979	50,000	2000	2°58'	0.015	0.2	36,98
20150778	TR60x9	1	60	9	9	54,935	55,360	47,979	50,000	3000	2°58'	0.015	0.2	55,47
20150808	TR70x10	1	70	10	10	64,425	64,850	56,819	59,000	1000	2°49'	0.015	0.2	25,62
20150822	TR70x10	1	70	10	10	64,425	64,850	56,819	59,000	1500	2°49'	0.015	0.2	38,43
20152864	TR70x10	1	70	10	10	64,425	64,850	56,819	59,000	2000	2°49'	0.015	0.2	51,24
20150815	TR70x10	1	70	10	10	64,425	64,850	56,819	59,000	3000	2°49'	0.015	0.2	76,86



EL1323



Material

Rolled trapezoidal thread, stainless steel (AISI 316L, A4). Resistant to nearly all types of corrosion (can be used in a wet or corrosive environment). Manufactured to ISO 2901/2093, DIN103. Surface hardness approx. 280HB.

travel for a complete revolution of the screw.

Select a suitable lead screw nut (part nos. EL1330 to EL1343) to suit the lead screw - the most popular nuts are the flanged, bronze nuts part no. EL1331.

lead screws.

For the standard right hand threads in stainless steel see part no. EL1322. Cutting to required length and machining of ends - on request. Lead screw lengths of up to 6 metres can be provided for a diameter >30mm.

Technical Notes

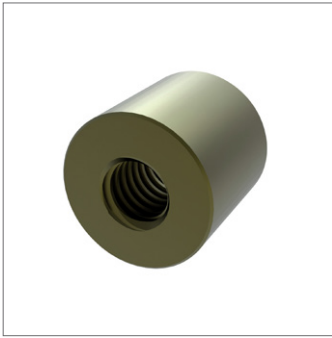
Lead' refers to the distance that a nut will

Tips

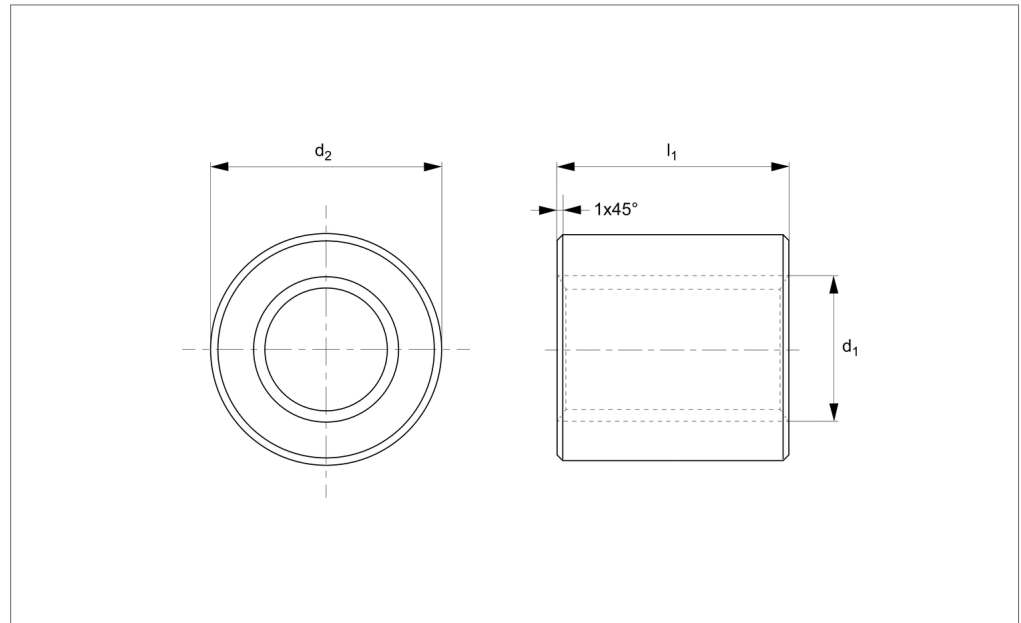
These are stainless steel left hand thread

Order No.	Size	No. of starts	d ₁ tol. 7e	Lead	p ₁	d ₂ tol. 7e min.	d ₂ tol. 7e max.	d ₃ tol. 7h min.	d ₃ tol. 7h max.	l ₁	Lead angle	Pitch accuracy mm/300mm	Straightness mm/300mm	Weight kg
20150181	TR12x3	1	12	3	3	10,191	10,415	7,685	8,500	1000	5°17'	0,3	0,5	0,65
20150167	TR12x3	1	12	3	3	10,191	10,415	7,685	8,500	1500	5°17'	0,3	0,5	0,97
20152871	TR12X3	1	12	3	3	10,191	10,415	7,685	8,500	2000	5°17'	0,3	0,5	1,30
20150204	TR12x3	1	12	3	3	10,191	10,415	7,685	8,500	3000	5°17'	0,3	0,5	1,95
20150266	TR16x4	1	16	4	4	13,640	13,905	10,474	11,500	1000	5°16'	0,2	0,1	1,17
20150242	TR16x4	1	16	4	4	13,640	13,905	10,474	11,500	1500	5°16'	0,2	0,1	1,75
20152888	TR16x4	1	16	4	4	13,640	13,905	10,474	11,500	2000	5°16'	0,2	0,1	2,34
20150280	TR16x4	1	16	4	4	13,640	13,905	10,474	11,500	3000	5°16'	0,2	0,1	3,51
20150341	TR20x4	1	20	4	4	17,640	17,905	14,474	15,500	1000	4°05'	0,2	0,1	1,94
20150327	TR20x4	1	20	4	4	17,640	17,905	14,474	15,500	1500	4°05'	0,2	0,1	2,91
20152895	TR20x4	1	20	4	4	17,640	17,905	14,474	15,500	2000	4°05'	0,2	0,1	3,88
20150365	TR20x4	1	20	4	4	17,640	17,905	14,474	15,500	3000	4°05'	0,2	0,1	5,82
20150426	TR24x5	1	24	5	5	21,094	21,394	17,269	18,500	1000	4°17'	0,5	0,1	2,78
20150402	TR24x5	1	24	5	5	21,094	21,394	17,269	18,500	1500	4°17'	0,5	0,1	4,17
20152901	TR24x5	1	24	5	5	21,094	21,394	17,269	18,500	2000	4°17'	0,5	0,1	5,56
20150440	TR24x5	1	24	5	5	21,094	21,394	17,269	18,500	3000	4°17'	0,5	0,1	8,34
20150532	TR30x6	1	30	6	6	26,547	26,882	21,563	23,000	1000	4°05'	0,5	0,1	4,35
20150518	TR30x6	1	30	6	6	26,547	26,882	21,563	23,000	1500	4°05'	0,5	0,1	6,52
20152918	TR30x6	1	30	6	6	26,547	26,882	21,563	23,000	2000	4°05'	0,5	0,1	8,70
20150556	TR30x6	1	30	6	6	26,547	26,882	21,563	23,000	3000	4°05'	0,5	0,1	13,05
20150587	TR32x6	1	32	6	6	28,547	28,882	23,563	25,000	1000	3°48'	0,5	0,1	5,03
20150563	TR32x6	1	32	6	6	28,547	28,882	23,563	25,000	1500	3°48'	0,5	0,1	7,54
20152925	TR32x6	1	32	6	6	28,547	28,882	23,563	25,000	2000	3°48'	0,5	0,1	10,06
20150600	TR32x6	1	32	6	6	28,547	28,882	23,563	25,000	3000	3°48'	0,5	0,1	15,09
20150624	TR36x6	1	36	6	6	32,547	32,882	27,563	29,000	1000	3°20'	0,5	0,1	6,54
20152611	TR36x6	1	36	6	6	32,547	32,882	27,563	29,000	1500	3°20'	0,5	0,1	9,81

Order No.	Size	No. of starts	d ₁ tol. 7e	Lead	p ₁	d ₂ tol. 7e min.	d ₂ tol. 7e max.	d ₃ tol. 7h min.	d ₃ tol. 7h max.	l ₁	Lead angle	Pitch accuracy mm/300mm	Straightness mm/300mm	Weight kg
20152932	TR36x6	1	36	6	6	32,547	32,882	27,563	29,000	2000	3°20'	0,5	0,1	13,08
20150648	TR36x6	1	36	6	6	32,547	32,882	27,563	29,000	3000	3°20'	0,5	0,1	19,62
20150679	TR40x7	1	40	7	7	36,020	36,375	30,381	32,000	1000	3°31'	0,5	0,15	7,98
20150655	TR40x7	1	40	7	7	36,020	36,375	30,381	32,000	1500	3°31'	0,5	0,15	11,97
20152949	TR40x7	1	40	7	7	36,020	36,375	30,381	32,000	2000	3°31'	0,5	0,15	15,96
20150693	TR40x7	1	40	7	7	36,020	36,375	30,381	32,000	3000	3°31'	0,5	0,15	23,94
20150761	TR60x9	1	60	9	9	54,935	55,360	47,979	50,000	1000	2°58'	0,05	0,15	18,49
20150747	TR60x9	1	60	9	9	54,935	55,360	47,979	50,000	1500	2°58'	0,05	0,15	27,73
20152963	TR60x9	1	60	9	9	54,935	55,360	47,979	50,000	2000	2°58'	0,05	0,15	36,98
20150785	TR60x9	1	60	9	9	54,935	55,360	47,979	50,000	3000	2°58'	0,05	0,15	55,47
20150839	TR70x10	1	70	10	10	64,425	64,850	56,819	59,000	1000	2°49'	0,05	0,15	25,62
20150792	TR70x10	1	70	10	10	64,425	64,850	56,819	59,000	1500	2°49'	0,05	0,15	38,43
20152970	TR70x10	1	70	10	10	64,425	64,850	56,819	59,000	2000	2°49'	0,05	0,15	51,24
20150846	TR70x10	1	70	10	10	64,425	64,850	56,819	59,000	3000	2°49'	0,05	0,15	76,86



EL1330



Material

Bronze (CuSn7ZnPb). To ISO 2901/2903 and DIN 103.

Technical Notes

For manual or powered applications at low

and medium rotation and under loads.

Tips

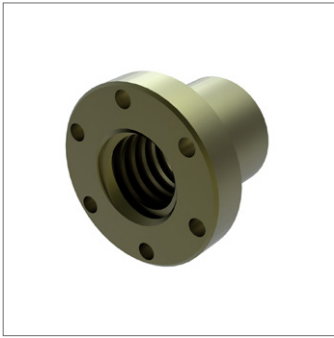
Standard nuts are right hand thread, single starts.

For use with steel or stainless steel lead

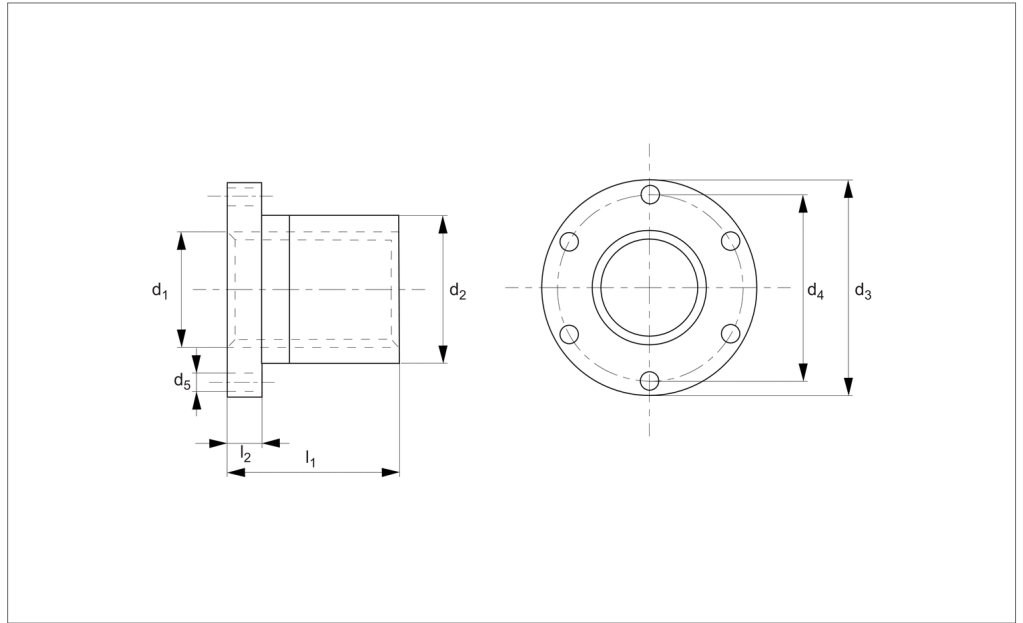
screws, EL1320, EL1321, EL1322, and EL1323.

Order No.	Size	No. of starts	d_1 tol. 7H	Lead	Thread direction	Contact surface mm ²	d_2 tol. h10	l_1	Weight kg
20147730	TR10x 2	1	10	2	Right	200	22	20	0.053
20149604	TR10x 4	2	10	4	Right	200	22	20	0.053
20147754	TR12x 3	1	12	3	Right	280	26	24	0.083
20147778	TR12x 6	2	12	6	Right	280	26	24	0.083
20147785	TR14x 3	1	14	3	Right	380	30	28	0.135
20147808	TR14x 6	2	14	6	Right	380	30	28	0.135
20147815	TR16x 4	1	16	4	Right	490	36	32	0.232
20147839	TR16x 8	2	16	8	Right	490	36	32	0.232
20147846	TR18x 4	1	18	4	Right	630	40	36	0.320
20147860	TR18x 8	2	18	8	Right	630	40	36	0.320
20147877	TR20x 4	1	20	4	Right	790	45	40	0.455
20147891	TR20x 8	2	20	8	Right	790	45	40	0.455
20147914	TR22x 5	1	22	5	Right	940	45	44	0.480
20147907	TR22x10	2	22	10	Right	940	45	44	0.480
20147945	TR24x 5	1	24	5	Right	1130	50	48	0.656
20147938	TR24x10	2	24	10	Right	1130	50	48	0.656
20147969	TR26x 5	1	26	5	Right	1340	50	52	0.670
20147990	TR28x 5	1	28	5	Right	2400	60	56	1.102
20147983	TR28x10	2	28	10	Right	1570	60	56	1.102
20148027	TR30x 6	1	30	6	Right	1780	60	60	1.140
20148010	TR30x12	2	30	12	Right	1780	60	60	1.140
20148058	TR32x 6	1	32	6	Right	1910	60	64	1.177
20148041	TR32x12	2	32	12	Right	1910	60	64	1.177
20148089	TR36x 6	1	36	6	Right	2610	75	72	2.189
20148072	TR36x12	2	36	12	Right	2610	75	72	2.189
20148119	TR40x 7	1	40	7	Right	3210	80	80	2.725
20148102	TR40x14	2	40	14	Right	3210	80	80	2.725
20148133	TR44x 7	1	44	7	Right	3920	80	88	2.815
20148157	TR50x 8	1	50	8	Right	5060	90	100	4.014
20148171	TR60x 9	1	60	9	Right	7320	100	120	5.150
20148195	TR70x10	1	70	10	Right	10000	110	140	7.805
20149505	TR80x10	1	80	10	Right	12950	120	160	9.800

Order No.	Size	No. of starts	d ₁ tol. 7H	Lead	Thread direction	Contact surface mm ²	d ₂ tol. h10	l ₁	Weight kg
20147747	TR10x 2	1	10	2	Left	200	22	20	0.053
20147761	TR12x 3	1	12	3	Left	280	26	24	0.083
20147792	TR14x 3	1	14	3	Left	380	30	28	0.136
20147822	TR16x 4	1	16	4	Left	490	36	32	0.232
20147853	TR18x 4	1	18	4	Left	630	40	36	0.320
20147884	TR20x 4	1	20	4	Left	790	45	40	0.455
20147921	TR22x 5	1	22	5	Left	940	45	44	0.480
20147952	TR24x 5	1	24	5	Left	1130	50	48	0.656
20147976	TR26x 5	1	26	5	Left	1340	50	52	0.670
20148003	TR28x 5	1	28	5	Left	2400	60	56	1.102
20148034	TR30x 6	1	30	6	Left	1780	60	60	1.140
20148065	TR32x 6	1	32	6	Left	1910	60	64	1.177
20148096	TR36x 6	1	36	6	Left	2610	75	72	2.189
20148126	TR40x 7	1	40	7	Left	3210	80	80	2.725
20148140	TR44x 7	1	44	7	Left	3920	80	88	2.815
20148164	TR50x 8	1	50	8	Left	5060	90	100	4.014
20148188	TR60x 9	1	60	9	Left	7320	100	120	5.150
20148201	TR70x10	1	70	10	Left	10000	110	140	7.805
20149512	TR80x10	1	80	10	Left	12950	120	160	9.800



EL1331



Material

Bronze (CuSn7ZnPb).

medium/low rotation speeds under load.

For use with steel or stainless steel lead screws, EL1320, EL1321, EL1322, and EL1323.

Technical Notes

For manual or powered applications at

Tips

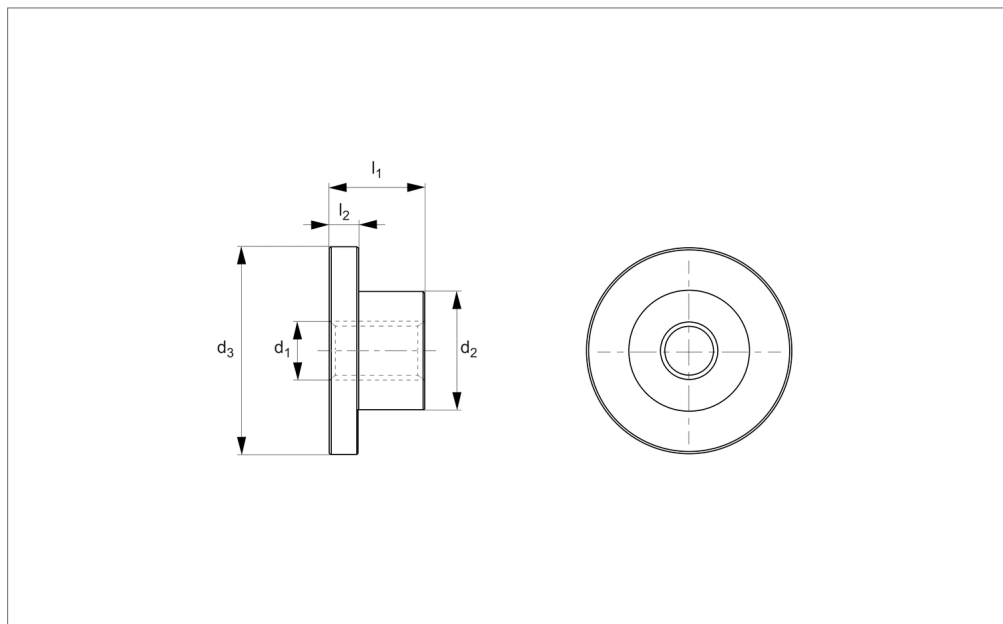
Standard nuts are right hand thread, single starts.

Order No.	Size	No. of starts	d ₁ tol. 7H	Lead	Thread hand	Contact surface mm ²	d ₂ tol. h9	d ₃ tol. h11	d ₄	d ₅	l ₁ ±0.2	l ₂ +0.15 -0.0	Weight kg
20146603	TR10x 2	1	10	2	Right	250	25	42	34	5	25	10	0.164
20149666	TR10x 4	2	10	2	Right	250	25	42	34	5	25	10	0.164
20146627	TR12x 3	1	12	3	Right	400	28	48	38	6	35	12	0.266
20146641	TR12x 6	2	12	6	Right	400	28	48	38	6	35	12	0.266
20146658	TR14x 3	1	14	3	Right	460	28	48	38	6	35	12	0.258
20146672	TR14x 6	2	14	6	Right	460	28	48	38	6	35	12	0.258
20146689	TR16x 4	1	16	4	Right	530	28	48	38	6	35	12	0.244
20146702	TR16x 8	2	16	8	Right	530	28	48	38	6	35	12	0.244
20146719	TR18x 4	1	18	4	Right	610	28	48	38	6	35	12	0.228
20146733	TR18x 8	2	18	8	Right	610	28	48	38	6	35	12	0.228
20146740	TR20x 4	1	20	4	Right	870	32	55	45	7	44	12	0.346
20146764	TR20x 8	2	20	8	Right	870	32	55	45	7	44	12	0.346
20146788	TR22x 5	1	22	5	Right	1030	32	55	45	7	44	12	0.322
20146771	TR22x10	2	22	10	Right	1030	32	55	45	7	44	12	0.322
20146818	TR24x 5	1	24	5	Right	1040	32	55	45	7	44	12	0.304
20146801	TR24x10	2	24	10	Right	1040	32	55	45	7	44	12	0.304
20146832	TR26x 5	1	26	5	Right	1280	38	62	50	7	46	14	0.474
20149581	TR26x10	2	26	10	Right	1280	38	62	50	7	46	14	0.474
20146863	TR28x 5	1	28	5	Right	1200	38	62	50	7	46	14	0.442
20146856	TR28x10	2	28	10	Right	1200	38	62	50	7	46	14	0.442
20146894	TR30x 6	1	30	6	Right	1370	38	62	50	7	46	14	0.408
20146887	TR30x12	2	30	12	Right	1370	38	62	50	7	46	14	0.408
20146924	TR32x 6	1	32	6	Right	1710	45	70	58	7	54	16	0.706
20146917	TR32x12	2	32	12	Right	1710	45	70	58	7	54	16	0.706
20146955	TR36x 6	1	36	6	Right	1950	45	70	58	7	54	16	0.606
20146948	TR36x12	2	36	12	Right	1950	45	70	58	7	54	16	0.606
20146986	TR40x 7	1	40	7	Right	2650	63	95	78	9	66	16	1.700
20146979	TR40x14	2	40	14	Right	2650	63	95	78	9	66	16	1.700
20147006	TR44x 7	1	44	7	Right	2940	63	95	78	9	66	16	1.524
20147020	TR50x 8	1	50	8	Right	4540	72	110	90	11	75	18	2.324
20147044	TR60x 9	1	60	9	Right	5490	88	130	110	13	90	20	3.942
20147068	TR70x10	1	70	10	Right	7500	95	140	120	13	105	22	4.465
20146610	TR10x 2	1	10	2	Left	250	25	42	34	5	25	10	0.164
20146634	TR12x 3	1	12	3	Left	400	28	48	38	6	35	12	0.266

Order No.	Size	No. of starts	d ₁ tol. 7H	Lead	Thread hand	Contact surface mm ²	d ₂ tol. h9	d ₃ tol. h11	d ₄	d ₅	l ₁ ±0.2	l ₂ +0.15 -0.0	Weight kg
20146665	TR14x 3	1	14	3	Left	460	28	48	38	6	35	12	0.258
20146696	TR16x 4	1	16	4	Left	530	28	48	38	6	35	12	0.244
20146726	TR18x 4	1	18	4	Left	610	28	48	38	6	35	12	0.228
20146757	TR20x 4	1	20	4	Left	870	32	55	45	7	44	12	0.346
20146795	TR22x 5	1	22	5	Left	1030	32	55	45	7	44	12	0.322
20146825	TR24x 5	1	24	5	Left	1040	32	55	45	7	44	12	0.304
20146849	TR26x 5	1	26	5	Left	1280	38	62	50	7	46	14	0.474
20146870	TR28x 5	1	28	5	Left	1200	38	62	50	7	46	14	0.442
20146900	TR30x 6	1	30	6	Left	1370	38	62	50	7	46	14	0.408
20146931	TR32x 6	1	32	6	Left	1710	45	70	58	7	54	16	0.706
20146962	TR36x 6	1	36	6	Left	1950	45	70	58	7	54	16	0.606
20146993	TR40x 7	1	40	7	Left	2650	63	95	78	9	66	16	1.700
20147013	TR44x 7	1	44	7	Left	2940	63	95	78	9	66	16	1.524
20147037	TR50x 8	1	50	8	Left	4540	72	110	90	11	75	18	2.324
20147051	TR60x 9	1	60	9	Left	5490	88	130	110	13	90	20	3.942
20147075	TR70x10	1	70	10	Left	7500	95	140	120	13	105	22	4.465



EL1332



Material

Bronze (CuSn7ZnPb).

medium/low rotation speeds under load.

For use with steel or stainless steel lead screws, EL1320, EL1321, EL1322, and EL1323.

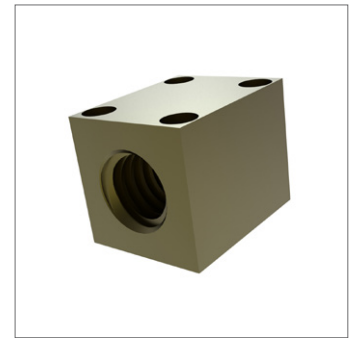
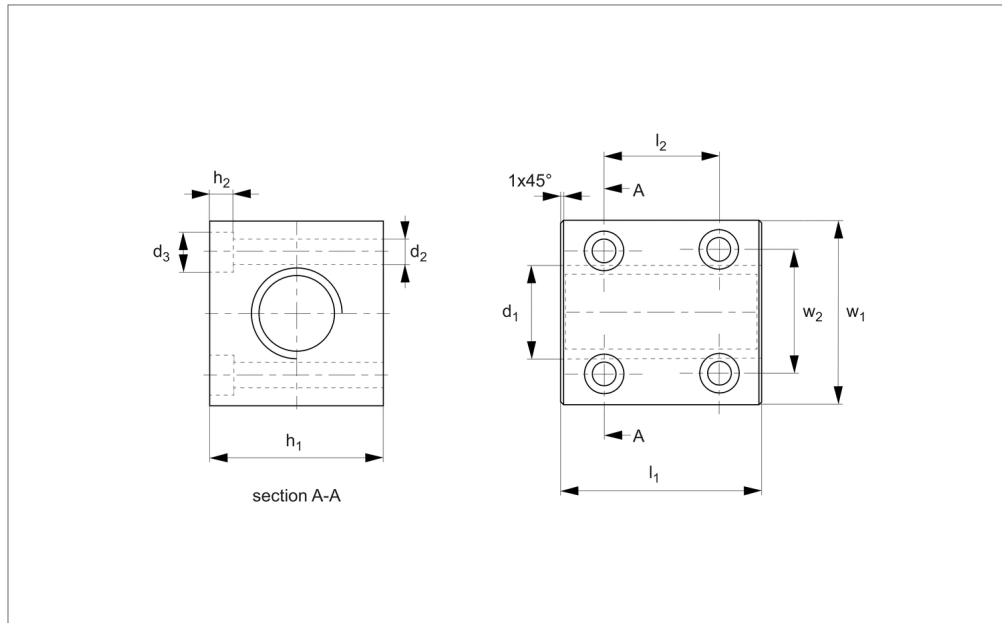
Technical Notes

For manual or powered applications at

Tips

Standard nuts are right hand thread, single starts.

Order No.	Size	No. of starts	d ₁ tol. 7H	Lead	Thread direction	Contact surface mm ²	d ₂ tol. h11	d ₃ tol. h9	l ₁	l ₂	Weight kg
20147082	TR10x 2	1	10	2	Right	150	20	35	15	6	0.068
20147105	TR12x 3	1	12	3	Right	228	24	42	20	7	0.120
20147129	TR12x 6	2	12	6	Right	262	24	42	20	7	0.120
20147136	TR14x 3	1	14	3	Right	315	30	52	24	10	0.260
20147150	TR16x 4	1	16	4	Right	363	30	52	24	10	0.250
20147174	TR16x 8	2	16	8	Right	363	30	52	24	12	0.250
20147181	TR20x 4	1	20	4	Right	514	38	62	26	11	0.400
20147204	TR20x 8	2	20	8	Right	514	38	62	26	12	0.400
20147228	TR24x 5	1	24	5	Right	780	50	77	33	13	0.750
20147211	TR24x10	2	24	10	Right	780	50	77	33	12	0.750
20147259	TR30x 6	1	30	6	Right	1430	58	90	48	15	1.400
20147242	TR30x12	2	30	12	Right	1430	58	90	48	14	1.400
20147280	TR36x 6	1	36	6	Right	2166	80	115	60	20	3.200
20147273	TR36x12	2	36	12	Right	2166	80	115	60	16	3.200
20147310	TR40x 7	1	40	7	Right	2610	80	140	65	20	4.100
20147303	TR40x14	2	40	14	Right	2610	80	140	65	16	4.100
20147334	TR50x 8	1	50	8	Right	4237	90	170	70	20	5.900
20147099	TR10x2	1	10	2	Left	150	20	35	15	6	0.068
20147112	TR12x3	1	12	3	Left	228	24	42	20	7	0.120
20147143	TR14x3	1	14	3	Left	315	30	52	24	10	0.260
20147167	TR16x4	1	16	4	Left	363	30	52	24	10	0.250
20147198	TR20x4	1	20	4	Left	514	38	62	26	11	0.400
20147235	TR24x5	1	24	5	Left	780	50	77	33	13	0.750
20147266	TR30x6	1	30	6	Left	1430	58	90	48	15	1.400
20147297	TR36x6	1	36	6	Left	2166	80	115	60	20	3.200
20147327	TR40x7	1	40	7	Left	2610	80	140	65	20	4.100
20147341	TR50x8	1	50	8	Left	4237	90	170	70	20	5.900



EL1334

Material

Bronze (CuSn7ZnPb).

Technical Notes

Suitable for movements with medium duty loads.

Tips

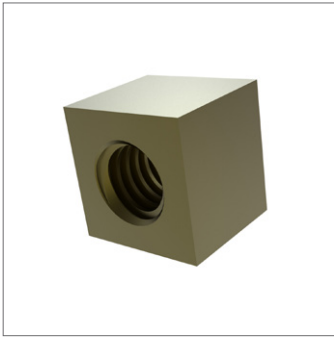
Standard nuts are right hand thread, single starts.

For use with steel or stainless steel lead screws, EL1320, EL1321, EL1322, and

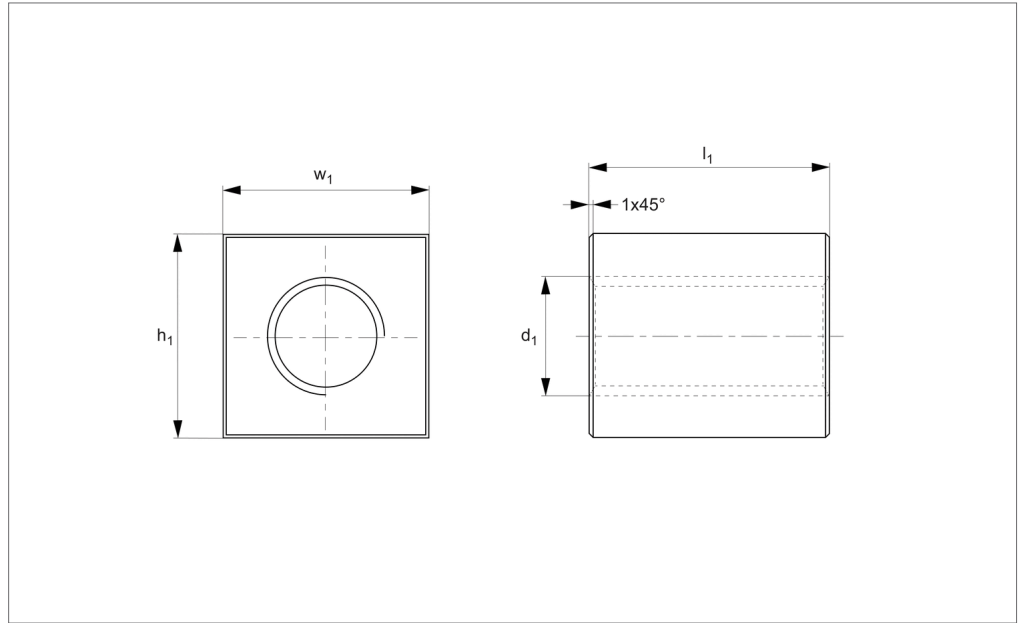
EL1323.

*Special M8 fixing screw with a reduced head diameter.

Order No.	Size	No. of starts	d_1 tol. 7H	Lead	Thread direction	Contact surface mm^2	d_2	d_3	h_1 & w_1 tol. h9	h_2	l_1 +0.0 - 0.2	l_2	w_2	For screw	Weight kg
20149086	TR16x4	1	16	4	Right	770	5	9,5	35	5,2	40	26	24	M 5	0,34
20149093	TR20x4	1	20	4	Right	1412	6	10,0	40	6,5	50	38	28	M 6	0,57
20149109	TR30x6	1	30	6	Right	2544	6	10,0	50	6,5	60	49	38	M 6	0,98
20149116	TR40x7	1	40	7	Right	4013	8*	9,9*	60	8,5	75	55	49	M 8*	1,60
20149048	TR16x4	1	16	4	Left	770	5	9,5	35	5,2	40	26	24	M 5	0,34
20149055	TR20x4	1	20	4	Left	1412	6	10,0	40	6,5	50	38	28	M 6	0,57
20149062	TR30x6	1	30	6	Left	2544	6	10,0	50	6,5	60	49	38	M 6	0,98
20149079	TR40x7	1	40	7	Left	4013	8*	9,9*	60	8,5	75	55	49	M 8*	1,60



EL1335



Material

Brass (EN 12164, CW614N-M).

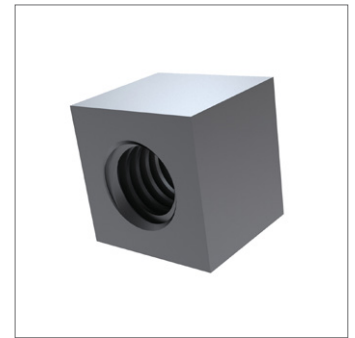
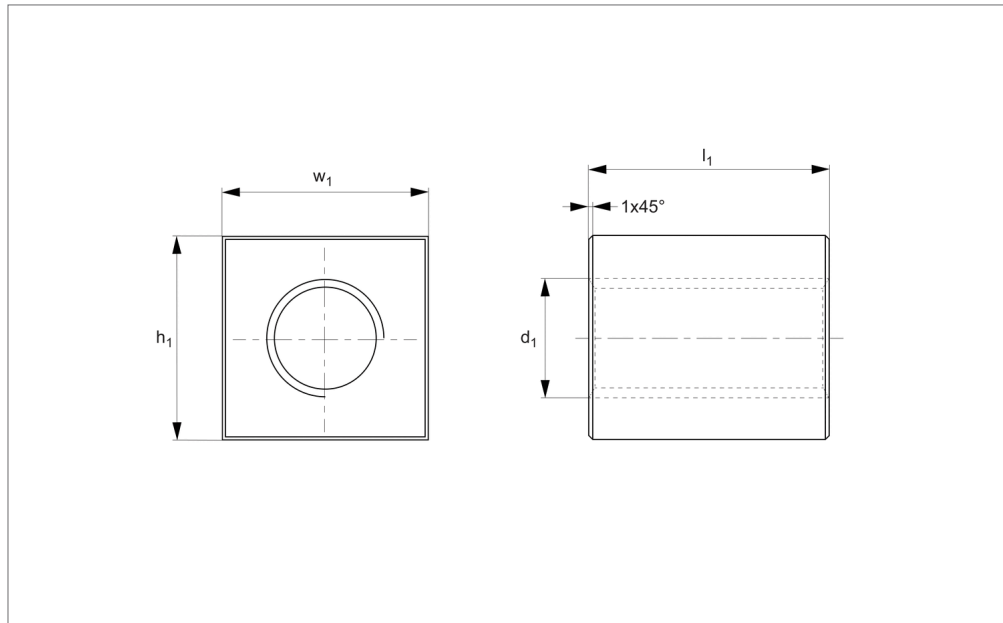
Tips

Standard nuts are right hand thread.
For use with steel or stainless steel lead screws, EL1320, EL1321, EL1322, and EL1323.

Technical Notes

Used for fairly light loads.

Order No.	Size	No. of starts	d ₁ tol. 7H	Lead	Thread direction	Contact surface mm ²	h ₁ & w ₁ tol. h11	l ₁ +0.0 -0.2	Weight kg
20149192	TR12x3	1	12	3	Right	411	25	25	0.11
20149208	TR16x4	1	16	4	Right	770	30	35	0.21
20149215	TR18x4	1	18	4	Right	1131	35	45	0.38
20149222	TR20x4	1	20	4	Right	1412	40	50	0.55
20149239	TR30x6	1	30	6	Right	2544	50	60	0.95
20149246	TR36x6	1	36	6	Right	3630	60	70	1.56
20149253	TR40x7	1	40	7	Right	4013	60	70	1.46
20149123	TR12x3	1	12	3	Left	411	25	25	0.11
20149130	TR16x4	1	16	4	Left	770	30	35	0.21
20149147	TR18x4	1	18	4	Left	1131	35	45	0.38
20149154	TR20x4	1	20	4	Left	1412	40	50	0.55
20149161	TR30x6	1	30	6	Left	2554	50	60	0.95
20149178	TR32x6	1	36	6	Left	3630	60	70	1.56
20149185	TR40x7	1	40	7	Left	4013	60	70	1.46



EL1336

Material

Steel (11SMnPb37). Manufactured to ISO 2901/2903 (DIN 103).

and for receiving dead weights.

The use of steel to steel contact surface is not suitable for motorised motion.

For use with steel or stainless steel lead screws, EL1320, EL1321, EL1322, and EL1323.

Technical Notes

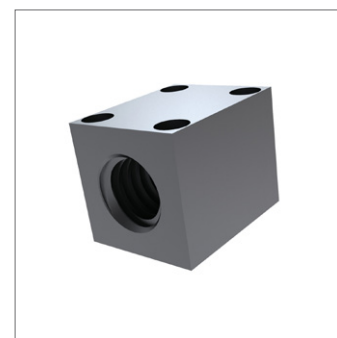
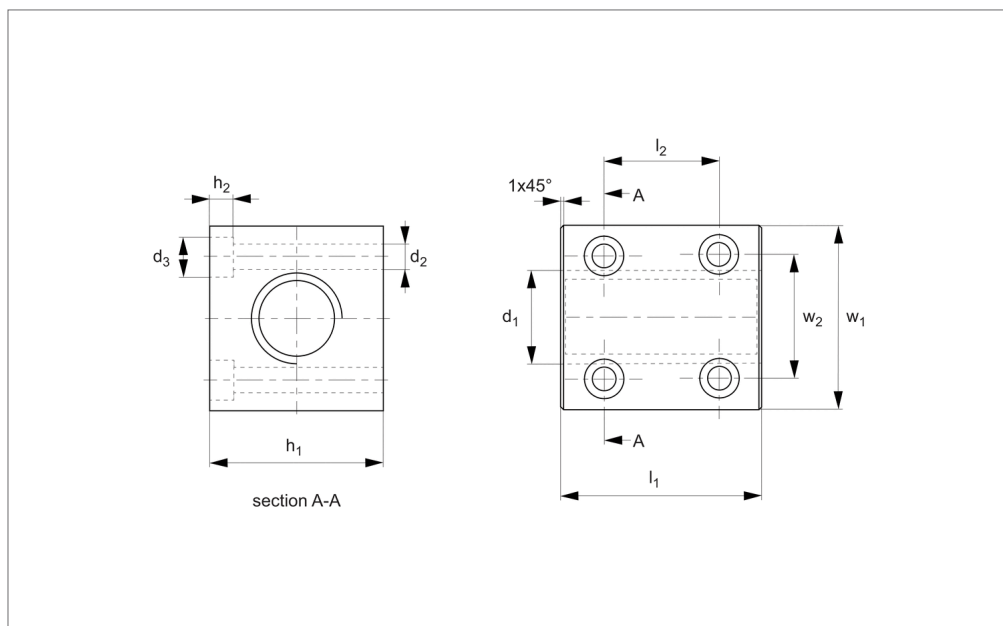
Used for low rotation speeds, manual control, for clamping or locking functions

Tips

Standard nuts are right hand thread, single starts.

Order No.	Size	No. of starts	d ₁ tol. 7H	Lead	Thread direction	Contact surface mm ²	h ₁ & w ₁ tol. h11	l ₁ -0.2 +0.0 -0.2	Weight kg
20148645	TR10x 2	1	10	2	Right	150	17	15	0.027
20148669	TR12x 3	1	12	3	Right	210	25	18	0.076
20148683	TR12x 6	2	12	6	Right	210	25	18	0.076
20148690	TR14x 3	1	14	3	Right	285	25	20	0.079
20148713	TR14x 6	2	14	6	Right	285	25	20	0.079
20148720	TR16x 4	1	16	4	Right	770	28	24	0.199
20148744	TR16x 8	2	16	8	Right	365	28	24	0.119
20148751	TR18x 4	1	18	4	Right	1131	30	28	0.353
20148775	TR18x 8	2	18	8	Right	470	30	28	0.154
20148782	TR20x 4	1	20	4	Right	1412	35	30	0.517
20148805	TR20x 8	2	20	8	Right	590	35	30	0.259
20148812	TR22x 5	1	22	5	Right	700	35	33	0.240
20148843	TR24x 5	1	24	5	Right	845	40	36	0.354
20148836	TR24x19	2	24	10	Right	845	40	36	0.354
20148867	TR26x 5	1	26	5	Right	1005	40	39	0.363
20148881	TR28x 5	1	28	5	Right	1175	45	42	0.506
20148911	TR30x 6	1	30	6	Right	2544	45	45	0.877
20148904	TR30x12	2	30	12	Right	1335	45	45	0.513
20148935	TR32x 6	1	32	6	Right	1430	55	48	0.891
20148966	TR36x 6	1	36	6	Right	3630	60	54	1.465
20148959	TR36x12	2	36	12	Right	1950	60	54	1.163
20148997	TR40x 7	1	40	7	Right	4013	60	60	1.347
20148980	TR40x14	2	40	14	Right	2400	60	60	1.216
20149017	TR44x 7	1	44	7	Right	2940	65	66	1.538
20148652	TR10x2	1	10	2	Left	150	17	15	0.027
20148676	TR12x3	1	12	3	Left	739	25	18	0.123
20148706	TR14x3	1	14	3	Left	285	25	20	0.079
20148737	TR16x4	1	16	4	Left	770	28	24	0.199
20148768	TR18x4	1	18	4	Left	1131	30	28	0.353
20148799	TR20x4	1	20	4	Left	1412	35	30	0.517
20148829	TR22x5	1	22	5	Left	700	35	33	0.240

Order No.	Size	No. of starts	d_1 tol. 7H	Lead	Thread direction	Contact surface mm ²	h_1 & w_1 tol. h11	l_1 +0.0 -0.2	Weight kg
20148850	TR24x5	1	24	5	Left	845	40	36	0.354
20148874	TR26x5	1	26	5	Left	1005	40	39	0.363
20148898	TR28x5	1	28	5	Left	1175	45	42	0.506
20148928	TR30x6	1	30	6	Left	2544	45	45	0.877
20148942	TR32x6	1	32	6	Left	1430	55	48	0.891
20148973	TR36x6	1	36	6	Left	1950	60	54	1.163
20149000	TR40x7	1	40	7	Left	4013	60	60	1.347
20149024	TR44x7	1	44	7	Left	2940	65	66	1.538



EL1337

Material

Steel (EN 10277-3, 11SMnPb37).

Technical Notes

Used as a fixing nut or for manual movements where the load is not important, as the steel to steel coupling used for moving

under heavy loads tends to seize.

The use of steel/steel contact surface is not suitable for motorised motion.

Tips

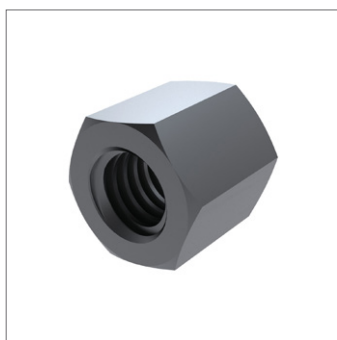
Standard nuts are right hand thread.

For use with steel or stainless steel lead

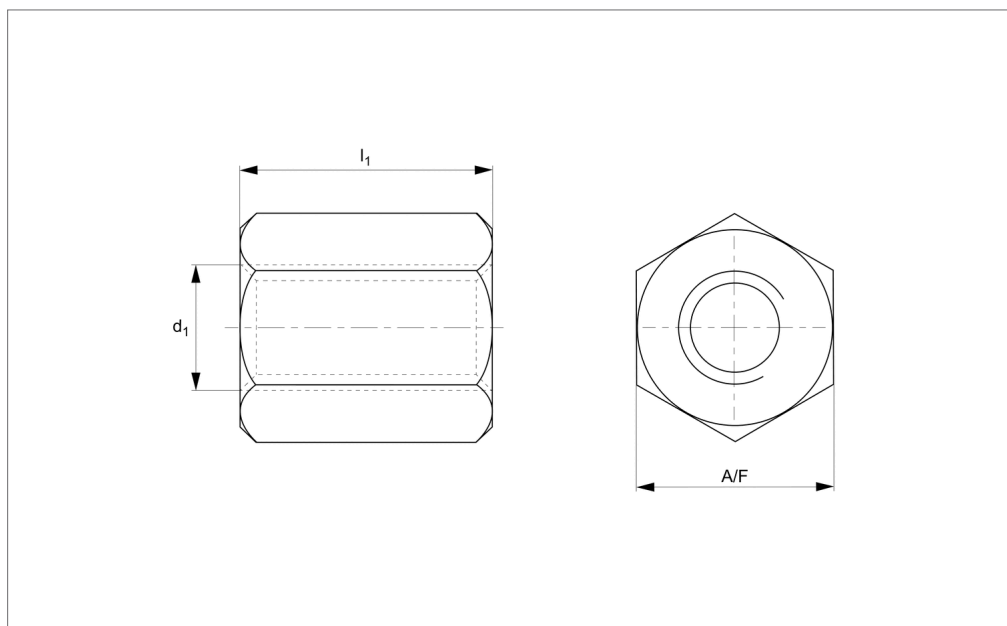
screws, EL1320 and EL1322.

*Special M8 fixing screw with a reduced head diameter.

Order No.	Size	No. of starts	d_1 tol. 7H	Lead	Thread direction	Contact surface mm ²	d_2	d_3	h_1 & w_1 tol. h11	h_2	l_1 +0.0 -0.2	l_2	w_2	Weight kg
20149345	TR12x3	1	12	3	Right	739	4	7,0	25	4,2	30	20	17	0,123
20149352	TR16x4	1	16	4	Right	770	5	9,5	35	5,2	40	24	21	0,199
20149369	TR18x4	1	18	4	Right	1131	6	10,0	35	6,5	45	26	24	0,353
20149376	TR20x4	1	20	4	Right	1412	6	10,0	40	6,5	50	38	28	0,517
20149383	TR30x6	1	30	6	Right	2544	6	10,0	50	6,5	60	48	38	0,877
20149390	TR40x7	1	40	7	Right	4013	8*	9,9*	60	8,5	70	55	49	1,347
20149406	TR50x8	1	50	8	Right	6502	8*	9,9*	70	8,5	90	70	60	2,183
20149413	TR60x9	1	60	9	Right	8718	8*	9,9*	80	8,5	100	80	69	2,990
20149260	TR12x3	1	12	3	Left	739	4	7,0	25	4,2	30	20	17	0,123
20149277	TR16x4	1	16	4	Left	770	5	9,5	35	5,2	40	24	21	0,199
20149284	TR18x4	1	18	4	Left	1131	6	10,0	35	6,5	45	26	24	0,353
20149291	TR20x4	1	20	4	Left	1412	6	10,0	40	6,5	50	38	28	0,517
20149307	TR30x6	1	30	6	Left	2544	6	10,0	50	6,5	60	48	38	0,877
20149314	TR40x7	1	40	7	Left	4013	8*	9,9*	60	8,5	70	55	49	1,347
20149321	TR50x8	1	50	8	Left	6502	8*	9,9*	70	8,5	90	70	60	2,183
20149338	TR60x9	1	60	9	Left	8718	8*	9,9*	80	8,5	100	80	69	2,990



EL1338



Material

Steel (EN10277-3, 11SMnPb37). Manufactured to ISO 2901/2903 (DIN103).

Technical Notes

Used for low rotation speeds, manual control, for clamping or locking functions

and for receiving dead weights.

The use of steel to steel contact surface is not suitable for motorised motion.

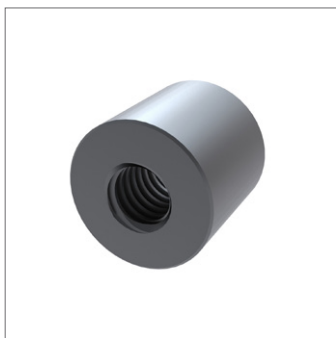
Tips

Standard nuts are right hand thread, single starts.

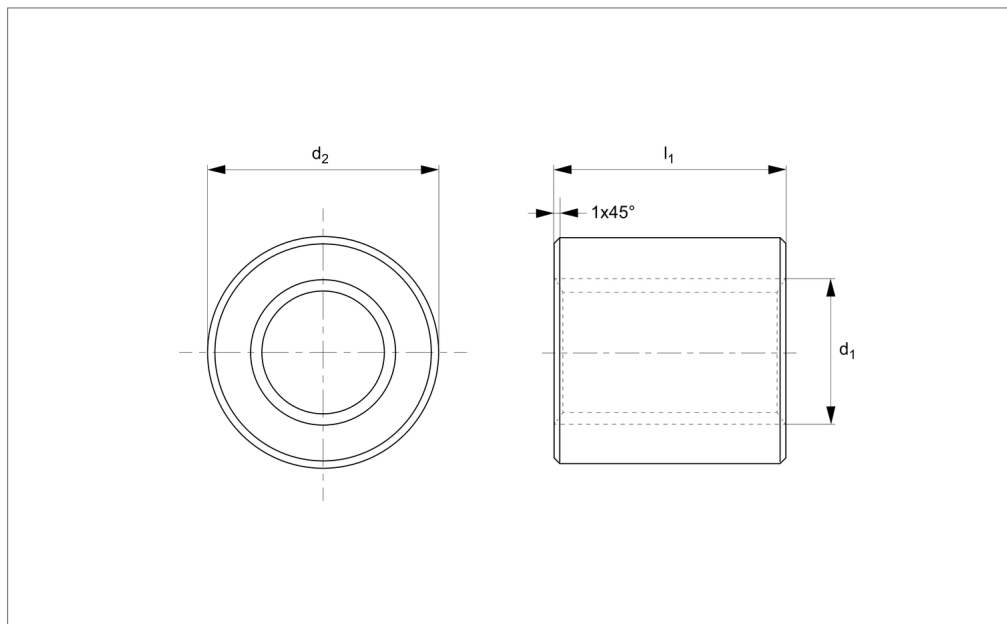
For use with steel or stainless steel lead screws, EL1320, EL1321, EL1322, and EL1323.

Order No.	Size	No. of starts	d ₁ tol. 7H	Lead	Thread direction	Contact surface mm ²	A/F tol. h11	l ₁ +0.0 -0.2	Weight kg
20148218	TR10x 2	1	10	2	Right	150	17	15	0.022
20148232	TR12x 3	1	12	3	Right	210	19	18	0.032
20148256	TR12x 6	2	12	6	Right	210	19	18	0.032
20148263	TR14x 3	1	14	3	Right	285	22	21	0.049
20148287	TR14x 6	2	14	6	Right	285	22	21	0.049
20148294	TR16x 4	1	16	4	Right	365	24	24	0.065
20148317	TR16x 8	2	16	8	Right	365	24	24	0.065
20148324	TR18x 4	1	18	4	Right	470	27	27	0.091
20148348	TR18x 8	2	18	8	Right	470	27	27	0.091
20148355	TR20x 4	1	20	4	Right	590	30	30	0.124
20148379	TR20x 8	2	20	8	Right	590	30	30	0.124
20148386	TR22x 5	1	22	5	Right	700	30	33	0.125
20149697	TR22x10	2	22	5	Right	700	30	33	0.125
20148416	TR24x 5	1	24	5	Right	845	36	36	0.219
20148409	TR24x10	2	24	10	Right	845	36	36	0.219
20148430	TR26x 5	1	26	5	Right	1005	36	39	0.216
20149703	TR26x10	2	26	10	Right	1005	36	39	0.216
20148454	TR28x 5	1	28	5	Right	1175	41	42	0.318
20148485	TR30x 6	1	30	6	Right	1335	46	45	0.445
20148478	TR30x12	2	30	12	Right	1335	55	54	0.445
20148508	TR32x 6	1	32	6	Right	1430	50	48	0.567
20148539	TR36x 6	1	36	6	Right	1950	55	54	0.708
20148522	TR36x12	2	36	12	Right	1950	55	54	0.708
20148560	TR40x 7	1	40	7	Right	2400	60	60	0.893
20148553	TR40x14	2	40	14	Right	2400	60	60	0.893
20148584	TR44x 7	1	44	7	Right	2940	65	66	1.538
20148607	TR50x 8	1	50	8	Right	3790	75	75	1.889
20148621	TR60x 9	1	60	9	Right	5490	90	90	3.227
20148225	TR10x2	1	10	2	Left	150	17	15	0.022
20148249	TR12x3	1	12	3	Left	210	19	18	0.032
20148270	TR14x3	1	14	3	Left	285	22	21	0.049

Order No.	Size	No. of starts	d ₁ tol. 7H	Lead	Thread direction	Contact surface mm ²	A/F tol. h11	I ₁ +0.0 -0.2	Weight kg
20148300	TR16x4	1	16	4	Left	365	24	24	0.065
20148331	TR18x4	1	18	4	Left	470	27	27	0.091
20148362	TR20x4	1	20	4	Left	590	30	30	0.124
20148393	TR22x5	1	22	5	Left	700	30	33	0.125
20148423	TR24x5	1	24	5	Left	845	36	36	0.219
20148447	TR26x5	1	26	5	Left	1005	36	39	0.216
20148461	TR28x5	1	28	5	Left	1175	41	42	0.318
20148492	TR30x6	1	30	6	Left	1335	46	45	0.445
20148515	TR32x6	1	32	6	Left	1430	50	48	0.567
20148546	TR36x6	1	36	6	Left	1950	55	54	0.708
20148577	TR40x7	1	40	7	Left	2400	60	60	0.893
20148591	TR44x7	1	44	7	Left	2940	65	66	1.538
20148614	TR50x8	1	50	8	Left	3790	75	75	1.889
20148638	TR60x9	1	60	9	Left	5490	90	90	3.227



EL1339



Material

Steel (EN10277-3, 11SMnPb37). Manufactured to ISO2901/2903 (DIN 103).

control, for clamping or locking functions and for receiving dead weights.

The use of steel to steel contact surface is not suitable for motorised motion.

starts.

For use with steel or stainless steel lead screws, EL1320, EL1321, EL1322, and EL1323.

Technical Notes

Used for low rotation speeds, manual

Tips

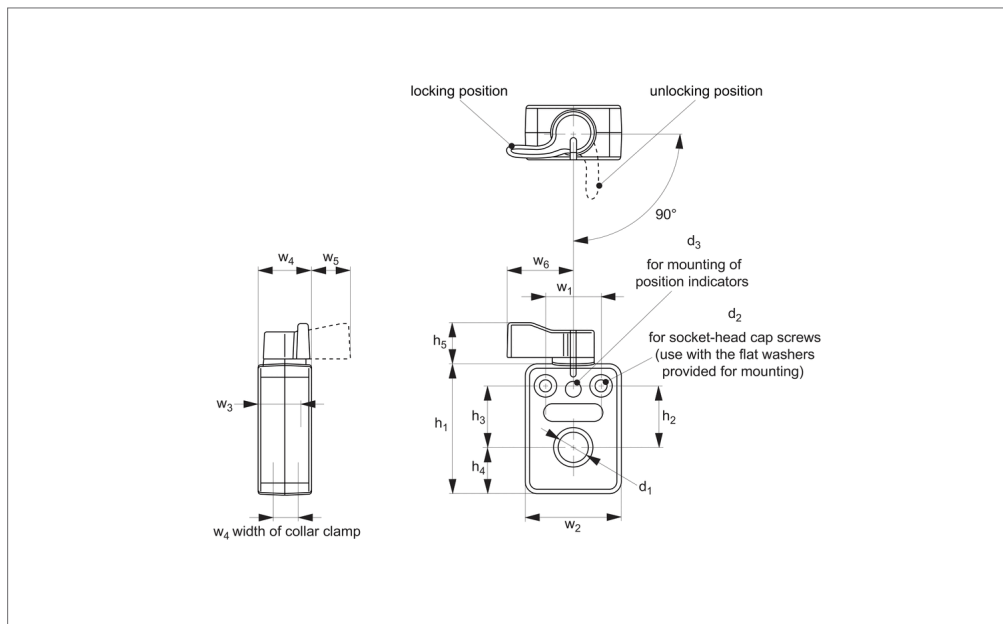
Standard nuts are right hand thread, single

Order No.	Size	No. of starts	d_1 tol. 7H	Lead	Thread hand	Contact surface mm ²	d_2 tol. h10	l_1 +0.0 -0.1	Weight kg
20147358	TR10x 2	1	10	2	Right	150	22	15	0.04
20149543	TR10x 4	2	10	4	Right	150	22	15	0.04
20147372	TR12x 3	1	12	3	Right	210	26	18	0.06
20149529	TR12x 6	2	12	6	Right	210	26	18	0.06
20147396	TR14x 3	1	14	3	Right	285	30	21	0.09
20149420	TR14x 6	2	14	6	Right	285	30	21	0.09
20147419	TR16x 4	1	16	4	Right	365	36	24	0.16
20149031	TR16x 8	2	16	8	Right	365	36	24	0.16
20147433	TR18x 4	1	18	4	Right	470	40	27	0.22
20149437	TR18x 8	2	18	8	Right	470	40	27	0.22
20147457	TR20x 4	1	20	4	Right	590	45	30	0.31
20149444	TR20x 8	2	20	8	Right	590	45	30	0.31
20147471	TR22x 5	1	22	5	Right	700	45	33	0.32
20147495	TR24x 5	1	24	5	Right	845	50	36	0.44
20149451	TR24x10	2	24	10	Right	845	50	36	0.44
20147518	TR26x 5	1	26	5	Right	1005	50	39	0.45
20147532	TR28x 5	1	28	5	Right	1175	60	42	0.75
20149734	TR28x10	2	28	10	Right	1175	60	42	0.75
20147556	TR30x 6	1	30	6	Right	1335	60	45	0.77
20149536	TR30x12	2	30	12	Right	1335	60	45	0.77
20147570	TR32x 6	1	32	6	Right	1430	60	48	0.79
20147594	TR36x 6	1	36	6	Right	1950	75	54	1.48
20149468	TR36x12	2	36	12	Right	1950	75	54	1.49
20147617	TR40x 7	1	40	7	Right	2400	80	60	1.83
20149475	TR40x14	2	40	14	Right	2400	80	60	1.83
20147631	TR44x 7	1	44	7	Right	2940	80	66	1.89
20147655	TR50x 8	1	50	8	Right	3790	90	75	2.69
20147679	TR60x 9	1	60	9	Right	5490	100	90	3.87
20147693	TR70x10	1	70	10	Right	7140	110	100	5.12
20147716	TR80x10	1	80	10	Right	8900	120	110	6.00
20147365	TR10x 2	1	10	2	Left	150	22	15	0.04

Order No.	Size	No. of starts	d ₁ tol. 7H	Lead	Thread hand	Contact surface mm ²	d ₂ tol. h10	l ₁ +0.0 -0.1	Weight kg
20147389	TR12x 3	1	12	3	Left	210	26	18	0.06
20147402	TR14x 3	1	14	3	Left	210	30	21	0.09
20147426	TR16x 4	1	16	4	Left	365	36	24	0.16
20147440	TR18x 4	1	18	4	Left	470	40	27	0.22
20147464	TR20x 4	1	20	4	Left	590	45	30	0.31
20147488	TR22x 5	1	22	5	Left	700	45	33	0.32
20147501	TR24x 5	1	24	5	Left	845	50	36	0.44
20147525	TR26x 5	1	26	5	Left	1005	50	39	0.45
20147549	TR28x 5	1	28	5	Left	1175	60	42	0.75
20147563	TR30x 6	1	30	6	Left	1335	60	45	0.77
20147587	TR32x 6	1	32	6	Left	1430	60	48	0.79
20147600	TR36x 6	1	36	6	Left	1950	75	54	1.48
20147624	TR40x 7	1	40	7	Left	2400	80	60	1.83
20147648	TR44x 7	1	44	7	Left	2940	80	66	1.88
20147662	TR50x 8	1	50	8	Left	3790	90	75	2.69
20147686	TR60x 9	1	60	9	Left	5490	100	90	3.87
20147709	TR70x10	1	70	10	Left	7140	110	100	5.12
20147723	TR80x10	1	80	10	Left	8900	120	110	6.00



E33980



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).

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. tol. h7	d ₂	d ₃	h ₁	h ₂	h ₃	h ₄	Weight g
20192075	Orange	8	M 4	6	48.5	23.5	22	17	50
20192082	Orange	10	M 4	6	48.5	23.5	22	17	50
20192099	Orange	12	M 4	6	48.5	23.5	22	17	50
20192105	Orange	14	M 4	6	48.5	23.5	22	17	50
20192112	Orange	12	M 5	6	69.0	17.0	30	26	100
20192129	Orange	15	M 5	6	69.0	17.0	30	26	100
20192136	Orange	16	M 5	6	69.0	17.0	30	26	100
20192143	Orange	20	M 5	6	69.0	17.0	30	26	100
20191238	Black	8	M 4	6	48.5	23.5	22	17	50
20191245	Black	10	M 4	6	48.5	23.5	22	17	50
20191252	Black	12	M 4	6	48.5	23.5	22	17	21
20191276	Black	14	M 4	6	48.5	23.5	22	17	21
20191269	Black	12	M 5	6	69.0	17.0	30	26	100
20191283	Black	15	M 5	6	69.0	17.0	30	26	100
20191290	Black	16	M 5	6	69.0	17.0	30	26	100
20191306	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	Allowable holding torque Nm max.	Allowable sliding torque Nm max.
20192075	15.5	21	36	14.0	20	15	25	3	400
20192082	15.5	21	36	14.0	20	15	25	3	400
20192099	15.5	21	36	14.0	20	15	25	4	400
20192105	15.5	21	36	14.0	20	15	25	4	400
20192112	15.5	34	51	12.5	20	15	25	5	500
20192129	15.5	34	51	12.5	20	15	25	5	500
20192136	15.5	34	51	12.5	20	15	25	6	500
20192143	15.5	34	51	12.5	20	15	25	6	500
20191238	15.5	21	36	14.0	20	15	25	3	400
20191245	15.5	21	36	14.0	20	15	25	3	400
20191252	15.5	21	36	14.0	20	15	25	4	400
20191276	15.5	21	36	14.0	20	15	25	4	400
20191269	15.5	34	51	12.5	20	15	25	5	500

Sliding Clamps - for Solid Round Bar

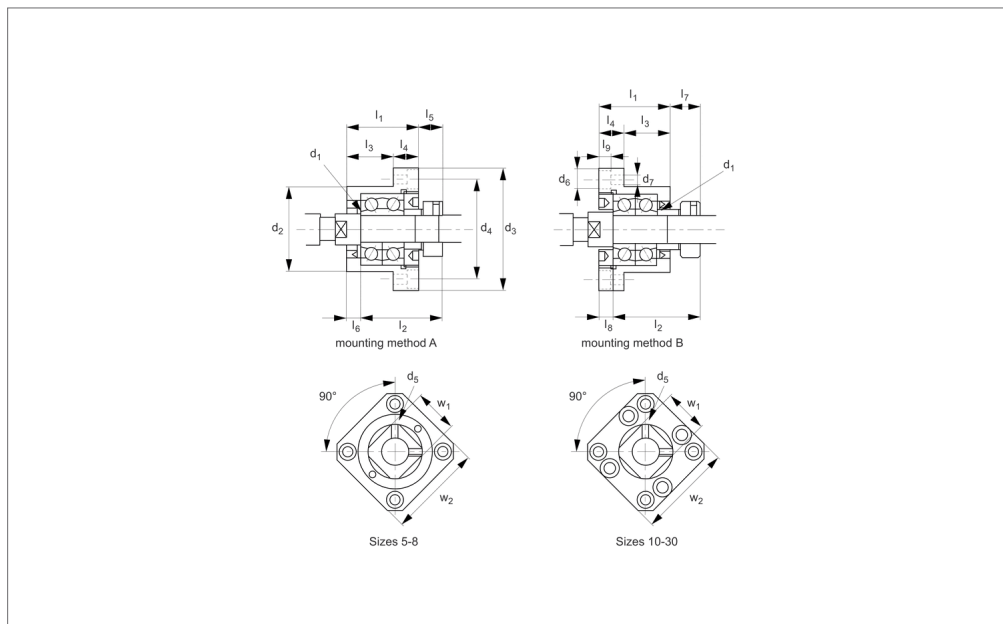
quarter turn lock- l-handle grip - polyamide

Lead Screws & Nuts

Order No.	h_5	w_1	w_2	w_3	w_4	w_5	w_6	Allowable holding torque Nm max.	Allowable sliding torque Nm max.
20191283	15.5	34	51	12.5	20	15	25	5	500
20191290	15.5	34	51	12.5	20	15	25	6	500
20191306	15.5	34	51	12.5	20	15	25	6	500



EL1390



Material

Steel with black oxide finish. Bearings, sealed and lubricated for life.

Technical Notes

Standard units are suitable for ball screws

and lead screws to C5/C7 accuracy grade.

The bearings are not preloaded and have a max. axial clearance of 18μ.

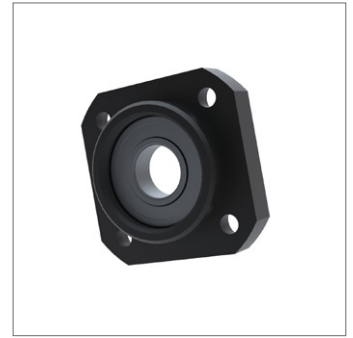
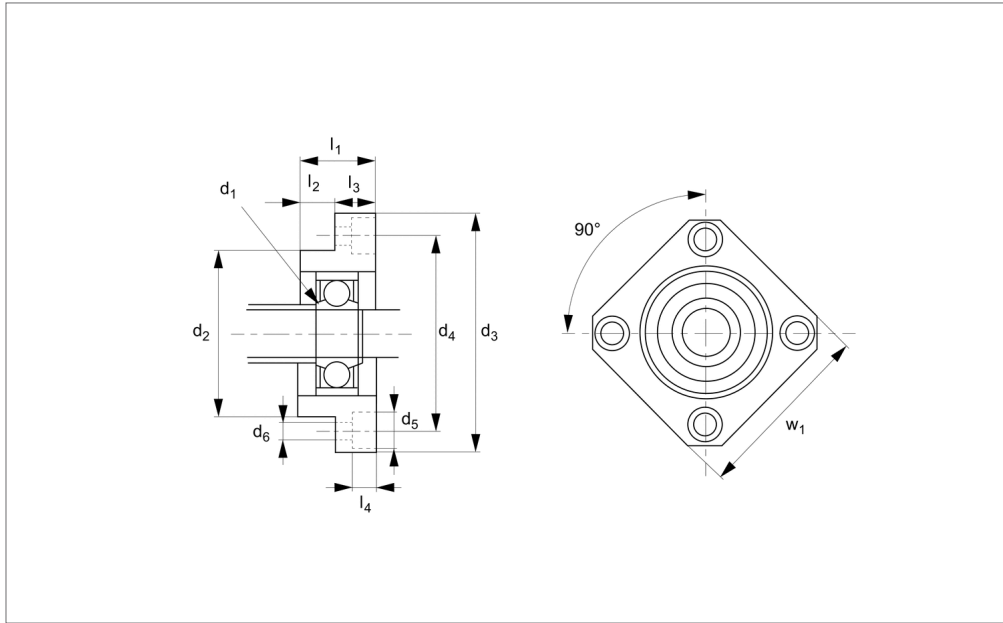
For dimensions to machine the ends of the screws see technical pages.

Tips

Electroless nickel plated versions of these bearing mounts are available for clean room and other applications.

Order No.	For lead screw o.d dia.	For ball screw o.d dia.	d ₁	d ₂	d ₃	d ₄	d ₅	d ₆	d ₇	l ₁	l ₂	l ₃
855110211	-	6	5	20	34	26	M3	6.5	3.4	16.5	18.5	10.5
855110228	10	8	6	22	36	28	M3	6.5	3.4	20.0	22.0	13.0
855110235	12	10	8	28	43	35	M3	6.5	3.4	23.0	26.0	14.0
855110242	14 - 16	12	10	34	52	42	M3	8.0	4.5	27.0	29.5	17.0
855110259	18 - 20	14 - 16	12	36	54	44	M4	8.0	4.5	27.0	29.5	17.0
855110266	22 - 24	20	15	40	63	50	M4	9.5	5.5	32.0	36.0	17.0
855110273	24	20 - 25	17	50	77	62	M4	11.0	6.6	45.0	47.0	23.0
855110280	26 - 32	25 - 28	20	57	85	70	M4	11.0	6.6	52.0	50.0	30.0
855110297	36	32 - 36	25	63	98	80	M5	15.0	9.0	57.0	60.0	30.0
855110303	40	40- 45	30	75	117	95	M6	17.5	11.0	62.0	61.0	32.0

Order No.	l ₄	l ₅	l ₆	l ₇	l ₈	l ₉	w ₁	w ₂	Axial load kgf	rpm	Static load kgf
855110211	6	5.5	3.5	3.0	5.0	4	11	26	74	52800	200
855110228	7	5.5	3.5	4.5	6.5	4	12	28	74	52800	200
855110235	9	7.0	4.0	5.0	7.0	4	14	35	103	40000	280
855110242	10	7.5	5.0	8.5	6.0	4	16	42	195	24000	530
855110259	10	7.5	5.0	8.5	6.0	4	19	44	217	22000	610
855110266	15	10.0	6.0	12.0	8.0	6	22	52	240	19000	700
855110273	22	11.0	9.0	14.0	12.0	10	24	61	413	16000	1220
855110280	22	8.0	10.0	12.0	14.0	10	30	68	587	13000	1690
855110297	27	13.0	10.0	20.0	17.0	13	35	79	709	12000	2090
855110303	30	11.0	12.0	17.0	18.0	15	40	93	939	10000	3000



EL1391

Material

Steel with black oxide finish. Bearings, sealed and lubricated for life.

Technical Notes

Standard units are suitable for ball screws

and lead screws to C5/C7 accuracy grade.

The bearings are not preloaded and have a max. axial clearance of 18 μ .

For dimensions to machine the ends of the screws see technical pages.

Tips

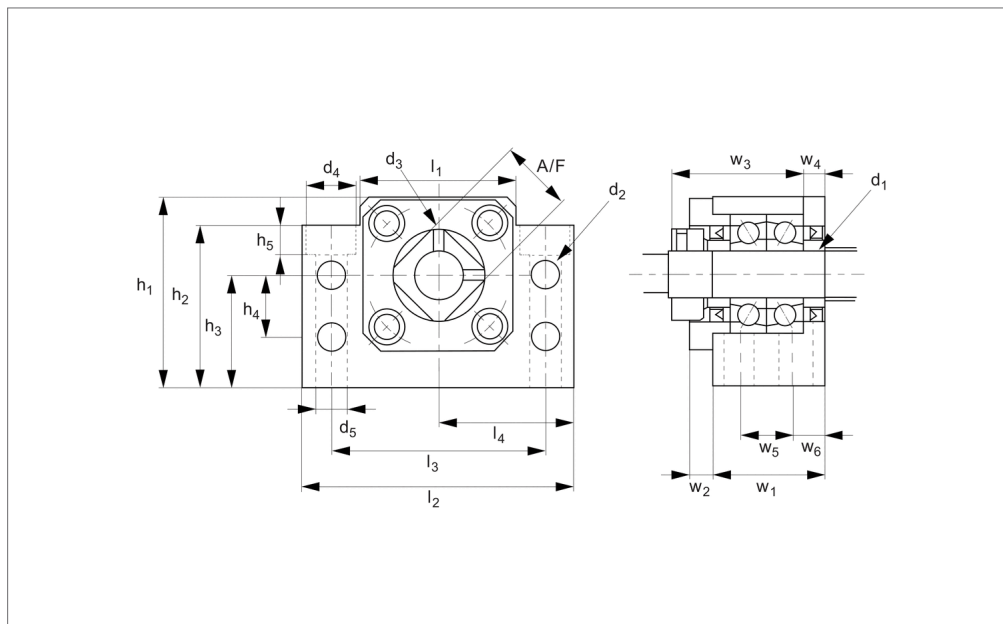
Electroless nickel plated versions of these bearing mounts are available for clean room and other applications.

Order No.	For lead screw o.d dia.	For ball screw o.d dia.	d ₁ tol. H7	d ₂ tol. g6	d ₃	d ₄	d ₅	d ₆	l ₁
855110136	10	8	6	22	36	28	6.5	3.4	10
855110143	12	10	8	28	43	35	6.5	3.4	12
855110150	14 - 16	12	10	34	52	42	8.0	4.5	15
855110167	22 - 24	20	15	40	63	50	9.5	5.5	17
855110174	24	20 - 25	17	50	77	62	11.0	6.6	20
855110181	24	20 - 25	20	57	85	70	11.0	6.6	20
855110198	36	32 - 36	25	63	98	80	14.0	9.0	24
855110204	40	40 - 45	30	75	117	95	17.0	11.0	27

Order No.	l ₂	l ₃	l ₄	w ₁	Axial load kgf max.	rpm max.	Static load kgf max.
855110136	4	6	4.0	28	74	2	200
855110143	5	7	4.0	35	608ZZ	530	195
855110150	8	7	4.0	42	6000ZZ	610	214
855110167	8	9	5.5	52	6002ZZ	400	240
855110174	9	11	6.5	61	413	16000	1220
855110181	9	11	6.5	68	587	13000	1690
855110198	10	14	8.5	79	709	12000	2090
855110204	9	18	11.0	93	1082	7100	2760



EL1392



Material

Steel with black oxide finish. Bearings, sealed and lubricated for life.

Technical Notes

Standard units are suitable for ball screws

and lead screws to C5/C7 accuracy grade.

The bearings are not preloaded and have a max. axial clearance of 18μ.

For dimensions to machine the ends of the screws see technical pages.

Tips

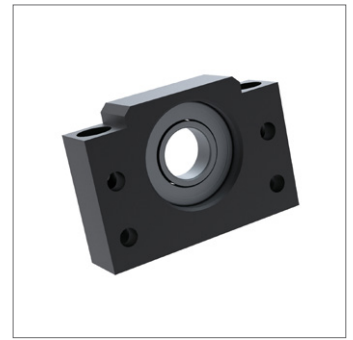
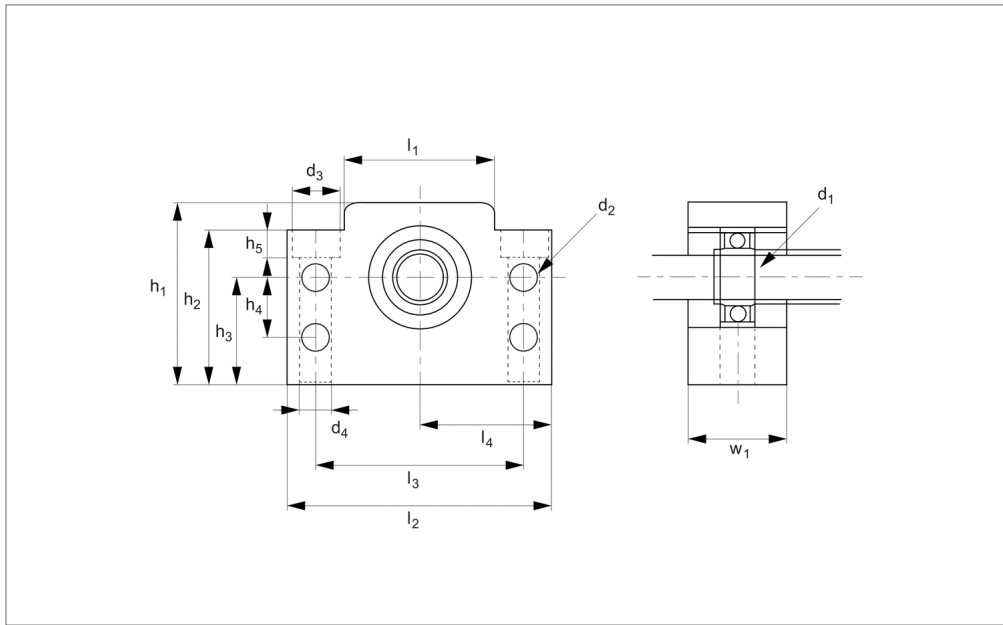
Electroless nickel plated versions of these bearing mounts are available for clean room and other applications.

Order No.	For lead screw o.d dia.	For ball screw o.d dia.	d ₁ tol. H7	d ₂	d ₃	d ₄	d ₅	h ₁	h ₂	h ₃ ±0.02	h ₄	h ₅	l ₁	l ₂
855109925	14 - 16	12	10	5.5	M3	10.8	6.6	39	32.5	22	15	5.0	34	60
855109932	18 - 20	14 - 16	12	5.5	M4	10.8	6.6	43	32.5	25	18	5.0	34	60
855109949	22 - 24	20	15	5.5	M4	11.0	6.6	48	38.0	28	18	6.5	40	70
855109956	24	20 - 25	17	6.6	M4	14.0	9.0	64	55.0	39	28	8.5	50	86
855109963	26 - 32	25 - 28	20	6.6	M4	14.0	9.0	60	50.0	34	22	8.5	52	88
855109970	36	32 - 36	25	9.0	M5	17.5	11.0	80	70.0	48	33	11.0	64	106
855109987	40	40 - 45	30	11.0	M6	20.0	14.0	89	78.0	51	33	13.0	76	128
855109994	44 - 50	50	35	11.0	M8	20.0	14.0	96	79.0	52	35	13.0	88	140
855110006	55 - 80	63	40	14.0	M8	26.0	18.0	110	90.0	60	37	17.5	100	160

Order No.	l ₃	l ₄ ±0.02	w ₁	w ₂	w ₃	w ₄	w ₅	w ₆	A/F	Axial load kgf max.	rpm max.	Static load kgf max.
855109925	46	30	25	5	29	5	13	6	16	195	24000	530
855109932	46	30	25	5	29	5	13	6	19	217	22000	610
855109949	54	35	27	6	32	6	15	6	22	240	19000	700
855109956	68	43	35	9	44	7	19	8	24	413	16000	1220
855109963	70	44	35	8	43	8	19	8	30	428	15000	1340
855109970	85	53	42	12	54	9	22	10	35	709	12000	2090
855109987	102	64	45	14	61	9	23	11	40	939	10000	3000
855109994	114	70	50	14	67	12	26	12	50	1466	6000	3750
855110006	130	80	61	18	76	15	33	14	60	1834	5300	4700

Floating Rectangular Support Units (BF) for ball & lead screws

Bearing Supports



EL1393

BEARING SUPPORTS

Material

Steel with black oxide finish. Bearings, sealed and lubricated for life.

Technical Notes

Standard units are suitable for ball screws

and lead screws to C5/C7 accuracy grade.

The bearings are not preloaded and have a max. axial clearance of 18 μ .

For dimensions to machine the ends of the screws see technical pages.

Tips

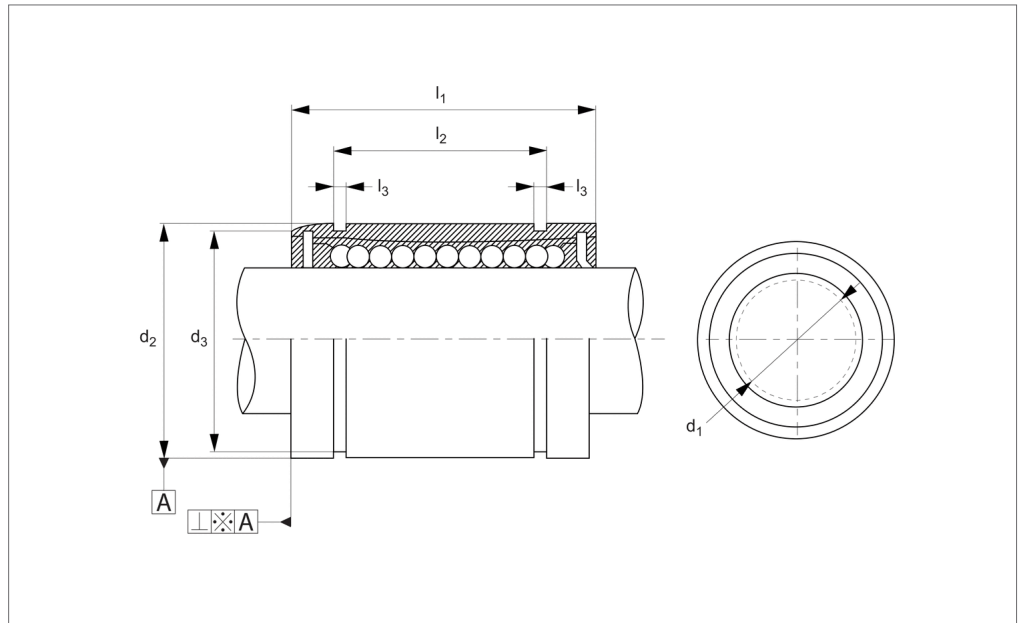
Electroless nickel plated versions of these bearing mounts are available for clean room and other applications.

Order No.	For lead screw o.d dia.	For ball screw o.d dia.	d ₁ tol. h7	d ₂	d ₃	d ₄	h ₁	h ₂	h ₃ ± 0.02	h ₄	h ₅
855109833	12	10	8	5.5	10.8	6.6	39	32.5	22	15	5.0
855109840	14 - 16	12	10	5.5	10.8	6.6	43	32.5	25	18	5.0
855109857	22 - 24	20	15	5.5	11.0	6.6	48	38.0	28	18	6.5
855109864	24	20 - 25	17	6.6	14.0	9.0	64	55.0	39	28	8.5
855109871	26 - 32	25 - 28	20	6.6	14.0	9.0	60	50.0	34	22	8.5
855109888	36	32 - 36	25	9.0	17.5	11.0	80	70.0	48	33	11.0
855109895	40	40 - 45	30	11.0	20.0	14.0	89	78.0	51	33	13.0
855109901	44 - 50	50	35	11.0	20.0	14.0	96	79.0	52	35	13.0
855109918	55 - 80	63	40	14.0	26.0	18.0	110	90.0	60	37	17.5

Order No.	l ₁	l ₂	l ₃	l ₄ ± 0.02	w ₁	Axial load kgf max.	rpm max.	Static load kgf max.
855109833	34	60	46	30	20	195	24000	530
855109840	34	60	46	30	20	217	22000	610
855109857	40	70	54	35	20	240	19000	700
855109864	50	86	68	43	23	413	16000	1220
855109871	52	88	70	44	26	428	15000	1340
855109888	64	106	85	53	30	709	12000	2090
855109895	76	128	102	64	32	1082	7100	2760
855109901	88	140	114	70	32	1466	6000	3750
855109918	100	160	130	80	37	1834	5300	4700



EL1706



Material

Hardened and ground body from bearing steel. Single body resin retainer (POM). Supplied with nitrile rubber (NBR) end-seals -UU as standard.

Technical Notes

For use with hardened shafts only (see part nos. EL1770 - EL1772) - tolerance h6.

Perpendicularity .A is better than 15µ.

For part numbers with ⁻¹ shaft tolerance required is g6. Temperature range: -20°C to +80°C.

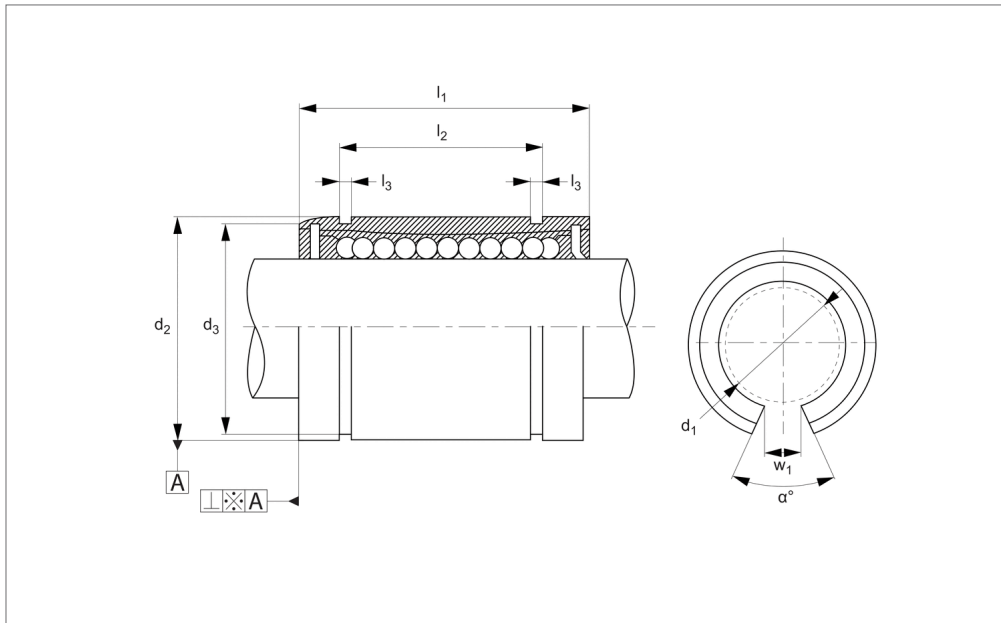
Steel ball retainers can be supplied for higher temperature applications up to 120°C - with no end seals. Please advise at time of ordering if this is required.

Tips

Superball linear bearings are also available (3 x load rating of standard bushings and 27 x travel life see part nos. EL1740 and EL1742.)

Nickel plated version with stainless steel balls (for corrosion resistance) on request - or stainless steel version no. EL1709.

Order No.	d ₁ tol. h6	d ₂ tol. h6	l ₁ +0 -0.3	d ₃	l ₂ +0 -0.3	l ₃	No. of ball circuits	Dyn. load C N max.	Static load C ₀ N max.	Weight g
20155858	5	12	22	11.5	14.5	1.10	4	200	260	12
20157258	6	12	19	11.5	13.5	1.10	4	200	260	8
20155988	8	16	25	15.2	16.5	1.10	4	260	400	20
20157265	10	19	29	18.0	22.0	1.30	4	370	540	30
20155391	12	22	32	21.0	22.9	1.30	4	410	590	41
20155490	16	26	36	24.9	24.9	1.30	5	770	1170	57
20155599	20	32	45	30.3	31.5	1.60	5	860	1370	91
20155681	25	40	58	37.5	44.1	1.85	6	980	1560	215
20155766	30	47	68	44.5	52.1	1.85	6	1560	2740	325
20155803	40	62	80	59.0	60.6	2.15	6	2150	4010	705
20155865	50	75	100	72.0	77.6	2.65	6	3820	7930	1130
20155926	60	90	125	86.5	101.7	3.15	6	4700	9990	2220



EL1707

LINEAR BEARINGS

Material

Hardened and ground body from bearing steel. Single body resin retainer (POM). Supplied with nitrile rubber (NBR) end-seals -UU as standard.

Technical Notes

For use with hardened shafts only (see part

nos. EL1770 - EL1772) - tolerance h6. Perpendicularity . A is better than 15μ. Temperature range: -20°C to +80°C. Steel ball retainers can be supplied for higher temperature applications up to +120°C - with no end seals. Please advise at time of ordering if this is required.

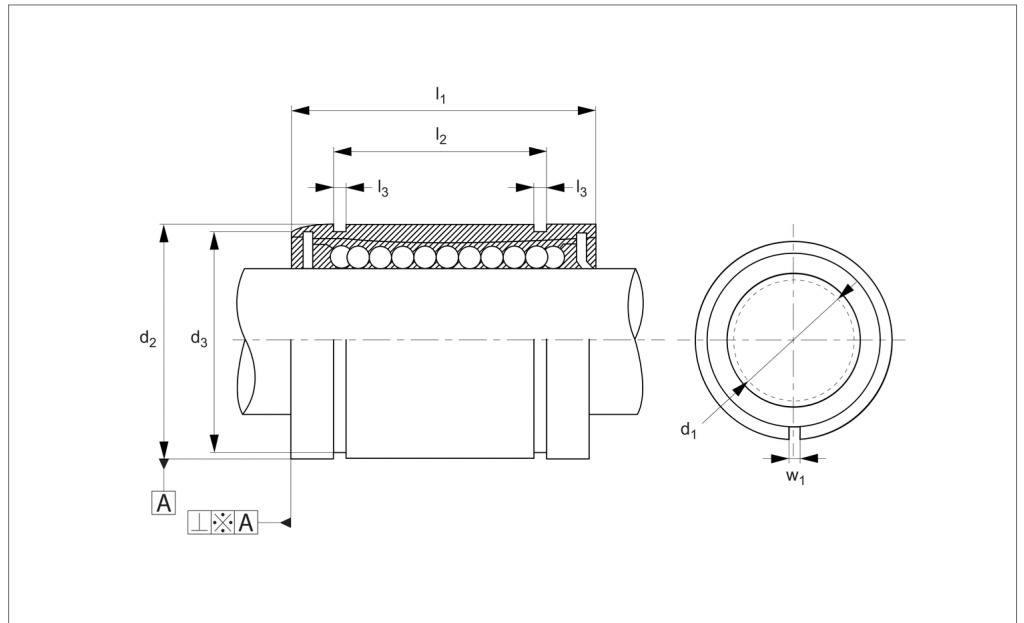
Tips

d_2 is the dimension before the bush has been slotted. Superball linear bearings are also available (3 x load rating of standard bushings and 27 x travel life see part nos. EL1740 and EL1742.)

Order No.	d_1 tol. h6	d_2 tol. h6	l_1 +0 -0.3	d_3	l_2 +0 -0.3	l_3	w_1	α	No. of ball circuits	Dyn. load C N max.	Static load C_0 N max.	Weight g
20155469	12	22	32	21.0	22.9	1.30	7.3	78°	3	410	590	41
20155568	16	26	36	24.9	24.9	1.30	10.0	78°	4	770	1170	57
20155650	20	32	45	30.3	31.5	1.60	10.0	60°	5	860	1370	91
20155759	25	40	58	37.5	44.1	1.85	12.5	60°	6	980	1560	215
20155797	30	47	68	44.5	52.1	1.85	12.5	50°	6	1560	2740	325
20155834	40	62	80	59.0	60.6	2.15	16.8	50°	6	2150	4010	705
20155896	50	75	100	72.0	77.6	2.65	21.0	50°	6	3820	7930	1130
20155957	60	90	125	86.5	101.7	3.15	27.2	54°	6	4700	9990	2220



EL1708



Material

Hardened and ground body from bearing steel. Single body resin retainer (POM). Supplied with nitrile rubber (NBR) end-seals -UU as standard.

Technical Notes

For use with hardened shafts only (see part nos. EL1770 - EL1772) - tolerance h6. Perpendicularity TA is better than 15µ.

For part numbers with ⁻¹ shaft tolerance required is g6. Temperature range: -20°C to +80°C.

Steel ball retainers can be supplied for higher temperatures applications up to 120°C - with no end seals. Please advise at time of ordering if this is required.

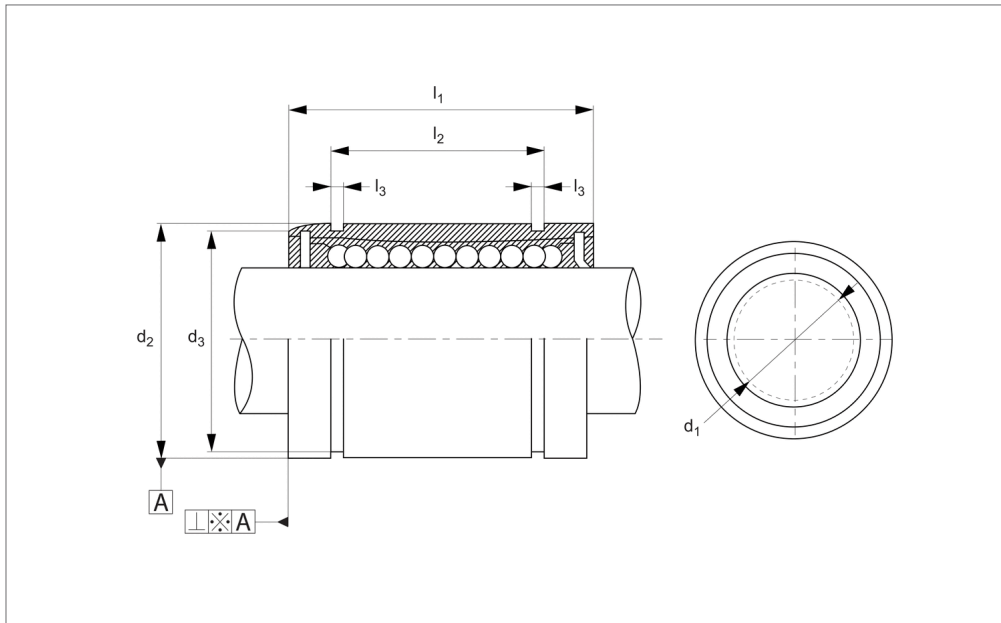
Tips

d₂ is the dimension before the bush has

been slotted. Superball linear bearings are also available (3 x load rating of standard bushings and 27 x travel life see part nos. EL1740 and EL1742.)

Nickel plated version with stainless steel balls (for corrosion resistance) on request - or stainless steel version no. EL1711.

Order No.	d ₁ tol. h6	d ₂ tol. h6	l ₁	d ₃	l ₂	l ₃	w ₁	No. of ball circuits	Dyn. load C N max.	Static load C ₀ N max.	Weight g
20155919	5	12	22	11.5	14.5	1.10	1.0	4	200	260	12
20157241	6	12	19	11.5	13.5	1.10	1.0	4	200	260	8
20156015	8	16	25	15.2	16.5	1.10	1.0	4	260	400	20
20157272	10	19	29	18.0	22.0	1.30	1.0	4	370	540	30
20155421	12	22	32	21.0	22.9	1.30	1.5	4	410	590	41
20155520	16	26	36	24.9	24.9	1.30	1.5	5	770	1170	57
20155612	20	32	45	30.3	31.5	1.60	2.0	5	860	1370	91
20155711	25	40	58	37.5	44.1	1.85	2.0	6	980	1560	215
20155773	30	47	68	44.5	52.1	1.85	2.0	6	1560	2740	325
20155810	40	62	80	59.0	60.6	2.15	3.0	6	2150	4010	705
20155872	50	75	100	72.0	77.6	2.65	3.0	6	3820	7930	1130
20155933	60	90	125	86.0	101.7	3.15	3.0	6	4700	9990	2220



EL1709

LINEAR BEARINGS

Material

Stainless steel body (440C) with either a resin (POM) or stainless steel (316) retainer.

Stainless steel balls (440C).

Supplied with nitrile rubber (NBR) end

seals.

Technical Notes

For use with corrosion resistant hardened shafts (see part no. EL1772) - tolerance h6.

Perpendicularity A is better than 15μ .

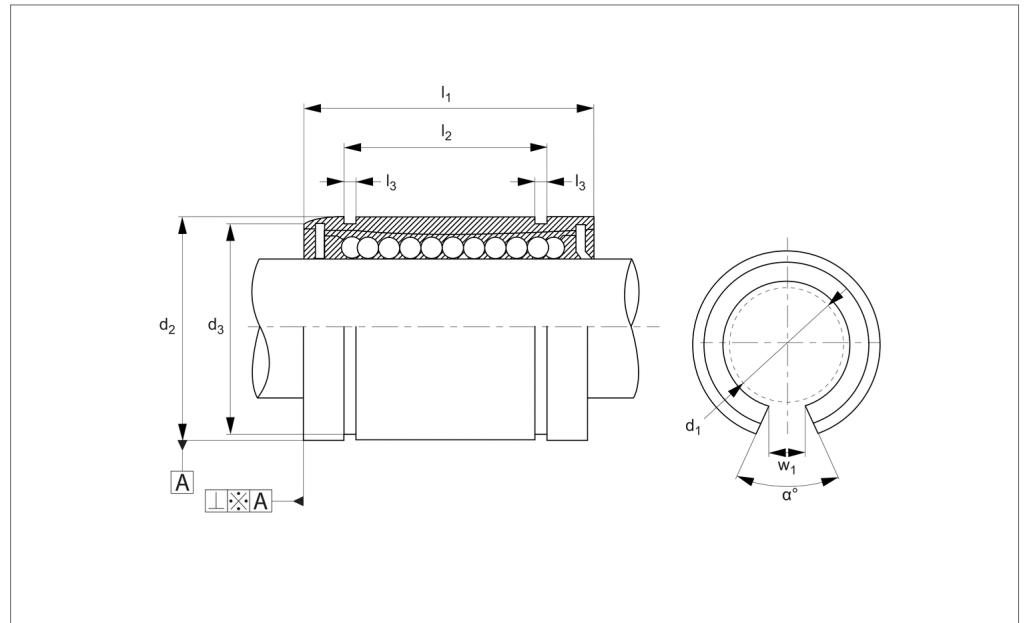
For part numbers with $^{-1}$ shaft tolerance required is g6. Temperature range: For resin ball cage -20°C to $+80^{\circ}\text{C}$.

For stainless ball cage -20°C to $+120^{\circ}\text{C}$.

Order No.	Ball cage	d_1 tol. h6	d_2 tol. h6	l_1	l_2	l_3	d_3	Dyn. load C N max.	No. of ball circuits	Static load C_0 N max.	Weight g
20155841	Resin	5	12	22	14.5	1.10	11.5	200	4	260	12
20157289	Resin	6	12	19	13.5	1.10	11.5	200	4	260	8
20155964	Resin	8	16	25	16.5	1.10	15.2	260	4	400	20
20157296	Resin	10	19	29	22.0	1.30	18.0	370	4	540	30
20155377	Resin	12	22	32	22.9	1.30	21.0	410	4	590	41
20155476	Resin	16	26	36	24.9	1.30	24.9	770	5	1170	57
20155575	Resin	20	32	45	31.5	1.60	30.3	860	5	1370	91
20155667	Resin	25	40	58	44.1	1.85	37.5	980	6	1560	215
20158194	Resin	30	47	68	52.1	1.85	44.5	1584	6	2740	360
20158200	Resin	40	62	80	60.6	2.15	59	2357	6	4020	770
20158217	Resin	50	75	100	77.6	2.65	72	4702	6	7940	1250
20158224	Resin	60	90	125	101.7	3.15	86.5	6085	6	9800	2220
20157333	Stainless	6	12	19	10.2	1.10	11.5	200	4	260	8
20155971	Stainless	8	16	25	16.5	1.10	15.2	260	4	400	20
20157340	Stainless	10	19	29	22.0	1.30	18.0	370	4	540	30
20155384	Stainless	12	22	32	22.9	1.30	21.0	410	4	590	41
20155483	Stainless	16	26	36	24.9	1.30	24.9	770	5	1170	57
20155582	Stainless	20	32	45	31.5	1.60	30.3	860	5	1370	91
20155674	Stainless	25	40	58	44.1	1.85	37.5	980	6	1560	360
20158231	Stainless	30	47	68	52.1	1.85	44.5	1584	6	2740	360
20158248	Stainless	40	62	80	60.6	2.15	59	2357	6	4020	770
20158255	Stainless	50	75	100	77.6	2.65	72	4702	6	7940	1250
20158262	Stainless	60	90	125	101.7	3.15	86.5	6085	6	9800	2220



EL1710



Material

Stainless steel body (440C) with either a resin (POM) or stainless steel (316) retainer.
Stainless steel balls (440C).
Supplied with nitrile rubber (NBR) end

seals.

Technical Notes

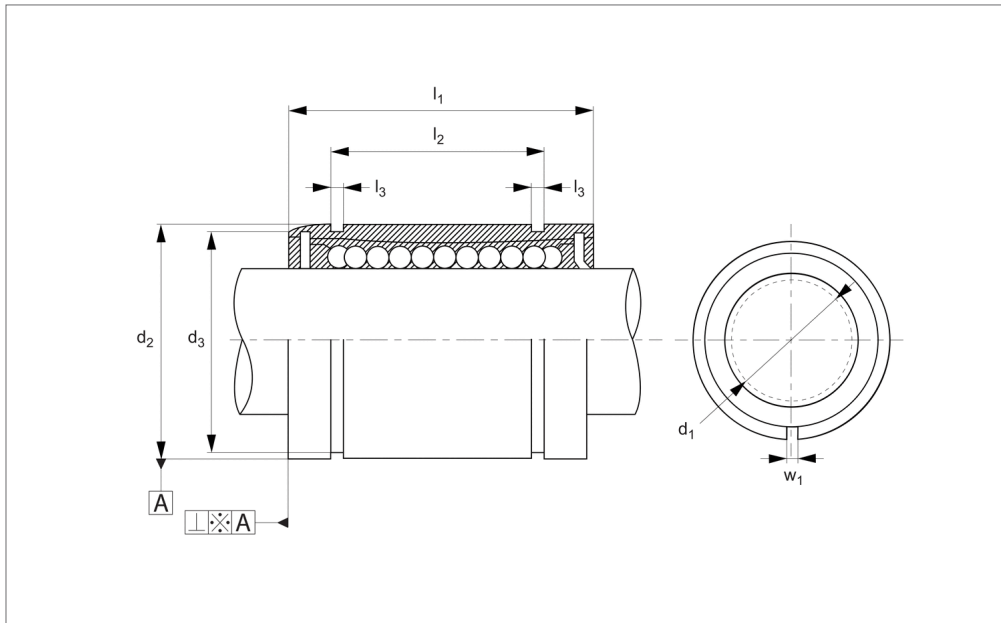
For use with corrosion resistant hardened shafts (see part no. EL1772) - tolerance h6.

Perpendicularity A is better than 15µ.

Temperature range: For resin ball cage - 20°C to +80°C.

For stainless ball cage -20°C to +120°C.

Order No.	Ball cage	d ₁ tol. h6	d ₂ tol. h6	l ₁	l ₂	l ₃	d ₃	w ₁	Dyn. load C N max.	°	No. of ball circuits	Static load C ₀ N max.	Weight g
20157357	Resin	12	22	32	22.9	1.30	21.0	7.5	510	78	3	784	35
20157364	Resin	16	26	36	24.9	1.30	24.9	10.0	578	78	3	892	48
20157371	Resin	20	32	45	31.5	1.60	30.3	10.0	862	60	4	1370	84
20157388	Resin	25	40	58	44.1	1.85	37.5	12.5	980	60	5	1570	195
20157395	St. Steel	12	22	32	22.9	1.30	21.0	7.5	510	78	3	784	35
20157401	St. Steel	16	26	36	24.9	1.30	24.9	10.0	578	78	3	892	48
20157418	St. Steel	20	32	45	31.5	1.60	30.3	10.0	862	60	4	1370	84
20157425	St. Steel	25	40	58	44.1	1.85	37.5	12.5	980	60	5	1570	195



EL1711

Material

Stainless steel body (440C) with either a resin (POM) or stainless steel (316) retainer.

Stainless steel balls (440C).

Supplied with nitrile rubber (NBR) end seals.

Technical Notes

For use with corrosion resistant hardened shafts (see part no. EL1772) - tolerance h6.

Perpendicularity A is better than 15μ .

For part numbers with $^{-1}$ shaft tolerance required is g6. Temperature range: For

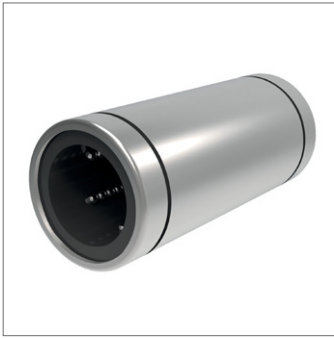
resin ball cage -20°C to $+80^{\circ}\text{C}$.

For stainless ball cage -20°C to $+120^{\circ}\text{C}$.

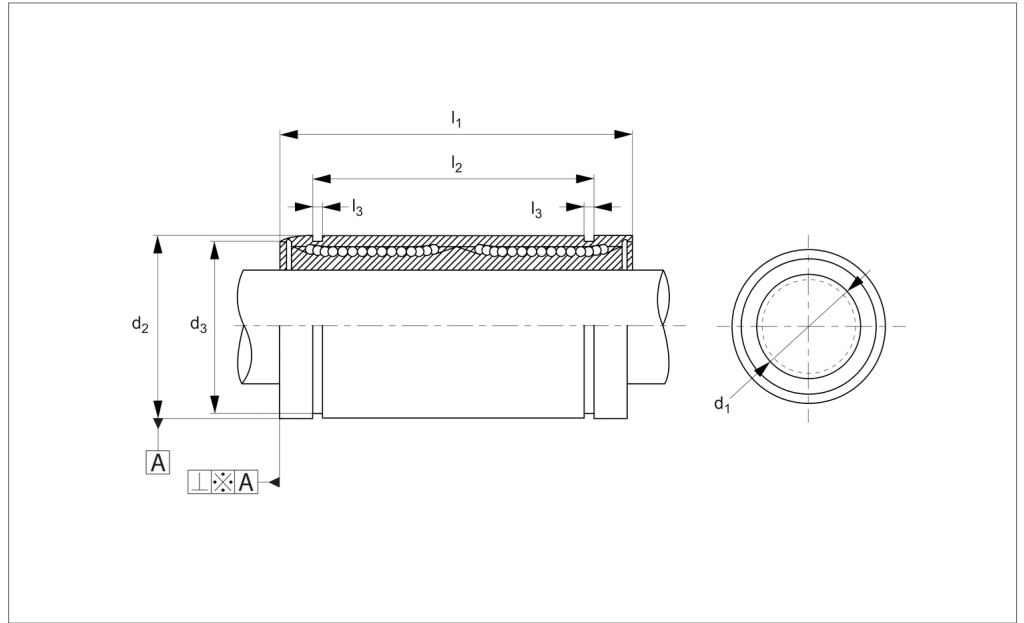
Tips

d_2 is the dimension before the bush has been slotted.

Order No.	Ball cage	d_1 tol. h6	d_2 tol. h6	l_1	l_2	l_3	d_3	w_1	Dyn. load C N max.	No. of ball circuits	Static load C_0 N max.	Weight g
20155902	Resin	5	12	22	14.5	1.10	11.5	1.0	200	4	260	12
20157302	Resin	6	12	19	13.5	1.10	11.5	1.0	200	4	260	8
20155995	Resin	8	16	25	16.5	1.10	15.2	1.0	260	4	400	20
20157319	Resin	10	19	29	22.0	1.30	18.0	1.0	370	4	540	30
20155407	Resin	12	22	32	22.9	1.30	21.0	1.5	410	4	590	41
20155506	Resin	16	26	36	24.9	1.30	24.9	1.5	770	5	1170	57
20157326	Resin	20	32	45	31.5	1.60	30.3	2.0	860	5	1370	91
20155698	Resin	25	40	58	44.1	1.85	37.5	2.0	980	6	1560	215
20157432	Stainless	6	12	19	13.5	1.10	11.5	1.0	200	4	260	8
20156008	Stainless	8	16	25	16.5	1.10	15.2	1.0	260	4	400	20
20157449	Stainless	10	19	29	22.0	1.30	18.0	1.0	370	4	540	30
20155414	Stainless	12	22	32	22.9	1.30	21.0	1.5	410	4	590	41
20155513	Stainless	16	26	36	24.9	1.30	24.9	1.5	770	5	1170	57
20155605	Stainless	20	32	45	31.5	1.60	30.3	2.0	860	5	1370	91
20155704	Stainless	25	40	58	44.1	1.85	37.5	2.0	980	6	1560	215



EL1712



Material

Hardened and ground body from bearing steel.
 Single body resin retainer (POM).
 Supplied with nitrile rubber (NBR) end-seals -UU as standard.

Technical Notes

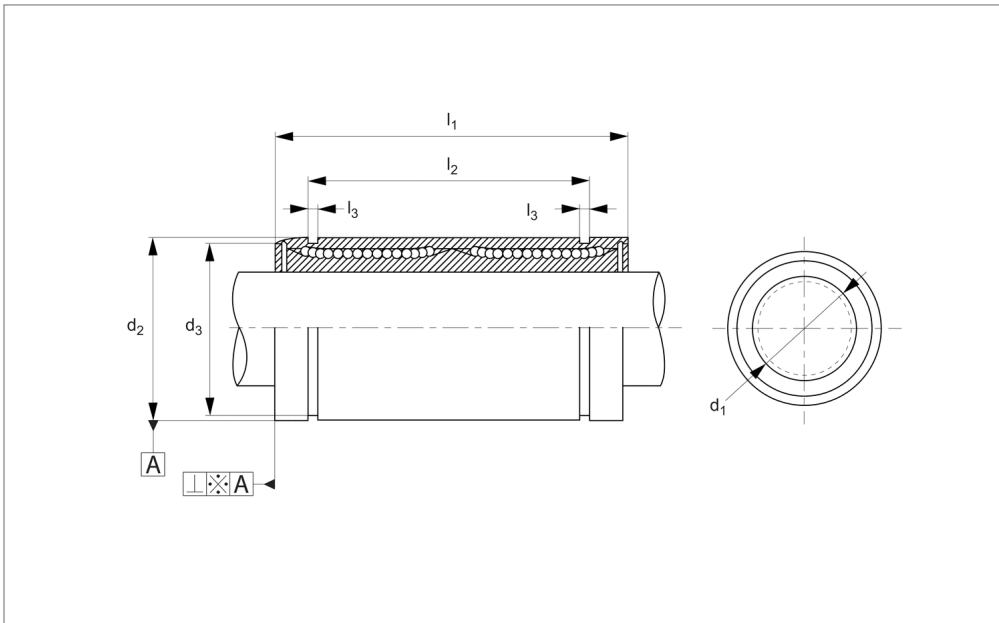
For use with hardened shafts only (see part

nos. EL1770 - EL1772) - tolerance h6.
 Perpendicularity A is better than 15µ.
 Temperature range: -20°C to +80°C.
 Steel ball retainers can be supplied for higher temperature applications up to +120°C - with no end seals. Please advise at time of ordering if this is required.

Tips

Nickel plated version with stainless steel balls (for corrosion resistance) on request - or stainless steel version no. EL1713.

Order No.	d ₁ tol. h6	d ₂ tol. h6	l ₁	d ₃	l ₂	l ₃	No. of ball circuits	Dyn. load C N max.	Static load C ₀ N max.	Weight g
20156046	8	16	45	15.2	33.0	1.10	4	430	780	31
20155452	12	22	57	21.0	45.8	1.30	4	650	1200	80
20158309	12	22	61	21.0	45.8	1.30	4	830	1600	80
20155551	16	26	70	24.9	49.8	1.30	5	1230	2350	145
20155643	20	32	80	30.3	61.0	1.60	5	1400	2750	180
20155742	25	40	112	38.0	82.0	1.85	6	1560	3140	440
20155780	30	47	123	44.5	104.2	1.85	6	2490	5490	580
20155827	40	62	154	59.0	121.2	2.15	6	3430	8040	1170
20155889	50	75	192	72.0	155.2	2.65	6	6080	15900	3100
20155940	60	90	211	86.5	170.0	3.15	6	7650	20000	3500



EL1713

Material

Stainless steel body (440C) with either a resin (POM) or stainless steel (316) retainer.

Stainless steel balls (440C).

Supplied with nitrile rubber (NBR) end

seals.

Technical Notes

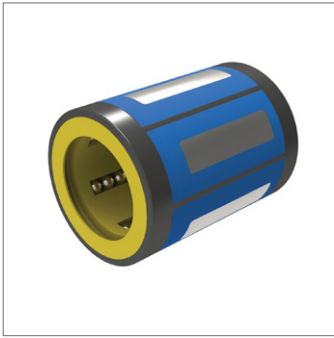
For use with corrosion resistant hardened shafts (see part no. EL1772) - tolerance h6.

Perpendicularity A is better than 15μ .

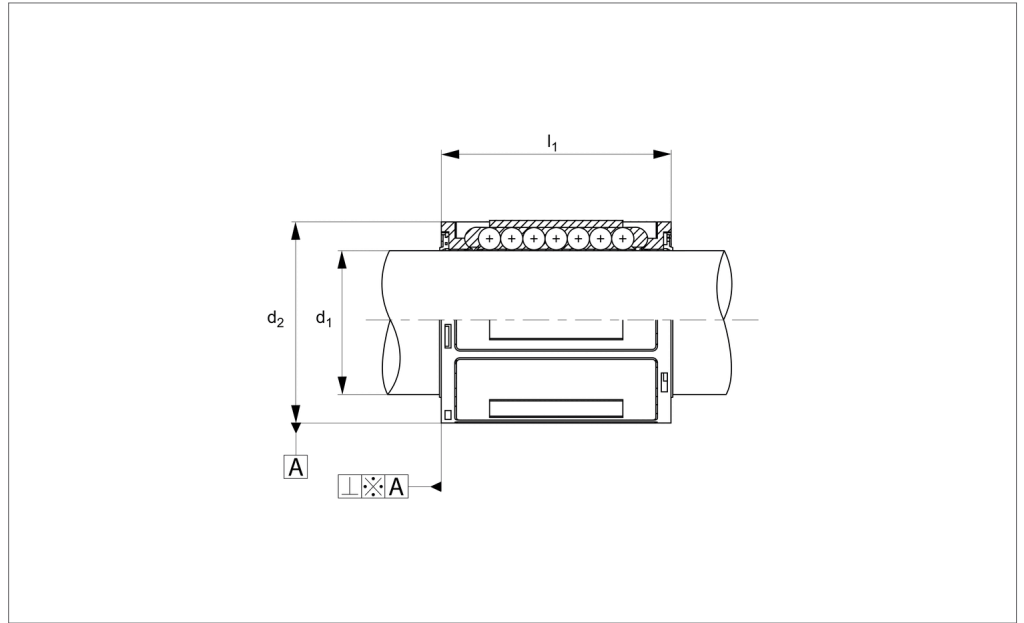
Temperature range: For resin ball cage - 20°C to $+80^{\circ}\text{C}$.

For stainless ball cage -20°C to $+120^{\circ}\text{C}$.

Order No.	Ball cage	d_1 tol. h6	d_2 tol. h6	l_1	l_2	l_3	d_3	Dyn. load C N max.	No. of ball circuits	Static load C_0 N max.	Weight g
20156022	Resin	8	16	45	33.0	1.10	15.2	430	4	780	31
20155438	Resin	12	22	57	45.8	1.30	21.0	650	4	1200	80
20155537	Resin	16	26	70	49.8	1.30	24.9	1230	5	2350	145
20155629	Resin	20	32	80	61.0	1.60	30.3	1400	5	2750	180
20155728	Resin	25	40	112	82.0	1.85	38.0	1560	6	3140	440
20156039	Stainless	8	16	45	33.0	1.10	15.2	430	4	780	31
20155445	Stainless	12	22	57	45.8	1.30	21.0	650	4	1200	80
20155544	Stainless	16	26	70	49.8	1.30	24.9	1230	5	2350	145
20155636	Stainless	20	32	80	61.0	1.60	30.3	1400	5	2750	180
20155735	Stainless	25	40	112	82.0	1.85	38.0	1560	6	3140	440



EL1715



Material

Durable plastic body with corrosion resistant hardened steel raceway segments.

Technical Notes

Advantages - Low cost, compact construc-

tion, press fit, oil resistant seal, corrosion resistant housing.

For use with hardened shafts only (see part nos. EL1770 - EL1772) - tolerance h6.

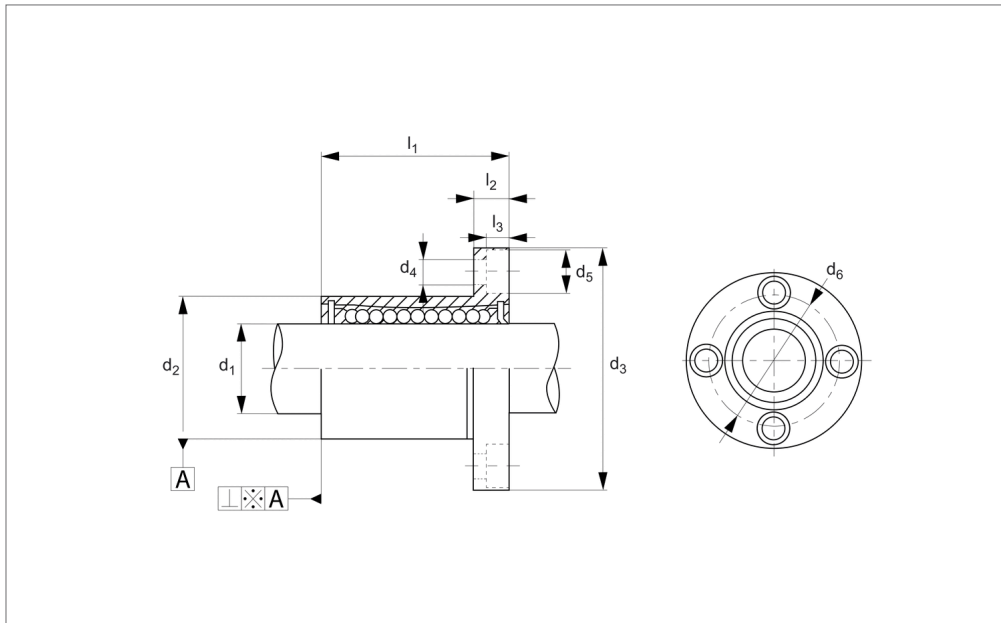
Perpendicularity A is better than 15µ.

Temperature range: -20°C to +80°C.

Tips

Easy assembly by press fitting, no additional retention is required when fitted into a bore with a tolerance of J6 or J7.

Order No.	d ₁ tol. h6	d ₂ tol. h6	l ₁ ±0.2	No. of ball circuits	Dyn. load C N max.	Static load C ₀ N max.	Weight g
20158286	8	15	24	4	350	260	6.9
20158293	10	17	26	4	416	320	8.4
20157791	12	19	28	4	480	385	11.3
20157807	14	21	28	5	640	440	13.3
20157814	16	24	30	5	925	625	18.3
20157821	20	28	30	6	1165	790	22.1
20157838	25	35	40	6	2100	1370	51.2
20157845	30	40	50	6	2870	2100	70.6
20158187	40	52	60	7	5200	4100	90.2
20155360	50	62	70	8	6620	5600	110.2



EL1718

Material

Hardened and ground body from bearing steel.

Single body resin retainer (POM).

Supplied with nitrile rubber (NBR) end-seals -UU as standard.

Technical Notes

For use with hardened shafts only (see part

nos. EL1770 - EL1772) - tolerance h6.

For part numbers with ⁻¹ shaft tolerance required is g6. Temperature range : -20°C to +80°C.

Steel ball retainers can be supplied for higher temperature applications (up to +120°C - with no end seals. Please advise at time of ordering if this is required.

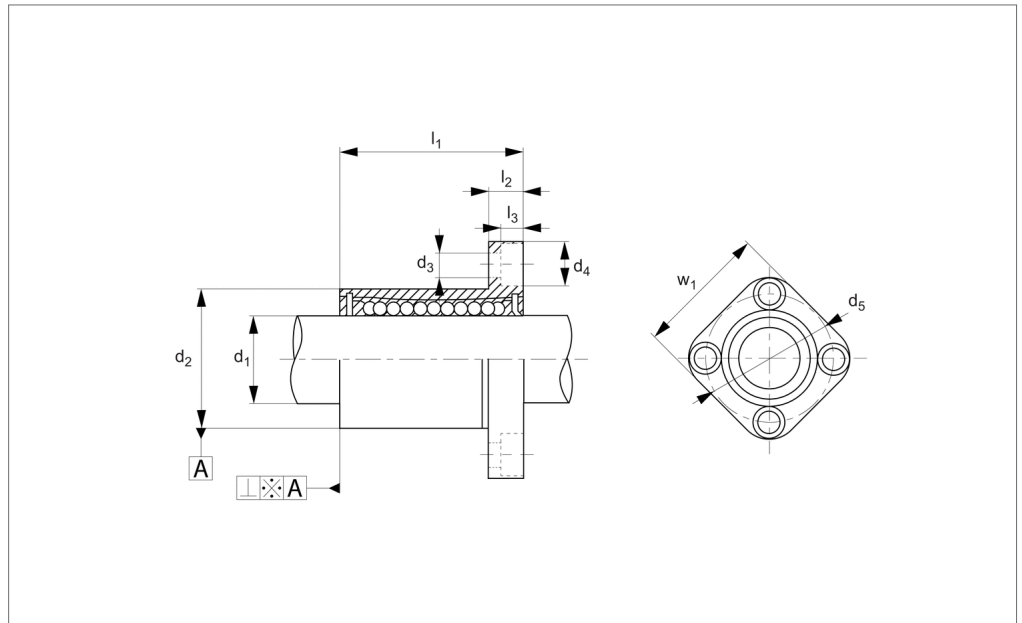
Tips

Nickel plated version with stainless steel balls (for corrosion resistance) on request - or stainless steel version no. EL1720.

Order No.	d ₁ tol. h6	d ₂ tol. h6	l ₁	d ₃ tol. h4	d ₄	d ₅	d ₆	l ₂	l ₃	No. of ball circuits	Squareness A µm	Dyn. load C N max.	Static load C ₀ N max.	Weight g
20157456	6	12	19	28	3,4	6,5	20	5	3,3	4	12	200	260	26,5
20156435	8	16	25	32	3,4	6,5	24	5	3,3	4	12	260	400	44,0
20157463	10	19	29	40	4,5	8,0	29	6	4,4	4	12	370	540	78,0
20156077	12	22	32	42	4,5	8,0	32	6	4,4	4	12	410	590	86,0
20156138	16	26	36	46	4,5	8,0	36	6	4,4	5	12	770	1170	120,0
20156206	20	32	45	54	5,5	9,5	43	8	5,4	5	15	860	1370	184,0
20156275	25	40	58	62	5,5	9,5	51	8	5,4	6	15	980	1560	335,0
20156329	30	47	68	76	6,6	11,0	62	10	6,5	6	15	1560	2740	545,0
20156350	40	62	80	98	9,0	14,0	80	13	8,6	6	20	2150	4010	1185,0
20156374	50	75	100	112	9,0	14,0	94	13	8,6	6	20	3820	7930	1730,0
20156398	60	90	125	134	11,0	17,5	112	18	10,8	6	25	4700	9990	3180,0



EL1719



Material

Hardened and ground body from bearing steel.

Single body resin retainer (POM).

Supplied with nitrile rubber (NBR) end-seals -UU as standard.

nos. EL1770 - EL1772) - tolerance h6.

For part numbers with⁻¹ shaft tolerance required is g6. Temperature range : -20°C to +80°C.

Steel ball retainers can be supplied for higher temperature applications (up to +120°C) - with no end seals. Please advise at time of ordering if this is required.

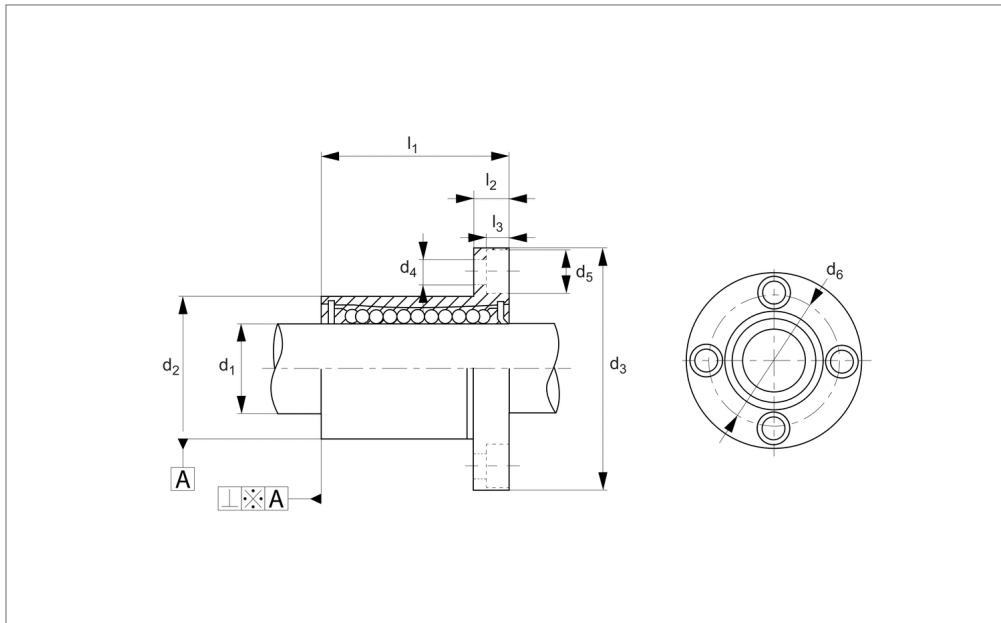
Tips

Nickel plated version with stainless steel balls (for corrosion resistance) on request - or stainless steel version no. EL1721.

Technical Notes

For use with hardened shafts only (see part

Order No.	d ₁ tol. h6	d ₂ tol. h6	l ₁	d ₃	d ₄	d ₅	l ₂	l ₃	No. of ball circuits	w ₁	Squareness A µm	Dyn. load C N max.	Static load C ₀ N max.	Weight g
20157470	6	12	19	3,4	6,5	20	5	3,3	4	22	12	200	260	26,5
20156954	8	16	25	3,4	6,5	24	5	3,3	4	25	12	260	400	44,0
20157487	10	19	29	4,5	8,0	29	6	4,4	4	30	12	370	540	78,0
20156596	12	22	32	4,5	8,0	32	6	4,4	4	32	12	410	590	86,0
20156657	16	26	36	4,5	8,0	36	6	4,4	5	35	12	770	1170	120,0
20156725	20	32	45	5,5	9,5	43	8	5,4	5	42	15	860	1370	184,0
20156794	25	40	58	5,5	9,5	51	8	5,4	6	50	15	980	1560	335,0
20156848	30	47	68	6,6	11,0	62	10	6,5	6	60	15	1560	2740	545,0
20156879	40	62	80	9,0	14,0	80	13	8,6	6	75	20	2150	4010	1185,0
20156893	50	75	100	9,0	14,0	94	13	8,6	6	88	20	3820	7930	1730,0
20156916	60	90	125	11	17,5	112	18	10,8	6	106	25	4700	9990	3180,0



EL1720

LINEAR BEARINGS

Material

Stainless steel body (440C) with either a resin (POM) or stainless steel (316) retainer.

Stainless steel balls (440C).

Supplied with nitrile rubber (NBR) end

seals.

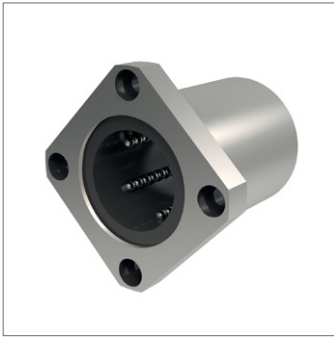
Technical Notes

For use with corrosion resistant hardened shafts (see part no. EL1772) - tolerance h6.

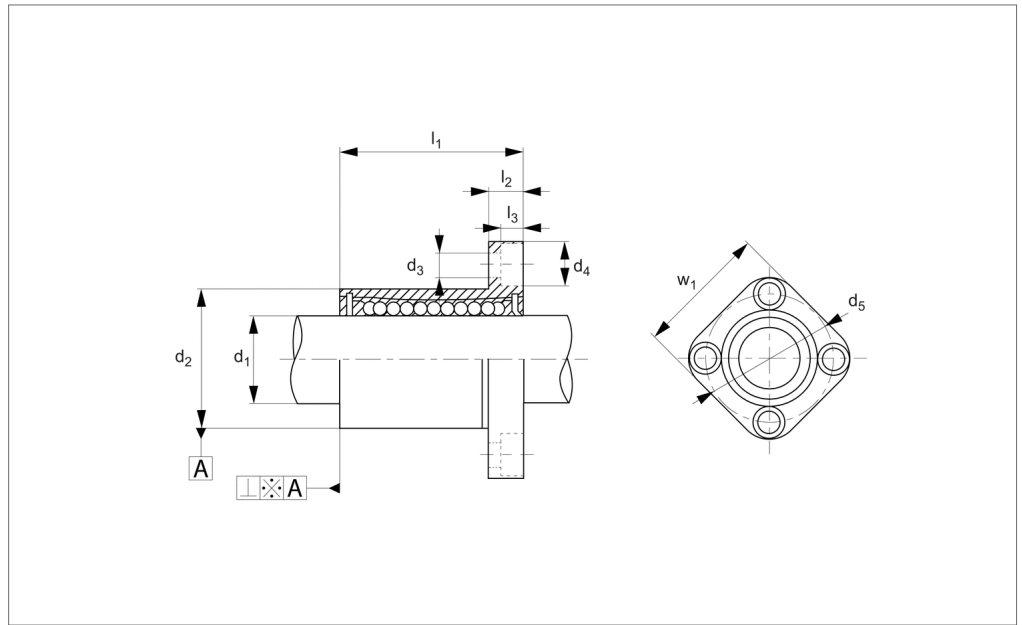
For part numbers with ⁻¹ shaft tolerance required is g6. Temperature range: For resin ball cage - 20°C to +80°C.

For stainless ball cage -20°C to +120°C.

Order No.	Ball cage	d ₁ tol. h6	d ₂ tol. h6	l ₁	l ₂	l ₃	d ₃ tol. h4	d ₄	d ₅	d ₆	Dyn. load C N max.	No. of ball circuits	Static load N max.	C ₀	Squareness µm	Weight g
20157494	Resin	6	12	19	5	3,3	28	3,4	6,5	20	200	4	260	12	26,5	
20156411	Resin	8	16	25	5	3,3	32	3,4	6,5	24	260	4	400	12	44,0	
20157500	Resin	10	19	29	6	4,4	40	4,5	8,0	29	370	4	540	12	78,0	
20156053	Resin	12	22	32	6	4,4	42	4,5	8,0	32	410	4	590	12	86,0	
20156114	Resin	16	26	36	6	4,4	46	4,5	8,0	36	770	5	1170	12	120,0	
20156183	Resin	20	32	45	8	5,4	54	5,5	9,5	43	860	5	1370	15	184,0	
20156251	Resin	25	40	58	8	5,4	62	5,5	9,5	51	980	6	1560	15	335,0	
20157531	Stainless	6	12	19	5	3,3	28	3,4	6,5	20	200	4	260	12	26,5	
20156428	Stainless	8	16	25	5	3,3	32	3,4	6,5	24	260	4	400	12	44,0	
20157548	Stainless	10	19	29	6	4,4	40	4,5	8,0	29	370	4	540	12	78,0	
20156060	Stainless	12	22	32	6	4,4	42	4,5	8,0	32	410	4	590	12	86,0	
20156121	Stainless	16	26	36	6	4,4	46	4,5	8,0	36	770	5	1170	12	120,0	
20156190	Stainless	20	32	45	8	5,4	54	5,5	9,5	43	860	5	1370	15	184,0	
20156268	Stainless	25	40	58	8	5,4	62	5,5	9,5	51	980	6	1560	15	335,0	



EL1721



Material

Stainless steel body (440C) with either a resin (POM) or stainless steel (316) retainer.
Stainless steel balls (440C).
Supplied with nitrile rubber (NBR) end seals.

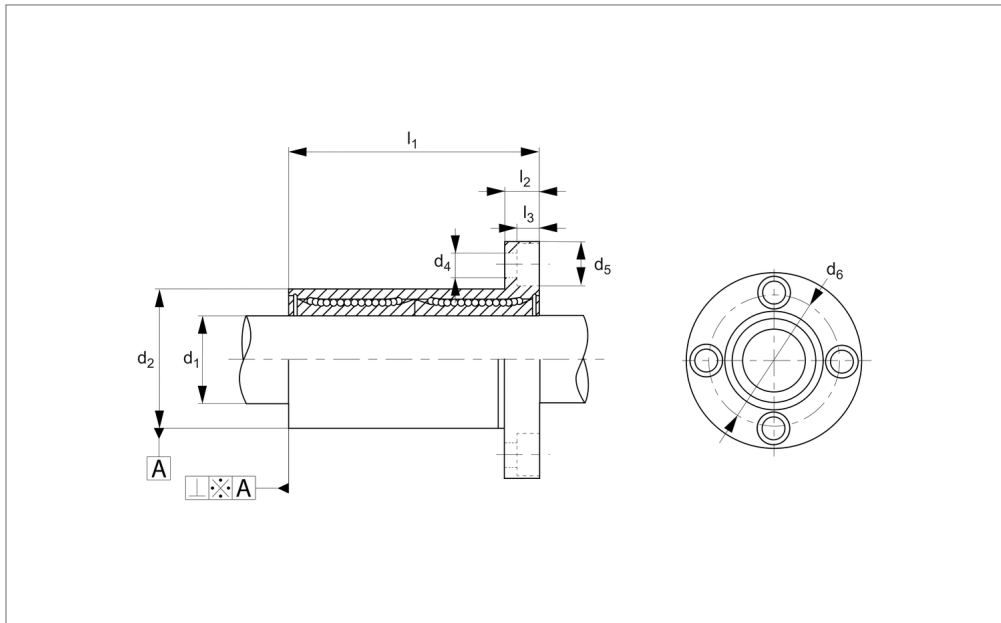
seals.

Technical Notes

For use with corrosion resistant hardened shafts (see part no. EL1772) - tolerance h6.

For part numbers with ⁻¹ shaft tolerance required is g6. Temperature range: For resin ball cage -20°C to +80°C. For stainless ball cage -20°C to +120°C.

Order No.	Ball cage	d ₁ tol. h6	d ₂ tol. h6	l ₁	l ₂	l ₃	d ₃	d ₄	d ₅	w ₁	Dyn. load C N max.	No. of ball circuits	Static load C ₀ N max.	Squareness A µm	Weight g
20157517	Resin	6	12	19	5	3,3	3,4	6,5	20	22	200	4	260	12	26,5
20156930	Resin	8	16	25	5	3,3	3,4	6,5	24	25	260	4	400	12	44,0
20157524	Resin	10	19	29	6	4,4	4,5	8,0	29	30	370	4	540	12	78,0
20156572	Resin	12	22	32	6	4,4	4,5	8,0	32	32	410	4	590	12	86,0
20156633	Resin	16	26	36	6	4,4	4,5	8,0	36	35	770	5	1170	12	120,0
20156701	Resin	20	32	45	8	5,4	5,5	9,5	43	42	860	5	1370	15	184,0
20156770	Resin	25	40	58	8	5,4	5,5	9,5	51	50	980	6	1560	15	335,0
20157555	Stainless	6	12	19	5	3,3	3,4	6,5	20	22	200	4	260	12	26,5
20156947	Stainless	8	16	25	5	3,3	3,4	6,5	24	25	260	4	400	12	44,0
20157562	Stainless	10	19	29	6	4,4	4,5	8,0	29	30	370	4	540	12	78,0
20156589	Stainless	12	22	32	6	4,4	4,5	8,0	32	32	410	4	590	12	86,0
20156640	Stainless	16	26	36	6	4,4	4,5	8,0	36	35	770	5	1170	12	120,0
20156718	Stainless	20	32	45	8	5,4	5,5	9,5	43	42	860	5	1370	15	184,0
20156787	Stainless	25	40	58	8	5,4	5,5	9,5	51	50	980	6	1560	15	335,0



EL1722

Material

Hardened and ground body from bearing steel.

Single body resin retainer (POM).

Supplied with nitrile rubber (NBR) end-seals -UU as standard.

Technical Notes

For use with hardened shafts only (see part

nos. EL1770 - EL1772) - tolerance h6. For part numbers with ⁻¹ shaft tolerance required is g6. Temperature range : -20°C to +80°C.

Steel ball retainers can be supplied for higher temperature applications (up to +120°C - with no end seals. Please advise at time of ordering if this is required.

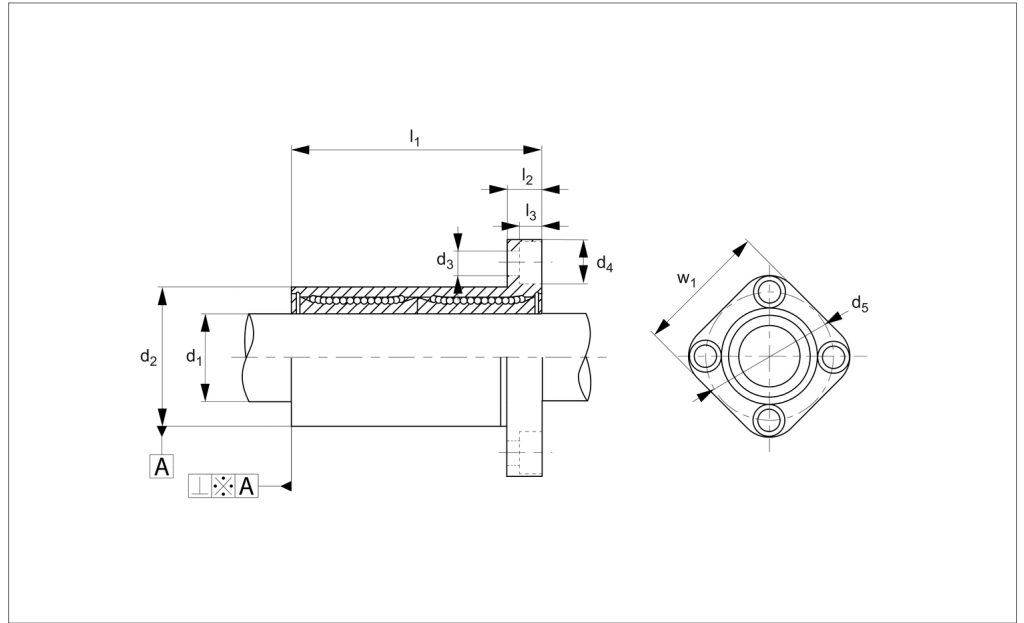
Tips

Nickel plated version with stainless steel balls (for corrosion resistance) on request - or stainless steel version part no. EL1724.

Order No.	d ₁ tol. h6	d ₂ tol. h6	l ₁	d ₃ tol. h4	d ₄	d ₅	d ₆	l ₂	l ₃	No. of ball circuits	Squareness A µm	Dyn. load C N max.	Static load C ₀ N max.	Weight g
20157579	6	12	35	28	3,4	6,5	20	5	3,3	4	12	320	520	31
20156466	8	16	45	32	3,4	6,5	24	5	3,3	4	12	430	780	53
20157586	10	19	55	40	4,5	8,0	29	6	4,4	4	12	580	1100	105
20156107	12	22	57	42	4,5	8,0	32	6	4,4	4	12	650	1200	100
20156169	16	26	70	46	4,5	8,0	36	6	4,4	5	12	1230	2350	187
20156237	20	32	80	54	5,5	9,5	43	8	5,4	5	15	1400	2750	260
20156305	25	40	112	62	5,5	9,5	51	8	5,4	6	15	1560	3140	515
20156336	30	47	123	76	6,6	11,0	62	10	6,5	6	15	2490	5490	655
20156367	40	62	154	98	9,0	14,0	80	13	8,6	6	20	3430	8040	1560
20156381	50	75	192	112	9,0	14,0	94	13	8,6	6	20	6080	15900	3500
20156404	60	90	211	134	11,0	17,5	112	18	10,8	6	25	7650	20000	4500



EL1723



Material

Hardened and ground body from bearing steel.
 Single body resin retainer (POM).
 Supplied with nitrile rubber (NBR) end-seals -UU as standard.

Technical Notes

For use with hardened shafts only (see part

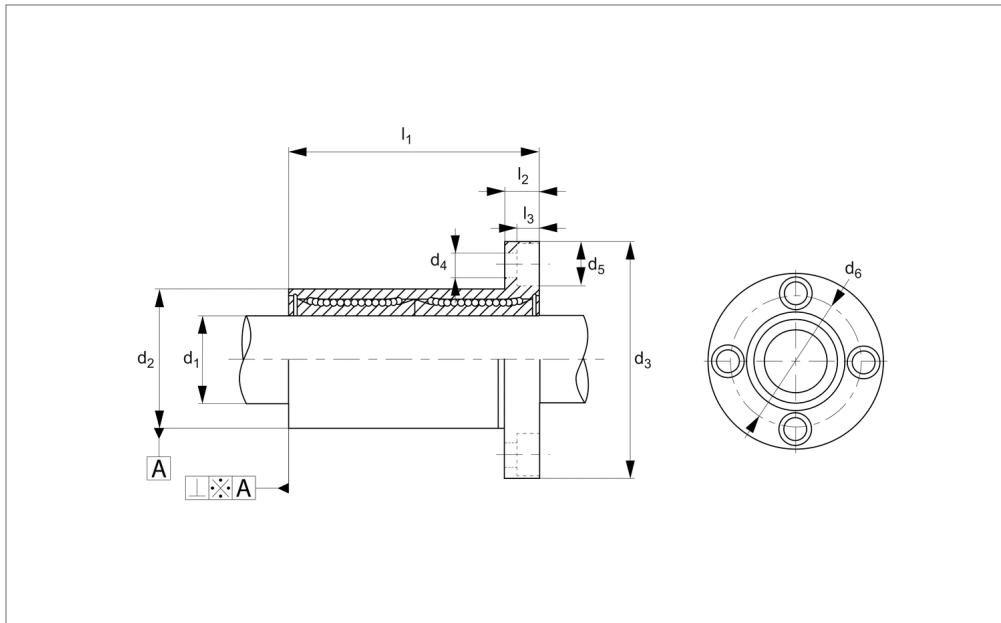
nos. EL1770 - EL1772) - tolerance h6. For part numbers with ⁻¹ shaft tolerance required is g6. Temperature range : -20°C to +80°C.

Steel ball retainers can be supplied for higher temperature applications (up to +120°C - with no end seals. Please advise at time of ordering if this is required.

Tips

Nickel plated version with stainless steel balls (for corrosion resistance) on request - or stainless steel version no. EL1725.

Order No.	d ₁ tol. h6	d ₂ tol. h6	l ₁	d ₃	d ₄	d ₅	l ₂	l ₃	No. of ball circuits	w ₁	Squareness A µm	Dyn. load C N max.	Static load C ₀ N max.	Weight g
20157593	6	12	35	3.4	6.5	20	5	3.3	4	22	15	320	520	31
20156985	8	16	45	3.4	6.5	24	5	3.3	4	25	15	430	780	53
20157609	10	19	55	4.5	8.0	29	6	4.4	4	30	15	580	1100	105
20156626	12	22	57	4.5	8.0	32	6	4.4	4	32	15	650	1200	100
20156688	16	26	70	4.5	8.0	36	6	4.4	5	35	15	1230	2350	187
20156756	20	32	80	5.5	9.5	43	8	5.4	5	42	17	1400	2750	260
20156824	25	40	112	5.5	9.5	51	8	5.4	6	50	17	1560	3140	515
20156855	30	47	123	6.6	11.0	62	10	6.5	6	60	17	2490	5490	655
20156886	40	62	154	9.0	14.0	80	13	8.6	6	75	20	3430	8040	1560
20156909	50	75	192	9.0	14.0	94	13	8.6	6	88	20	6080	15900	3500
20156923	60	90	211	11.0	17.5	112	18	10.8	6	106	25	7650	20000	4500



EL1724

Material

Stainless steel body (440C) with either a resin (POM) or stainless steel (316) retainer.

Stainless steel balls (440C).

Supplied with nitrile rubber (NBR) end

seals.

Technical Notes

For use with corrosion resistant hardened shafts (see part no. EL1772).

Tolerance h6. For part numbers with⁻¹ shaft

tolerance required for these is g6.

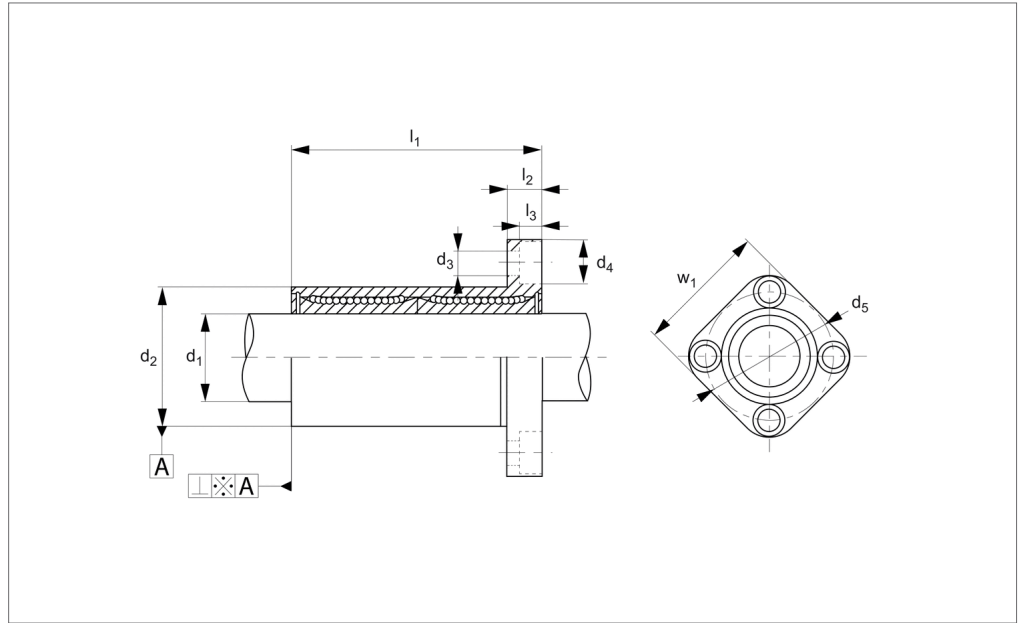
Temperature range: For resin ball cage - 20°C to +80°C.

For stainless ball cage -20°C to +120°C.

Order No.	Ball cage	d ₁ tol. h6	d ₂ tol. h6	l ₁	l ₂	l ₃	d ₃ tol. h4	d ₄	d ₅	d ₆	Dyn. load C N max.	No. of ball circuits	Static load C ₀ N max.	Squareness A µm	Weight g
20157616	Resin	6	12	35	5	3,3	28	3,4	6,5	20	320	4	520	15	31
20156442	Resin	8	16	45	5	3,3	32	3,4	6,5	24	430	4	780	15	53
20157623	Resin	10	19	55	6	4,4	40	4,5	8,0	29	580	4	1100	15	105
20156084	Resin	12	22	57	6	4,4	42	4,5	8,0	32	650	4	1200	15	100
20156145	Resin	16	26	70	6	4,4	46	4,5	8,0	36	1230	5	2350	15	187
20156213	Resin	20	32	80	8	5,4	54	5,5	9,5	43	1400	5	2750	17	260
20156282	Resin	25	40	112	8	5,4	62	5,5	9,5	51	1560	6	3140	17	515
20157654	Stainless	6	12	35	5	3,3	28	3,4	6,5	20	320	4	520	15	31
20156459	Stainless	8	16	45	5	3,3	32	3,4	6,5	24	430	4	780	15	53
20157661	Stainless	10	19	55	6	4,4	40	4,5	8,0	29	580	4	1100	15	105
20156091	Stainless	12	22	57	6	4,4	42	4,5	8,0	32	650	4	1200	15	100
20156152	Stainless	16	26	70	6	4,4	46	4,5	8,0	36	1230	5	2350	15	187
20156220	Stainless	20	32	80	8	5,4	54	5,5	9,5	43	1400	5	2750	17	260
20156299	Stainless	25	40	112	8	5,4	62	5,5	9,5	51	1560	6	3140	17	515



EL1725



Material

Stainless steel body (440C) with either a resin (POM) or stainless steel (316) retainer.
 Stainless steel balls (440C).
 Supplied with nitrile rubber (NBR) end seals.

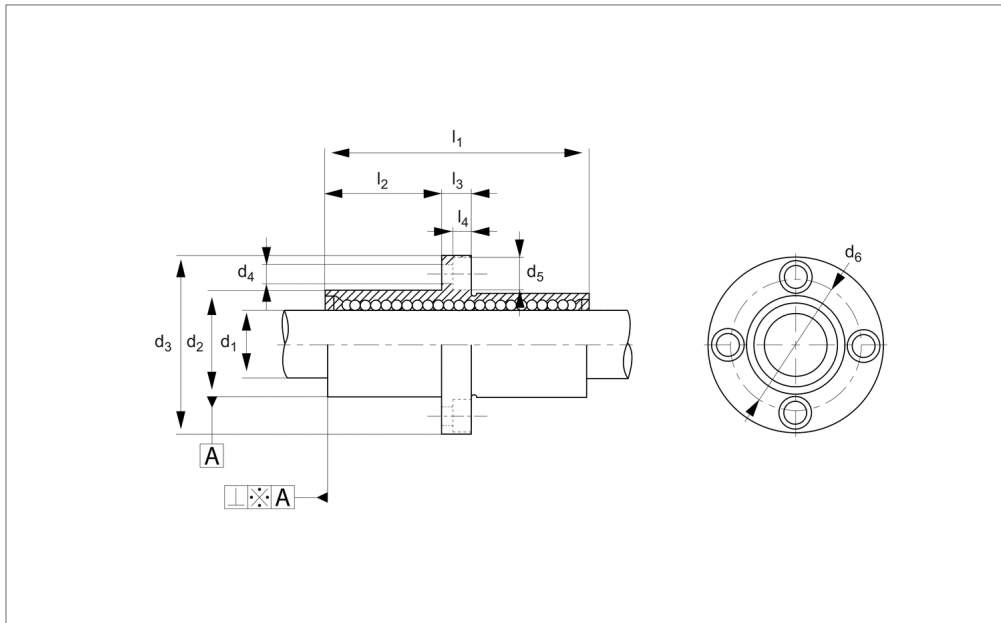
seals.

Technical Notes

For use with corrosion resistant hardened shafts (see part no. EL1772) - tolerance h6.

For part numbers with ⁻¹ shaft tolerance required is g6. Temperature range: For resin ball cage -20°C to +80°C. For stainless ball cage -20°C to +120°C.

Order No.	Ball cage	d ₁ tol. h6	d ₂ tol. h6	l ₁	l ₂	l ₃	d ₃	d ₄	d ₅	w ₁	Dyn. load C N max.	No. of ball circuits	Static load C ₀ N max.	Squareness A µm	Weight g
20157630	Resin	6	12	35	5	3,3	3,4	6,5	20	22	320	4	520	15	31
20156961	Resin	8	16	45	5	3,3	3,4	6,5	24	25	430	4	780	15	53
20157647	Resin	10	19	55	6	4,4	4,5	8,0	29	30	580	4	1100	15	105
20156602	Resin	12	22	57	6	4,4	4,5	8,0	32	32	650	4	1200	15	100
20156664	Resin	16	26	70	6	4,4	4,5	8,0	36	35	1230	5	2350	15	187
20156732	Resin	20	32	80	8	5,4	5,5	9,5	43	42	1400	5	2750	17	260
20156800	Resin	25	40	112	8	5,4	5,5	9,5	51	50	1560	6	3140	17	515
20157678	Stainless	6	12	35	5	3,3	3,4	6,5	20	22	320	4	520	15	31
20156978	Stainless	8	16	45	5	3,3	3,4	6,5	24	25	430	4	780	15	53
20157685	Stainless	10	19	55	6	4,4	4,5	8,0	29	30	580	4	1100	15	105
20156619	Stainless	12	22	57	6	4,4	4,5	8,0	32	32	650	4	1200	15	100
20156671	Stainless	16	26	70	6	4,4	4,5	8,0	36	35	1230	5	2350	15	187
20156749	Stainless	20	32	80	8	5,4	5,5	9,5	43	42	1400	5	2750	17	260
20156817	Stainless	25	40	112	8	5,4	5,5	9,5	51	50	1560	6	3140	17	515



EL1730

LINEAR BEARINGS

Material

Hardened and ground body from bearing steel.

Single body resin retainer (POM).

Supplied with nitrile rubber (NBR) end-seals -UU as standard.

Technical Notes

For use with hardened shafts only For use

with hardened shafts only (see part nos.

EL1770 - EL1772) - tolerance h6.

Temperature range : -20°C to +80°C.

Steel ball retainers can be supplied for higher temperature applications (up to +120°C) - with no end seals. Please advise at time of ordering if this is required.

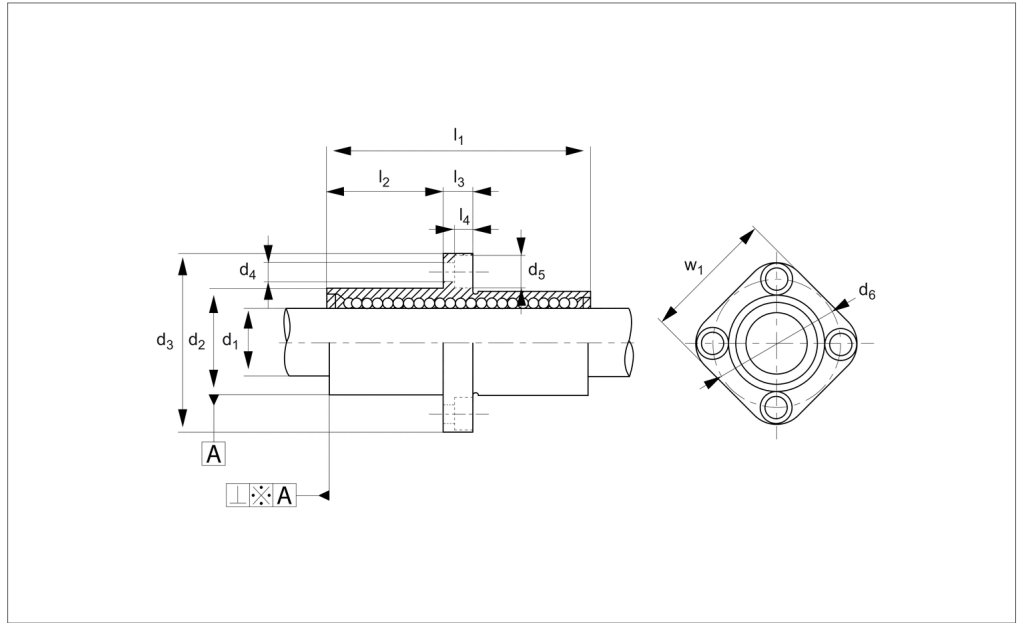
Tips

Nickel plated version with stainless steel balls (for corrosion resistance) on request - or stainless steel version no. EL1732.

Order No.	d ₁	d ₂	l ₁	d ₃	d ₄	d ₅	d ₆	l ₂	l ₃	l ₄	No. of ball circuits	Squareness A µm	Dyn. load C N	Static load C ₀ N	Weight g
20158019	8	16	45	32	3.4	6.5	24	20.0	5	3.3	4	15	430	780	53
20158026	12	22	57	42	4.5	8.0	32	25.5	6	4.4	4	15	650	1200	100
20156176	16	26	70	46	4.5	8.0	36	32.0	6	4.4	5	15	1230	2350	187
20156244	20	32	80	54	5.5	9.5	43	36.0	8	5.4	5	17	1400	2750	260
20156312	25	40	112	62	5.5	9.5	51	52.0	8	5.4	6	17	1560	3140	515
20156343	30	47	123	76	6.6	11.0	62	56.5	10	6.5	6	17	2940	5490	655
20158033	40	62	154	98	9	14.0	80	70.5	13	8.6	6	20	3430	8040	1560
20158040	50	75	192	112	9	14.0	94	89.5	13	8.6	6	20	6080	15900	3500
20158057	60	90	211	134	11	17.5	112	96.5	18	10.8	6	30	7650	20000	4500



EL1731



Material

Hardened and ground body from bearing steel.
 Single body resin retainer (POM).
 Supplied with nitrile rubber (NBR) end-seals -UU as standard.

Technical Notes

For use with hardened shafts only (see part

nos. EL1770 - EL1772) - tolerance h6.
 Temperature range: -20°C to +80°C.
 For applications requiring higher temperatures we can make the bushings suitable for use up to +120°C by changing the ball retainers, end plates, and seals. Please advise at time of ordering if this is required.

Tips

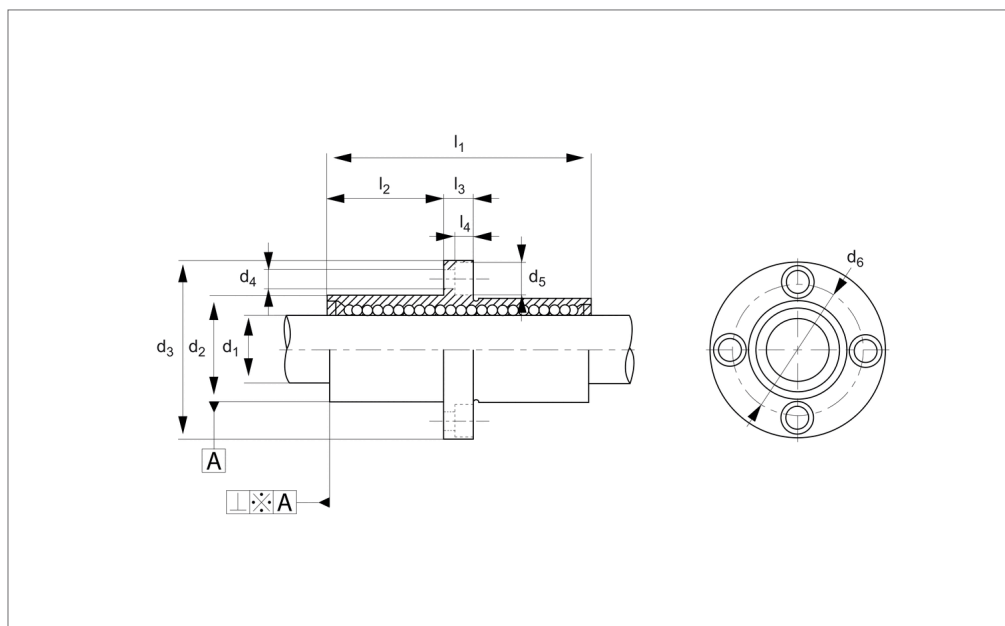
Nickel plated version with stainless steel balls (for corrosion resistance) on request - or stainless steel version no. EL1733.

Order No.	d ₁	d ₂	l ₁	d ₃	d ₄	d ₅	d ₆	l ₂	l ₃	l ₄	No. of ball circuits	w ₁	Squareness	Dyn. load C N max.	Static load C ₀ N max.	Weight g
	tol. h6	tol. h6											A µm			
20158064	8	16	45	32	3,4	6,5	24	20,0	5	3,3	4	25	15	430	780	53
20158071	12	22	57	42	4,5	8,0	32	25,5	6	4,4	4	32	15	650	1200	100
20156695	16	26	70	46	4,5	8,0	36	32,0	6	4,4	5	35	15	1230	2350	187
20156763	20	32	80	54	5,5	9,5	43	36,0	8	5,4	5	42	17	1400	2750	260
20156831	25	40	112	62	5,5	9,5	51	52,0	8	5,4	6	50	17	1560	3140	515
20156862	30	47	123	76	6,6	11,0	62	56,5	10	6,5	6	60	17	2940	5490	655
20158088	40	62	154	98	9	14,0	80	70,5	13	8,6	6	75	20	3430	8040	1560
20158095	50	75	192	112	9	14,0	94	89,5	13	8,6	6	88	20	6080	15900	3500
20157784	60	90	211	134	11	17,5	112	96,5	18	10,8	6	106	30	7650	20000	4500

Stainless Ball Bushings

Long version, circular centre flange

Linear Bearings



EL1732

LINEAR BEARINGS

Material

Stainless steel body (440C) with either a resin (POM) or stainless steel (316) retainer.
Stainless steel balls (440C).

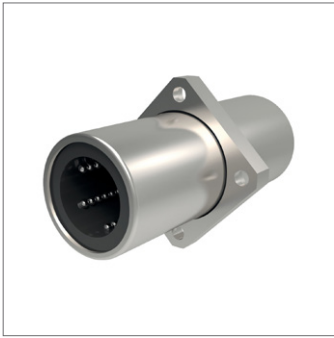
Supplied with nitrile rubber (NBR) end seals.

Technical Notes

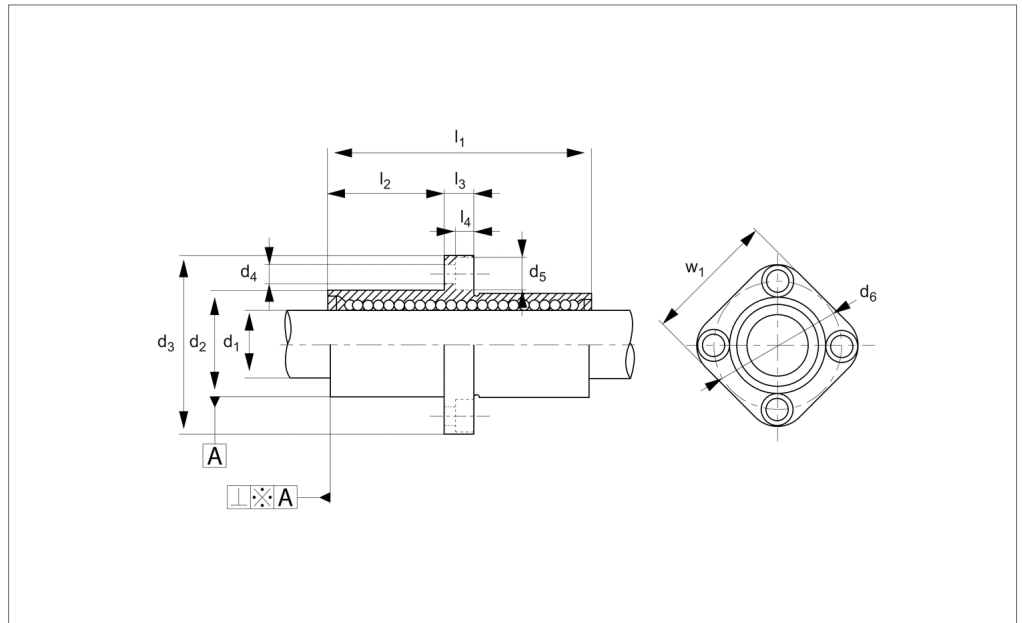
For use with hardened shafts only (see part

nos. EL1770 - EL1772) - tolerance h6. For part numbers with ⁻¹ shaft tolerance required is g6. Temperature range: For resin ball cage -20°C to +80°C.
For stainless ball cage -20°C to +120°C.

Order No.	Ball cage	d ₁ tol. h6	d ₂ tol. h6	l ₁	l ₂	l ₃	l ₄	d ₃ tol. h4	d ₄	d ₅	d ₆	Dyn. load C N max.	No. of ball circuits	Static load C ₀ N max.	Squareness A µm	Weight g
20157692	Resin	6	12	35	15,0	5	3,3	28	3,4	6,5	20	320	4	520	15	31
20156558	Resin	8	15	45	20,0	5	3,3	32	3,4	6,5	24	430	4	780	15	53
20157708	Resin	10	19	55	24,5	6	4,4	40	4,5	8,0	29	580	4	1100	15	105
20156473	Resin	12	21	57	25,5	6	4,4	42	4,5	8,0	32	650	4	1200	15	100
20156497	Resin	16	26	70	32,0	6	4,4	46	4,5	8,0	36	1230	5	2350	15	187
20156510	Resin	20	32	80	36,0	8	5,4	54	5,5	9,5	43	1400	5	2750	17	260
20156534	Resin	25	40	112	52,0	8	5,4	62	5,5	9,5	51	1560	6	3140	17	515
20157739	Stainless	6	12	35	15,0	5	3,3	28	3,4	6,5	20	320	4	520	15	31
20156565	Stainless	8	15	45	20,0	5	3,3	32	3,4	6,5	24	430	4	780	15	53
20157746	Stainless	10	19	55	24,5	6	4,4	40	4,5	8,0	29	580	4	1100	15	105
20156480	Stainless	12	21	57	25,5	6	4,4	42	4,5	8,0	32	650	4	1200	15	100
20156503	Stainless	16	26	70	32,0	6	4,4	46	4,5	8,0	36	1230	5	2350	15	187
20156527	Stainless	20	32	80	36,0	8	5,4	54	5,5	9,5	43	1400	5	2750	17	260
20156541	Stainless	25	40	112	52,0	8	5,4	62	5,5	9,5	51	3140	6	3140	17	515



EL1733



Material

Stainless steel body (440C) with either a resin (POM) or stainless steel (316) retainer.
Stainless steel balls (440C).
Supplied with nitrile rubber (NBR) end

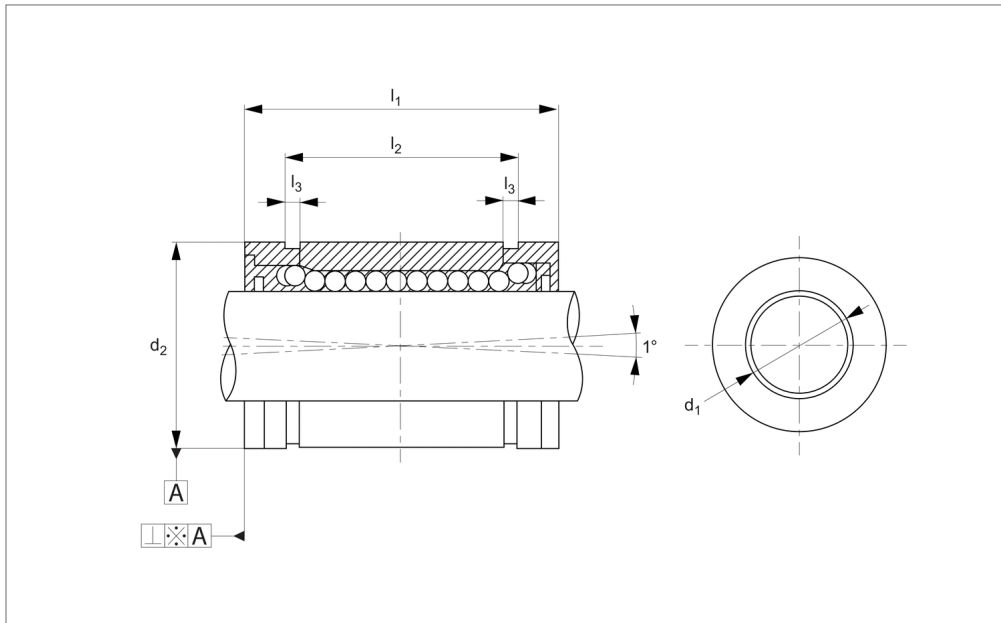
seals.

Technical Notes

For use with corrosion resistant hardened shafts (see part no. EL1772) - tolerance h6.

For part numbers with ⁻¹ shaft tolerance required is g6. Temperature range: For resin ball cage -20°C to +80°C.
For stainless ball cage -20°C to +120°C.

Order No.	Ball cage	d ₁ tol. h6	d ₂ tol. h6	l ₁	l ₂	l ₃	l ₄	d ₃	d ₄	d ₅	d ₆	w ₁	Dyn. load N max.	C No. of ball circuits	Static load C ₀ N max.	Squareness A µm	Weight g
20157715	Resin	6	12	35	15,0	5	3,3	20	3,4	6,5	20	22	320	4	520	15	31
20157074	Resin	8	15	45	20,0	5	3,3	24	3,4	6,5	24	25	430	4	780	15	53
20157722	Resin	10	19	55	24,5	6	4,4	29	4,5	8,0	29	30	580	4	1100	15	105
20156992	Resin	12	21	57	25,5	6	4,4	32	4,5	8,0	32	32	650	4	1200	15	100
20157012	Resin	16	26	70	32,0	6	4,4	36	4,5	8,0	35	35	1230	5	2350	15	187
20157036	Resin	20	32	80	36,0	8	5,4	43	5,5	9,5	42	42	1400	5	2750	20	260
20157050	Resin	25	40	112	52,0	8	5,4	51	5,5	9,5	50	51	1560	6	3140	20	515
20157753	Stainless	6	12	35	15,0	5	3,3	20	3,4	6,5	20	22	320	4	520	15	31
20157081	Stainless	8	15	45	20,0	5	3,3	24	3,4	6,5	24	25	430	4	780	15	53
20157760	Stainless	10	19	55	24,5	6	4,4	29	4,5	8,0	29	30	580	4	1100	15	105
20157005	Stainless	12	21	57	25,5	6	4,4	32	4,5	8,0	32	32	650	4	1200	15	100
20157029	Stainless	16	26	70	32,0	6	4,4	36	4,5	8,0	35	35	1230	5	2350	15	187
20157043	Stainless	20	32	80	36,0	8	5,4	43	5,5	9,5	42	42	1400	5	2750	20	260
20157067	Stainless	25	40	112	52,0	8	5,4	51	5,5	9,5	50	51	1560	6	3140	20	515



EL1740

Material

Hardened and ground steel ball plate from bearing steel.
 Floating plate feature offers self-alignment and clearance adjustment.
 Single body resin retainer (POM).
 Supplied with nitrile rubber (NBR) end

seals -UU as standard.

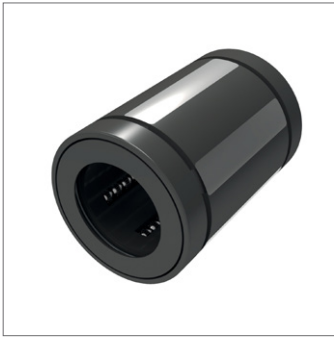
Technical Notes

The superball series has 3 x the load rating and 27 x the travel life of conventional linear bushings.
 They offer self-alignment - prolonging

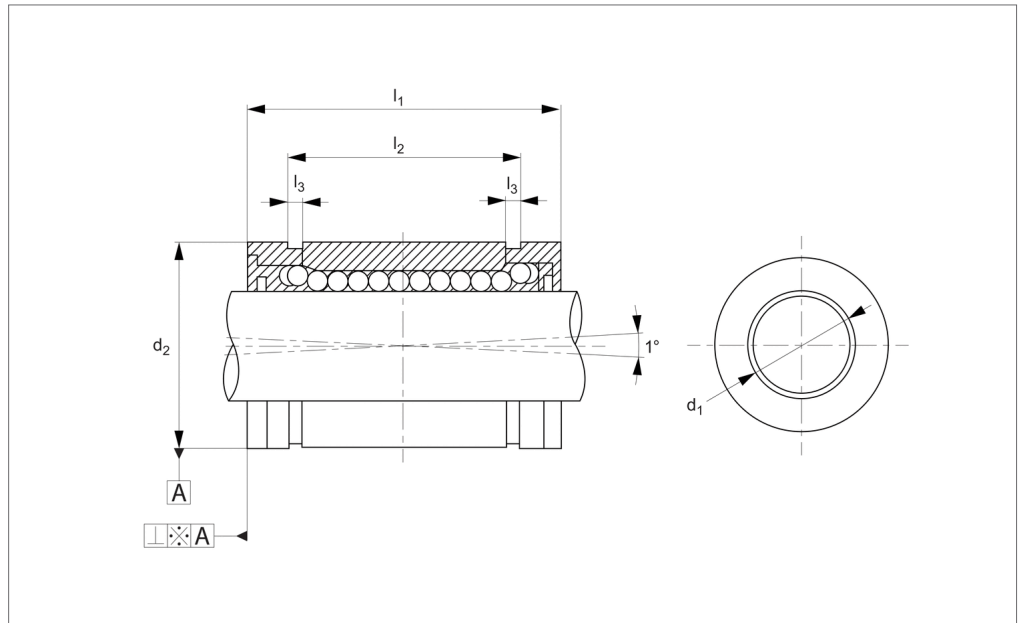
travel life by reducing the friction between shaft and balls.

For use with hardened shafts only (see part nos. EL1770 - EL1772) - tolerance h6.
 Perpendicularity A is better than 15μ.
 Temperature range: -20°C to +80°C.

Order No.	d ₁ tol. h6	d ₂ tol. h6	l ₁ ±0.2	l ₂ ±0.2	l ₃ min.	No. of ball circuits	Dyn. load C N max.	Static load C ₀ N max.	Weight g
20157098	10	19	29	21.7	1.35	5	550	750	17
20157104	12	22	32	22.7	1.35	5	1100	1230	23
20157128	16	26	36	24.7	1.35	5	1250	1550	28
20157142	20	32	45	31.3	1.65	6	1670	2580	61
20157166	25	40	58	43.8	1.90	6	2750	3800	122
20157180	30	47	68	51.8	1.90	6	2800	4710	185
20157203	40	62	80	60.4	2.20	6	5720	6500	360
20157227	50	75	100	77.4	2.70	6	7940	11460	580



EL1741



Material

Hardened and ground body from bearing steel - nickel plated.
 Stainless steel balls 440C.
 Floating plate feature offers self-alignment and clearance adjustment.
 Single body resin retainer (POM).
 Supplied with nitrile rubber (NBR) end seals -UU as standard.

Technical Notes

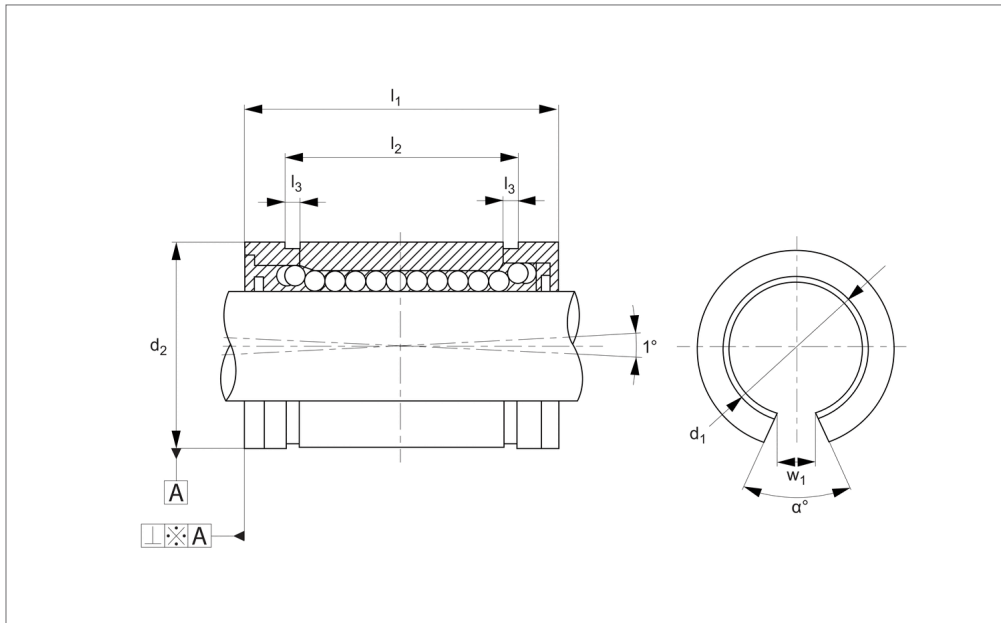
The superball series has 3 x the load rating and 27 x the travel life of conventional linear bushings.
 They offer self-alignment - prolonging travel life by reducing the friction between shaft and balls.
 For use with hardened shafts only (see part nos. EL1770 - EL1772) - tolerance h6.

Perpendicularity A is better than 15µ.
 Temperature range: -20°C to +80°C.

Tips

The nickel plated bearing plates and the stainless steel bearing balls provide a good degree of corrosion protection.

Order No.	d ₁ tol. h6	d ₂ tol. h6	l ₁ ±0.2	l ₂ ±0.2	l ₃ min.	No. of ball circuits	Dyn. load C N max.	Static load C ₀ N max.	Weight g
20157852	10	19	29	21.7	1.35	5	550	750	17
20157869	12	22	32	22.7	1.35	5	1100	1230	23
20157876	16	26	36	24.7	1.35	5	1250	1550	28
20157883	20	32	45	31.3	1.65	6	1670	2580	61
20157890	25	40	58	43.8	1.90	6	2750	3800	122
20157906	30	47	68	51.8	1.90	6	2800	4710	185
20157913	40	62	80	60.4	2.20	6	5720	6500	360
20157920	50	75	100	77.4	2.70	6	7940	11460	580



EL1742

Material

Hardened and ground steel ball plate from bearing steel.
 Floating plate feature offers self-alignment and clearance adjustment.
 Single body resin retainer (POM).
 Supplied with nitrile rubber (NBR) end

seals -UU as standard.

Technical Notes

The superball series has 3 x the load rating and 27 x the travel life of conventional linear bushings.
 For use with hardened shafts only (see part

nos. EL1770 - EL1772) - tolerance h6.
 Perpendicularity A is better than 15µ.
 Temperature range: -20°C to +80°C.

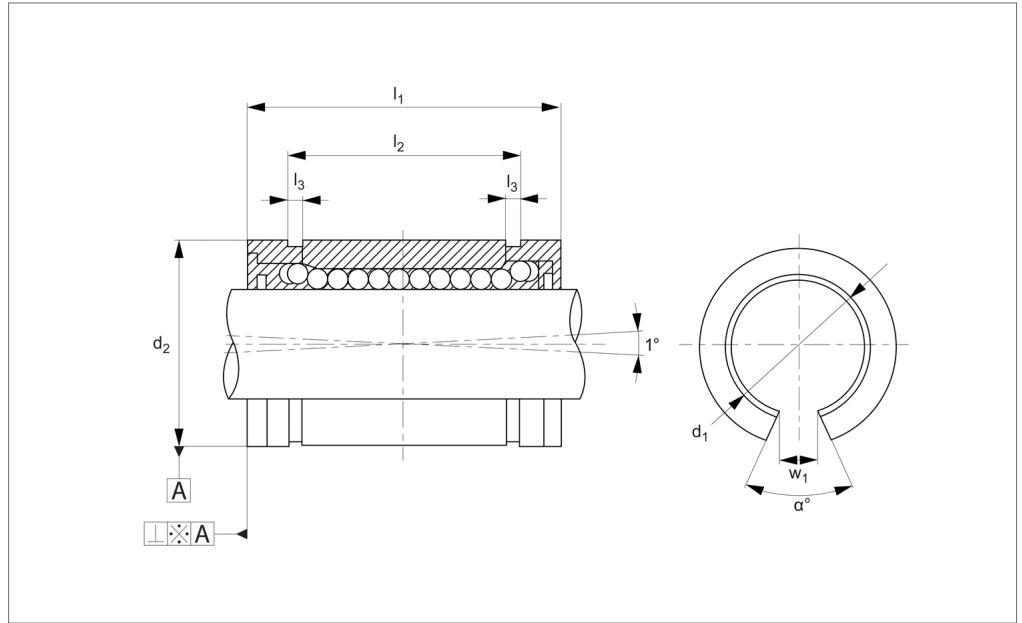
Tips

d₂ is the dimension before the bush has been slotted.

Order No.	d ₁ tol. h6	d ₂ tol. h6	l ₁ ±0.2	l ₂ ±0.2	l ₃ min.	Dyn. load C N max.	w ₁	°	Static load C ₀ N max.	Weight g
20157111	12	22	32	22.7	1.35	1260	6.5	66	1290	18
20157135	16	26	36	24.7	1.35	1320	9.0	68	1640	22
20157159	20	32	45	31.3	1.65	1720	9.0	55	2630	51
20157173	25	40	58	43.8	1.90	2850	11.5	57	3910	102
20157197	30	47	68	81.8	1.90	2900	14.0	57	4850	155
20157210	40	62	80	60.4	2.20	5900	19.5	56	6700	300
20157234	50	75	100	77.4	2.70	8100	22.5	54	11700	480



EL1743



Material

Hardened and ground body from bearing steel - nickel plated.
 Stainless steel balls 440C.
 Floating plate feature offers self-alignment and clearance adjustment.
 Single body resin retainer (POM).
 Supplied with nitrile rubber (NBR) end seals -UU as standard.

and 27 x the travel life of conventional linear bushings.
 They offer self-alignment - prolonging travel life by reducing the friction between shaft and balls.
 For use with hardened shafts only (see part nos. EL1770 - EL1772) - tolerance h6.
 Perpendicularity A is better than 15µ.
 Temperature range: -20°C to +80°C.

stainless steel bearing balls provide a good degree of corrosion protection. d_2 is the dimension before the bush has been slotted.

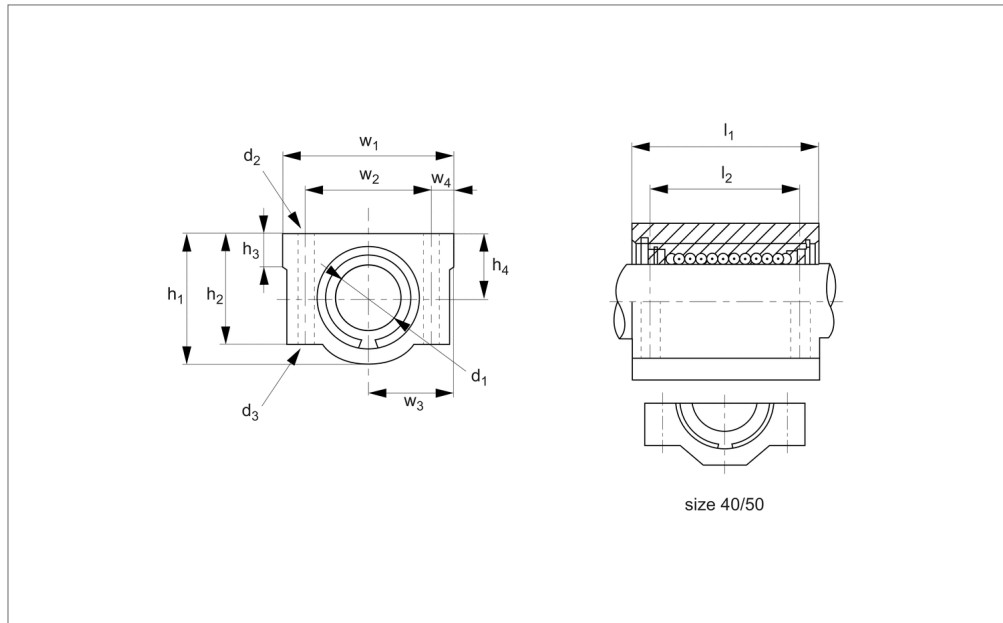
Technical Notes

The superball series has 3 x the load rating

Tips

The nickel plated bearing plates and the

Order No.	d_1 tol. h6	d_2 tol. h6	l_1 ±0.2	l_2 ±0.2	l_3 min.	Dyn. load C N max.	w_1	α	Static load C_0 N max.	Weight g
20157937	12	22	32	22.7	1.35	1260	6.5	66	1290	18
20157944	16	26	36	24.7	1.35	1320	9.0	68	1640	22
20157951	20	32	45	31.3	1.65	1720	9.0	55	2630	51
20157968	25	40	58	43.8	1.90	2850	11.5	57	3910	102
20157975	30	47	68	81.8	1.90	2900	14.0	57	4850	155
20157982	40	62	80	60.4	2.20	5900	19.5	56	6700	300
20157999	50	75	100	77.4	2.70	8100	22.5	54	11700	480



EL1750

Material

Aluminium body, with linear bearing EL1706 (steel shell) installed. Bearing has a resin retainer (POM). Supplied with nitrile rubber (NBR) end seals -UU as standard.

Long versions have EL1712 linear bearing installed, short versions have EL1715 Linear bearing installed.

Technical Notes

For use with hardened shafts only (see part

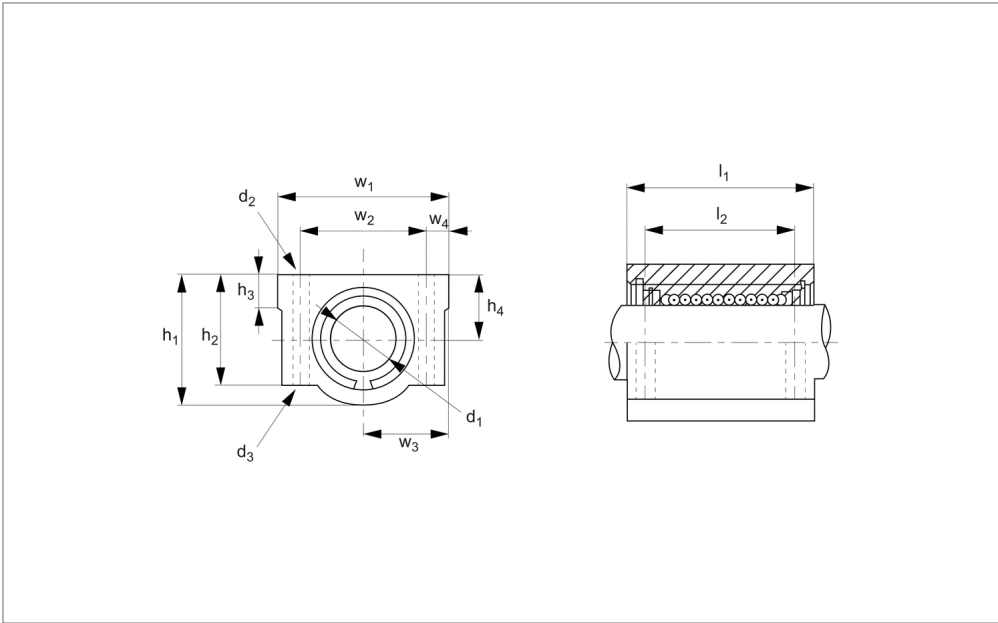
nos. EL1770 - EL1772).

Temperature range: -20°C to +80°C. Steel ball retainers can be supplied for higher temperature applications (up to 120°C - with no end seals. Please advise at time of ordering if this is required.

Order No.	Type	d ₁ tol. h6	l ₁	d ₂	d ₃	h ₁	h ₂	h ₃	Weight g
20263225	Standard	8	30.0	M 4x8	3.4	22.0	18.0	6	60
20262778	Standard	12	39.0	M 5x10	4.3	30.0	24.5	8	118
20262860	Standard	16	44.0	M 5x12	4.3	38.5	32.5	9	180
20262952	Standard	20	53.0	M 6x12	5.2	41.0	35.0	11	245
20263041	Standard	25	67.0	M 8x18	6.8	51.5	41.0	12	550
20263119	Standard	30	76.0	M 8x18	6.8	59.5	49.0	15	760
20263140	Standard	40	90.0	M10x25	8.6	78.0	62.0	20	1700
20263171	Standard	50	110.0	M10x25	8.6	102.0	80.0	24	2950
20263287	Long	8	58.0	M 4x8	3.4	22.0	18.0	6	98
20262839	Long	12	77.0	M 5x10	4.3	30.0	24.5	8	232
20262921	Long	16	89.0	M 5x12	4.3	38.5	32.5	9	360
20263669	Long	20	106.0	M 6x12	5.2	41.0	35.0	11	490
20263102	Long	25	136.0	M 8x18	6.8	51.5	41.0	12	1100
20263133	Long	30	154.0	M 8x18	6.8	59.5	49.0	15	1525
20263164	Long	40	180.0	M10x25	8.6	78.0	62.0	20	3400
20263195	Long	50	230.0	M10x25	8.6	102.0	80.0	24	5920
20263256	Short	8	14.4	M 4x8	3.4	22.0	18.0	6	40
20262808	Short	12	20.3	M 5x10	4.3	30.0	24.5	8	82
20262891	Short	16	22.3	M 5x12	4.3	38.5	32.5	9	122
20262983	Short	20	28.3	M 6x12	5.2	41.0	35.0	11	176
20263072	Short	25	40.4	M 8x18	6.8	51.5	41.0	12	400
20263126	Short	30	48.4	M 8x18	6.8	59.5	49.0	15	570
20263157	Short	40	56.4	M10x25	8.6	78.0	62.0	20	1320
20263188	Short	50	72.3	M10x25	8.6	102.0	80.0	24	1900

Order No.	h ₄ ±0.02	l ₂ ±0.2	w ₁	w ₂ ±0.2	w ₃ ±0.02	w ₄	Dyn. load C N max.	Static load C ₀ N max.	Linear ball bushing used
20263225	11	18	34	24	17	5.0	260	400	L1706.008
20262778	15	26	44	33	22	5.5	410	590	L1706.012
20262860	19	34	50	36	25	7.0	770	1170	L1706.016
20262952	21	40	54	40	27	7.0	860	1370	L1706.020

Order No.	h_4 ± 0.02	l_2 ± 0.2	w_1	w_2 ± 0.2	w_3 ± 0.02	w_4	Dyn. load C N max.	Static load C ₀ N max.	Linear ball bushing used
20263041	26	50	76	54	38	11.0	980	1560	L1706.025
20263119	30	58	78	58	39	10.0	1560	2740	L1706.030
20263140	40	60	102	80	51	11.0	2150	4010	L1706.040
20263171	52	80	122	100	61	11.0	3820	7930	L1706.050
20263287	11	42	34	24	17	5.0	410	800	2 x L1706.008
20262839	15	64	44	33	22	5.5	650	1180	2 x L1706.012
20262921	19	79	50	36	25	7.0	1230	2340	2 x L1706.016
20263669	21	90	54	40	27	7.0	1370	2740	2 x L1706.020
20263102	26	119	76	54	38	11.0	1560	3120	2 x L1706.025
20263133	30	132	78	58	39	10.0	2490	5480	2 x L1706.030
20263164	40	150	102	80	51	11.0	3440	8020	2 x L1706.040
20263195	52	200	122	100	61	11.0	6110	15860	2 x L1706.050
20263256	11	-	34	24	17	5.0	260	400	L1706.008
20262808	15	-	44	33	22	5.5	410	590	L1706.012
20262891	19	-	50	36	25	7.0	770	1170	L1706.016
20262983	21	-	54	40	27	7.0	860	1370	L1706.020
20263072	26	-	76	54	38	11.0	980	1560	L1706.025
20263126	30	-	78	58	39	10.0	1560	2740	L1706.030
20263157	40	-	102	80	51	11.0	2150	4010	L1706.040
20263188	52	-	122	100	61	11.0	3820	7930	L1706.050



EL1751

Material

Aluminium carriage housing with EL1709, stainless steel (440C) linear bushing installed.
Bushing has a resin -RS (POM) or stainless

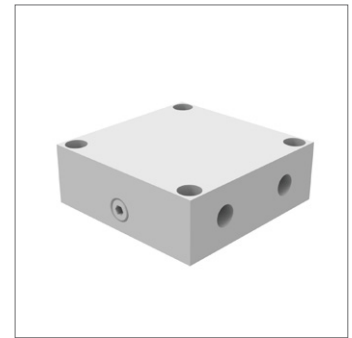
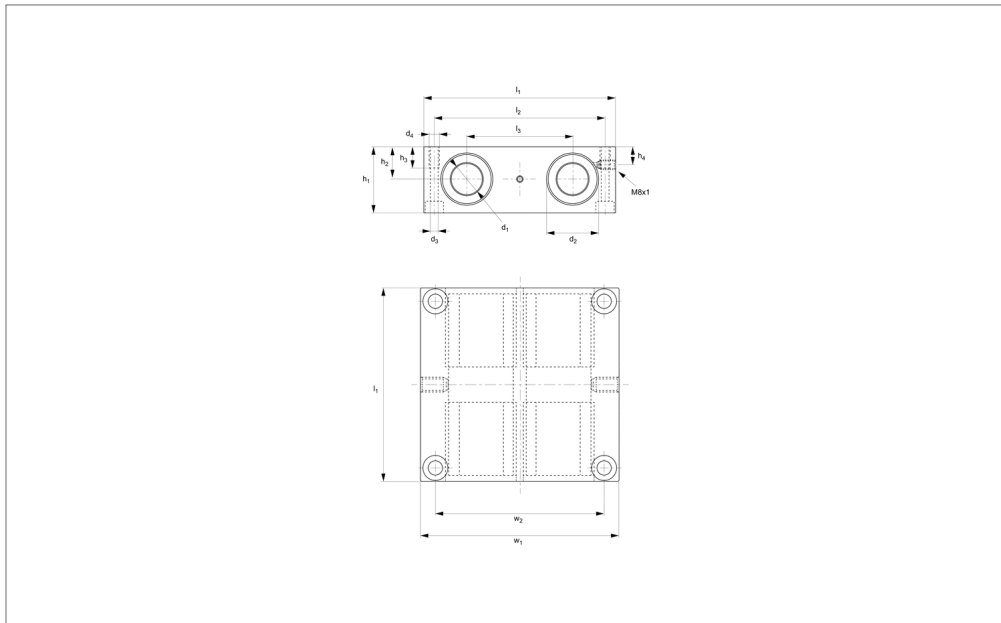
steel -SS (316) retainer and nitrile rubber (NBR) end seals -UU.
Stainless steel balls 440C.
Long versions have EL1713 linear bearing installed.

Technical Notes

For use with corrosion resistant hardened shafts (see part no. EL1772).
Temperature range: -20°C to +120°C.

Order No.	Type	Ball cage	d ₁ tol. h6	l ₁	d ₂	d ₃	h ₁	h ₂	Weight g
20263201	Normal	Resin	8	30.0	M4x 8	3.4	22.0	18.0	60
20262754	Normal	Resin	12	39.0	M5x10	4.3	30.0	24.5	118
20262846	Normal	Resin	16	44.0	M5x12	4.3	38.5	32.5	180
20262938	Normal	Resin	20	53.0	M6x12	5.2	41.0	35.0	245
20263027	Normal	Resin	25	67.0	M8x18	6.8	51.5	41.0	550
20263263	Normal	Stainless	8	30.0	M4x 8	3.4	22.0	18.0	60
20262815	Normal	Stainless	12	39.0	M5x10	4.3	30.0	24.5	118
20262907	Normal	Stainless	16	44.0	M5x12	4.3	38.5	32.5	180
20262990	Normal	Stainless	20	53.0	M6x12	5.2	41.0	35.0	245
20263089	Normal	Stainless	25	67.0	M8x18	6.8	51.5	41.0	550
20263232	Long	Resin	8	58.0	M4x 8	3.4	22.0	18.0	98
20262785	Long	Resin	12	77.0	M5x10	4.3	30.0	24.5	232
20262877	Long	Resin	16	89.0	M5x12	4.3	38.5	32.5	360
20262969	Long	Resin	20	106.0	M6x12	5.2	41.0	35.0	490
20263058	Long	Resin	25	136.0	M8x18	6.8	51.5	41.0	1100
20263218	Long	Stainless	8	58.0	M4x 8	3.4	22.0	18.0	98
20262761	Long	Stainless	12	77.0	M5x10	4.3	30.0	24.5	232
20262853	Long	Stainless	16	89.0	M5x12	4.3	38.5	32.5	360
20262945	Long	Stainless	20	106.0	M6x12	5.2	41.0	35.0	490
20263034	Long	Stainless	25	136.0	M8x18	6.8	51.5	41.0	1100
20263270	Short	Resin	8	14.4	M4x 8	3.4	22.0	18.0	40
20262822	Short	Resin	12	20.3	M5x10	4.3	30.0	24.5	82
20262914	Short	Resin	16	22.3	M5x12	4.3	38.5	32.5	122
20263003	Short	Resin	20	28.3	M6x12	5.2	41.0	35.0	176
20263096	Short	Resin	25	40.4	M8x18	6.8	51.5	41.0	400
20263249	Short	Stainless	8	14.4	M4x 8	3.4	22.0	18.0	40
20262792	Short	Stainless	12	20.3	M5x10	4.3	30.0	24.5	82
20262884	Short	Stainless	16	22.3	M5x12	4.3	38.5	32.5	122
20262976	Short	Stainless	20	28.3	M6x12	5.2	41.0	35.0	176
20263065	Short	Stainless	25	40.3	M8x18	6.8	51.5	41.0	400

Order No.	h_3	h_4 ± 0.02	l_2 ± 0.2	w_1	w_2 ± 0.2	w_3 ± 0.02	w_4	Dyn. load C N max.	Static load C_0 N max.	Linear ball bushing used
20263201	6	11	18	34	24	17	5.0	260	400	L1709.008
20262754	8	15	26	44	33	22	5.5	410	590	L1709.012
20262846	9	19	34	50	36	25	7.0	770	1170	L1709.016
20262938	11	21	40	54	40	27	7.0	860	1370	L1709.020
20263027	12	26	50	76	54	38	11.0	980	1560	L1709.025
20263263	6	11	18	34	24	17	5.0	260	400	L1709.508
20262815	8	15	26	44	33	22	5.5	410	590	L1709.512
20262907	9	19	34	50	36	25	7.0	770	1170	L1709.516
20262990	11	21	40	54	40	27	7.0	860	1370	L1709.520
20263089	12	26	50	76	54	38	11.0	980	1560	L1709.525
20263232	6	11	42	34	24	17	5.0	410	800	2 x L1709.008
20262785	8	15	64	44	33	22	5.5	650	1180	2 x L1709.012
20262877	9	19	79	50	36	25	7.0	1230	2340	2 x L1709.016
20262969	11	21	90	54	40	27	7.0	1370	2740	2 x L1709.020
20263058	12	26	119	76	54	38	11.0	1560	3120	2 x L1709.025
20263218	6	11	42	34	24	17	5.0	410	800	2 x L1709.508
20262761	8	15	64	44	33	22	5.5	650	1180	2 x L1709.512
20262853	9	19	79	50	36	25	7.0	1230	2340	2 x L1709.516
20262945	11	21	90	54	40	27	7.0	1370	2740	2 x L1709.520
20263034	12	26	119	76	54	38	11.0	1560	3120	2 x L1709.525
20263270	6	11	-	34	24	17	5.0	260	400	L1709.008
20262822	8	15	-	44	33	22	5.5	410	590	L1709.012
20262914	9	19	-	50	36	25	7.0	770	1170	L1709.016
20263003	11	21	-	54	40	27	7.0	860	1370	L1709.020
20263096	12	26	-	76	54	38	11.0	980	1560	L1709.025
20263249	6	11	-	34	24	17	5.0	260	400	L1709.508
20262792	8	15	-	44	33	22	5.5	410	590	L1709.512
20262884	9	19	-	50	36	25	7.0	770	1170	L1709.516
20262976	11	21	-	54	40	27	7.0	860	1370	L1709.520
20263065	12	26	-	76	54	38	11.0	980	1560	L1709.525



EL1758

Material

Aluminium alloy body.
Steel bearings with plastic ball retainer and end seals.

bearings with two integral seals and lubrication hole.

Bearings are fixed in the housing by retaining rings (DIN 472).

For use with hardened shafts only (see part no.s EL1770 - EL1772). Load ratings apply for hardened and ground shafts only.

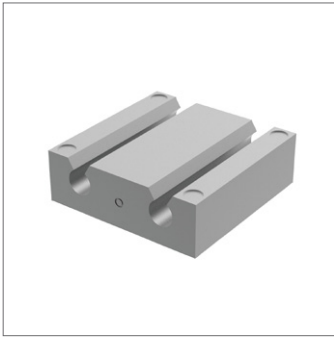
Temperature range: -20°C to +80°C.

For applications requiring higher temperatures we can make the bushings suitable for use up to +120°C by changing the ball retainers, end plates, and seals. Please advise at time of ordering if this is required.

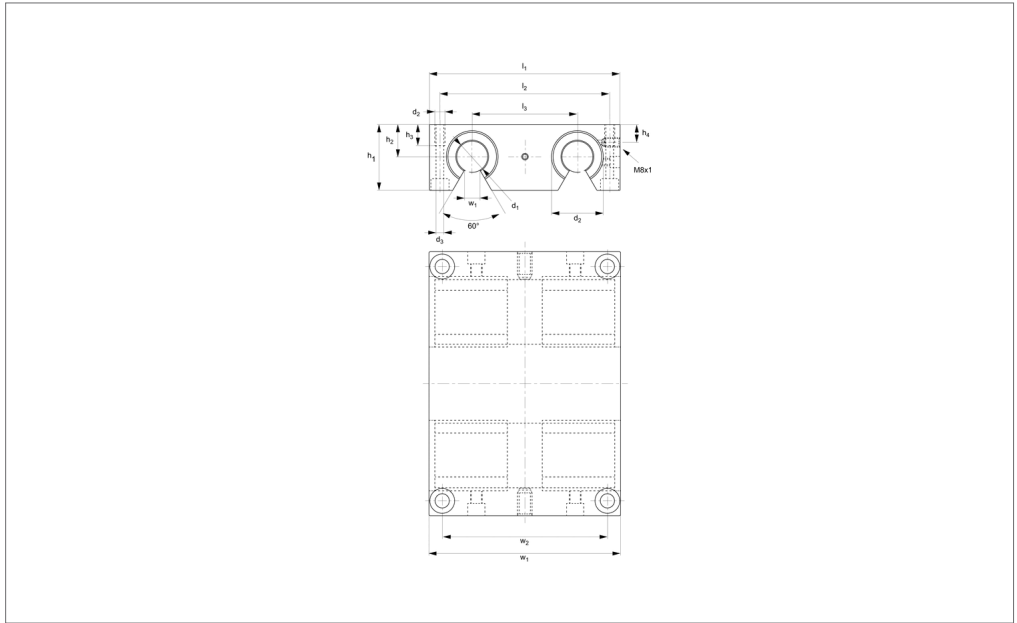
Technical Notes

Quadruple, closed, self-aligning linear ball

Order No.	d_1 for h_7	d_2 tol. h_6	w_1	h_1	h_2 $+0.01 -0.02$	h_3	h_4	l_1	l_2 & w_2	l_3 ± 0.02	d_3	d_4	Dyn. load C kN max.	Static load C_0 kN max.	Weight kg
20262648	12	22	85	32	16	13	13	85	73	42	5.3	M 6	1.3	2.0	0.70
20263515	16	26	100	36	18	13	15	100	88	54	5.3	M 6	1.4	2.2	1.02
20262655	20	32	130	46	23	18	19	130	115	72	6.8	M 8	3.2	4.9	2.15
20262679	25	40	160	56	28	22	24	160	140	88	9.0	M10	5.5	8.5	4.07
20263409	30	47	180	64	32	26	27	180	158	96	10.5	M12	6.2	9.5	5.87
20262662	40	62	230	80	40	34	35	230	202	122	13.5	M16	10.5	14.0	11.78



EL1759



Material

Aluminium alloy body.
Steel bearings with plastic ball retainer and end seals.

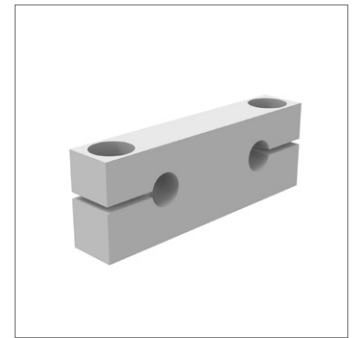
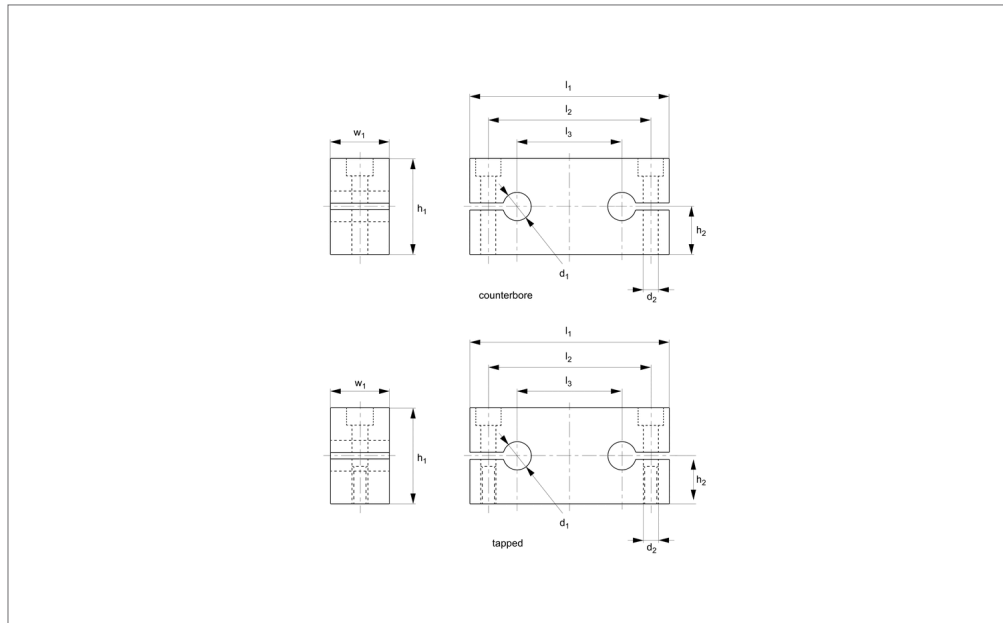
bearings with two integral seals and lubrication hole.
Bearings are fixed in the housing by retaining rings (DIN 472).
For use with hardened shafts only (see part no.s EL1770 - EL1772). Load ratings apply for hardened and ground shafts only.
Temperature range: -20°C to +80°C.
For applications requiring higher tempera-

tures we can make the bushings suitable for use up to +120°C by changing the ball retainers, end plates, and seals. Please advise at time of ordering if this is required.

Technical Notes

Quadruple, closed, self-aligning linear ball

Order No.	d_1 for h_7	d_2 tol. h_6	w	w_1	h_1	h_2 $+0.01 -0.02$	h_3	h_4	l_1	l_2 & w_2	l_3 ± 0.02	d_3	d_4	Dyn. load C kN max.	Static load C_0 kN max.	Weight kg
20263485	12	22	7.0	85	30	18	13	13	85	73	42	5.3	M 6	1.3	2.0	0.59
20263522	16	26	9.4	100	35	22	13	15	100	88	54	5.3	M 6	1.4	2.2	0.92
20263539	20	32	10.2	130	42	25	18	19	130	115	72	6.8	M 8	3.2	4.9	1.82
20263546	25	40	12.9	160	51	30	22	24	160	140	88	9.0	M10	5.5	8.5	3.46
20263553	30	47	13.9	180	60	35	26	27	180	158	96	10.5	M12	6.2	9.5	5.19
20263560	40	62	18.2	230	77	45	34	35	230	202	122	13.5	M16	10.5	14.0	10.78



EL1760

Material

Aluminium alloy.

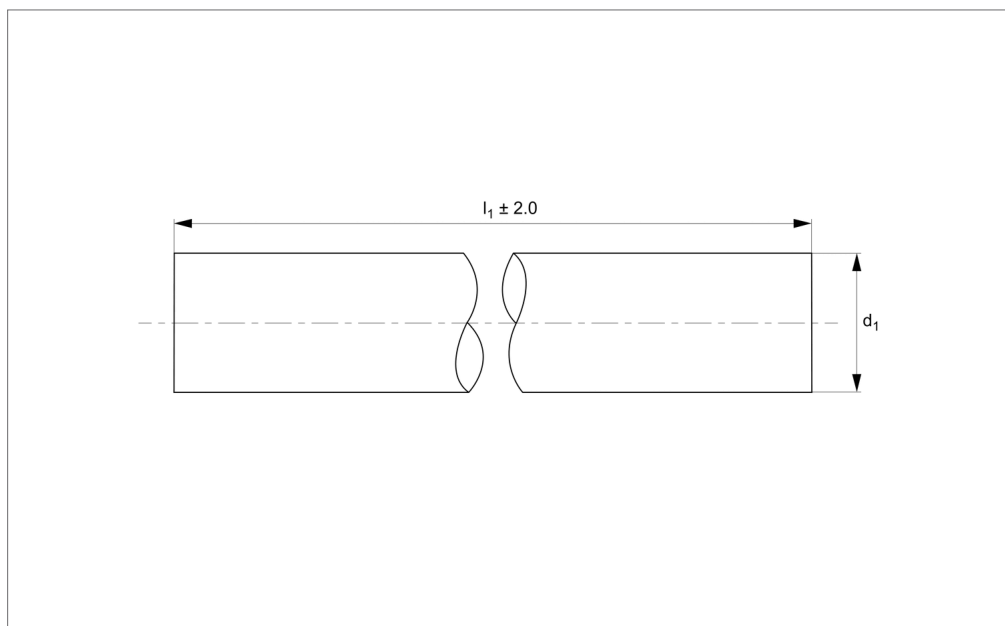
Technical Notes

For use with parts EL1758 and EL1759.

Order No.	Type	d ₁	d ₂	w ₁	h ₁	h ₂ ±0.015	l ₁	l ₂	l ₃	Weight kg
20263294	Clearance	8	5.5	12	23	12.5	65	52	32	0.04
20263300	Clearance	12	6.6	14	32	18.0	85	70	42	0.07
20263317	Clearance	16	9.0	18	36	20.0	100	82	54	0.13
20263720	Clearance	20	11.0	20	46	25.0	130	108	72	0.22
20263331	Clearance	25	13.5	25	56	30.0	160	132	88	0.44
20263348	Clearance	30	13.5	25	64	35.0	180	150	96	0.56
20263355	Clearance	40	17.5	30	80	44.0	230	190	122	1.00
20263577	Tapped	8	M 5	12	22	11	65	52	32	0.04
20263584	Tapped	12	M 6	14	28	14	85	70	42	0.07
20263591	Tapped	16	M 8	18	32	16	100	82	54	0.13
20263607	Tapped	20	M10	20	42	21	130	108	72	0.22
20263614	Tapped	25	M12	25	52	26	160	132	88	0.44
20263621	Tapped	30	M12	25	58	29	180	150	96	0.56
20263638	Tapped	40	M16	30	72	36	230	190	122	1.00



EL1770.05



Material

Carbon steel (070M55,Cf53 - DIN 1.1213), Surface hardness 60-66 HRC. Surface finish 0.3-0.6 μ Ra, ground and polished to 8-12 cla.
Yield stress: >325 N/mm², tensile strength: >630 N/mm².

Technical Notes

Tolerance, h6 standard, special tolerances upon request.
Suitable for use with linear bearings.
Straightness 0,3mm/m.

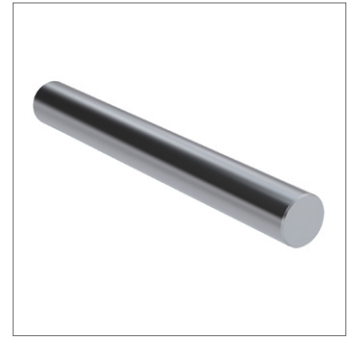
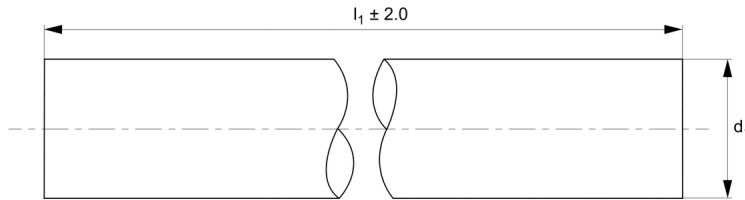
Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available.
Shaft lengths are cut to typically ± 2 mm, ends are not hardened.

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20338121	5	100	0.4	0.016
20336943	5	150	0.4	0.024
20336950	5	200	0.4	0.032
20336967	5	250	0.4	0.040
20336974	5	300	0.4	0.048
20336981	5	350	0.4	0.056
20336998	5	400	0.4	0.064
20337001	5	450	0.4	0.072
20337018	5	500	0.4	0.080
20337025	5	550	0.4	0.088
20337032	5	600	0.4	0.096
20337049	5	650	0.4	0.104
20337056	5	700	0.4	0.112
20337063	5	750	0.4	0.120
20337070	5	800	0.4	0.128
20337087	5	850	0.4	0.136
20337094	5	900	0.4	0.144
20337100	5	950	0.4	0.152
20337117	5	1000	0.4	0.160
20337124	5	1050	0.4	0.168
20337131	5	1100	0.4	0.176
20337148	5	1150	0.4	0.184
20337155	5	1200	0.4	0.192
20337162	5	1250	0.4	0.200
20337179	5	1300	0.4	0.208
20337186	5	1350	0.4	0.216
20337193	5	1400	0.4	0.224
20337209	5	1450	0.4	0.232
20337216	5	1500	0.4	0.240
20337223	5	1550	0.4	0.248
20337230	5	1600	0.4	0.256

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20337247	5	1650	0.4	0.264
20337254	5	1700	0.4	0.272
20337261	5	1750	0.4	0.280
20337278	5	1800	0.4	0.288
20337285	5	1850	0.4	0.296
20337292	5	1900	0.4	0.304
20337308	5	1950	0.4	0.312
20337315	5	2000	0.4	0.320
20337322	5	2050	0.4	0.328
20337339	5	2100	0.4	0.336
20337346	5	2150	0.4	0.344
20337353	5	2200	0.4	0.352
20337360	5	2250	0.4	0.360
20337377	5	2300	0.4	0.368
20337384	5	2350	0.4	0.376
20337391	5	2400	0.4	0.384
20337407	5	2450	0.4	0.392
20337414	5	2500	0.4	0.400
20337421	5	2550	0.4	0.408
20337438	5	2600	0.4	0.416
20337445	5	2650	0.4	0.424
20337452	5	2700	0.4	0.432
20337469	5	2750	0.4	0.440
20337476	5	2800	0.4	0.448
20337483	5	2850	0.4	0.456
20337490	5	2900	0.4	0.464
20337506	5	2950	0.4	0.472
20337513	5	3000	0.4	0.480
20337520	5	3050	0.4	0.488
20337537	5	3100	0.4	0.496
20337544	5	3150	0.4	0.504
20337551	5	3200	0.4	0.512
20337568	5	3250	0.4	0.520
20337575	5	3300	0.4	0.528
20337582	5	3350	0.4	0.536
20337599	5	3400	0.4	0.544
20337605	5	3450	0.4	0.552
20337612	5	3500	0.4	0.560
20337629	5	3550	0.4	0.568
20337636	5	3600	0.4	0.576
20337643	5	3650	0.4	0.584
20337650	5	3700	0.4	0.592
20337667	5	3750	0.4	0.600
20337674	5	3800	0.4	0.608
20337681	5	3850	0.4	0.616
20337698	5	3900	0.4	0.624
20337704	5	3950	0.4	0.632
20337711	5	4000	0.4	0.640
20337728	5	4050	0.4	0.648
20337735	5	4100	0.4	0.656
20337742	5	4150	0.4	0.664
20337759	5	4200	0.4	0.672
20337766	5	4250	0.4	0.680
20337773	5	4300	0.4	0.688
20337780	5	4350	0.4	0.696
20337797	5	4400	0.4	0.704
20337803	5	4450	0.4	0.712
20337810	5	4500	0.4	0.720
20337827	5	4550	0.4	0.728
20337834	5	4600	0.4	0.736
20337841	5	4650	0.4	0.744
20337858	5	4700	0.4	0.752
20337865	5	4750	0.4	0.760
20337872	5	4800	0.4	0.768
20337889	5	4850	0.4	0.776
20337896	5	4900	0.4	0.784
20337902	5	4950	0.4	0.792
20337919	5	5000	0.4	0.800

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20337926	5	5050	0.4	0.808
20337933	5	5100	0.4	0.816
20337940	5	5150	0.4	0.824
20337957	5	5200	0.4	0.832
20337964	5	5250	0.4	0.840
20337971	5	5300	0.4	0.848
20337988	5	5350	0.4	0.856
20337995	5	5400	0.4	0.864
20338008	5	5450	0.4	0.872
20338015	5	5500	0.4	0.880
20338022	5	5550	0.4	0.888
20338039	5	5600	0.4	0.896
20338046	5	5650	0.4	0.904
20338053	5	5700	0.4	0.912
20338060	5	5750	0.4	0.920
20338077	5	5800	0.4	0.928
20338084	5	5850	0.4	0.936
20338091	5	5900	0.4	0.944
20338107	5	5950	0.4	0.952
20338114	5	6000	0.4	0.960



EL1770.06

LINEAR SHAFT BARS

Material

Carbon steel (070M55,Cf53 - DIN 1.1213),
Surface hardness 60-66 HRC. Surface finish
0.3-0.6µ Ra, ground and polished to 8-12
cla.
Yield stress: >325 N/mm², tensile strength:
>630 N/mm².

Technical Notes

Tolerance, h6 standard, special tolerances
upon request.
Suitable for use with linear bearings.
Straightness 0,3mm/m.

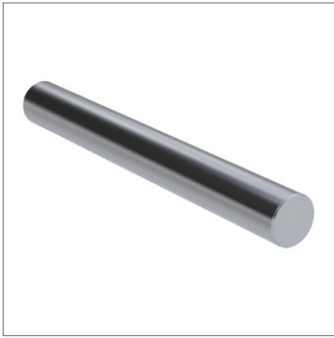
Tips

Modifications, drilled and tapped holes,
retainer grooves, special coatings etc. are
available.
Shaft lengths are cut to typically ± 2 mm,
ends are not hardened.

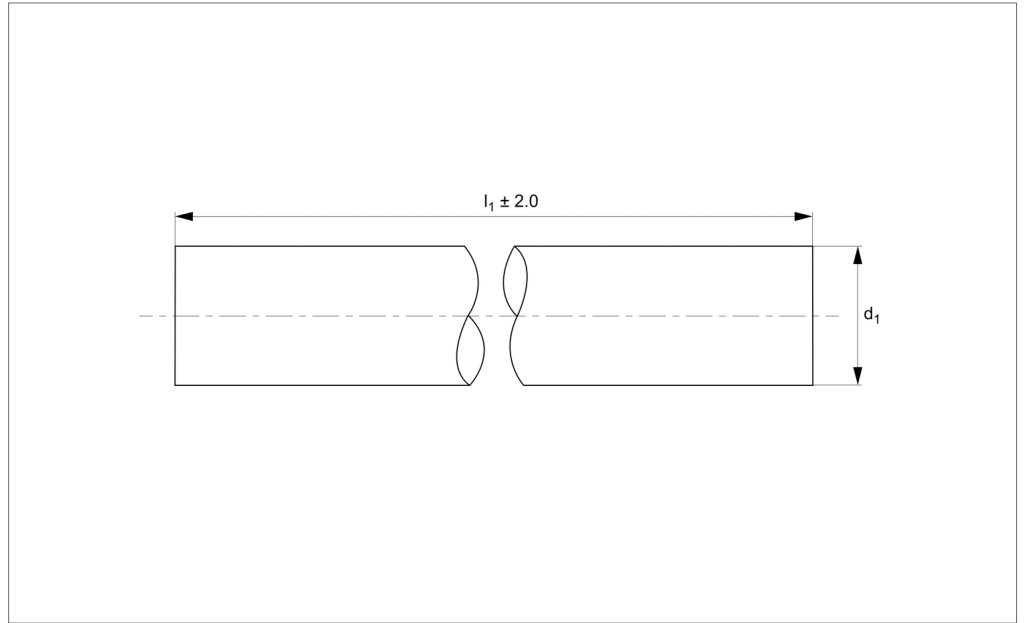
Order No.	d_1 tol. h6	l_1	Depth of hardness min.	Weight kg
20272906	6	100	0.4	0.023
20272913	6	150	0.4	0.035
20272920	6	200	0.4	0.046
20272937	6	250	0.4	0.058
20272944	6	300	0.4	0.069
20272951	6	350	0.4	0.081
20272968	6	400	0.4	0.092
20272975	6	450	0.4	0.104
20272982	6	500	0.4	0.115
20272999	6	550	0.4	0.127
20273002	6	600	0.4	0.138
20273019	6	650	0.4	0.150
20273026	6	700	0.4	0.161
20273033	6	750	0.4	0.173
20273040	6	800	0.4	0.184
20273057	6	850	0.4	0.196
20273064	6	900	0.4	0.207
20273071	6	950	0.4	0.219
20273088	6	1000	0.4	0.230
20273095	6	1050	0.4	0.242
20273101	6	1100	0.4	0.253
20273118	6	1150	0.4	0.265
20273125	6	1200	0.4	0.276
20273132	6	1250	0.4	0.288
20273149	6	1300	0.4	0.299
20273156	6	1350	0.4	0.311
20273163	6	1400	0.4	0.322
20273170	6	1450	0.4	0.334
20273187	6	1500	0.4	0.345
20273194	6	1550	0.4	0.357
20273200	6	1600	0.4	0.368

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20273217	6	1650	0.4	0.380
20273224	6	1700	0.4	0.391
20273231	6	1750	0.4	0.403
20273248	6	1800	0.4	0.414
20273255	6	1850	0.4	0.426
20273262	6	1900	0.4	0.437
20273279	6	1950	0.4	0.449
20273286	6	2000	0.4	0.460
20273293	6	2050	0.4	0.472
20273309	6	2100	0.4	0.483
20273316	6	2150	0.4	0.495
20273323	6	2200	0.4	0.506
20273330	6	2250	0.4	0.518
20273347	6	2300	0.4	0.529
20273354	6	2350	0.4	0.541
20273361	6	2400	0.4	0.552
20273378	6	2450	0.4	0.564
20273385	6	2500	0.4	0.575
20273392	6	2550	0.4	0.587
20273408	6	2650	0.4	0.598
20273415	6	2650	0.4	0.610
20273422	6	2700	0.4	0.621
20273439	6	2750	0.4	0.633
20273446	6	2800	0.4	0.644
20273453	6	2850	0.4	0.656
20273460	6	2900	0.4	0.667
20273477	6	2950	0.4	0.679
20273484	6	3000	0.4	0.690
20273491	6	3050	0.4	0.702
20273507	6	3100	0.4	0.713
20273514	6	3150	0.4	0.725
20273521	6	3200	0.4	0.736
20273538	6	3250	0.4	0.748
20273545	6	3300	0.4	0.759
20273552	6	3350	0.4	0.771
20273569	6	3400	0.4	0.782
20273576	6	3450	0.4	0.794
20273583	6	3500	0.4	0.805
20273590	6	3550	0.4	0.817
20273606	6	3600	0.4	0.828
20273613	6	3650	0.4	0.840
20273620	6	3700	0.4	0.851
20273637	6	3750	0.4	0.863
20273644	6	3800	0.4	0.874
20273651	6	3850	0.4	0.886
20273668	6	3900	0.4	0.897
20273675	6	3950	0.4	0.909
20273682	6	4000	0.4	0.920
20273699	6	4050	0.4	0.932
20273705	6	4100	0.4	0.943
20273712	6	4150	0.4	0.955
20273729	6	4200	0.4	0.966
20273736	6	4250	0.4	0.978
20273743	6	4300	0.4	0.989
20273750	6	4350	0.4	1.001
20273767	6	4400	0.4	1.012
20273774	6	4450	0.4	1.024
20273781	6	4500	0.4	1.035
20273798	6	4550	0.4	1.047
20273804	6	4600	0.4	1.058
20273811	6	4650	0.4	1.070
20273828	6	4700	0.4	1.081
20273835	6	4750	0.4	1.093
20273842	6	4800	0.4	1.104
20273859	6	4850	0.4	1.116
20273866	6	4900	0.4	1.127
20273873	6	4950	0.4	1.139
20273880	6	5000	0.4	1.150

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20273897	6	5050	0.4	1.162
20273903	6	5100	0.4	1.173
20273910	6	5150	0.4	1.185
20273927	6	5200	0.4	1.196
20273934	6	5250	0.4	1.208
20273941	6	5300	0.4	1.219
20273958	6	5350	0.4	1.231
20273965	6	5400	0.4	1.242
20273972	6	5450	0.4	1.254
20273989	6	5500	0.4	1.265
20273996	6	5550	0.4	1.277
20274009	6	5600	0.4	1.288
20274016	6	5650	0.4	1.300
20274023	6	5700	0.4	1.311
20274030	6	5750	0.4	1.323
20274047	6	5800	0.4	1.334
20274054	6	5850	0.4	1.346
20274061	6	5900	0.4	1.357
20274078	6	5950	0.4	1.369
20274085	6	6000	0.4	1.380



EL1770.08



Material

Carbon steel (070M55,Cf53 - DIN 1.1213), Surface hardness 60-66 HRC. Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.
Yield stress: >325 N/mm², tensile strength: >630 N/mm².

Technical Notes

Tolerance, h6 standard, special tolerances upon request.
Suitable for use with linear bearings.
Straightness 0,3mm/m.

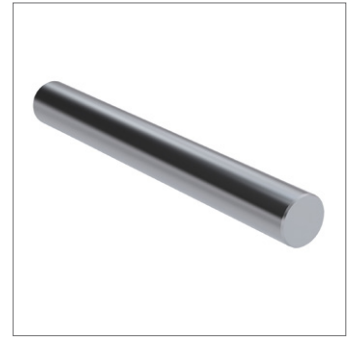
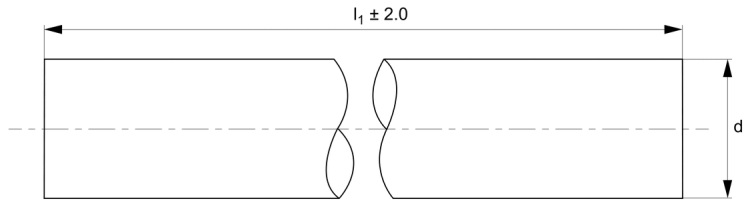
Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available.
Shaft lengths are cut to typically ± 2mm, ends are not hardened.

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20274092	8	100	0.4	0.040
20274108	8	150	0.4	0.060
20274115	8	200	0.4	0.080
20274122	8	250	0.4	0.100
20274139	8	300	0.4	0.120
20274146	8	350	0.4	0.140
20274153	8	400	0.4	0.160
20274160	8	450	0.4	0.180
20274177	8	500	0.4	0.200
20274184	8	550	0.4	0.220
20274191	8	600	0.4	0.240
20274207	8	650	0.4	0.260
20274214	8	700	0.4	0.280
20274221	8	750	0.4	0.300
20274238	8	800	0.4	0.320
20274245	8	850	0.4	0.340
20274252	8	900	0.4	0.360
20274269	8	950	0.4	0.380
20274276	8	1000	0.4	0.400
20274283	8	1050	0.4	0.420
20274290	8	1100	0.4	0.440
20274306	8	1150	0.4	0.460
20274313	8	1200	0.4	0.480
20274320	8	1250	0.4	0.500
20274337	8	1300	0.4	0.520
20274344	8	1350	0.4	0.540
20274351	8	1400	0.4	0.560
20274368	8	1450	0.4	0.580
20274375	8	1500	0.4	0.600
20274382	8	1550	0.4	0.620
20274399	8	1600	0.4	0.640

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20274405	8	1650	0.4	0.660
20274412	8	1700	0.4	0.680
20274429	8	1750	0.4	0.700
20274436	8	1800	0.4	0.720
20274443	8	1850	0.4	0.740
20274450	8	1900	0.4	0.760
20274467	8	1950	0.4	0.780
20274474	8	2000	0.4	0.800
20274481	8	2050	0.4	0.820
20274498	8	2100	0.4	0.840
20274504	8	2150	0.4	0.860
20274511	8	2200	0.4	0.880
20274528	8	2250	0.4	0.900
20274535	8	2300	0.4	0.920
20274542	8	2350	0.4	0.940
20274559	8	2400	0.4	0.960
20274566	8	2450	0.4	0.980
20274573	8	2500	0.4	1.000
20274580	8	2550	0.4	1.020
20274597	8	2600	0.4	1.040
20274603	8	2650	0.4	1.060
20274610	8	2700	0.4	1.080
20274627	8	2750	0.4	1.100
20274634	8	2800	0.4	1.120
20274641	8	2850	0.4	1.140
20274658	8	2900	0.4	1.160
20274665	8	2950	0.4	1.180
20274672	8	3000	0.4	1.200
20274689	8	3050	0.4	1.220
20274696	8	3100	0.4	1.240
20274702	8	3150	0.4	1.260
20274719	8	3200	0.4	1.280
20274726	8	3250	0.4	1.300
20274733	8	3300	0.4	1.320
20274740	8	3350	0.4	1.340
20274757	8	3400	0.4	1.360
20274764	8	3450	0.4	1.380
20274771	8	3500	0.4	1.400
20274788	8	3550	0.4	1.420
20274795	8	3600	0.4	1.440
20274801	8	3650	0.4	1.460
20274818	8	3700	0.4	1.480
20274825	8	3750	0.4	1.500
20274832	8	3800	0.4	1.520
20274849	8	3850	0.4	1.540
20274856	8	3900	0.4	1.560
20274863	8	3950	0.4	1.580
20274870	8	4000	0.4	1.600
20274887	8	4050	0.4	1.620
20274894	8	4100	0.4	1.640
20274900	8	4150	0.4	1.660
20274917	8	4200	0.4	1.680
20274924	8	4250	0.4	1.700
20274931	8	4300	0.4	1.720
20274948	8	4350	0.4	1.740
20274955	8	4400	0.4	1.760
20274962	8	4450	0.4	1.780
20274979	8	4500	0.4	1.800
20274986	8	4550	0.4	1.820
20274993	8	4600	0.4	1.840
20275006	8	4650	0.4	1.860
20275013	8	4700	0.4	1.880
20275020	8	4750	0.4	1.900
20275037	8	4800	0.4	1.920
20275044	8	4850	0.4	1.940
20275051	8	4900	0.4	1.960
20275068	8	4950	0.4	1.980
20275075	8	5000	0.4	2.000

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20275082	8	5050	0.4	2.020
20275099	8	5100	0.4	2.040
20275105	8	5150	0.4	2.060
20275112	8	5200	0.4	2.080
20275129	8	5250	0.4	2.100
20275136	8	5300	0.4	2.120
20275143	8	5350	0.4	2.140
20275150	8	5400	0.4	2.160
20275167	8	5450	0.4	2.180
20275174	8	5500	0.4	2.200
20275181	8	5550	0.4	2.220
20275198	8	5600	0.4	2.240
20275204	8	5650	0.4	2.260
20275211	8	5700	0.4	2.280
20275228	8	5750	0.4	2.300
20275235	8	5800	0.4	2.320
20275242	8	5850	0.4	2.340
20275259	8	5900	0.4	2.360
20275266	8	5950	0.4	2.380
20275273	8	6000	0.4	2.400



EL1770.10

LINEAR SHAFT BARS

Material

Carbon steel (070M55,Cf53 - DIN 1.1213),
Surface hardness 60-66 HRC. Surface finish
0.3-0.6 μ Ra, ground and polished to 8-12
cla.
Yield stress: >325 N/mm², tensile strength:
>630 N/mm².

Technical Notes

Tolerance, h6 standard, special tolerances
upon request.
Suitable for use with linear bearings.
Straightness 0,2mm/m.

Tips

Modifications, drilled and tapped holes,
retainer grooves, special coatings etc. are
available.
Shaft lengths are cut to typically ± 2 mm,
ends are not hardened.

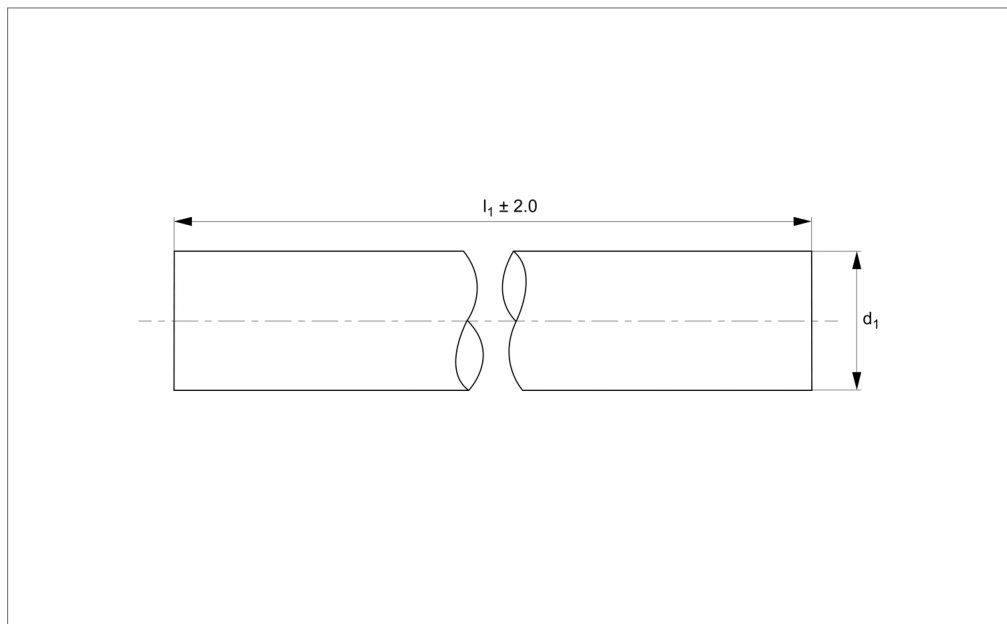
Order No.	d_1 tol. h6	l_1	Depth of hardness min.	Weight kg
20275280	10	100	0.4	0.062
20275297	10	150	0.4	0.093
20275303	10	200	0.4	0.124
20275310	10	250	0.4	0.155
20275327	10	300	0.4	0.186
20275334	10	350	0.4	0.217
20275341	10	400	0.4	0.248
20275358	10	450	0.4	0.279
20275365	10	500	0.4	0.310
20275372	10	550	0.4	0.341
20275389	10	600	0.4	0.372
20275396	10	650	0.4	0.403
20275402	10	700	0.4	0.434
20275419	10	750	0.4	0.465
20275426	10	800	0.4	0.496
20275433	10	850	0.4	0.527
20275440	10	900	0.4	0.558
20275457	10	950	0.4	0.589
20275464	10	1000	0.4	0.620
20275471	10	1050	0.4	0.651
20275488	10	1100	0.4	0.682
20275495	10	1150	0.4	0.713
20275501	10	1200	0.4	0.744
20275518	10	1250	0.4	0.775
20275525	10	1300	0.4	0.806
20275532	10	1350	0.4	0.837
20275549	10	1400	0.4	0.868
20275556	10	1450	0.4	0.899
20275563	10	1500	0.4	0.930
20275570	10	1550	0.4	0.961
20275587	10	1600	0.4	0.992

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20275594	10	1650	0.4	1.023
20275600	10	1700	0.4	1.054
20275617	10	1750	0.4	1.085
20275624	10	1800	0.4	1.116
20275631	10	1850	0.4	1.147
20275648	10	1900	0.4	1.178
20275655	10	1950	0.4	1.209
20275662	10	2000	0.4	1.240
20275679	10	2050	0.4	1.271
20275686	10	2100	0.4	1.302
20275693	10	2150	0.4	1.333
20275709	10	2200	0.4	1.364
20275716	10	2250	0.4	1.395
20275723	10	2300	0.4	1.426
20275730	10	2350	0.4	1.457
20275747	10	2400	0.4	1.488
20275754	10	2450	0.4	1.519
20275761	10	2500	0.4	1.550
20275778	10	2550	0.4	1.581
20275785	10	2600	0.4	1.612
20275792	10	2650	0.4	1.643
20275808	10	2700	0.4	1.674
20275815	10	2750	0.4	1.705
20275822	10	2800	0.4	1.736
20275839	10	2850	0.4	1.767
20275846	10	2900	0.4	1.798
20275853	10	2950	0.4	1.829
20275860	10	3000	0.4	1.860
20275877	10	3050	0.4	1.891
20275884	10	3100	0.4	1.922
20275891	10	3150	0.4	1.953
20275907	10	3200	0.4	1.984
20275914	10	3250	0.4	2.015
20275921	10	3300	0.4	2.046
20275938	10	3350	0.4	2.077
20275945	10	3400	0.4	2.108
20275952	10	3450	0.4	2.139
20275969	10	3500	0.4	2.170
20275976	10	3550	0.4	2.201
20275983	10	3600	0.4	2.232
20275990	10	3650	0.4	2.263
20276003	10	3700	0.4	2.294
20276010	10	3750	0.4	2.325
20276027	10	3800	0.4	2.356
20276034	10	3850	0.4	2.387
20276041	10	3900	0.4	2.418
20276058	10	3950	0.4	2.449
20276065	10	4000	0.4	2.480
20276072	10	4050	0.4	2.511
20276089	10	4100	0.4	2.542
20276096	10	4150	0.4	2.573
20276102	10	4200	0.4	2.604
20276119	10	4250	0.4	2.635
20276126	10	4300	0.4	2.666
20276133	10	4350	0.4	2.697
20276140	10	4400	0.4	2.728
20276157	10	4450	0.4	2.759
20276164	10	4500	0.4	2.790
20276171	10	4550	0.4	2.821
20276188	10	4600	0.4	2.852
20276195	10	4650	0.4	2.883
20276201	10	4700	0.4	2.914
20276218	10	4750	0.4	2.945
20276225	10	4800	0.4	2.976
20276232	10	4850	0.4	3.007
20276249	10	4900	0.4	3.038
20276256	10	4950	0.4	3.069
20276263	10	5000	0.4	3.100

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20276270	10	5050	0.4	3.131
20276287	10	5100	0.4	3.162
20276294	10	5150	0.4	3.193
20276300	10	5200	0.4	3.224
20276317	10	5250	0.4	3.255
20276324	10	5300	0.4	3.286
20276331	10	5350	0.4	3.317
20276348	10	5400	0.4	3.348
20276355	10	5450	0.4	3.379
20276362	10	5500	0.4	3.410
20276379	10	5550	0.4	3.441
20276386	10	5600	0.4	3.472
20276393	10	5650	0.4	3.503
20276409	10	5700	0.4	3.534
20276416	10	5750	0.4	3.565
20276423	10	5800	0.4	3.596
20276430	10	5850	0.4	3.627
20276447	10	5900	0.4	3.658
20276454	10	5950	0.4	3.689
20276461	10	6000	0.4	3.720



EL1770.12



Material

Carbon steel (070M55,Cf53 - DIN 1.1213),
Surface hardness 60-66 HRC. Surface finish
0.3-0.6 μ Ra, ground and polished to 8-12
cla.
Yield stress: >325 N/mm², tensile strength:
>630 N/mm².

Technical Notes

Tolerance, h6 standard, special tolerances
upon request.
Suitable for use with linear bearings.
Straightness 0,2mm/m.

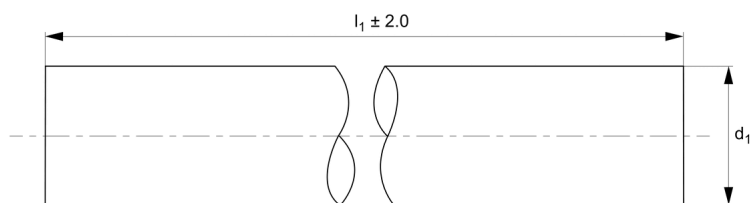
Tips

Modifications, drilled and tapped holes,
retainer grooves, special coatings etc. are
available.
Shaft lengths are cut to typically ± 2 mm,
ends are not hardened.

Order No.	d_1 tol. h6	l_1	Depth of hardness min.	Weight kg
20276478	12	100	0.6	0.089
20276485	12	150	0.6	0.134
20276492	12	200	0.6	0.178
20276508	12	250	0.6	0.223
20276515	12	300	0.6	0.267
20276522	12	350	0.6	0.312
20276539	12	400	0.6	0.356
20276546	12	450	0.6	0.401
20276553	12	500	0.6	0.445
20276560	12	550	0.6	0.490
20276577	12	600	0.6	0.534
20276584	12	650	0.6	0.579
20276591	12	700	0.6	0.623
20276607	12	750	0.6	0.668
20276614	12	800	0.6	0.712
20276621	12	850	0.6	0.757
20276638	12	900	0.6	0.801
20276645	12	950	0.6	0.846
20276652	12	1000	0.6	0.890
20276669	12	1050	0.6	0.935
20276676	12	1100	0.6	0.979
20276683	12	1150	0.6	1.024
20276690	12	1200	0.6	1.068
20276706	12	1250	0.6	1.113
20276713	12	1300	0.6	1.157
20276720	12	1350	0.6	1.202
20276737	12	1400	0.6	1.246
20276744	12	1450	0.6	1.291
20276751	12	1500	0.6	1.335
20276768	12	1550	0.6	1.380
20276775	12	1600	0.6	1.424

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20276782	12	1650	0.6	1.469
20276799	12	1700	0.6	1.513
20276805	12	1750	0.6	1.558
20276812	12	1800	0.6	1.602
20276829	12	1850	0.6	1.647
20276836	12	1900	0.6	1.691
20276843	12	1950	0.6	1.736
20276850	12	2000	0.6	1.780
20276867	12	2050	0.6	1.825
20276874	12	2100	0.6	1.869
20276881	12	2150	0.6	1.914
20276898	12	2200	0.6	1.958
20276904	12	2500	0.6	2.003
20276911	12	2300	0.6	2.047
20276928	12	2350	0.6	2.092
20276935	12	2400	0.6	2.136
20276942	12	2450	0.6	2.181
20276959	12	2500	0.6	2.225
20276966	12	2550	0.6	2.270
20276973	12	2600	0.6	2.314
20276980	12	2650	0.6	2.359
20276997	12	2700	0.6	2.403
20277000	12	2750	0.6	2.448
20277017	12	2800	0.6	2.492
20277024	12	2850	0.6	2.537
20277031	12	2900	0.6	2.581
20277048	12	2950	0.6	2.626
20277055	12	3000	0.6	2.670
20277062	12	3050	0.6	2.715
20277079	12	3100	0.6	2.759
20277086	12	3150	0.6	2.804
20277093	12	3200	0.6	2.848
20277109	12	3250	0.6	2.893
20277116	12	3300	0.6	2.937
20277123	12	3350	0.6	2.982
20277130	12	3400	0.6	3.026
20277147	12	3450	0.6	3.071
20277154	12	3500	0.6	3.115
20277161	12	3550	0.6	3.160
20277178	12	3600	0.6	3.204
20277185	12	3650	0.6	3.249
20277192	12	3700	0.6	3.293
20277208	12	3750	0.6	3.338
20277215	12	3800	0.6	3.382
20277222	12	3850	0.6	3.427
20277239	12	3900	0.6	3.471
20277246	12	3950	0.6	3.516
20277253	12	4000	0.6	3.560
20277260	12	4050	0.6	3.605
20277277	12	4100	0.6	3.649
20277284	12	4150	0.6	3.694
20277291	12	4200	0.6	3.738
20277307	12	4250	0.6	3.783
20277314	12	4300	0.6	3.827
20277321	12	4350	0.6	3.872
20277338	12	4400	0.6	3.916
20277345	12	4450	0.6	3.961
20277352	12	4500	0.6	4.005
20277369	12	4550	0.6	4.050
20277376	12	4600	0.6	4.094
20277383	12	4650	0.6	4.139
20277390	12	4700	0.6	4.183
20277406	12	4750	0.6	4.228
20277413	12	4800	0.6	4.272
20277420	12	4850	0.6	4.317
20277437	12	4900	0.6	4.361
20277444	12	4950	0.6	4.406
20277451	12	5000	0.6	4.450

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20277468	12	5050	0.6	4.495
20277475	12	5100	0.6	4.539
20277482	12	5150	0.6	4.584
20277499	12	5200	0.6	4.628
20277505	12	5250	0.6	4.673
20277512	12	5300	0.6	4.717
20277529	12	5350	0.6	4.762
20277536	12	5400	0.6	4.806
20277543	12	5450	0.6	4.851
20277550	12	5500	0.6	4.895
20277567	12	5550	0.6	4.940
20277574	12	5600	0.6	4.984
20277581	12	5650	0.6	5.029
20277598	12	5700	0.6	5.073
20277604	12	5750	0.6	5.118
20277611	12	5800	0.6	5.162
20277628	12	5850	0.6	5.207
20277635	12	5900	0.6	5.251
20277642	12	5950	0.6	5.296
20277659	12	6000	0.6	5.340



EL1770.16

LINEAR SHAFT BARS

Material

Carbon steel (070M55,Cf53 - DIN 1.1213),
Surface hardness 60-66 HRC. Surface finish
0.3-0.6 μ Ra, ground and polished to 8-12
cla.
Yield stress: >325 N/mm², tensile strength:
>630 N/mm².

Technical Notes

Tolerance, h6 standard, special tolerances
upon request.
Suitable for use with linear bearings.
Straightness 0,2mm/m.

Tips

Modifications, drilled and tapped holes,
retainer grooves, special coatings etc. are
available.
Shaft lengths are cut to typically ± 2 mm,
ends are not hardened.

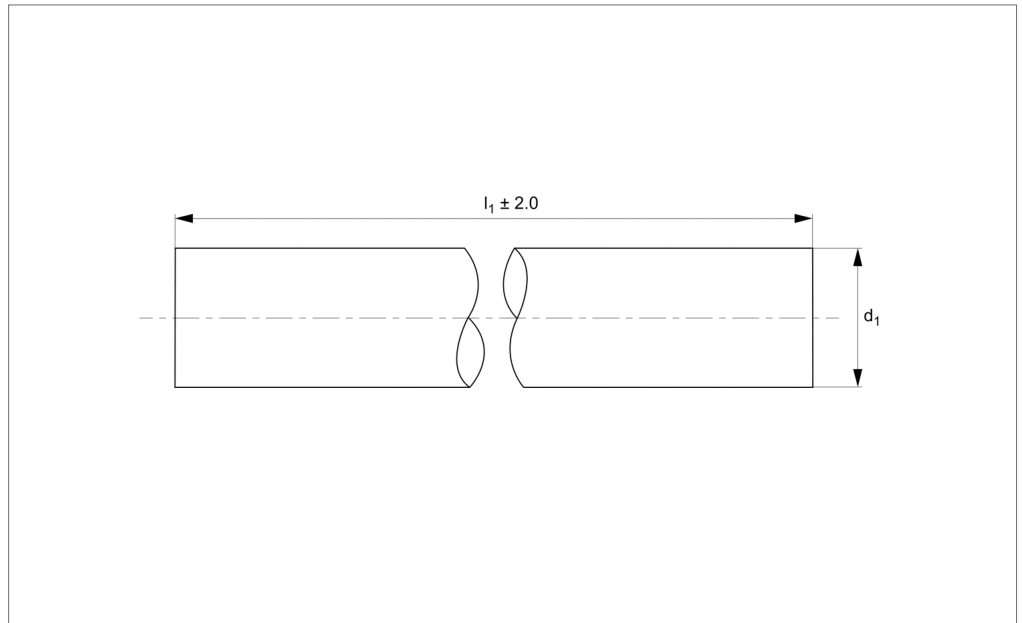
Order No.	d_1 tol. h6	l_1	Depth of hardness min.	Weight kg
20277666	16	100	0.6	0.158
20277673	16	150	0.6	0.237
20277680	16	200	0.6	0.316
20277697	16	250	0.6	0.395
20277703	16	300	0.6	0.474
20277710	16	350	0.6	0.553
20277727	16	400	0.6	0.632
20277734	16	450	0.6	0.711
20277741	16	500	0.6	0.790
20277758	16	550	0.6	0.869
20277765	16	600	0.6	0.948
20277772	16	650	0.6	1.027
20277789	16	700	0.6	1.106
20277796	16	750	0.6	1.185
20277802	16	800	0.6	1.264
20277819	16	850	0.6	1.343
20277826	16	900	0.6	1.422
20277833	16	950	0.6	1.501
20277840	16	1000	0.6	1.580
20277857	16	1050	0.6	1.659
20277864	16	1100	0.6	1.738
20277871	16	1150	0.6	1.817
20277888	16	1200	0.6	1.896
20277895	16	1250	0.6	1.975
20277901	16	1300	0.6	2.054
20277918	16	1350	0.6	2.133
20277925	16	1400	0.6	2.212
20277932	16	1450	0.6	2.291
20277949	16	1500	0.6	2.370
20277956	16	1550	0.6	2.449
20277963	16	1600	0.6	2.528

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20277970	16	1650	0.6	2.607
20277987	16	1700	0.6	2.686
20277994	16	1750	0.6	2.765
20278007	16	1800	0.6	2.844
20278014	16	1850	0.6	2.923
20278021	16	1900	0.6	3.002
20278038	16	1950	0.6	3.081
20278045	16	2000	0.6	3.160
20278052	16	2050	0.6	3.239
20278069	16	2100	0.6	3.318
20278076	16	2150	0.6	3.397
20278083	16	2200	0.6	3.476
20278090	16	2250	0.6	3.555
20278106	16	2300	0.6	3.634
20278113	16	2350	0.6	3.713
20278120	16	2400	0.6	3.792
20278137	16	2450	0.6	3.871
20278144	16	2500	0.6	3.950
20278151	16	2550	0.6	4.029
20278168	16	2600	0.6	4.108
20278175	16	2650	0.6	4.187
20278182	16	2700	0.6	4.266
20278199	16	2750	0.6	4.345
20278205	16	2800	0.6	4.424
20278212	16	2850	0.6	4.503
20278229	16	2900	0.6	4.582
20278236	16	2950	0.6	4.661
20278243	16	3000	0.6	4.740
20278250	16	3050	0.6	4.819
20278267	16	3100	0.6	4.898
20278274	16	3150	0.6	4.977
20278281	16	3200	0.6	5.056
20278298	16	3250	0.6	5.135
20278304	16	3300	0.6	5.214
20278311	16	3350	0.6	5.293
20278328	16	3400	0.6	5.372
20278335	16	3450	0.6	5.451
20278342	16	3500	0.6	5.530
20278359	16	3550	0.6	5.609
20278366	16	3600	0.6	5.688
20278373	16	3650	0.6	5.767
20278380	16	3700	0.6	5.846
20278397	16	3750	0.6	5.925
20278403	16	3800	0.6	6.004
20278410	16	3850	0.6	6.083
20278427	16	3900	0.6	6.162
20278434	16	3950	0.6	6.241
20278441	16	4000	0.6	6.320
20278458	16	4050	0.6	6.399
20278465	16	4100	0.6	6.478
20278472	16	4150	0.6	6.557
20278489	16	4200	0.6	6.636
20278496	16	4250	0.6	6.715
20278502	16	4300	0.6	6.794
20278519	16	4350	0.6	6.873
20278526	16	4400	0.6	6.952
20278533	16	4450	0.6	7.031
20278540	16	4500	0.6	7.110
20278557	16	4500	0.6	7.189
20278564	16	4600	0.6	7.268
20278571	16	4650	0.6	7.347
20278588	16	4700	0.6	7.426
20278595	16	4750	0.6	7.505
20278601	16	4800	0.6	7.584
20278618	16	4850	0.6	7.663
20278625	16	4900	0.6	7.742
20278632	16	4950	0.6	7.821
20278649	16	5000	0.6	7.900

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20278656	16	5050	0.6	7.979
20278663	16	5100	0.6	8.058
20278670	16	5150	0.6	8.137
20278687	16	5200	0.6	8.216
20278694	16	5250	0.6	8.295
20278700	16	5300	0.6	8.374
20278717	16	5350	0.6	8.453
20278724	16	5400	0.6	8.532
20278731	16	5450	0.6	8.611
20278748	16	5500	0.6	8.690
20278755	16	5550	0.6	8.769
20278762	16	5600	0.6	8.848
20278779	16	5650	0.6	8.927
20278786	16	5700	0.6	9.006
20278793	16	5750	0.6	9.085
20278809	16	5800	0.6	9.164
20278816	16	5850	0.6	9.243
20278823	16	5900	0.6	9.322
20278830	16	5950	0.6	9.401
20278847	16	6000	0.6	9.480



EL1770.20



Material

Carbon steel (070M55,Cf53 - DIN 1.1213),
Surface hardness 60-66 HRC. Surface finish
0.3-0.6µ Ra, ground and polished to 8-12
cla.
Yield stress: >325 N/mm², tensile strength:
>630 N/mm².

Technical Notes

Tolerance, h6 standard, special tolerances
upon request.
Suitable for use with linear bearings.
Straightness 0,2mm/m.

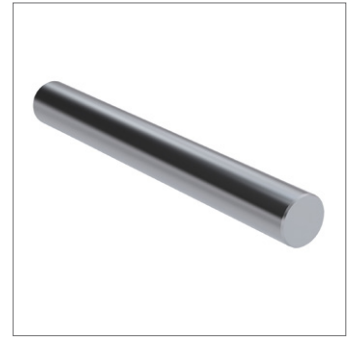
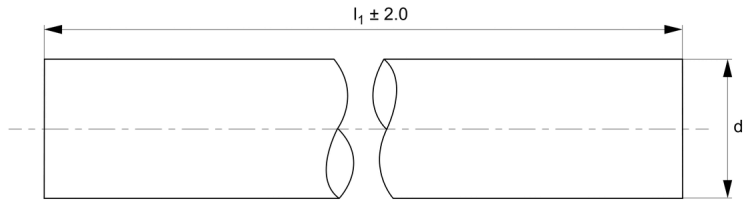
Tips

Modifications, drilled and tapped holes,
retainer grooves, special coatings etc. are
available.
Shaft lengths are cut to typically ± 2mm,
ends are not hardened.

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20278854	20	100	0.9	0.247
20278861	20	150	0.9	0.371
20278878	20	200	0.9	0.494
20278885	20	250	0.9	0.618
20278892	20	300	0.9	0.741
20278908	20	350	0.9	0.865
20278915	20	400	0.9	0.988
20278922	20	450	0.9	1.112
20278939	20	500	0.9	1.235
20278946	20	550	0.9	1.359
20278953	20	600	0.9	1.482
20278960	20	650	0.9	1.606
20278977	20	700	0.9	1.729
20278984	20	750	0.9	1.853
20278991	20	800	0.9	1.976
20279004	20	850	0.9	2.100
20279011	20	900	0.9	2.223
20279028	20	950	0.9	2.347
20279035	20	1000	0.9	2.470
20279042	20	1050	0.9	2.594
20279059	20	1100	0.9	2.717
20279066	20	1150	0.9	2.841
20279073	20	1200	0.9	2.964
20279080	20	1250	0.9	3.088
20279097	20	1300	0.9	3.211
20279103	20	1350	0.9	3.335
20279110	20	1400	0.9	3.458
20279127	20	1450	0.9	3.582
20279134	20	1500	0.9	3.705
20279141	20	1550	0.9	3.829
20279158	20	1600	0.9	3.952

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20279165	20	1650	0.9	4.076
20279172	20	1700	0.9	4.199
20279189	20	1750	0.9	4.323
20279196	20	1800	0.9	4.446
20279202	20	1850	0.9	4.570
20279219	20	1900	0.9	4.693
20279226	20	1950	0.9	4.817
20279233	20	2000	0.9	4.940
20279240	20	2050	0.9	5.064
20279257	20	2100	0.9	5.187
20279264	20	2150	0.9	5.311
20279271	20	2200	0.9	5.434
20279288	20	2250	0.9	5.558
20279295	20	2300	0.9	5.681
20279301	20	2350	0.9	5.805
20279318	20	2400	0.9	5.928
20279325	20	2450	0.9	6.052
20279332	20	2500	0.9	6.175
20279349	20	2550	0.9	6.299
20279356	20	2600	0.9	6.422
20279363	20	2650	0.9	6.546
20279370	20	2700	0.9	6.669
20279387	20	2750	0.9	6.793
20279394	20	2800	0.9	6.916
20279400	20	2850	0.9	7.040
20279417	20	2900	0.9	7.163
20279424	20	2950	0.9	7.287
20279431	20	3000	0.9	7.410
20279448	20	3050	0.9	7.534
20279455	20	3100	0.9	7.657
20279462	20	3150	0.9	7.781
20279479	20	3200	0.9	7.904
20279486	20	3250	0.9	8.028
20279493	20	3300	0.9	8.151
20279509	20	3350	0.9	8.275
20279516	20	3400	0.9	8.398
20279523	20	3450	0.9	8.522
20279530	20	3500	0.9	8.645
20279547	20	3550	0.9	8.769
20279554	20	3600	0.9	8.892
20279561	20	3650	0.9	9.016
20279578	20	3700	0.9	9.139
20279585	20	3750	0.9	9.263
20279592	20	3800	0.9	9.386
20279608	20	3850	0.9	9.510
20279615	20	3900	0.9	9.633
20279622	20	3950	0.9	9.757
20279639	20	4000	0.9	9.880
20279646	20	4050	0.9	10.004
20279653	20	4100	0.9	10.127
20279660	20	4150	0.9	10.251
20279677	20	4200	0.9	10.374
20279684	20	4250	0.9	10.498
20279691	20	4300	0.9	10.621
20279707	20	4350	0.9	10.745
20279714	20	4400	0.9	10.868
20279721	20	4450	0.9	10.992
20279738	20	4500	0.9	11.115
20279745	20	4550	0.9	11.239
20279752	20	4600	0.9	11.362
20279769	20	4650	0.9	11.486
20279776	20	4700	0.9	11.609
20279783	20	4750	0.9	11.733
20279790	20	4800	0.9	11.856
20279806	20	4850	0.9	11.980
20279813	20	4900	0.9	12.103
20279820	20	4950	0.9	12.227
20279837	20	5000	0.9	12.350

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20279844	20	5050	0.9	12.474
20279851	20	5100	0.9	12.597
20279868	20	5150	0.9	12.721
20279875	20	5200	0.9	12.844
20279882	20	5250	0.9	12.968
20279899	20	5300	0.9	13.091
20279905	20	5350	0.9	13.215
20279912	20	5400	0.9	13.338
20279929	20	5450	0.9	13.462
20279936	20	5500	0.9	13.585
20279943	20	5550	0.9	13.709
20279950	20	5600	0.9	13.832
20279967	20	5650	0.9	13.956
20279974	20	5700	0.9	14.079
20279981	20	5750	0.9	14.203
20279998	20	5800	0.9	14.326
20280000	20	5850	0.9	14.450
20280017	20	5900	0.9	14.573
20280024	20	5950	0.9	14.697
20280031	20	6000	0.9	14.820



EL1770.25

Material

Carbon steel (070M55,Cf53 - DIN 1.1213), Surface hardness 60-66 HRC. Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla. Yield stress: >325 N/mm², tensile strength: >630 N/mm².

Technical Notes

Tolerance, h6 standard, special tolerances upon request. Suitable for use with linear bearings. Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available. Shaft lengths are cut to typically ± 2 mm, ends are not hardened.

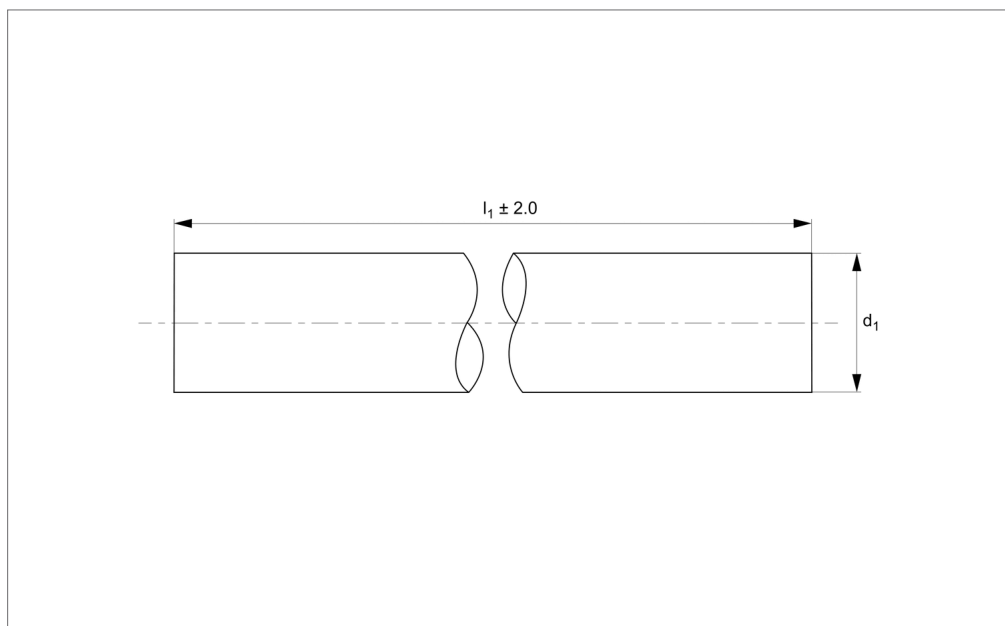
Order No.	d_1	l_1	Depth of hardness min.	Weight kg
20280048	25	100	0.9	0.385
20280055	25	150	0.9	0.578
20280062	25	200	0.9	0.770
20280079	25	250	0.9	0.963
20280086	25	300	0.9	1.155
20280093	25	350	0.9	1.348
20280109	25	400	0.9	1.540
20280116	25	450	0.9	1.733
20280123	25	500	0.9	1.925
20280130	25	550	0.9	2.118
20280147	25	600	0.9	2.310
20280154	25	650	0.9	2.503
20280161	25	700	0.9	2.695
20280178	25	750	0.9	2.888
20280185	25	800	0.9	3.080
20280192	25	850	0.9	3.273
20280208	25	900	0.9	3.465
20280215	25	950	0.9	3.658
20280222	25	1000	0.9	3.850
20338145	25	1050	0.9	4.043
20280239	25	1100	0.9	4.235
20280246	25	1150	0.9	4.428
20280253	25	1200	0.9	4.620
20280260	25	1250	0.9	4.813
20280277	25	1300	0.9	5.005
20280284	25	1350	0.9	5.198
20280291	25	1400	0.9	5.390
20280307	25	1450	0.9	5.583
20280314	25	1500	0.9	5.775
20280321	25	1550	0.9	5.968
20280338	25	1600	0.9	6.160

Order No.	d ₁	l ₁	Depth of hardness min.	Weight kg
20280345	25	1650	0.9	6.353
20280352	25	1700	0.9	6.545
20280369	25	1750	0.9	6.738
20280376	25	1800	0.9	6.930
20280383	25	1850	0.9	7.123
20280390	25	1900	0.9	7.315
20280406	25	1950	0.9	7.508
20280413	25	2000	0.9	7.700
20280420	25	2050	0.9	7.893
20280437	25	2100	0.9	8.085
20280444	25	2150	0.9	8.278
20280451	25	2200	0.9	8.470
20280468	25	2250	0.9	8.663
20280475	25	2300	0.9	8.855
20280482	25	2350	0.9	9.048
20280499	25	2400	0.9	9.240
20280505	25	2450	0.9	9.433
20280512	25	2500	0.9	9.625
20280529	25	2550	0.9	9.818
20280536	25	2600	0.9	10.010
20280543	25	2650	0.9	10.203
20280550	25	2700	0.9	10.395
20280567	25	2750	0.9	10.588
20280574	25	2800	0.9	10.780
20280581	25	2850	0.9	10.973
20280598	25	2900	0.9	11.165
20280604	25	2950	0.9	11.358
20280611	25	3000	0.9	11.550
20280628	25	3050	0.9	11.743
20280635	25	3100	0.9	11.935
20280642	25	3150	0.9	12.128
20280659	25	3200	0.9	12.320
20280666	25	3250	0.9	12.513
20280673	25	3300	0.9	12.705
20280680	25	3350	0.9	12.898
20280697	25	3400	0.9	13.090
20280703	25	3450	0.9	13.283
20280710	25	3500	0.9	13.475
20280727	25	3550	0.9	13.668
20280734	25	3600	0.9	13.860
20280741	25	3650	0.9	14.053
20280758	25	3700	0.9	14.245
20280765	25	3750	0.9	14.438
20280772	25	3800	0.9	14.630
20280789	25	3850	0.9	14.823
20280796	25	3900	0.9	15.015
20280802	25	3950	0.9	15.208
20280819	25	4000	0.9	15.400
20280826	25	4050	0.9	15.593
20280833	25	4100	0.9	15.785
20280840	25	4150	0.9	15.978
20280857	25	4200	0.9	16.170
20280864	25	4250	0.9	16.363
20280871	25	4300	0.9	16.555
20280888	25	4350	0.9	16.748
20280895	25	4400	0.9	16.940
20280901	25	4450	0.9	17.133
20280918	25	4500	0.9	17.325
20280925	25	4550	0.9	17.518
20280932	25	4600	0.9	17.710
20280949	25	4650	0.9	17.903
20280956	25	4700	0.9	18.095
20280963	25	4750	0.9	18.288
20280970	25	4800	0.9	18.480
20280987	25	4850	0.9	18.673
20280994	25	4900	0.9	18.865
20281007	25	4950	0.9	19.058
20281014	25	5000	0.9	19.250

Order No.	d ₁	l ₁	Depth of hardness min.	Weight kg
20281021	25	5050	0.9	19.443
20281038	25	5100	0.9	19.635
20281045	25	5150	0.9	19.828
20281052	25	5200	0.9	20.020
20281069	25	5250	0.9	20.213
20281076	25	5300	0.9	20.405
20281083	25	5350	0.9	20.598
20281090	25	5400	0.9	20.790
20281106	25	5450	0.9	20.983
20281113	25	5500	0.9	21.175
20281120	25	5550	0.9	21.368
20281137	25	5600	0.9	21.560
20281144	25	5650	0.9	21.753
20281151	25	5700	0.9	21.945
20281168	25	5750	0.9	22.138
20281175	25	5800	0.9	22.330
20281182	25	5850	0.9	22.523
20281199	25	5900	0.9	22.715
20281205	25	5950	0.9	22.908
20281212	25	6000	0.9	23.100



EL1770.30



Material

Carbon steel (070M55,Cf53 - DIN 1.1213), Surface hardness 60-66 HRC. Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.
Yield stress: >325 N/mm², tensile strength: >630 N/mm².

Technical Notes

Tolerance, h6 standard, special tolerances upon request.
Suitable for use with linear bearings.
Straightness 0,1mm/m.

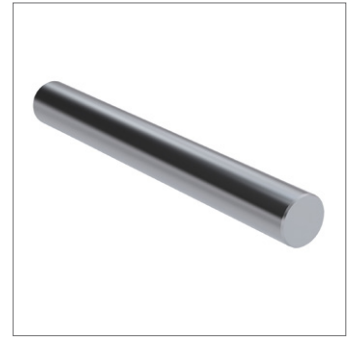
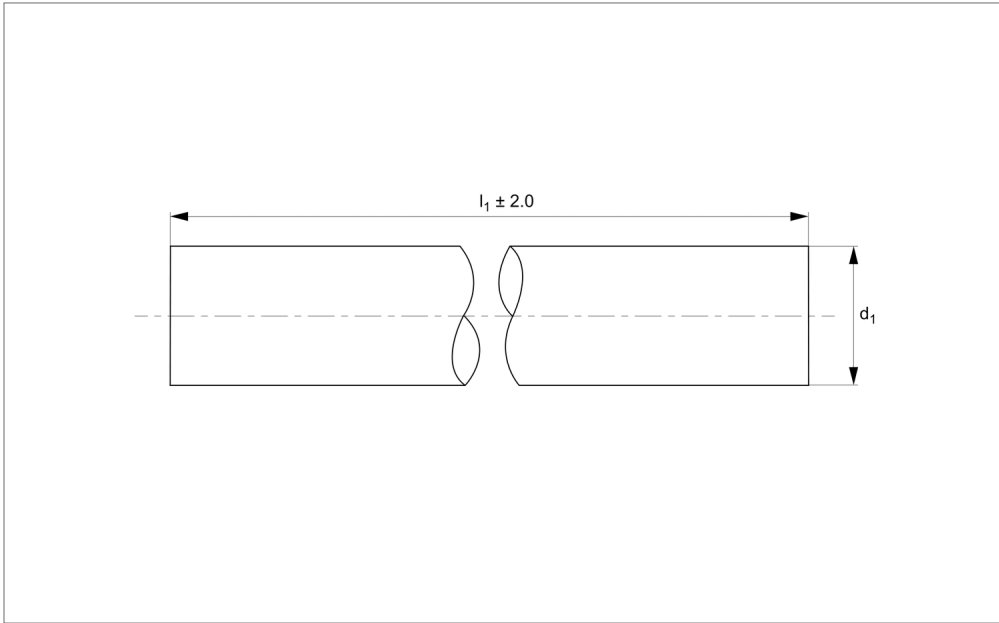
Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available.
Shaft lengths are cut to typically ± 2mm, ends are not hardened.

Order No.	d ₁	l	l ₁	Depth of hardness min.	Weight kg
20281229	30	100	100	1.5	0.555
20281236	30	150	150	1.5	0.833
20281243	30	200	200	1.5	1.110
20281250	30	250	250	1.5	1.388
20281267	30	300	300	1.5	1.665
20281274	30	350	350	1.5	1.943
20281281	30	400	400	1.5	2.220
20281298	30	450	450	1.5	2.498
20281304	30	500	500	1.5	2.775
20281311	30	550	550	1.5	3.053
20281328	30	600	600	1.5	3.330
20338138	30	650	650	1.5	3.608
20281335	30	700	700	1.5	3.885
20281342	30	750	750	1.5	4.163
20281359	30	800	800	1.5	4.440
20281366	30	-	850	1.5	4.718
20281373	30	-	900	1.5	4.995
20281380	30	-	950	1.5	5.273
20281397	30	-	1000	1.5	5.550
20281403	30	-	1050	1.5	5.828
20281410	30	-	1100	1.5	6.105
20281427	30	-	1150	1.5	6.383
20281434	30	-	1200	1.5	6.660
20281441	30	-	1250	1.5	6.938
20281458	30	-	1300	1.5	7.215
20281465	30	-	1350	1.5	7.493
20281472	30	-	1400	1.5	7.770
20281489	30	-	1450	1.5	8.048
20281496	30	-	1500	1.5	8.325
20281502	30	-	1550	1.5	8.603
20281519	30	-	1600	1.5	8.880

Order No.	d ₁	l	l ₁	Depth of hardness min.	Weight kg
20281526	30	-	1650	1.5	9.158
20281533	30	-	1700	1.5	9.435
20281540	30	-	1750	1.5	9.713
20281557	30	-	1800	1.5	9.990
20281564	30	-	1850	1.5	10.268
20281571	30	-	1900	1.5	10.545
20281588	30	-	1950	1.5	10.823
20281595	30	-	2000	1.5	11.100
20281601	30	-	2050	1.5	11.378
20281618	30	-	2100	1.5	11.655
20281625	30	-	2150	1.5	11.933
20281632	30	-	2200	1.5	12.210
20281649	30	-	2250	1.5	12.488
20281656	30	-	2300	1.5	12.765
20281663	30	-	2350	1.5	13.043
20281670	30	-	2400	1.5	13.320
20281687	30	-	2450	1.5	13.598
20281694	30	-	2500	1.5	13.875
20281700	30	-	2550	1.5	14.153
20281717	30	-	2600	1.5	14.430
20281724	30	-	2650	1.5	14.708
20281731	30	-	2700	1.5	14.985
20281748	30	-	2750	1.5	15.263
20281755	30	-	2800	1.5	15.540
20281762	30	-	2850	1.5	15.818
20281779	30	-	2900	1.5	16.095
20281786	30	-	2950	1.5	16.373
20281793	30	-	3000	1.5	16.650
20281809	30	-	3050	1.5	16.928
20281816	30	-	3100	1.5	17.205
20281823	30	-	3150	1.5	17.483
20281830	30	-	3200	1.5	17.760
20281847	30	-	3250	1.5	18.038
20281854	30	-	3300	1.5	18.315
20281861	30	-	3350	1.5	18.593
20281878	30	-	3400	1.5	18.870
20281885	30	-	3450	1.5	19.148
20281892	30	-	3500	1.5	19.425
20281908	30	-	3550	1.5	19.703
20281915	30	-	3600	1.5	19.980
20281922	30	-	3650	1.5	20.258
20281939	30	-	3700	1.5	20.535
20281946	30	-	3750	1.5	20.813
20281953	30	-	3800	1.5	21.090
20281960	30	-	3850	1.5	21.368
20281977	30	-	3900	1.5	21.645
20281984	30	-	3950	1.5	21.923
20281991	30	-	4000	1.5	22.200
20282004	30	-	4050	1.5	22.478
20282011	30	-	4100	1.5	22.755
20282028	30	-	4150	1.5	23.033
20282035	30	-	4200	1.5	23.310
20282042	30	-	4250	1.5	23.588
20282059	30	-	4300	1.5	23.865
20282066	30	-	4350	1.5	24.143
20282073	30	-	4400	1.5	24.420
20282080	30	-	4450	1.5	24.698
20282097	30	-	4500	1.5	24.975
20282103	30	-	4550	1.5	25.253
20282110	30	-	4600	1.5	25.530
20282127	30	-	4650	1.5	25.808
20282134	30	-	4700	1.5	26.085
20282141	30	-	4750	1.5	26.363
20282158	30	-	4800	1.5	26.640
20282165	30	-	4850	1.5	26.918
20282172	30	-	4900	1.5	27.195
20282189	30	-	4950	1.5	27.473
20282196	30	-	5000	1.5	27.750

Order No.	d ₁	l	l ₁	Depth of hardness min.	Weight kg
20282202	30	-	5050	1.5	28.028
20282219	30	-	5100	1.5	28.305
20282226	30	-	5150	1.5	28.583
20282233	30	-	5200	1.5	28.860
20282240	30	-	5250	1.5	29.138
20282257	30	-	5300	1.5	29.415
20282264	30	-	5350	1.5	29.693
20282271	30	-	5400	1.5	29.970
20282288	30	-	5450	1.5	30.248
20282295	30	-	5500	1.5	30.525
20282301	30	-	5550	1.5	30.803
20282318	30	-	5600	1.5	31.080
20282325	30	-	5650	1.5	31.358
20282332	30	-	5700	1.5	31.635
20282349	30	-	5750	1.5	31.913
20282356	30	-	5800	1.5	32.190
20282363	30	-	5850	1.5	32.468
20282370	30	-	5900	1.5	32.745
20282387	30	-	5950	1.5	33.023
20282394	30	-	6000	1.5	33.300



EL1770.40

LINEAR SHAFT BARS

Material

Carbon steel (070M55,Cf53 - DIN 1.1213), Surface hardness 60-66 HRC. Surface finish 0.3-0.6 μ Ra, ground and polished to 8-12 cla.
Yield stress: >325 N/mm², tensile strength: >630 N/mm².

Technical Notes

Tolerance, h6 standard, special tolerances upon request.
Suitable for use with linear bearings.
Straightness 0,1mm/m.

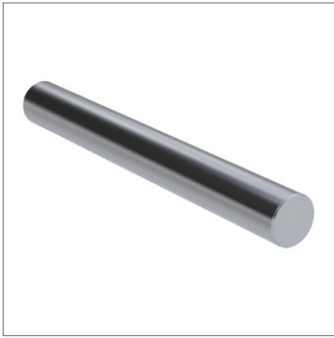
Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available.
Shaft lengths are cut to typically ± 2 mm, ends are not hardened.

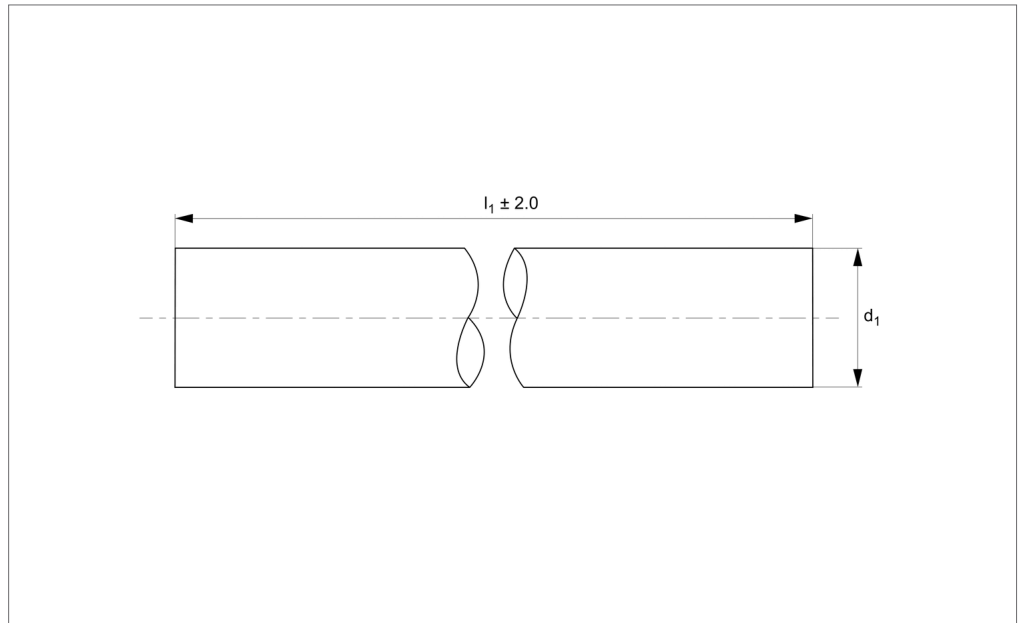
Order No.	d_1	l_1	Depth of hardness min.	Weight kg
20282400	40	100	1.5	0.987
20282417	40	150	1.5	1.481
20282424	40	200	1.5	1.974
20282431	40	250	1.5	2.468
20282448	40	300	1.5	2.961
20282455	40	350	1.5	3.455
20282462	40	400	1.5	3.948
20282479	40	450	1.5	4.442
20282486	40	500	1.5	4.935
20282493	40	550	1.5	5.429
20282509	40	600	1.5	5.922
20282516	40	650	1.5	6.416
20282523	40	700	1.5	6.909
20282530	40	750	1.5	7.403
20282547	40	800	1.5	7.896
20282554	40	850	1.5	8.390
20282561	40	900	1.5	8.883
20282578	40	950	1.5	9.377
20282585	40	1000	1.5	9.870
20282592	40	1050	1.5	10.364
20282608	40	1100	1.5	10.857
20282615	40	1150	1.5	11.351
20282622	40	1200	1.5	11.844
20282639	40	1250	1.5	12.338
20282646	40	1300	1.5	12.831
20282653	40	1350	1.5	13.325
20282660	40	1400	1.5	13.818
20282677	40	1450	1.5	14.312
20282684	40	1500	1.5	14.805
20282691	40	1550	1.5	15.299
20282707	40	1600	1.5	15.792

Order No.	d ₁	l ₁	Depth of hardness min.	Weight kg
20282714	40	1650	1.5	16.286
20282721	40	1700	1.5	16.779
20282738	40	1750	1.5	17.273
20282745	40	1800	1.5	17.766
20282752	40	1850	1.5	18.260
20282769	40	1900	1.5	18.753
20282776	40	1950	1.5	19.247
20282783	40	2000	1.5	19.740
20282790	40	2050	1.5	20.234
20282806	40	2100	1.5	20.727
20282813	40	2150	1.5	21.221
20282820	40	2200	1.5	21.714
20282837	40	2250	1.5	22.208
20282844	40	2300	1.5	22.701
20282851	40	2350	1.5	23.195
20282868	40	2400	1.5	23.688
20282875	40	2450	1.5	24.182
20282882	40	2500	1.5	24.675
20282899	40	2550	1.5	25.169
20282905	40	2600	1.5	25.662
20282912	40	2650	1.5	26.156
20282929	40	2700	1.5	26.649
20282936	40	2750	1.5	27.143
20282943	40	2800	1.5	27.636
20282950	40	2850	1.5	28.130
20282967	40	2900	1.5	28.623
20282974	40	2950	1.5	29.117
20282981	40	3000	1.5	29.610
20282998	40	3050	1.5	30.104
20283001	40	3100	1.5	30.597
20283018	40	3150	1.5	31.091
20283025	40	3200	1.5	31.584
20283032	40	3250	1.5	32.078
20283049	40	3300	1.5	32.571
20283056	40	3350	1.5	33.065
20283063	40	3400	1.5	33.558
20283070	40	3450	1.5	34.052
20283087	40	3500	1.5	34.545
20283094	40	3550	1.5	35.039
20283100	40	3600	1.5	35.532
20283117	40	3650	1.5	36.026
20283124	40	3700	1.5	36.519
20283131	40	3750	1.5	37.013
20283148	40	3800	1.5	37.506
20283155	40	3850	1.5	38.000
20283162	40	3900	1.5	38.493
20283179	40	3950	1.5	38.987
20283186	40	4000	1.5	39.480
20283193	40	4050	1.5	39.974
20283209	40	4100	1.5	40.467
20283216	40	4150	1.5	40.961
20283223	40	4200	1.5	41.454
20283230	40	4250	1.5	41.948
20283247	40	4300	1.5	42.441
20283254	40	4350	1.5	42.935
20283261	40	4400	1.5	43.428
20283278	40	4450	1.5	43.922
20283285	40	4500	1.5	44.415
20283292	40	4550	1.5	44.909
20283308	40	4600	1.5	45.402
20283315	40	4650	1.5	45.896
20283322	40	4700	1.5	46.389
20283339	40	4750	1.5	46.883
20283346	40	4800	1.5	47.376
20283353	40	4850	1.5	47.870
20283360	40	4900	1.5	48.363
20283377	40	4950	1.5	48.857
20283384	40	5000	1.5	49.350

Order No.	d ₁	l ₁	Depth of hardness min.	Weight kg
20283391	40	5050	1.5	49.844
20283407	40	5100	1.5	50.337
20283414	40	5150	1.5	50.831
20283421	40	5200	1.5	51.324
20283438	40	5250	1.5	51.818
20283445	40	5300	1.5	52.311
20283452	40	5350	1.5	52.805
20283469	40	5400	1.5	53.298
20283476	40	5450	1.5	53.792
20283483	40	5500	1.5	54.285
20283490	40	5550	1.5	54.779
20283506	40	5600	1.5	55.272
20283513	40	5650	1.5	55.766
20283520	40	5700	1.5	56.259
20283537	40	5750	1.5	56.753
20283544	40	5800	1.5	57.246
20283551	40	5850	1.5	57.740
20283568	40	5900	1.5	58.233
20283575	40	5950	1.5	58.727
20283582	40	6000	1.5	59.220



EL1770.50



Material

Carbon steel (070M55,Cf53 - DIN 1.1213), Surface hardness 60-66 HRC. Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.
Yield stress: >325 N/mm², tensile strength: >630 N/mm².

Technical Notes

Tolerance, h6 standard, special tolerances upon request.
Suitable for use with linear bearings.
Straightness 0,1mm/m.

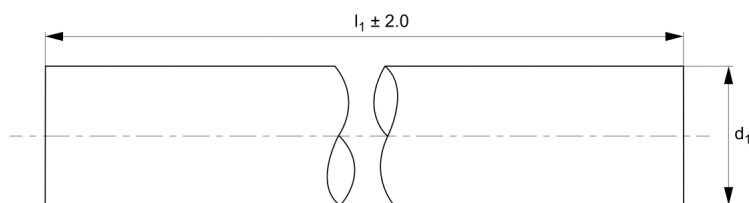
Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available.
Shaft lengths are cut to typically ± 2mm, ends are not hardened.

Order No.	d tol. h6	d ₁	l ₁	Depth of hardness min.	Weight kg
20283599	-	50	100	1.5	1.540
20283605	-	50	150	1.5	2.310
20283612	-	50	200	1.5	3.080
20283629	-	50	250	1.5	3.850
20283636	-	50	300	1.5	4.620
20283643	-	50	350	1.5	5.390
20283650	-	50	400	1.5	6.160
20283667	-	50	450	1.5	6.930
20283674	-	50	500	1.5	7.700
20283681	-	50	550	1.5	8.470
20283698	-	50	600	1.5	9.240
20283704	-	50	650	1.5	10.010
20283711	-	50	700	1.5	10.780
20283728	-	50	750	1.5	11.550
20283735	-	50	800	1.5	12.320
20283742	-	50	850	1.5	13.090
20283759	-	50	900	1.5	13.860
20283766	-	50	1000	1.5	15.400
20283773	-	50	1050	1.5	16.170
20283780	-	50	1100	1.5	16.940
20283797	-	50	1150	1.5	17.710
20283803	-	50	1200	1.5	18.480
20283810	-	50	1250	1.5	19.250
20283827	-	50	1300	1.5	20.020
20283834	-	50	1350	1.5	20.790
20283841	-	50	1400	1.5	21.560
20283858	-	50	1450	1.5	22.330
20283865	-	50	1500	1.5	23.100
20283872	-	50	1550	1.5	23.870
20283889	-	50	1600	1.5	24.640
20283896	-	50	1650	1.5	25.410

Order No.	d tol. h6	d ₁	l ₁	Depth of hardness min.	Weight kg
20283902	-	50	1700	1.5	26.180
20283919	-	50	1750	1.5	26.950
20283926	-	50	1800	1.5	27.720
20283933	-	50	1850	1.5	28.490
20283940	-	50	1900	1.5	29.260
20283957	-	50	1950	1.5	30.030
20283964	-	50	2000	1.5	30.800
20283971	-	50	2050	1.5	31.570
20283988	-	50	2100	1.5	32.340
20283995	-	50	2150	1.5	33.110
20284008	-	50	2200	1.5	33.880
20284015	-	50	2250	1.5	34.650
20284022	-	50	2300	1.5	35.420
20284039	-	50	2350	1.5	36.190
20284046	-	50	2400	1.5	36.960
20284053	-	50	2450	1.5	37.730
20284060	-	50	2500	1.5	38.500
20284077	-	50	2550	1.5	39.270
20284084	-	50	2600	1.5	40.040
20284091	-	50	2650	1.5	40.810
20284107	-	50	2700	1.5	41.580
20284114	-	50	2750	1.5	42.350
20284121	-	50	2800	1.5	43.120
20284138	-	50	2850	1.5	43.890
20284145	-	50	2900	1.5	44.660
20284152	-	50	2950	1.5	45.430
20284169	-	50	3000	1.5	46.200
20284176	-	50	3050	1.5	46.970
20284183	-	50	3100	1.5	47.740
20284190	-	50	3150	1.5	48.510
20284206	-	50	3200	1.5	49.280
20284213	-	50	3250	1.5	50.050
20284220	-	50	3300	1.5	50.820
20284237	-	50	3350	1.5	51.590
20284244	-	50	3400	1.5	52.360
20284251	-	50	3450	1.5	53.130
20284268	-	50	3500	1.5	53.900
20284275	-	50	3550	1.5	54.670
20284282	-	50	3600	1.5	55.440
20284299	-	50	3650	1.5	56.210
20284305	-	50	3700	1.5	56.980
20284312	-	50	3750	1.5	57.750
20284329	-	50	3800	1.5	58.520
20284336	-	50	3850	1.5	59.290
20284343	-	50	3900	1.5	60.060
20284350	-	50	3950	1.5	60.830
20284367	-	50	4000	1.5	61.600
20284374	-	50	4050	1.5	62.370
20284381	-	50	4100	1.5	63.140
20284398	-	50	4150	1.5	63.910
20284404	-	50	4200	1.5	64.680
20284411	-	50	4250	1.5	65.450
20284428	-	50	4300	1.5	66.220
20284435	-	50	4350	1.5	66.990
20284442	-	50	4400	1.5	67.760
20284459	-	50	4450	1.5	68.530
20284466	-	50	4500	1.5	69.300
20284473	-	50	4550	1.5	70.070
20284480	-	50	4600	1.5	70.840
20284497	-	50	4650	1.5	71.610
20284503	-	50	4700	1.5	72.380
20284510	-	50	4750	1.5	73.150
20284527	-	50	4800	1.5	73.920
20284534	-	50	4850	1.5	74.690
20284541	-	50	4900	1.5	75.460
20284558	-	50	4950	1.5	76.230
20284565	-	50	5000	1.5	77.000
20284572	-	50	5050	1.5	77.770

Order No.	d tol. h6	d ₁	l ₁	Depth of hardness min.	Weight kg
20284589	-	50	5100	1.5	78.540
20284596	-	50	5150	1.5	79.310
20284602	50	-	5200	1.5	80.080
20284619	50	-	5250	1.5	80.850
20284626	50	-	5300	1.5	81.620
20284633	50	-	5350	1.5	82.390
20284640	50	-	5400	1.5	83.160
20284657	50	-	5450	1.5	83.930
20284664	50	-	5500	1.5	84.700
20284671	50	-	5550	1.5	85.470
20284688	50	-	5600	1.5	86.240
20284695	-	50	5650	1.5	87.010
20284701	-	50	5700	1.5	87.780
20284718	-	50	5750	1.5	88.550
20284725	-	50	5800	1.5	89.320
20284732	-	50	5850	1.5	90.090
20284749	-	50	5900	1.5	90.860
20284756	-	50	5950	1.5	91.630
20284763	50	-	6000	1.5	92.400



EL1770.60

LINEAR SHAFT BARS

Material

Carbon steel (070M55, Cf53 - DIN 1.1213),
Surface hardness 60-66 HRC. Surface finish
0.3-0.6 μ Ra, ground and polished to 8-12
cla.

Yield stress: >325 N/mm², tensile strength:
>630 N/mm².

Technical Notes

Tolerance, h6 standard, special tolerances
upon request.

Suitable for use with linear bearings.
Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes,
retainer grooves, special coatings etc. are
available.

Shaft lengths are cut to typically ± 2 mm,
ends are not hardened.

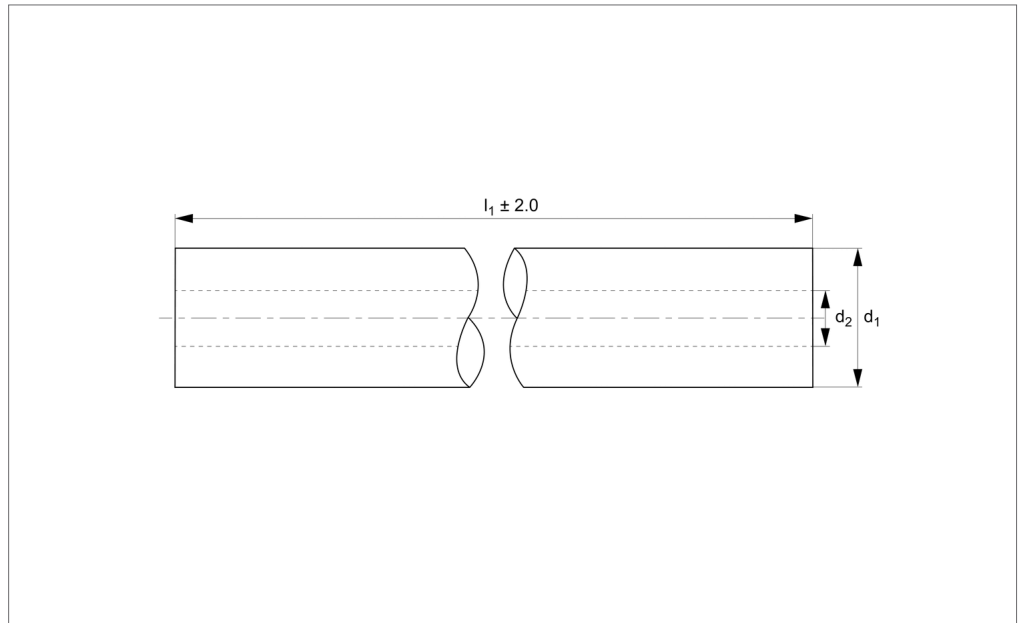
Order No.	d_1	l_1	Depth of hardness min.	Weight kg
20284770	60	100	1.5	2.220
20284787	60	150	1.5	3.330
20284794	60	200	1.5	4.440
20284800	60	250	1.5	5.550
20284817	60	300	1.5	6.660
20284824	60	350	1.5	7.770
20284831	60	400	1.5	8.880
20284848	60	450	1.5	9.990
20284855	60	500	1.5	11.100
20284862	60	550	1.5	12.210
20284879	60	600	1.5	13.320
20284886	60	650	1.5	14.430
20284893	60	700	1.5	15.540
20284909	60	750	1.5	16.650
20284916	60	800	1.5	17.760
20284923	60	850	1.5	18.870
20284930	60	900	1.5	19.980
20284947	60	950	1.5	21.090
20284954	60	1000	1.5	22.200
20284961	60	1050	1.5	23.310
20284978	60	1100	1.5	24.420
20284985	60	1150	1.5	25.530
20284992	60	1200	1.5	26.640
20285005	60	1250	1.5	27.750
20285012	60	1300	1.5	28.860
20285029	60	1350	1.5	29.970
20285036	60	1400	1.5	31.080
20285043	60	1450	1.5	32.190
20285050	60	1500	1.5	33.300

Order No.	d ₁	l ₁	Depth of hardness min.	Weight kg
20285067	60	1550	1.5	34.410
20285074	60	1600	1.5	35.520
20285081	60	1650	1.5	36.630
20285098	60	1700	1.5	37.740
20285104	60	1750	1.5	38.850
20285111	60	1800	1.5	39.960
20285128	60	1850	1.5	41.070
20285135	60	1900	1.5	42.180
20285142	60	1950	1.5	43.290
20285159	60	2000	1.5	44.400
20285166	60	2050	1.5	45.510
20285173	60	2100	1.5	46.620
20285180	60	2150	1.5	47.730
20285197	60	2200	1.5	48.840
20285203	60	2250	1.5	49.950
20285210	60	2300	1.5	51.060
20285227	60	2350	1.5	52.170
20285234	60	2400	1.5	53.280
20285241	60	2450	1.5	54.390
20285258	60	2500	1.5	55.500
20285265	60	2550	1.5	56.610
20285272	60	2600	1.5	57.720
20285289	60	2650	1.5	58.830
20285296	60	2700	1.5	59.940
20285302	60	2750	1.5	61.050
20285319	60	2800	1.5	62.160
20285326	60	2850	1.5	63.270
20285333	60	2900	1.5	64.380
20285340	60	2950	1.5	65.490
20285357	60	3000	1.5	66.600
20285364	60	3050	1.5	67.710
20285371	60	3100	1.5	68.820
20285388	60	3150	1.5	69.930
20285395	60	3200	1.5	71.040
20285401	60	3250	1.5	72.150
20285418	60	3300	1.5	73.260
20285425	60	3350	1.5	74.370
20285432	60	3400	1.5	75.480
20285449	60	3450	1.5	76.590
20285456	60	3500	1.5	77.700
20285463	60	3550	1.5	78.810
20285470	60	3600	1.5	79.920
20285487	60	3650	1.5	81.030
20285494	60	3700	1.5	82.140
20285500	60	3750	1.5	83.250
20285517	60	3800	1.5	84.360
20285524	60	3850	1.5	85.470
20285531	60	3900	1.5	86.580
20285548	60	3950	1.5	87.690
20285555	60	4000	1.5	88.800
20285562	60	4050	1.5	89.910
20285579	60	4100	1.5	91.020
20285586	60	4150	1.5	92.130
20285593	60	4200	1.5	93.240
20285609	60	4250	1.5	94.350
20285616	60	4300	1.5	95.460
20285623	60	4350	1.5	96.570
20285630	60	4400	1.5	97.680
20285647	60	4450	1.5	98.790
20285654	60	4500	1.5	99.900
20285661	60	4550	1.5	101.010
20285678	60	4600	1.5	102.120
20285685	60	4650	1.5	103.230
20285692	60	4700	1.5	104.340
20285708	60	4750	1.5	105.450
20285715	60	4800	1.5	106.560
20285722	60	4850	1.5	107.670
20285739	60	4900	1.5	108.780

Order No.	d ₁	l ₁	Depth of hardness min.	Weight kg
20285746	60	4950	1.5	109.890
20285753	60	5000	1.5	111.000
20285760	60	5050	1.5	112.110
20285777	60	5100	1.5	113.220
20285784	60	5150	1.5	114.330
20285791	60	5200	1.5	115.440
20285807	60	5250	1.5	116.550
20285814	60	5300	1.5	117.660
20285821	60	5350	1.5	118.770
20285838	60	5400	1.5	119.880
20285845	60	5450	1.5	120.990
20285852	60	5500	1.5	122.100
20285869	60	5550	1.5	123.210
20285876	60	5600	1.5	124.320
20285883	60	5650	1.5	125.430
20285890	60	5700	1.5	126.540
20285906	60	5750	1.5	127.650
20285913	60	5800	1.5	128.760
20285920	60	5850	1.5	129.870
20285937	60	5900	1.5	130.980
20285944	60	5950	1.5	132.090
20285951	60	6000	1.5	133.200



EL1771.12



Material

Carbon steel (C60), surface hardness 60-65 HRC. Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.

Technical Notes

Used in linear bearing and guideway

systems where weight reduction is important.

Tolerance, h6 standard, special tolerances upon request.

Suitable for use with linear bearings.
Straightness 0,2mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available.

Shaft lengths are cut to typically ± 2mm, ends are not hardened.

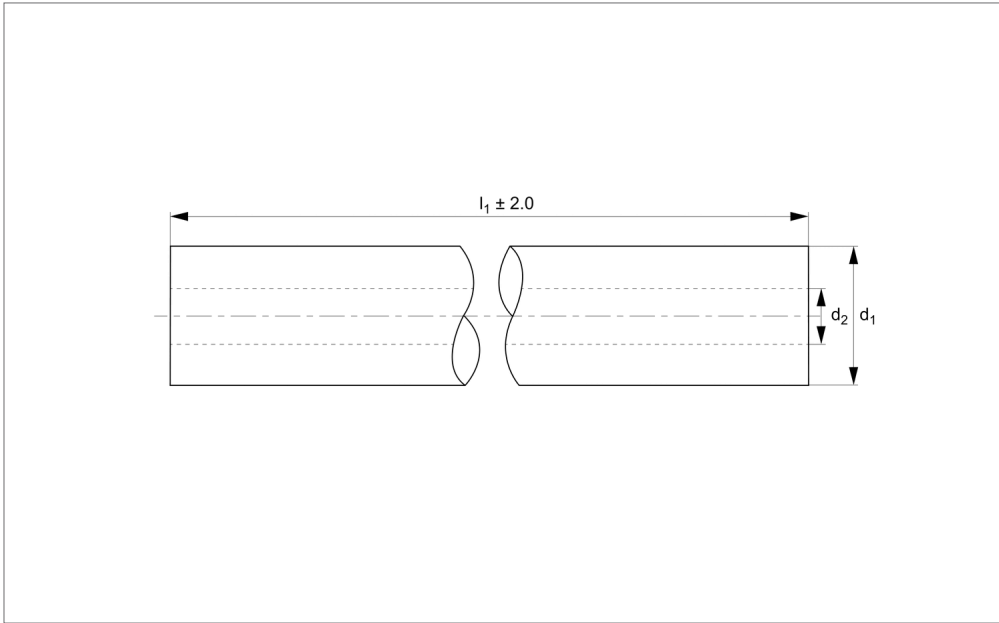
Order No.	d ₁ tol. h6	l	d ₂	Depth of hardness min.
20285968	12	100	4	0.4
20285975	12	150	4	0.4
20285982	12	200	4	0.4
20285999	12	250	4	0.4
20286002	12	300	4	0.4
20286019	12	350	4	0.4
20286026	12	400	4	0.4
20286033	12	450	4	0.4
20286040	12	500	4	0.4
20286057	12	550	4	0.4
20286064	12	600	4	0.4
20286071	12	650	4	0.4
20286088	12	700	4	0.4
20286095	12	750	4	0.4
20286101	12	800	4	0.4
20286118	12	850	4	0.4
20286125	12	900	4	0.4
20286132	12	950	4	0.4
20286149	12	1000	4	0.4
20286156	12	1050	4	0.4
20286163	12	1100	4	0.4
20286170	12	1150	4	0.4
20286187	12	1200	4	0.4
20286194	12	1250	4	0.4
20286200	12	1300	4	0.4
20286217	12	1350	4	0.4
20286224	12	1400	4	0.4
20286231	12	1450	4	0.4
20286248	12	1500	4	0.4
20286255	12	1550	4	0.4
20286262	12	1600	4	0.4

12Ø Hardened Hollow Shafts for linear bearings

Linear Shaft Bars

Order No.	d ₁ tol. h6	l	d ₂	Depth of hardness min.
20286279	12	1650	4	0.4
20286286	12	1700	4	0.4
20286293	12	1750	4	0.4
20286309	12	1800	4	0.4
20286316	12	1850	4	0.4
20286323	12	1900	4	0.4
20286330	12	1950	4	0.4
20286347	12	2000	4	0.4
20286354	12	2050	4	0.4
20286361	12	2100	4	0.4
20286378	12	2150	4	0.4
20286385	12	2200	4	0.4
20286392	12	2250	4	0.4
20286408	12	2300	4	0.4
20286415	12	2350	4	0.4
20286422	12	2400	4	0.4
20286439	12	2450	4	0.4
20286446	12	2500	4	0.4
20286453	12	2550	4	0.4
20286460	12	2600	4	0.4
20286477	12	2650	4	0.4
20286484	12	2700	4	0.4
20286491	12	2750	4	0.4
20286507	12	2800	4	0.4
20286514	12	2850	4	0.4
20286521	12	2900	4	0.4
20286538	12	2950	4	0.4
20286545	12	3000	4	0.4
20286552	12	3050	4	0.4
20286569	12	3100	4	0.4
20286576	12	3150	4	0.4
20286583	12	3200	4	0.4
20286590	12	3250	4	0.4
20286606	12	3300	4	0.4
20286613	12	3350	4	0.4
20286620	12	3400	4	0.4
20286637	12	3450	4	0.4
20286644	12	3500	4	0.4
20286651	12	3550	4	0.4
20286668	12	3600	4	0.4
20286675	12	3650	4	0.4
20286682	12	3700	4	0.4
20286699	12	3750	4	0.4
20286705	12	3800	4	0.4
20286712	12	3850	4	0.4
20286729	12	3900	4	0.4
20286736	12	3950	4	0.4
20286743	12	4000	4	0.4
20286750	12	4050	4	0.4
20286767	12	4100	4	0.4
20286774	12	4150	4	0.4
20286781	12	4200	4	0.4
20286798	12	4250	4	0.4
20286804	12	4300	4	0.4
20286811	12	4350	4	0.4
20286828	12	4400	4	0.4
20286835	12	4450	4	0.4
20286842	12	4500	4	0.4
20286859	12	4550	4	0.4
20286866	12	4600	4	0.4
20286873	12	4650	4	0.4
20286880	12	4700	4	0.4
20286897	12	4750	4	0.4
20286903	12	4800	4	0.4
20286910	12	4850	4	0.4
20286927	12	4900	4	0.4
20286934	12	4950	4	0.4
20286941	12	5000	4	0.4

Order No.	d ₁ tol. h6	l	d ₂	Depth of hardness min.
20286958	12	5050	4	0.4
20286965	12	5100	4	0.4
20286972	12	5150	4	0.4
20286989	12	5200	4	0.4
20286996	12	5250	4	0.4
20287009	12	5300	4	0.4
20287016	12	5350	4	0.4
20287023	12	5400	4	0.4
20287030	12	5450	4	0.4
20287047	12	5500	4	0.4
20287054	12	5550	4	0.4
20287061	12	5600	4	0.4
20287078	12	5650	4	0.4
20287085	12	5700	4	0.4
20287092	12	5750	4	0.4
20287108	12	5800	4	0.4
20287115	12	5850	4	0.4
20287122	12	5900	4	0.4
20287139	12	5950	4	0.4
20287146	12	6000	4	0.4



EL1771.16

Material

Carbon steel (C60), surface hardness 60-65 HRC. Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.

Technical Notes

Used in linear bearing and guideway

systems where weight reduction is important.

Tolerance, h6 standard, special tolerances upon request.

Suitable for use with linear bearings.

Straightness 0,2mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available.

Shaft lengths are cut to typically ± 2mm, ends are not hardened.

Order No.	d ₁ tol. h6	l	d ₂ tol. h6	Depth of hardness min.
20287153	16	100	7	0.4
20287160	16	150	7	0.4
20287177	16	200	7	0.4
20287184	16	250	7	0.4
20287191	16	300	7	0.4
20287207	16	350	7	0.4
20287214	16	400	7	0.4
20287221	16	450	7	0.4
20287238	16	500	7	0.4
20287245	16	550	7	0.4
20287252	16	600	7	0.4
20287269	16	650	7	0.4
20287276	16	700	7	0.4
20287283	16	750	7	0.4
20287290	16	800	7	0.4
20287306	16	850	7	0.4
20287313	16	900	7	0.4
20287320	16	1000	7	0.4
20287337	16	1050	7	0.4
20287344	16	1100	7	0.4
20287351	16	1150	7	0.4
20287368	16	1200	7	0.4
20287375	16	1250	7	0.4
20287382	16	1300	7	0.4
20287399	16	1350	7	0.4
20287405	16	1400	7	0.4
20287412	16	1450	7	0.4
20287429	16	1500	7	0.4
20287436	16	1550	7	0.4
20287443	16	1600	7	0.4
20287450	16	1650	7	0.4

Order No.	d ₁ tol. h6	l	d ₂ tol. h6	Depth of hardness min.
20287467	16	1700	7	0.4
20287474	16	1750	7	0.4
20287481	16	1800	7	0.4
20287498	16	1850	7	0.4
20287504	16	1900	7	0.4
20287511	16	1950	7	0.4
20287528	16	2000	7	0.4
20287535	16	2050	7	0.4
20287542	16	2100	7	0.4
20287559	16	2150	7	0.4
20287566	16	2200	7	0.4
20287573	16	2250	7	0.4
20287580	16	2300	7	0.4
20287597	16	2350	7	0.4
20287603	16	2400	7	0.4
20287610	16	2450	7	0.4
20287627	16	2500	7	0.4
20287634	16	2550	7	0.4
20287641	16	2600	7	0.4
20287658	16	2650	7	0.4
20287665	16	2700	7	0.4
20287672	16	2750	7	0.4
20287689	16	2800	7	0.4
20287696	16	2850	7	0.4
20287702	16	2900	7	0.4
20287719	16	2950	7	0.4
20287726	16	3000	7	0.4
20287733	16	3050	7	0.4
20287740	16	3100	7	0.4
20287757	16	3150	7	0.4
20287764	16	3200	7	0.4
20287771	16	3250	7	0.4
20287788	16	3300	7	0.4
20287795	16	3350	7	0.4
20287801	16	3400	7	0.4
20287818	16	3450	7	0.4
20287825	16	3500	7	0.4
20287832	16	3550	7	0.4
20287849	16	3600	7	0.4
20287856	16	3650	7	0.4
20287863	16	3700	7	0.4
20287870	16	3750	7	0.4
20287887	16	3800	7	0.4
20287894	16	3850	7	0.4
20287900	16	3900	7	0.4
20287917	16	3950	7	0.4
20287924	16	4000	7	0.4
20287931	16	4050	7	0.4
20287948	16	4100	7	0.4
20287955	16	4150	7	0.4
20287962	16	4200	7	0.4
20287979	16	4250	7	0.4
20287986	16	4300	7	0.4
20287993	16	4350	7	0.4
20288006	16	4400	7	0.4
20288013	16	4450	7	0.4
20288020	16	4500	7	0.4
20288037	16	4550	7	0.4
20288044	16	4600	7	0.4
20288051	16	4650	7	0.4
20288068	16	4700	7	0.4
20288075	16	4750	7	0.4
20288082	16	4800	7	0.4
20288099	16	4850	7	0.4
20288105	16	4900	7	0.4
20288112	16	4950	7	0.4
20288129	16	5000	7	0.4
20288136	16	5050	7	0.4

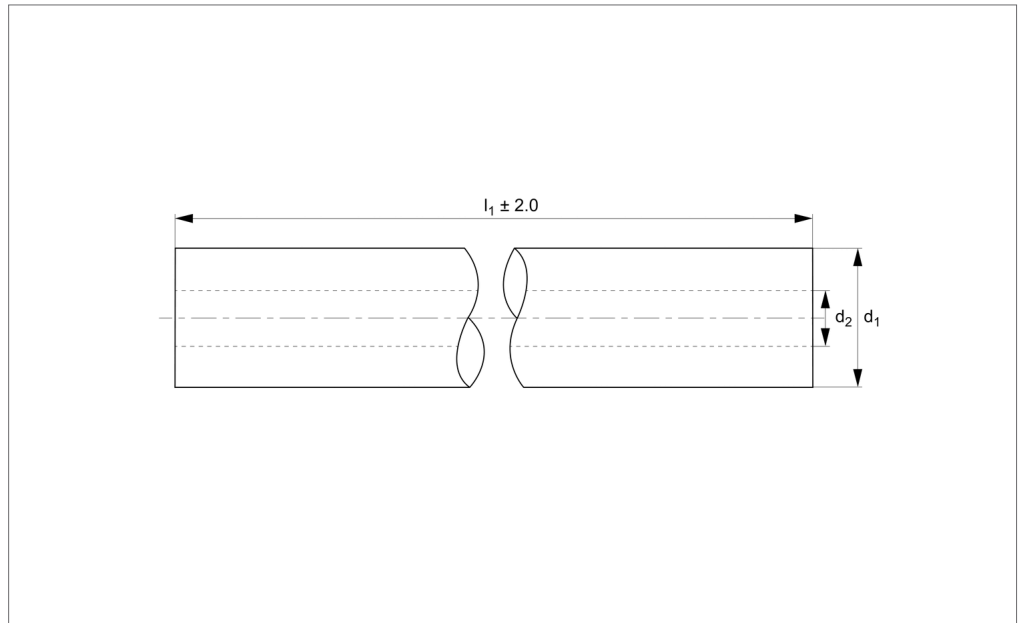
16Ø Hardened Hollow Shafts for linear bearings

Linear Shaft Bars

Order No.	d ₁ tol. h6	l	d ₂ tol. h6	Depth of hardness min.
20288143	16	5100	7	0.4
20288150	16	5150	7	0.4
20288167	16	5200	7	0.4
20288174	16	5250	7	0.4
20288181	16	5300	7	0.4
20288198	16	5350	7	0.4
20288204	16	5400	7	0.4
20288211	16	5450	7	0.4
20288228	16	5500	7	0.4
20288235	16	5550	7	0.4
20288242	16	5600	7	0.4
20288259	16	5650	7	0.4
20288266	16	5700	7	0.4
20288273	16	5750	7	0.4
20288280	16	5800	7	0.4
20288297	16	5850	7	0.4
20288303	16	5900	7	0.4
20288310	16	5950	7	0.4
20288327	16	6000	7	0.4



EL1771.20



Material

Carbon steel (C60), surface hardness 60-65 HRC. Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.

Technical Notes

Used in linear bearing and guideway

systems where weight reduction is important.

Tolerance, h6 standard, special tolerances upon request.

Suitable for use with linear bearings.
Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available.

Shaft lengths are cut to typically ± 2mm, ends are not hardened.

Order No.	d ₁ tol. h6	l	d ₂ tol. h6	Depth of hardness min.
20288334	20	100	14	0.4
20288341	20	150	14	0.4
20288358	20	200	14	0.4
20288365	20	250	14	0.4
20288372	20	300	14	0.4
20288389	20	350	14	0.4
20288396	20	400	14	0.4
20288402	20	450	14	0.4
20288419	20	500	14	0.4
20288426	20	550	14	0.4
20288433	20	600	14	0.4
20288440	20	650	14	0.4
20288457	20	700	14	0.4
20288464	20	750	14	0.4
20288471	20	800	14	0.4
20288488	20	850	14	0.4
20288495	20	900	14	0.4
20288501	20	950	14	0.4
20288518	20	1000	14	0.4
20288525	20	1050	14	0.4
20288532	20	1100	14	0.4
20288549	20	1150	14	0.4
20288556	20	1200	14	0.4
20288563	20	1250	14	0.4
20288570	20	1300	14	0.4
20288587	20	1350	14	0.4
20288594	20	1400	14	0.4
20288600	20	1450	14	0.4
20288617	20	1500	14	0.4
20288624	20	1550	14	0.4
20288631	20	1600	14	0.4

20Ø Hardened Hollow Shafts for linear bearings

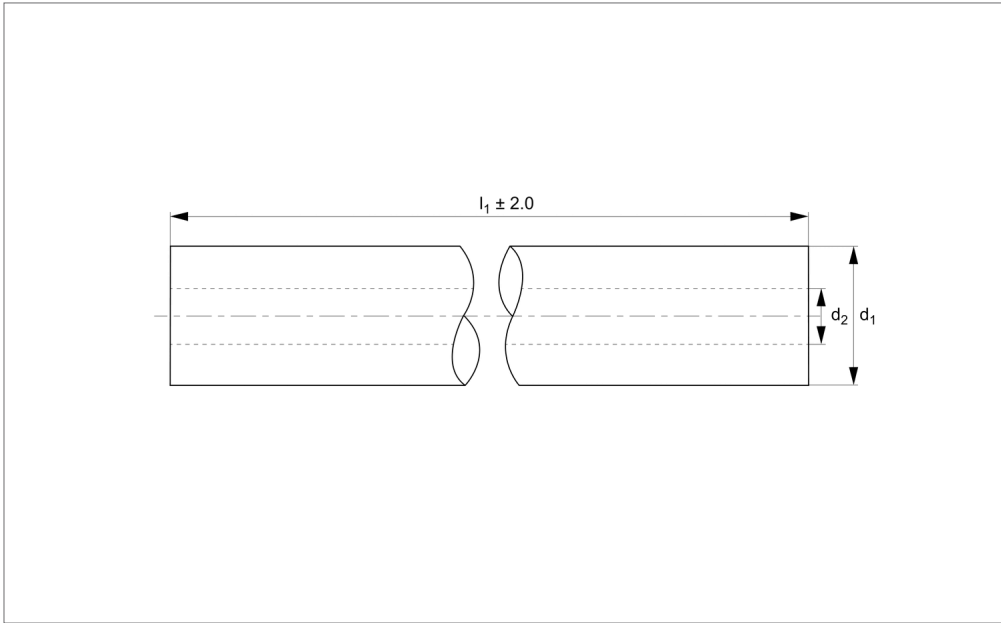
Linear Shaft Bars

Order No.	d ₁ tol. h6	l	d ₂ tol. h6	Depth of hardness min.
20288648	20	1650	14	0.4
20288655	20	1700	14	0.4
20288662	20	1750	14	0.4
20288679	20	1800	14	0.4
20288686	20	1850	14	0.4
20288693	20	1900	14	0.4
20288709	20	1950	14	0.4
20288716	20	2000	14	0.4
20288723	20	2050	14	0.4
20288730	20	2100	14	0.4
20288747	20	2150	14	0.4
20288754	20	2200	14	0.4
20288761	20	2250	14	0.4
20288778	20	2300	14	0.4
20288785	20	2350	14	0.4
20288792	20	2400	14	0.4
20288808	20	2450	14	0.4
20288815	20	2500	14	0.4
20288822	20	2550	14	0.4
20288839	20	2600	14	0.4
20288846	20	2650	14	0.4
20288853	20	2700	14	0.4
20288860	20	2750	14	0.4
20288877	20	2800	14	0.4
20288884	20	2850	14	0.4
20288891	20	2900	14	0.4
20288907	20	2950	14	0.4
20288914	20	3000	14	0.4
20288921	20	3050	14	0.4
20288938	20	3100	14	0.4
20288945	20	3150	14	0.4
20288952	20	3200	14	0.4
20288969	20	3250	14	0.4
20288976	20	3300	14	0.4
20288983	20	3350	14	0.4
20288990	20	3400	14	0.4
20289003	20	3450	14	0.4
20289010	20	3500	14	0.4
20289027	20	3550	14	0.4
20289034	20	3600	14	0.4
20289041	20	3650	14	0.4
20289058	20	3700	14	0.4
20289065	20	3750	14	0.4
20289072	20	3800	14	0.4
20289089	20	3850	14	0.4
20289096	20	3900	14	0.4
20289102	20	3950	14	0.4
20289119	20	4000	14	0.4
20289126	20	4050	14	0.4
20289133	20	4100	14	0.4
20289140	20	4150	14	0.4
20289157	20	4200	14	0.4
20289164	20	4250	14	0.4
20289171	20	4300	14	0.4
20289188	20	4350	14	0.4
20289195	20	4400	14	0.4
20289201	20	4450	14	0.4
20289218	20	4500	14	0.4
20289225	20	4550	14	0.4
20289232	20	4600	14	0.4
20289249	20	4650	14	0.4
20289256	20	4700	14	0.4
20289263	20	4750	14	0.4
20289270	20	4800	14	0.4
20289287	20	4850	14	0.4
20289294	20	4900	14	0.4
20289300	20	4950	14	0.4
20289317	20	5000	14	0.4

Order No.	d ₁ tol. h6	l	d ₂ tol. h6	Depth of hardness min.
20289324	20	5050	14	0.4
20289331	20	5100	14	0.4
20289348	20	5150	14	0.4
20289355	20	5200	14	0.4
20289362	20	5250	14	0.4
20289379	20	5300	14	0.4
20289386	20	5350	14	0.4
20289393	20	5400	14	0.4
20289409	20	5450	14	0.4
20289416	20	5500	14	0.4
20289423	20	5550	14	0.4
20289430	20	5600	14	0.4
20289447	20	5650	14	0.4
20289454	20	5700	14	0.4
20289461	20	5750	14	0.4
20289478	20	5800	14	0.4
20289485	20	5850	14	0.4
20289492	20	5900	14	0.4
20289508	20	5950	14	0.4
20289515	20	6000	14	0.4

25Ø Hardened Hollow Shafts for linear bearings

Linear Shaft Bars



EL1771.25

LINEAR SHAFT BARS

Material

Carbon steel (C60), surface hardness 60-65 HRC. Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.

Technical Notes

Used in linear bearing and guideway

systems where weight reduction is important.

Tolerance, h6 standard, special tolerances upon request.

Suitable for use with linear bearings.

Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available.

Shaft lengths are cut to typically ± 2mm, ends are not hardened.

Order No.	d ₁ tol. h6	l	d ₂	Depth of hardness min.
20289522	25	100	15	0.4
20289539	25	150	15	0.4
20289546	25	200	15	0.4
20289553	25	250	15	0.4
20289560	25	300	15	0.4
20289577	25	350	15	0.4
20289584	25	400	15	0.4
20289591	25	450	15	0.4
20289607	25	500	15	0.4
20289614	25	550	15	0.4
20289621	25	600	15	0.4
20289638	25	650	15	0.4
20289645	25	700	15	0.4
20289652	25	750	15	0.4
20289669	25	800	15	0.4
20289676	25	850	15	0.4
20289683	25	900	15	0.4
20289690	25	950	15	0.4
20289706	25	1000	15	0.4
20289713	25	1050	15	0.4
20289720	25	1100	15	0.4
20289737	25	1150	15	0.4
20289744	25	1200	15	0.4
20289751	25	1250	15	0.4
20289768	25	1300	15	0.4
20289775	25	1350	15	0.4
20289782	25	1400	15	0.4
20289799	25	1450	15	0.4
20289805	25	1500	15	0.4
20289812	25	1550	15	0.4
20289829	25	1600	15	0.4

Order No.	d ₁ tol. h6	l	d ₂	Depth of hardness min.
20289836	25	1650	15	0.4
20289843	25	1700	15	0.4
20289850	25	1750	15	0.4
20289867	25	1800	15	0.4
20289874	25	1850	15	0.4
20289881	25	1900	15	0.4
20289898	25	1950	15	0.4
20289904	25	2000	15	0.4
20289911	25	2050	15	0.4
20289928	25	2100	15	0.4
20289935	25	2150	15	0.4
20289942	25	2200	15	0.4
20289959	25	2250	15	0.4
20289966	25	2300	15	0.4
20289973	25	2350	15	0.4
20289980	25	2400	15	0.4
20289997	25	2450	15	0.4
20290009	25	2500	15	0.4
20290016	25	2550	15	0.4
20290023	25	2600	15	0.4
20290030	25	2650	15	0.4
20290047	25	2700	15	0.4
20290054	25	2750	15	0.4
20290061	25	2800	15	0.4
20290078	25	2850	15	0.4
20290085	25	2900	15	0.4
20290092	25	2950	15	0.4
20290108	25	3000	15	0.4
20290115	25	3050	15	0.4
20290122	25	3100	15	0.4
20290139	25	3150	15	0.4
20290146	25	3200	15	0.4
20290153	25	3250	15	0.4
20290160	25	3300	15	0.4
20290177	25	3350	15	0.4
20290184	25	3400	15	0.4
20290191	25	3450	15	0.4
20290207	25	3500	15	0.4
20290214	25	3550	15	0.4
20290221	25	3600	15	0.4
20290238	25	3650	15	0.4
20290245	25	3700	15	0.4
20290252	25	3750	15	0.4
20290269	25	3800	15	0.4
20290276	25	3850	15	0.4
20290283	25	3900	15	0.4
20290290	25	3950	15	0.4
20290306	25	4000	15	0.4
20290313	25	4050	15	0.4
20290320	25	4100	15	0.4
20290337	25	4150	15	0.4
20290344	25	4200	15	0.4
20290351	25	4250	15	0.4
20290368	25	4300	15	0.4
20290375	25	4350	15	0.4
20290382	25	4400	15	0.4
20290399	25	4450	15	0.4
20290405	25	4500	15	0.4
20290412	25	4550	15	0.4
20290429	25	4600	15	0.4
20290436	25	4650	15	0.4
20290443	25	4700	15	0.4
20290450	25	4750	15	0.4
20290467	25	4800	15	0.4
20290474	25	4850	15	0.4
20290481	25	4900	15	0.4
20290498	25	4950	15	0.4
20290504	25	5000	15	0.4

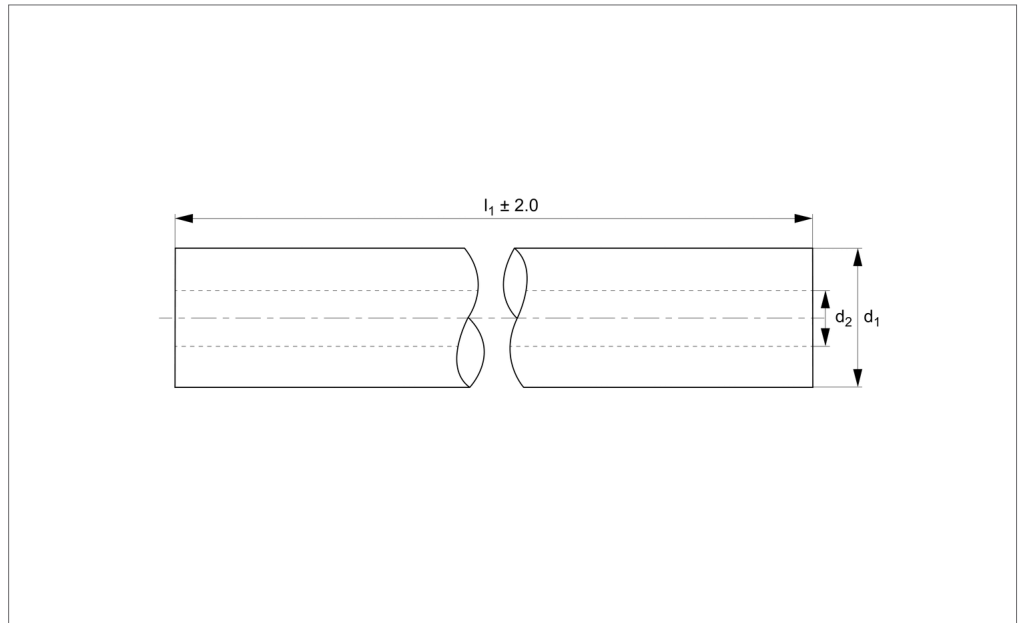
25Ø Hardened Hollow Shafts for linear bearings

Linear Shaft Bars

Order No.	d ₁ tol. h6	l	d ₂	Depth of hardness min.
20290511	25	5050	15	0.4
20290528	25	5100	15	0.4
20290535	25	5150	15	0.4
20290542	25	5200	15	0.4
20290559	25	5250	15	0.4
20290566	25	5300	15	0.4
20290573	25	5350	15	0.4
20290580	25	5400	15	0.4
20290597	25	5450	15	0.4
20290603	25	5500	15	0.4
20290610	25	5550	15	0.4
20290627	25	5600	15	0.4
20290634	25	5650	15	0.4
20290641	25	5700	15	0.4
20290658	25	5750	15	0.4
20290665	25	5800	15	0.4
20290672	25	5850	15	0.4
20290689	25	5900	15	0.4
20290696	25	5950	15	0.4
20290702	25	6000	15	0.4



EL1771.30



Material

Carbon steel (C60), surface hardness 60-65 HRC. Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.

Technical Notes

Used in linear bearing and guideway

systems where weight reduction is important.

Tolerance, h6 standard, special tolerances upon request.

Suitable for use with linear bearings.
Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available.

Shaft lengths are cut to typically ± 2mm, ends are not hardened.

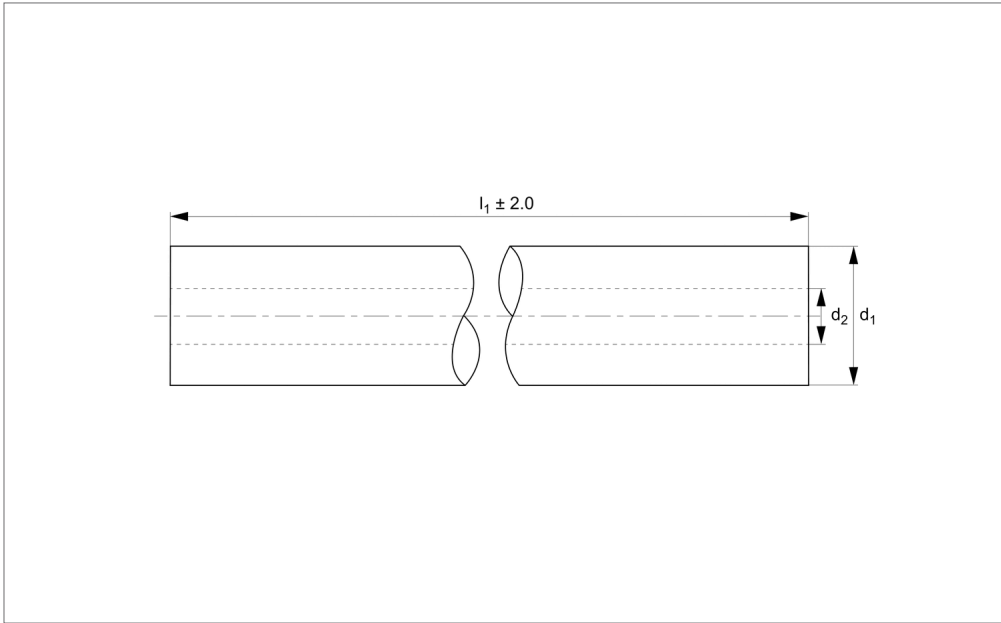
Order No.	d ₁ tol. h6	l	d ₂ tol. h6	Depth of hardness min.
20290719	30	100	18	0.6
20290726	30	150	18	0.6
20290733	30	200	18	0.6
20290740	30	250	18	0.6
20290757	30	300	18	0.6
20290764	30	350	18	0.6
20290771	30	400	18	0.6
20290788	30	450	18	0.6
20290795	30	500	18	0.6
20290801	30	550	18	0.6
20290818	30	600	18	0.6
20290825	30	650	18	0.6
20290832	30	700	18	0.6
20290849	30	750	18	0.6
20290856	30	800	18	0.6
20290863	30	850	18	0.6
20290870	30	900	18	0.6
20290887	30	950	18	0.6
20290894	30	1000	18	0.6
20290900	30	1050	18	0.6
20290917	30	1100	18	0.6
20290924	30	1150	18	0.6
20290931	30	1200	18	0.6
20290948	30	1250	18	0.6
20290955	30	1300	18	0.6
20290962	30	1350	18	0.6
20290979	30	1400	18	0.6
20290986	30	1450	18	0.6
20290993	30	1500	18	0.6
20291006	30	1550	18	0.6
20291013	30	1600	18	0.6

30Ø Hardened Hollow Shafts for linear bearings

Linear Shaft Bars

Order No.	d ₁ tol. h6	l	d ₂ tol. h6	Depth of hardness min.
20291020	30	1650	18	0.6
20291037	30	1700	18	0.6
20291044	30	1750	18	0.6
20291051	30	1800	18	0.6
20291068	30	1850	18	0.6
20291075	30	1900	18	0.6
20291082	30	1950	18	0.6
20291099	30	2000	18	0.6
20291105	30	2050	18	0.6
20291112	30	2100	18	0.6
20291129	30	2150	18	0.6
20291136	30	2200	18	0.6
20291143	30	2250	18	0.6
20291150	30	2300	18	0.6
20291167	30	2350	18	0.6
20291174	30	2400	18	0.6
20291181	30	2450	18	0.6
20291198	30	2500	18	0.6
20291204	30	2550	18	0.6
20291211	30	2600	18	0.6
20291228	30	2650	18	0.6
20291235	30	2700	18	0.6
20291242	30	2750	18	0.6
20291259	30	2800	18	0.6
20291266	30	2850	18	0.6
20291273	30	2900	18	0.6
20291280	30	2950	18	0.6
20291297	30	3000	18	0.6
20291303	30	3050	18	0.6
20291310	30	3100	18	0.6
20291327	30	3150	18	0.6
20291334	30	3200	18	0.6
20291341	30	3250	18	0.6
20291358	30	3300	18	0.6
20291365	30	3350	18	0.6
20291372	30	3400	18	0.6
20291389	30	3450	18	0.6
20291396	30	3500	18	0.6
20291402	30	3550	18	0.6
20291419	30	3600	18	0.6
20291426	30	3650	18	0.6
20291433	30	3700	18	0.6
20291440	30	3750	18	0.6
20291457	30	3800	18	0.6
20291464	30	3850	18	0.6
20291471	30	3900	18	0.6
20291488	30	3950	18	0.6
20291495	30	4000	18	0.6
20291501	30	4050	18	0.6
20291518	30	4100	18	0.6
20291525	30	4150	18	0.6
20291532	30	4200	18	0.6
20291549	30	4250	18	0.6
20291556	30	4300	18	0.6
20291563	30	4350	18	0.6
20291570	30	4400	18	0.6
20291587	30	4450	18	0.6
20291594	30	4500	18	0.6
20291600	30	4550	18	0.6
20291617	30	4600	18	0.6
20291624	30	4650	18	0.6
20291631	30	4700	18	0.6
20291648	30	4750	18	0.6
20291655	30	4800	18	0.6
20291662	30	4850	18	0.6
20291679	30	4900	18	0.6
20291686	30	4950	18	0.6
20291693	30	5000	18	0.6

Order No.	d ₁ tol. h6	l	d ₂ tol. h6	Depth of hardness min.
20291709	30	5050	18	0.6
20291716	30	5100	18	0.6
20291723	30	5150	18	0.6
20291730	30	5200	18	0.6
20291747	30	5250	18	0.6
20291754	30	5300	18	0.6
20291761	30	5350	18	0.6
20291778	30	5400	18	0.6
20291785	30	5450	18	0.6
20291792	30	5500	18	0.6
20291808	30	5550	18	0.6
20291815	30	5600	18	0.6
20291822	30	5650	18	0.6
20291839	30	5700	18	0.6
20291846	30	5750	18	0.6
20291853	30	5800	18	0.6
20291860	30	5850	18	0.6
20291877	30	5900	18	0.6
20291884	30	5950	18	0.6
20291891	30	6000	18	0.6



EL1771.40

LINEAR SHAFT BARS

Material

Carbon steel (C60), surface hardness 60-65 HRC. Surface finish 0.3-0.6 μ Ra, ground and polished to 8-12 cla.

Technical Notes

Used in linear bearing and guideway

systems where weight reduction is important.

Tolerance, h6 standard, special tolerances upon request.

Suitable for use with linear bearings.

Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available.

Shaft lengths are cut to typically ± 2 mm, ends are not hardened.

Order No.	d_1 tol. h6	l	d_2 tol. h6	Depth of hardness min.
20291907	40	100	28	0.6
20291914	40	150	28	0.6
20291921	40	200	28	0.6
20291938	40	250	28	0.6
20291945	40	300	28	0.6
20291952	40	350	28	0.6
20291969	40	400	28	0.6
20291976	40	450	28	0.6
20291983	40	500	28	0.6
20291990	40	550	28	0.6
20292003	40	600	28	0.6
20292010	40	650	28	0.6
20292027	40	700	28	0.6
20292034	40	750	28	0.6
20292041	40	800	28	0.6
20292058	40	850	28	0.6
20292065	40	900	28	0.6
20292072	40	950	28	0.6
20292089	40	1000	28	0.6
20292096	40	1050	28	0.6
20292102	40	1100	28	0.6
20292119	40	1150	28	0.6
20292126	40	1200	28	0.6
20292133	40	1250	28	0.6
20292140	40	1300	28	0.6
20292157	40	1350	28	0.6
20292164	40	1400	28	0.6
20292171	40	1450	28	0.6
20292188	40	1500	28	0.6
20292195	40	1550	28	0.6
20292201	40	1600	28	0.6

Order No.	d ₁ tol. h6	l	d ₂ tol. h6	Depth of hardness min.
20292218	40	1650	28	0.6
20292225	40	1700	28	0.6
20292232	40	1750	28	0.6
20292249	40	1800	28	0.6
20292256	40	1850	28	0.6
20292263	40	1900	28	0.6
20292270	40	1950	28	0.6
20292287	40	2000	28	0.6
20292294	40	2050	28	0.6
20292300	40	2100	28	0.6
20292317	40	2150	28	0.6
20292324	40	2200	28	0.6
20292331	40	2250	28	0.6
20292348	40	2300	28	0.6
20292355	40	2350	28	0.6
20292362	40	2400	28	0.6
20292379	40	2450	28	0.6
20292386	40	2500	28	0.6
20292393	40	2550	28	0.6
20292409	40	2600	28	0.6
20292416	40	2650	28	0.6
20292423	40	2700	28	0.6
20292430	40	2750	28	0.6
20292447	40	2800	28	0.6
20292454	40	2850	28	0.6
20292461	40	2900	28	0.6
20292478	40	2950	28	0.6
20292485	40	3000	28	0.6
20292492	40	3050	28	0.6
20292508	40	3100	28	0.6
20292515	40	3150	28	0.6
20292522	40	3200	28	0.6
20292539	40	3250	28	0.6
20292546	40	3300	28	0.6
20292553	40	3350	28	0.6
20292560	40	3400	28	0.6
20292577	40	3450	28	0.6
20292584	40	3500	28	0.6
20292591	40	3550	28	0.6
20292607	40	3600	28	0.6
20292614	40	3650	28	0.6
20292621	40	3700	28	0.6
20292638	40	3750	28	0.6
20292645	40	3800	28	0.6
20292652	40	3850	28	0.6
20292669	40	3900	28	0.6
20292676	40	3950	28	0.6
20292683	40	4000	28	0.6
20292690	40	4050	28	0.6
20292706	40	4100	28	0.6
20292713	40	4150	28	0.6
20292720	40	4200	28	0.6
20292737	40	4250	28	0.6
20292744	40	4300	28	0.6
20292751	40	4350	28	0.6
20292768	40	4400	28	0.6
20292775	40	4450	28	0.6
20292782	40	4500	28	0.6
20292799	40	4550	28	0.6
20292805	40	4600	28	0.6
20292812	40	4650	28	0.6
20292829	40	4700	28	0.6
20292836	40	4750	28	0.6
20292843	40	4800	28	0.6
20292850	40	4850	28	0.6
20292867	40	4900	28	0.6
20292874	40	4950	28	0.6
20292881	40	5000	28	0.6

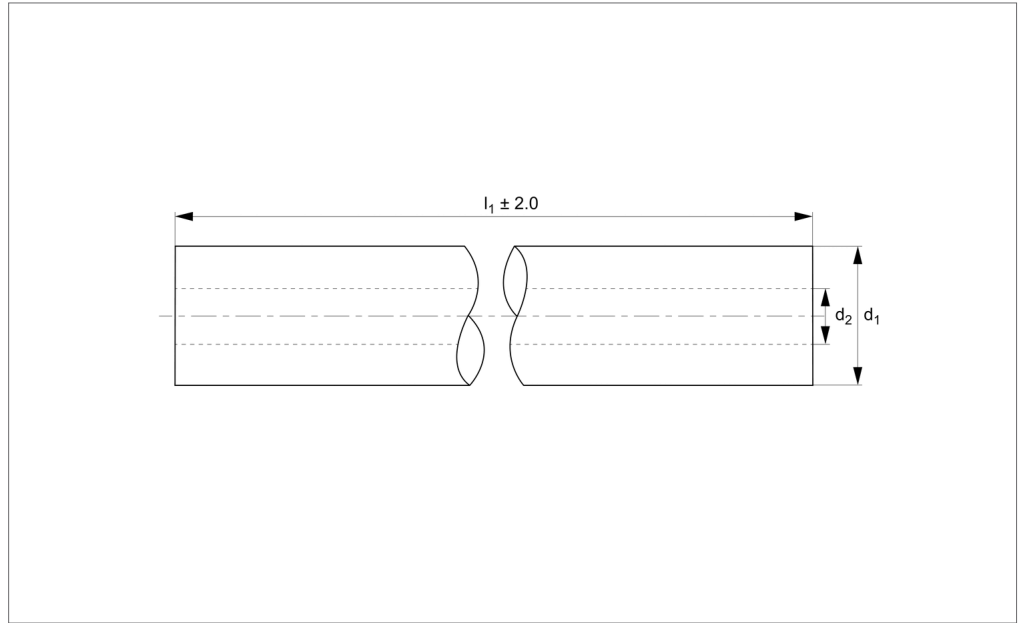
40Ø Hardened Hollow Shafts for linear bearings

Linear Shaft Bars

Order No.	d ₁ tol. h6	l	d ₂ tol. h6	Depth of hardness min.
20292898	40	5050	28	0.6
20292904	40	5100	28	0.6
20292911	40	5150	28	0.6
20292928	40	5200	28	0.6
20292935	40	5250	28	0.6
20292942	40	5300	28	0.6
20292959	40	5350	28	0.6
20292966	40	5400	28	0.6
20292973	40	5450	28	0.6
20292980	40	5500	28	0.6
20292997	40	5550	28	0.6
20293000	40	5600	28	0.6
20293017	40	5650	28	0.6
20293024	40	5700	28	0.6
20293031	40	5750	28	0.6
20293048	40	5800	28	0.6
20293055	40	5850	28	0.6
20293062	40	5900	28	0.6
20293079	40	5950	28	0.6
20293086	40	6000	28	0.6



EL1771.50



Material

Carbon steel (C60), surface hardness 60-65 HRC. Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.

Technical Notes

Used in linear bearing and guideway

systems where weight reduction is important.

Tolerance, h6 standard, special tolerances upon request.

Suitable for use with linear bearings.
Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available.

Shaft lengths are cut to typically ± 2mm, ends are not hardened.

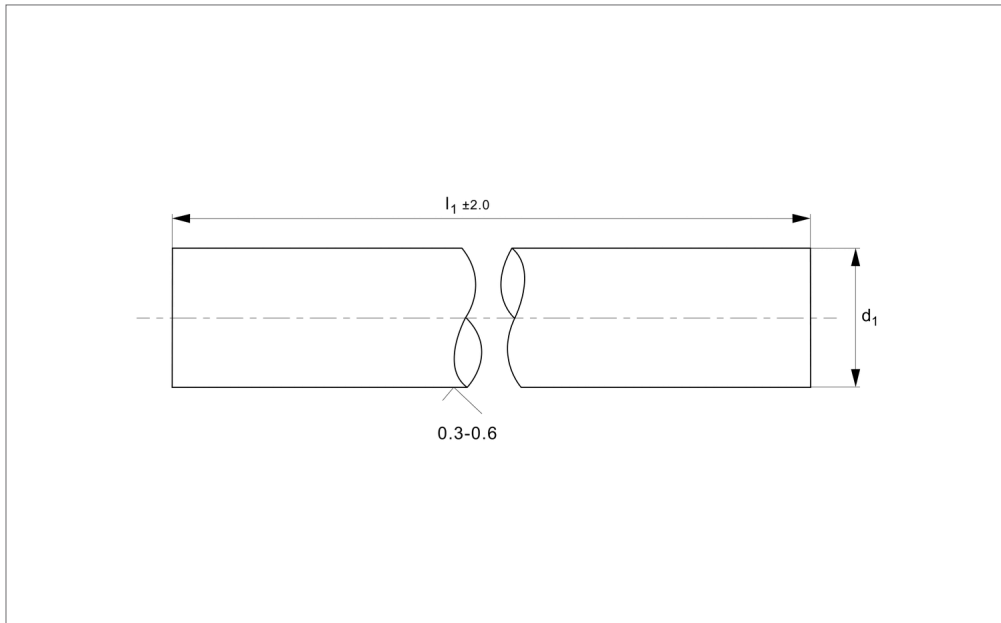
Order No.	d ₁ tol. h6	l	d ₂ tol. h6	Depth of hardness min.
20293093	50	100	28	0.6
20293109	50	150	28	0.6
20293116	50	200	28	0.6
20293123	50	250	28	0.6
20293130	50	300	28	0.6
20293147	50	350	28	0.6
20293154	50	400	28	0.6
20293161	50	450	28	0.6
20293178	50	500	28	0.6
20293185	50	550	28	0.6
20293192	50	600	28	0.6
20293208	50	650	28	0.6
20293215	50	700	28	0.6
20293222	50	750	28	0.6
20293239	50	800	28	0.6
20293246	50	850	28	0.6
20293253	50	900	28	0.6
20293260	50	950	28	0.6
20293277	50	1000	28	0.6
20293284	50	1050	28	0.6
20293291	50	1100	28	0.6
20293307	50	1150	28	0.6
20293314	50	1200	28	0.6
20293321	50	1250	28	0.6
20293338	50	1300	28	0.6
20293345	50	1350	28	0.6
20293352	50	1400	28	0.6
20293369	50	1450	28	0.6
20293376	50	1500	28	0.6
20293383	50	1550	28	0.6
20293390	50	1600	28	0.6

50Ø Hardened Hollow Shafts for linear bearings

Linear Shaft Bars

Order No.	d ₁ tol. h6	l	d ₂ tol. h6	Depth of hardness min.
20293406	50	1650	28	0.6
20293413	50	1700	28	0.6
20293420	50	1750	28	0.6
20293437	50	1800	28	0.6
20293444	50	1850	28	0.6
20293451	50	1900	28	0.6
20293468	50	1950	28	0.6
20293475	50	2000	28	0.6
20293482	50	2050	28	0.6
20293499	50	2100	28	0.6
20293505	50	2150	28	0.6
20293512	50	2200	28	0.6
20293529	50	2250	28	0.6
20293536	50	2300	28	0.6
20293543	50	2350	28	0.6
20293550	50	2400	28	0.6
20293567	50	2450	28	0.6
20293574	50	2500	28	0.6
20293581	50	2550	28	0.6
20293598	50	2600	28	0.6
20293604	50	2650	28	0.6
20293611	50	2700	28	0.6
20293628	50	2750	28	0.6
20293635	50	2800	28	0.6
20293642	50	2850	28	0.6
20293659	50	2900	28	0.6
20293666	50	2950	28	0.6
20293673	50	3000	28	0.6
20293680	50	3050	28	0.6
20293697	50	3100	28	0.6
20293703	50	3150	28	0.6
20293710	50	3200	28	0.6
20293727	50	3250	28	0.6
20293734	50	3300	28	0.6
20293741	50	3350	28	0.6
20293758	50	3400	28	0.6
20293765	50	3450	28	0.6
20293772	50	3500	28	0.6
20293789	50	3550	28	0.6
20293796	50	3600	28	0.6
20293802	50	3650	28	0.6
20293819	50	3700	28	0.6
20293826	50	3750	28	0.6
20293833	50	3800	28	0.6
20293840	50	3850	28	0.6
20293857	50	3900	28	0.6
20293864	50	3950	28	0.6
20293871	50	4000	28	0.6
20293888	50	4050	28	0.6
20293895	50	4100	28	0.6
20293901	50	4150	28	0.6
20293918	50	4200	28	0.6
20293925	50	4250	28	0.6
20293932	50	4300	28	0.6
20293949	50	4350	28	0.6
20293956	50	4400	28	0.6
20293963	50	4450	28	0.6
20293970	50	4500	28	0.6
20293987	50	4550	28	0.6
20293994	50	4600	28	0.6
20294007	50	4650	28	0.6
20294014	50	4700	28	0.6
20294021	50	4750	28	0.6
20294038	50	4800	28	0.6
20294045	50	4850	28	0.6
20294052	50	4900	28	0.6
20294069	50	4950	28	0.6
20294076	50	5000	28	0.6

Order No.	d ₁ tol. h6	l	d ₂ tol. h6	Depth of hardness min.
20294083	50	5050	28	0.6
20294090	50	5100	28	0.6
20294106	50	5150	28	0.6
20294113	50	5200	28	0.6
20294120	50	5250	28	0.6
20294137	50	5300	28	0.6
20294144	50	5350	28	0.6
20294151	50	5400	28	0.6
20294168	50	5450	28	0.6
20294175	50	5500	28	0.6
20294182	50	5550	28	0.6
20294199	50	5600	28	0.6
20294205	50	5650	28	0.6
20294212	50	5700	28	0.6
20294229	50	5750	28	0.6
20294236	50	5800	28	0.6
20294243	50	5850	28	0.6
20294250	50	5900	28	0.6
20294267	50	5950	28	0.6
20294274	50	6000	28	0.6



EL1772.06

LINEAR SHAFT BARS

Material

Corrosion resistant steel (440C, DIN 1.4112, X90 CrMo18) hardened. Surface hardness 53-56 HRC, Rht 450Hv2. Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla. Yield stress: >420 N/mm².

Tensile strength: >785 N/mm².

Technical Notes

Suitable for use with linear bearings. Tolerance, h6 standard, special tolerances on request. Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available. Shaft lengths are cut to typically ± 2mm, ends are not hardened.

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20294281	6	100	0.4	0.023
20294298	6	150	0.4	0.035
20294304	6	200	0.4	0.046
20294311	6	250	0.4	0.058
20294328	6	300	0.4	0.069
20294335	6	350	0.4	0.081
20294342	6	400	0.4	0.092
20294359	6	450	0.4	0.104
20294366	6	500	0.4	0.115
20294373	6	550	0.4	0.127
20294380	6	600	0.4	0.138
20294397	6	650	0.4	0.150
20294403	6	700	0.4	0.161
20294410	6	750	0.4	0.173
20294427	6	800	0.4	0.184
20294434	6	850	0.4	0.196
20294441	6	900	0.4	0.207
20294458	6	950	0.4	0.219
20294465	6	1000	0.4	0.230
20294472	6	1050	0.4	0.242
20294489	6	1100	0.4	0.253
20294496	6	1150	0.4	0.265
20294502	6	1200	0.4	0.276
20294519	6	1250	0.4	0.288
20294526	6	1300	0.4	0.299
20294533	6	1350	0.4	0.311
20294540	6	1400	0.4	0.322
20294557	6	1450	0.4	0.334
20294564	6	1500	0.4	0.345
20294571	6	1550	0.4	0.357
20294588	6	1600	0.4	0.368

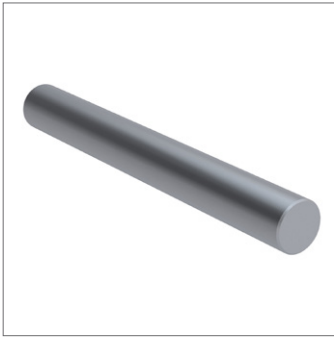
Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20294595	6	1650	0.4	0.380
20294601	6	1700	0.4	0.391
20294618	6	1750	0.4	0.403
20294625	6	1800	0.4	0.414
20294632	6	1850	0.4	0.426
20294649	6	1900	0.4	0.437
20294656	6	1950	0.4	0.449
20294663	6	2000	0.4	0.460
20294670	6	2050	0.4	0.472
20294687	6	2100	0.4	0.483
20294694	6	2150	0.4	0.495
20294700	6	2200	0.4	0.506
20294717	6	2250	0.4	0.518
20294724	6	2300	0.4	0.529
20294731	6	2350	0.4	0.541
20294748	6	2400	0.4	0.552
20294755	6	2450	0.4	0.564
20294762	6	2500	0.4	0.575
20294779	6	2550	0.4	0.587
20294786	6	2600	0.4	0.598
20294793	6	2650	0.4	0.610
20294809	6	2700	0.4	0.621
20294816	6	2750	0.4	0.633
20294823	6	2800	0.4	0.644
20294830	6	2850	0.4	0.656
20294847	6	2900	0.4	0.667
20294854	6	2950	0.4	0.679
20294861	6	3000	0.4	0.690
20294878	6	3050	0.4	0.702
20294885	6	3100	0.4	0.713
20294892	6	3150	0.4	0.725
20294908	6	3200	0.4	0.736
20294915	6	3250	0.4	0.748
20294922	6	3300	0.4	0.759
20294939	6	3350	0.4	0.771
20294946	6	3400	0.4	0.782
20294953	6	3450	0.4	0.794
20294960	6	3500	0.4	0.805
20294977	6	3550	0.4	0.817
20294984	6	3600	0.4	0.828
20294991	6	3650	0.4	0.840
20295004	6	3700	0.4	0.851
20295011	6	3750	0.4	0.863
20295028	6	3800	0.4	0.874
20295035	6	3850	0.4	0.886
20295042	6	3900	0.4	0.897
20295059	6	3950	0.4	0.909
20295066	6	4000	0.4	0.920
20295073	6	4050	0.4	0.932
20295080	6	4100	0.4	0.943
20295097	6	4150	0.4	0.955
20295103	6	4200	0.4	0.966
20295110	6	4250	0.4	0.978
20295127	6	4300	0.4	0.989
20295134	6	4350	0.4	1.001
20295141	6	4400	0.4	1.012
20295158	6	4450	0.4	1.024
20295165	6	4500	0.4	1.035
20295172	6	4550	0.4	1.047
20295189	6	4600	0.4	1.058
20295196	6	4650	0.4	1.070
20295202	6	4700	0.4	1.081
20295219	6	4750	0.4	1.093
20295226	6	4800	0.4	1.104
20295233	6	4850	0.4	1.116
20295240	6	4900	0.4	1.127
20295257	6	4950	0.4	1.139
20295264	6	5000	0.4	1.150

Ø6 Hardened Stainless Shafts for linear bearings

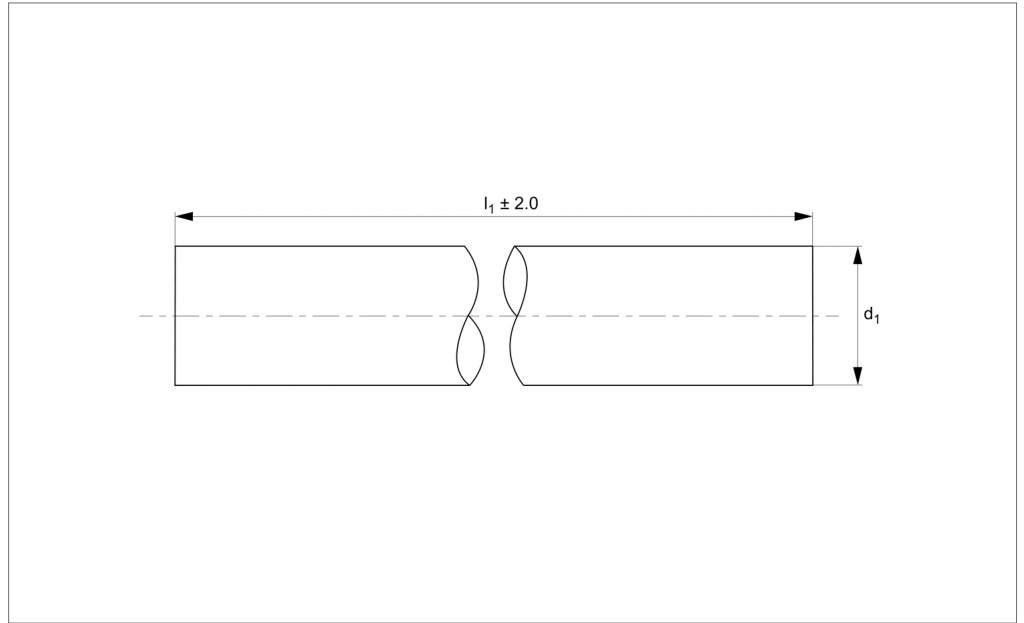
Linear Shaft Bars

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20295271	6	5050	0.4	1.162
20295288	6	5100	0.4	1.173
20295295	6	5150	0.4	1.185
20295301	6	5200	0.4	1.196
20295318	6	5250	0.4	1.208
20295325	6	5300	0.4	1.219
20295332	6	5350	0.4	1.231
20295349	6	5400	0.4	1.242
20295356	6	5450	0.4	1.254
20295363	6	5500	0.4	1.265
20295370	6	5550	0.4	1.277
20295387	6	5600	0.4	1.288
20295394	6	5650	0.4	1.300
20295400	6	5700	0.4	1.311
20295417	6	5750	0.4	1.323
20295424	6	5800	0.4	1.334
20295431	6	5850	0.4	1.346
20295448	6	5900	0.4	1.357
20295455	6	5950	0.4	1.369
20295462	6	6000	0.4	1.380

LINEAR SHAFT BARS



EL1772.08



Material

Corrosion resistant steel (440C, DIN 1.4112, X90 CrMo18) hardened. Surface hardness 53-56 HRC, Rht 450Hv2. Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla. Yield stress: >420 N/mm².

Tensile strength: >785 N/mm².

Technical Notes

Suitable for use with linear bearings. Tolerance, h6 standard, special tolerances on request. Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available. Shaft lengths are cut to typically ± 2mm, ends are not hardened.

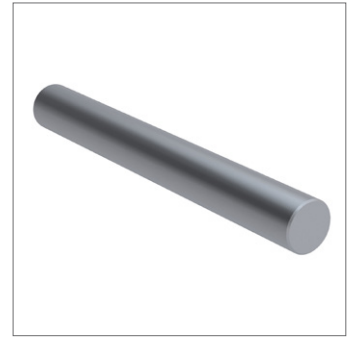
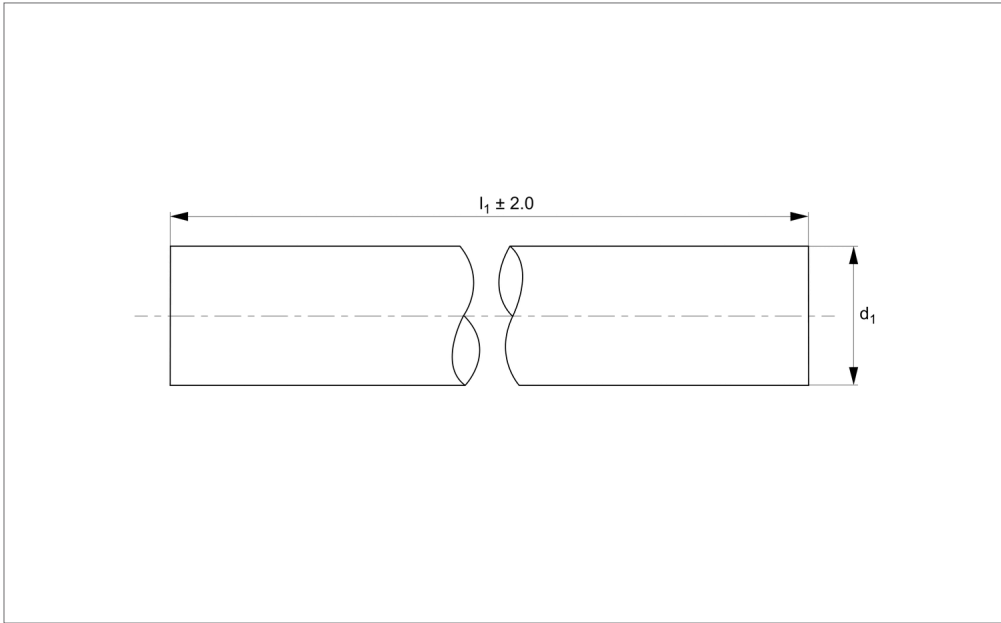
Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20295479	8	100	0.4	0.040
20295486	8	150	0.4	0.060
20295493	8	200	0.4	0.080
20295509	8	250	0.4	0.100
20295516	8	300	0.4	0.120
20295523	8	350	0.4	0.140
20295530	8	400	0.4	0.160
20295547	8	450	0.4	0.180
20295554	8	500	0.4	0.200
20295561	8	550	0.4	0.220
20295578	8	600	0.4	0.240
20295585	8	650	0.4	0.260
20295592	8	700	0.4	0.280
20295608	8	750	0.4	0.300
20295615	8	800	0.4	0.320
20295622	8	850	0.4	0.340
20295639	8	900	0.4	0.360
20295646	8	950	0.4	0.380
20295653	8	1000	0.4	0.400
20295660	8	1050	0.4	0.420
20295677	8	1100	0.4	0.440
20295684	8	1150	0.4	0.460
20295691	8	1200	0.4	0.480
20295707	8	1250	0.4	0.500
20295714	8	1300	0.4	0.520
20295721	8	1350	0.4	0.540
20295738	8	1400	0.4	0.560
20295745	8	1450	0.4	0.580
20295752	8	1500	0.4	0.600
20295769	8	1550	0.4	0.620
20295776	8	1600	0.4	0.640

Ø8 Hardened Stainless Shafts for linear bearings

Linear Shaft Bars

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20295783	8	1650	0.4	0.660
20295790	8	1700	0.4	0.680
20295806	8	1750	0.4	0.700
20295813	8	1800	0.4	0.720
20295820	8	1850	0.4	0.740
20295837	8	1900	0.4	0.760
20295844	8	1950	0.4	0.780
20295851	8	2000	0.4	0.800
20295868	8	2050	0.4	0.820
20295875	8	2100	0.4	0.840
20295882	8	2150	0.4	0.860
20295899	8	2200	0.4	0.880
20295905	8	2250	0.4	0.900
20295912	8	2300	0.4	0.920
20295929	8	2350	0.4	0.940
20295936	8	2400	0.4	0.960
20295943	8	2450	0.4	0.980
20295950	8	2500	0.4	1.000
20295967	8	2550	0.4	1.020
20295974	8	2600	0.4	1.040
20295981	8	2650	0.4	1.060
20295998	8	2700	0.4	1.080
20296001	8	2750	0.4	1.100
20296018	8	2800	0.4	1.120
20296025	8	2850	0.4	1.140
20296032	8	2900	0.4	1.160
20296049	8	2950	0.4	1.180
20296056	8	3000	0.4	1.200
20296063	8	3050	0.4	1.220
20296070	8	3100	0.4	1.240
20296087	8	3150	0.4	1.260
20296094	8	3200	0.4	1.280
20296100	8	3250	0.4	1.300
20296117	8	3300	0.4	1.320
20296124	8	3350	0.4	1.340
20296131	8	3400	0.4	1.360
20296148	8	3450	0.4	1.380
20296155	8	3500	0.4	1.400
20296162	8	3550	0.4	1.420
20296179	8	3600	0.4	1.440
20296186	8	3650	0.4	1.460
20296193	8	3700	0.4	1.480
20296209	8	3750	0.4	1.500
20296216	8	3800	0.4	1.520
20296223	8	3850	0.4	1.540
20296230	8	3900	0.4	1.560
20296247	8	3950	0.4	1.580
20296254	8	4000	0.4	1.600
20296261	8	4050	0.4	1.620
20296278	8	4100	0.4	1.640
20296285	8	4150	0.4	1.660
20296292	8	4200	0.4	1.680
20296308	8	4250	0.4	1.700
20296315	8	4300	0.4	1.720
20296322	8	4350	0.4	1.740
20296339	8	4400	0.4	1.760
20296346	8	4450	0.4	1.780
20296353	8	4500	0.4	1.800
20296360	8	4550	0.4	1.820
20296377	8	4600	0.4	1.840
20296384	8	4650	0.4	1.860
20296391	8	4700	0.4	1.880
20296407	8	4750	0.4	1.900
20296414	8	4800	0.4	1.920
20296421	8	4850	0.4	1.940
20296438	8	4900	0.4	1.960
20296445	8	4950	0.4	1.980
20296452	8	5000	0.4	2.000

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20296469	8	5050	0.4	2.020
20296476	8	5100	0.4	2.040
20296483	8	5150	0.4	2.060
20296490	8	5200	0.4	2.080
20296506	8	5250	0.4	2.100
20296513	8	5300	0.4	2.120
20296520	8	5350	0.4	2.140
20296537	8	5400	0.4	2.160
20296544	8	5450	0.4	2.180
20296551	8	5500	0.4	2.200
20296568	8	5550	0.4	2.220
20296575	8	5600	0.4	2.240
20296582	8	5650	0.4	2.260
20296599	8	5700	0.4	2.280
20296605	8	5750	0.4	2.300
20296612	8	5800	0.4	2.320
20296629	8	5850	0.4	2.340
20296636	8	5900	0.4	2.360
20296643	8	5950	0.4	2.380
20296650	8	6000	0.4	2.400



EL1772.10

LINEAR SHAFT BARS

Material

Corrosion resistant steel (440C, DIN 1.4112, X90 CrMo18) hardened. Surface hardness 53-56 HRC, Rht 450Hv2.
Corrosion resistant steel (440C, DIN 1.4112, X90 CrMo18) hardened. Surface hardness 53-56 HRC, Rht 450Hv2.
Surface finish 0.3-0.6µ Ra, ground and

polished to 8-12 cl.
Yield stress: >420 N/mm².
Tensile strength: >785 N/mm².

Technical Notes

Suitable for use with linear bearings.
Tolerance, h6 standard, special tolerances on request.

Straightness 0,2mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available.
Shaft lengths are cut to typically ± 2 mm, ends are not hardened.

Order No.	d_1 tol. h6	l_1	Depth of hardness min.	Weight kg
20296667	10	100	0.4	0.062
20296674	10	150	0.4	0.093
20296681	10	200	0.4	0.124
20296698	10	250	0.4	0.155
20296704	10	300	0.4	0.186
20296711	10	350	0.4	0.217
20296728	10	400	0.4	0.248
20296735	10	450	0.4	0.279
20296742	10	500	0.4	0.310
20296759	10	550	0.4	0.341
20296766	10	600	0.4	0.372
20296773	10	650	0.4	0.403
20296780	10	700	0.4	0.434
20296797	10	750	0.4	0.465
20296803	10	800	0.4	0.496
20296810	10	850	0.4	0.527
20296827	10	900	0.4	0.558
20296834	10	950	0.4	0.589
20296841	10	1000	0.4	0.620
20296858	10	1050	0.4	0.651
20296865	10	1100	0.4	0.682
20296872	10	1150	0.4	0.713
20296889	10	1200	0.4	0.744
20296896	10	1250	0.4	0.775
20296902	10	1300	0.4	0.806
20296919	10	1350	0.4	0.837
20296926	10	1400	0.4	0.868
20296933	10	1450	0.4	0.899
20296940	10	1500	0.4	0.930

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20296957	10	1550	0.4	0.961
20296964	10	1600	0.4	0.992
20296971	10	1650	0.4	1.023
20296988	10	1700	0.4	1.054
20296995	10	1750	0.4	1.085
20297008	10	1800	0.4	1.116
20297015	10	1850	0.4	1.147
20297022	10	1900	0.4	1.178
20297039	10	1950	0.4	1.209
20297046	10	2000	0.4	1.240
20297053	10	2050	0.4	1.271
20297060	10	2100	0.4	1.302
20297077	10	2150	0.4	1.333
20297084	10	2200	0.4	1.364
20297091	10	2250	0.4	1.395
20297107	10	2300	0.4	1.426
20297114	10	2350	0.4	1.457
20297121	10	2400	0.4	1.488
20297138	10	2450	0.4	1.519
20297145	10	2500	0.4	1.550
20297152	10	2550	0.4	1.581
20297169	10	2600	0.4	1.612
20297176	10	2650	0.4	1.643
20297183	10	2700	0.4	1.674
20297190	10	2750	0.4	1.705
20297206	10	2800	0.4	1.736
20297213	10	2850	0.4	1.767
20297220	10	2900	0.4	1.798
20297237	10	2950	0.4	1.829
20297244	10	3000	0.4	1.860
20297251	10	3050	0.4	1.891
20297268	10	3100	0.4	1.922
20297275	10	3150	0.4	1.953
20297282	10	3200	0.4	1.984
20297299	10	3250	0.4	2.015
20297305	10	3300	0.4	2.046
20297312	10	3350	0.4	2.077
20297329	10	3400	0.4	2.108
20297336	10	3450	0.4	2.139
20297343	10	3500	0.4	2.170
20297350	10	3550	0.4	2.201
20297367	10	3600	0.4	2.232
20297374	10	3650	0.4	2.263
20297381	10	3700	0.4	2.294
20297398	10	3750	0.4	2.325
20297404	10	3800	0.4	2.356
20297411	10	3850	0.4	2.387
20297428	10	3900	0.4	2.418
20297435	10	3950	0.4	2.449
20297442	10	4000	0.4	2.480
20297459	10	4050	0.4	2.511
20297466	10	4100	0.4	2.542
20297473	10	4150	0.4	2.573
20297480	10	4200	0.4	2.604
20297497	10	4250	0.4	2.635
20297503	10	4300	0.4	2.666
20297510	10	4350	0.4	2.697
20297527	10	4400	0.4	2.728
20297534	10	4450	0.4	2.759
20297541	10	4500	0.4	2.790
20297558	10	4550	0.4	2.821
20297565	10	4600	0.4	2.852
20297572	10	4650	0.4	2.883
20297589	10	4700	0.4	2.914
20297596	10	4750	0.4	2.945
20297602	10	4800	0.4	2.976
20297619	10	4850	0.4	3.007
20297626	10	4900	0.4	3.038

Ø10 Hardened Stainless Shafts for linear bearings

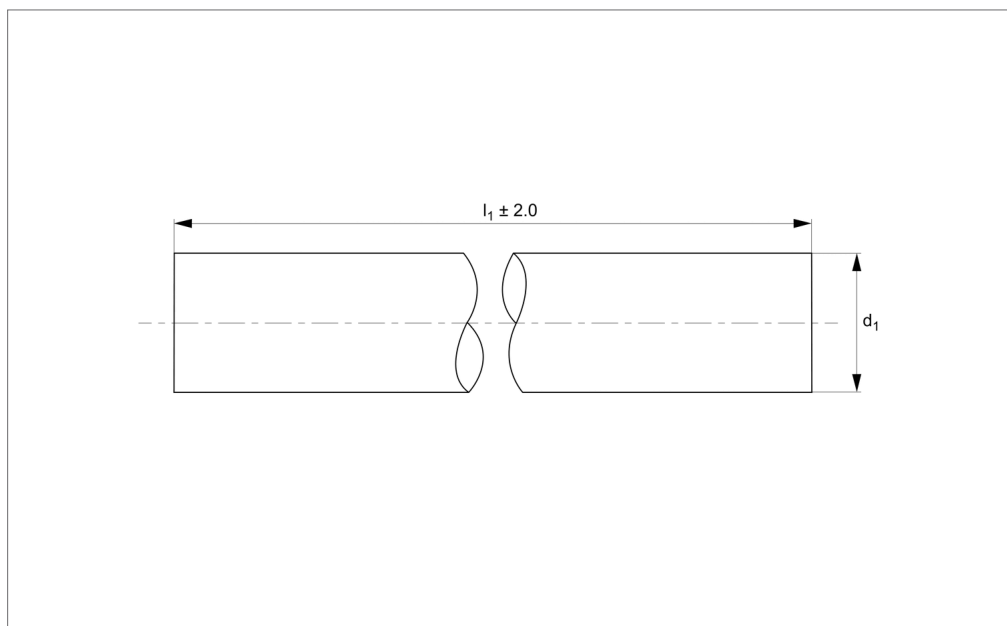
Linear Shaft Bars

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20297633	10	4950	0.4	3.069
20297640	10	5000	0.4	3.100
20297657	10	5050	0.4	3.131
20297664	10	5100	0.4	3.162
20297671	10	5150	0.4	3.193
20297688	10	5200	0.4	3.224
20297695	10	5250	0.4	3.255
20297701	10	5300	0.4	3.286
20297718	10	5350	0.4	3.317
20297725	10	5400	0.4	3.348
20297732	10	5450	0.4	3.379
20297749	10	5500	0.4	3.410
20297756	10	5550	0.4	3.441
20297763	10	5600	0.4	3.472
20297770	10	5650	0.4	3.503
20297787	10	5700	0.4	3.534
20297794	10	5750	0.4	3.565
20297800	10	5800	0.4	3.596
20297817	10	5850	0.4	3.627
20297824	10	5900	0.4	3.658
20297831	10	5950	0.4	3.689
20297848	10	6000	0.4	3.720

LINEAR SHAFT BARS



EL1772.12



Material

Corrosion resistant steel (440C, DIN 1.4112, X90 CrMo18) hardened. Surface hardness 53-56 HRC, Rht 450Hv2. Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla. Yield stress: >420 N/mm².

Tensile strength: >785 N/mm².

Technical Notes

Suitable for use with linear bearings. Tolerance, h6 standard, special tolerances on request. Straightness 0,2mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available. Shaft lengths are cut to typically ± 2mm, ends are not hardened.

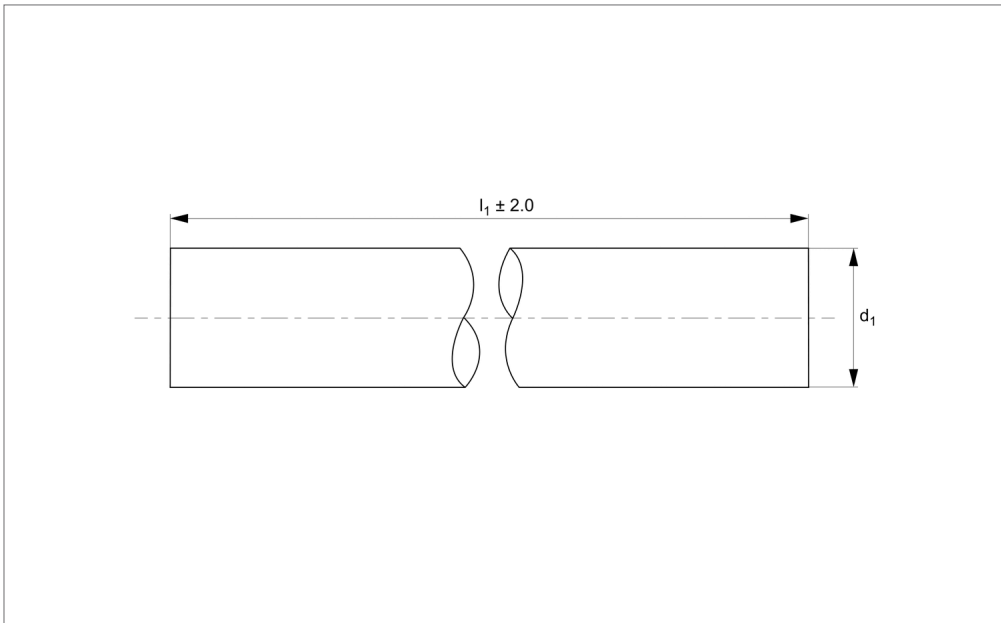
Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20297855	12	100	0.6	0.089
20297862	12	150	0.6	0.134
20297879	12	200	0.6	0.178
20297886	12	250	0.6	0.223
20297893	12	300	0.6	0.267
20297909	12	350	0.6	0.312
20297916	12	400	0.6	0.356
20297923	12	450	0.6	0.401
20297930	12	500	0.6	0.445
20297947	12	550	0.6	0.490
20297954	12	600	0.6	0.534
20297961	12	650	0.6	0.579
20297978	12	700	0.6	0.623
20297985	12	750	0.6	0.668
20297992	12	800	0.6	0.712
20298005	12	850	0.6	0.757
20298012	12	900	0.6	0.801
20298029	12	950	0.6	0.846
20298036	12	1000	0.6	0.890
20298043	12	1050	0.6	0.935
20298050	12	1100	0.6	0.979
20298067	12	1150	0.6	1.024
20298074	12	1200	0.6	1.068
20298081	12	1250	0.6	1.113
20298098	12	1300	0.6	1.157
20298104	12	1350	0.6	1.202
20298111	12	1400	0.6	1.246
20298128	12	1450	0.6	1.291
20298135	12	1500	0.6	1.335
20298142	12	1550	0.6	1.380
20298159	12	1600	0.6	1.424

Ø12 Hardened Stainless Shafts for linear bearings

Linear Shaft Bars

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20298166	12	1650	0.6	1.469
20298173	12	1700	0.6	1.513
20298180	12	1750	0.6	1.558
20298197	12	1800	0.6	1.602
20298203	12	1850	0.6	1.647
20298210	12	1900	0.6	1.691
20298227	12	1950	0.6	1.736
20298234	12	2000	0.6	1.780
20298241	12	2050	0.6	1.825
20298258	12	2100	0.6	1.869
20298265	12	2150	0.6	1.914
20298272	12	2200	0.6	1.958
20298289	12	2250	0.6	2.003
20298296	12	2300	0.6	2.047
20298302	12	2350	0.6	2.092
20298319	12	2400	0.6	2.136
20298326	12	2450	0.6	2.181
20298333	12	2500	0.6	2.225
20298340	12	2550	0.6	2.270
20298357	12	2600	0.6	2.314
20298364	12	2650	0.6	2.359
20298371	12	2700	0.6	2.403
20298388	12	2750	0.6	2.448
20298395	12	2800	0.6	2.492
20298401	12	2850	0.6	2.537
20298418	12	2900	0.6	2.581
20298425	12	2950	0.6	2.626
20298432	12	3000	0.6	2.670
20298449	12	3050	0.6	2.715
20298456	12	3100	0.6	2.759
20298463	12	3150	0.6	2.804
20298470	12	3200	0.6	2.848
20298487	12	3250	0.6	2.893
20298494	12	3300	0.6	2.937
20298500	12	3350	0.6	2.982
20298517	12	3400	0.6	3.026
20298524	12	3450	0.6	3.071
20298531	12	3500	0.6	3.115
20298548	12	3550	0.6	3.160
20298555	12	3600	0.6	3.204
20298562	12	3650	0.6	3.249
20298579	12	3700	0.6	3.293
20298586	12	3750	0.6	3.338
20298593	12	3800	0.6	3.382
20298609	12	3850	0.6	3.427
20298616	12	3900	0.6	3.471
20298623	12	3950	0.6	3.516
20298630	12	4000	0.6	3.560
20298647	12	4050	0.6	3.605
20298654	12	4100	0.6	3.649
20298661	12	4150	0.6	3.694
20298678	12	4200	0.6	3.738
20298685	12	4250	0.6	3.783
20298692	12	4300	0.6	3.827
20298708	12	4350	0.6	3.872
20298715	12	4400	0.6	3.916
20298722	12	4450	0.6	3.961
20298739	12	4500	0.6	4.005
20298746	12	4550	0.6	4.050
20298753	12	4600	0.6	4.094
20298760	12	4650	0.6	4.139
20298777	12	4700	0.6	4.183
20298784	12	4750	0.6	4.228
20298791	12	4800	0.6	4.272
20298807	12	4850	0.6	4.317
20298814	12	4900	0.6	4.361
20298821	12	4950	0.6	4.406
20298838	12	5000	0.6	4.450

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20298845	12	5050	0.6	4.495
20298852	12	5100	0.6	4.539
20298869	12	5150	0.6	4.584
20298876	12	5200	0.6	4.628
20298883	12	5250	0.6	4.673
20298890	12	5300	0.6	4.717
20298906	12	5350	0.6	4.762
20298913	12	5400	0.6	4.806
20298920	12	5450	0.6	4.851
20298937	12	5500	0.6	4.895
20298944	12	5550	0.6	4.940
20298951	12	5600	0.6	4.984
20298968	12	5650	0.6	5.029
20298975	12	5700	0.6	5.073
20298982	12	5750	0.6	5.118
20298999	12	5800	0.6	5.162
20299002	12	5850	0.6	5.207
20299019	12	5900	0.6	5.251
20299026	12	5950	0.6	5.296
20299033	12	6000	0.6	5.340



EL1772.16

LINEAR SHAFT BARS

Material

Corrosion resistant steel (440C, DIN 1.4112, X90 CrMo18) hardened. Surface hardness 53-56 HRC, Rht 450Hv2. Surface finish 0.3-0.6 μ Ra, ground and polished to 8-12 cla. Yield stress: >420 N/mm².

Tensile strength: >785 N/mm².

Technical Notes

Suitable for use with linear bearings. Tolerance, h6 standard, special tolerances on request. Straightness 0,2mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available. Shaft lengths are cut to typically ± 2 mm, ends are not hardened.

Order No.	d_1 tol. h6	l_1	Depth of hardness min.	Weight kg
20299040	16	100	0.6	0.158
20299057	16	150	0.6	0.237
20299064	16	200	0.6	0.316
20299071	16	250	0.6	0.395
20299088	16	300	0.6	0.474
20299095	16	350	0.6	0.553
20299101	16	400	0.6	0.632
20299118	16	450	0.6	0.711
20299125	16	500	0.6	0.790
20299132	16	550	0.6	0.869
20299149	16	600	0.6	0.948
20299156	16	650	0.6	1.027
20299163	16	700	0.6	1.106
20299170	16	750	0.6	1.185
20299187	16	800	0.6	1.264
20299194	16	850	0.6	1.343
20299200	16	900	0.6	1.422
20299217	16	950	0.6	1.501
20299224	16	1000	0.6	1.580
20299231	16	1050	0.6	1.659
20299248	16	1100	0.6	1.738
20299255	16	1150	0.6	1.817
20299262	16	1200	0.6	1.896
20299279	16	1250	0.6	1.975
20299286	16	1300	0.6	2.054
20299293	16	1350	0.6	2.133
20299309	16	1400	0.6	2.212
20299316	16	1450	0.6	2.291
20299323	16	1500	0.6	2.370
20299330	16	1550	0.6	2.449
20299347	16	1600	0.6	2.528

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20299354	16	1650	0.6	2.607
20299361	16	1700	0.6	2.686
20299378	16	1750	0.6	2.765
20299385	16	1800	0.6	2.844
20299392	16	1850	0.6	2.923
20299408	16	1900	0.6	3.002
20299415	16	1950	0.6	3.081
20299422	16	2000	0.6	3.160
20299439	16	2050	0.6	3.239
20299446	16	2100	0.6	3.318
20299453	16	2150	0.6	3.397
20299460	16	2200	0.6	3.476
20299477	16	2250	0.6	3.555
20299484	16	2300	0.6	3.634
20299491	16	2350	0.6	3.713
20299507	16	2400	0.6	3.792
20299514	16	2450	0.6	3.871
20299521	16	2500	0.6	3.950
20299538	16	2550	0.6	4.029
20299545	16	2600	0.6	4.108
20299552	16	2650	0.6	4.187
20299569	16	2700	0.6	4.266
20299576	16	2750	0.6	4.345
20299583	16	2800	0.6	4.424
20299590	16	2850	0.6	4.503
20299606	16	2900	0.6	4.582
20299613	16	2950	0.6	4.661
20299620	16	3000	0.6	4.740
20299637	16	3050	0.6	4.819
20299644	16	3100	0.6	4.898
20299651	16	3150	0.6	4.977
20299668	16	3200	0.6	5.056
20299675	16	3250	0.6	5.135
20299682	16	3300	0.6	5.214
20299699	16	3350	0.6	5.293
20299705	16	3400	0.6	5.372
20299712	16	3450	0.6	5.451
20299729	16	3500	0.6	5.530
20299736	16	3550	0.6	5.609
20299743	16	3600	0.6	5.688
20299750	16	3650	0.6	5.767
20299767	16	3700	0.6	5.846
20299774	16	3750	0.6	5.925
20299781	16	3800	0.6	6.004
20299798	16	3850	0.6	6.083
20299804	16	3900	0.6	6.162
20299811	16	3950	0.6	6.241
20299828	16	4000	0.6	6.320
20299835	16	4050	0.6	6.399
20299842	16	4100	0.6	6.478
20299859	16	4150	0.6	6.557
20299866	16	4200	0.6	6.636
20299873	16	4250	0.6	6.715
20299880	16	4300	0.6	6.794
20299897	16	4350	0.6	6.873
20299903	16	4400	0.6	6.952
20299910	16	4450	0.6	7.031
20299927	16	4500	0.6	7.110
20299934	16	4550	0.6	7.189
20299941	16	4600	0.6	7.268
20299958	16	4650	0.6	7.347
20299965	16	4700	0.6	7.426
20299972	16	4750	0.6	7.505
20299989	16	4800	0.6	7.584
20299996	16	4850	0.6	7.663
20300005	16	4900	0.6	7.742
20300012	16	4950	0.6	7.821
20300029	16	5000	0.6	7.900

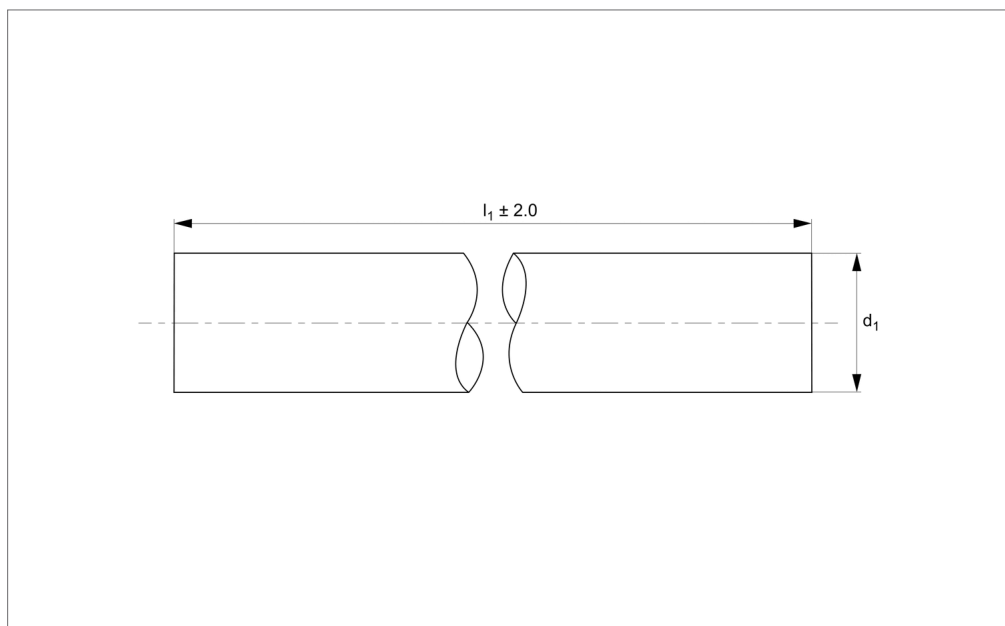
Ø16 Hardened Stainless Shafts for linear bearings

Linear Shaft Bars

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20300036	16	5050	0.6	7.979
20300043	16	5100	0.6	8.058
20300050	16	5150	0.6	8.137
20300067	16	5200	0.6	8.216
20300074	16	5250	0.6	8.295
20300081	16	5300	0.6	8.374
20300098	16	5350	0.6	8.453
20300104	16	5400	0.6	8.532
20300111	16	5450	0.6	8.611
20300128	16	5500	0.6	8.690
20300135	16	5550	0.6	8.769
20300142	16	5600	0.6	8.848
20300159	16	5650	0.6	8.927
20300166	16	5700	0.6	9.006
20300173	16	5750	0.6	9.085
20300180	16	5800	0.6	9.164
20300197	16	5850	0.6	9.243
20300203	16	5900	0.6	9.322
20300210	16	5950	0.6	9.401
20300227	16	6000	0.6	9.480



EL1772.20



Material

Corrosion resistant steel (440C, DIN 1.4112, X90 CrMo18) hardened. Surface hardness 53-56 HRC, Rht 450Hv2. Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla. Yield stress: >420 N/mm².

Tensile strength: >785 N/mm².

Technical Notes

Suitable for use with linear bearings. Tolerance, h6 standard, special tolerances on request. Straightness 0,2mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available. Shaft lengths are cut to typically ± 2mm, ends are not hardened.

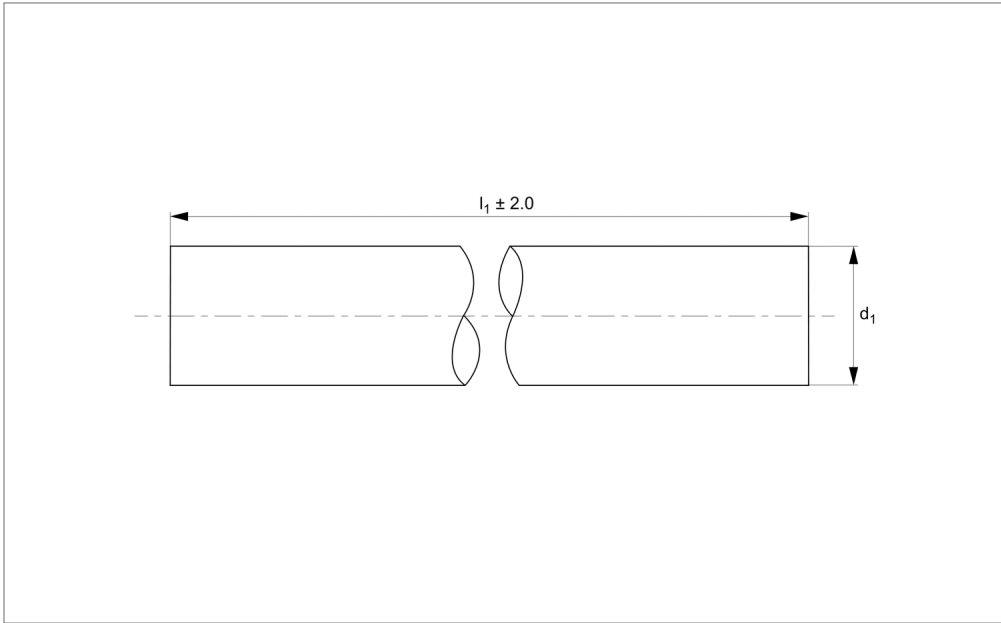
Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20300234	20	100	0.9	0.247
20300241	20	150	0.9	0.371
20300258	20	200	0.9	0.494
20300265	20	250	0.9	0.618
20300272	20	300	0.9	0.741
20300289	20	350	0.9	0.865
20300296	20	400	0.9	0.988
20300302	20	450	0.9	1.112
20300319	20	500	0.9	1.235
20300326	20	550	0.9	1.359
20300333	20	600	0.9	1.482
20300340	20	650	0.9	1.606
20300357	20	700	0.9	1.729
20300364	20	750	0.9	1.853
20300371	20	800	0.9	1.976
20300388	20	850	0.9	2.100
20300395	20	900	0.9	2.223
20300401	20	950	0.9	2.347
20300418	20	1000	0.9	2.470
20300425	20	1050	0.9	2.594
20300432	20	1100	0.9	2.717
20300449	20	1150	0.9	2.841
20300456	20	1200	0.9	2.964
20300463	20	1250	0.9	3.088
20300470	20	1300	0.9	3.211
20300487	20	1350	0.9	3.335
20300494	20	1400	0.9	3.458
20300500	20	1450	0.9	3.582
20300517	20	1500	0.9	3.705
20300524	20	1550	0.9	3.829
20300531	20	1600	0.9	3.952

Ø20 Hardened Stainless Shafts for linear bearings

Linear Shaft Bars

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20300548	20	1650	0.9	4.076
20300555	20	1700	0.9	4.199
20300562	20	1750	0.9	4.323
20300579	20	1800	0.9	4.446
20300586	20	1850	0.9	4.570
20300593	20	1900	0.9	4.693
20300609	20	1950	0.9	4.817
20300616	20	2000	0.9	4.940
20300623	20	2050	0.9	5.064
20300630	20	2100	0.9	5.187
20300647	20	2150	0.9	5.311
20300654	20	2200	0.9	5.434
20300661	20	2200	0.9	5.558
20300678	20	2300	0.9	5.681
20300685	20	2350	0.9	5.805
20300692	20	2400	0.9	5.928
20300708	20	2450	0.9	6.052
20300715	20	2500	0.9	6.175
20300722	20	2550	0.9	6.299
20300739	20	2600	0.9	6.422
20300746	20	2650	0.9	6.546
20300753	20	2700	0.9	6.669
20300760	20	2750	0.9	6.793
20300777	20	2800	0.9	6.916
20300784	20	2850	0.9	7.040
20300791	20	2900	0.9	7.163
20300807	20	2950	0.9	7.287
20300814	20	3000	0.9	7.410
20300821	20	3050	0.9	7.534
20300838	20	3100	0.9	7.657
20300845	20	3150	0.9	7.781
20300852	20	3200	0.9	7.904
20300869	20	3250	0.9	8.028
20300876	20	3300	0.9	8.151
20300883	20	3350	0.9	8.275
20300890	20	3400	0.9	8.398
20300906	20	3450	0.9	8.522
20300913	20	3500	0.9	8.645
20300920	20	3550	0.9	8.769
20300937	20	3600	0.9	8.892
20300944	20	3650	0.9	9.016
20300951	20	3700	0.9	9.139
20300968	20	3750	0.9	9.263
20300975	20	3800	0.9	9.386
20300982	20	3850	0.9	9.510
20300999	20	3900	0.9	9.633
20301002	20	3950	0.9	9.757
20301019	20	4000	0.9	9.880
20301026	20	4050	0.9	10.004
20301033	20	4100	0.9	10.127
20301040	20	4150	0.9	10.251
20301057	20	4200	0.9	10.374
20301064	20	4250	0.9	10.498
20301071	20	4300	0.9	10.621
20301088	20	4350	0.9	10.745
20301095	20	4400	0.9	10.868
20301101	20	4450	0.9	10.992
20301118	20	4500	0.9	11.115
20301125	20	4550	0.9	11.239
20301132	20	4600	0.9	11.362
20301149	20	4650	0.9	11.486
20301156	20	4700	0.9	11.609
20301163	20	4750	0.9	11.733
20301170	20	4800	0.9	11.856
20301187	20	4850	0.9	11.980
20301194	20	4900	0.9	12.103
20301200	20	4950	0.9	12.227
20301217	20	5000	0.9	12.350

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20301224	20	5050	0.9	12.474
20301231	20	5100	0.9	12.597
20301248	20	5150	0.9	12.721
20301255	20	5200	0.9	12.844
20301262	20	5250	0.9	12.968
20301279	20	5300	0.9	13.091
20301286	20	5350	0.9	13.215
20301293	20	5400	0.9	13.338
20301309	20	5450	0.9	13.462
20301316	20	5500	0.9	13.585
20301323	20	5550	0.9	13.709
20301330	20	5600	0.9	13.832
20301347	20	5650	0.9	13.956
20301354	20	5700	0.9	14.079
20301361	20	5750	0.9	14.203
20301378	20	5800	0.9	14.326
20301385	20	5850	0.9	14.450
20301392	20	5900	0.9	14.573
20301408	20	5950	0.9	14.697
20301415	20	6000	0.9	14.820



EL1772.25

LINEAR SHAFT BARS

Material

Corrosion resistant steel (440C, DIN 1.4112, X90 CrMo18) hardened. Surface hardness 53-56 HRC, Rht 450Hv2. Surface finish 0.3-0.6 μ Ra, ground and polished to 8-12 cla. Yield stress: >420 N/mm².

Tensile strength: >785 N/mm².

Technical Notes

Suitable for use with linear bearings. Tolerance, h6 standard, special tolerances on request. Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available. Shaft lengths are cut to typically ± 2 mm, ends are not hardened.

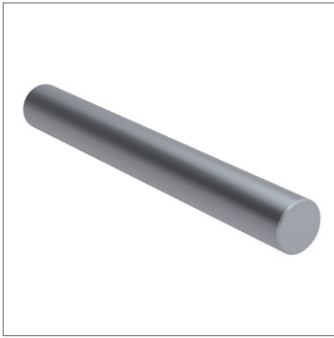
Order No.	d_1 tol. h6	l_1	Depth of hardness min.	Weight kg
20301422	25	100	0.9	0.385
20301439	25	150	0.9	0.578
20301446	25	200	0.9	0.770
20301453	25	250	0.9	0.963
20301460	25	300	0.9	1.155
20301477	25	350	0.9	1.348
20301484	25	400	0.9	1.540
20301491	25	450	0.9	1.733
20301507	25	500	0.9	1.925
20301514	25	550	0.9	2.118
20301521	25	600	0.9	2.310
20301538	25	650	0.9	2.503
20301545	25	700	0.9	2.695
20301552	25	750	0.9	2.888
20301569	25	800	0.9	3.080
20301576	25	850	0.9	3.273
20301583	25	900	0.9	3.465
20301590	25	950	0.9	3.658
20301606	25	1000	0.9	3.850
20301613	25	1050	0.9	4.043
20301620	25	1100	0.9	4.235
20301637	25	1150	0.9	4.428
20301644	25	1200	0.9	4.620
20301651	25	1250	0.9	4.813
20301668	25	1300	0.9	5.005
20301675	25	1350	0.9	5.198
20301682	25	1400	0.9	5.390
20301699	25	1450	0.9	5.583
20301705	25	1500	0.9	5.775
20301712	25	1550	0.9	5.968
20301729	25	1600	0.9	6.160

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20301736	25	1650	0.9	6.353
20301743	25	1700	0.9	6.545
20301750	25	1750	0.9	6.738
20301767	25	1800	0.9	6.930
20301774	25	1850	0.9	7.123
20301781	25	1900	0.9	7.315
20301798	25	1950	0.9	7.508
20301804	25	2000	0.9	7.700
20301811	25	2050	0.9	7.893
20301828	25	2100	0.9	8.085
20301835	25	2150	0.9	8.278
20301842	25	2200	0.9	8.470
20301859	25	2250	0.9	8.663
20301866	25	2300	0.9	8.855
20301873	25	2350	0.9	9.048
20301880	25	2400	0.9	9.240
20301897	25	2450	0.9	9.433
20301903	25	2500	0.9	9.625
20301910	25	2550	0.9	9.818
20301927	25	2600	0.9	10.010
20301934	25	2650	0.9	10.203
20301941	25	2700	0.9	10.395
20301958	25	2750	0.9	10.588
20301965	25	2800	0.9	10.780
20301972	25	2850	0.9	10.973
20301989	25	2900	0.9	11.165
20301996	25	2950	0.9	11.358
20302009	25	3000	0.9	11.550
20302016	25	3050	0.9	11.743
20302023	25	3100	0.9	11.935
20302030	25	3150	0.9	12.128
20302047	25	3200	0.9	12.320
20302054	25	3250	0.9	12.513
20302061	25	3300	0.9	12.705
20302078	25	3350	0.9	12.898
20302085	25	3400	0.9	13.090
20302092	25	3450	0.9	13.283
20302108	25	3500	0.9	13.475
20302115	25	3550	0.9	13.668
20302122	25	3600	0.9	13.860
20302139	25	3650	0.9	14.053
20302146	25	3700	0.9	14.245
20302153	25	3750	0.9	14.438
20302160	25	3800	0.9	14.630
20302177	25	3850	0.9	14.823
20302184	25	3900	0.9	15.015
20302191	25	3950	0.9	15.208
20302207	25	4000	0.9	15.400
20302214	25	4050	0.9	15.593
20302221	25	4100	0.9	15.785
20302238	25	4150	0.9	15.978
20302245	25	4200	0.9	16.170
20302252	25	4250	0.9	16.363
20302269	25	4300	0.9	16.555
20302276	25	4350	0.9	16.748
20302283	25	4400	0.9	16.940
20302290	25	4450	0.9	17.133
20302306	25	4500	0.9	17.325
20302313	25	4550	0.9	17.518
20302320	25	4600	0.9	17.710
20302337	25	4650	0.9	17.903
20302344	25	4700	0.9	18.095
20302351	25	4750	0.9	18.288
20302368	25	4800	0.9	18.480
20302375	25	4850	0.9	18.673
20302382	25	4900	0.9	18.865
20302399	25	4950	0.9	19.058
20302405	25	5000	0.9	19.250

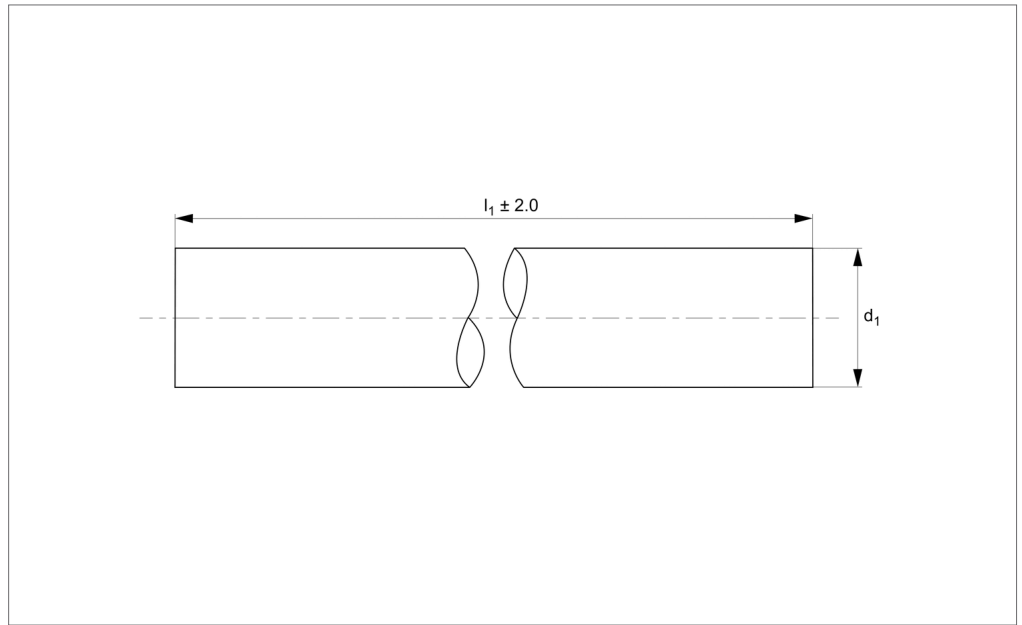
Ø25 Hardened Stainless Shafts for linear bearings

Linear Shaft Bars

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20302412	25	5050	0.9	19.443
20302429	25	5100	0.9	19.635
20302436	25	5150	0.9	19.828
20302443	25	5200	0.9	20.020
20302450	25	5250	0.9	20.213
20302467	25	5300	0.9	20.405
20302474	25	5350	0.9	20.598
20302481	25	5400	0.9	20.790
20302498	25	5450	0.9	20.983
20302504	25	5500	0.9	21.175
20302511	25	5550	0.9	21.368
20302528	25	5600	0.9	21.560
20302535	25	5650	0.9	21.753
20302542	25	5700	0.9	21.945
20302559	25	5750	0.9	22.138
20302566	25	5800	0.9	22.330
20302573	25	5850	0.9	22.523
20302580	25	5900	0.9	22.715
20302597	25	5950	0.9	22.908
20302603	25	6000	0.9	23.100



EL1772.30



Material

Corrosion resistant steel (440C, DIN 1.4112, X90 CrMo18) hardened. Surface hardness 53-56 HRC, Rht 450Hv2. Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla. Yield stress: >420 N/mm².

Tensile strength: >785 N/mm².

Technical Notes

Suitable for use with linear bearings. Tolerance, h6 standard, special tolerances on request. Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available. Shaft lengths are cut to typically ± 2mm, ends are not hardened.

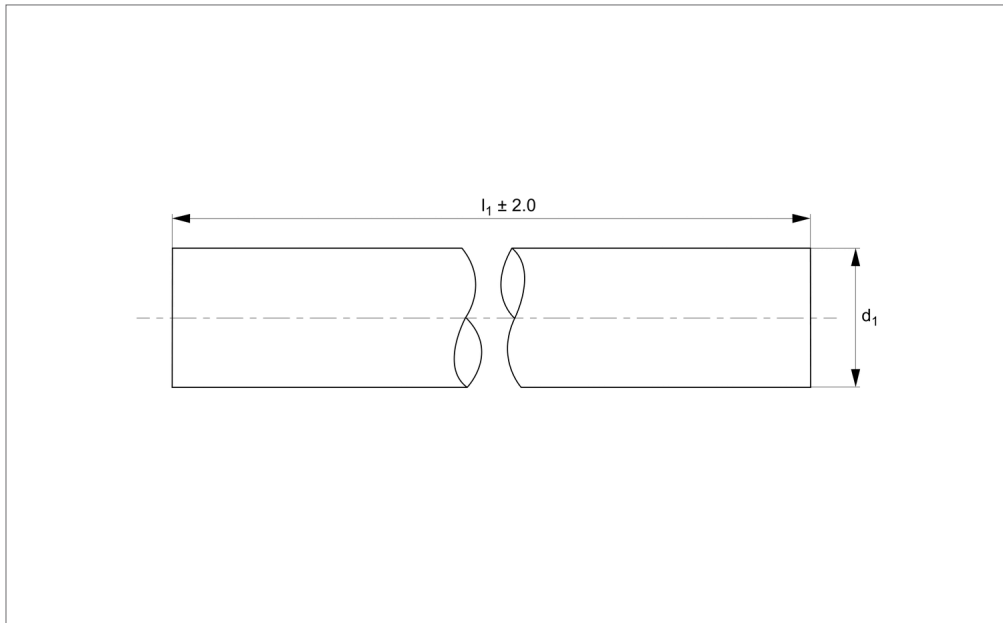
Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20302610	30	100	1.5	0.555
20302627	30	150	1.5	0.833
20302634	30	200	1.5	1.110
20302641	30	250	1.5	1.388
20302658	30	300	1.5	1.665
20302665	30	350	1.5	1.943
20302672	30	400	1.5	2.220
20302689	30	450	1.5	2.498
20302696	30	500	1.5	2.775
20302702	30	550	1.5	3.053
20302719	30	600	1.5	3.330
20302726	30	650	1.5	3.608
20302733	30	700	1.5	3.885
20302740	30	750	1.5	4.163
20302757	30	800	1.5	4.440
20302764	30	850	1.5	4.718
20302771	30	900	1.5	4.995
20302788	30	950	1.5	5.273
20302795	30	1000	1.5	5.550
20302801	30	1050	1.5	5.828
20302818	30	1100	1.5	6.105
20302825	30	1150	1.5	6.383
20302832	30	1200	1.5	6.660
20302849	30	1250	1.5	6.938
20302856	30	1300	1.5	7.215
20302863	30	1350	1.5	7.493
20302870	30	1400	1.5	7.770
20302887	30	1450	1.5	8.048
20302894	30	1500	1.5	8.325
20302900	30	1550	1.5	8.603
20302917	30	1600	1.5	8.880

Ø30 Hardened Stainless Shafts for linear bearings

Linear Shaft Bars

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20302924	30	1650	1.5	9.158
20302931	30	1700	1.5	9.435
20302948	30	1750	1.5	9.713
20302955	30	1800	1.5	9.990
20302962	30	1850	1.5	10.268
20302979	30	1900	1.5	10.545
20302986	30	1950	1.5	10.823
20302993	30	2000	1.5	11.100
20303006	30	2050	1.5	11.378
20303013	30	2100	1.5	11.655
20303020	30	2150	1.5	11.933
20303037	30	2200	1.5	12.210
20303044	30	2250	1.5	12.488
20303051	30	2300	1.5	12.765
20303068	30	2350	1.5	13.043
20303075	30	2400	1.5	13.320
20303082	30	2450	1.5	13.598
20303099	30	2500	1.5	13.875
20303105	30	2550	1.5	14.153
20303112	30	2600	1.5	14.430
20303129	30	2650	1.5	14.708
20303136	30	2700	1.5	14.985
20303143	30	2750	1.5	15.263
20303150	30	2800	1.5	15.540
20303167	30	2850	1.5	15.818
20303174	30	2900	1.5	16.095
20303181	30	2950	1.5	16.373
20303198	30	3000	1.5	16.650
20303204	30	3050	1.5	16.928
20303211	30	3100	1.5	17.205
20303228	30	3150	1.5	17.483
20303235	30	3200	1.5	17.760
20303242	30	3250	1.5	18.038
20303259	30	3300	1.5	18.315
20303266	30	3350	1.5	18.593
20303273	30	3400	1.5	18.870
20303280	30	3450	1.5	19.148
20303297	30	3500	1.5	19.425
20303303	30	3550	1.5	19.703
20303310	30	3600	1.5	19.980
20303327	30	3650	1.5	20.258
20303334	30	3700	1.5	20.535
20303341	30	3750	1.5	20.813
20303358	30	3800	1.5	21.090
20303365	30	3850	1.5	21.368
20303372	30	3900	1.5	21.645
20303389	30	3950	1.5	21.923
20303396	30	4000	1.5	22.200
20303402	30	4050	1.5	22.478
20303419	30	4100	1.5	22.755
20303426	30	4150	1.5	23.033
20303433	30	4200	1.5	23.310
20303440	30	4250	1.5	23.588
20303457	30	4300	1.5	23.865
20303464	30	4350	1.5	24.143
20303471	30	4400	1.5	24.420
20303488	30	4450	1.5	24.698
20303495	30	4500	1.5	24.975
20303501	30	4550	1.5	25.253
20303518	30	4600	1.5	25.530
20303525	30	4650	1.5	25.808
20303532	30	4700	1.5	26.085
20303549	30	4750	1.5	26.363
20303556	30	4800	1.5	26.640
20303563	30	4850	1.5	26.918
20303570	30	4900	1.5	27.195
20303587	30	4950	1.5	27.473
20303594	30	5000	1.5	27.750

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20303600	30	5050	1.5	28.028
20303617	30	5100	1.5	28.305
20303624	30	5150	1.5	28.583
20303631	30	5200	1.5	28.860
20303648	30	5250	1.5	29.138
20303655	30	5300	1.5	29.415
20303662	30	5350	1.5	29.693
20303679	30	5400	1.5	29.970
20303686	30	5450	1.5	30.248
20303693	30	5500	1.5	30.525
20303709	30	5550	1.5	30.803
20303716	30	5600	1.5	31.080
20303723	30	5650	1.5	31.358
20303730	30	5700	1.5	31.635
20303747	30	5750	1.5	31.913
20303754	30	5800	1.5	32.190
20303761	30	5850	1.5	32.468
20303778	30	5900	1.5	32.745
20303785	30	5950	1.5	33.023
20303792	30	6000	1.5	33.300



EL1772.40

LINEAR SHAFT BARS

Material

Corrosion resistant steel (440C, DIN 1.4112, X90 CrMo18) hardened. Surface hardness 53-56 HRC, Rht 450Hv2. Surface finish 0.3-0.6 μ Ra, ground and polished to 8-12 cla. Yield stress: >420 N/mm².

Tensile strength: >785 N/mm².

Technical Notes

Suitable for use with linear bearings. Tolerance, h6 standard, special tolerances on request. Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available. Shaft lengths are cut to typically ± 2 mm, ends are not hardened.

Order No.	d_1 tol. h6	l_1	Depth of hardness min.	Weight kg
20303808	40	100	1.5	0.987
20303815	40	150	1.5	1.481
20303822	40	200	1.5	1.974
20303839	40	250	1.5	2.468
20303846	40	300	1.5	2.961
20303853	40	350	1.5	3.455
20303860	40	400	1.5	3.948
20303877	40	450	1.5	4.442
20303884	40	500	1.5	4.935
20303891	40	550	1.5	5.429
20303907	40	600	1.5	5.922
20303914	40	650	1.5	6.416
20303921	40	700	1.5	6.909
20303938	40	750	1.5	7.403
20303945	40	800	1.5	7.896
20303952	40	850	1.5	8.390
20303969	40	900	1.5	8.883
20303976	40	950	1.5	9.377
20303983	40	1000	1.5	9.870
20303990	40	1050	1.5	10.364
20304003	40	1100	1.5	10.857
20304010	40	1150	1.5	11.351
20304027	40	1200	1.5	11.844
20304034	40	1250	1.5	12.338
20304041	40	1300	1.5	12.831
20304058	40	1350	1.5	13.325
20304065	40	1400	1.5	13.818
20304072	40	1450	1.5	14.312
20304089	40	1500	1.5	14.805
20304096	40	1550	1.5	15.299
20304102	40	1600	1.5	15.792

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20304119	40	1650	1.5	16.286
20304126	40	1700	1.5	16.779
20304133	40	1750	1.5	17.273
20304140	40	1800	1.5	17.766
20304157	40	1850	1.5	18.260
20304164	40	1900	1.5	18.753
20304171	40	1950	1.5	19.247
20304188	40	2000	1.5	19.740
20304195	40	2050	1.5	20.234
20304201	40	2100	1.5	20.727
20304218	40	2150	1.5	21.221
20304225	40	2200	1.5	21.714
20304232	40	2250	1.5	22.208
20304249	40	2300	1.5	22.701
20304256	40	2350	1.5	23.195
20304263	40	2400	1.5	23.688
20304270	40	2450	1.5	24.182
20304287	40	2500	1.5	24.675
20304294	40	2550	1.5	25.169
20304300	40	2600	1.5	25.662
20304317	40	2650	1.5	26.156
20304324	40	2700	1.5	26.649
20304331	40	2750	1.5	27.143
20304348	40	2800	1.5	27.636
20304355	40	2850	1.5	28.130
20304362	40	2900	1.5	28.623
20304379	40	2950	1.5	29.117
20304386	40	3000	1.5	29.610
20304393	40	3050	1.5	30.104
20304409	40	3100	1.5	30.597
20304416	40	3150	1.5	31.091
20304423	40	3200	1.5	31.584
20304430	40	3250	1.5	32.078
20304447	40	3300	1.5	32.571
20304454	40	3350	1.5	33.065
20304461	40	3400	1.5	33.558
20304478	40	3450	1.5	34.052
20304485	40	3500	1.5	34.545
20304492	40	3550	1.5	35.039
20304508	40	3600	1.5	35.532
20304515	40	3650	1.5	36.026
20304522	40	3700	1.5	36.519
20304539	40	3750	1.5	37.013
20304546	40	3800	1.5	37.506
20304553	40	3850	1.5	38.000
20304560	40	3900	1.5	38.493
20304577	40	3950	1.5	38.987
20304584	40	4000	1.5	39.480
20304591	40	4050	1.5	39.974
20304607	40	4100	1.5	40.467
20304614	40	4150	1.5	40.961
20304621	40	4200	1.5	41.454
20304638	40	4250	1.5	41.948
20304645	40	4300	1.5	42.441
20304652	40	4350	1.5	42.935
20304669	40	4400	1.5	43.428
20304676	40	4450	1.5	43.922
20304683	40	4500	1.5	44.415
20304690	40	4550	1.5	44.909
20304706	40	4600	1.5	45.402
20304713	40	4650	1.5	45.896
20304720	40	4700	1.5	46.389
20304737	40	4750	1.5	46.883
20304744	40	4800	1.5	47.376
20304751	40	4850	1.5	47.870
20304768	40	4900	1.5	48.363
20304775	40	4950	1.5	48.857
20304782	40	5000	1.5	49.350

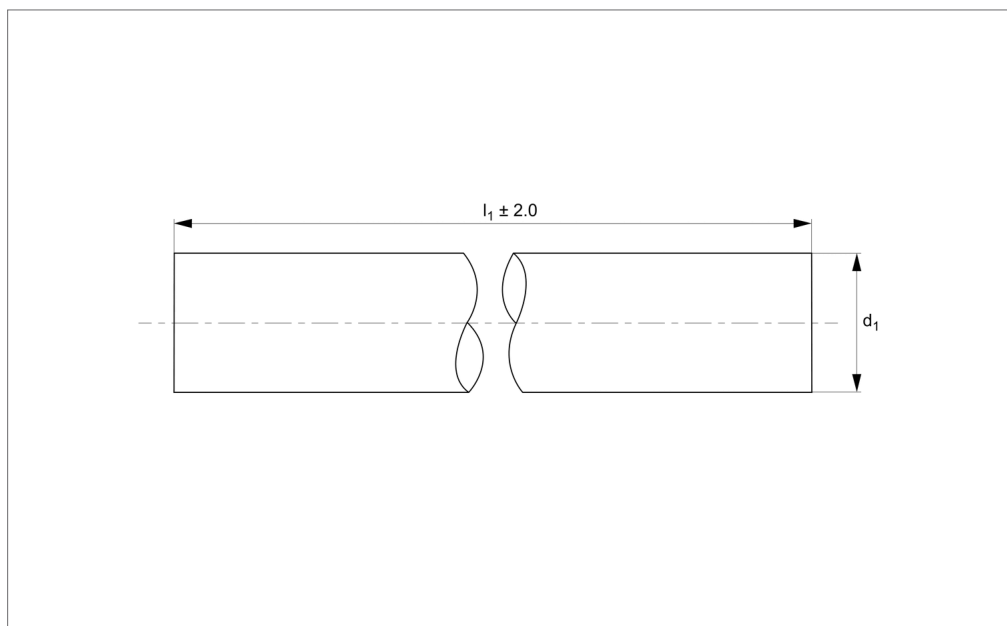
Ø40 Hardened Stainless Shafts for linear bearings

Linear Shaft Bars

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20304799	40	5050	1.5	49.844
20304805	40	5100	1.5	50.337
20304812	40	5150	1.5	50.831
20304829	40	5200	1.5	51.324
20304836	40	5250	1.5	51.818
20304843	40	5300	1.5	52.311
20304850	40	5350	1.5	52.805
20304867	40	5400	1.5	53.298
20304874	40	5450	1.5	53.792
20304881	40	5500	1.5	54.285
20304898	40	5550	1.5	54.779
20304904	40	5600	1.5	55.272
20304911	40	5650	1.5	55.766
20304928	40	5700	1.5	56.259
20304935	40	5750	1.5	56.753
20304942	40	5800	1.5	57.246
20304959	40	5850	1.5	57.740
20304966	40	5900	1.5	58.233
20304973	40	5950	1.5	58.727
20304980	40	6000	1.5	59.220



EL1772.50



Material

Corrosion resistant steel (440C, DIN 1.4112, X90 CrMo18) hardened. Surface hardness 53-56 HRC, Rht 450Hv2. Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla. Yield stress: >420 N/mm².

Tensile strength: >785 N/mm².

Technical Notes

Suitable for use with linear bearings. Tolerance, h6 standard, special tolerances on request. Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available. Shaft lengths are cut to typically ± 2mm, ends are not hardened.

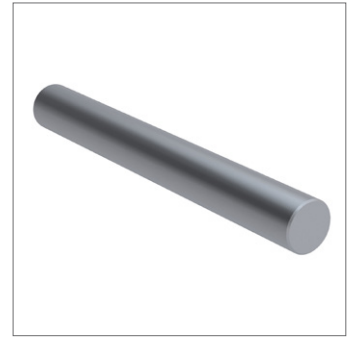
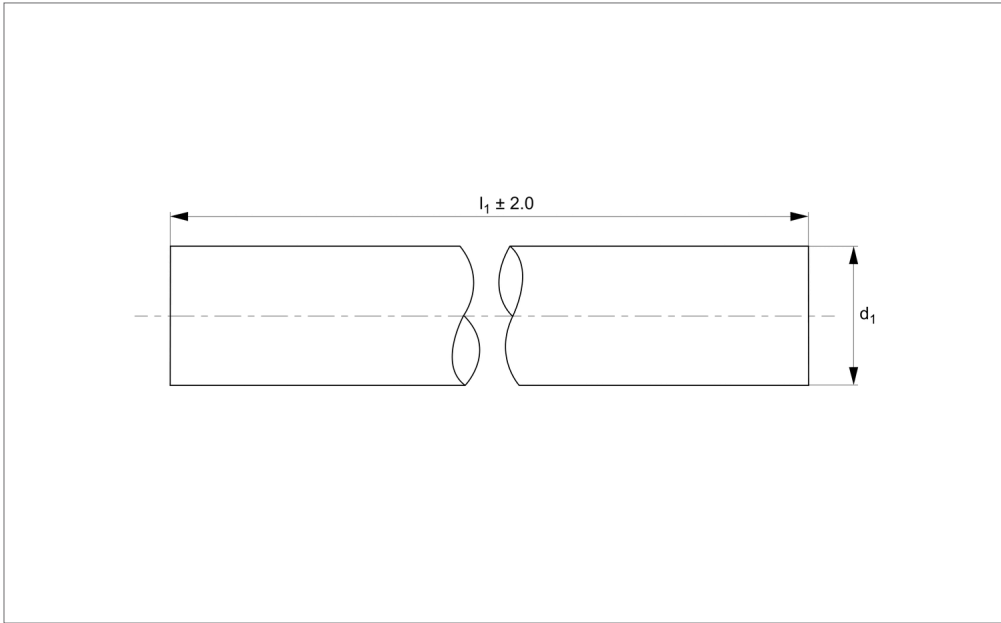
Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20304997	50	100	1.5	1.540
20305000	50	150	1.5	2.310
20305017	50	200	1.5	3.080
20305024	50	250	1.5	3.850
20305031	50	300	1.5	4.620
20305048	50	350	1.5	5.390
20305055	50	400	1.5	6.160
20305062	50	450	1.5	6.930
20305079	50	500	1.5	7.700
20305086	50	550	1.5	8.470
20305093	50	600	1.5	9.240
20305109	50	650	1.5	10.010
20305116	50	700	1.5	10.780
20305123	50	750	1.5	11.550
20305130	50	800	1.5	12.320
20305147	50	850	1.5	13.090
20305154	50	900	1.5	13.860
20305161	50	1000	1.5	15.400
20305178	50	1050	1.5	16.170
20305185	50	1100	1.5	16.940
20305192	50	1150	1.5	17.710
20305208	50	1200	1.5	18.480
20305215	50	1250	1.5	19.250
20305222	50	1300	1.5	20.020
20305239	50	1350	1.5	20.790
20305246	50	1400	1.5	21.560
20305253	50	1450	1.5	22.330
20305260	50	1500	1.5	23.100
20305277	50	1550	1.5	23.870
20305284	50	1600	1.5	24.640
20305291	50	1650	1.5	25.410

Ø50 Hardened Stainless Shafts for linear bearings

Linear Shaft Bars

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20305307	50	1700	1.5	26.180
20305314	50	1750	1.5	26.950
20305321	50	1800	1.5	27.720
20305338	50	1850	1.5	28.490
20305345	50	1900	1.5	29.260
20305352	50	1950	1.5	30.030
20305369	50	2000	1.5	30.800
20305376	50	2050	1.5	31.570
20305383	50	2100	1.5	32.340
20305390	50	2150	1.5	33.110
20305406	50	2200	1.5	33.880
20305413	50	2250	1.5	34.650
20305420	50	2300	1.5	35.420
20305437	50	2350	1.5	36.190
20305444	50	2400	1.5	36.960
20305451	50	2450	1.5	37.730
20305468	50	2500	1.5	38.500
20305475	50	2550	1.5	39.270
20305482	50	2600	1.5	40.040
20305499	50	2650	1.5	40.810
20305505	50	2700	1.5	41.580
20305512	50	2750	1.5	42.350
20305529	50	2800	1.5	43.120
20305536	50	2850	1.5	43.890
20305543	50	2900	1.5	44.660
20305550	50	2950	1.5	45.430
20305567	50	3000	1.5	46.200
20305574	50	3050	1.5	46.970
20305581	50	3100	1.5	47.740
20305598	50	3150	1.5	48.510
20305604	50	3200	1.5	49.280
20305611	50	3250	1.5	50.050
20305628	50	3300	1.5	50.820
20305635	50	3350	1.5	51.590
20305642	50	3400	1.5	52.360
20305659	50	3450	1.5	53.130
20305666	50	3500	1.5	53.900
20305673	50	3550	1.5	54.670
20305680	50	3600	1.5	55.440
20305697	50	3650	1.5	56.210
20305703	50	3700	1.5	56.980
20305710	50	3750	1.5	57.750
20305727	50	3800	1.5	58.520
20305734	50	3850	1.5	59.290
20305741	50	3900	1.5	60.060
20305758	50	3950	1.5	60.830
20305765	50	4000	1.5	61.600
20305772	50	4050	1.5	62.370
20305789	50	4100	1.5	63.140
20305796	50	4150	1.5	63.910
20305802	50	4200	1.5	64.680
20305819	50	4250	1.5	65.450
20305826	50	4300	1.5	66.220
20305833	50	4350	1.5	66.990
20305840	50	4400	1.5	67.760
20305857	50	4450	1.5	68.530
20305864	50	4500	1.5	69.300
20305871	50	4550	1.5	70.070
20305888	50	4600	1.5	70.840
20305895	50	4650	1.5	71.610
20305901	50	4700	1.5	72.380
20305918	50	4750	1.5	73.150
20305925	50	4800	1.5	73.920
20305932	50	4850	1.5	74.690
20305949	50	4900	1.5	75.460
20305956	50	4950	1.5	76.230
20305963	50	5000	1.5	77.000
20305970	50	5050	1.5	77.770

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20305987	50	5100	1.5	78.540
20305994	50	5150	1.5	79.310
20306007	50	5200	1.5	80.080
20306014	50	5250	1.5	80.850
20306021	50	5300	1.5	81.620
20306038	50	5350	1.5	82.390
20306045	50	5400	1.5	83.160
20306052	50	5450	1.5	83.930
20306069	50	5500	1.5	84.700
20306076	50	5550	1.5	85.470
20306083	50	5600	1.5	86.240
20306090	50	5650	1.5	87.010
20306106	50	5700	1.5	87.780
20306113	50	5750	1.5	88.550
20306120	50	5800	1.5	89.320
20306137	50	5850	1.5	90.090
20306144	50	5900	1.5	90.860
20306151	50	5950	1.5	91.630
20306168	50	6000	1.5	92.400



EL1772.60

LINEAR SHAFT BARS

Material

Corrosion resistant steel (440C, DIN 1.4112, X90 CrMo18) hardened. Surface hardness 53-56 HRC, Rht 450Hv2. Surface finish 0.3-0.6 μ Ra, ground and polished to 8-12 cla. Yield stress: >420 N/mm².

Tensile strength: >785 N/mm².

Technical Notes

Suitable for use with linear bearings. Tolerance, h6 standard, special tolerances on request. Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, retainer grooves, special coatings etc. are available. Shaft lengths are cut to typically ± 2 mm, ends are not hardened.

Order No.	d_1 tol. h6	l_1	Depth of hardness min.	Weight kg
20306175	60	100	1.5	2.220
20306182	60	150	1.5	3.330
20306199	60	200	1.5	4.440
20306205	60	250	1.5	5.550
20306212	60	300	1.5	6.660
20306229	60	350	1.5	7.770
20306236	60	400	1.5	8.880
20306243	60	450	1.5	9.990
20306250	60	500	1.5	11.100
20306267	60	550	1.5	12.210
20306274	60	600	1.5	13.320
20306281	60	650	1.5	14.430
20306298	60	700	1.5	15.540
20306304	60	750	1.5	16.650
20306311	60	800	1.5	17.760
20306328	60	850	1.5	18.870
20306335	60	900	1.5	19.980
20306342	60	950	1.5	21.090
20306359	60	1000	1.5	22.200
20306366	60	1050	1.5	23.310
20306373	60	1100	1.5	24.420
20306380	60	1150	1.5	25.530
20306397	60	1200	1.5	26.640
20306403	60	1250	1.5	27.750
20306410	60	1300	1.5	28.860
20306427	60	1350	1.5	29.970
20306434	60	1400	1.5	31.080
20306441	60	1450	1.5	32.190
20306458	60	1500	1.5	33.300
20306465	60	1550	1.5	34.410
20306472	60	1600	1.5	35.520

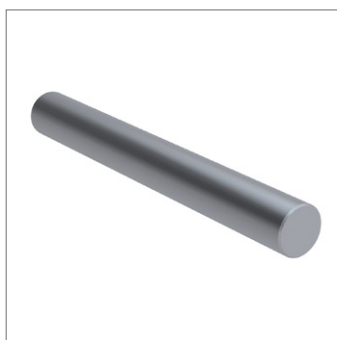
Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20306489	60	1650	1.5	36.630
20306496	60	1700	1.5	37.740
20306502	60	1750	1.5	38.850
20306519	60	1800	1.5	39.960
20306526	60	1850	1.5	41.070
20306533	60	1900	1.5	42.180
20306540	60	1950	1.5	43.290
20306557	60	2000	1.5	44.400
20306564	60	2050	1.5	45.510
20306571	60	2100	1.5	46.620
20306588	60	2150	1.5	47.730
20306595	60	2200	1.5	48.840
20306601	60	2250	1.5	49.950
20306618	60	2300	1.5	51.060
20306625	60	2350	1.5	52.170
20306632	60	2400	1.5	53.280
20306649	60	2450	1.5	54.390
20306656	60	2500	1.5	55.500
20306663	60	2550	1.5	56.610
20306670	60	2600	1.5	57.720
20306687	60	2650	1.5	58.830
20306694	60	2700	1.5	59.940
20306700	60	2750	1.5	61.050
20306717	60	2800	1.5	62.160
20306724	60	2850	1.5	63.270
20306731	60	2900	1.5	64.380
20306748	60	2950	1.5	65.490
20306755	60	3000	1.5	66.600
20306762	60	3050	1.5	67.710
20306779	60	3100	1.5	68.820
20306786	60	3150	1.5	69.930
20306793	60	3200	1.5	71.040
20306809	60	3250	1.5	72.150
20306816	60	3300	1.5	73.260
20306823	60	3350	1.5	74.370
20306830	60	3400	1.5	75.480
20306847	60	3450	1.5	76.590
20306854	60	3500	1.5	77.700
20306861	60	3550	1.5	78.810
20306878	60	3600	1.5	79.920
20306885	60	3650	1.5	81.030
20306892	60	3700	1.5	82.140
20306908	60	3750	1.5	83.250
20306915	60	3800	1.5	84.360
20306922	60	3850	1.5	85.470
20306939	60	3900	1.5	86.580
20306946	60	3950	1.5	87.690
20306953	60	4000	1.5	88.800
20306960	60	4050	1.5	89.910
20306977	60	4100	1.5	91.020
20306984	60	4150	1.5	92.130
20306991	60	4200	1.5	93.240
20307004	60	4250	1.5	94.350
20307011	60	4300	1.5	95.460
20307028	60	4350	1.5	96.570
20307035	60	4400	1.5	97.680
20307042	60	4450	1.5	98.790
20307059	60	4500	1.5	99.900
20307066	60	4550	1.5	101.010
20307073	60	4600	1.5	102.120
20307080	60	4650	1.5	103.230
20307097	60	4700	1.5	104.340
20307103	60	4750	1.5	105.450
20307110	60	4800	1.5	106.560
20307127	60	4850	1.5	107.670
20307134	60	4900	1.5	108.780
20307141	60	4950	1.5	109.890
20307158	60	5000	1.5	111.000

Ø60 Hardened Stainless Shafts for linear bearings

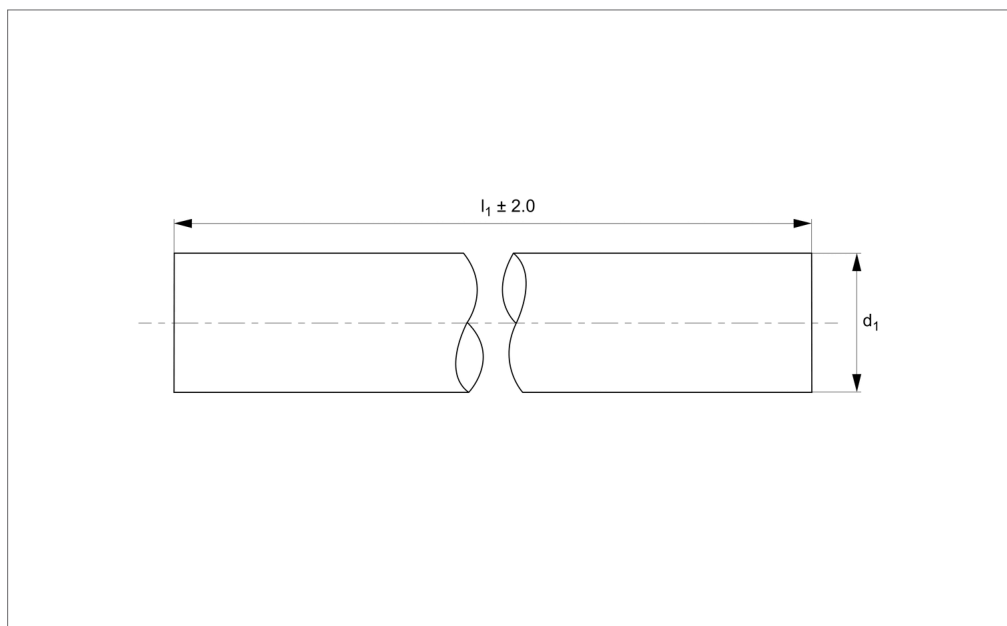
Linear Shaft Bars

Order No.	d ₁ tol. h6	l ₁	Depth of hardness min.	Weight kg
20307165	60	5050	1.5	112.110
20307172	60	5100	1.5	113.220
20307189	60	5150	1.5	114.330
20307196	60	5200	1.5	115.440
20307202	60	5250	1.5	116.550
20307219	60	5300	1.5	117.660
20307226	60	5350	1.5	118.770
20307233	60	5400	1.5	119.880
20307240	60	5450	1.5	120.990
20307257	60	5500	1.5	122.100
20307264	60	5550	1.5	123.210
20307271	60	5600	1.5	124.320
20307288	60	5650	1.5	125.430
20307295	60	5700	1.5	126.540
20307301	60	5750	1.5	127.650
20307318	60	5800	1.5	128.760
20307325	60	5850	1.5	129.870
20307332	60	5900	1.5	130.980
20307349	60	5950	1.5	132.090
20307356	60	6000	1.5	133.200

LINEAR SHAFT BARS



EL1773.06



Material

Stainless steel AISI 303 (1.4305, X10CrNiS18-19), surface finish 0.3-0.6μ Ra, ground and polished to 8-12 cla. Yield stress: >510 N/mm², tensile strength: >720 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.
Straightness 0,3mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

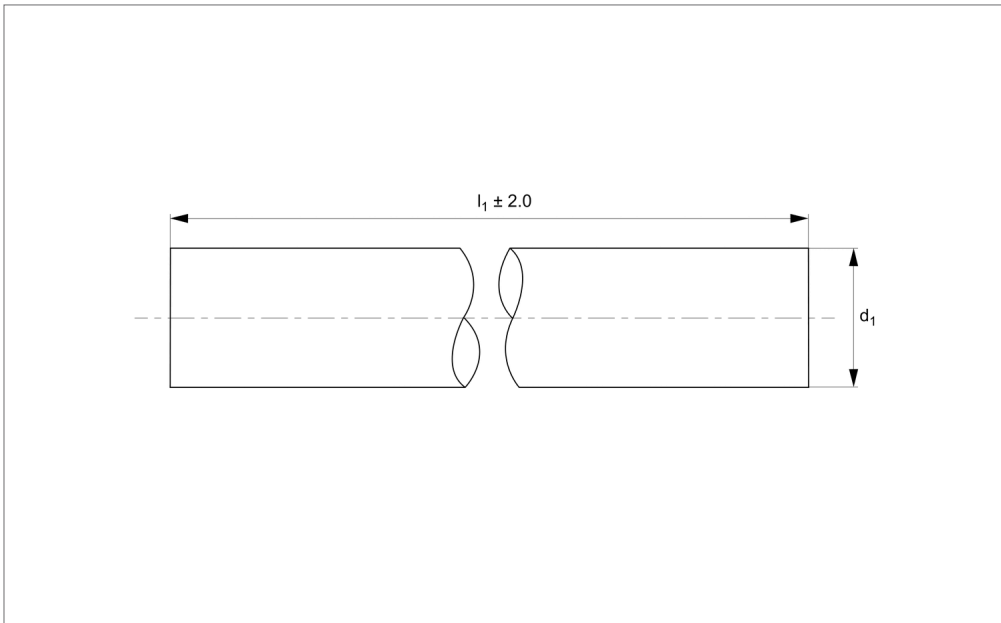
Shafts lengths are cut to typically ± 2mm.
To be used with ceramic or other bearings

not containing hardened ball bearings.

Order No.	d ₁	l ₁	Tolerance μ tol. h6
20307363	6	100	+0,-8
20307370	6	150	+0,-8
20307387	6	200	+0,-8
20307394	6	250	+0,-8
20307400	6	300	+0,-8
20307417	6	350	+0,-8
20307424	6	400	+0,-8
20307431	6	450	+0,-8
20307448	6	500	+0,-8
20307455	6	550	+0,-8
20307462	6	600	+0,-8
20307479	6	650	+0,-8
20307486	6	700	+0,-8
20307493	6	750	+0,-8
20307509	6	800	+0,-8
20307516	6	850	+0,-8
20307523	6	900	+0,-8
20307530	6	950	+0,-8
20307547	6	1000	+0,-8
20307554	6	1050	+0,-8
20307561	6	1100	+0,-8
20307578	6	1150	+0,-8
20307585	6	1200	+0,-8
20307592	6	1250	+0,-8
20307608	6	1300	+0,-8
20307615	6	1350	+0,-8
20307622	6	1400	+0,-8
20307639	6	1450	+0,-8
20307646	6	1500	+0,-8

Order No.	d ₁	l ₁	Tolerance μ tol. h6
20307653	6	1550	+0,-8
20307660	6	1600	+0,-8
20307677	6	1650	+0,-8
20307684	6	1700	+0,-8
20307691	6	1750	+0,-8
20307707	6	1800	+0,-8
20307714	6	1850	+0,-8
20307721	6	1900	+0,-8
20307738	6	1950	+0,-8
20307745	6	2000	+0,-8
20307752	6	2050	+0,-8
20307769	6	2100	+0,-8
20307776	6	2150	+0,-8
20307783	6	2200	+0,-8
20307790	6	2250	+0,-8
20307806	6	2300	+0,-8
20307813	6	2350	+0,-8
20307820	6	2400	+0,-8
20307837	6	2450	+0,-8
20307844	6	2500	+0,-8
20307851	6	2550	+0,-8
20307868	6	2600	+0,-8
20307875	6	2650	+0,-8
20307882	6	2700	+0,-8
20307899	6	2750	+0,-8
20307905	6	2800	+0,-8
20307912	6	2850	+0,-8
20307929	6	2900	+0,-8
20307936	6	2950	+0,-8
20307943	6	3000	+0,-8
20307950	6	3050	+0,-8
20307967	6	3100	+0,-8
20307974	6	3150	+0,-8
20307981	6	3200	+0,-8
20307998	6	3250	+0,-8
20308001	6	3300	+0,-8
20308018	6	3350	+0,-8
20308025	6	3400	+0,-8
20308032	6	3450	+0,-8
20308049	6	3500	+0,-8
20308056	6	3550	+0,-8
20308063	6	3600	+0,-8
20308070	6	3650	+0,-8
20308087	6	3700	+0,-8
20308094	6	3750	+0,-8
20308100	6	3800	+0,-8
20308117	6	3850	+0,-8
20308124	6	3900	+0,-8
20308131	6	3950	+0,-8
20308148	6	4000	+0,-8
20308155	6	4050	+0,-8
20308162	6	4100	+0,-8
20308179	6	4150	+0,-8
20308186	6	4200	+0,-8
20308193	6	4250	+0,-8
20308209	6	4300	+0,-8
20308216	6	4350	+0,-8
20308223	6	4400	+0,-8
20308230	6	4450	+0,-8
20308247	6	4500	+0,-8
20308254	6	4550	+0,-8
20308261	6	4600	+0,-8
20308278	6	4650	+0,-8
20308285	6	4700	+0,-8
20308292	6	4750	+0,-8
20308308	6	4800	+0,-8
20308315	6	4850	+0,-8
20308322	6	4900	+0,-8

Order No.	d ₁	l ₁	Tolerance μ tol. h6
20308339	6	4950	+0,-8
20308346	6	5000	+0,-8
20308353	6	5050	+0,-8
20308360	6	5100	+0,-8
20308377	6	5150	+0,-8
20308384	6	5200	+0,-8
20308391	6	5250	+0,-8
20308407	6	5300	+0,-8
20308414	6	5350	+0,-8
20308421	6	5400	+0,-8
20308438	6	5450	+0,-8
20308445	6	5500	+0,-8
20308452	6	5550	+0,-8
20308469	6	5600	+0,-8
20308476	6	5650	+0,-8
20308483	6	5700	+0,-8
20308490	6	5750	+0,-8
20308506	6	5800	+0,-8
20308513	6	5850	+0,-8
20308520	6	5900	+0,-8
20308537	6	5950	+0,-8
20308544	6	6000	+0,-8



EL1773.08

LINEAR SHAFT BARS

Material

Stainless steel AISI 303 (1.4305, X10CrNiS18-19), surface finish 0.3-0.6 μ Ra, ground and polished to 8-12 cla. Yield stress: >510 N/mm², tensile strength: >720 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.
Straightness 0,3mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

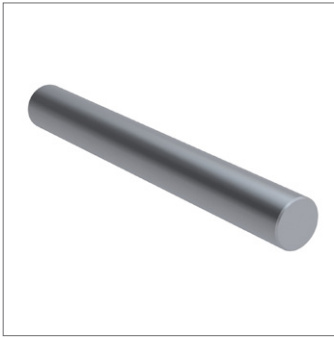
Shafts lengths are cut to typically ± 2 mm.
To be used with ceramic or other bearings

not containing hardened ball bearings.

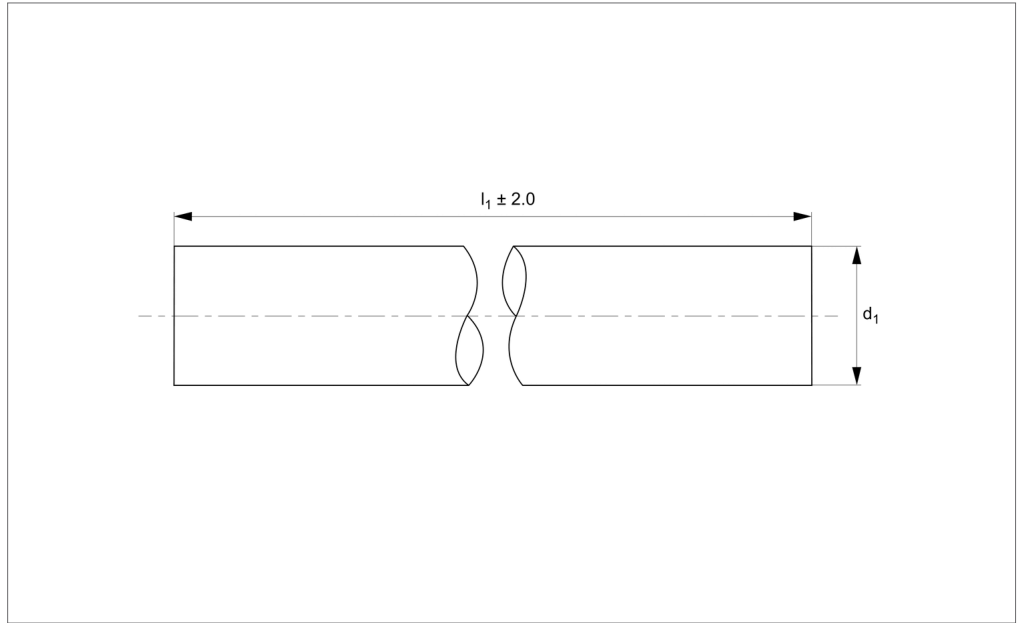
Order No.	d_1 tol. h6	l_1	Tolerance μ tol. h6
20308551	8	100	+0,-9
20308568	8	150	+0,-9
20308575	8	200	+0,-9
20308582	8	250	+0,-9
20308599	8	300	+0,-9
20308605	8	350	+0,-9
20308612	8	400	+0,-9
20308629	8	450	+0,-9
20308636	8	500	+0,-9
20308643	8	550	+0,-9
20308650	8	600	+0,-9
20308667	8	650	+0,-9
20308674	8	700	+0,-9
20308681	8	750	+0,-9
20308698	8	800	+0,-9
20308704	8	850	+0,-9
20308711	8	900	+0,-9
20308728	8	950	+0,-9
20308735	8	1000	+0,-9
20308742	8	1050	+0,-9
20308759	8	1100	+0,-9
20308766	8	1150	+0,-9
20308773	8	1200	+0,-9
20308780	8	1250	+0,-9
20308797	8	1300	+0,-9
20308803	8	1350	+0,-9
20308810	8	1400	+0,-9
20308827	8	1450	+0,-9
20308834	8	1500	+0,-9

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20308841	8	1550	+0,-9
20308858	8	1600	+0,-9
20308865	8	1650	+0,-9
20308872	8	1700	+0,-9
20308889	8	1750	+0,-9
20308896	8	1800	+0,-9
20308902	8	1850	+0,-9
20308919	8	1900	+0,-9
20308926	8	1950	+0,-9
20308933	8	2000	+0,-9
20308940	8	2050	+0,-9
20308957	8	2100	+0,-9
20308964	8	2150	+0,-9
20308971	8	2200	+0,-9
20308988	8	2250	+0,-9
20308995	8	2300	+0,-9
20309008	8	2350	+0,-9
20309015	8	2400	+0,-9
20309022	8	2450	+0,-9
20309039	8	2500	+0,-9
20309046	8	2550	+0,-9
20309053	8	2600	+0,-9
20309060	8	2650	+0,-9
20309077	8	2700	+0,-9
20309084	8	2750	+0,-9
20309091	8	2800	+0,-9
20309107	8	2850	+0,-9
20309114	8	2900	+0,-9
20309121	8	2950	+0,-9
20309138	8	3000	+0,-9
20309145	8	3050	+0,-9
20309152	8	3100	+0,-9
20309169	8	3150	+0,-9
20309176	8	3200	+0,-9
20309183	8	3250	+0,-9
20309190	8	3300	+0,-9
20309206	8	3350	+0,-9
20309213	8	3400	+0,-9
20309220	8	3450	+0,-9
20309237	8	3500	+0,-9
20309244	8	3550	+0,-9
20309251	8	3600	+0,-9
20309268	8	3650	+0,-9
20309275	8	3700	+0,-9
20309282	8	3750	+0,-9
20309299	8	3800	+0,-9
20309305	8	3850	+0,-9
20309312	8	3900	+0,-9
20309329	8	3950	+0,-9
20309336	8	4000	+0,-9
20309343	8	4050	+0,-9
20309350	8	4100	+0,-9
20309367	8	4150	+0,-9
20309374	8	4200	+0,-9
20309381	8	4250	+0,-9
20309398	8	4300	+0,-9
20309404	8	4350	+0,-9
20309411	8	4400	+0,-9
20309428	8	4450	+0,-9
20309435	8	4500	+0,-9
20309442	8	4550	+0,-9
20309459	8	4600	+0,-9
20309466	8	4650	+0,-9
20309473	8	4700	+0,-9
20309480	8	4750	+0,-9
20309497	8	4800	+0,-9
20309503	8	4850	+0,-9
20309510	8	4900	+0,-9

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20309527	8	4950	+0,-9
20309534	8	5000	+0,-9
20309541	8	-	+0,-9
20309558	8	5100	+0,-9
20309565	8	5150	+0,-9
20309572	8	5200	+0,-9
20309589	8	5250	+0,-9
20309596	8	5300	+0,-9
20309602	8	5350	+0,-9
20309619	8	5400	+0,-9
20309626	8	5450	+0,-9
20309633	8	5500	+0,-9
20309640	8	5550	+0,-9
20309657	8	5600	+0,-9
20309664	8	5650	+0,-9
20309671	8	5700	+0,-9
20309688	8	5750	+0,-9
20309695	8	5800	+0,-9
20309701	8	5850	+0,-9
20309718	8	5900	+0,-9
20309725	8	5950	+0,-9
20309732	8	6000	+0,-9



EL1773.10



Material

Stainless steel AISI 303 (1.4305, X10CrNiS18-19), surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla. Yield stress: >510 N/mm², tensile strength: >720 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.
Straightness 0,2mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

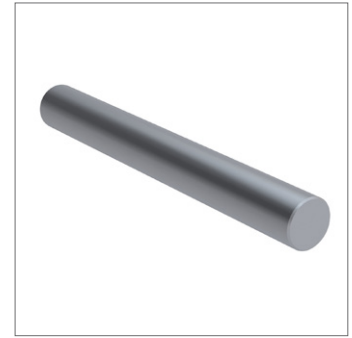
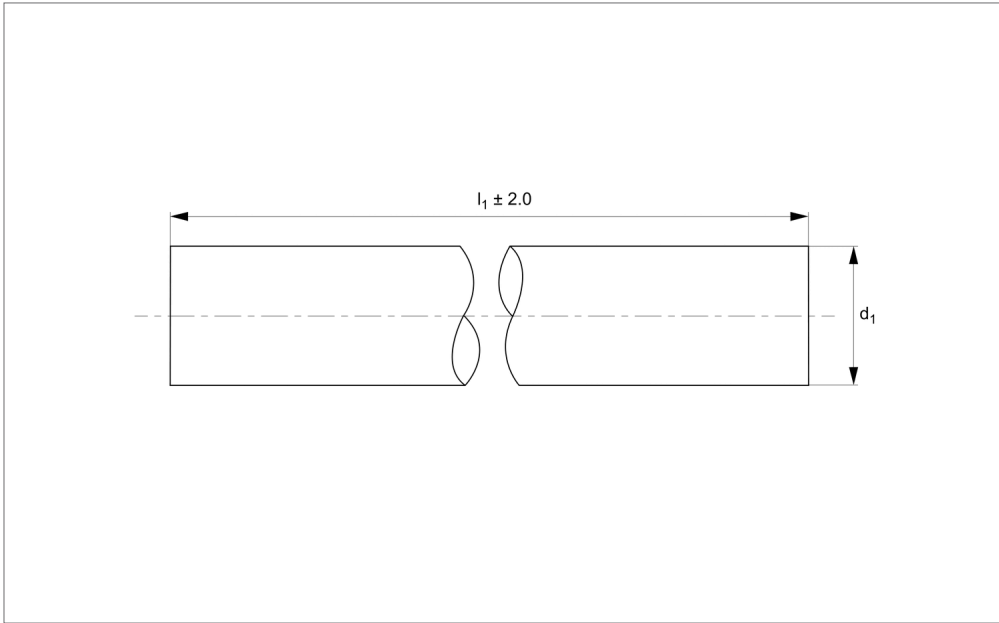
Shafts lengths are cut to typically ± 2mm.
To be used with ceramic or other bearings

not containing hardened ball bearings.

Order No.	d ₁ tol. h6	l ₁	Tolerance µ tol. h6
20309749	10	100	+0,-10
20309756	10	150	+0,-10
20309763	10	200	+0,-10
20309770	10	250	+0,-10
20309787	10	300	+0,-10
20309794	10	350	+0,-10
20309800	10	400	+0,-10
20309817	10	450	+0,-10
20309824	10	500	+0,-10
20309831	10	550	+0,-10
20309848	10	600	+0,-10
20309855	10	650	+0,-10
20309862	10	700	+0,-10
20309879	10	750	+0,-10
20309886	10	800	+0,-10
20309893	10	852	+0,-10
20309909	10	900	+0,-10
20309916	10	950	+0,-10
20309923	10	1000	+0,-10
20309930	10	1050	+0,-10
20309947	10	1100	+0,-10
20309954	10	1150	+0,-10
20309961	10	1200	+0,-10
20309978	10	1250	+0,-10
20309985	10	1300	+0,-10
20309992	10	1350	+0,-10
20310004	10	1400	+0,-10
20310011	10	1450	+0,-10
20310028	10	1500	+0,-10

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20310035	10	1550	+0,-10
20310042	10	1600	+0,-10
20310059	10	1650	+0,-10
20310066	10	1700	+0,-10
20310073	10	1750	+0,-10
20310080	10	1800	+0,-10
20310097	10	1850	+0,-10
20310103	10	1900	+0,-10
20310110	10	1950	+0,-10
20310127	10	2000	+0,-10
20310134	10	2050	+0,-10
20310141	10	2100	+0,-10
20310158	10	2150	+0,-10
20310165	10	2200	+0,-10
20310172	10	2250	+0,-10
20310189	10	2300	+0,-10
20310196	10	2350	+0,-10
20310202	10	2400	+0,-10
20310219	10	2450	+0,-10
20310226	10	2500	+0,-10
20310233	10	2550	+0,-10
20310240	10	2600	+0,-10
20310257	10	2650	+0,-10
20310264	10	2700	+0,-10
20310271	10	2750	+0,-10
20310288	10	2800	+0,-10
20310295	10	2850	+0,-10
20310301	10	2900	+0,-10
20310318	10	2950	+0,-10
20310325	10	3000	+0,-10
20310332	10	3050	+0,-10
20310349	10	3100	+0,-10
20310356	10	3150	+0,-10
20310363	10	3200	+0,-10
20310370	10	3250	+0,-10
20310387	10	3300	+0,-10
20310394	10	3350	+0,-10
20310400	10	3400	+0,-10
20310417	10	3450	+0,-10
20310424	10	3500	+0,-10
20310431	10	3550	+0,-10
20310448	10	3600	+0,-10
20310455	10	3650	+0,-10
20310462	10	3700	+0,-10
20310479	10	3750	+0,-10
20310486	10	3800	+0,-10
20310493	10	3850	+0,-10
20310509	10	3900	+0,-10
20310516	10	3950	+0,-10
20310523	10	4000	+0,-10
20310530	10	4050	+0,-10
20310547	10	4100	+0,-10
20310554	10	4150	+0,-10
20310561	10	4200	+0,-10
20310578	10	4250	+0,-10
20310585	10	4300	+0,-10
20310592	10	4350	+0,-10
20310608	10	4400	+0,-10
20310615	10	4450	+0,-10
20310622	10	4500	+0,-10
20310639	10	4550	+0,-10
20310646	10	4600	+0,-10
20310653	10	4650	+0,-10
20310660	10	4700	+0,-10
20310677	10	4750	+0,-10
20310684	10	4800	+0,-10
20310691	10	4850	+0,-10
20310707	10	4900	+0,-10

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20310714	10	4950	+0,-10
20310721	10	5000	+0,-10
20310738	10	5050	+0,-10
20310745	10	5100	+0,-10
20310752	10	5150	+0,-10
20310769	10	5200	+0,-10
20310776	10	5250	+0,-10
20310783	10	5300	+0,-10
20310790	10	5350	+0,-10
20310806	10	5400	+0,-10
20310813	10	5450	+0,-10
20310820	10	5500	+0,-10
20310837	10	5550	+0,-10
20310844	10	5600	+0,-10
20310851	10	5650	+0,-10
20310868	10	5700	+0,-10
20310875	10	5750	+0,-10
20310882	10	5800	+0,-10
20310899	10	5850	+0,-10
20310905	10	5900	+0,-10
20310912	10	5950	+0,-10
20310929	10	6000	+0,-10



EL1773.12

LINEAR SHAFT BARS

Material

Stainless steel AISI 303 (1.4305, X10CrNiS18-19), surface finish 0.3-0.6 μ Ra, ground and polished to 8-12 cla. Yield stress: >510 N/mm², tensile strength: >720 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.
Straightness 0,2mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

Shafts lengths are cut to typically ± 2 mm.
To be used with ceramic or other bearings

not containing hardened ball bearings.

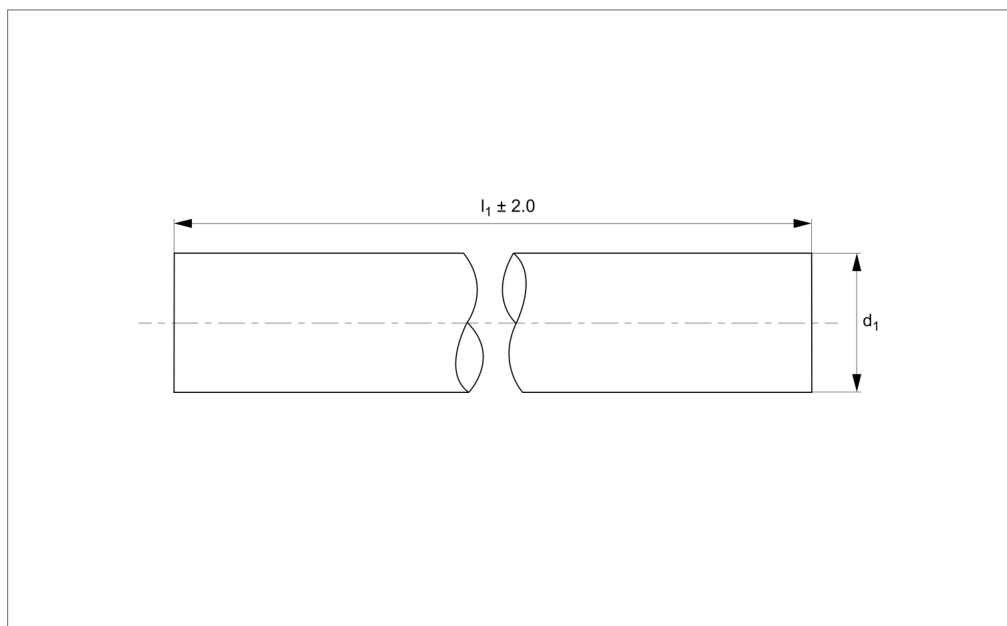
Order No.	d_1 tol. h6	l_1	Tolerance μ tol. h6
20310936	12	100	0.6
20310943	12	150	0.6
20310950	12	200	0.6
20310967	12	250	0.6
20310974	12	300	0.6
20310981	12	350	0.6
20310998	12	400	0.6
20311001	12	450	0.6
20311018	12	500	0.6
20311025	12	550	0.6
20311032	12	600	0.6
20311049	12	650	0.6
20311056	12	700	0.6
20311063	12	750	0.6
20311070	12	800	0.6
20311087	12	850	0.6
20311094	12	900	0.6
20311100	12	950	0.6
20311117	12	1000	0.6
20311124	12	1050	0.6
20311131	12	1100	0.6
20311148	12	1150	0.6
20311155	12	1200	0.6
20311162	12	1250	0.6
20311179	12	1300	0.6
20311186	12	1350	0.6
20311193	12	1400	0.6
20311209	12	1450	0.6
20311216	12	1500	0.6

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20311223	12	1550	0.6
20311230	12	1600	0.6
20311247	12	1650	0.6
20311254	12	1700	0.6
20311261	12	1750	0.6
20311278	12	1800	0.6
20311285	12	1850	0.6
20311292	12	1900	0.6
20311308	12	1950	0.6
20311315	12	2000	0.6
20311322	12	2050	0.6
20311339	12	2100	0.6
20311346	12	2150	0.6
20311353	12	2200	0.6
20311360	12	2250	0.6
20311377	12	2300	0.6
20311384	12	2350	0.6
20311391	12	2400	0.6
20311407	12	2450	0.6
20311414	12	2500	0.6
20311421	12	2550	0.6
20311438	12	2600	0.6
20311445	12	2650	0.6
20311452	12	2700	0.6
20311469	12	2750	0.6
20311476	12	2800	0.6
20311483	12	2850	0.6
20311490	12	2900	0.6
20311506	12	2950	0.6
20311513	12	3000	0.6
20311520	12	3050	0.6
20311537	12	3100	0.6
20311544	12	3150	0.6
20311551	12	3200	0.6
20311568	12	3250	0.6
20311575	12	3300	0.6
20311582	12	3350	0.6
20311599	12	3400	0.6
20311605	12	3450	0.6
20311612	12	3500	0.6
20311629	12	3550	0.6
20311636	12	3600	0.6
20311643	12	3650	0.6
20311650	12	3700	0.6
20311667	12	3750	0.6
20311674	12	3800	0.6
20311681	12	3850	0.6
20311698	12	3900	0.6
20311704	12	3950	0.6
20311711	12	4000	0.6
20311728	12	4050	0.6
20311735	12	4100	0.6
20311742	12	4150	0.6
20311759	12	4200	0.6
20311766	12	4250	0.6
20311773	12	4300	0.6
20311780	12	4350	0.6
20311797	12	4400	0.6
20311803	12	4450	0.6
20311810	12	4500	0.6
20311827	12	4550	0.6
20311834	12	4600	0.6
20311841	12	4650	0.6
20311858	12	4700	0.6
20311865	12	4750	0.6
20311872	12	4800	0.6
20311889	12	4850	0.6
20311896	12	4900	0.6

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20311902	12	4950	0.6
20311919	12	5000	0.6
20311926	12	5050	0.6
20311933	12	5100	0.6
20311940	12	5150	0.6
20311957	12	5200	0.6
20311964	12	5250	0.6
20311971	12	5300	0.6
20311988	12	5350	0.6
20311995	12	5400	0.6
20312008	12	5450	0.6
20312015	12	5500	0.6
20312022	12	5550	0.6
20312039	12	5600	0.6
20312046	12	5650	0.6
20312053	12	5700	0.6
20312060	12	5750	0.6
20312077	12	5800	0.6
20312084	12	5850	0.6
20312091	12	5900	0.6
20312107	12	5950	0.6
20312114	12	6000	0.6



EL1773.16



Material

Stainless steel AISI 303 (1.4305, X10CrNiS18-19), surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla. Yield stress: >510 N/mm², tensile strength: >720 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.
Straightness 0,2mm/m.

Tips

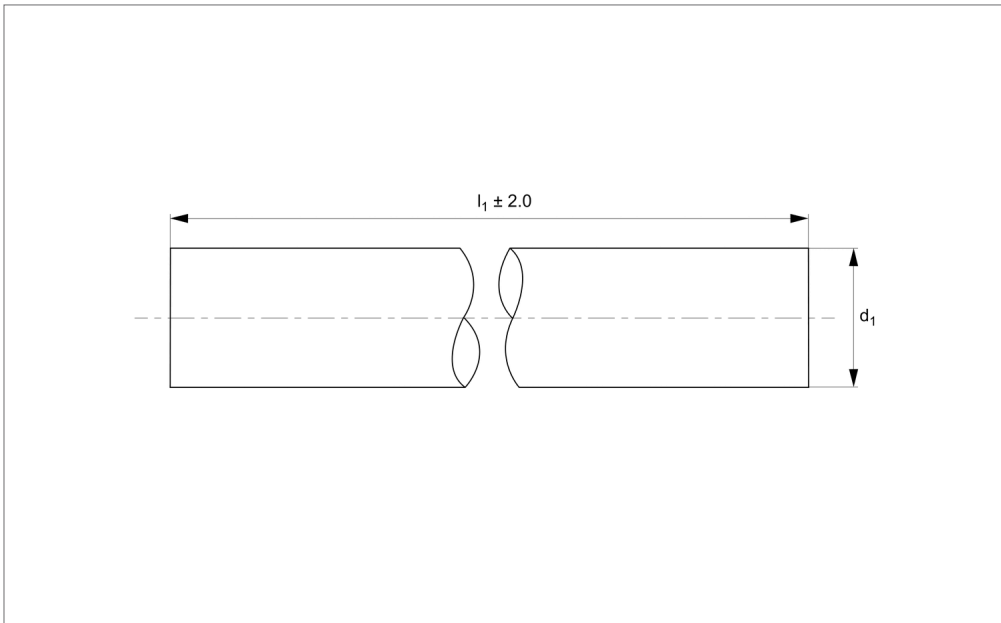
Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.
Shafts lengths are cut to typically ± 2mm.
To be used with ceramic or other bearings

not containing hardened ball bearings.

Order No.	d ₁ tol. h6	l ₁	Tolerance µ tol. h6
20312121	16	100	0.6
20312138	16	150	0.6
20312145	16	200	0.6
20312152	16	250	0.6
20312169	16	300	0.6
20312176	16	350	0.6
20312183	16	400	0.6
20312190	16	450	0.6
20312206	16	500	0.6
20312213	16	550	0.6
20312220	16	600	0.6
20312237	16	650	0.6
20312244	16	700	0.6
20312251	16	750	0.6
20312268	16	800	0.6
20312275	16	850	0.6
20312282	16	900	0.6
20312299	16	950	0.6
20312305	16	1000	0.6
20312312	16	1050	0.6
20312329	16	1100	0.6
20312336	16	1150	0.6
20312343	16	1200	0.6
20312350	16	1250	0.6
20312367	16	1300	0.6
20312374	16	1350	0.6
20312381	16	1400	0.6
20312398	16	1450	0.6
20312404	16	1500	0.6

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20312411	16	1550	0.6
20312428	16	1600	0.6
20312435	16	1650	0.6
20312442	16	1700	0.6
20312459	16	1750	0.6
20312466	16	1800	0.6
20312473	16	1850	0.6
20312480	16	1900	0.6
20312497	16	1950	0.6
20312503	16	2000	0.6
20312510	16	2050	0.6
20312527	16	2100	0.6
20312534	16	2150	0.6
20312541	16	2200	0.6
20312558	16	2250	0.6
20312565	16	2300	0.6
20312572	16	2350	0.6
20312589	16	2400	0.6
20312596	16	2450	0.6
20312602	16	2500	0.6
20312619	16	2550	0.6
20312626	16	2600	0.6
20312633	16	2650	0.6
20312640	16	2700	0.6
20312657	16	2750	0.6
20312664	16	2800	0.6
20312671	16	2850	0.6
20312688	16	2900	0.6
20312695	16	2950	0.6
20312701	16	3000	0.6
20312718	16	3050	0.6
20312725	16	3100	0.6
20312732	16	3150	0.6
20312749	16	3200	0.6
20312756	16	3250	0.6
20312763	16	3300	0.6
20312770	16	3350	0.6
20312787	16	3400	0.6
20312794	16	3450	0.6
20312800	16	3500	0.6
20312817	16	3550	0.6
20312824	16	3600	0.6
20312831	16	3650	0.6
20312848	16	3700	0.6
20312855	16	3750	0.6
20312862	16	3800	0.6
20312879	16	3850	0.6
20312886	16	3900	0.6
20312893	16	3950	0.6
20312909	16	4000	0.6
20312916	16	4050	0.6
20312923	16	4100	0.6
20312930	16	4150	0.6
20312947	16	4200	0.6
20312954	16	4250	0.6
20312961	16	4300	0.6
20312978	16	4350	0.6
20312985	16	4400	0.6
20312992	16	4450	0.6
20313005	16	4500	0.6
20313012	16	4550	0.6
20313029	16	4600	0.6
20313036	16	4650	0.6
20313043	16	4700	0.6
20313050	16	4750	0.6
20313067	16	4800	0.6
20313074	16	4850	0.6
20313081	16	4900	0.6

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20313098	16	4950	0.6
20313104	16	5000	0.6
20313111	16	5050	0.6
20313128	16	5100	0.6
20313135	16	5150	0.6
20313142	16	5200	0.6
20313159	16	5250	0.6
20313166	16	5300	0.6
20313173	16	5350	0.6
20313180	16	5400	0.6
20313197	16	5450	0.6
20313203	16	5500	0.6
20313210	16	5550	0.6
20313227	16	5600	0.6
20313234	16	5650	0.6
20313241	16	5700	0.6
20313258	16	5750	0.6
20313265	16	5800	0.6
20313272	16	5850	0.6
20313289	16	5900	0.6
20313296	16	5950	0.6
20313302	16	6000	0.6



EL1773.20

LINEAR SHAFT BARS

Material

Stainless steel AISI 303 (1.4305, X10CrNiS18-19), surface finish 0.3-0.6 μ Ra, ground and polished to 8-12 cla. Yield stress: >510 N/mm², tensile strength: >720 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.
Straightness 0,2mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

Shafts lengths are cut to typically ± 2 mm.
To be used with ceramic or other bearings

not containing hardened ball bearings.

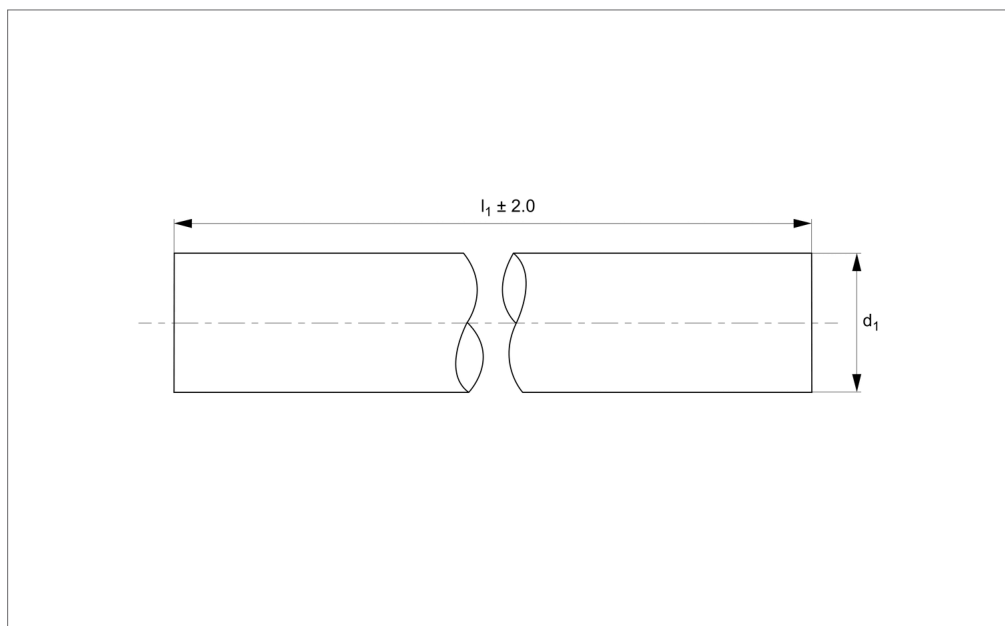
Order No.	d_1 tol. h6	l_1	Tolerance μ tol. h6
20313319	20	100	+0,-13
20313326	20	150	+0,-13
20313333	20	200	+0,-13
20313340	20	250	+0,-13
20313357	20	300	+0,-13
20313364	20	350	+0,-13
20313371	20	400	+0,-13
20313388	20	450	+0,-13
20313395	20	500	+0,-13
20313401	20	550	+0,-13
20313418	20	600	+0,-13
20313425	20	650	+0,-13
20313432	20	700	+0,-13
20313449	20	750	+0,-13
20313456	20	800	+0,-13
20313463	20	850	+0,-13
20313470	20	900	+0,-13
20313487	20	950	+0,-13
20313494	20	1000	+0,-13
20313500	20	1050	+0,-13
20313517	20	1100	+0,-13
20313524	20	1150	+0,-13
20313531	20	1200	+0,-13
20313548	20	1250	+0,-13
20313555	20	1300	+0,-13
20313562	20	1350	+0,-13
20313579	20	1400	+0,-13
20313586	20	1450	+0,-13
20313593	20	1500	+0,-13

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20313609	20	1550	+0,-13
20313616	20	1600	+0,-13
20313623	20	1650	+0,-13
20313630	20	1700	+0,-13
20313647	20	1750	+0,-13
20313654	20	1800	+0,-13
20313661	20	1850	+0,-13
20313678	20	1900	+0,-13
20313685	20	1950	+0,-13
20313692	20	2000	+0,-13
20313708	20	2050	+0,-13
20313715	20	2100	+0,-13
20313722	20	2150	+0,-13
20313739	20	2200	+0,-13
20313746	20	2250	+0,-13
20313753	20	2300	+0,-13
20313760	20	2350	+0,-13
20313777	20	2400	+0,-13
20313784	20	2450	+0,-13
20313791	20	2500	+0,-13
20313807	20	2550	+0,-13
20313814	20	2600	+0,-13
20313821	20	2650	+0,-13
20313838	20	2700	+0,-13
20313845	20	2750	+0,-13
20313852	20	2800	+0,-13
20313869	20	2850	+0,-13
20313876	20	2900	+0,-13
20313883	20	2950	+0,-13
20313890	20	3000	+0,-13
20313906	20	3050	+0,-13
20313913	20	3100	+0,-13
20313920	20	3150	+0,-13
20313937	20	3200	+0,-13
20313944	20	3250	+0,-13
20313951	20	3300	+0,-13
20313968	20	3350	+0,-13
20313975	20	3400	+0,-13
20313982	20	3450	+0,-13
20313999	20	3500	+0,-13
20314002	20	3550	+0,-13
20314019	20	3600	+0,-13
20314026	20	3650	+0,-13
20314033	20	3700	+0,-13
20314040	20	3750	+0,-13
20314057	20	3800	+0,-13
20314064	20	3850	+0,-13
20314071	20	3900	+0,-13
20314088	20	3950	+0,-13
20314095	20	4000	+0,-13
20314101	20	4050	+0,-13
20314118	20	4100	+0,-13
20314125	20	4150	+0,-13
20314132	20	4200	+0,-13
20314149	20	4250	+0,-13
20314156	20	4300	+0,-13
20314163	20	4350	+0,-13
20314170	20	4400	+0,-13
20314187	20	4450	+0,-13
20314194	20	4500	+0,-13
20314200	20	4550	+0,-13
20314217	20	4600	+0,-13
20314224	20	4650	+0,-13
20314231	20	4700	+0,-13
20314248	20	4750	+0,-13
20314255	20	4800	+0,-13
20314262	20	4850	+0,-13
20314279	20	4900	+0,-13

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20314286	20	4950	+0,-13
20314293	20	5000	+0,-13
20314309	20	5050	+0,-13
20314316	20	5100	+0,-13
20314323	20	5150	+0,-13
20314330	20	5200	+0,-13
20314347	20	5250	+0,-13
20314354	20	5300	+0,-13
20314361	20	5350	+0,-13
20314378	20	5400	+0,-13
20314385	20	5450	+0,-13
20314392	20	5500	+0,-13
20314408	20	5550	+0,-13
20314415	20	5600	+0,-13
20314422	20	5650	+0,-13
20314439	20	5700	+0,-13
20314446	20	5750	+0,-13
20314453	20	5800	+0,-13
20314460	20	5850	+0,-13
20314477	20	5900	+0,-13
20314484	20	5950	+0,-13
20314491	20	6000	+0,-13



EL1773.25



Material

Stainless steel AISI 303 (1.4305, X10CrNiS18-19), surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla. Yield stress: >510 N/mm², tensile strength: >720 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.
Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

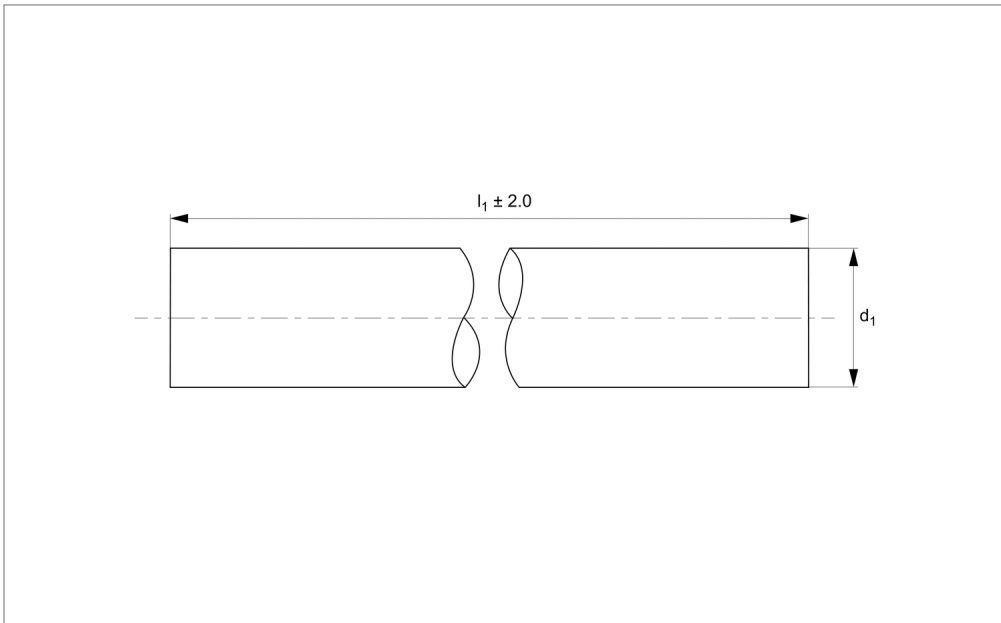
Shafts lengths are cut to typically ± 2mm.
To be used with ceramic or other bearings

not containing hardened ball bearings.

Order No.	d ₁ tol. h6	l ₁	Tolerance µ tol. h6
20314507	25	100	+0,-13
20314514	25	150	+0,-13
20314521	25	200	+0,-13
20314538	25	250	+0,-13
20314545	25	300	+0,-13
20314552	25	350	+0,-13
20314569	25	400	+0,-13
20314576	25	450	+0,-13
20314583	25	500	+0,-13
20314590	25	550	+0,-13
20314606	25	600	+0,-13
20314613	25	650	+0,-13
20314620	25	700	+0,-13
20314637	25	750	+0,-13
20314644	25	800	+0,-13
20314651	25	850	+0,-13
20314668	25	900	+0,-13
20314675	25	950	+0,-13
20314682	25	1000	+0,-13
20314699	25	1050	+0,-13
20314705	25	1100	+0,-13
20314712	25	1150	+0,-13
20314729	25	1200	+0,-13
20314736	25	1250	+0,-13
20314743	25	1300	+0,-13
20314750	25	1350	+0,-13
20314767	25	1400	+0,-13
20314774	25	1450	+0,-13
20314781	25	1500	+0,-13

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20314798	25	1550	+0,-13
20314804	25	1600	+0,-13
20314811	25	1650	+0,-13
20314828	25	1700	+0,-13
20314835	25	1750	+0,-13
20314842	25	1800	+0,-13
20314859	25	1850	+0,-13
20314866	25	1900	+0,-13
20314873	25	1950	+0,-13
20314880	25	2000	+0,-13
20314897	25	2050	+0,-13
20314903	25	2100	+0,-13
20314910	25	2150	+0,-13
20314927	25	2200	+0,-13
20314934	25	2250	+0,-13
20314941	25	2300	+0,-13
20314958	25	2350	+0,-13
20314965	25	2400	+0,-13
20314972	25	2450	+0,-13
20314989	25	2500	+0,-13
20314996	25	2550	+0,-13
20315009	25	2600	+0,-13
20315016	25	2650	+0,-13
20315023	25	2700	+0,-13
20315030	25	2750	+0,-13
20315047	25	2800	+0,-13
20315054	25	2850	+0,-13
20315061	25	2900	+0,-13
20315078	25	2950	+0,-13
20315085	25	3000	+0,-13
20315092	25	3050	+0,-13
20315108	25	3100	+0,-13
20315115	25	3150	+0,-13
20315122	25	3200	+0,-13
20315139	25	3250	+0,-13
20315146	25	3300	+0,-13
20315153	25	3350	+0,-13
20315160	25	3400	+0,-13
20315177	25	3450	+0,-13
20315184	25	3500	+0,-13
20315191	25	3550	+0,-13
20315207	25	3600	+0,-13
20315214	25	3650	+0,-13
20315221	25	3700	+0,-13
20315238	25	3750	+0,-13
20315245	25	3800	+0,-13
20315252	25	3850	+0,-13
20315269	25	3900	+0,-13
20315276	25	3950	+0,-13
20315283	25	4000	+0,-13
20315290	25	4050	+0,-13
20315306	25	4100	+0,-13
20315313	25	4150	+0,-13
20315320	25	4200	+0,-13
20315337	25	4250	+0,-13
20315344	25	4300	+0,-13
20315351	25	4350	+0,-13
20315368	25	4400	+0,-13
20315375	25	4450	+0,-13
20315382	25	4500	+0,-13
20315399	25	4550	+0,-13
20315405	25	4600	+0,-13
20315412	25	4650	+0,-13
20315429	25	4700	+0,-13
20315436	25	4750	+0,-13
20315443	25	4800	+0,-13
20315450	25	4850	+0,-13
20315467	25	4900	+0,-13

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20315474	25	4950	+0,-13
20315481	25	5000	+0,-13
20315498	25	5050	+0,-13
20315504	25	5100	+0,-13
20315511	25	5150	+0,-13
20315528	25	5200	+0,-13
20315535	25	5250	+0,-13
20315542	25	5300	+0,-13
20315559	25	5350	+0,-13
20315566	25	5400	+0,-13
20315573	25	5450	+0,-13
20315580	25	5500	+0,-13
20315597	25	5550	+0,-13
20315603	25	5600	+0,-13
20315610	25	5650	+0,-13
20315627	25	5700	+0,-13
20315634	25	5750	+0,-13
20315641	25	5800	+0,-13
20315658	25	5850	+0,-13
20315665	25	5900	+0,-13
20315672	25	5950	+0,-13
20315689	25	6000	+0,-13



EL1773.30

LINEAR SHAFT BARS

Material

Stainless steel AISI 303 (1.4305, X10CrNiS18-19), surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla. Yield stress: >510 N/mm², tensile strength: >720 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.
Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

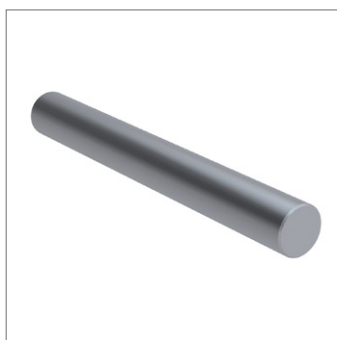
Shafts lengths are cut to typically ± 2 mm.
To be used with ceramic or other bearings

not containing hardened ball bearings.

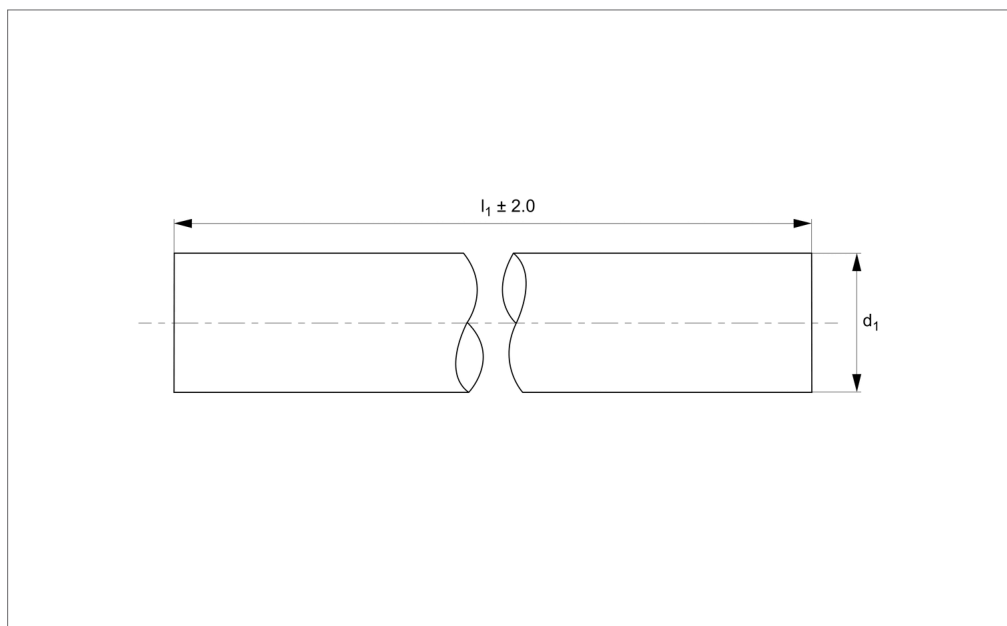
Order No.	d_1	l_1	Tolerance μ tol. h6
20315696	30	100	+0,-13
20315702	30	150	+0,-13
20315719	30	200	+0,-13
20315726	30	250	+0,-13
20315733	30	300	+0,-13
20315740	30	350	+0,-13
20315757	30	400	+0,-13
20315764	30	450	+0,-13
20315771	30	500	+0,-13
20315788	30	550	+0,-13
20315795	30	600	+0,-13
20315801	30	650	+0,-13
20315818	30	700	+0,-13
20315825	30	750	+0,-13
20315832	30	800	+0,-13
20315849	30	850	+0,-13
20315856	30	900	+0,-13
20315863	30	950	+0,-13
20315870	30	1000	+0,-13
20315887	30	1050	+0,-13
20315894	30	1100	+0,-13
20315900	30	1150	+0,-13
20315917	30	1200	+0,-13
20315924	30	1250	+0,-13
20315931	30	1300	+0,-13
20315948	30	1350	+0,-13
20315955	30	1400	+0,-13
20315962	30	1450	+0,-13
20315979	30	1500	+0,-13

Order No.	d ₁	l ₁	Tolerance μ tol. h6
20315986	30	1550	+0,-13
20315993	30	1600	+0,-13
20316006	30	1650	+0,-13
20316013	30	1700	+0,-13
20316020	30	1750	+0,-13
20316037	30	1800	+0,-13
20316044	30	1850	+0,-13
20316051	30	1900	+0,-13
20316068	30	1950	+0,-13
20316075	30	2000	+0,-13
20316082	30	2050	+0,-13
20316099	30	2100	+0,-13
20316105	30	2150	+0,-13
20316112	30	2200	+0,-13
20316129	30	2250	+0,-13
20316136	30	2300	+0,-13
20316143	30	2350	+0,-13
20316150	30	2400	+0,-13
20316167	30	2450	+0,-13
20316174	30	2500	+0,-13
20316181	30	2550	+0,-13
20316198	30	2600	+0,-13
20316204	30	2650	+0,-13
20316211	30	2700	+0,-13
20316228	30	2750	+0,-13
20316235	30	2800	+0,-13
20316242	30	2850	+0,-13
20316259	30	2900	+0,-13
20316266	30	2950	+0,-13
20316273	30	3000	+0,-13
20316280	30	3050	+0,-13
20316297	30	3100	+0,-13
20316303	30	3150	+0,-13
20316310	30	3200	+0,-13
20316327	30	3250	+0,-13
20316334	30	3300	+0,-13
20316341	30	3350	+0,-13
20316358	30	3400	+0,-13
20316365	30	3450	+0,-13
20316372	30	3500	+0,-13
20316389	30	3550	+0,-13
20316396	30	3600	+0,-13
20316402	30	3650	+0,-13
20316419	30	3700	+0,-13
20316426	30	3750	+0,-13
20316433	30	3800	+0,-13
20316440	30	3850	+0,-13
20316457	30	3900	+0,-13
20316464	30	3950	+0,-13
20316471	30	4000	+0,-13
20316488	30	4050	+0,-13
20316495	30	4100	+0,-13
20316501	30	4150	+0,-13
20316518	30	4200	+0,-13
20316525	30	4250	+0,-13
20316532	30	4300	+0,-13
20316549	30	4350	+0,-13
20316556	30	4400	+0,-13
20316563	30	4450	+0,-13
20316570	30	4500	+0,-13
20316587	30	4550	+0,-13
20316594	30	4600	+0,-13
20316600	30	4650	+0,-13
20316617	30	4700	+0,-13
20316624	30	4750	+0,-13
20316631	30	4800	+0,-13
20316648	30	4850	+0,-13
20316655	30	4900	+0,-13

Order No.	d ₁	l ₁	Tolerance μ tol. h6
20316662	30	4950	+0,-13
20316679	30	5000	+0,-13
20316686	30	5050	+0,-13
20316693	30	5100	+0,-13
20316709	30	5150	+0,-13
20316716	30	5200	+0,-13
20316723	30	5250	+0,-13
20316730	30	5300	+0,-13
20316747	30	5350	+0,-13
20316754	30	5400	+0,-13
20316761	30	5450	+0,-13
20316778	30	5500	+0,-13
20316785	30	5550	+0,-13
20316792	30	5600	+0,-13
20316808	30	5650	+0,-13
20316815	30	5700	+0,-13
20316822	30	5750	+0,-13
20316839	30	5800	+0,-13
20316846	30	5850	+0,-13
20316853	30	5900	+0,-13
20316860	30	5950	+0,-13
20316877	30	6000	+0,-13



EL1773.40



Material

Stainless steel AISI 303 (1.4305, X10CrNiS18-19), surface finish 0.3-0.6μ Ra, ground and polished to 8-12 cla. Yield stress: >510 N/mm², tensile strength: >720 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.
Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

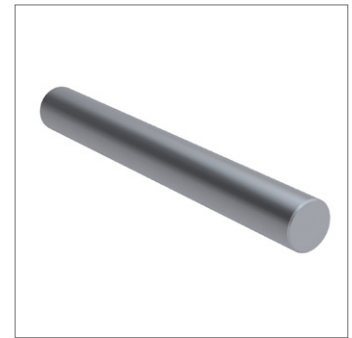
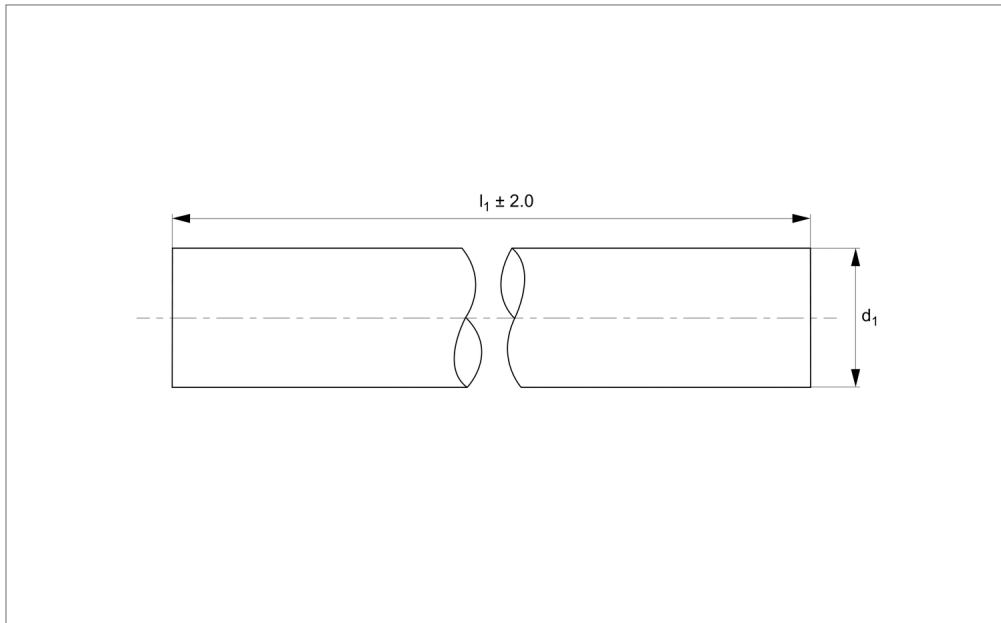
Shafts lengths are cut to typically ± 2mm.
To be used with ceramic or other bearings

not containing hardened ball bearings.

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20316884	40	100	+0,-16
20316891	40	150	+0,-16
20316907	40	200	+0,-16
20316914	40	250	+0,-16
20316921	40	300	+0,-16
20316938	40	350	+0,-16
20316945	40	400	+0,-16
20316952	40	450	+0,-16
20316969	40	500	+0,-16
20316976	40	550	+0,-16
20316983	40	600	+0,-16
20316990	40	650	+0,-16
20317003	40	700	+0,-16
20317010	40	750	+0,-16
20317027	40	800	+0,-16
20317034	40	850	+0,-16
20317041	40	900	+0,-16
20317058	40	950	+0,-16
20317065	40	1000	+0,-16
20317072	40	1050	+0,-16
20317089	40	1100	+0,-16
20317096	40	1150	+0,-16
20317102	40	1200	+0,-16
20317119	40	1250	+0,-16
20317126	40	1300	+0,-16
20317133	40	1350	+0,-16
20317140	40	1400	+0,-16
20317157	40	1450	+0,-16
20317164	40	1500	+0,-16

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20317171	40	1550	+0,-16
20317188	40	1600	+0,-16
20317195	40	1650	+0,-16
20317201	40	1700	+0,-16
20317218	40	1750	+0,-16
20317225	40	1800	+0,-16
20317232	40	1850	+0,-16
20317249	40	1900	+0,-16
20317256	40	1950	+0,-16
20317263	40	2000	+0,-16
20317270	40	2050	+0,-16
20317287	40	2100	+0,-16
20317294	40	2150	+0,-16
20317300	40	2200	+0,-16
20317317	40	2250	+0,-16
20317324	40	2300	+0,-16
20317331	40	2350	+0,-16
20317348	40	2400	+0,-16
20317355	40	2450	+0,-16
20317362	40	2500	+0,-16
20317379	40	2550	+0,-16
20317386	40	2600	+0,-16
20317393	40	2650	+0,-16
20317409	40	2700	+0,-16
20317416	40	2750	+0,-16
20317423	40	2800	+0,-16
20317430	40	2850	+0,-16
20317447	40	2900	+0,-16
20317454	40	2950	+0,-16
20317461	40	3000	+0,-16
20317478	40	3050	+0,-16
20317485	40	3100	+0,-16
20317492	40	3150	+0,-16
20317508	40	3200	+0,-16
20317515	40	3250	+0,-16
20317522	40	3300	+0,-16
20317539	40	3350	+0,-16
20317546	40	3400	+0,-16
20317553	40	3450	+0,-16
20317560	40	3500	+0,-16
20317577	40	3550	+0,-16
20317584	40	3600	+0,-16
20317591	40	3650	+0,-16
20317607	40	3700	+0,-16
20317614	40	3750	+0,-16
20317621	40	3800	+0,-16
20317638	40	3850	+0,-16
20317645	40	3900	+0,-16
20317652	40	3950	+0,-16
20317669	40	4000	+0,-16
20317676	40	4050	+0,-16
20317683	40	4100	+0,-16
20317690	40	4150	+0,-16
20317706	40	4200	+0,-16
20317713	40	4250	+0,-16
20317720	40	4300	+0,-16
20317737	40	4350	+0,-16
20317744	40	4400	+0,-16
20317751	40	4450	+0,-16
20317768	40	4500	+0,-16
20317775	40	4550	+0,-16
20317782	40	4600	+0,-16
20317799	40	4650	+0,-16
20317805	40	4700	+0,-16
20317812	40	4750	+0,-16
20317829	40	4800	+0,-16
20317836	40	4850	+0,-16
20317843	40	4900	+0,-16

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20317850	40	4950	+0,-16
20317867	40	5000	+0,-16
20317874	40	5050	+0,-16
20317881	40	5100	+0,-16
20317898	40	5150	+0,-16
20317904	40	5200	+0,-16
20317911	40	5250	+0,-16
20317928	40	5300	+0,-16
20317935	40	5350	+0,-16
20317942	40	5400	+0,-16
20317959	40	5450	+0,-16
20317966	40	5500	+0,-16
20317973	40	5550	+0,-16
20317980	40	5600	+0,-16
20317997	40	5650	+0,-16
20318000	40	5700	+0,-16
20318017	40	5750	+0,-16
20318024	40	5800	+0,-16
20318031	40	5850	+0,-16
20318048	40	5900	+0,-16
20318055	40	5950	+0,-16
20318062	40	6000	+0,-16



EL1773.50

LINEAR SHAFT BARS

Material

Stainless steel AISI 303 (1.4305, X10CrNiS18-19), surface finish 0.3-0.6 μ Ra, ground and polished to 8-12 cla. Yield stress: >510 N/mm², tensile strength: >720 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.
Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

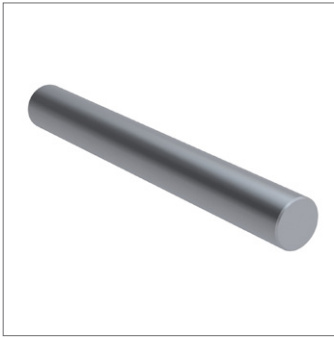
Shafts lengths are cut to typically ± 2 mm.
To be used with ceramic or other bearings

not containing hardened ball bearings.

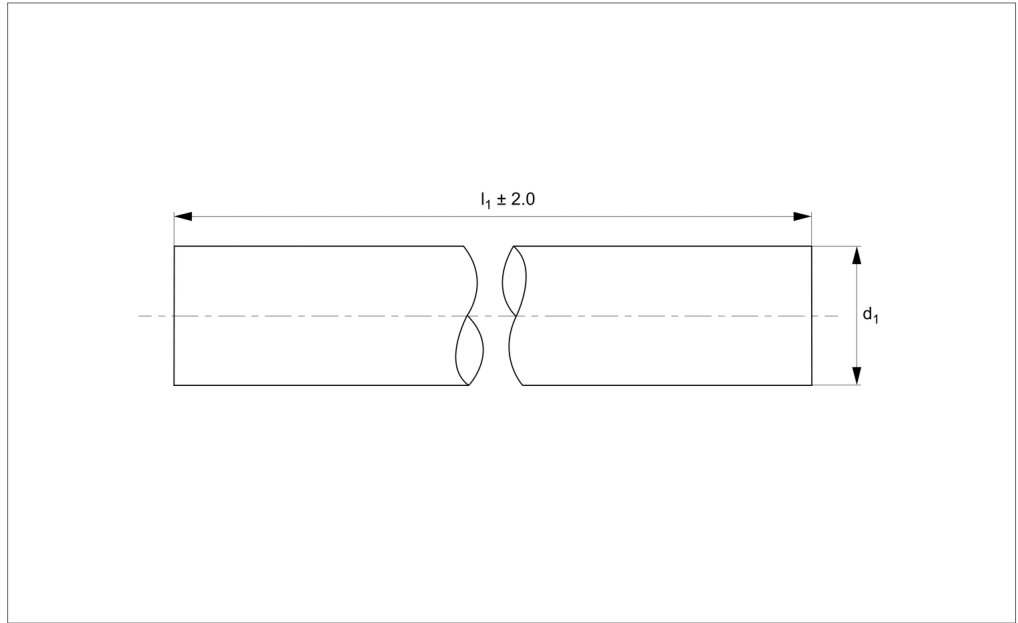
Order No.	d_1 tol. h6	l_1	Tolerance μ tol. h6
20318079	50	100	+0,-16
20318086	50	150	+0,-16
20318093	50	200	+0,-16
20318109	50	250	+0,-16
20318116	50	300	+0,-16
20318123	50	350	+0,-16
20318130	50	400	+0,-16
20318147	50	450	+0,-16
20318154	50	500	+0,-16
20318161	50	550	+0,-16
20318178	50	600	+0,-16
20318185	50	650	+0,-16
20318192	50	700	+0,-16
20318208	50	750	+0,-16
20318215	50	800	+0,-16
20318222	50	850	+0,-16
20318239	50	900	+0,-16
20318246	50	1000	+0,-16
20318253	50	1050	+0,-16
20318260	50	1100	+0,-16
20318277	50	1150	+0,-16
20318284	50	1200	+0,-16
20318291	50	1250	+0,-16
20318307	50	1300	+0,-16
20318314	50	1350	+0,-16
20318321	50	1400	+0,-16
20318338	50	1450	+0,-16
20318345	50	1500	+0,-16
20318352	50	1550	+0,-16

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20318369	50	1600	+0,-16
20318376	50	1650	+0,-16
20318383	50	1700	+0,-16
20318390	50	1750	+0,-16
20318406	50	1800	+0,-16
20318413	50	1850	+0,-16
20318420	50	1900	+0,-16
20318437	50	1950	+0,-16
20318444	50	2000	+0,-16
20318451	50	2050	+0,-16
20318468	50	2100	+0,-16
20318475	50	2150	+0,-16
20318482	50	2200	+0,-16
20318499	50	2250	+0,-16
20318505	50	2300	+0,-16
20318512	50	2350	+0,-16
20318529	50	2400	+0,-16
20318536	50	2450	+0,-16
20318543	50	2500	+0,-16
20318550	50	2550	+0,-16
20318567	50	2600	+0,-16
20318574	50	2650	+0,-16
20318581	50	2700	+0,-16
20318598	50	2750	+0,-16
20318604	50	2800	+0,-16
20318611	50	2850	+0,-16
20318628	50	2900	+0,-16
20318635	50	2950	+0,-16
20318642	50	3000	+0,-16
20318659	50	3050	+0,-16
20318666	50	3100	+0,-16
20318673	50	3150	+0,-16
20318680	50	3200	+0,-16
20318697	50	3250	+0,-16
20318703	50	3300	+0,-16
20318710	50	3350	+0,-16
20318727	50	3400	+0,-16
20318734	50	3450	+0,-16
20318741	50	3500	+0,-16
20318758	50	3550	+0,-16
20318765	50	3600	+0,-16
20318772	50	3650	+0,-16
20318789	50	3700	+0,-16
20318796	50	3750	+0,-16
20318802	50	3800	+0,-16
20318819	50	3850	+0,-16
20318826	50	3900	+0,-16
20318833	50	3950	+0,-16
20318840	50	4000	+0,-16
20318857	50	4050	+0,-16
20318864	50	4100	+0,-16
20318871	50	4150	+0,-16
20318888	50	4200	+0,-16
20318895	50	4250	+0,-16
20318901	50	4300	+0,-16
20318918	50	4350	+0,-16
20318925	50	4400	+0,-16
20318932	50	4450	+0,-16
20318949	50	4500	+0,-16
20318956	50	4550	+0,-16
20318963	50	4600	+0,-16
20318970	50	4650	+0,-16
20318987	50	4700	+0,-16
20318994	50	4750	+0,-16
20319007	50	4800	+0,-16
20319014	50	4850	+0,-16
20319021	50	4900	+0,-16
20319038	50	4950	+0,-16

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20319045	50	5000	+0,-16
20319052	50	5050	+0,-16
20319069	50	5100	+0,-16
20319076	50	5150	+0,-16
20319083	50	5200	+0,-16
20319090	50	5250	+0,-16
20319106	50	5300	+0,-16
20319113	50	5350	+0,-16
20319120	50	5400	+0,-16
20319137	50	5450	+0,-16
20319144	50	5500	+0,-16
20319151	50	5550	+0,-16
20319168	50	5600	+0,-16
20319175	50	5650	+0,-16
20319182	50	5700	+0,-16
20319199	50	5750	+0,-16
20319205	50	5800	+0,-16
20319212	50	5850	+0,-16
20319229	50	5900	+0,-16
20319236	50	5950	+0,-16
20319243	50	6000	+0,-16



EL1773.60



Material

Stainless steel AISI 303 (1.4305, X10CrNiS18-19), surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla. Yield stress: >510 N/mm², tensile strength: >720 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.
Straightness 0,1mm/m.

Tips

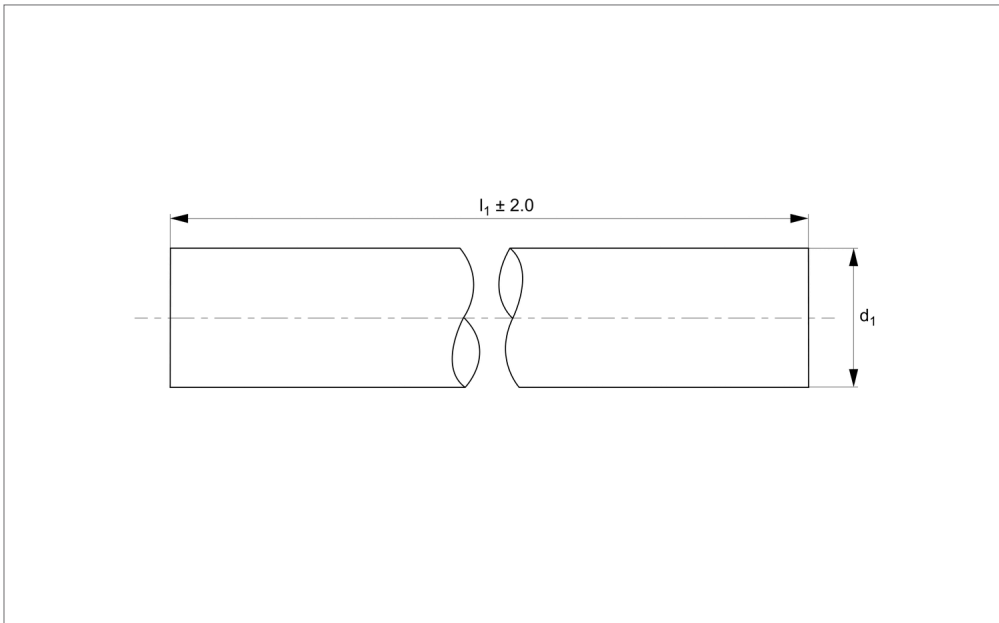
Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.
Shafts lengths are cut to typically ± 2mm.
To be used with ceramic or other bearings

not containing hardened ball bearings.

Order No.	d ₁ tol. h6	l ₁	Tolerance µ tol. h6
20319250	60	100	+0,-19
20319267	60	150	+0,-19
20319274	60	200	+0,-19
20319281	60	250	+0,-19
20319298	60	300	+0,-19
20319304	60	350	+0,-19
20319311	60	400	+0,-19
20319328	60	450	+0,-19
20319335	60	500	+0,-19
20319342	60	550	+0,-19
20319359	60	600	+0,-19
20319366	60	650	+0,-19
20319373	60	700	+0,-19
20319380	60	750	+0,-19
20319397	60	800	+0,-19
20319403	60	850	+0,-19
20319410	60	900	+0,-19
20319427	60	950	+0,-19
20319434	60	1000	+0,-19
20319441	60	1050	+0,-19
20319458	60	1100	+0,-19
20319465	60	1150	+0,-19
20319472	60	1200	+0,-19
20319489	60	1250	+0,-19
20319496	60	1300	+0,-19
20319502	60	1350	+0,-19
20319519	60	1400	+0,-19
20319526	60	1450	+0,-19
20319533	60	1500	+0,-19

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20319540	60	1550	+0,-19
20319557	60	1600	+0,-19
20319564	60	1650	+0,-19
20319571	60	1700	+0,-19
20319588	60	1750	+0,-19
20319595	60	1800	+0,-19
20319601	60	1850	+0,-19
20319618	60	1900	+0,-19
20319625	60	1950	+0,-19
20319632	60	2000	+0,-19
20319649	60	2050	+0,-19
20319656	60	2100	+0,-19
20319663	60	2150	+0,-19
20319670	60	2200	+0,-19
20319687	60	2250	+0,-19
20319694	60	2300	+0,-19
20319700	60	2350	+0,-19
20319717	60	2400	+0,-19
20319724	60	2450	+0,-19
20319731	60	2500	+0,-19
20319748	60	2550	+0,-19
20319755	60	2600	+0,-19
20319762	60	2650	+0,-19
20319779	60	2700	+0,-19
20319786	60	2750	+0,-19
20319793	60	2800	+0,-19
20319809	60	2850	+0,-19
20319816	60	2900	+0,-19
20319823	60	2950	+0,-19
20319830	60	3000	+0,-19
20319847	60	3050	+0,-19
20319854	60	3100	+0,-19
20319861	60	3150	+0,-19
20319878	60	3200	+0,-19
20319885	60	3250	+0,-19
20319892	60	3300	+0,-19
20319908	60	3350	+0,-19
20319915	60	3400	+0,-19
20319922	60	3450	+0,-19
20319939	60	3500	+0,-19
20319946	60	3550	+0,-19
20319953	60	3600	+0,-19
20319960	60	3650	+0,-19
20319977	60	3700	+0,-19
20319984	60	3750	+0,-19
20319991	60	3800	+0,-19
20320003	60	3850	+0,-19
20320010	60	3900	+0,-19
20320027	60	3950	+0,-19
20320034	60	4000	+0,-19
20320041	60	4050	+0,-19
20320058	60	4100	+0,-19
20320065	60	4150	+0,-19
20320072	60	4200	+0,-19
20320089	60	4250	+0,-19
20320096	60	4300	+0,-19
20320102	60	4350	+0,-19
20320119	60	4400	+0,-19
20320126	60	4450	+0,-19
20320133	60	4500	+0,-19
20320140	60	4550	+0,-19
20320157	60	4600	+0,-19
20320164	60	4650	+0,-19
20320171	60	4700	+0,-19
20320188	60	4750	+0,-19
20320195	60	4800	+0,-19
20320201	60	4850	+0,-19
20320218	60	4900	+0,-19

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20320225	60	4950	+0,-19
20320232	60	5000	+0,-19
20320249	60	5050	+0,-19
20320256	60	5100	+0,-19
20320263	60	5150	+0,-19
20320270	60	5200	+0,-19
20320287	60	5250	+0,-19
20320294	60	5300	+0,-19
20320300	60	5350	+0,-19
20320317	60	5400	+0,-19
20320324	60	5450	+0,-19
20320331	60	5500	+0,-19
20320348	60	5550	+0,-19
20320355	60	5600	+0,-19
20320362	60	5650	+0,-19
20320379	60	5700	+0,-19
20320386	60	5750	+0,-19
20320393	60	5800	+0,-19
20320409	60	5850	+0,-19
20320416	60	5900	+0,-19
20320423	60	5950	+0,-19
20320430	60	6000	+0,-19



EL1774.06

LINEAR SHAFT BARS

Material

Stainless steel (AISI 316, A4). Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.

Yield stress: >205 N/mm², tensile strength: >515 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.

Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

Shafts lengths are cut to typically ± 2 mm.

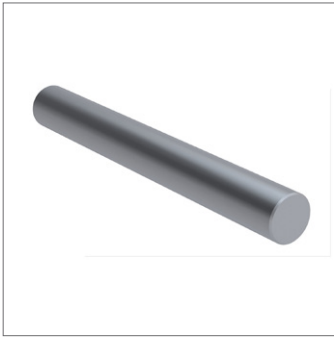
To be used with ceramic or other bearings

not containing hardened ball bearings.

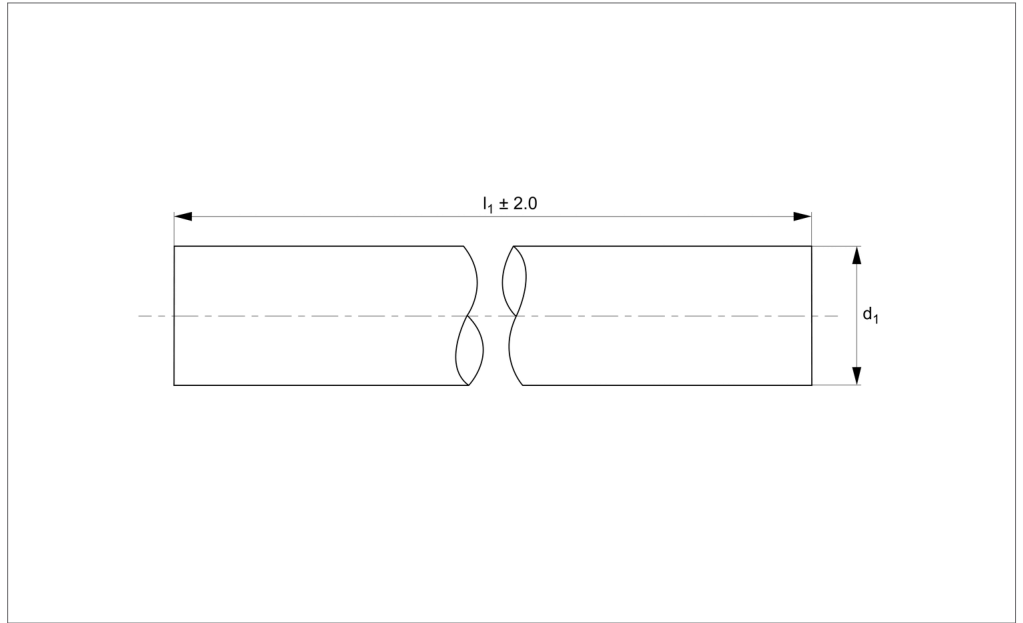
Order No.	d_1 tol. h6	l_1	Tolerance µ tol. h6	Depth of hardness
20320447	6	100	+0,-8	1.0
20320454	6	150	+0,-8	1.0
20320461	6	200	+0,-8	1.0
20320478	6	250	+0,-8	1.0
20320485	6	300	+0,-8	1.0
20320492	6	350	+0,-8	1.0
20320508	6	400	+0,-8	1.0
20320515	6	450	+0,-8	1.0
20320522	6	500	+0,-8	1.0
20320539	6	550	+0,-8	1.0
20320546	6	600	+0,-8	1.0
20320553	6	650	+0,-8	1.0
20320560	6	700	+0,-8	1.0
20320577	6	750	+0,-8	1.0
20320584	6	800	+0,-8	1.0
20320591	6	850	+0,-8	1.0
20320607	6	900	+0,-8	1.0
20320614	6	950	+0,-8	1.0
20320621	6	1000	+0,-8	1.0
20320638	6	1050	+0,-8	1.0
20320645	6	1100	+0,-8	1.0
20320652	6	1150	+0,-8	1.0
20320669	6	1200	+0,-8	1.0
20320676	6	1250	+0,-8	1.0
20320683	6	1300	+0,-8	1.0
20320690	6	1350	+0,-8	1.0
20320706	6	1400	+0,-8	1.0
20320713	6	1450	+0,-8	1.0
20320720	6	1500	+0,-8	1.0

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20320737	6	1550	+0,-8	1.0
20320744	6	1600	+0,-8	1.0
20320751	6	1650	+0,-8	1.0
20320768	6	1700	+0,-8	1.0
20320775	6	1750	+0,-8	1.0
20320782	6	1800	+0,-8	1.0
20320799	6	1850	+0,-8	1.0
20320805	6	1900	+0,-8	1.0
20320812	6	1950	+0,-8	1.0
20320829	6	2000	+0,-8	1.0
20320836	6	2050	+0,-8	1.0
20320843	6	2100	+0,-8	1.0
20320850	6	2150	+0,-8	1.0
20320867	6	2200	+0,-8	1.0
20320874	6	2250	+0,-8	1.0
20320881	6	2300	+0,-8	1.0
20320898	6	2350	+0,-8	1.0
20320904	6	2400	+0,-8	1.0
20320911	6	2450	+0,-8	1.0
20320928	6	2500	+0,-8	1.0
20320935	6	2550	+0,-8	1.0
20320942	6	2600	+0,-8	1.0
20320959	6	2650	+0,-8	1.0
20320966	6	2700	+0,-8	1.0
20320973	6	2750	+0,-8	1.0
20320980	6	2800	+0,-8	1.0
20320997	6	2850	+0,-8	1.0
20321000	6	2900	+0,-8	1.0
20321017	6	2950	+0,-8	1.0
20321024	6	3000	+0,-8	1.0
20321031	6	3050	+0,-8	1.0
20321048	6	3100	+0,-8	1.0
20321055	6	3150	+0,-8	1.0
20321062	6	3200	+0,-8	1.0
20321079	6	3250	+0,-8	1.0
20321086	6	3300	+0,-8	1.0
20321093	6	3350	+0,-8	1.0
20321109	6	3400	+0,-8	1.0
20321116	6	3450	+0,-8	1.0
20321123	6	3500	+0,-8	1.0
20321130	6	3550	+0,-8	1.0
20321147	6	3600	+0,-8	1.0
20321154	6	3650	+0,-8	1.0
20321161	6	3700	+0,-8	1.0
20321178	6	3750	+0,-8	1.0
20321185	6	3800	+0,-8	1.0
20321192	6	3850	+0,-8	1.0
20321208	6	3900	+0,-8	1.0
20321215	6	3950	+0,-8	1.0
20321222	6	4000	+0,-8	1.0
20321239	6	4050	+0,-8	1.0
20321246	6	4100	+0,-8	1.0
20321253	6	4150	+0,-8	1.0
20321260	6	4200	+0,-8	1.0
20321277	6	4250	+0,-8	1.0
20321284	6	4300	+0,-8	1.0
20321291	6	4350	+0,-8	1.0
20321307	6	4400	+0,-8	1.0
20321314	6	4450	+0,-8	1.0
20321321	6	4500	+0,-8	1.0
20321338	6	4550	+0,-8	1.0
20321345	6	4600	+0,-8	1.0
20321352	6	4650	+0,-8	1.0
20321369	6	4700	+0,-8	1.0
20321376	6	4750	+0,-8	1.0
20321383	6	4800	+0,-8	1.0
20321390	6	4850	+0,-8	1.0
20321406	6	4900	+0,-8	1.0

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20321413	6	4950	+0,-8	1.0
20321420	6	5000	+0,-8	1.0
20321437	6	5050	+0,-8	1.0
20321444	6	5100	+0,-8	1.0
20321451	6	5150	+0,-8	1.0
20321468	6	5200	+0,-8	1.0
20321475	6	5250	+0,-8	1.0
20321482	6	5300	+0,-8	1.0
20321499	6	5350	+0,-8	1.0
20321505	6	5400	+0,-8	1.0
20321512	6	5450	+0,-8	1.0
20321529	6	5500	+0,-8	1.0
20321536	6	5550	+0,-8	1.0
20321543	6	5600	+0,-8	1.0
20321550	6	5650	+0,-8	1.0
20321567	6	5700	+0,-8	1.0
20321574	6	5750	+0,-8	1.0
20321581	6	5800	+0,-8	1.0
20321598	6	5850	+0,-8	1.0
20321604	6	5900	+0,-8	1.0
20321611	6	5950	+0,-8	1.0
20321628	6	6000	+0,-8	1.0



EL1774.08



Material

Stainless steel (AISI 316, A4). Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.
Yield stress: >205 N/mm², tensile strength: >515 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.
Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

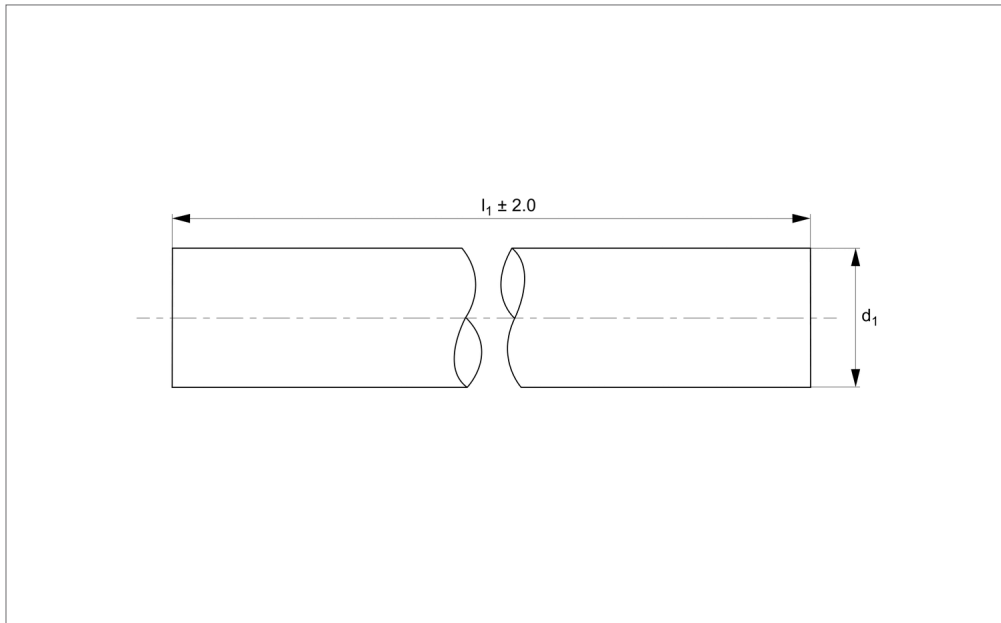
Shafts lengths are cut to typically ± 2 mm.
To be used with ceramic or other bearings

not containing hardened ball bearings.

Order No.	d_1 tol. h6	l_1	Tolerance µ tol. h6	Depth of hardness
20321635	8	100	+0,-9	1.0
20321642	8	150	+0,-9	1.0
20321659	8	200	+0,-9	1.0
20321666	8	250	+0,-9	1.0
20321673	8	300	+0,-9	1.0
20321680	8	350	+0,-9	1.0
20321697	8	400	+0,-9	1.0
20321703	8	450	+0,-9	1.0
20321710	8	500	+0,-9	1.0
20321727	8	550	+0,-9	1.0
20321734	8	600	+0,-9	1.0
20321741	8	650	+0,-9	1.0
20321758	8	700	+0,-9	1.0
20321765	8	750	+0,-9	1.0
20321772	8	800	+0,-9	1.0
20321789	8	850	+0,-9	1.0
20321796	8	900	+0,-9	1.0
20321802	8	950	+0,-9	1.0
20321819	8	1000	+0,-9	1.0
20321826	8	1050	+0,-9	1.0
20321833	8	1100	+0,-9	1.0
20321840	8	1150	+0,-9	1.0
20321857	8	1200	+0,-9	1.0
20321864	8	1250	+0,-9	1.0
20321871	8	1300	+0,-9	1.0
20321888	8	1350	+0,-9	1.0
20321895	8	1400	+0,-9	1.0
20321901	8	1450	+0,-9	1.0
20321918	8	1500	+0,-9	1.0

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20321925	8	1550	+0,-9	1.0
20321932	8	1600	+0,-9	1.0
20321949	8	1650	+0,-9	1.0
20321956	8	1700	+0,-9	1.0
20321963	8	1750	+0,-9	1.0
20321970	8	1800	+0,-9	1.0
20321987	8	1850	+0,-9	1.0
20321994	8	1900	+0,-9	1.0
20322007	8	1950	+0,-9	1.0
20322014	8	2000	+0,-9	1.0
20322021	8	2050	+0,-9	1.0
20322038	8	2100	+0,-9	1.0
20322045	8	2150	+0,-9	1.0
20322052	8	2200	+0,-9	1.0
20322069	8	2250	+0,-9	1.0
20322076	8	2300	+0,-9	1.0
20322083	8	2350	+0,-9	1.0
20322090	8	2400	+0,-9	1.0
20322106	8	2450	+0,-9	1.0
20322113	8	2500	+0,-9	1.0
20322120	8	2550	+0,-9	1.0
20322137	8	2600	+0,-9	1.0
20322144	8	2650	+0,-9	1.0
20322151	8	2700	+0,-9	1.0
20322168	8	2750	+0,-9	1.0
20322175	8	2800	+0,-9	1.0
20322182	8	2850	+0,-9	1.0
20322199	8	2900	+0,-9	1.0
20322205	8	2950	+0,-9	1.0
20322212	8	3000	+0,-9	1.0
20322229	8	3050	+0,-9	1.0
20322236	8	3100	+0,-9	1.0
20322243	8	3150	+0,-9	1.0
20322250	8	3200	+0,-9	1.0
20322267	8	3250	+0,-9	1.0
20322274	8	3300	+0,-9	1.0
20322281	8	3350	+0,-9	1.0
20322298	8	3400	+0,-9	1.0
20322304	8	3450	+0,-9	1.0
20322311	8	3500	+0,-9	1.0
20322328	8	3550	+0,-9	1.0
20322335	8	3600	+0,-9	1.0
20322342	8	3650	+0,-9	1.0
20322359	8	3700	+0,-9	1.0
20322366	8	3750	+0,-9	1.0
20322373	8	3800	+0,-9	1.0
20322380	8	3850	+0,-9	1.0
20322397	8	3900	+0,-9	1.0
20322403	8	3950	+0,-9	1.0
20322410	8	4000	+0,-9	1.0
20322427	8	4050	+0,-9	1.0
20322434	8	4100	+0,-9	1.0
20322441	8	4150	+0,-9	1.0
20322458	8	4200	+0,-9	1.0
20322465	8	4250	+0,-9	1.0
20322472	8	4300	+0,-9	1.0
20322489	8	4350	+0,-9	1.0
20322496	8	4400	+0,-9	1.0
20322502	8	4450	+0,-9	1.0
20322519	8	4500	+0,-9	1.0
20322526	8	4550	+0,-9	1.0
20322533	8	4600	+0,-9	1.0
20322540	8	4650	+0,-9	1.0
20322557	8	4700	+0,-9	1.0
20322564	8	4750	+0,-9	1.0
20322571	8	4800	+0,-9	1.0
20322588	8	4850	+0,-9	1.0
20322595	8	4900	+0,-9	1.0

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20322601	8	4950	+0,-9	1.0
20322618	8	5000	+0,-9	1.0
20322625	8	5050	+0,-9	1.0
20322632	8	5100	+0,-9	1.0
20322649	8	5150	+0,-9	1.0
20322656	8	5200	+0,-9	1.0
20322663	8	5250	+0,-9	1.0
20322670	8	5300	+0,-9	1.0
20322687	8	5350	+0,-9	1.0
20322694	8	5400	+0,-9	1.0
20322700	8	5450	+0,-9	1.0
20322717	8	5500	+0,-9	1.0
20322724	8	5550	+0,-9	1.0
20322731	8	5600	+0,-9	1.0
20322748	8	5650	+0,-9	1.0
20322755	8	5700	+0,-9	1.0
20322762	8	5750	+0,-9	1.0
20322779	8	5800	+0,-9	1.0
20322786	8	5850	+0,-9	1.0
20322793	8	5900	+0,-9	1.0
20322809	8	5950	+0,-9	1.0
20322816	8	6000	+0,-9	1.0



EL1774.10

LINEAR SHAFT BARS

Material

Stainless steel (AISI 316, A4). Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.

Yield stress: >205 N/mm², tensile strength: >515 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.

Straightness 0,2mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

Shafts lengths are cut to typically ± 2 mm.

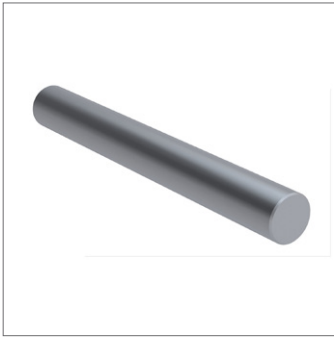
To be used with ceramic or other bearings

not containing hardened ball bearings.

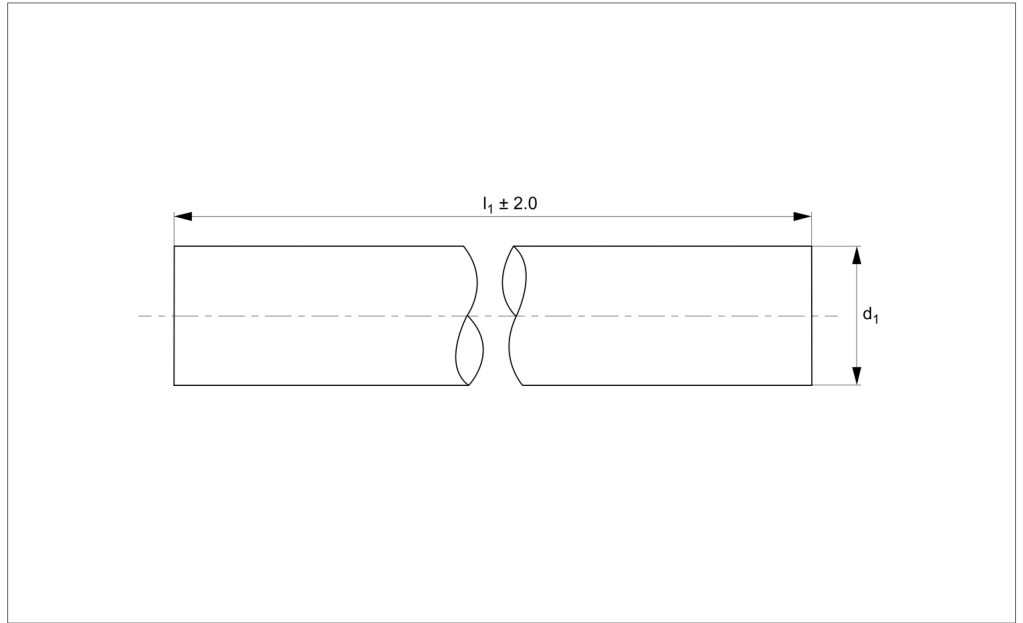
Order No.	d_1 tol. h6	l_1	Tolerance µ tol. h6	Depth of hardness
20322823	10	100	+0,-10	1.0
20322830	10	150	+0,-10	1.0
20322847	10	200	+0,-10	1.0
20322854	10	250	+0,-10	1.0
20322861	10	300	+0,-10	1.0
20322878	10	350	+0,-10	1.0
20322885	10	400	+0,-10	1.0
20322892	10	450	+0,-10	1.0
20322908	10	500	+0,-10	1.0
20322915	10	550	+0,-10	1.0
20322922	10	600	+0,-10	1.0
20322939	10	650	+0,-10	1.0
20322946	10	700	+0,-10	1.0
20322953	10	750	+0,-10	1.0
20322960	10	800	+0,-10	1.0
20322977	10	850	+0,-10	1.0
20322984	10	900	+0,-10	1.0
20322991	10	950	+0,-10	1.0
20323004	10	1000	+0,-10	1.0
20323011	10	1050	+0,-10	1.0
20323028	10	1100	+0,-10	1.0
20323035	10	1150	+0,-10	1.0
20323042	10	1200	+0,-10	1.0
20323059	10	1250	+0,-10	1.0
20323066	10	1300	+0,-10	1.0
20323073	10	1350	+0,-10	1.0
20323080	10	1400	+0,-10	1.0
20323097	10	1450	+0,-10	1.0
20323103	10	1500	+0,-10	1.0

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20323110	10	1550	+0,-10	1.0
20323127	10	1600	+0,-10	1.0
20323134	10	1650	+0,-10	1.0
20323141	10	1700	+0,-10	1.0
20323158	10	1750	+0,-10	1.0
20323165	10	1800	+0,-10	1.0
20323172	10	1850	+0,-10	1.0
20323189	10	1900	+0,-10	1.0
20323196	10	1950	+0,-10	1.0
20323202	10	2000	+0,-10	1.0
20323219	10	2050	+0,-10	1.0
20323226	10	2100	+0,-10	1.0
20323233	10	2150	+0,-10	1.0
20323240	10	2200	+0,-10	1.0
20323257	10	2250	+0,-10	1.0
20323264	10	2300	+0,-10	1.0
20323271	10	2350	+0,-10	1.0
20323288	10	2400	+0,-10	1.0
20323295	10	2450	+0,-10	1.0
20323301	10	2500	+0,-10	1.0
20323318	10	2550	+0,-10	1.0
20323325	10	2600	+0,-10	1.0
20323332	10	2650	+0,-10	1.0
20323349	10	2700	+0,-10	1.0
20323356	10	2750	+0,-10	1.0
20323363	10	2800	+0,-10	1.0
20323370	10	2850	+0,-10	1.0
20323387	10	2900	+0,-10	1.0
20323394	10	2950	+0,-10	1.0
20323400	10	3000	+0,-10	1.0
20323417	10	3050	+0,-10	1.0
20323424	10	3100	+0,-10	1.0
20323431	10	3150	+0,-10	1.0
20323448	10	3200	+0,-10	1.0
20323455	10	3250	+0,-10	1.0
20323462	10	3300	+0,-10	1.0
20323479	10	3350	+0,-10	1.0
20323486	10	3400	+0,-10	1.0
20323493	10	3450	+0,-10	1.0
20323509	10	3500	+0,-10	1.0
20323516	10	3550	+0,-10	1.0
20323523	10	3600	+0,-10	1.0
20323530	10	3650	+0,-10	1.0
20323547	10	3700	+0,-10	1.0
20323554	10	3750	+0,-10	1.0
20323561	10	3800	+0,-10	1.0
20323578	10	3850	+0,-10	1.0
20323585	10	3900	+0,-10	1.0
20323592	10	3950	+0,-10	1.0
20323608	10	4000	+0,-10	1.0
20323615	10	4050	+0,-10	1.0
20323622	10	4100	+0,-10	1.0
20323639	10	4150	+0,-10	1.0
20323646	10	4200	+0,-10	1.0
20323653	10	4250	+0,-10	1.0
20323660	10	4300	+0,-10	1.0
20323677	10	4350	+0,-10	1.0
20323684	10	4400	+0,-10	1.0
20323691	10	4450	+0,-10	1.0
20323707	10	4500	+0,-10	1.0
20323714	10	4550	+0,-10	1.0
20323721	10	4600	+0,-10	1.0
20323738	10	4650	+0,-10	1.0
20323745	10	4700	+0,-10	1.0
20323752	10	4750	+0,-10	1.0
20323769	10	4800	+0,-10	1.0
20323776	10	4850	+0,-10	1.0
20323783	10	4900	+0,-10	1.0

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20323790	10	4950	+0,-10	1.0
20323806	10	5000	+0,-10	1.0
20323813	10	5050	+0,-10	1.0
20323820	10	5100	+0,-10	1.0
20323837	10	5150	+0,-10	1.0
20323844	10	5200	+0,-10	1.0
20323851	10	5250	+0,-10	1.0
20323868	10	5300	+0,-10	1.0
20323875	10	5350	+0,-10	1.0
20323882	10	5400	+0,-10	1.0
20323899	10	5450	+0,-10	1.0
20323905	10	5500	+0,-10	1.0
20323912	10	5500	+0,-10	1.0
20323929	10	5600	+0,-10	1.0
20323936	10	5650	+0,-10	1.0
20323943	10	5700	+0,-10	1.0
20323950	10	5750	+0,-10	1.0
20323967	10	5800	+0,-10	1.0
20323974	10	5850	+0,-10	1.0
20323981	10	5900	+0,-10	1.0
20323998	10	5950	+0,-10	1.0
20324001	10	6000	+0,-10	1.0



EL1774.12



Material

Stainless steel (AISI 316, A4). Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.
Yield stress: >205 N/mm², tensile strength: >515 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.
Straightness 0,2mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

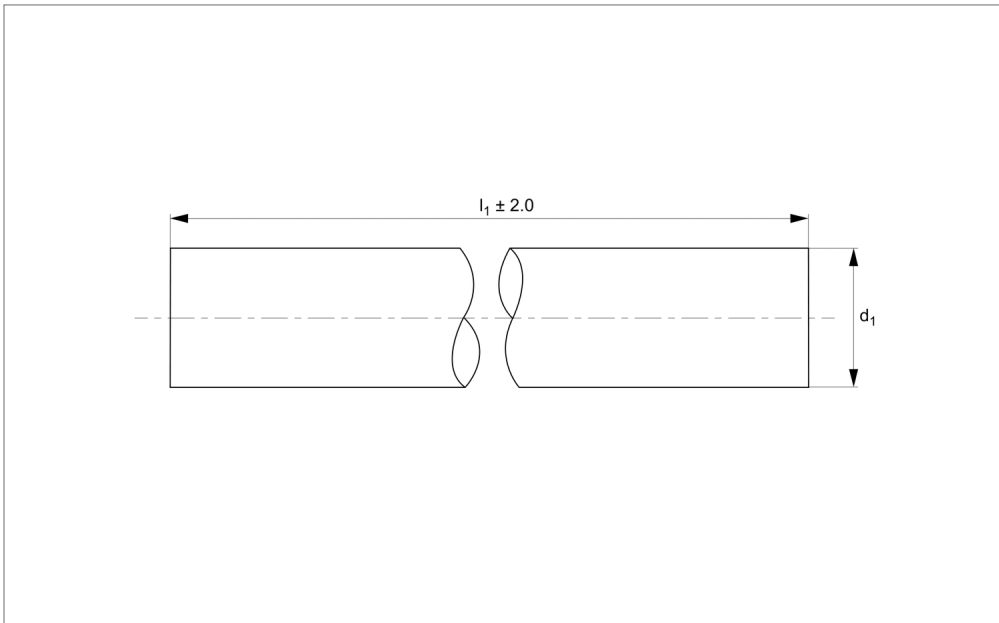
Shafts lengths are cut to typically ± 2 mm.
To be used with ceramic or other bearings

not containing hardened ball bearings.

Order No.	d_1 tol. h6	l_1	Tolerance µ tol. h6	Depth of hardness mm
20324018	12	100	+0,-11	1.6
20324025	12	150	+0,-11	1.6
20324032	12	200	+0,-11	1.6
20324049	12	250	+0,-11	1.6
20324056	12	300	+0,-11	1.6
20324063	12	350	+0,-11	1.6
20324070	12	400	+0,-11	1.6
20324087	12	450	+0,-11	1.6
20324094	12	500	+0,-11	1.6
20324100	12	550	+0,-11	1.6
20324117	12	600	+0,-11	1.6
20324124	12	650	+0,-11	1.6
20324131	12	700	+0,-11	1.6
20324148	12	750	+0,-11	1.6
20324155	12	800	+0,-11	1.6
20324162	12	850	+0,-11	1.6
20324179	12	900	+0,-11	1.6
20324186	12	950	+0,-11	1.6
20324193	12	1000	+0,-11	1.6
20324209	12	1050	+0,-11	1.6
20324216	12	1100	+0,-11	1.6
20324223	12	1150	+0,-11	1.6
20324230	12	1200	+0,-11	1.6
20324247	12	1250	+0,-11	1.6
20324254	12	1300	+0,-11	1.6
20324261	12	1350	+0,-11	1.6
20324278	12	1400	+0,-11	1.6
20324285	12	1450	+0,-11	1.6
20324292	12	1500	+0,-11	1.6

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness mm
20324308	12	1550	+0,-11	1.6
20324315	12	1600	+0,-11	1.6
20324322	12	1650	+0,-11	1.6
20324339	12	1700	+0,-11	1.6
20324346	12	1750	+0,-11	1.6
20324353	12	1800	+0,-11	1.6
20324360	12	1850	+0,-11	1.6
20324377	12	1900	+0,-11	1.6
20324384	12	1950	+0,-11	1.6
20324391	12	2000	+0,-11	1.6
20324407	12	2050	+0,-11	1.6
20324414	12	2100	+0,-11	1.6
20324421	12	2150	+0,-11	1.6
20324438	12	2200	+0,-11	1.6
20324445	12	2250	+0,-11	1.6
20324452	12	2300	+0,-11	1.6
20324469	12	2350	+0,-11	1.6
20324476	12	2400	+0,-11	1.6
20324483	12	2450	+0,-11	1.6
20324490	12	2500	+0,-11	1.6
20324506	12	2550	+0,-11	1.6
20324513	12	2600	+0,-11	1.6
20324520	12	2650	+0,-11	1.6
20324537	12	2700	+0,-11	1.6
20324544	12	2750	+0,-11	1.6
20324551	12	2800	+0,-11	1.6
20324568	12	2850	+0,-11	1.6
20324575	12	2900	+0,-11	1.6
20324582	12	2950	+0,-11	1.6
20324599	12	3000	+0,-11	1.6
20324605	12	3050	+0,-11	1.6
20324612	12	3100	+0,-11	1.6
20324629	12	3150	+0,-11	1.6
20324636	12	3200	+0,-11	1.6
20324643	12	3250	+0,-11	1.6
20324650	12	3300	+0,-11	1.6
20324667	12	3350	+0,-11	1.6
20324674	12	3400	+0,-11	1.6
20324681	12	3450	+0,-11	1.6
20324698	12	3500	+0,-11	1.6
20324704	12	3550	+0,-11	1.6
20324711	12	3600	+0,-11	1.6
20324728	12	3650	+0,-11	1.6
20324735	12	3700	+0,-11	1.6
20324742	12	3750	+0,-11	1.6
20324759	12	3800	+0,-11	1.6
20324766	12	3850	+0,-11	1.6
20324773	12	3900	+0,-11	1.6
20324780	12	3950	+0,-11	1.6
20324797	12	4000	+0,-11	1.6
20324803	12	4050	+0,-11	1.6
20324810	12	4100	+0,-11	1.6
20324827	12	4150	+0,-11	1.6
20324834	12	4200	+0,-11	1.6
20324841	12	4250	+0,-11	1.6
20324858	12	4300	+0,-11	1.6
20324865	12	4350	+0,-11	1.6
20324872	12	4400	+0,-11	1.6
20324889	12	4450	+0,-11	1.6
20324896	12	4500	+0,-11	1.6
20324902	12	4550	+0,-11	1.6
20324919	12	4600	+0,-11	1.6
20324926	12	4650	+0,-11	1.6
20324933	12	4700	+0,-11	1.6
20324940	12	4750	+0,-11	1.6
20324957	12	4800	+0,-11	1.6
20324964	12	4850	+0,-11	1.6
20324971	12	4900	+0,-11	1.6

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness mm
20324988	12	4950	+0,-11	1.6
20324995	12	5000	+0,-11	1.6
20325008	12	5050	+0,-11	1.6
20325015	12	5100	+0,-11	1.6
20325022	12	5150	+0,-11	1.6
20325039	12	5200	+0,-11	1.6
20325046	12	5250	+0,-11	1.6
20325053	12	5300	+0,-11	1.6
20325060	12	5350	+0,-11	1.6
20325077	12	5400	+0,-11	1.6
20325084	12	5450	+0,-11	1.6
20325091	12	5500	+0,-11	1.6
20325107	12	5550	+0,-11	1.6
20325114	12	5600	+0,-11	1.6
20325121	12	5650	+0,-11	1.6
20325138	12	5700	+0,-11	1.6
20325145	12	5700	+0,-11	1.6
20325152	12	5800	+0,-11	1.6
20325169	12	5850	+0,-11	1.6
20325176	12	5900	+0,-11	1.6
20325183	12	5950	+0,-11	1.6
20325190	12	6000	+0,-11	1.6



EL1774.16

LINEAR SHAFT BARS

Material

Stainless steel (AISI 316, A4). Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.

Yield stress: >205 N/mm², tensile strength: >515 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.

Straightness 0,2mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

Shafts lengths are cut to typically ± 2 mm.

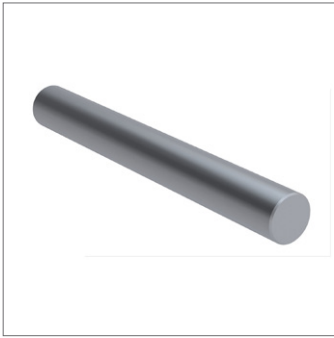
To be used with ceramic or other bearings

not containing hardened ball bearings.

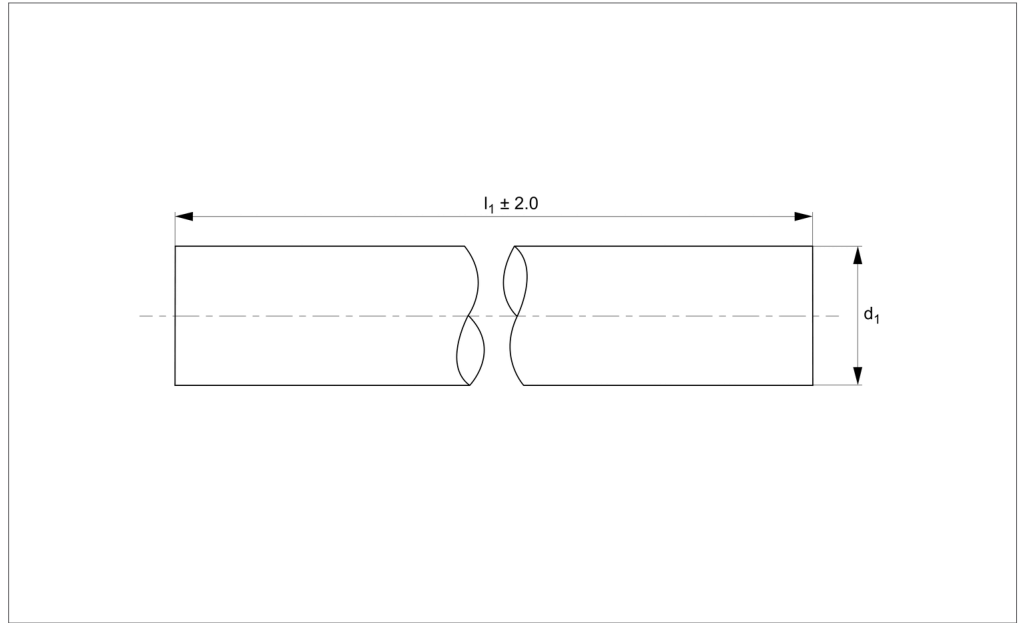
Order No.	d_1 tol. h6	l_1	Tolerance µ tol. h6	Depth of hardness
20325206	16	100	+0,-11	1.6
20325213	16	150	+0,-11	1.6
20325220	16	200	+0,-11	1.6
20325237	16	250	+0,-11	1.6
20325244	16	300	+0,-11	1.6
20325251	16	350	+0,-11	1.6
20325268	16	400	+0,-11	1.6
20325275	16	450	+0,-11	1.6
20325282	16	500	+0,-11	1.6
20325299	16	550	+0,-11	1.6
20325305	16	600	+0,-11	1.6
20325312	16	650	+0,-11	1.6
20325329	16	700	+0,-11	1.6
20325336	16	750	+0,-11	1.6
20325343	16	800	+0,-11	1.6
20325350	16	850	+0,-11	1.6
20325367	16	900	+0,-11	1.6
20325374	16	950	+0,-11	1.6
20325381	16	1000	+0,-11	1.6
20325398	16	1050	+0,-11	1.6
20325404	16	1100	+0,-11	1.6
20325411	16	1150	+0,-11	1.6
20325428	16	1200	+0,-11	1.6
20325435	16	1250	+0,-11	1.6
20325442	16	1300	+0,-11	1.6
20325459	16	1350	+0,-11	1.6
20325466	16	1400	+0,-11	1.6
20325473	16	1450	+0,-11	1.6
20325480	16	1500	+0,-11	1.6

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20325497	16	1550	+0,-11	1.6
20325503	16	1600	+0,-11	1.6
20325510	16	1650	+0,-11	1.6
20325527	16	1700	+0,-11	1.6
20325534	16	1750	+0,-11	1.6
20325541	16	1800	+0,-11	1.6
20325558	16	1850	+0,-11	1.6
20325565	16	1900	+0,-11	1.6
20325572	16	1950	+0,-11	1.6
20325589	16	2000	+0,-11	1.6
20325596	16	2050	+0,-11	1.6
20325602	16	2100	+0,-11	1.6
20325619	16	2150	+0,-11	1.6
20325626	16	2200	+0,-11	1.6
20325633	16	2250	+0,-11	1.6
20325640	16	2300	+0,-11	1.6
20325657	16	2350	+0,-11	1.6
20325664	16	2400	+0,-11	1.6
20325671	16	2450	+0,-11	1.6
20325688	16	2500	+0,-11	1.6
20325695	16	2550	+0,-11	1.6
20325701	16	2600	+0,-11	1.6
20325718	16	2650	+0,-11	1.6
20325725	16	2700	+0,-11	1.6
20325732	16	2750	+0,-11	1.6
20325749	16	2800	+0,-11	1.6
20325756	16	2850	+0,-11	1.6
20325763	16	2900	+0,-11	1.6
20325770	16	2950	+0,-11	1.6
20325787	16	3000	+0,-11	1.6
20325794	16	3050	+0,-11	1.6
20325800	16	3100	+0,-11	1.6
20325817	16	3150	+0,-11	1.6
20325824	16	3200	+0,-11	1.6
20325831	16	3250	+0,-11	1.6
20325848	16	3300	+0,-11	1.6
20325855	16	3350	+0,-11	1.6
20325862	16	3400	+0,-11	1.6
20325879	16	3450	+0,-11	1.6
20325886	16	3500	+0,-11	1.6
20325893	16	3550	+0,-11	1.6
20325909	16	3600	+0,-11	1.6
20325916	16	3650	+0,-11	1.6
20325923	16	3700	+0,-11	1.6
20325930	16	3750	+0,-11	1.6
20325947	16	3800	+0,-11	1.6
20325954	16	3850	+0,-11	1.6
20325961	16	3900	+0,-11	1.6
20325978	16	3950	+0,-11	1.6
20325985	16	4000	+0,-11	1.6
20325992	16	4050	+0,-11	1.6
20326005	16	4100	+0,-11	1.6
20326012	16	4150	+0,-11	1.6
20326029	16	4200	+0,-11	1.6
20326036	16	4250	+0,-11	1.6
20326043	16	4300	+0,-11	1.6
20326050	16	4350	+0,-11	1.6
20326067	16	4400	+0,-11	1.6
20326074	16	4450	+0,-11	1.6
20326081	16	4500	+0,-11	1.6
20326098	16	4550	+0,-11	1.6
20326104	16	4600	+0,-11	1.6
20326111	16	4650	+0,-11	1.6
20326128	16	4700	+0,-11	1.6
20326135	16	4750	+0,-11	1.6
20326142	16	4800	+0,-11	1.6
20326159	16	4850	+0,-11	1.6
20326166	16	4900	+0,-11	1.6

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20326173	16	4950	+0,-11	1.6
20326180	16	5000	+0,-11	1.6
20326197	16	5050	+0,-11	1.6
20326203	16	5100	+0,-11	1.6
20326210	16	5150	+0,-11	1.6
20326227	16	5200	+0,-11	1.6
20326234	16	5250	+0,-11	1.6
20326241	16	5300	+0,-11	1.6
20326258	16	5350	+0,-11	1.6
20326265	16	5400	+0,-11	1.6
20326272	16	5450	+0,-11	1.6
20326289	16	5500	+0,-11	1.6
20326296	16	5550	+0,-11	1.6
20326302	16	5600	+0,-11	1.6
20326319	16	5650	+0,-11	1.6
20326326	16	5700	+0,-11	1.6
20326333	16	5750	+0,-11	1.6
20326340	16	5800	+0,-11	1.6
20326357	16	5850	+0,-11	1.6
20326364	16	5900	+0,-11	1.6
20326371	16	5950	+0,-11	1.6
20326388	16	6000	+0,-11	1.6



EL1774.20



Material

Stainless steel (AISI 316, A4). Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.
Yield stress: >205 N/mm², tensile strength: >515 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.
Straightness 0,2mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

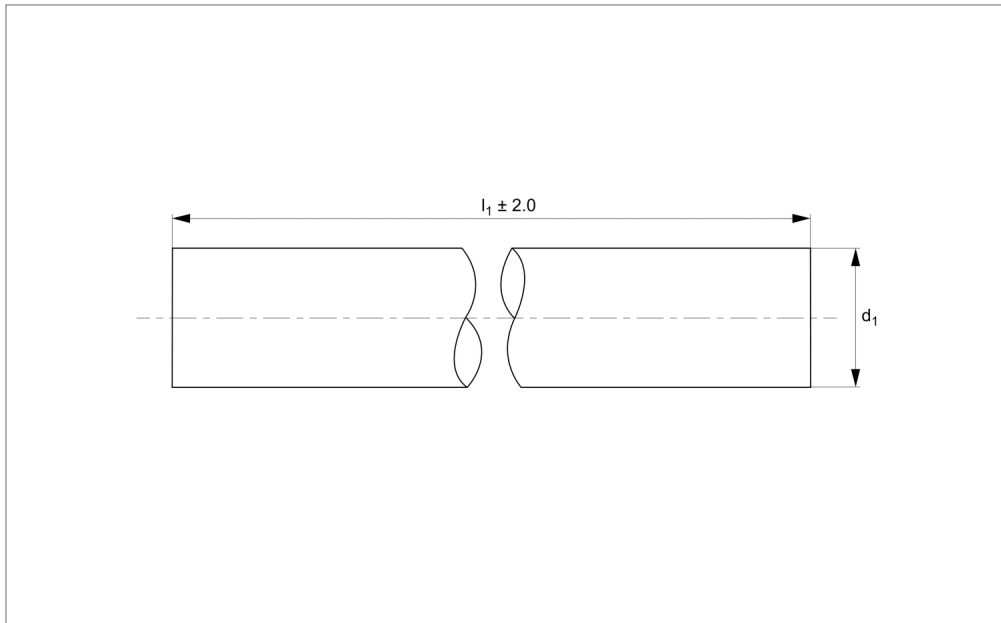
Shafts lengths are cut to typically ± 2 mm.
To be used with ceramic or other bearings

not containing hardened ball bearings.

Order No.	d_1 tol. h6	l_1	Tolerance µ tol. h6	Depth of hardness
20326395	20	100	+0,-13	2.2
20326401	20	150	+0,-13	2.2
20326418	20	200	+0,-13	2.2
20326425	20	250	+0,-13	2.2
20326432	20	300	+0,-13	2.2
20326449	20	350	+0,-13	2.2
20326456	20	400	+0,-13	2.2
20326463	20	450	+0,-13	2.2
20326470	20	500	+0,-13	2.2
20326487	20	550	+0,-13	2.2
20326494	20	600	+0,-13	2.2
20326500	20	650	+0,-13	2.2
20326517	20	700	+0,-13	2.2
20326524	20	750	+0,-13	2.2
20326531	20	800	+0,-13	2.2
20326548	20	850	+0,-13	2.2
20326555	20	900	+0,-13	2.2
20326562	20	950	+0,-13	2.2
20326579	20	1000	+0,-13	2.2
20326586	20	1050	+0,-13	2.2
20326593	20	1100	+0,-13	2.2
20326609	20	1150	+0,-13	2.2
20326616	20	1200	+0,-13	2.2
20326623	20	1250	+0,-13	2.2
20326630	20	1300	+0,-13	2.2
20326647	20	1350	+0,-13	2.2
20326654	20	1400	+0,-13	2.2
20326661	20	1450	+0,-13	2.2
20326678	20	1500	+0,-13	2.2

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20326685	20	1550	+0,-13	2.2
20326692	20	1600	+0,-13	2.2
20326708	20	1650	+0,-13	2.2
20326715	20	1700	+0,-13	2.2
20326722	20	1750	+0,-13	2.2
20326739	20	1800	+0,-13	2.2
20326746	20	1850	+0,-13	2.2
20326753	20	1900	+0,-13	2.2
20326760	20	1950	+0,-13	2.2
20326777	20	2000	+0,-13	2.2
20326784	20	2050	+0,-13	2.2
20326791	20	2100	+0,-13	2.2
20326807	20	2150	+0,-13	2.2
20326814	20	2200	+0,-13	2.2
20326821	20	2250	+0,-13	2.2
20326838	20	2300	+0,-13	2.2
20326845	20	2350	+0,-13	2.2
20326852	20	2400	+0,-13	2.2
20326869	20	2450	+0,-13	2.2
20326876	20	2500	+0,-13	2.2
20326883	20	2550	+0,-13	2.2
20326890	20	2600	+0,-13	2.2
20326906	20	2650	+0,-13	2.2
20326913	20	2700	+0,-13	2.2
20326920	20	2752	+0,-13	2.2
20326937	20	2800	+0,-13	2.2
20326944	20	2850	+0,-13	2.2
20326951	20	2900	+0,-13	2.2
20326968	20	2950	+0,-13	2.2
20326975	20	3000	+0,-13	2.2
20326982	20	3050	+0,-13	2.2
20326999	20	3100	+0,-13	2.2
20327002	20	3150	+0,-13	2.2
20327019	20	3200	+0,-13	2.2
20327026	20	3250	+0,-13	2.2
20327033	20	3300	+0,-13	2.2
20327040	20	3350	+0,-13	2.2
20327057	20	3400	+0,-13	2.2
20327064	20	3450	+0,-13	2.2
20327071	20	3500	+0,-13	2.2
20327088	20	3550	+0,-13	2.2
20327095	20	3600	+0,-13	2.2
20327101	20	3650	+0,-13	2.2
20327118	20	3700	+0,-13	2.2
20327125	20	3750	+0,-13	2.2
20327132	20	3800	+0,-13	2.2
20327149	20	3850	+0,-13	2.2
20327156	20	3900	+0,-13	2.2
20327163	20	3950	+0,-13	2.2
20327170	20	4000	+0,-13	2.2
20327187	20	4050	+0,-13	2.2
20327194	20	4100	+0,-13	2.2
20327200	20	4150	+0,-13	2.2
20327217	20	4200	+0,-13	2.2
20327224	20	4250	+0,-13	2.2
20327231	20	4300	+0,-13	2.2
20327248	20	4350	+0,-13	2.2
20327255	20	4400	+0,-13	2.2
20327262	20	4450	+0,-13	2.2
20327279	20	4500	+0,-13	2.2
20327286	20	4550	+0,-13	2.2
20327293	20	4600	+0,-13	2.2
20327309	20	4650	+0,-13	2.2
20327316	20	4700	+0,-13	2.2
20327323	20	4750	+0,-13	2.2
20327330	20	4800	+0,-13	2.2
20327347	20	4850	+0,-13	2.2
20327354	20	4900	+0,-13	2.2

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20327361	20	4950	+0,-13	2.2
20327378	20	5000	+0,-13	2.2
20327385	20	5050	+0,-13	2.2
20327392	20	5100	+0,-13	2.2
20327408	20	5150	+0,-13	2.2
20327415	20	5200	+0,-13	2.2
20327422	20	5250	+0,-13	2.2
20327439	20	5300	+0,-13	2.2
20327446	20	5350	+0,-13	2.2
20327453	20	5400	+0,-13	2.2
20327460	20	5450	+0,-13	2.2
20327477	20	5500	+0,-13	2.2
20327484	20	5550	+0,-13	2.2
20327491	20	5600	+0,-13	2.2
20327507	20	5650	+0,-13	2.2
20327514	20	5700	+0,-13	2.2
20327521	20	5750	+0,-13	2.2
20327538	20	5800	+0,-13	2.2
20327545	20	5850	+0,-13	2.2
20327552	20	5900	+0,-13	2.2
20327569	20	5950	+0,-13	2.2
20327576	20	6000	+0,-13	2.2



EL1774.25

LINEAR SHAFT BARS

Material

Stainless steel (AISI 316, A4). Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.

Yield stress: >205 N/mm², tensile strength: >515 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.

Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

Shafts lengths are cut to typically ± 2 mm.

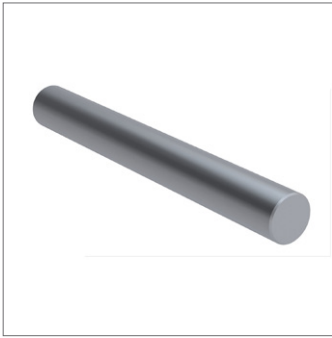
To be used with ceramic or other bearings

not containing hardened ball bearings.

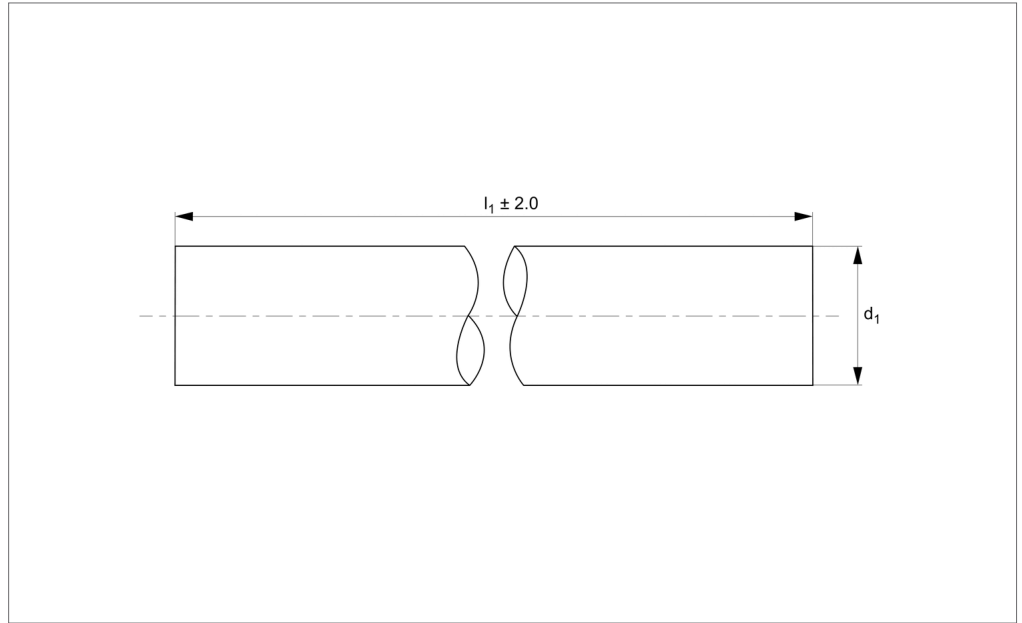
Order No.	d_1 tol. h6	l_1	Tolerance µ tol. h6	Depth of hardness
20327583	25	100	+0,-13	2.2
20327590	25	150	+0,-13	2.2
20327606	25	200	+0,-13	2.2
20327613	25	250	+0,-13	2.2
20327620	25	300	+0,-13	2.2
20327637	25	350	+0,-13	2.2
20327644	25	400	+0,-13	2.2
20327651	25	450	+0,-13	2.2
20327668	25	500	+0,-13	2.2
20327675	25	550	+0,-13	2.2
20327682	25	600	+0,-13	2.2
20327699	25	650	+0,-13	2.2
20327705	25	700	+0,-13	2.2
20327712	25	750	+0,-13	2.2
20327729	25	800	+0,-13	2.2
20327736	25	852	+0,-13	2.2
20327743	25	900	+0,-13	2.2
20327750	25	950	+0,-13	2.2
20327767	25	1000	+0,-13	2.2
20327774	25	1050	+0,-13	2.2
20327781	25	1100	+0,-13	2.2
20327798	25	1150	+0,-13	2.2
20327804	25	1200	+0,-13	2.2
20327811	25	1250	+0,-13	2.2
20327828	25	1300	+0,-13	2.2
20327835	25	1350	+0,-13	2.2
20327842	25	1400	+0,-13	2.2
20327859	25	1450	+0,-13	2.2
20327866	25	1500	+0,-13	2.2

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20327873	25	1550	+0,-13	2.2
20327880	25	1600	+0,-13	2.2
20327897	25	1650	+0,-13	2.2
20327903	25	1700	+0,-13	2.2
20327910	25	1750	+0,-13	2.2
20327927	25	1800	+0,-13	2.2
20327934	25	1850	+0,-13	2.2
20327941	25	1900	+0,-13	2.2
20327958	25	1950	+0,-13	2.2
20327965	25	2000	+0,-13	2.2
20327972	25	2050	+0,-13	2.2
20327989	25	2100	+0,-13	2.2
20327996	25	2150	+0,-13	2.2
20328009	25	2200	+0,-13	2.2
20328016	25	2250	+0,-13	2.2
20328023	25	2300	+0,-13	2.2
20328030	25	2350	+0,-13	2.2
20328047	25	2400	+0,-13	2.2
20328054	25	2450	+0,-13	2.2
20328061	25	2500	+0,-13	2.2
20328078	25	2550	+0,-13	2.2
20328085	25	2600	+0,-13	2.2
20328092	25	2650	+0,-13	2.2
20328108	25	2700	+0,-13	2.2
20328115	25	2750	+0,-13	2.2
20328122	25	2800	+0,-13	2.2
20328139	25	2850	+0,-13	2.2
20328146	25	2900	+0,-13	2.2
20328153	25	2950	+0,-13	2.2
20328160	25	3000	+0,-13	2.2
20328177	25	3050	+0,-13	2.2
20328184	25	3100	+0,-13	2.2
20328191	25	3150	+0,-13	2.2
20328207	25	3200	+0,-13	2.2
20328214	25	3250	+0,-13	2.2
20328221	25	3300	+0,-13	2.2
20328238	25	3350	+0,-13	2.2
20328245	25	3400	+0,-13	2.2
20328252	25	3450	+0,-13	2.2
20328269	25	3500	+0,-13	2.2
20328276	25	3550	+0,-13	2.2
20328283	25	3600	+0,-13	2.2
20328290	25	3650	+0,-13	2.2
20328306	25	3700	+0,-13	2.2
20328313	25	3750	+0,-13	2.2
20328320	25	3800	+0,-13	2.2
20328337	25	3850	+0,-13	2.2
20328344	25	3900	+0,-13	2.2
20328351	25	3950	+0,-13	2.2
20328368	25	4000	+0,-13	2.2
20328375	25	4050	+0,-13	2.2
20328382	25	4100	+0,-13	2.2
20328399	25	4150	+0,-13	2.2
20328405	25	4200	+0,-13	2.2
20328412	25	4250	+0,-13	2.2
20328429	25	4300	+0,-13	2.2
20328436	25	4350	+0,-13	2.2
20328443	25	4400	+0,-13	2.2
20328450	25	4450	+0,-13	2.2
20328467	25	4500	+0,-13	2.2
20328474	25	4550	+0,-13	2.2
20328481	25	4600	+0,-13	2.2
20328498	25	4650	+0,-13	2.2
20328504	25	4700	+0,-13	2.2
20328511	25	4750	+0,-13	2.2
20328528	25	4800	+0,-13	2.2
20328535	25	4850	+0,-13	2.2
20328542	25	4900	+0,-13	2.2

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20328559	25	4950	+0,-13	2.2
20328566	25	5000	+0,-13	2.2
20328573	25	5050	+0,-13	2.2
20328580	25	5100	+0,-13	2.2
20328597	25	5150	+0,-13	2.2
20328603	25	5200	+0,-13	2.2
20328610	25	5250	+0,-13	2.2
20328627	25	5300	+0,-13	2.2
20328634	25	5350	+0,-13	2.2
20328641	25	5400	+0,-13	2.2
20328658	25	5450	+0,-13	2.2
20328665	25	5500	+0,-13	2.2
20328672	25	5550	+0,-13	2.2
20328689	25	5600	+0,-13	2.2
20328696	25	5650	+0,-13	2.2
20328702	25	5700	+0,-13	2.2
20328719	25	5750	+0,-13	2.2
20328726	25	5800	+0,-13	2.2
20328733	25	5850	+0,-13	2.2
20328740	25	5900	+0,-13	2.2
20328757	25	5950	+0,-13	2.2
20328764	25	6000	+0,-13	2.2



EL1774.30



Material

Stainless steel (AISI 316, A4). Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.
Yield stress: >205 N/mm², tensile strength: >515 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.
Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

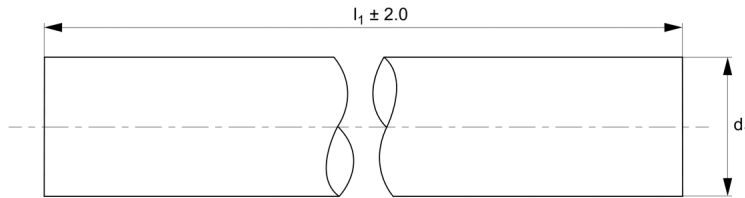
Shafts lengths are cut to typically ± 2mm.
To be used with ceramic or other bearings

not containing hardened ball bearings.

Order No.	d ₁ tol. h6	l ₁	Tolerance µ tol. h6	Depth of hardness
20328771	30	100	+0,-13	2.2
20328788	30	150	+0,-13	2.2
20328795	30	200	+0,-13	2.2
20328801	30	250	+0,-13	2.2
20328818	30	300	+0,-13	2.2
20328825	30	350	+0,-13	2.2
20328832	30	400	+0,-13	2.2
20328849	30	450	+0,-13	2.2
20328856	30	500	+0,-13	2.2
20328863	30	550	+0,-13	2.2
20328870	30	600	+0,-13	2.2
20328887	30	650	+0,-13	2.2
20328894	30	700	+0,-13	2.2
20328900	30	750	+0,-13	2.2
20328917	30	800	+0,-13	2.2
20328924	30	850	+0,-13	2.2
20328931	30	900	+0,-13	2.2
20328948	30	950	+0,-13	2.2
20328955	30	1000	+0,-13	2.2
20328962	30	1050	+0,-13	2.2
20328979	30	1100	+0,-13	2.2
20328986	30	1150	+0,-13	2.2
20328993	30	1200	+0,-13	2.2
20329006	30	1250	+0,-13	2.2
20329013	30	1300	+0,-13	2.2
20329020	30	1350	+0,-13	2.2
20329037	30	1400	+0,-13	2.2
20329044	30	1450	+0,-13	2.2
20329051	30	1500	+0,-13	2.2

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20329068	30	1550	+0,-13	2.2
20329075	30	1600	+0,-13	2.2
20329082	30	1650	+0,-13	2.2
20329099	30	1700	+0,-13	2.2
20329105	30	1750	+0,-13	2.2
20329112	30	1800	+0,-13	2.2
20329129	30	1850	+0,-13	2.2
20329136	30	1900	+0,-13	2.2
20329143	30	1950	+0,-13	2.2
20329150	30	2000	+0,-13	2.2
20329167	30	2050	+0,-13	2.2
20329174	30	2100	+0,-13	2.2
20329181	30	2150	+0,-13	2.2
20329198	30	2200	+0,-13	2.2
20329204	30	2250	+0,-13	2.2
20329211	30	2300	+0,-13	2.2
20329228	30	2350	+0,-13	2.2
20329235	30	2400	+0,-13	2.2
20329242	30	2450	+0,-13	2.2
20329259	30	2500	+0,-13	2.2
20329266	30	2550	+0,-13	2.2
20329273	30	2600	+0,-13	2.2
20329280	30	2650	+0,-13	2.2
20329297	30	2700	+0,-13	2.2
20329303	30	2750	+0,-13	2.2
20329310	30	2800	+0,-13	2.2
20329327	30	2850	+0,-13	2.2
20329334	30	2900	+0,-13	2.2
20329341	30	2950	+0,-13	2.2
20329358	30	3000	+0,-13	2.2
20329365	30	3050	+0,-13	2.2
20329372	30	3100	+0,-13	2.2
20329389	30	3150	+0,-13	2.2
20329396	30	3200	+0,-13	2.2
20329402	30	3250	+0,-13	2.2
20329419	30	3300	+0,-13	2.2
20329426	30	3350	+0,-13	2.2
20329433	30	3400	+0,-13	2.2
20329440	30	3450	+0,-13	2.2
20329457	30	3500	+0,-13	2.2
20329464	30	3550	+0,-13	2.2
20329471	30	3600	+0,-13	2.2
20329488	30	3650	+0,-13	2.2
20329495	30	3700	+0,-13	2.2
20329501	30	3750	+0,-13	2.2
20329518	30	3800	+0,-13	2.2
20329525	30	3850	+0,-13	2.2
20329532	30	3900	+0,-13	2.2
20329549	30	3950	+0,-13	2.2
20329556	30	4000	+0,-13	2.2
20329563	30	4050	+0,-13	2.2
20329570	30	4100	+0,-13	2.2
20329587	30	4150	+0,-13	2.2
20329594	30	4200	+0,-13	2.2
20329600	30	4250	+0,-13	2.2
20329617	30	4300	+0,-13	2.2
20329624	30	4350	+0,-13	2.2
20329631	30	4400	+0,-13	2.2
20329648	30	4450	+0,-13	2.2
20329655	30	4500	+0,-13	2.2
20329662	30	4550	+0,-13	2.2
20329679	30	4600	+0,-13	2.2
20329686	30	4650	+0,-13	2.2
20329693	30	4700	+0,-13	2.2
20329709	30	4750	+0,-13	2.2
20329716	30	4800	+0,-13	2.2
20329723	30	4850	+0,-13	2.2
20329730	30	4900	+0,-13	2.2

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20329747	30	4950	+0,-13	2.2
20329754	30	5000	+0,-13	2.2
20329761	30	5050	+0,-13	2.2
20329778	30	5100	+0,-13	2.2
20329785	30	5150	+0,-13	2.2
20329792	30	5200	+0,-13	2.2
20329808	30	5250	+0,-13	2.2
20329815	30	5300	+0,-13	2.2
20329822	30	5350	+0,-13	2.2
20329839	30	5400	+0,-13	2.2
20329846	30	5450	+0,-13	2.2
20329853	30	5500	+0,-13	2.2
20329860	30	5550	+0,-13	2.2
20329877	30	5600	+0,-13	2.2
20329884	30	5650	+0,-13	2.2
20329891	30	5700	+0,-13	2.2
20329907	30	5750	+0,-13	2.2
20329914	30	5800	+0,-13	2.2
20329921	30	5850	+0,-13	2.2
20329938	30	5900	+0,-13	2.2
20329945	30	5950	+0,-13	2.2
20329952	30	6000	+0,-13	2.2



EL1774.40

LINEAR SHAFT BARS

Material

Stainless steel (AISI 316, A4). Surface finish 0.3-0.6 μ Ra, ground and polished to 8-12 cla.

Yield stress: >205 N/mm², tensile strength: >515 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.

Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

Shafts lengths are cut to typically ± 2 mm.

To be used with ceramic or other bearings

not containing hardened ball bearings.

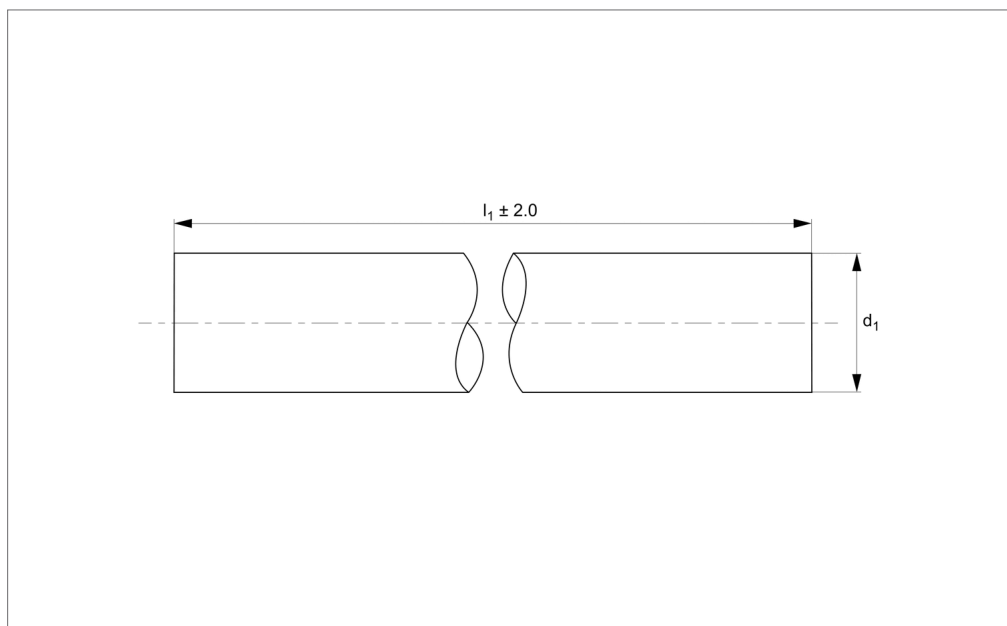
Order No.	d_1 tol. h6	l_1	Tolerance μ tol. h6	Depth of hardness
20329969	40	100	+0,-16	3.5
20329976	40	150	+0,-16	3.5
20329983	40	200	+0,-16	3.5
20329990	40	250	+0,-16	3.5
20330002	40	300	+0,-16	3.5
20330019	40	350	+0,-16	3.5
20330026	40	400	+0,-16	3.5
20330033	40	450	+0,-16	3.5
20330040	40	500	+0,-16	3.5
20330057	40	550	+0,-16	3.5
20330064	40	600	+0,-16	3.5
20330071	40	650	+0,-16	3.5
20330088	40	700	+0,-16	3.5
20330095	40	750	+0,-16	3.5
20330101	40	800	+0,-16	3.5
20330118	40	850	+0,-16	3.5
20330125	40	900	+0,-16	3.5
20330132	40	950	+0,-16	3.5
20330149	40	1000	+0,-16	3.5
20330156	40	1050	+0,-16	3.5
20330163	40	1100	+0,-16	3.5
20330170	40	1150	+0,-16	3.5
20330187	40	1200	+0,-16	3.5
20330194	40	1250	+0,-16	3.5
20330200	40	1300	+0,-16	3.5
20330217	40	1350	+0,-16	3.5
20330224	40	1400	+0,-16	3.5
20330231	40	1450	+0,-16	3.5
20330248	40	1500	+0,-16	3.5

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20330255	40	1550	+0,-16	3.5
20330262	40	1600	+0,-16	3.5
20330279	40	1650	+0,-16	3.5
20330286	40	1700	+0,-16	3.5
20330293	40	1750	+0,-16	3.5
20330309	40	1800	+0,-16	3.5
20330316	40	1850	+0,-16	3.5
20330323	40	1900	+0,-16	3.5
20330330	40	1950	+0,-16	3.5
20330347	40	2000	+0,-16	3.5
20330354	40	2050	+0,-16	3.5
20330361	40	2100	+0,-16	3.5
20330378	40	2150	+0,-16	3.5
20330385	40	2200	+0,-16	3.5
20330392	40	2250	+0,-16	3.5
20330408	40	2300	+0,-16	3.5
20330415	40	2350	+0,-16	3.5
20330422	40	2400	+0,-16	3.5
20330439	40	2450	+0,-16	3.5
20330446	40	2500	+0,-16	3.5
20330453	40	2550	+0,-16	3.5
20330460	40	2600	+0,-16	3.5
20330477	40	2650	+0,-16	3.5
20330484	40	2700	+0,-16	3.5
20330491	40	2750	+0,-16	3.5
20330507	40	2800	+0,-16	3.5
20330514	40	2850	+0,-16	3.5
20330521	40	2900	+0,-16	3.5
20330538	40	2950	+0,-16	3.5
20330545	40	3000	+0,-16	3.5
20330552	40	3050	+0,-16	3.5
20330569	40	3100	+0,-16	3.5
20330576	40	3150	+0,-16	3.5
20330583	40	3200	+0,-16	3.5
20330590	40	3250	+0,-16	3.5
20330606	40	3300	+0,-16	3.5
20330613	40	3350	+0,-16	3.5
20330620	40	3400	+0,-16	3.5
20330637	40	3450	+0,-16	3.5
20330644	40	3500	+0,-16	3.5
20330651	40	3550	+0,-16	3.5
20330668	40	3600	+0,-16	3.5
20330675	40	3650	+0,-16	3.5
20330682	40	3700	+0,-16	3.5
20330699	40	3750	+0,-16	3.5
20330705	40	3800	+0,-16	3.5
20330712	40	3850	+0,-16	3.5
20330729	40	3900	+0,-16	3.5
20330736	40	3950	+0,-16	3.5
20330743	40	4000	+0,-16	3.5
20330750	40	4050	+0,-16	3.5
20330767	40	4100	+0,-16	3.5
20330774	40	4150	+0,-16	3.5
20330781	40	4200	+0,-16	3.5
20330798	40	4250	+0,-16	3.5
20330804	40	4300	+0,-16	3.5
20330811	40	4350	+0,-16	3.5
20330828	40	4400	+0,-16	3.5
20330835	40	4450	+0,-16	3.5
20330842	40	4500	+0,-16	3.5
20330859	40	4550	+0,-16	3.5
20330866	40	4600	+0,-16	3.5
20330873	40	4650	+0,-16	3.5
20330880	40	4700	+0,-16	3.5
20330897	40	4750	+0,-16	3.5
20330903	40	4800	+0,-16	3.5
20330910	40	4850	+0,-16	3.5
20330927	40	4900	+0,-16	3.5

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20330934	40	4950	+0,-16	3.5
20330941	40	5000	+0,-16	3.5
20330958	40	5050	+0,-16	3.5
20330965	40	5100	+0,-16	3.5
20330972	40	5150	+0,-16	3.5
20330989	40	5200	+0,-16	3.5
20330996	40	5250	+0,-16	3.5
20331009	40	5300	+0,-16	3.5
20331016	40	5350	+0,-16	3.5
20331023	40	5400	+0,-16	3.5
20331030	40	5450	+0,-16	3.5
20331047	40	5500	+0,-16	3.5
20331054	40	5550	+0,-16	3.5
20331061	40	5600	+0,-16	3.5
20331078	40	5650	+0,-16	3.5
20331085	40	5700	+0,-16	3.5
20331092	40	5750	+0,-16	3.5
20331108	40	5800	+0,-16	3.5
20331115	40	5850	+0,-16	3.5
20331122	40	5900	+0,-16	3.5
20331139	40	5950	+0,-16	3.5
20331146	40	6000	+0,-16	3.5



EL1774.50



Material

Stainless steel (AISI 316, A4). Surface finish 0.3-0.6 μ Ra, ground and polished to 8-12 cla.
Yield stress: >205 N/mm², tensile strength: >515 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.
Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

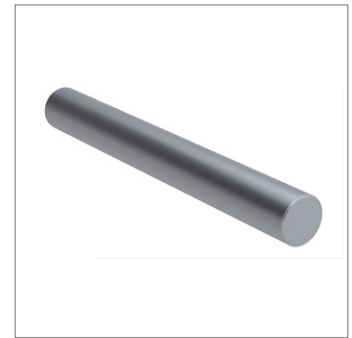
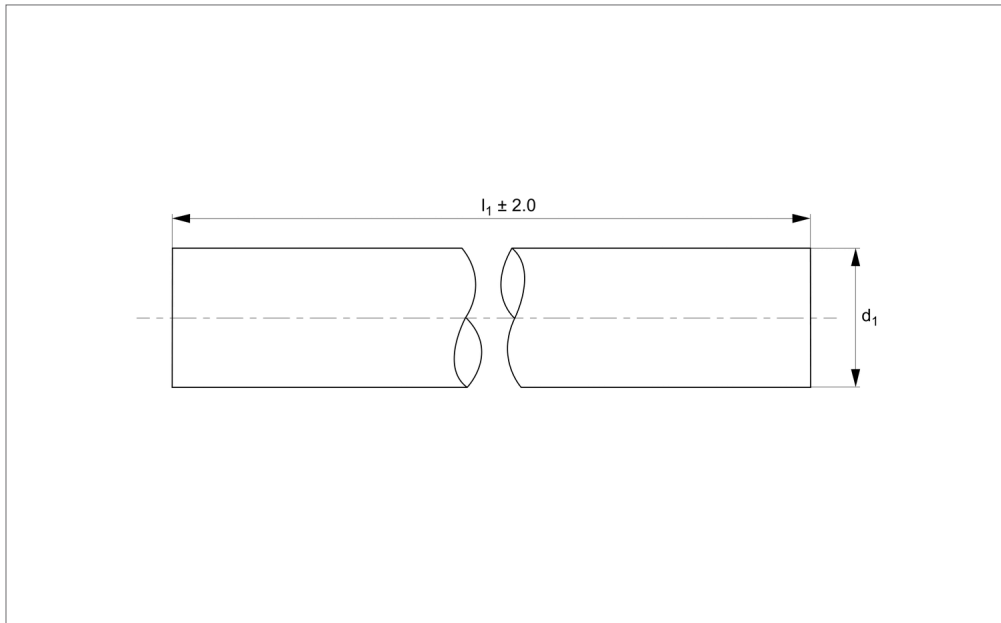
Shafts lengths are cut to typically ± 2 mm.
To be used with ceramic or other bearings

not containing hardened ball bearings.

Order No.	d_1 tol. h6	l_1	Tolerance μ tol. h6	Depth of hardness
20331153	50	100	+0,-16	3.5
20331160	50	150	+0,-16	3.5
20331177	50	200	+0,-16	3.5
20331184	50	250	+0,-16	3.5
20331191	50	300	+0,-16	3.5
20331207	50	350	+0,-16	3.5
20331214	50	400	+0,-16	3.5
20331221	50	450	+0,-16	3.5
20331238	50	500	+0,-16	3.5
20331245	50	550	+0,-16	3.5
20331252	50	600	+0,-16	3.5
20331269	50	650	+0,-16	3.5
20331276	50	700	+0,-16	3.5
20331283	50	750	+0,-16	3.5
20331290	50	800	+0,-16	3.5
20331306	50	850	+0,-16	3.5
20331313	50	900	+0,-16	3.5
20331320	50	1000	+0,-16	3.5
20331337	50	1050	+0,-16	3.5
20331344	50	1100	+0,-16	3.5
20331351	50	1150	+0,-16	3.5
20331368	50	1200	+0,-16	3.5
20331375	50	1250	+0,-16	3.5
20331382	50	1300	+0,-16	3.5
20331399	50	1350	+0,-16	3.5
20331405	50	1400	+0,-16	3.5
20331412	50	1450	+0,-16	3.5
20331429	50	1500	+0,-16	3.5
20331436	50	1550	+0,-16	3.5

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20331443	50	1600	+0,-16	3.5
20331450	50	1650	+0,-16	3.5
20331467	50	1700	+0,-16	3.5
20331474	50	1750	+0,-16	3.5
20331481	50	1800	+0,-16	3.5
20331498	50	1850	+0,-16	3.5
20331504	50	1900	+0,-16	3.5
20331511	50	1950	+0,-16	3.5
20331528	50	2000	+0,-16	3.5
20331535	50	2050	+0,-16	3.5
20331542	50	2100	+0,-16	3.5
20331559	50	2150	+0,-16	3.5
20331566	50	2200	+0,-16	3.5
20331573	50	2250	+0,-16	3.5
20331580	50	2300	+0,-16	3.5
20331597	50	2350	+0,-16	3.5
20331603	50	2400	+0,-16	3.5
20331610	50	2450	+0,-16	3.5
20331627	50	2500	+0,-16	3.5
20331634	50	2550	+0,-16	3.5
20331641	50	2600	+0,-16	3.5
20331658	50	2650	+0,-16	3.5
20331665	50	2700	+0,-16	3.5
20331672	50	2750	+0,-16	3.5
20331689	50	2800	+0,-16	3.5
20331696	50	2850	+0,-16	3.5
20331702	50	2900	+0,-16	3.5
20331719	50	2950	+0,-16	3.5
20331726	50	3000	+0,-16	3.5
20331733	50	3050	+0,-16	3.5
20331740	50	3100	+0,-16	3.5
20331757	50	3150	+0,-16	3.5
20331764	50	3200	+0,-16	3.5
20331771	50	3250	+0,-16	3.5
20331788	50	3300	+0,-16	3.5
20331795	50	3350	+0,-16	3.5
20331801	50	3400	+0,-16	3.5
20331818	50	3450	+0,-16	3.5
20331825	50	3500	+0,-16	3.5
20331832	50	3550	+0,-16	3.5
20331849	50	3600	+0,-16	3.5
20331856	50	3650	+0,-16	3.5
20331863	50	3700	+0,-16	3.5
20331870	50	3750	+0,-16	3.5
20331887	50	3800	+0,-16	3.5
20331894	50	3850	+0,-16	3.5
20331900	50	3900	+0,-16	3.5
20331917	50	3950	+0,-16	3.5
20331924	50	4000	+0,-16	3.5
20331931	50	4050	+0,-16	3.5
20331948	50	4100	+0,-16	3.5
20331955	50	4150	+0,-16	3.5
20331962	50	4200	+0,-16	3.5
20331979	50	4250	+0,-16	3.5
20331986	50	4300	+0,-16	3.5
20331993	50	4350	+0,-16	3.5
20332006	50	4400	+0,-16	3.5
20332013	50	4450	+0,-16	3.5
20332020	50	4500	+0,-16	3.5
20332037	50	4550	+0,-16	3.5
20332044	50	4600	+0,-16	3.5
20332051	50	4650	+0,-16	3.5
20332068	50	4700	+0,-16	3.5
20332075	50	4750	+0,-16	3.5
20332082	50	4800	+0,-16	3.5
20332099	50	4850	+0,-16	3.5
20332105	50	4900	+0,-16	3.5
20332112	50	4950	+0,-16	3.5

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20332129	50	5000	+0,-16	3.5
20332136	50	5050	+0,-16	3.5
20332143	50	5100	+0,-16	3.5
20332150	50	5150	+0,-16	3.5
20332167	50	5200	+0,-16	3.5
20332174	50	5250	+0,-16	3.5
20332181	50	5300	+0,-16	3.5
20332198	50	5350	+0,-16	3.5
20332204	50	5400	+0,-16	3.5
20332211	50	5450	+0,-16	3.5
20332228	50	5500	+0,-16	3.5
20332235	50	5550	+0,-16	3.5
20332242	50	5600	+0,-16	3.5
20332259	50	5650	+0,-16	3.5
20332266	50	5700	+0,-16	3.5
20332273	50	5750	+0,-16	3.5
20332280	50	5800	+0,-16	3.5
20332297	50	5850	+0,-16	3.5
20332303	50	5900	+0,-16	3.5
20332310	50	5950	+0,-16	3.5
20332327	50	6000	+0,-16	3.5



EL1774.60

LINEAR SHAFT BARS

Material

Stainless steel (AISI 316, A4). Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.

Yield stress: >205 N/mm², tensile strength: >515 N/mm².

Technical Notes

Tolerance, h6 standard, other tolerances

on request.

Straightness 0,1mm/m.

Tips

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

Shafts lengths are cut to typically ± 2 mm.

To be used with ceramic or other bearings

not containing hardened ball bearings.

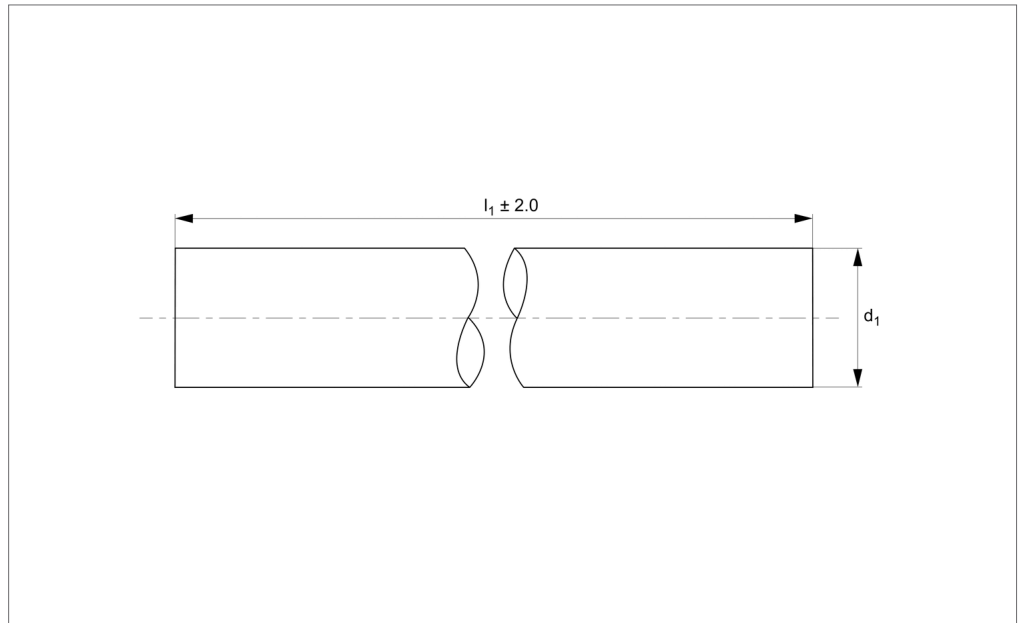
Order No.	d_1 tol. h6	l_1	Tolerance µ tol. h6	Depth of hardness
20332334	60	100	+0,-19	3.5
20332341	60	150	+0,-19	3.5
20332358	60	200	+0,-19	3.5
20332365	60	250	+0,-19	3.5
20332372	60	300	+0,-19	3.5
20332389	60	350	+0,-19	3.5
20332396	60	400	+0,-19	3.5
20332402	60	450	+0,-19	3.5
20332419	60	500	+0,-19	3.5
20332426	60	550	+0,-19	3.5
20332433	60	600	+0,-19	3.5
20332440	60	650	+0,-19	3.5
20332457	60	700	+0,-19	3.5
20332464	60	750	+0,-19	3.5
20332471	60	800	+0,-19	3.5
20332488	60	850	+0,-19	3.5
20332495	60	900	+0,-19	3.5
20332501	60	950	+0,-19	3.5
20332518	60	1000	+0,-19	3.5
20332525	60	1050	+0,-19	3.5
20332532	60	1100	+0,-19	3.5
20332549	60	1150	+0,-19	3.5
20332556	60	1200	+0,-19	3.5
20332563	60	1250	+0,-19	3.5
20332570	60	1300	+0,-19	3.5
20332587	60	1350	+0,-19	3.5
20332594	60	1400	+0,-19	3.5
20332600	60	1450	+0,-19	3.5
20332617	60	1500	+0,-19	3.5

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20332624	60	1550	+0,-19	3.5
20332631	60	1600	+0,-19	3.5
20332648	60	1650	+0,-19	3.5
20332655	60	1700	+0,-19	3.5
20332662	60	1750	+0,-19	3.5
20332679	60	1800	+0,-19	3.5
20332686	60	1850	+0,-19	3.5
20332693	60	1900	+0,-19	3.5
20332709	60	1950	+0,-19	3.5
20332716	60	2000	+0,-19	3.5
20332723	60	2050	+0,-19	3.5
20332730	60	2100	+0,-19	3.5
20332747	60	2150	+0,-19	3.5
20332754	60	2200	+0,-19	3.5
20332761	60	2250	+0,-19	3.5
20332778	60	2300	+0,-19	3.5
20332785	60	2350	+0,-19	3.5
20332792	60	2400	+0,-19	3.5
20332808	60	2450	+0,-19	3.5
20332815	60	2500	+0,-19	3.5
20332822	60	2550	+0,-19	3.5
20332839	60	2600	+0,-19	3.5
20332846	60	2650	+0,-19	3.5
20332853	60	2700	+0,-19	3.5
20332860	60	2750	+0,-19	3.5
20332877	60	2800	+0,-19	3.5
20332884	60	2850	+0,-19	3.5
20332891	60	2900	+0,-19	3.5
20332907	60	2950	+0,-19	3.5
20332914	60	3000	+0,-19	3.5
20332921	60	3050	+0,-19	3.5
20332938	60	3100	+0,-19	3.5
20332945	60	3150	+0,-19	3.5
20332952	60	3200	+0,-19	3.5
20332969	60	3250	+0,-19	3.5
20332976	60	3300	+0,-19	3.5
20332983	60	3350	+0,-19	3.5
20332990	60	3400	+0,-19	3.5
20333003	60	3450	+0,-19	3.5
20333010	60	3500	+0,-19	3.5
20333027	60	3550	+0,-19	3.5
20333034	60	3600	+0,-19	3.5
20333041	60	3650	+0,-19	3.5
20333058	60	3700	+0,-19	3.5
20333065	60	3750	+0,-19	3.5
20333072	60	3800	+0,-19	3.5
20333089	60	3850	+0,-19	3.5
20333096	60	3900	+0,-19	3.5
20333102	60	3950	+0,-19	3.5
20333119	60	4000	+0,-19	3.5
20333126	60	4050	+0,-19	3.5
20333133	60	4100	+0,-19	3.5
20333140	60	4150	+0,-19	3.5
20333157	60	4200	+0,-19	3.5
20333164	60	4250	+0,-19	3.5
20333171	60	4300	+0,-19	3.5
20333188	60	4350	+0,-19	3.5
20333195	60	4400	+0,-19	3.5
20333201	60	4450	+0,-19	3.5
20333218	60	4500	+0,-19	3.5
20333225	60	4550	+0,-19	3.5
20333232	60	4600	+0,-19	3.5
20333249	60	4650	+0,-19	3.5
20333256	60	4700	+0,-19	3.5
20333263	60	4750	+0,-19	3.5
20333270	60	4800	+0,-19	3.5
20333287	60	4850	+0,-19	3.5
20333294	60	4900	+0,-19	3.5

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6	Depth of hardness
20333300	60	4950	+0,-19	3.5
20333317	60	5000	+0,-19	3.5
20333324	60	5050	+0,-19	3.5
20333331	60	5100	+0,-19	3.5
20333348	60	5150	+0,-19	3.5
20333355	60	5200	+0,-19	3.5
20333362	60	5250	+0,-19	3.5
20333379	60	5300	+0,-19	3.5
20333386	60	5350	+0,-19	3.5
20333393	60	5400	+0,-19	3.5
20333409	60	5450	+0,-19	3.5
20333416	60	5500	+0,-19	3.5
20333423	60	5550	+0,-19	3.5
20333430	60	5600	+0,-19	3.5
20333447	60	5650	+0,-19	3.5
20333454	60	5700	+0,-19	3.5
20333461	60	5750	+0,-19	3.5
20333478	60	5800	+0,-19	3.5
20333485	60	5850	+0,-19	3.5
20333492	60	5900	+0,-19	3.5
20333508	60	5950	+0,-19	3.5
20333515	60	6000	+0,-19	3.5



EL1778.08



Material

Aluminium with aluminium-oxide ceramic coating (4-7µ). Hardness >80 HRC.

Technical Notes

Designed to be used with self-lubricating ceramic bushings (part no.s EL1764 to EL1769).

Temp. range -130°C to +200°C.

Non-magnetic, contaminants do not stick to surface, coating is FDA compliant, lightweight.

Tips

Shaft ends are not coated as standard, however coated ends are available on

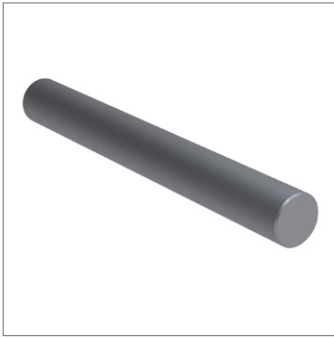
request.

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

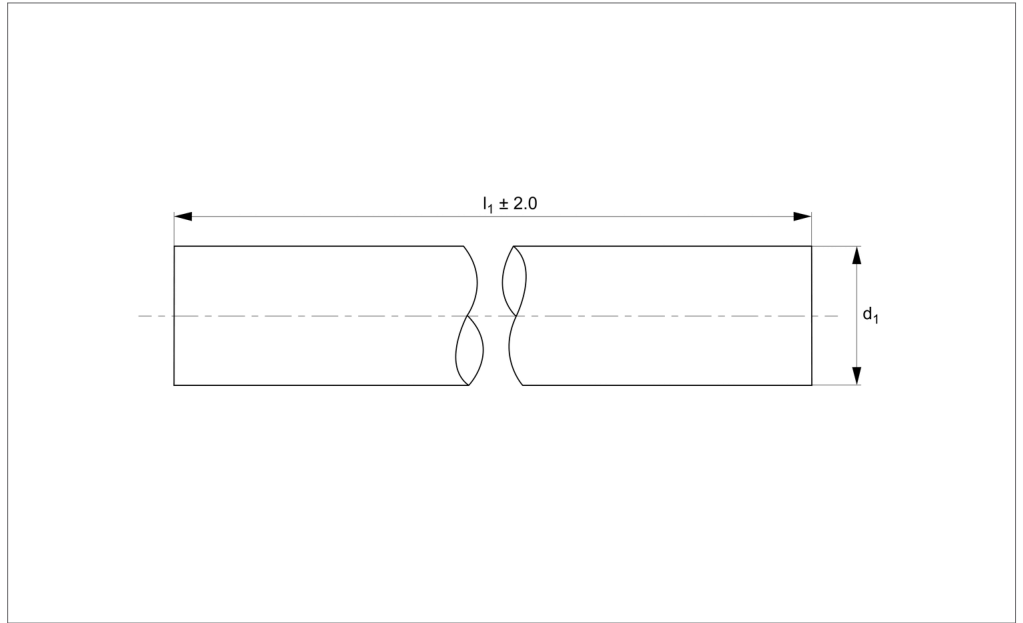
Shafts lengths are cut to typically ± 2mm.

Order No.	d ₁ tol. h6	l ₁	Tolerance µ tol. h6
20333522	8	100	+0,-9
20333539	8	150	+0,-9
20333546	8	200	+0,-9
20333553	8	250	+0,-9
20333560	8	300	+0,-9
20333577	8	350	+0,-9
20333584	8	400	+0,-9
20333591	8	450	+0,-9
20333607	8	500	+0,-9
20333614	8	550	+0,-9
20333621	8	600	+0,-9
20333638	8	650	+0,-9
20333645	8	700	+0,-9
20333652	8	750	+0,-9
20333669	8	800	+0,-9
20333676	8	850	+0,-9
20333683	8	900	+0,-9
20333690	8	1000	+0,-9
20333706	8	1050	+0,-9
20333713	8	1100	+0,-9
20333720	8	1150	+0,-9
20333737	8	1200	+0,-9
20333744	8	1250	+0,-9
20333751	8	1300	+0,-9
20333768	8	1350	+0,-9
20333775	8	1400	+0,-9
20333782	8	1450	+0,-9
20333799	8	1500	+0,-9
20333805	8	1550	+0,-9
20333812	8	1600	+0,-9

Order No.	d_1 tol. h6	l_1	Tolerance μ tol. h6
20333829	8	1650	+0,-9
20333836	8	1700	+0,-9
20333843	8	1750	+0,-9
20333850	8	1800	+0,-9
20333867	8	1850	+0,-9
20333874	8	1900	+0,-9
20333881	8	1950	+0,-9
20333898	8	2000	+0,-9



EL1778.10



Material

Aluminium (6060/6061) with aluminium-oxide ceramic coating (4-7 μ). Hardness >80 HRC.

Technical Notes

Designed to be used with self-lubricating ceramic bushings (part no.s EL1764 to

EL1769).

Temp. range -130°C to +200°C.

Non-magnetic, contaminants do not stick to surface, coating is FDA compliant, light-weight.

Tips

Shaft ends are not coated as standard,

however coated ends are available on request.

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

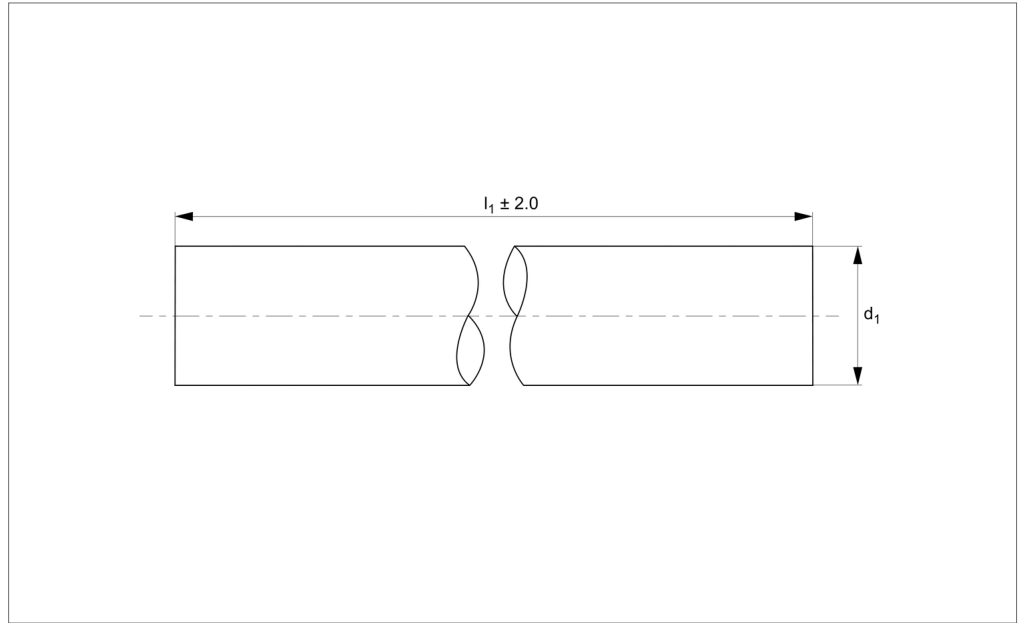
Shafts lengths are cut to typically ± 2 mm.

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20333904	10	100	+0,-9
20333911	10	150	+0,-9
20333928	10	200	+0,-9
20333935	10	250	+0,-9
20333942	10	300	+0,-9
20333959	10	350	+0,-9
20333966	10	400	+0,-9
20333973	10	450	+0,-9
20333980	10	500	+0,-9
20333997	10	550	+0,-9
20334000	10	600	+0,-9
20334017	10	650	+0,-9
20334024	10	700	+0,-9
20334031	10	750	+0,-9
20334048	10	800	+0,-9
20334055	10	850	+0,-9
20334062	10	900	+0,-9
20334079	10	1000	+0,-9
20334086	10	1050	+0,-9
20334093	10	1100	+0,-9
20334109	10	1150	+0,-9
20334116	10	1200	+0,-9
20334123	10	1250	+0,-9
20334130	10	1300	+0,-9
20334147	10	1350	+0,-9
20334154	10	1400	+0,-9
20334161	10	1450	+0,-9
20334178	10	1500	+0,-9
20334185	10	1550	+0,-9
20334192	10	1600	+0,-9

Order No.	d_1 tol. h6	l_1	Tolerance μ tol. h6
20334208	10	1650	+0,-9
20334215	10	1700	+0,-9
20334222	10	1750	+0,-9
20334239	10	1800	+0,-9
20334246	10	1850	+0,-9
20334253	10	1900	+0,-9
20334260	10	1950	+0,-9
20334277	10	2000	+0,-9



EL1778.12



Material

Aluminium (6060/6061) with aluminium-oxide ceramic coating (4-7µ). Hardness >80 HRC.

Technical Notes

Designed to be used with self-lubricating ceramic bushings (part no.s EL1764 to

EL1769).

Temp. range -130°C to +200°C.

Non-magnetic, contaminants do not stick to surface, coating is FDA compliant, light-weight.

Tips

Shaft ends are not coated as standard,

however coated ends are available on request.

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

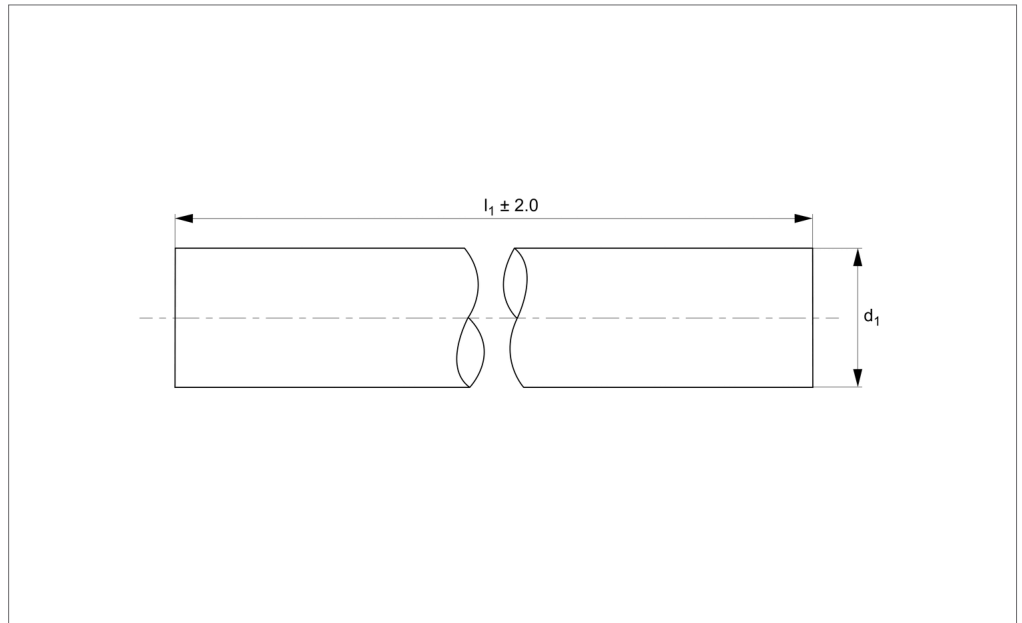
Shafts lengths are cut to typically ± 2mm.

Order No.	d ₁ tol. h6	l ₁	Tolerance µ tol. h6
20334284	12	100	+0,-9
20334291	12	150	+0,-9
20334307	12	200	+0,-9
20334314	12	250	+0,-9
20334321	12	300	+0,-9
20334338	12	350	+0,-9
20334345	12	400	+0,-9
20334352	12	450	+0,-9
20334369	12	500	+0,-9
20334376	12	550	+0,-9
20334383	12	600	+0,-9
20334390	12	650	+0,-9
20334406	12	700	+0,-9
20334413	12	750	+0,-9
20334420	12	800	+0,-9
20334437	12	850	+0,-9
20334444	12	900	+0,-9
20334451	12	1000	+0,-9
20334468	12	1050	+0,-9
20334475	12	1100	+0,-9
20334482	12	1150	+0,-9
20334499	12	1200	+0,-9
20334505	12	1250	+0,-9
20334512	12	1300	+0,-9
20334529	12	1350	+0,-9
20334536	12	1400	+0,-9
20334543	12	1450	+0,-9
20334550	12	1500	+0,-9
20334567	12	1550	+0,-9
20334574	12	1600	+0,-9

Order No.	d_1 tol. h6	l_1	Tolerance μ tol. h6
20334581	12	1650	+0,-9
20334598	12	1700	+0,-9
20334604	12	1750	+0,-9
20334611	12	1800	+0,-9
20334628	12	1850	+0,-9
20334635	12	1900	+0,-9
20334642	12	1950	+0,-9
20334659	12	2000	+0,-9



EL1778.16



Material

Aluminium (6060/6061) with aluminium-oxide ceramic coating (4-7 μ). Hardness >80 HRC.

Technical Notes

Designed to be used with self-lubricating ceramic bushings (part no.s EL1764 to

EL1769).

Temp. range -130°C to +200°C.

Non-magnetic, contaminants do not stick to surface, coating is FDA compliant, light-weight.

Tips

Shaft ends are not coated as standard,

however coated ends are available on request.

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

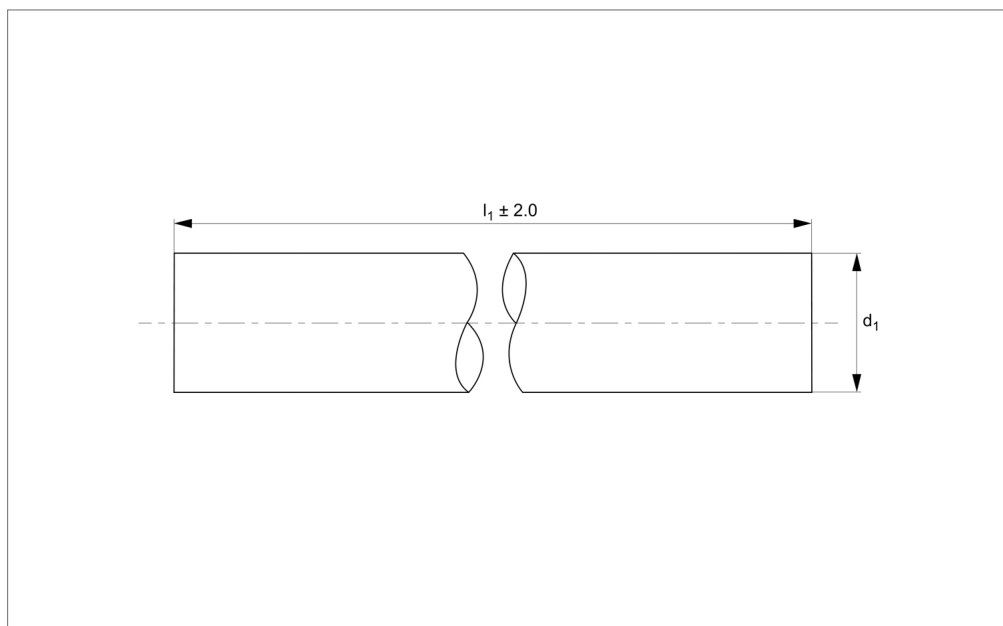
Shafts lengths are cut to typically ± 2 mm.

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20334666	16	100	+0,-9
20334673	16	150	+0,-9
20334680	16	200	+0,-9
20334697	16	250	+0,-9
20334703	16	300	+0,-9
20334710	16	350	+0,-9
20334727	16	400	+0,-9
20334734	16	450	+0,-9
20334741	16	500	+0,-9
20334758	16	550	+0,-9
20334765	16	600	+0,-9
20334772	16	650	+0,-9
20334789	16	700	+0,-9
20334796	16	750	+0,-9
20334802	16	800	+0,-9
20334819	16	850	+0,-9
20334826	16	900	+0,-9
20334833	16	1000	+0,-9
20334840	16	1050	+0,-9
20334857	16	1100	+0,-9
20334864	16	1150	+0,-9
20334871	16	1200	+0,-9
20334888	16	1250	+0,-9
20334895	16	1300	+0,-9
20334901	16	1350	+0,-9
20334918	16	1400	+0,-9
20334925	16	1450	+0,-9
20334932	16	1500	+0,-9
20334949	16	1550	+0,-9
20334956	16	1600	+0,-9

Order No.	d_1 tol. h6	l_1	Tolerance μ tol. h6
20334963	16	1650	+0,-9
20334970	16	1700	+0,-9
20334987	16	1750	+0,-9
20334994	16	1800	+0,-9
20335007	16	1850	+0,-9
20335014	16	1900	+0,-9
20335021	16	1950	+0,-9
20335038	16	2000	+0,-9



EL1778.20



Material

Aluminium (6060/6061) with aluminium-oxide ceramic coating (4-7µ). Hardness >80 HRC.

Technical Notes

Designed to be used with self-lubricating ceramic bushings (part no.s EL1764 to

EL1769).

Temp. range -130°C to +200°C.

Non-magnetic, contaminants do not stick to surface, coating is FDA compliant, light-weight.

Tips

Shaft ends are not coated as standard,

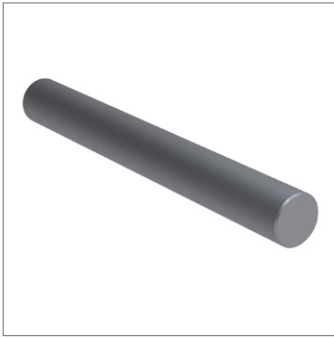
however coated ends are available on request.

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

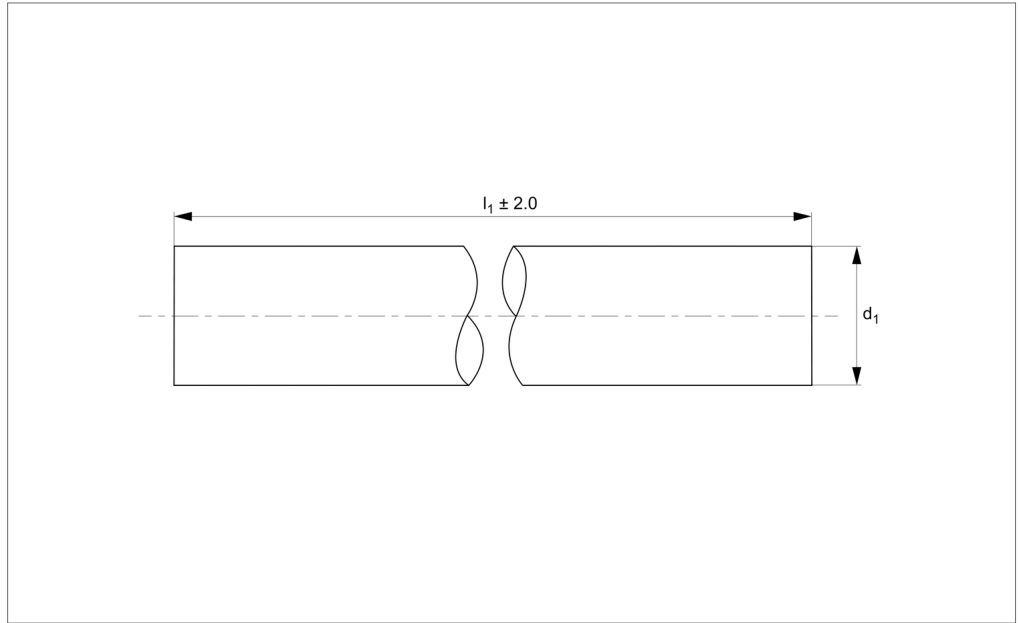
Shafts lengths are cut to typically ± 2mm.

Order No.	d ₁ tol. h6	l ₁	Tolerance µ tol. h6
20335045	20	100	+0,-9
20335052	20	150	+0,-9
20335069	20	200	+0,-9
20335076	20	250	+0,-9
20335083	20	300	+0,-9
20335090	20	350	+0,-9
20335106	20	400	+0,-9
20335113	20	450	+0,-9
20335120	20	500	+0,-9
20335137	20	550	+0,-9
20335144	20	600	+0,-9
20335151	20	650	+0,-9
20335168	20	700	+0,-9
20335175	20	750	+0,-9
20335182	20	800	+0,-9
20335199	20	850	+0,-9
20335205	20	900	+0,-9
20335212	20	1000	+0,-9
20335229	20	1050	+0,-9
20335236	20	1100	+0,-9
20335243	20	1150	+0,-9
20335250	20	1200	+0,-9
20335267	20	1250	+0,-9
20335274	20	1300	+0,-9
20335281	20	1350	+0,-9
20335298	20	1400	+0,-9
20335304	20	1450	+0,-9
20335311	20	1500	+0,-9
20335328	20	1550	+0,-9
20335335	20	1600	+0,-9

Order No.	d_1 tol. h6	l_1	Tolerance μ tol. h6
20335342	20	1650	+0,-9
20335359	20	1700	+0,-9
20335366	20	1750	+0,-9
20335373	20	1800	+0,-9
20335380	20	1850	+0,-9
20335397	20	1900	+0,-9
20335403	20	1950	+0,-9
20335410	20	2000	+0,-9



EL1778.25



Material

Aluminium (6060/6061) with aluminium-oxide ceramic coating (4-7µ). Hardness >80 HRC.

Technical Notes

Designed to be used with self-lubricating ceramic bushings (part no.s EL1764 to

EL1769).

Temp. range -130°C to +200°C.

Non-magnetic, contaminants do not stick to surface, coating is FDA compliant, light-weight.

Tips

Shaft ends are not coated as standard,

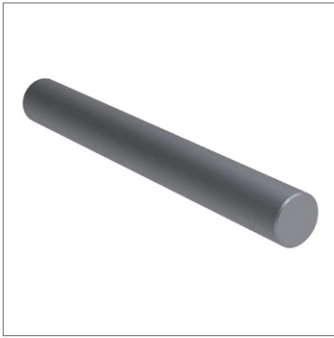
however coated ends are available on request.

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

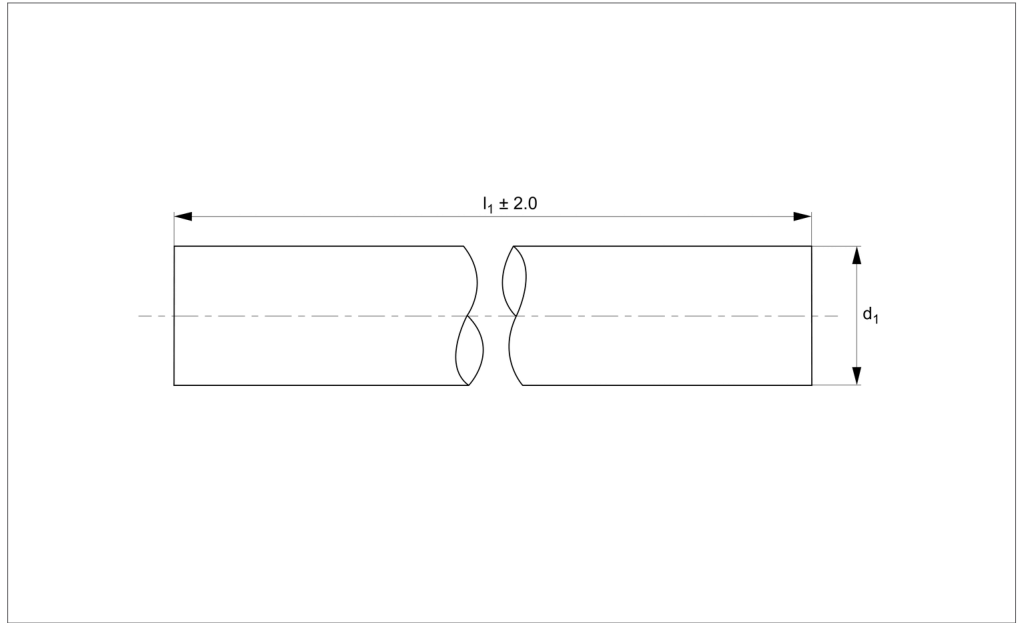
Shafts lengths are cut to typically ± 2mm.

Order No.	d ₁ tol. h6	l ₁	Tolerance µ tol. h6
20335427	25	100	+0,-9
20335434	25	150	+0,-9
20335441	25	200	+0,-9
20335458	25	250	+0,-9
20335465	25	300	+0,-9
20335472	25	350	+0,-9
20335489	25	400	+0,-9
20335496	25	450	+0,-9
20335502	25	500	+0,-9
20335519	25	550	+0,-9
20335526	25	600	+0,-9
20335533	25	650	+0,-9
20335540	25	700	+0,-9
20335557	25	750	+0,-9
20335564	25	800	+0,-9
20335571	25	850	+0,-9
20335588	25	900	+0,-9
20335595	25	1000	+0,-9
20335601	25	1050	+0,-9
20335618	25	1100	+0,-9
20335625	25	1150	+0,-9
20335632	25	1200	+0,-9
20335649	25	1250	+0,-9
20335656	25	1300	+0,-9
20335663	25	1350	+0,-9
20335670	25	1400	+0,-9
20335687	25	1450	+0,-9
20335694	25	1500	+0,-9
20335700	25	1550	+0,-9
20335717	25	1600	+0,-9

Order No.	d_1 tol. h6	l_1	Tolerance μ tol. h6
20335724	25	1650	+0,-9
20335731	25	1700	+0,-9
20335748	25	1750	+0,-9
20335755	25	1800	+0,-9
20335762	25	1850	+0,-9
20335779	25	1900	+0,-9
20335786	25	1950	+0,-9
20335793	25	2000	+0,-9



EL1778.30



Material

Aluminium (6060/6061) with aluminium-oxide ceramic coating (4-7µ). Hardness >80 HRC.

Technical Notes

Designed to be used with self-lubricating ceramic bushings (part no.s EL1764 to

EL1769).

Temp. range -130°C to +200°C.

Non-magnetic, contaminants do not stick to surface, coating is FDA compliant, light-weight.

Tips

Shaft ends are not coated as standard,

however coated ends are available on request.

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

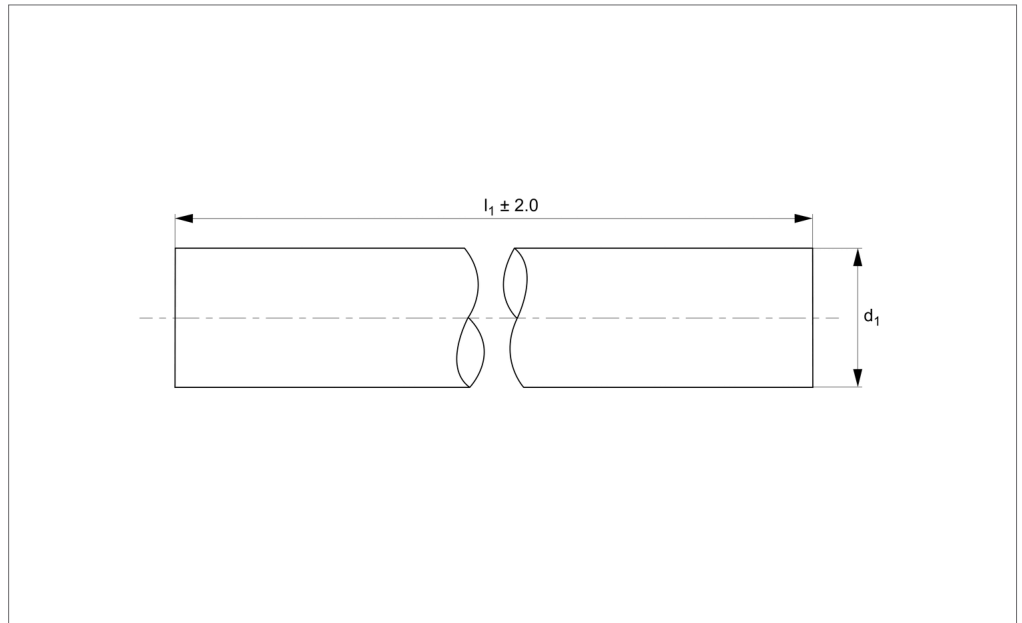
Shafts lengths are cut to typically ± 2mm.

Order No.	d ₁ tol. h6	l ₁	Tolerance µ tol. h6
20335809	30	100	+0,-9
20335816	30	150	+0,-9
20335823	30	200	+0,-9
20335830	30	250	+0,-9
20335847	30	300	+0,-9
20335854	30	350	+0,-9
20335861	30	400	+0,-9
20335878	30	450	+0,-9
20335885	30	500	+0,-9
20335892	30	550	+0,-9
20335908	30	600	+0,-9
20335915	30	650	+0,-9
20335922	30	700	+0,-9
20335939	30	750	+0,-9
20335946	30	800	+0,-9
20335953	30	850	+0,-9
20335960	30	900	+0,-9
20335977	30	1000	+0,-9
20335984	30	1050	+0,-9
20335991	30	1100	+0,-9
20336004	30	1150	+0,-9
20336011	30	1200	+0,-9
20336028	30	1250	+0,-9
20336035	30	1300	+0,-9
20336042	30	1350	+0,-9
20336059	30	1400	+0,-9
20336066	30	1450	+0,-9
20336073	30	1500	+0,-9
20336080	30	1550	+0,-9
20336097	30	1600	+0,-9

Order No.	d_1 tol. h6	l_1	Tolerance μ tol. h6
20336103	30	1650	+0,-9
20336110	30	1700	+0,-9
20336127	30	1750	+0,-9
20336134	30	1800	+0,-9
20336141	30	1850	+0,-9
20336158	30	1900	+0,-9
20336165	30	1950	+0,-9
20336172	30	2000	+0,-9



EL1778.40



Material

Aluminium (6060/6061) with aluminium-oxide ceramic coating (4-7 μ). Hardness >80 HRC.

Technical Notes

Designed to be used with self-lubricating ceramic bushings (part no.s EL1764 to

EL1769).

Temp. range -130°C to +200°C.

Non-magnetic, contaminants do not stick to surface, coating is FDA compliant, light-weight.

Tips

Shaft ends are not coated as standard,

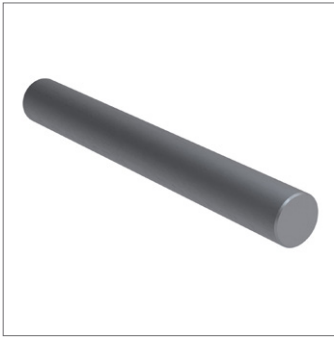
however coated ends are available on request.

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

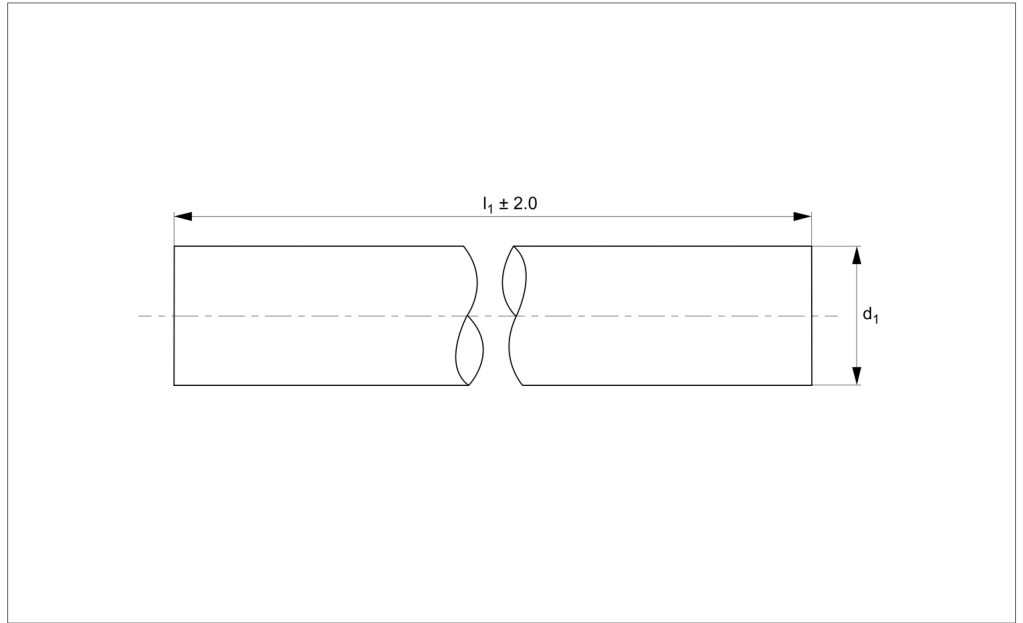
Shafts lengths are cut to typically ± 2 mm.

Order No.	d ₁ tol. h6	l ₁	Tolerance μ tol. h6
20336189	40	100	+0,-9
20336196	40	150	+0,-9
20336202	40	200	+0,-9
20336219	40	250	+0,-9
20336226	40	300	+0,-9
20336233	40	350	+0,-9
20336240	40	400	+0,-9
20336257	40	450	+0,-9
20336264	40	500	+0,-9
20336271	40	550	+0,-9
20336288	40	600	+0,-9
20336295	40	650	+0,-9
20336301	40	700	+0,-9
20336318	40	750	+0,-9
20336325	40	800	+0,-9
20336332	40	850	+0,-9
20336349	40	900	+0,-9
20336356	40	1000	+0,-9
20336363	40	1050	+0,-9
20336370	40	1100	+0,-9
20336387	40	1150	+0,-9
20336394	40	1200	+0,-9
20336400	40	1250	+0,-9
20336417	40	1300	+0,-9
20336424	40	1350	+0,-9
20336431	40	1400	+0,-9
20336448	40	1450	+0,-9
20336455	40	1500	+0,-9
20336462	40	1550	+0,-9
20336479	40	1600	+0,-9

Order No.	d_1 tol. h6	l_1	Tolerance μ tol. h6
20336486	40	1650	+0,-9
20336493	40	1700	+0,-9
20336509	40	1750	+0,-9
20336516	40	1800	+0,-9
20336523	40	1850	+0,-9
20336530	40	1900	+0,-9
20336547	40	1950	+0,-9
20336554	40	2000	+0,-9



EL1778.50



Material

Aluminium (6060/6061) with aluminium-oxide ceramic coating (4-7µ). Hardness >80 HRC.

Technical Notes

Designed to be used with self-lubricating ceramic bushings (part no.s EL1764 to

EL1769).

Temp. range -130°C to +200°C.

Non-magnetic, contaminants do not stick to surface, coating is FDA compliant, light-weight.

Tips

Shaft ends are not coated as standard,

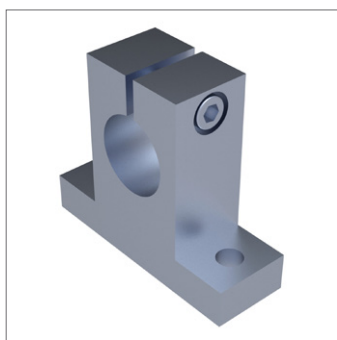
however coated ends are available on request.

Modifications, drilled and tapped holes, circlip grooves, special coatings etc. available.

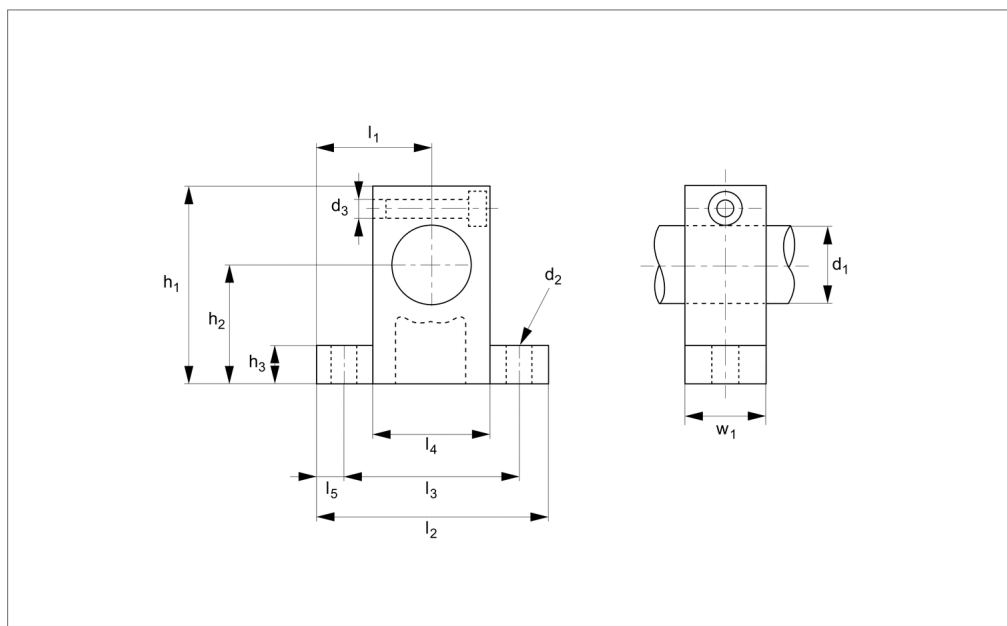
Shafts lengths are cut to typically ± 2mm.

Order No.	d ₁ tol. h6	l ₁	Tolerance µ tol. h6
20336561	50	100	+0,-9
20336578	50	150	+0,-9
20336585	50	200	+0,-9
20336592	50	250	+0,-9
20336608	50	300	+0,-9
20336615	50	350	+0,-9
20336622	50	400	+0,-9
20336639	50	450	+0,-9
20336646	50	500	+0,-9
20336653	50	550	+0,-9
20336660	50	600	+0,-9
20336677	50	650	+0,-9
20336684	50	700	+0,-9
20336691	50	750	+0,-9
20336707	50	800	+0,-9
20336714	50	850	+0,-9
20336721	50	900	+0,-9
20336738	50	1000	+0,-9
20336745	50	1050	+0,-9
20336752	50	1100	+0,-9
20336769	50	1150	+0,-9
20336776	50	1200	+0,-9
20336783	50	1250	+0,-9
20336790	50	1300	+0,-9
20336806	50	1350	+0,-9
20336813	50	1400	+0,-9
20336820	50	1450	+0,-9
20336837	50	1500	+0,-9
20336844	50	1550	+0,-9
20336851	50	1600	+0,-9

Order No.	d_1 tol. h6	l_1	Tolerance μ tol. h6
20336868	50	1650	+0,-9
20336875	50	1700	+0,-9
20336882	50	1750	+0,-9
20336899	50	1800	+0,-9
20336905	50	1850	+0,-9
20336912	50	1900	+0,-9
20336929	50	1950	+0,-9
20336936	50	2000	+0,-9



EL1779.AL



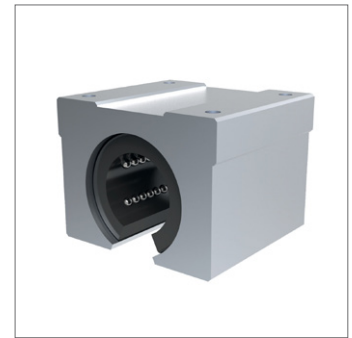
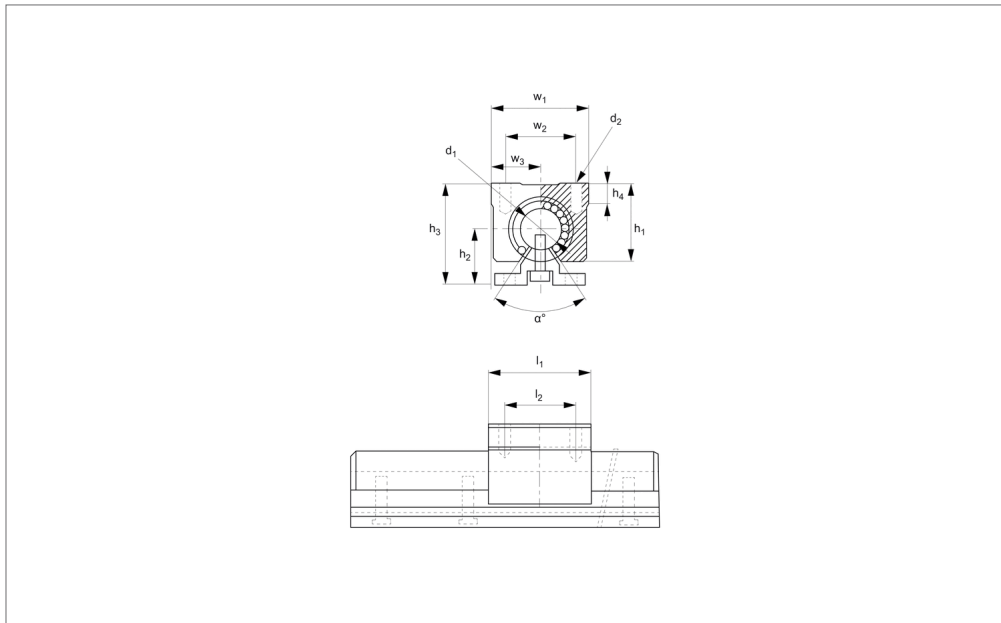
Material

Aluminium (P40,6060)

Technical Notes

For mounting of standard shaft diameters.

Order No.	d ₁	d ₂	d ₃	h ₁	h ₂ ±0.02	h ₃	l ₁ ±0.05	l ₂	l ₃	l ₄	l ₅	w ₁	Weight g
20272807	10	5.5	M4	32.8	20	6	21	42	32	18	5.0	14	24
20272814	12	5.5	M4	38.0	23	6	21	42	32	20	5.0	14	30
20272821	13	5.5	M4	38.0	23	6	21	42	32	20	5.0	14	30
20272838	16	5.5	M4	44.0	27	8	24	48	38	25	5.0	16	40
20272845	20	6.6	M5	51.0	31	10	30	60	45	30	7.5	20	70
20272852	25	6.6	M6	60.0	35	12	35	70	56	38	7.0	24	130
20272869	30	9.0	M6	70.0	42	12	42	84	64	44	10.0	28	180
20272876	35	11.0	M8	85.0	50	15	49	98	74	50	12.0	32	270
20272883	40	11.0	M8	96.0	60	15	57	114	90	60	12.0	36	420



EL1752

Material

Aluminium body, with EL1707 (steel shell) linear bearing installed. Bearing has a resin retainer (POM). Supplied with nitrile rubber (NBR) end seals -UU as standard.

Technical Notes

For use with hardened shafts only - see

part no.s EL1770 - EL1772.

Temperature range: -20°C to +80°C.

Tips

Use with shaft support rail L1780. Particularly effective for high loads and long stroke applications.

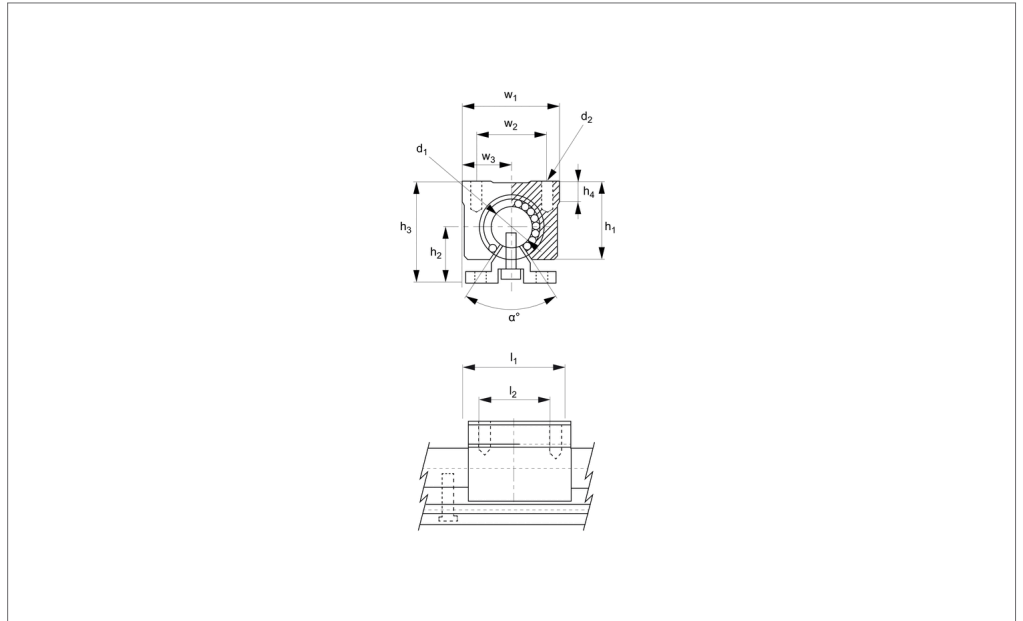
Important Notes

If using the carriage inverted, ie hanging loads, then the load rating is reduced by 50%.

Order No.	d_1 tol. h6	l_1	d_2	h_1	h_2	h_3 ± 0.05	h_4	l_2 ± 0.2	w_1	w_2 ± 0.2	w_3	α°	Dyn. load C N max.	Static load C_0 N max.	Weight g
20262686	16	45	M 5x12	33	26	46	9	30	45	32	22.5	80°	770	1170	150
20262693	20	50	M 6x12	39	32	55	11	35	48	35	24.0	60°	860	1370	200
20262709	25	65	M 6x12	47	36	62	14	40	60	40	30.0	50°	980	1560	450
20262716	30	70	M 8x18	56	42	75	15	50	70	50	35.0	50°	1560	2740	630
20262730	40	90	M10x20	72	50	92	20	65	90	65	45.0	50°	2150	4010	1330
20262747	50	110	M10x20	91	60	113	25	80	120	94	60.0	50°	3820	7930	3000



EL1753



Material

Aluminium carriage housing with EL1710 stainless steel (440C) linear bushing installed. Bushing has a resin -RS (POM) or stainless steel -SS (316) retainer and nitrile rubber (NBR) end seals -UU. Stainless steel balls 440C.

number EL1781 with hardened corrosive resistant shaft).
Temperature range: -20°C to +120°C.

loads, then the load rating is reduced by 50%.

Tips

Particularly effective for high loads and long stroke applications.

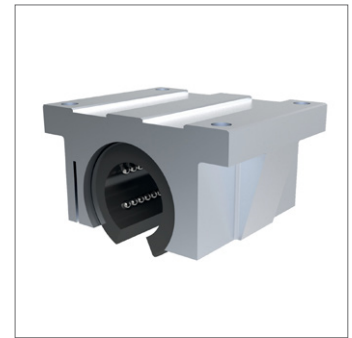
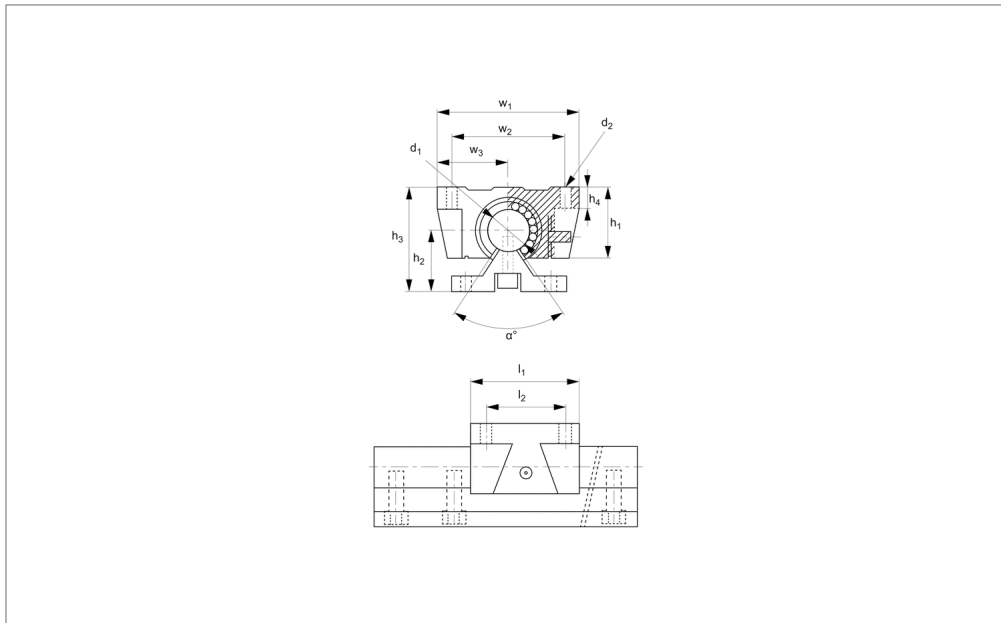
Technical Notes

For use with shaft support rails (see part

Important Notes

If using the carriage inverted, ie hanging

Order No.	d_1 tol. H6	l_1	d_2	h_1	h_2	h_3 ± 0.05	h_4	l_2 ± 0.2	w_1	w_2 ± 0.2	w_3	α°	Dyn. load C N max.	Static load C_0 N max.	Weight g
20263416	16	45	M5x12	33	26	46	9	30	45	32	22.5	80°	770	1170	150
20263423	20	50	M6x12	39	32	55	11	35	48	35	24.0	60°	860	1370	200
20263430	25	65	M6x12	47	36	63	14	40	60	40	30.0	50°	980	1560	450
20263690	16	45	M5x12	33	26	46	9	30	45	32	22.5	80°	770	1170	150
20263706	20	50	M6x12	39	32	55	11	35	48	35	24.0	60°	860	1370	200
20263713	25	65	M6x12	47	36	63	14	40	60	40	30.0	50°	980	1560	450



EL1755

Material

Aluminium body, with EL1707 (steel shell) linear bearing installed. Bearing has a resin retainer (POM). Supplied with nitrile rubber (NBR) end seals -UU as standard.

Technical Notes

For use with shaft support rails (see part

number EL1781 with hardened corrosive resistant shaft).
Temperature range: -20°C to +80°C.
Steel ball retainers can be supplied for higher temperature applications (up to +120°C - with no end seals. Please advise at time of ordering if this is required.

Tips

Particularly effective for high loads and long stroke applications.

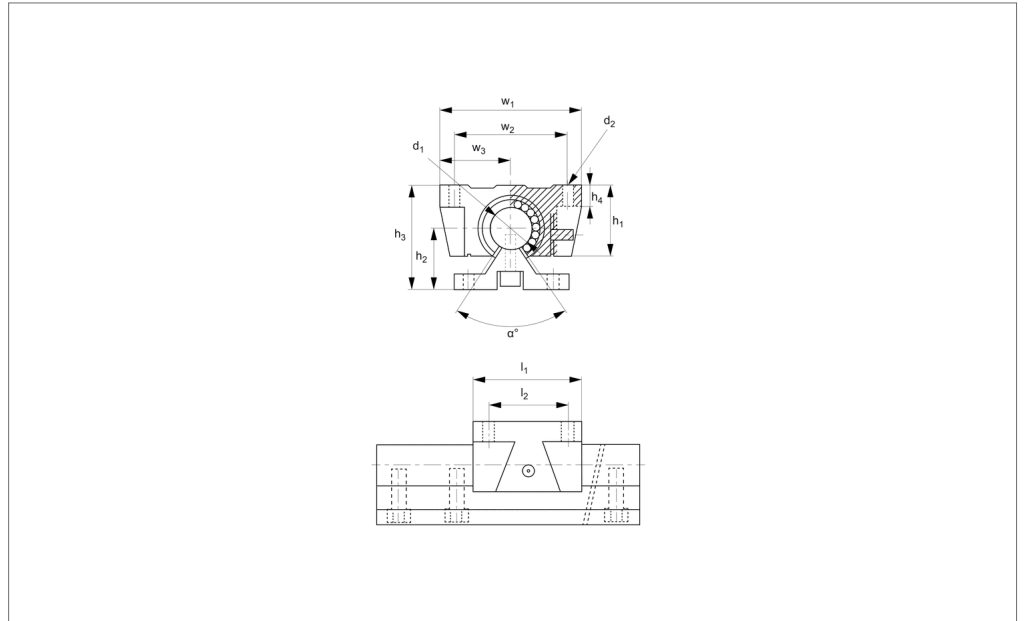
Important Notes

If using the carriage inverted, ie hanging loads, then the load rating is reduced by 50%.

Order No.	d ₁ tol. H6	l ₁	d ₂	h ₁	h ₂	h ₃ ±0.05	h ₄	l ₂ ±0.2	w ₁	w ₂ ±0.2	w ₃	°	Dyn. load C N max.	Static load C ₀ N max.	Weight g
20263362	16	42	M5	26	26	44	8	30	62	50	31.0	80°	392	490	180
20263379	20	51	M6	31	32	53	10	37	68	54	34.0	60°	784	1176	300
20263386	25	65	M8	41	36	64	12	50	82	65	41.0	50°	1568	2352	600
20263393	30	75	M8	48	42	76	12	60	91	75	45.5	50°	1764	2940	900



EL1756



Material

Aluminium carriage housing with EL1710 stainless steel (440C) linear bushing installed.

Bushing has a resin -RS (POM) retainer and nitrile rubber (NBR) end seals -UU. Stainless steel balls 440C.

Technical Notes

For use with shaft support rails (see part

number EL1781 with hardened corrosive resistant shaft).

Temperature range: -20°C to +120°C.

Tips

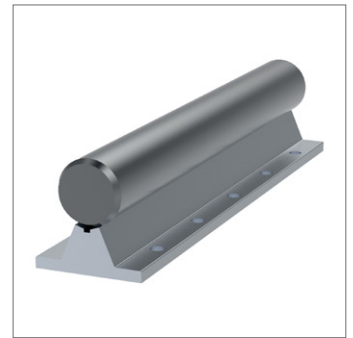
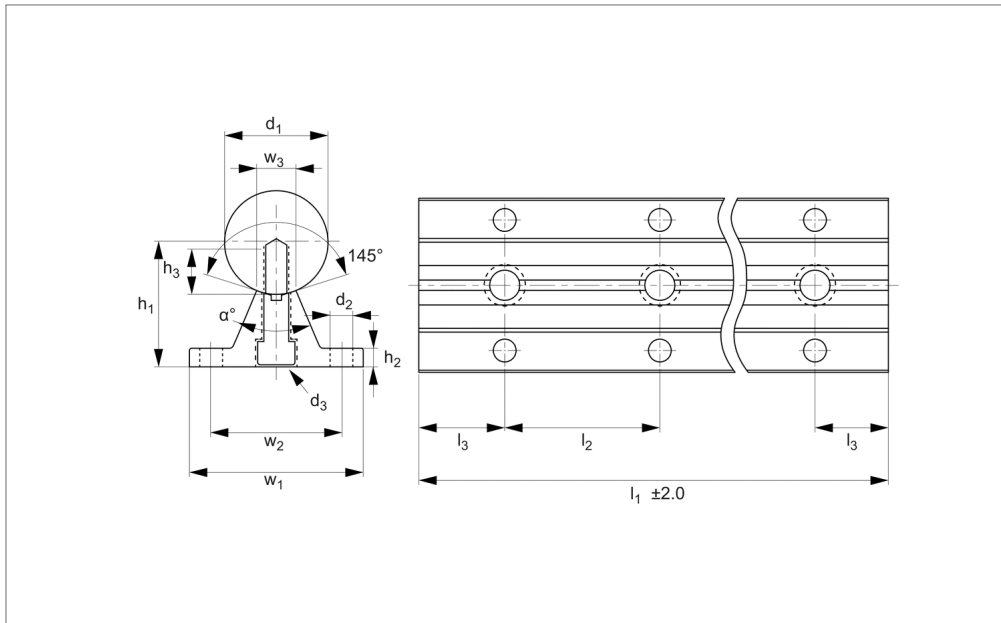
Particularly effective for high loads and long stroke applications.

Important Notes

If using the carriage inverted, ie hanging

loads, then the load rating is reduced by 50%.

Order No.	d ₁ tol. H6	l ₁	d ₂	h ₁	h ₂	h ₃ ±0.05	h ₄	l ₂ ±0.2	w ₁	w ₂ ±0.2	w ₃	°	Dyn. load C N max.	Static load C ₀ N max.	Weight g
20263447	16	42	M5	26	26	44	8	30	62	50	31	80°	392	490	180
20263454	20	51	M6	31	32	53	10	37	68	54	34	60°	784	1176	300
20263461	25	65	M8	41	36	64	12	50	82	65	41	50°	1568	2352	600



EL1780.12

Material

Hardened and ground carbon steel shaft (070M55, Cf53 - DIN 1.1213), aluminium alloy support rail.
Surface hardness of steel shaft 60-65 HRC.

Technical Notes

For open linear bushings, ensures a very rigid and stiff system.

The shaft is pre-mounted to the shaft support rail.

Standard lengths are shown which allow the distance to the first and last hole to be equal (ie $l_2/2$). Different holes pitches available on request.

Straightness: $\pm 0.1\text{mm/metre}$.

Tips

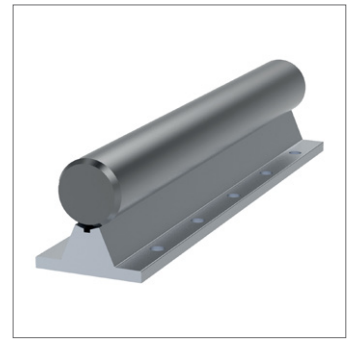
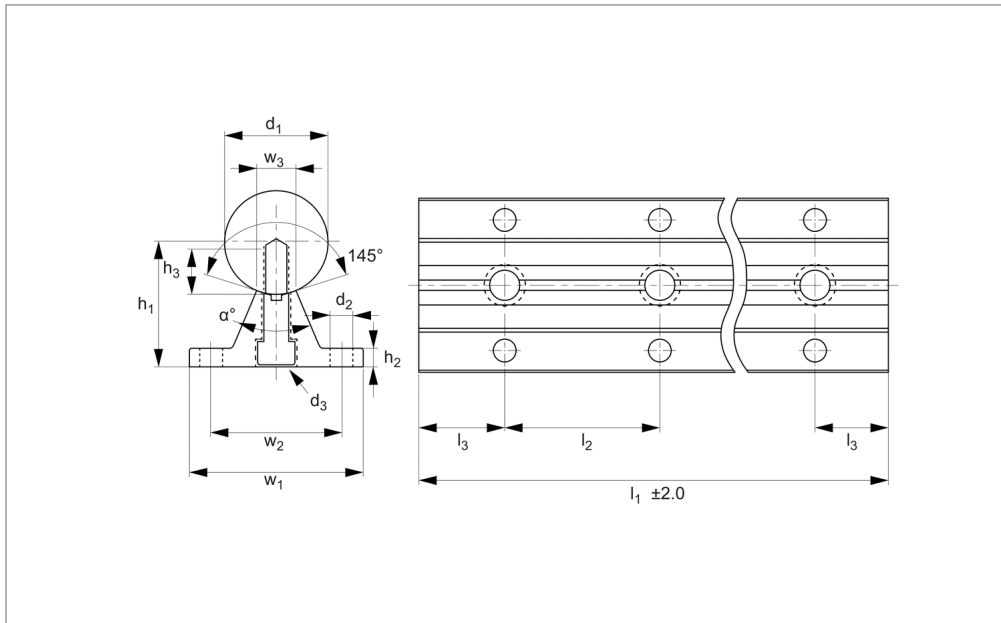
For linear carriages see part no. EL1755 (flanged) or EL1752 (unflanged).
Stainless steel carriages also available, see part no. EL1756 (flanged) or EL1753 (unflanged).

On request a stainless steel (usually 440C) shaft can be mounted on the support rail.

Order No.	d_1 tol. h6	d_2	d_3	l_1	l_2	l_3	w_1	w_2	w_3	h_1 ± 0.01	h_2	h_3	α
20267698	12	4.5	M4x20	240	120	60	40	29	5.8	22	5	8	50
20267704	12	4.5	M4x20	360	120	60	40	29	5.8	22	5	8	50
20267711	12	4.5	M4x20	480	120	60	40	29	5.8	22	5	8	50
20267728	12	4.5	M4x20	600	120	60	40	29	5.8	22	5	8	50
20267735	12	4.5	M4x20	720	120	60	40	29	5.8	22	5	8	50
20267742	12	4.5	M4x20	840	120	60	40	29	5.8	22	5	8	50
20267759	12	4.5	M4x20	960	120	60	40	29	5.8	22	5	8	50
20267766	12	4.5	M4x20	1080	120	60	40	29	5.8	22	5	8	50
20267773	12	4.5	M4x20	1200	120	60	40	29	5.8	22	5	8	50
20267780	12	4.5	M4x20	1320	120	60	40	29	5.8	22	5	8	50
20267797	12	4.5	M4x20	1440	120	60	40	29	5.8	22	5	8	50
20267803	12	4.5	M4x20	1560	120	60	40	29	5.8	22	5	8	50
20267810	12	4.5	M4x20	1680	120	60	40	29	5.8	22	5	8	50
20267827	12	4.5	M4x20	1800	120	60	40	29	5.8	22	5	8	50
20267834	12	4.5	M4x20	1920	120	60	40	29	5.8	22	5	8	50
20267841	12	4.5	M4x20	2040	120	60	40	29	5.8	22	5	8	50
20267858	12	4.5	M4x20	2160	120	60	40	29	5.8	22	5	8	50
20267865	12	4.5	M4x20	2280	120	60	40	29	5.8	22	5	8	50
20267872	12	4.5	M4x20	2400	120	60	40	29	5.8	22	5	8	50
20267889	12	4.5	M4x20	2520	120	60	40	29	5.8	22	5	8	50
20267896	12	4.5	M4x20	2640	120	60	40	29	5.8	22	5	8	50
20267902	12	4.5	M4x20	2760	120	60	40	29	5.8	22	5	8	50
20267919	12	4.5	M4x20	2880	120	60	40	29	5.8	22	5	8	50
20267926	12	4.5	M4x20	3000	120	60	40	29	5.8	22	5	8	50
20267933	12	4.5	M4x20	3120	120	60	40	29	5.8	22	5	8	50
20267940	12	4.5	M4x20	3240	120	60	40	29	5.8	22	5	8	50
20267957	12	4.5	M4x20	3360	120	60	40	29	5.8	22	5	8	50
20267964	12	4.5	M4x20	3480	120	60	40	29	5.8	22	5	8	50
20267971	12	4.5	M4x20	3600	120	60	40	29	5.8	22	5	8	50

Order No.	d ₁ tol. h6	d ₂	d ₃	l ₁	l ₂	l ₃	w ₁	w ₂	w ₃	h ₁ ±0.01	h ₂	h ₃	°
20267988	12	4.5	M4x20	3720	120	60	40	29	5.8	22	5	8	50
20267995	12	4.5	M4x20	3840	120	60	40	29	5.8	22	5	8	50
20268008	12	4.5	M4x20	3960	120	60	40	29	5.8	22	5	8	50
20268015	12	4.5	M4x20	4080	120	60	40	29	5.8	22	5	8	50
20268022	12	4.5	M4x20	4200	120	60	40	29	5.8	22	5	8	50
20268039	12	4.5	M4x20	4320	120	60	40	29	5.8	22	5	8	50
20268046	12	4.5	M4x20	4440	120	60	40	29	5.8	22	5	8	50
20268053	12	4.5	M4x20	4560	120	60	40	29	5.8	22	5	8	50
20268060	12	4.5	M4x20	4680	120	60	40	29	5.8	22	5	8	50
20268077	12	4.5	M4x20	4800	120	60	40	29	5.8	22	5	8	50
20268084	12	4.5	M4x20	4920	120	60	40	29	5.8	22	5	8	50
20268091	12	4.5	M4x20	5040	120	60	40	29	5.8	22	5	8	50
20268107	12	4.5	M4x20	5150	120	60	40	29	5.8	22	5	8	50
20268114	12	4.5	M4x20	5280	120	60	40	29	5.8	22	5	8	50
20268121	12	4.5	M4x20	5400	120	60	40	29	5.8	22	5	8	50
20268138	12	4.5	M4x20	5520	120	60	40	29	5.8	22	5	8	50
20268145	12	4.5	M4x20	5640	120	60	40	29	5.8	22	5	8	50
20268152	12	4.5	M4x20	5760	120	60	40	29	5.8	22	5	8	50
20268169	12	4.5	M4x20	5880	120	60	40	29	5.8	22	5	8	50
20268176	12	4.5	M4x20	6000	120	60	40	29	5.8	22	5	8	50





EL1780.16

Material

Hardened and ground carbon steel shaft (070M55, Cf53 - DIN 1.1213), aluminium alloy support rail.
Surface hardness of steel shaft 60-65 HRC.

Technical Notes

For open linear bushings, ensures a very rigid and stiff system.

The shaft is pre-mounted to the shaft support rail.

Standard lengths are shown which allow the distance to the first and last hole to be equal (ie $l_2/2$). Different holes pitches available on request.

Straightness: $\pm 0.1\text{mm/metre}$.

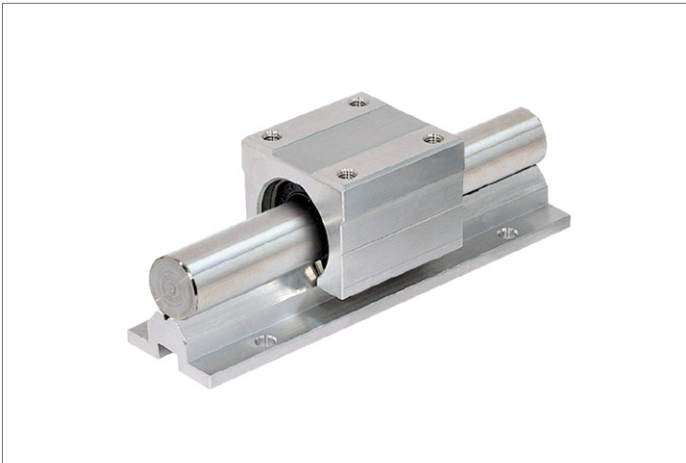
Tips

For linear carriages see part no. EL1755 (flanged) or EL1752 (unflanged).
Stainless steel carriages also available, see part no. EL1756 (flanged) or EL1753 (unflanged).

On request a stainless steel (usually 440C) shaft can be mounted on the support rail.

Order No.	d_1 tol. h6	d_2	d_3	l_1	l_2	l_3	w_1	w_2	w_3	h_1 ± 0.01	h_2	h_3	α
20268183	16	5.5	M5x20	300	150	75	45	33	7	26	5	9	50
20268190	16	5.5	M5x20	450	150	75	45	33	7	26	5	9	50
20268206	16	5.5	M5x20	600	150	75	45	33	7	26	5	9	50
20268213	16	5.5	M5x20	750	150	75	45	33	7	26	5	9	50
20268220	16	5.5	M5x20	900	150	75	45	33	7	26	5	9	50
20268237	16	5.5	M5x20	1050	150	75	45	33	7	26	5	9	50
20268244	16	5.5	M5x20	1200	150	75	45	33	7	26	5	9	50
20270261	16	5.5	M5x20	1350	150	75	45	33	7	26	5	9	50
20267681	16	5.5	M5x20	1500	150	75	45	33	7	26	5	9	50
20268251	16	5.5	M5x20	1650	150	75	45	33	7	26	5	9	50
20268268	16	5.5	M5x20	1800	150	75	45	33	7	26	5	9	50
20268275	16	5.5	M5x20	1950	150	75	45	33	7	26	5	9	50
20268282	16	5.5	M5x20	2100	150	75	45	33	7	26	5	9	50
20268299	16	5.5	M5x20	2250	150	75	45	33	7	26	5	9	50
20268305	16	5.5	M5x20	2400	150	75	45	33	7	26	5	9	50
20268312	16	5.5	M5x20	2550	150	75	45	33	7	26	5	9	50
20268329	16	5.5	M5x20	2700	150	75	45	33	7	26	5	9	50
20268336	16	5.5	M5x20	2850	150	75	45	33	7	26	5	9	50
20268343	16	5.5	M5x20	3000	150	75	45	33	7	26	5	9	50
20268350	16	5.5	M5x20	3150	150	75	45	33	7	26	5	9	50
20268367	16	5.5	M5x20	3300	150	75	45	33	7	26	5	9	50
20268374	16	5.5	M5x20	3450	150	75	45	33	7	26	5	9	50
20268381	16	5.5	M5x20	3600	150	75	45	33	7	26	5	9	50
20268398	16	5.5	M5x20	3750	150	75	45	33	7	26	5	9	50
20268404	16	5.5	M5x20	3900	150	75	45	33	7	26	5	9	50
20268411	16	5.5	M5x20	4050	150	75	45	33	7	26	5	9	50
20268428	16	5.5	M5x20	4200	150	75	45	33	7	26	5	9	50
20268435	16	5.5	M5x20	4350	150	75	45	33	7	26	5	9	50
20268442	16	5.5	M5x20	4500	150	75	45	33	7	26	5	9	50

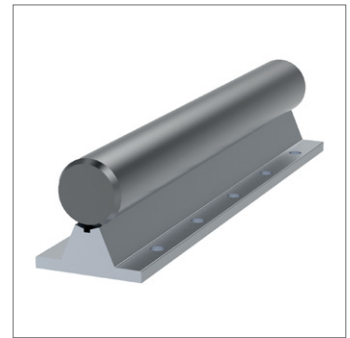
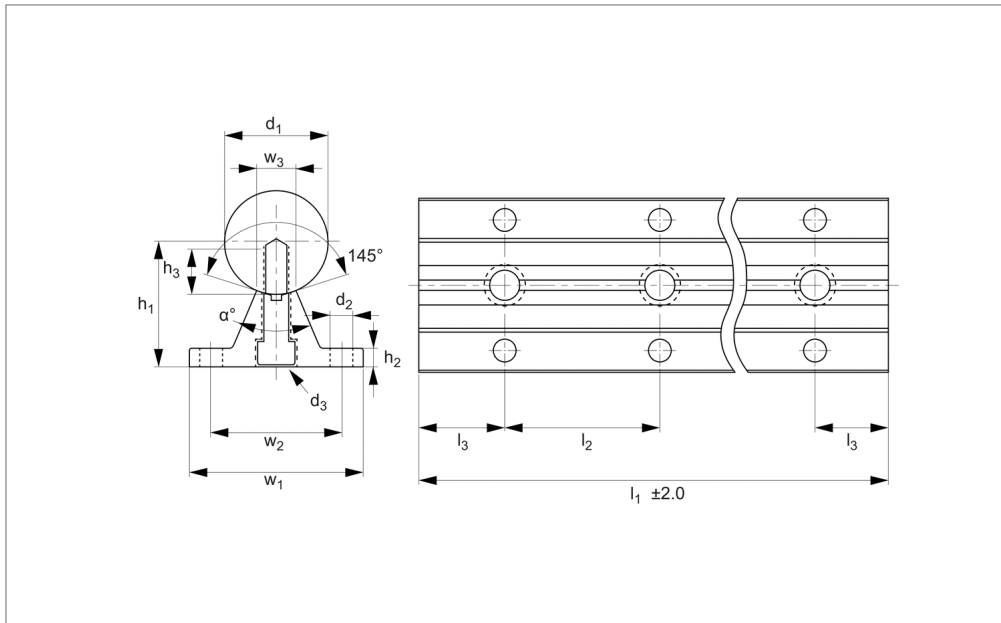
Order No.	d ₁ tol. h6	d ₂	d ₃	l ₁	l ₂	l ₃	w ₁	w ₂	w ₃	h ₁ ±0.01	h ₂	h ₃	°
20268459	16	5.5	M5x20	4650	150	75	45	33	7	26	5	9	50
20268466	16	5.5	M5x20	4800	150	75	45	33	7	26	5	9	50
20268473	16	5.5	M5x20	4950	150	75	45	33	7	26	5	9	50
20268480	16	5.5	M5x20	5100	150	75	45	33	7	26	5	9	50
20268497	16	5.5	M5x20	5250	150	75	45	33	7	26	5	9	50
20268503	16	5.5	M5x20	5400	150	75	45	33	7	26	5	9	50
20268510	16	5.5	M5x20	5550	150	75	45	33	7	26	5	9	50
20268527	16	5.5	M5x20	5700	150	75	45	33	7	26	5	9	50
20268534	16	5.5	M5x20	5850	150	75	45	33	7	26	5	9	50
20268541	16	5.5	M5x20	6000	150	75	45	33	7	26	5	9	50



20Ø Shaft Support Rails

complete steel shaft and aluminium support

Linear Shaft Supports



EL1780.20

LINEAR SHAFT SUPPORTS

Material

Hardened and ground carbon steel shaft (070M55, Cf53 - DIN 1.1213), aluminium alloy support rail.
Surface hardness of steel shaft 60-65 HRC.

Technical Notes

For open linear bushings, ensures a very rigid and stiff system.

The shaft is pre-mounted to the shaft support rail.

Standard lengths are shown which allow the distance to the first and last hole to be equal (ie $l_2/2$). Different holes pitches available on request.

Straightness: $\pm 0.1\text{mm/metre}$.

Tips

For linear carriages see part no. EL1755 (flanged) or EL1752 (unflanged).
Stainless steel carriages also available, see part no. EL1756 (flanged) or EL1753 (unflanged).

On request a stainless steel (usually 440C) shaft can be mounted on the support rail.

Order No.	d_1 tol. h6	d_2	d_3	l_1	l_2	l_3	w_1	w_2	w_3	h_1 ± 0.01	h_2	h_3	α
20268558	20	6.6	M6x25	300	150	75	52	37	8.3	32	6	11	50
20268565	20	6.6	M6x25	450	150	75	52	37	8.3	32	6	11	50
20268572	20	6.6	M6x25	600	150	75	52	37	8.3	32	6	11	50
20268589	20	6.6	M6x25	750	150	75	52	37	8.3	32	6	11	50
20268596	20	6.6	M6x25	900	150	75	52	37	8.3	32	6	11	50
20268602	20	6.6	M6x25	1050	150	75	52	37	8.3	32	6	11	50
20268619	20	6.6	M6x25	1200	150	75	52	37	8.3	32	6	11	50
20268626	20	6.6	M6x25	1350	150	75	52	37	8.3	32	6	11	50
20268633	20	6.6	M6x25	1500	150	75	52	37	8.3	32	6	11	50
20268640	20	6.6	M6x25	1650	150	75	52	37	8.3	32	6	11	50
20268657	20	6.6	M6x25	1800	150	75	52	37	8.3	32	6	11	50
20268664	20	6.6	M6x25	1950	150	75	52	37	8.3	32	6	11	50
20268671	20	6.6	M6x25	2100	150	75	52	37	8.3	32	6	11	50
20268688	20	6.6	M6x25	2250	150	75	52	37	8.3	32	6	11	50
20268695	20	6.6	M6x25	2400	150	75	52	37	8.3	32	6	11	50
20268701	20	6.6	M6x25	2550	150	75	52	37	8.3	32	6	11	50
20268718	20	6.6	M6x25	2700	150	75	52	37	8.3	32	6	11	50
20268725	20	6.6	M6x25	2850	150	75	52	37	8.3	32	6	11	50
20268732	20	6.6	M6x25	3000	150	75	52	37	8.3	32	6	11	50
20268749	20	6.6	M6x25	3150	150	75	52	37	8.3	32	6	11	50
20268756	20	6.6	M6x25	3300	150	75	52	37	8.3	32	6	11	50
20268763	20	6.6	M6x25	3450	150	75	52	37	8.3	32	6	11	50
20268770	20	6.6	M6x25	3600	150	75	52	37	8.3	32	6	11	50
20268787	20	6.6	M6x25	3750	150	75	52	37	8.3	32	6	11	50
20268794	20	6.6	M6x25	3900	150	75	52	37	8.3	32	6	11	50
20270278	20	6.6	M6x25	4000	150	75	52	37	8.3	32	6	11	50
20268800	20	6.6	M6x25	4050	150	75	52	37	8.3	32	6	11	50
20268817	20	6.6	M6x25	4200	150	75	52	37	8.3	32	6	11	50
20268824	20	6.6	M6x25	4350	150	75	52	37	8.3	32	6	11	50

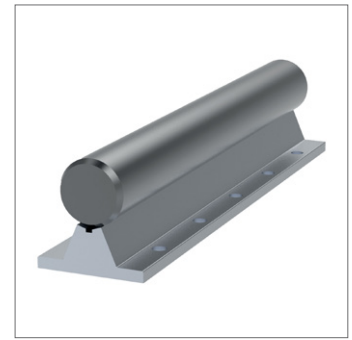
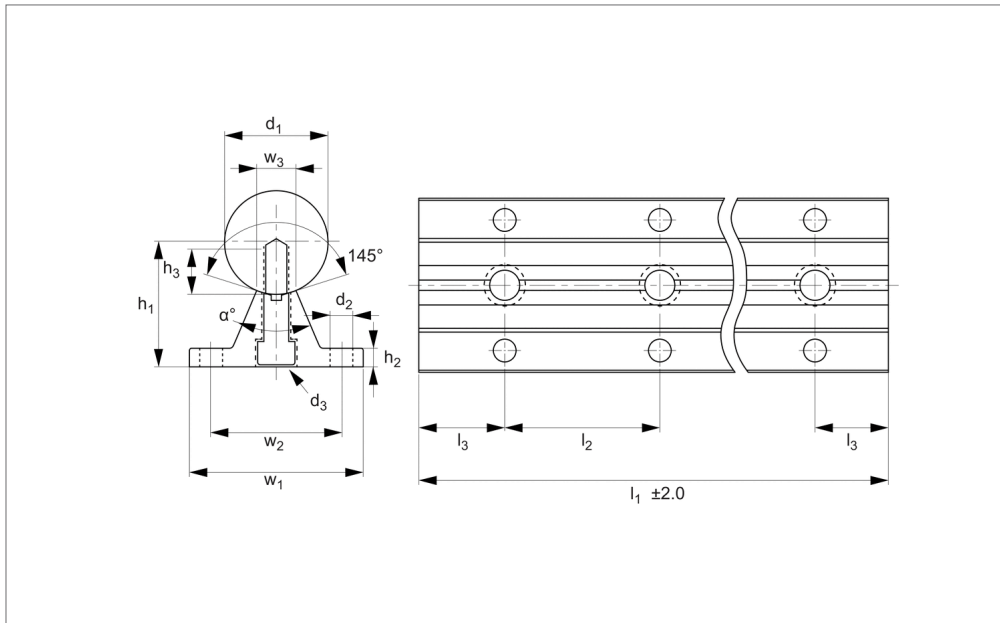
Order No.	d ₁ tol. h6	d ₂	d ₃	l ₁	l ₂	l ₃	w ₁	w ₂	w ₃	h ₁ ±0.01	h ₂	h ₃	°
20268831	20	6.6	M6x25	4500	150	75	52	37	8.3	32	6	11	50
20268848	20	6.6	M6x25	4650	150	75	52	37	8.3	32	6	11	50
20268855	20	6.6	M6x25	4800	150	75	52	37	8.3	32	6	11	50
20268862	20	6.6	M6x25	4940	150	75	52	37	8.3	32	6	11	50
20268879	20	6.6	M6x25	5100	150	75	52	37	8.3	32	6	11	50
20268886	20	6.6	M6x25	5250	150	75	52	37	8.3	32	6	11	50
20268893	20	6.6	M6x25	5400	150	75	52	37	8.3	32	6	11	50
20268909	20	6.6	M6x25	5550	150	75	52	37	8.3	32	6	11	50
20268916	20	6.6	M6x25	5700	150	75	52	37	8.3	32	6	11	50
20268923	20	6.6	M6x25	5850	150	75	52	37	8.3	32	6	11	50
20268930	20	6.6	M6x25	6000	150	75	52	37	8.3	32	6	11	50



25Ø Shaft Support Rails

complete steel shaft and aluminium support

Linear Shaft Supports



EL1780.25

LINEAR SHAFT SUPPORTS

Material

Hardened and ground carbon steel shaft (070M55, Cf53 - DIN 1.1213), aluminium alloy support rail.
Surface hardness of steel shaft 60-65 HRC.

Technical Notes

For open linear bushings, ensures a very rigid and stiff system.

The shaft is pre-mounted to the shaft support rail.
Standard lengths are shown which allow the distance to the first and last hole to be equal (ie $l_2/2$). Different holes pitches available on request.
Straightness: $\pm 0.1\text{mm/metre}$.

Tips

For linear carriages see part no. EL1755 (flanged) or EL1752 (unflanged).
Stainless steel carriages also available, see part no. EL1756 (flanged) or EL1753 (unflanged).
On request a stainless steel (usually 440C) shaft can be mounted on the support rail.

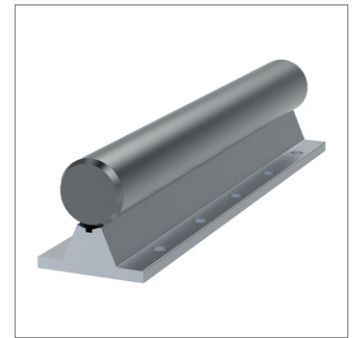
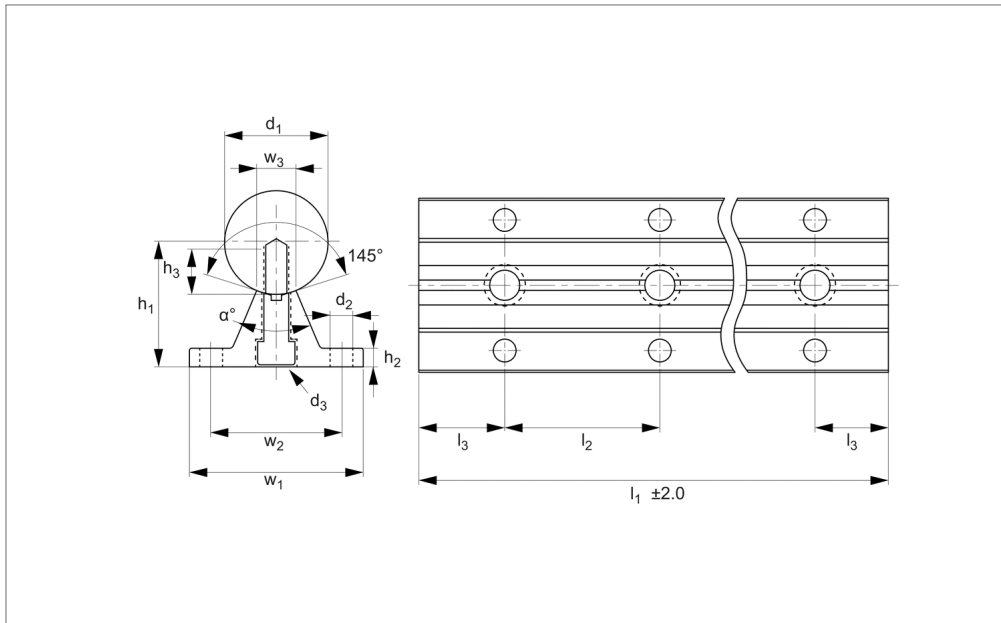
Order No.	d_1 tol. h6	d_2	d_3	l_1	l_2	l_3	w_1	w_2	w_3	h_1 ± 0.01	h_2	h_3	α
20268947	25	6.6	M8x30	400	200	100	57	42	10.8	36	6	15	50
20268954	25	6.6	M8x30	600	200	100	57	42	10.8	36	6	15	50
20268961	25	6.6	M8x30	800	200	100	57	42	10.8	36	6	15	50
20268978	25	6.6	M8x30	1000	200	100	57	42	10.8	36	6	15	50
20268985	25	6.6	M8x30	1200	200	100	57	42	10.8	36	6	15	50
20268992	25	6.6	M8x30	1400	200	100	57	42	10.8	36	6	15	50
20269005	25	6.6	M8x30	1600	200	100	57	42	10.8	36	6	15	50
20269012	25	6.6	M8x30	1800	200	100	57	42	10.8	36	6	15	50
20267667	25	6.6	M8x30	2000	200	100	57	42	10.8	36	6	15	50
20269029	25	6.6	M8x30	2200	200	100	57	42	10.8	36	6	15	50
20269036	25	6.6	M8x30	2400	200	100	57	42	10.8	36	6	15	50
20269043	25	6.6	M8x30	2600	200	100	57	42	10.8	36	6	15	50
20269050	25	6.6	M8x30	2800	200	100	57	42	10.8	36	6	15	50
20269067	25	6.6	M8x30	3000	200	100	57	42	10.8	36	6	15	50
20269074	25	6.6	M8x30	3200	200	100	57	42	10.8	36	6	15	50
20269081	25	6.6	M8x30	3400	200	100	57	42	10.8	36	6	15	50
20267674	25	6.6	M8x30	3600	200	100	57	42	10.8	36	6	15	50
20269098	25	6.6	M8x30	3800	200	100	57	42	10.8	36	6	15	50
20269104	25	6.6	M8x30	4000	200	100	57	42	10.8	36	6	15	50
20269111	25	6.6	M8x30	4200	200	100	57	42	10.8	36	6	15	50
20269128	25	6.6	M8x30	4400	200	100	57	42	10.8	36	6	15	50
20269135	25	6.6	M8x30	4600	200	100	57	42	10.8	36	6	15	50
20269142	25	6.6	M8x30	4800	200	100	57	42	10.8	36	6	15	50
20269159	25	6.6	M8x30	5000	200	100	57	42	10.8	36	6	15	50
20269166	25	6.6	M8x30	5200	200	100	57	42	10.8	36	6	15	50
20269173	25	6.6	M8x30	5400	200	100	57	42	10.8	36	6	15	50
20269180	25	6.6	M8x30	5600	200	100	57	42	10.8	36	6	15	50
20269197	25	6.6	M8x30	5800	200	100	57	42	10.8	36	6	15	50
20269203	25	6.6	M8x30	6000	200	100	57	42	10.8	36	6	15	50



30Ø Shaft Support Rails

complete steel shaft and aluminium support

Linear Shaft Supports



EL1780.30

LINEAR SHAFT SUPPORTS

Material

Hardened and ground carbon steel shaft (070M55, Cf53 - DIN 1.1213), aluminium alloy support rail.
Surface hardness of steel shaft 60-65 HRC.

Technical Notes

For open linear bushings, ensures a very rigid and stiff system.

The shaft is pre-mounted to the shaft support rail.

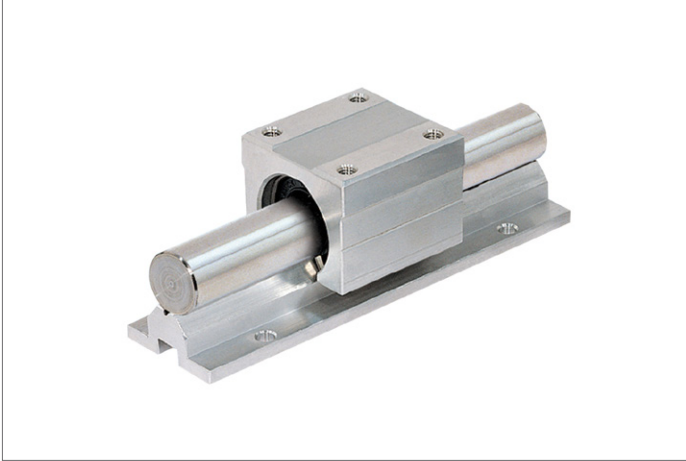
Standard lengths are shown which allow the distance to the first and last hole to be equal (ie $l_2/2$). Different holes pitches available on request.

Straightness: $\pm 0.1\text{mm/metre}$.

Tips

For linear carriages see part no. EL1755 (flanged) or EL1752 (unflanged).
Stainless steel carriages also available, see part no. EL1756 (flanged) or EL1753 (unflanged).
On request a stainless steel (usually 440C) shaft can be mounted on the support rail.

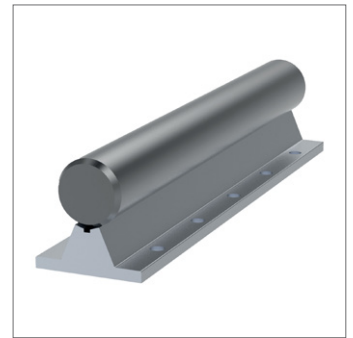
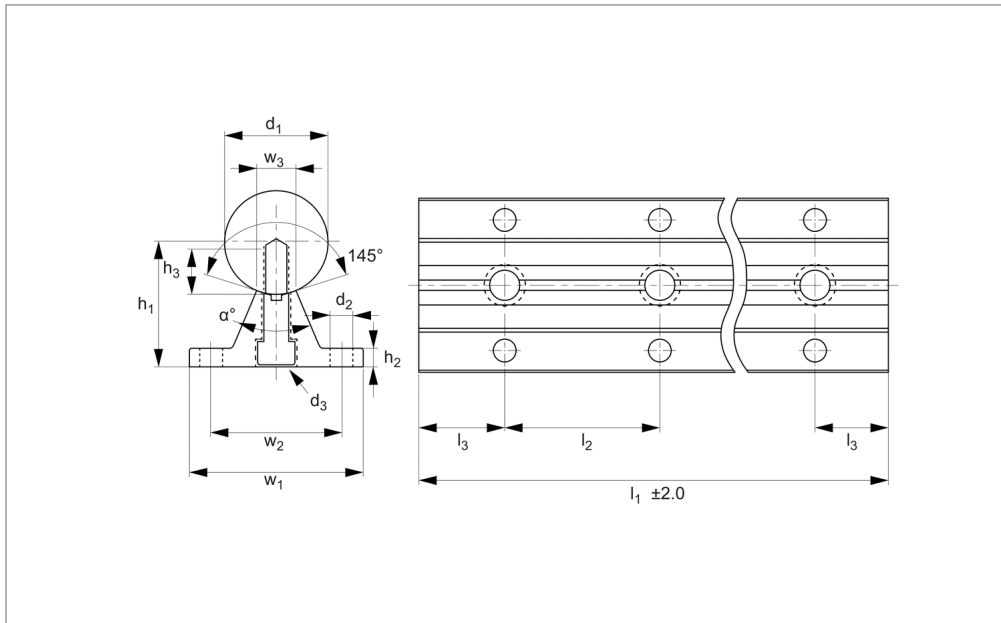
Order No.	d_1 tol. h6	d_2	d_3	l_1	l_2	l_3	w_1	w_2	w_3	h_1 ± 0.02	h_2	h_3	α
20269210	30	9	M10x35	400	200	100	69	51	11	42	7	17	50
20269227	30	9	M10x35	600	200	100	69	51	11	42	7	17	50
20269234	30	9	M10x35	800	200	100	69	51	11	42	7	17	50
20269241	30	9	M10x35	1000	200	100	69	51	11	42	7	17	50
20269258	30	9	M10x35	1200	200	100	69	51	11	42	7	17	50
20269265	30	9	M10x35	1400	200	100	69	51	11	42	7	17	50
20269272	30	9	M10x35	1600	200	100	69	51	11	42	7	17	50
20269289	30	9	M10x35	1800	200	100	69	51	11	42	7	17	50
20269296	30	9	M10x35	2000	200	100	69	51	11	42	7	17	50
20269302	30	9	M10x35	2200	200	100	69	51	11	42	7	17	50
20269319	30	9	M10x35	2400	200	100	69	51	11	42	7	17	50
20269326	30	9	M10x35	2600	200	100	69	51	11	42	7	17	50
20269333	30	9	M10x35	2800	200	100	69	51	11	42	7	17	50
20269340	30	9	M10x35	3000	200	100	69	51	11	42	7	17	50
20269357	30	9	M10x35	3200	200	100	69	51	11	42	7	17	50
20269364	30	9	M10x35	3400	200	100	69	51	11	42	7	17	50
20269371	30	9	M10x35	3600	200	100	69	51	11	42	7	17	50
20269388	30	9	M10x35	3800	200	100	69	51	11	42	7	17	50
20269395	30	9	M10x35	4000	200	100	69	51	11	42	7	17	50
20269401	30	9	M10x35	4200	200	100	69	51	11	42	7	17	50
20269418	30	9	M10x35	4400	200	100	69	51	11	42	7	17	50
20269425	30	9	M10x35	4600	200	100	69	51	11	42	7	17	50
20269432	30	9	M10x35	4800	200	100	69	51	11	42	7	17	50
20269449	30	9	M10x35	5000	200	100	69	51	11	42	7	17	50
20269456	30	9	M10x35	5200	200	100	69	51	11	42	7	17	50
20269463	30	9	M10x35	5400	200	100	69	51	11	42	7	17	50
20269470	30	9	M10x35	5600	200	100	69	51	11	42	7	17	50
20269487	30	9	M10x35	5800	200	100	69	51	11	42	7	17	50
20269494	30	9	M10x35	6000	200	100	69	51	11	42	7	17	50



40Ø Shaft Support Rails

complete steel shaft and aluminium support

Linear Shaft Supports



EL1780.40

LINEAR SHAFT SUPPORTS

Material

Hardened and ground carbon steel shaft (070M55, Cf53 - DIN 1.1213), aluminium alloy support rail.
Surface hardness of steel shaft 60-65 HRC.

Technical Notes

For open linear bushings, ensures a very rigid and stiff system.

The shaft is pre-mounted to the shaft support rail.

Standard lengths are shown which allow the distance to the first and last hole to be equal (ie $l_2/2$). Different holes pitches available on request.

Straightness: ± 0.1 mm/metre.

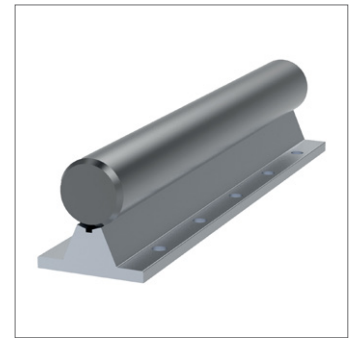
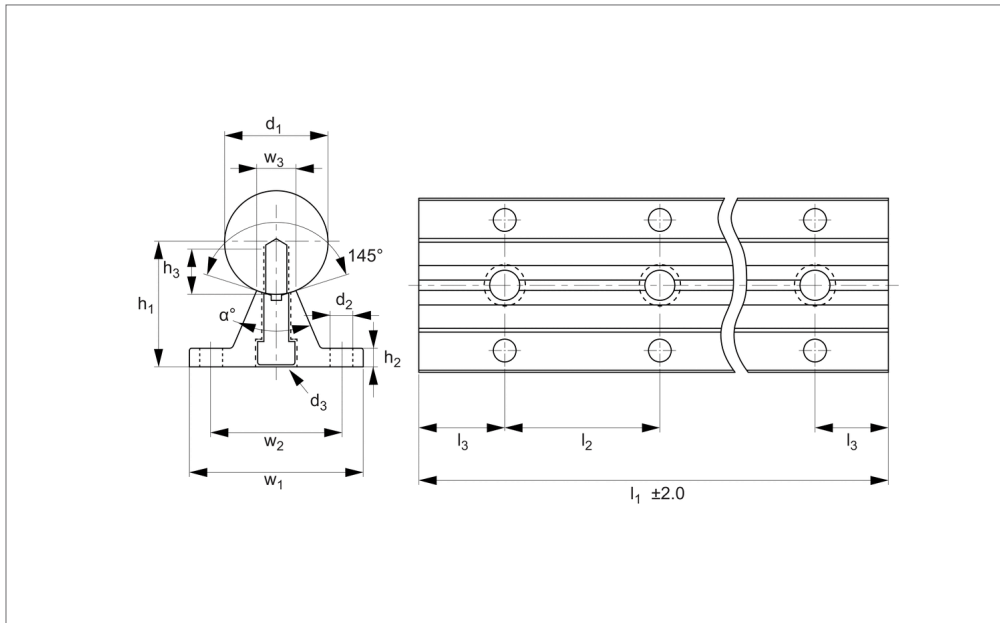
Tips

For linear carriages see part no. EL1755 (flanged) or EL1752 (unflanged).
Stainless steel carriages also available, see part no. EL1756 (flanged) or EL1753 (unflanged).

On request a stainless steel (usually 440C) shaft can be mounted on the support rail.

Order No.	d_1 tol. h6	d_2	d_3	l_1	l_2	l_3	w_1	w_2	w_3	h_1 ± 0.02	h_2	h_3	α
20269500	40	9	M10x40	600	300	150	73	55	15	50	8	19	50
20269517	40	9	M10x40	900	300	150	73	55	15	50	8	19	50
20269524	40	9	M10x40	1200	300	150	73	55	15	50	8	19	50
20269531	40	9	M10x40	1500	300	150	73	55	15	50	8	19	50
20269548	40	9	M10x40	1800	300	150	73	55	15	50	8	19	50
20269555	40	9	M10x40	2100	300	150	73	55	15	50	8	19	50
20269562	40	9	M10x40	2400	300	150	73	55	15	50	8	19	50
20269579	40	9	M10x40	2700	300	150	73	55	15	50	8	19	50
20269586	40	9	M10x40	3000	300	150	73	55	15	50	8	19	50
20269593	40	9	M10x40	3300	300	150	73	55	15	50	8	19	50
20269609	40	9	M10x40	3600	300	150	73	55	15	50	8	19	50
20269616	40	9	M10x40	3900	300	150	73	55	15	50	8	19	50
20269623	40	9	M10x40	4200	300	150	73	55	15	50	8	19	50
20269630	40	9	M10x40	4500	300	150	73	55	15	50	8	19	50
20269647	40	9	M10x40	4800	300	150	73	55	15	50	8	19	50
20269654	40	9	M10x40	5100	300	150	73	55	15	50	8	19	50
20269661	40	9	M10x40	5400	300	150	73	55	15	50	8	19	50
20269678	40	9	M10x40	5700	300	150	73	55	15	50	8	19	50
20269685	40	9	M10x40	6000	300	150	73	55	15	50	8	19	50





EL1780.50

Material

Hardened and ground carbon steel shaft (070M55, Cf53 - DIN 1.1213), aluminium alloy support rail.
Surface hardness of steel shaft 60-65 HRC.

Technical Notes

For open linear bushings, ensures a very rigid and stiff system.

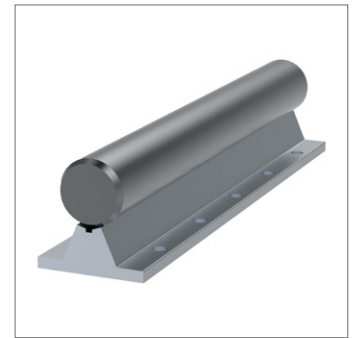
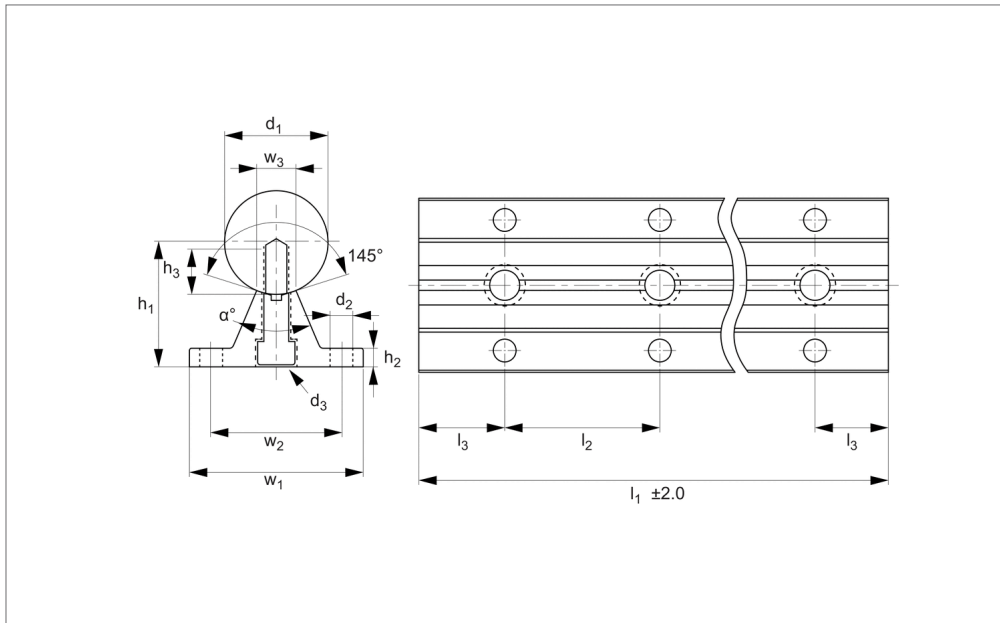
The shaft is pre-mounted to the shaft support rail.
Standard lengths are shown which allow the distance to the first and last hole to be equal (ie $l_2/2$). Different holes pitches available on request.
Straightness: $\pm 0.1\text{mm/metre}$.

Tips

For linear carriages see part no. EL1755 (flanged) or EL1752 (unflanged).
Stainless steel carriages also available, see part no. EL1756 (flanged) or EL1753 (unflanged).
On request a stainless steel (usually 440C) shaft can be mounted on the support rail.

Order No.	d_1 tol. h6	d_2	d_3	l_1	l_2	l_3	w_1	w_2	w_3	h_1 ± 0.02	h_2	h_3	α
20269692	50	11	M12x45	600	300	150	84	63	19	60	9	21	46
20269708	50	11	M12x45	900	300	150	84	63	19	60	9	21	46
20269715	50	11	M12x45	1200	300	150	84	63	19	60	9	21	46
20269722	50	11	M12x45	1500	300	150	84	63	19	60	9	21	46
20269739	50	11	M12x45	1800	300	150	84	63	19	60	9	21	46
20269746	50	11	M12x45	2100	300	150	84	63	19	60	9	21	46
20269753	50	11	M12x45	2400	300	150	84	63	19	60	9	21	46
20269760	50	11	M12x45	2700	300	150	84	63	19	60	9	21	46
20269777	50	11	M12x45	3000	300	150	84	63	19	60	9	21	46
20269784	50	11	M12x45	3300	300	150	84	63	19	60	9	21	46
20269791	50	11	M12x45	3600	300	150	84	63	19	60	9	21	46
20269807	50	11	M12x45	3900	300	150	84	63	19	60	9	21	46
20269814	50	11	M12x45	4200	300	150	84	63	19	60	9	21	46
20269821	50	11	M12x45	4500	300	150	84	63	19	60	9	21	46
20269838	50	11	M12x45	4800	300	150	84	63	19	60	9	21	46
20269845	50	11	M12x45	5100	300	150	84	63	19	60	9	21	46
20269852	50	11	M12x45	5400	300	150	84	63	19	60	9	21	46
20269869	50	11	M12x45	5700	300	150	84	63	19	60	9	21	46
20269876	50	11	M12x45	6000	300	150	84	63	19	60	9	21	46





EL1780.60

Material

Hardened and ground carbon steel shaft (070M55, Cf53 - DIN 1.1213), aluminium alloy support rail.
Surface hardness of steel shaft 60-65 HRC.

Technical Notes

For open linear bushings, ensures a very rigid and stiff system.

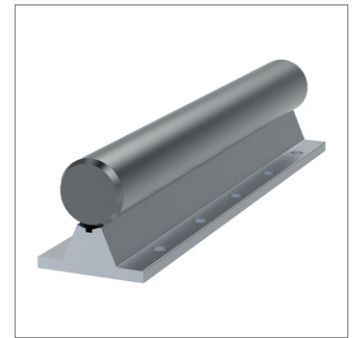
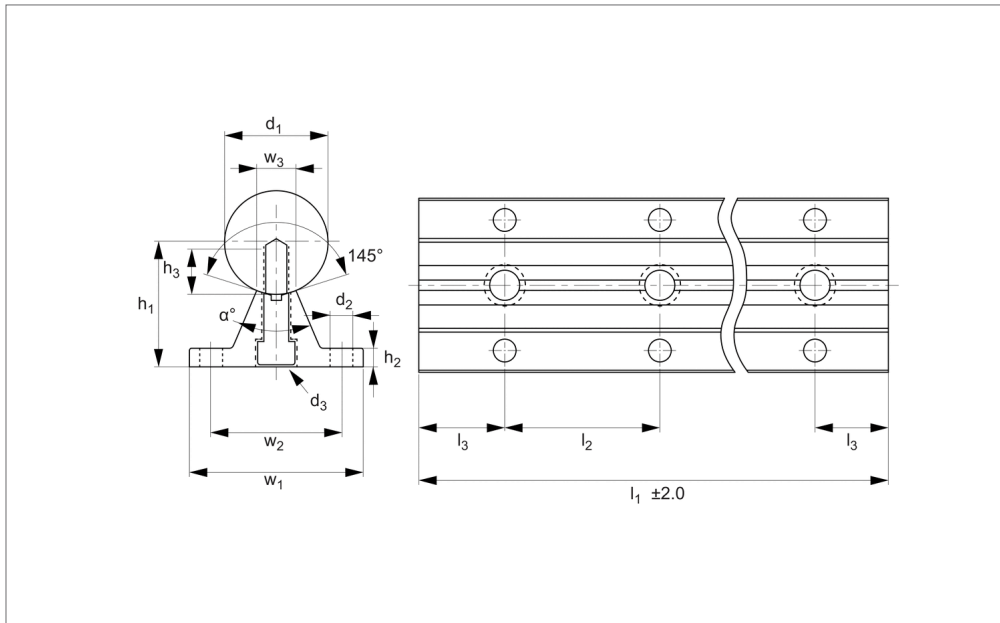
The shaft is pre-mounted to the shaft support rail.
Standard lengths are shown which allow the distance to the first and last hole to be equal (ie $l_3/2$). Different holes pitches available on request.
Straightness: $\pm 0.1\text{mm/metre}$.

Tips

For linear carriages see part no. EL1755 (flanged) or EL1752 (unflanged).
Stainless steel carriages also available, see part no. EL1756 (flanged) or EL1753 (unflanged).
On request a stainless steel (usually 440C) shaft can be mounted on the support rail.

Order No.	d_1 tol. h6	d_2	d_3	l_1	l_2	l_3	w_1	w_2	w_3	h_1 ± 0.02	h_2	h_3	α
20269883	60	11	M14x50	600	300	150	94	72	25	68	10	25	46
20269890	60	11	M14x50	900	300	150	94	72	25	68	10	25	46
20269906	60	11	M14x50	1200	300	150	94	72	25	68	10	25	46
20269913	60	11	M14x50	1500	300	150	94	72	25	68	10	25	46
20269920	60	11	M14x50	1800	300	150	94	72	25	68	10	25	46
20269937	60	11	M14x50	2100	300	150	94	72	25	68	10	25	46
20269944	60	11	M14x50	2400	300	150	94	72	25	68	10	25	46
20269951	60	11	M14x50	2700	300	150	94	72	25	68	10	25	46
20269968	60	11	M14x50	3000	300	150	94	72	25	68	10	25	46
20269975	60	11	M14x50	3300	300	150	94	72	25	68	10	25	46
20269982	60	11	M14x50	3600	300	150	94	72	25	68	10	25	46
20269999	60	11	M14x50	3900	300	150	94	72	25	68	10	25	46
20270001	60	11	M14x50	4200	300	150	94	72	25	68	10	25	46
20270018	60	11	M14x50	4500	300	150	94	72	25	68	10	25	46
20270025	60	11	M14x50	4800	300	150	94	72	25	68	10	25	46
20270032	60	11	M14x50	5100	300	150	94	72	25	68	10	25	46
20270049	60	11	M14x50	5400	300	150	94	72	25	68	10	25	46
20270056	60	11	M14x50	5700	300	150	94	72	25	68	10	25	46
20270063	60	11	M14x50	6000	300	150	94	72	25	68	10	25	46





EL1780.80

Material

Hardened and ground carbon steel shaft (070M55, Cf53 - DIN 1.1213), aluminium alloy support rail.
Surface hardness of steel shaft 60-65 HRC.

Technical Notes

For open linear bushings, ensures a very rigid and stiff system.

The shaft is pre-mounted to the shaft support rail.

Standard lengths are shown which allow the distance to the first and last hole to be equal (ie $l_2/2$). Different holes pitches available on request.

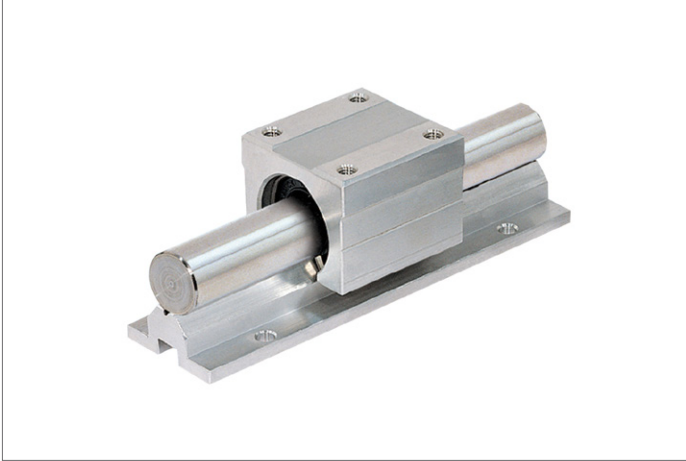
Straightness: $\pm 0.1\text{mm/metre}$.

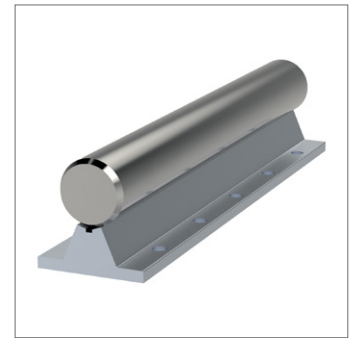
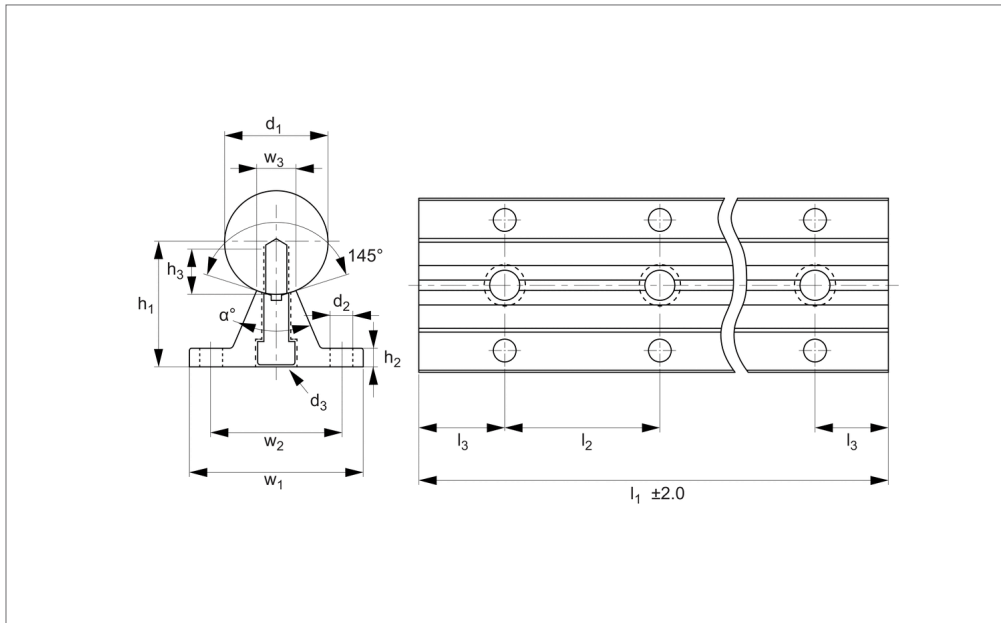
Tips

For linear carriages see part no. EL1755 (flanged) or EL1752 (unflanged).
Stainless steel carriages also available, see part no. EL1756 (flanged) or EL1753 (unflanged).

On request a stainless steel (usually 440C) shaft can be mounted on the support rail.

Order No.	d_1 tol. h6	d_2	d_3	l_1	l_2	l_3	w_1	w_2	w_3	h_1 ± 0.02	h_2	h_3	α
20270070	80	13.5	M16x60	600	300	150	116	92	34	86	12	28	46
20270087	80	13.5	M16x60	900	300	150	116	92	34	86	12	28	46
20270094	80	13.5	M16x60	1200	300	150	116	92	34	86	12	28	46
20270100	80	13.5	M16x60	1500	300	150	116	92	34	86	12	28	46
20270117	80	13.5	M16x60	1800	300	150	116	92	34	86	12	28	46
20270124	80	13.5	M16x60	2100	300	150	116	92	34	86	12	28	46
20270131	80	13.5	M16x60	2400	300	150	116	92	34	86	12	28	46
20270148	80	13.5	M16x60	2700	300	150	116	92	34	86	12	28	46
20270155	80	13.5	M16x60	3000	300	150	116	92	34	86	12	28	46
20270162	80	13.5	M16x60	3300	300	150	116	92	34	86	12	28	46
20270179	80	13.5	M16x60	3600	300	150	116	92	34	86	12	28	46
20270186	80	13.5	M16x60	3900	300	150	116	92	34	86	12	28	46
20270193	80	13.5	M16x60	4200	300	150	116	92	34	86	12	28	46
20270209	80	13.5	M16x60	4500	300	150	116	92	34	86	12	28	46
20270216	80	13.5	M16x60	4800	300	150	116	92	34	86	12	28	46
20270223	80	13.5	M16x60	5100	300	150	116	92	34	86	12	28	46
20270230	80	13.5	M16x60	5400	300	150	116	92	34	86	12	28	46
20270247	80	13.5	M16x60	5700	300	150	116	92	34	86	12	28	46
20270254	80	13.5	M16x60	6000	300	150	116	92	34	86	12	28	46





EL1781.12

Material

Hardened and ground stainless steel shaft (440C), aluminium alloy support rail.
Surface hardness of shaft 60-65 HRC.

Technical Notes

For open linear bushings, ensures a very rigid and stiff system.

The shaft is pre-mounted to the shaft support rail.

Standard lengths are shown which allow the distance to the first and last hole to be equal (ie $l_2/2$). Different holes pitches available on request.

Straightness: $\pm 0.1\text{mm/metre}$.

Tips

For linear carriages see part no. EL1755 (flanged) or EL1752 (unflanged).
Stainless steel carriages also available, see part no. EL1756 (flanged) or EL1753 (unflanged).

Order No.	d_1 tol. h6	d_2	d_3	l_1	l_2	l_3	w_1	w_2	w_3	h_1 ± 0.01	h_2	h_3	.
20270292	12	4.5	M4x20	240	120	60	40	29	5.8	22	5	8	50
20270308	12	4.5	M4x20	360	120	60	40	29	5.8	22	5	8	50
20270315	12	4.5	M4x20	480	120	60	40	29	5.8	22	5	8	50
20270322	12	4.5	M4x20	600	120	60	40	29	5.8	22	5	8	50
20270339	12	4.5	M4x20	720	120	60	40	29	5.8	22	5	8	50
20270346	12	4.5	M4x20	840	120	60	40	29	5.8	22	5	8	50
20270353	12	4.5	M4x20	960	120	60	40	29	5.8	22	5	8	50
20270360	12	4.5	M4x20	1080	120	60	40	29	5.8	22	5	8	50
20270377	12	4.5	M4x20	1200	120	60	40	29	5.8	22	5	8	50
20270384	12	4.5	M4x20	1320	120	60	40	29	5.8	22	5	8	50
20270391	12	4.5	M4x20	1440	120	60	40	29	5.8	22	5	8	50
20270407	12	4.5	M4x20	1560	120	60	40	29	5.8	22	5	8	50
20270414	12	4.5	M4x20	1680	120	60	40	29	5.8	22	5	8	50
20270421	12	4.5	M4x20	1800	120	60	40	29	5.8	22	5	8	50
20270438	12	4.5	M4x20	1920	120	60	40	29	5.8	22	5	8	50
20270445	12	4.5	M4x20	2040	120	60	40	29	5.8	22	5	8	50
20270452	12	4.5	M4x20	2160	120	60	40	29	5.8	22	5	8	50
20270469	12	4.5	M4x20	2280	120	60	40	29	5.8	22	5	8	50
20270476	12	4.5	M4x20	2400	120	60	40	29	5.8	22	5	8	50
20270483	12	4.5	M4x20	2520	120	60	40	29	5.8	22	5	8	50
20270490	12	4.5	M4x20	2640	120	60	40	29	5.8	22	5	8	50
20270506	12	4.5	M4x20	2760	120	60	40	29	5.8	22	5	8	50
20270513	12	4.5	M4x20	2880	120	60	40	29	5.8	22	5	8	50
20270520	12	4.5	M4x20	3000	120	60	40	29	5.8	22	5	8	50
20270537	12	4.5	M4x20	3120	120	60	40	29	5.8	22	5	8	50
20270544	12	4.5	M4x20	3240	120	60	40	29	5.8	22	5	8	50
20270551	12	4.5	M4x20	3360	120	60	40	29	5.8	22	5	8	50
20270568	12	4.5	M4x20	3480	120	60	40	29	5.8	22	5	8	50
20270575	12	4.5	M4x20	3600	120	60	40	29	5.8	22	5	8	50
20270582	12	4.5	M4x20	3720	120	60	40	29	5.8	22	5	8	50

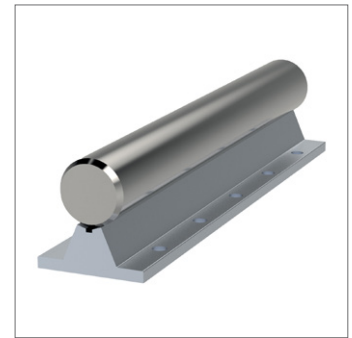
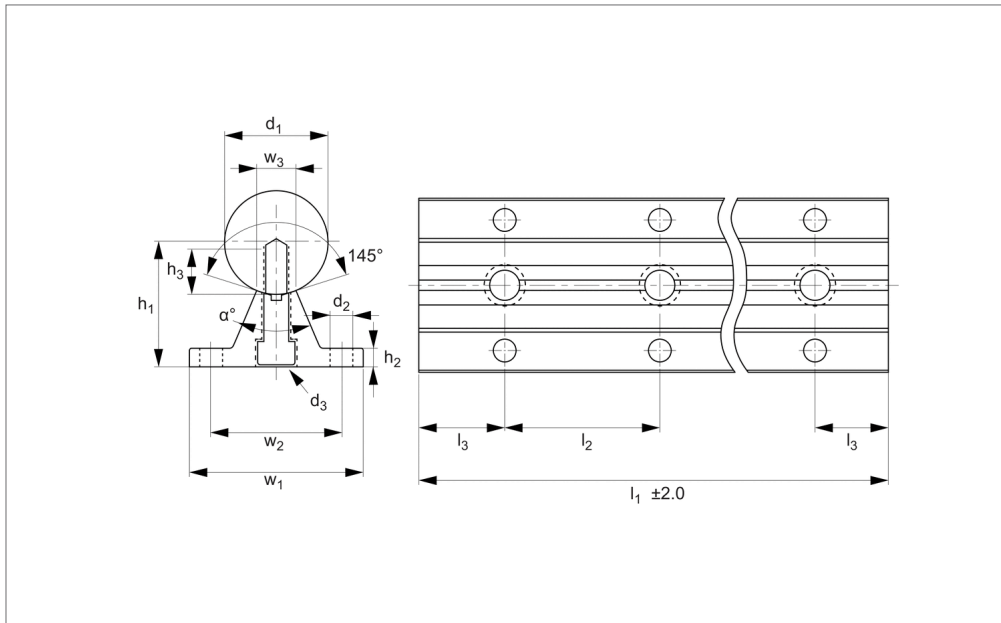
Order No.	d ₁ tol. h6	d ₂	d ₃	l ₁	l ₂	l ₃	w ₁	w ₂	w ₃	h ₁ ±0.01	h ₂	h ₃	°
20270599	12	4.5	M4x20	3840	120	60	40	29	5.8	22	5	8	50
20270605	12	4.5	M4x20	3960	120	60	40	29	5.8	22	5	8	50
20270612	12	4.5	M4x20	4080	120	60	40	29	5.8	22	5	8	50
20270629	12	4.5	M4x20	4200	120	60	40	29	5.8	22	5	8	50
20270636	12	4.5	M4x20	4320	120	60	40	29	5.8	22	5	8	50
20270643	12	4.5	M4x20	4440	120	60	40	29	5.8	22	5	8	50
20270650	12	4.5	M4x20	4560	120	60	40	29	5.8	22	5	8	50
20270667	12	4.5	M4x20	4680	120	60	40	29	5.8	22	5	8	50
20270674	12	4.5	M4x20	4800	120	60	40	29	5.8	22	5	8	50
20270681	12	4.5	M4x20	4920	120	60	40	29	5.8	22	5	8	50
20270698	12	4.5	M4x20	5040	120	60	40	29	5.8	22	5	8	50
20270704	12	4.5	M4x20	5150	120	60	40	29	5.8	22	5	8	50
20270711	12	4.5	M4x20	5280	120	60	40	29	5.8	22	5	8	50
20270728	12	4.5	M4x20	5400	120	60	40	29	5.8	22	5	8	50
20270735	12	4.5	M4x20	5520	120	60	40	29	5.8	22	5	8	50
20270742	12	4.5	M4x20	5640	120	60	40	29	5.8	22	5	8	50
20270759	12	4.5	M4x20	5760	120	60	40	29	5.8	22	5	8	50
20270766	12	4.5	M4x20	5880	120	60	40	29	5.8	22	5	8	50
20270773	12	4.5	M4x20	6000	120	60	40	29	5.8	22	5	8	50



16Ø Shaft Support Rails

complete steel shaft and aluminium support

Linear Shaft Supports



EL1781.16

LINEAR SHAFT SUPPORTS

Material

Hardened and ground stainless steel shaft (440C), aluminium alloy support rail.
Surface hardness of shaft 60-65 HRC.

Technical Notes

For open linear bushings, ensures a very rigid and stiff system.

The shaft is pre-mounted to the shaft support rail.

Standard lengths are shown which allow the distance to the first and last hole to be equal (ie $l_2/2$). Different holes pitches available on request.

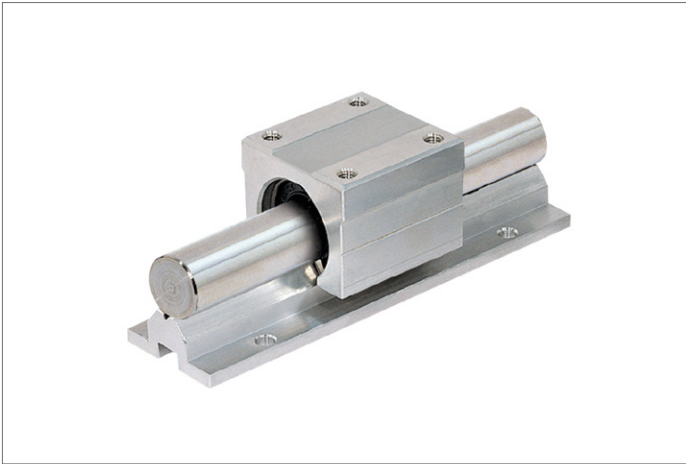
Straightness: $\pm 0.1\text{mm/metre}$.

Tips

For linear carriages see part no. EL1755 (flanged) or EL1752 (unflanged).
Stainless steel carriages also available, see part no. EL1756 (flanged) or EL1753 (unflanged).

Order No.	d_1 tol. h6	d_2	d_3	l_1	l_2	l_3	w_1	w_2	w_3	h_1 ± 0.01	h_2	h_3	.
20270780	16	5.5	M5x20	300	150	75	45	33	7	26	5	9	50
20270797	16	5.5	M5x20	450	150	75	45	33	7	26	5	9	50
20270803	16	5.5	M5x20	600	150	75	45	33	7	26	5	9	50
20270810	16	5.5	M5x20	750	150	75	45	33	7	26	5	9	50
20270827	16	5.5	M5x20	900	150	75	45	33	7	26	5	9	50
20270834	16	5.5	M5x20	1050	150	75	45	33	7	26	5	9	50
20270841	16	5.5	M5x20	1200	150	75	45	33	7	26	5	9	50
20270858	16	5.5	M5x20	1350	150	75	45	33	7	26	5	9	50
20270865	16	5.5	M5x20	1500	150	75	45	33	7	26	5	9	50
20270872	16	5.5	M5x20	1650	150	75	45	33	7	26	5	9	50
20270889	16	5.5	M5x20	1800	150	75	45	33	7	26	5	9	50
20270896	16	5.5	M5x20	1950	150	75	45	33	7	26	5	9	50
20270902	16	5.5	M5x20	2100	150	75	45	33	7	26	5	9	50
20270919	16	5.5	M5x20	2250	150	75	45	33	7	26	5	9	50
20270926	16	5.5	M5x20	2400	150	75	45	33	7	26	5	9	50
20270933	16	5.5	M5x20	2550	150	75	45	33	7	26	5	9	50
20270940	16	5.5	M5x20	2700	150	75	45	33	7	26	5	9	50
20270957	16	5.5	M5x20	2850	150	75	45	33	7	26	5	9	50
20270964	16	5.5	M5x20	3000	150	75	45	33	7	26	5	9	50
20270971	16	5.5	M5x20	3150	150	75	45	33	7	26	5	9	50
20270988	16	5.5	M5x20	3300	150	75	45	33	7	26	5	9	50
20270995	16	5.5	M5x20	3450	150	75	45	33	7	26	5	9	50
20271008	16	5.5	M5x20	3600	150	75	45	33	7	26	5	9	50
20271015	16	5.5	M5x20	3750	150	75	45	33	7	26	5	9	50
20271022	16	5.5	M5x20	3900	150	75	45	33	7	26	5	9	50
20271039	16	5.5	M5x20	4050	150	75	45	33	7	26	5	9	50
20271046	16	5.5	M5x20	4200	150	75	45	33	7	26	5	9	50
20271053	16	5.5	M5x20	4350	150	75	45	33	7	26	5	9	50
20271060	16	5.5	M5x20	4500	150	75	45	33	7	26	5	9	50
20271077	16	5.5	M5x20	4650	150	75	45	33	7	26	5	9	50

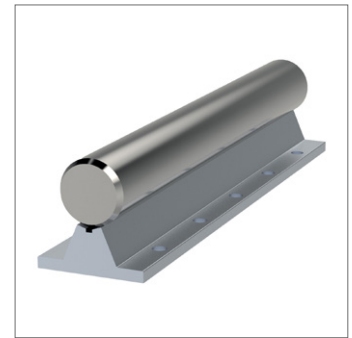
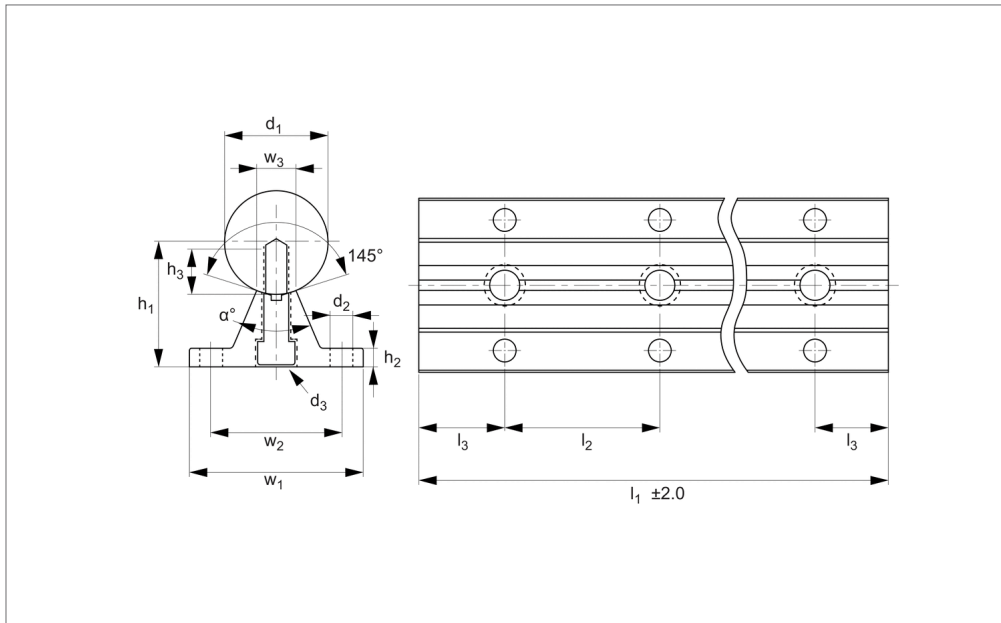
Order No.	d ₁ tol. h6	d ₂	d ₃	l ₁	l ₂	l ₃	w ₁	w ₂	w ₃	h ₁ ±0.01	h ₂	h ₃	°
20271084	16	5.5	M5x20	4800	150	75	45	33	7	26	5	9	50
20271091	16	5.5	M5x20	4950	150	75	45	33	7	26	5	9	50
20271107	16	5.5	M5x20	5100	150	75	45	33	7	26	5	9	50
20271114	16	5.5	M5x20	5250	150	75	45	33	7	26	5	9	50
20271121	16	5.5	M5x20	5400	150	75	45	33	7	26	5	9	50
20271138	16	5.5	M5x20	5550	150	75	45	33	7	26	5	9	50
20271145	16	5.5	M5x20	5700	150	75	45	33	7	26	5	9	50
20271152	16	5.5	M5x20	5850	150	75	45	33	7	26	5	9	50
20271169	16	5.5	M5x20	6000	150	75	45	33	7	26	5	9	50



20Ø Shaft Support Rails

complete stainless and aluminium support

Linear Shaft Supports



EL1781.20

LINEAR SHAFT SUPPORTS

Material

Hardened and ground stainless steel shaft (440C), aluminium alloy support rail.
Surface hardness of shaft 60-65 HRC.

Technical Notes

For open linear bushings, ensures a very rigid and stiff system.

The shaft is pre-mounted to the shaft support rail.

Standard lengths are shown which allow the distance to the first and last hole to be equal (ie $l_2/2$). Different holes pitches available on request.

Straightness: $\pm 0.1\text{mm/metre}$.

Tips

For linear carriages see part no. EL1755 (flanged) or EL1752 (unflanged).
Stainless steel carriages also available, see part no. EL1756 (flanged) or EL1753 (unflanged).

Order No.	d_1 tol. h6	d_2	d_3	l_1	l_2	l_3	w_1	w_2	w_3	h_1 ± 0.01	h_2	h_3	.
20271176	20	6.6	M6x25	300	150	75	52	37	8.3	32	6	11	50
20271183	20	6.6	M6x25	450	150	75	52	37	8.3	32	6	11	50
20271190	20	6.6	M6x25	600	150	75	52	37	8.3	32	6	11	50
20271206	20	6.6	M6x25	750	150	75	52	37	8.3	32	6	11	50
20271213	20	6.6	M6x25	900	150	75	52	37	8.3	32	6	11	50
20271220	20	6.6	M6x25	1050	150	75	52	37	8.3	32	6	11	50
20271237	20	6.6	M6x25	1200	150	75	52	37	8.3	32	6	11	50
20271244	20	6.6	M6x25	1350	150	75	52	37	8.3	32	6	11	50
20271251	20	6.6	M6x25	1500	150	75	52	37	8.3	32	6	11	50
20271268	20	6.6	M6x25	1650	150	75	52	37	8.3	32	6	11	50
20271275	20	6.6	M6x25	1800	150	75	52	37	8.3	32	6	11	50
20271282	20	6.6	M6x25	1950	150	75	52	37	8.3	32	6	11	50
20271299	20	6.6	M6x25	2100	150	75	52	37	8.3	32	6	11	50
20271305	20	6.6	M6x25	2250	150	75	52	37	8.3	32	6	11	50
20271312	20	6.6	M6x25	2400	150	75	52	37	8.3	32	6	11	50
20271329	20	6.6	M6x25	2550	150	75	52	37	8.3	32	6	11	50
20271336	20	6.6	M6x25	2700	150	75	52	37	8.3	32	6	11	50
20271343	20	6.6	M6x25	2850	150	75	52	37	8.3	32	6	11	50
20271350	20	6.6	M6x25	3000	150	75	52	37	8.3	32	6	11	50
20271367	20	6.6	M6x25	3150	150	75	52	37	8.3	32	6	11	50
20271374	20	6.6	M6x25	3300	150	75	52	37	8.3	32	6	11	50
20271381	20	6.6	M6x25	3450	150	75	52	37	8.3	32	6	11	50
20271398	20	6.6	M6x25	3600	150	75	52	37	8.3	32	6	11	50
20271404	20	6.6	M6x25	3750	150	75	52	37	8.3	32	6	11	50
20271411	20	6.6	M6x25	3900	150	75	52	37	8.3	32	6	11	50
20271428	20	6.6	M6x25	4000	150	75	52	37	8.3	32	6	11	50
20271435	20	6.6	M6x25	4050	150	75	52	37	8.3	32	6	11	50
20271442	20	6.6	M6x25	4200	150	75	52	37	8.3	32	6	11	50
20271459	20	6.6	M6x25	4350	150	75	52	37	8.3	32	6	11	50
20271466	20	6.6	M6x25	4500	150	75	52	37	8.3	32	6	11	50

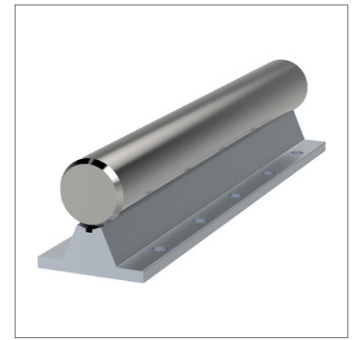
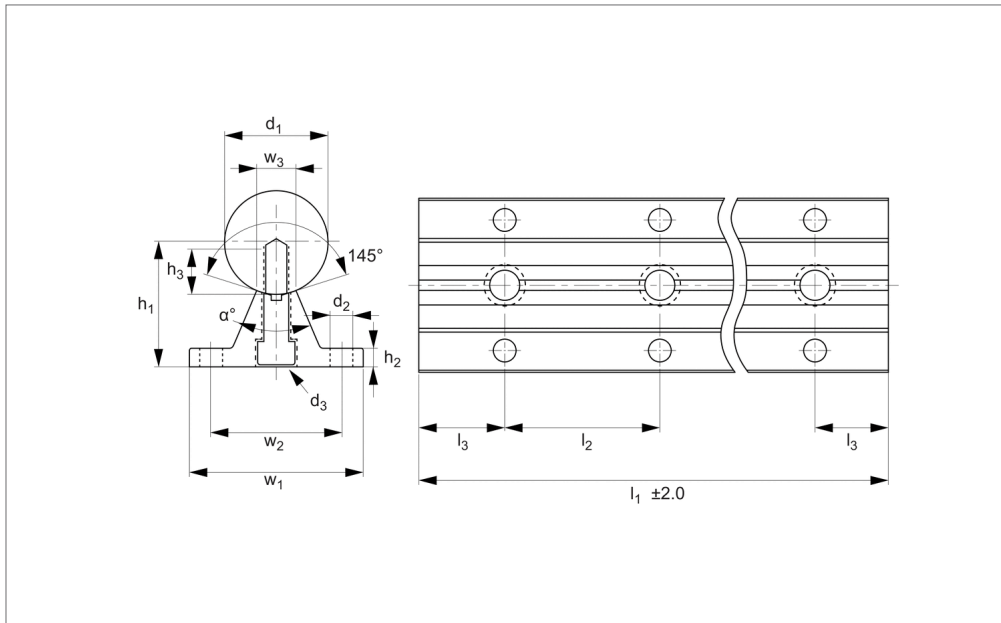
Order No.	d ₁ tol. h6	d ₂	d ₃	l ₁	l ₂	l ₃	w ₁	w ₂	w ₃	h ₁ ±0.01	h ₂	h ₃	°
20271473	20	6.6	M6x25	4650	150	75	52	37	8.3	32	6	11	50
20271480	20	6.6	M6x25	4800	150	75	52	37	8.3	32	6	11	50
20271497	20	6.6	M6x25	4940	150	75	52	37	8.3	32	6	11	50
20271503	20	6.6	M6x25	5100	150	75	52	37	8.3	32	6	11	50
20271510	20	6.6	M6x25	5250	150	75	52	37	8.3	32	6	11	50
20271527	20	6.6	M6x25	5400	150	75	52	37	8.3	32	6	11	50
20271534	20	6.6	M6x25	5550	150	75	52	37	8.3	32	6	11	50
20271541	20	6.6	M6x25	5700	150	75	52	37	8.3	32	6	11	50
20271558	20	6.6	M6x25	5850	150	75	52	37	8.3	32	6	11	50
20271565	20	6.6	M6x25	6000	150	75	52	37	8.3	32	6	11	50



25Ø Shaft Support Rails

complete stainless and aluminium support

Linear Shaft Supports



EL1781.25

LINEAR SHAFT SUPPORTS

Material

Hardened and ground stainless steel shaft (440C), aluminium alloy support rail.
Surface hardness of shaft 60-65 HRC.

Technical Notes

For open linear bushings, ensures a very rigid and stiff system.

The shaft is pre-mounted to the shaft support rail.

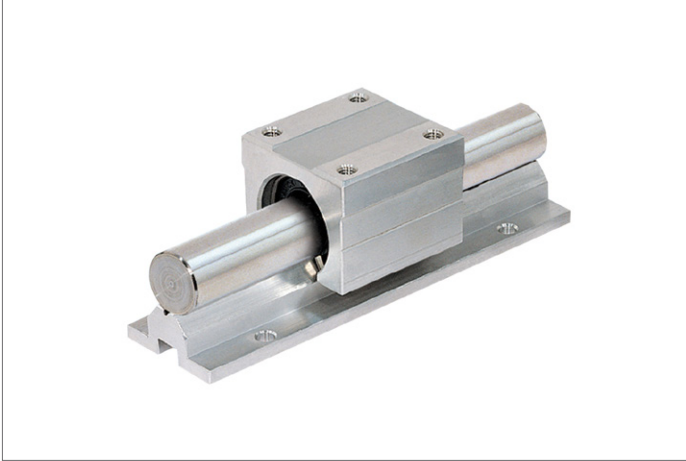
Standard lengths are shown which allow the distance to the first and last hole to be equal (ie $l_2/2$). Different holes pitches available on request.

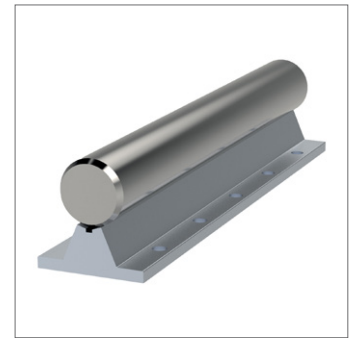
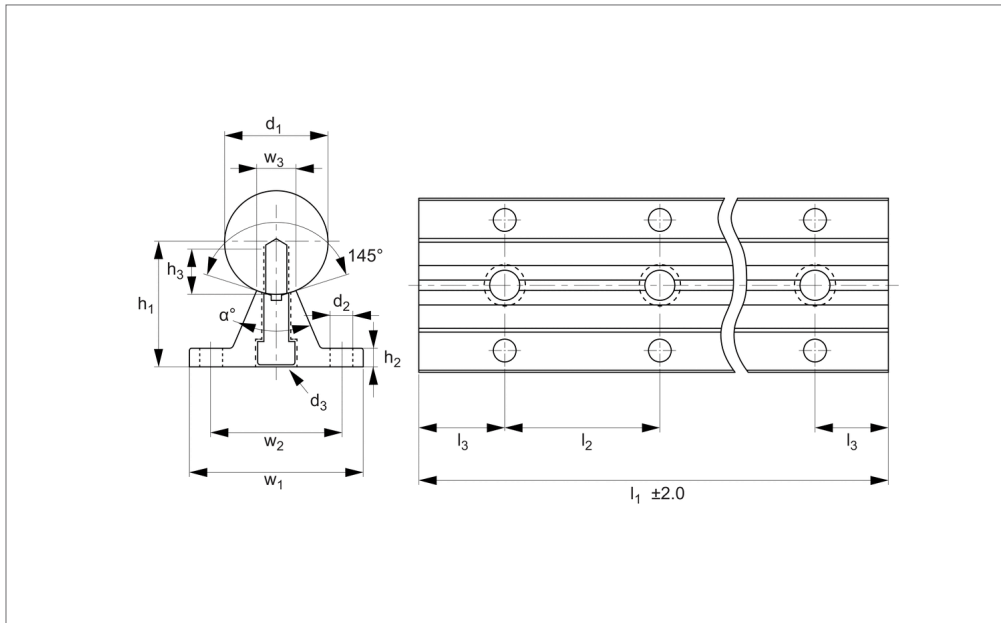
Straightness: $\pm 0.1\text{mm/metre}$.

Tips

For linear carriages see part no. EL1755 (flanged) or EL1752 (unflanged).
Stainless steel carriages also available, see part no. EL1756 (flanged) or EL1753 (unflanged).

Order No.	d_1 tol. h6	d_2	d_3	l_1	l_2	l_3	w_1	w_2	w_3	h_1 ± 0.01	h_2	h_3	\circ
20271572	25	6.6	M8x30	400	200	100	57	42	10.8	36	6	15	50
20271589	25	6.6	M8x30	600	200	100	57	42	10.8	36	6	15	50
20271596	25	6.6	M8x30	800	200	100	57	42	10.8	36	6	15	50
20271602	25	6.6	M8x30	1000	200	100	57	42	10.8	36	6	15	50
20271619	25	6.6	M8x30	1200	200	100	57	42	10.8	36	6	15	50
20271626	25	6.6	M8x30	1400	200	100	57	42	10.8	36	6	15	50
20271633	25	6.6	M8x30	1600	200	100	57	42	10.8	36	6	15	50
20271640	25	6.6	M8x30	1800	200	100	57	42	10.8	36	6	15	50
20271657	25	6.6	M8x30	2000	200	100	57	42	10.8	36	6	15	50
20270285	25	6.6	M8x30	2200	200	100	57	42	10.8	36	6	15	50
20271664	25	6.6	M8x30	2400	200	100	57	42	10.8	36	6	15	50
20271671	25	6.6	M8x30	2600	200	100	57	42	10.8	36	6	15	50
20271688	25	6.6	M8x30	2800	200	100	57	42	10.8	36	6	15	50
20271695	25	6.6	M8x30	3000	200	100	57	42	10.8	36	6	15	50
20271701	25	6.6	M8x30	3200	200	100	57	42	10.8	36	6	15	50
20271718	25	6.6	M8x30	3400	200	100	57	42	10.8	36	6	15	50
20271725	25	6.6	M8x30	3600	200	100	57	42	10.8	36	6	15	50
20271732	25	6.6	M8x30	3800	200	100	57	42	10.8	36	6	15	50
20271749	25	6.6	M8x30	4000	200	100	57	42	10.8	36	6	15	50
20271756	25	6.6	M8x30	4200	200	100	57	42	10.8	36	6	15	50
20271763	25	6.6	M8x30	4400	200	100	57	42	10.8	36	6	15	50
20271770	25	6.6	M8x30	4600	200	100	57	42	10.8	36	6	15	50
20271787	25	6.6	M8x30	4800	200	100	57	42	10.8	36	6	15	50
20271794	25	6.6	M8x30	5000	200	100	57	42	10.8	36	6	15	50
20271800	25	6.6	M8x30	5200	200	100	57	42	10.8	36	6	15	50
20271817	25	6.6	M8x30	5400	200	100	57	42	10.8	36	6	15	50
20271824	25	6.6	M8x30	5600	200	100	57	42	10.8	36	6	15	50
20271831	25	6.6	M8x30	5800	200	100	57	42	10.8	36	6	15	50
20271848	25	6.6	M8x30	6000	200	100	57	42	10.8	36	6	15	50





EL1781.30

LINEAR SHAFT SUPPORTS

Material

Hardened and ground stainless steel shaft (440C), aluminium alloy support rail.
Surface hardness of shaft 60-65 HRC.

Technical Notes

For open linear bushings, ensures a very rigid and stiff system.

The shaft is pre-mounted to the shaft support rail.

Standard lengths are shown which allow the distance to the first and last hole to be equal (ie $l_2/2$). Different holes pitches available on request.

Straightness: $\pm 0.1\text{mm/metre}$.

Tips

For linear carriages see part no. EL1755 (flanged) or EL1752 (unflanged).
Stainless steel carriages also available, see part no. EL1756 (flanged) or EL1753 (unflanged).

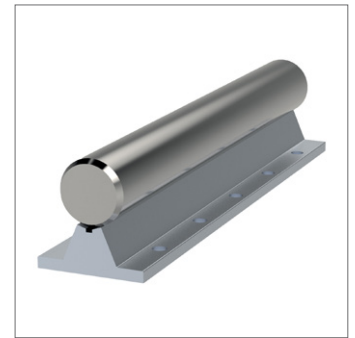
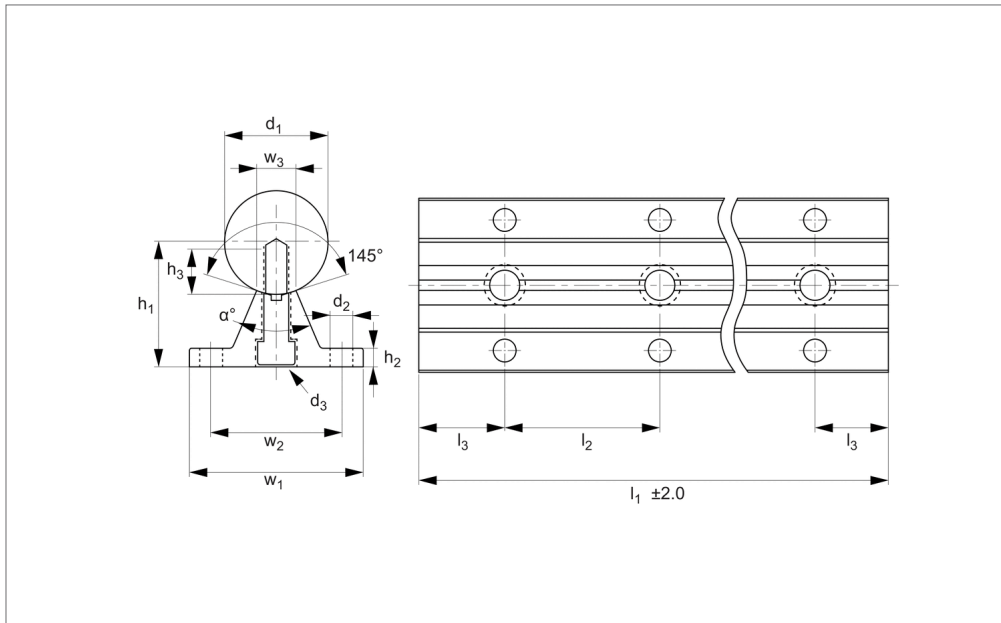
Order No.	d_1 tol. h6	d_2	d_3	l_1	l_2	l_3	w_1	w_2	w_3	h_1 ± 0.02	h_2	h_3	\circ
20271855	30	9	M10x35	400	200	100	69	51	11	42	7	17	50
20271862	30	9	M10x35	600	200	100	69	51	11	42	7	17	50
20271879	30	9	M10x35	800	200	100	69	51	11	42	7	17	50
20271886	30	9	M10x35	1000	200	100	69	51	11	42	7	17	50
20271893	30	9	M10x35	1200	200	100	69	51	11	42	7	17	50
20271909	30	9	M10x35	1400	200	100	69	51	11	42	7	17	50
20271916	30	9	M10x35	1600	200	100	69	51	11	42	7	17	50
20271923	30	9	M10x35	1800	200	100	69	51	11	42	7	17	50
20271930	30	9	M10x35	2000	200	100	69	51	11	42	7	17	50
20271947	30	9	M10x35	2200	200	100	69	51	11	42	7	17	50
20271954	30	9	M10x35	2400	200	100	69	51	11	42	7	17	50
20271961	30	9	M10x35	2600	200	100	69	51	11	42	7	17	50
20271978	30	9	M10x35	2800	200	100	69	51	11	42	7	17	50
20271985	30	9	M10x35	3000	200	100	69	51	11	42	7	17	50
20271992	30	9	M10x35	3200	200	100	69	51	11	42	7	17	50
20272005	30	9	M10x35	3400	200	100	69	51	11	42	7	17	50
20272012	30	9	M10x35	3600	200	100	69	51	11	42	7	17	50
20272029	30	9	M10x35	3800	200	100	69	51	11	42	7	17	50
20272036	30	9	M10x35	4000	200	100	69	51	11	42	7	17	50
20272043	30	9	M10x35	4200	200	100	69	51	11	42	7	17	50
20272050	30	9	M10x35	4400	200	100	69	51	11	42	7	17	50
20272067	30	9	M10x35	4600	200	100	69	51	11	42	7	17	50
20272074	30	9	M10x35	4800	200	100	69	51	11	42	7	17	50
20272081	30	9	M10x35	5000	200	100	69	51	11	42	7	17	50
20272098	30	9	M10x35	5200	200	100	69	51	11	42	7	17	50
20272104	30	9	M10x35	5400	200	100	69	51	11	42	7	17	50
20272111	30	9	M10x35	5600	200	100	69	51	11	42	7	17	50
20272128	30	9	M10x35	5800	200	100	69	51	11	42	7	17	50
20272135	30	9	M10x35	6000	200	100	69	51	11	42	7	17	50



40Ø Shaft Support Rails

complete stainless and aluminium support

Linear Shaft Supports



EL1781.40

LINEAR SHAFT SUPPORTS

Material

Hardened and ground stainless steel shaft (440C), aluminium alloy support rail.
Surface hardness of shaft 60-65 HRC.

Technical Notes

For open linear bushings, ensures a very rigid and stiff system.

The shaft is pre-mounted to the shaft support rail.

Standard lengths are shown which allow the distance to the first and last hole to be equal (ie $l_2/2$). Different holes pitches available on request.

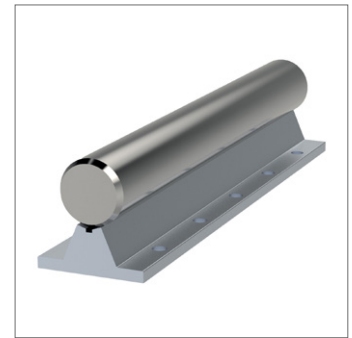
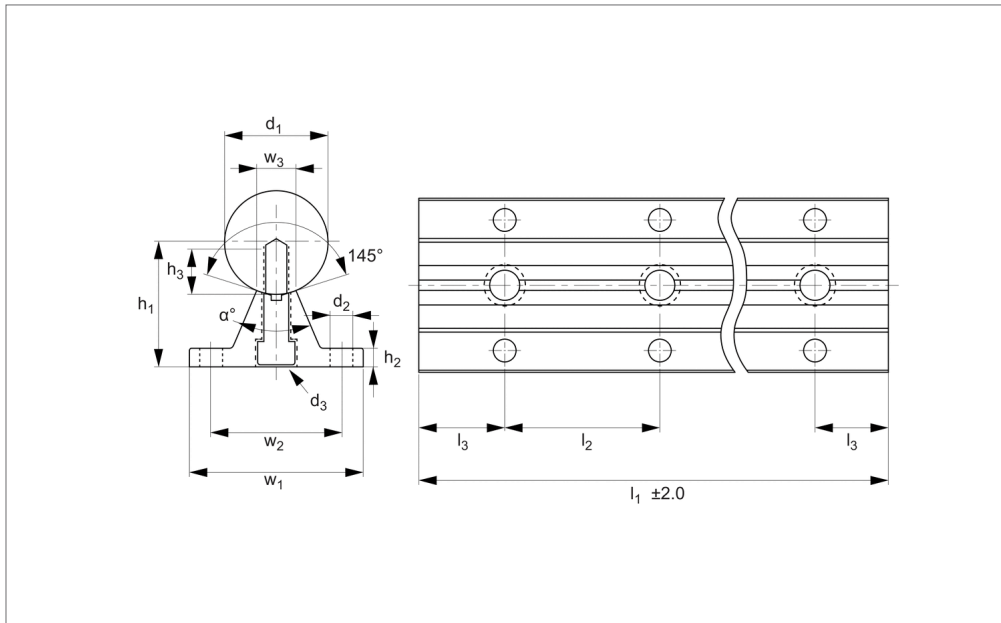
Straightness: $\pm 0.1\text{mm/metre}$.

Tips

For linear carriages see part no. EL1755 (flanged) or EL1752 (unflanged).
Stainless steel carriages also available, see part no. EL1756 (flanged) or EL1753 (unflanged).

Order No.	d_1 tol. h6	d_2	d_3	l_1	l_2	l_3	w_1	w_2	w_3	h_1 ± 0.02	h_2	h_3	α
20272142	40	9	M10x40	600	300	150	73	55	15	50	8	19	50
20272159	40	9	M10x40	900	300	150	73	55	15	50	8	19	50
20272166	40	9	M10x40	1200	300	150	73	55	15	50	8	19	50
20272173	40	9	M10x40	1500	300	150	73	55	15	50	8	19	50
20272180	40	9	M10x40	1800	300	150	73	55	15	50	8	19	50
20272197	40	9	M10x40	2100	300	150	73	55	15	50	8	19	50
20272203	40	9	M10x40	2400	300	150	73	55	15	50	8	19	50
20272210	40	9	M10x40	2700	300	150	73	55	15	50	8	19	50
20272227	40	9	M10x40	3000	300	150	73	55	15	50	8	19	50
20272234	40	9	M10x40	3300	300	150	73	55	15	50	8	19	50
20272241	40	9	M10x40	3600	300	150	73	55	15	50	8	19	50
20272258	40	9	M10x40	3900	300	150	73	55	15	50	8	19	50
20272265	40	9	M10x40	4200	300	150	73	55	15	50	8	19	50
20272272	40	9	M10x40	4500	300	150	73	55	15	50	8	19	50
20272289	40	9	M10x40	4800	300	150	73	55	15	50	8	19	50
20272296	40	9	M10x40	5100	300	150	73	55	15	50	8	19	50
20272302	40	9	M10x40	5400	300	150	73	55	15	50	8	19	50
20272319	40	9	M10x40	5700	300	150	73	55	15	50	8	19	50
20272326	40	9	M10x40	6000	300	150	73	55	15	50	8	19	50





EL1781.50

LINEAR SHAFT SUPPORTS

Material

Hardened and ground stainless steel shaft (440C), aluminium alloy support rail.
Surface hardness of shaft 60-65 HRC.

Technical Notes

For open linear bushings, ensures a very rigid and stiff system.

The shaft is pre-mounted to the shaft support rail.

Standard lengths are shown which allow the distance to the first and last hole to be equal (ie $l_2/2$). Different holes pitches available on request.

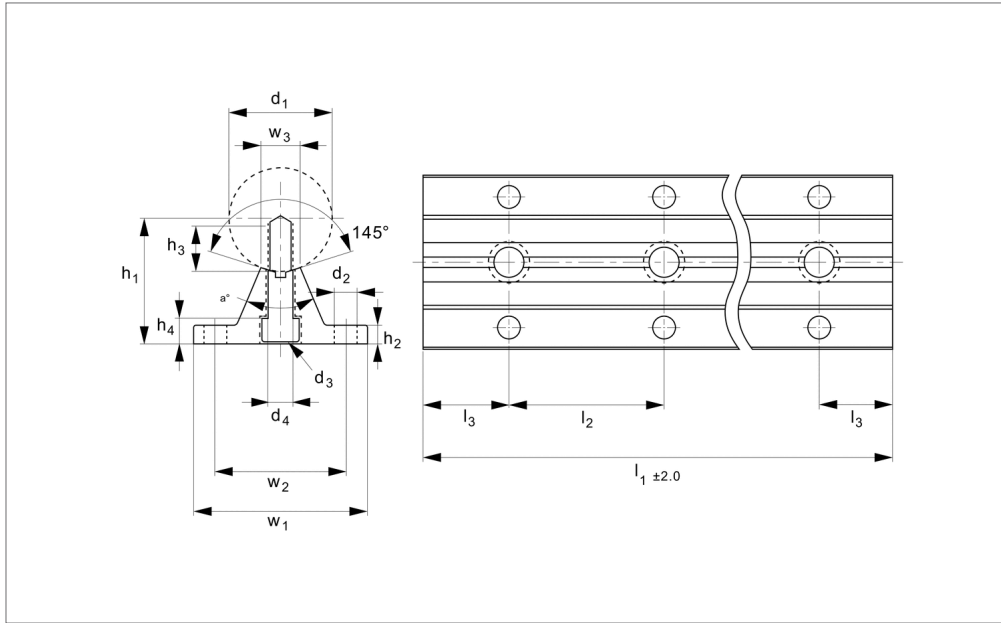
Straightness: $\pm 0.1\text{mm/metre}$.

Tips

For linear carriages see part no. EL1755 (flanged) or EL1752 (unflanged).
Stainless steel carriages also available, see part no. EL1756 (flanged) or EL1753 (unflanged).

Order No.	d_1 tol. h6	d_2	d_3	l_1	l_2	l_3	w_1	w_2	w_3	h_1 ± 0.02	h_2	h_3	α
20272333	50	11	M12x45	600	300	150	84	63	19	60	9	21	46
20272340	50	11	M12x45	900	300	150	84	63	19	60	9	21	46
20272357	50	11	M12x45	1200	300	150	84	63	19	60	9	21	46
20272364	50	11	M12x45	1500	300	150	84	63	19	60	9	21	46
20272371	50	11	M12x45	1800	300	150	84	63	19	60	9	21	46
20272388	50	11	M12x45	2100	300	150	84	63	19	60	9	21	46
20272395	50	11	M12x45	2400	300	150	84	63	19	60	9	21	46
20272401	50	11	M12x45	2700	300	150	84	63	19	60	9	21	46
20272418	50	11	M12x45	3000	300	150	84	63	19	60	9	21	46
20272425	50	11	M12x45	3300	300	150	84	63	19	60	9	21	46
20272432	50	11	M12x45	3600	300	150	84	63	19	60	9	21	46
20272449	50	11	M12x45	3900	300	150	84	63	19	60	9	21	46
20272456	50	11	M12x45	4200	300	150	84	63	19	60	9	21	46
20272463	50	11	M12x45	4500	300	150	84	63	19	60	9	21	46
20272470	50	11	M12x45	4800	300	150	84	63	19	60	9	21	46
20272487	50	11	M12x45	5100	300	150	84	63	19	60	9	21	46
20272494	50	11	M12x45	5400	300	150	84	63	19	60	9	21	46
20272500	50	11	M12x45	5700	300	150	84	63	19	60	9	21	46
20272517	50	11	M12x45	6000	300	150	84	63	19	60	9	21	46





EL1783

Material

Aluminium alloy support rail.

rigid and stiff system.

Standard lengths are shown which allow the distance to the first and last hole to be equal holes. For use with shafts EL1770 to EL1774.

For linear carriages see part no. EL1755 (flanged) or EL1752 (unflanged). Stainless steel carriages also available, see part no. EL1756 (flanged) or EL1753 (unflanged).

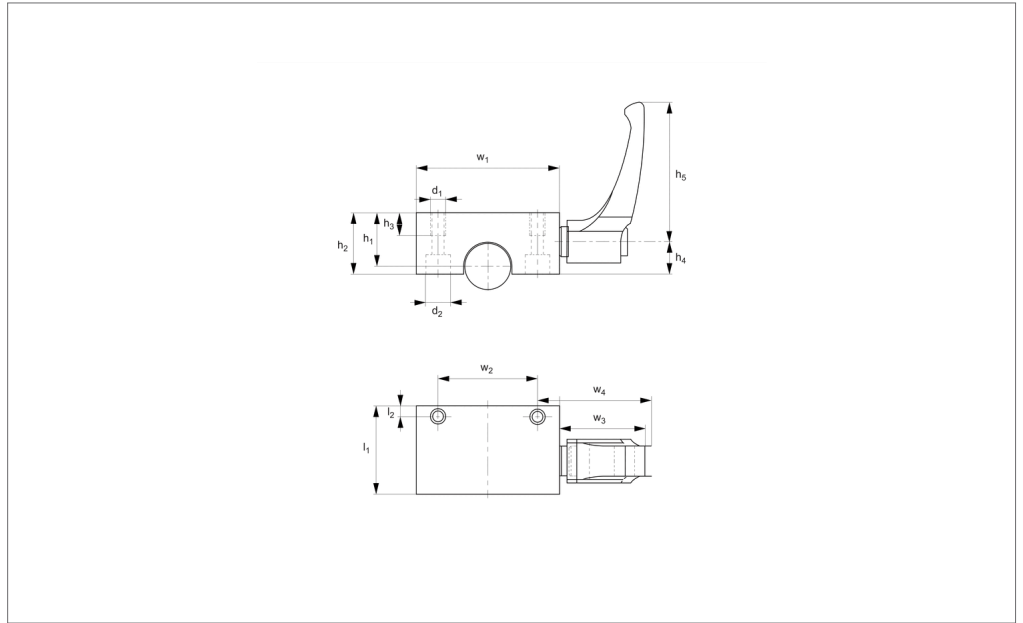
Technical Notes

For open linear bushings, ensures a very

Order No.	a	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	w ₁	w ₂	w ₃	h ₁ ±0.15	h ₂	h ₃	Weight
20272524	50	12	4.5	8.0	600	75	37.5	40	29	5.8	22	5	5.0	0.45
20272531	50	16	5.5	9.5	600	100	50	45	33	7.0	26	5	6.0	0.55
20272548	50	20	6.6	11.0	600	100	50	52	37	8.3	32	6	6.5	0.80
20272555	50	25	6.6	14.0	600	120	60	57	42	10.8	36	6	8.5	0.91
20272562	50	30	9.0	17.0	600	150	75	69	51	11.0	42	7	10.5	1.15
20272579	50	40	9.0	17.0	600	200	100	73	55	15.0	50	8	10.5	1.58
20272586	46	50	11.0	19.0	600	200	100	84	63	19.0	60	9	12.5	2.13
20272593	50	12	4.5	8.0	600	120	60	40	29	5.8	22	5	5.0	0.45
20272609	50	16	5.5	9.5	600	150	75	45	33	7.0	26	5	6.0	0.55
20272616	50	20	6.6	11.0	600	150	75	52	37	8.3	32	6	6.5	0.80
20272623	50	25	6.6	14.0	600	200	100	57	42	10.8	36	6	8.5	0.91
20272630	50	30	9.0	17.0	600	200	100	69	51	11.0	42	7	10.5	1.15
20272647	50	40	9.0	17.0	600	300	150	73	55	15.0	50	8	10.5	1.58
20272654	46	50	11.0	19.0	600	300	150	84	63	19.0	60	9	12.5	2.13



EL1784



Material

Aluminium body, with hardened steel contact faces.

Technical Notes

Activating the clamping lever presses the

contact faces into contact with the shaft bar to clamp it in place.

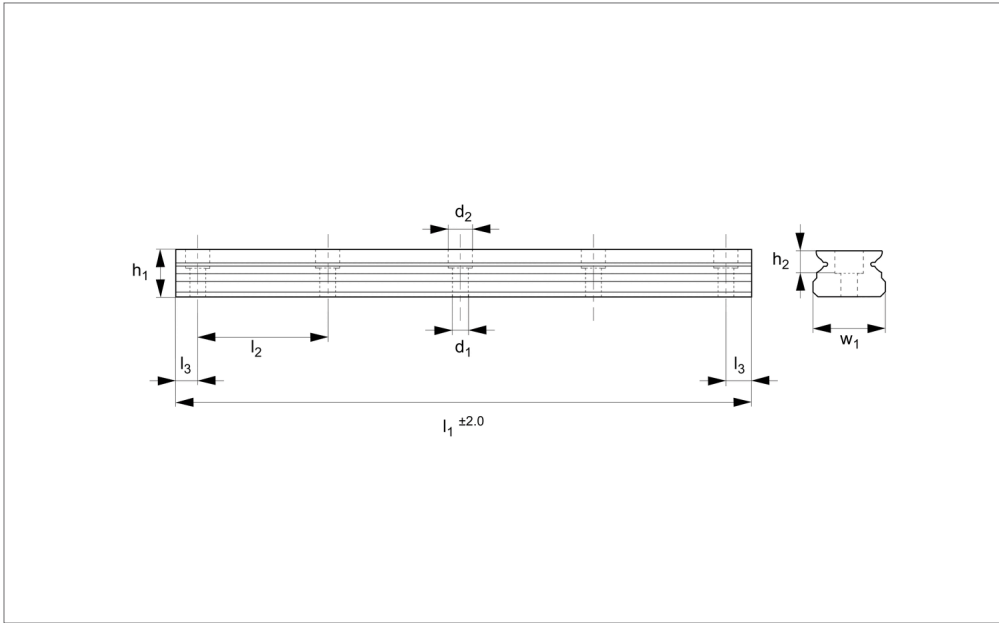
For clamping from above use d_1 , for clamping from below use d_2 .

Tips

Use with shaft support rail EL1780.

Pneumatic shaft clamps also available.

Order No.	Shaft dia.	h_1	l_1	w_1	w_2	w_3	w_4	h_2	h_3	h_4	h_5	l_2	d_1	d_2 for	Torque to Nm	Holding force N
20175993	12	18	32	43	32	30.5	33.5	24	10	16.0	44	4.5	M 5	M 4	5	1200
20175757	16	22	38	53	40	30.5	33.5	29	12	19.0	44	5.5	M 6	M 5	5	1200
20175733	20	25	44	60	45	38.5	41.5	32	14	21.5	63	6.5	M 8	M 6	7	1200
20175962	25	30	52	78	60	38.5	41.5	38	16	25.0	63	9.0	M10	M 8	7	1200
20175740	30	35	58	87	68	46.5	50.5	43	16	28.5	78	10.0	M10	M 8	12	2000
20175986	40	45	68	108	86	56.5	61.5	53	20	34.5	95	11.0	M12	M10	17	2000
20175979	50	50	76	132	108	56.5	61.5	58	22	40.5	95	12.0	M16	M14	17	2000



EL1010.03

Material

Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

Supplied with special low profile hex

screws.

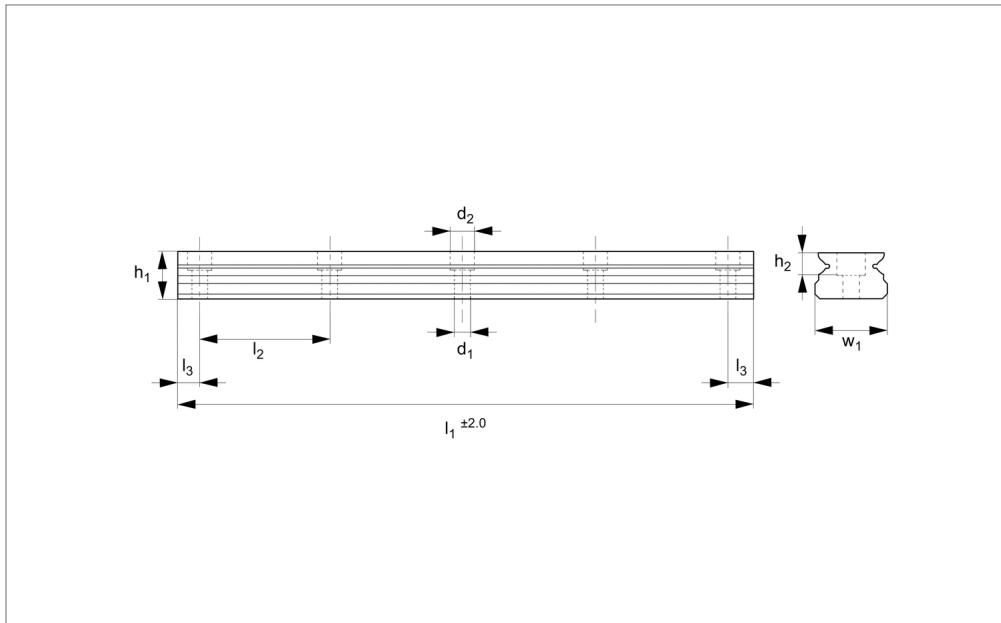
Select the size and number of carriages to suit the required load (see part EL1010.C). Other rail lengths on request.
Weight: 0,05 Kg/m.

Important Notes

This size rail has a through thread from underside.
Must be ordered with corresponding sized carriage.

Order No.	l_1	l_2	l_3	h_1	d_1	w_1
20174026	25	10	2.5	2.6	M1,6	3
20174774	35	10	2.5	2.6	M1,6	3
20174767	45	10	2.5	2.6	M1,6	3
20174781	55	10	2.5	2.6	M1,6	3
20174798	65	10	2.5	2.6	M1,6	3
20174804	75	10	2.5	2.6	M1,6	3
20174811	85	10	2.5	2.6	M1,6	3
20174828	95	10	2.5	2.6	M1,6	3
20174019	105	10	2.5	2.6	M1,6	3
20174835	115	10	2.5	2.6	M1,6	3
20174842	125	10	2.5	2.6	M1,6	3
20174743	135	10	2.5	2.6	M1,6	3
20174859	145	10	2.5	2.6	M1,6	3
20174866	155	10	2.5	2.6	M1,6	3
20174873	165	10	2.5	2.6	M1,6	3
20174880	175	10	2.5	2.6	M1,6	3
20174897	185	10	2.5	2.6	M1,6	3
20174903	195	10	2.5	2.6	M1,6	3
20174910	205	10	2.5	2.6	M1,6	3
20174927	215	10	2.5	2.6	M1,6	3
20174934	225	10	2.5	2.6	M1,6	3
20174941	235	10	2.5	2.6	M1,6	3
20174958	245	10	2.5	2.6	M1,6	3
20174965	255	10	2.5	2.6	M1,6	3
20174972	265	10	2.5	2.6	M1,6	3
20174989	275	10	2.5	2.6	M1,6	3
20174996	285	10	2.5	2.6	M1,6	3
20175009	295	10	2.5	2.6	M1,6	3
20175016	305	10	2.5	2.6	M1,6	3
20175023	315	10	2.5	2.6	M1,6	3
20175030	325	10	2.5	2.6	M1,6	3
20175047	335	10	2.5	2.6	M1,6	3
20175054	345	10	2.5	2.6	M1,6	3

Order No.	l_1	l_2	l_3	h_1	d_1	w_1
20175061	355	10	2.5	2.6	M1,6	3
20175078	365	10	2.5	2.6	M1,6	3
20175085	375	10	2.5	2.6	M1,6	3
20175092	385	10	2.5	2.6	M1,6	3
20175108	395	10	2.5	2.6	M1,6	3
20175115	405	10	2.5	2.6	M1,6	3
20175122	415	10	2.5	2.6	M1,6	3
20175139	425	10	2.5	2.6	M1,6	3
20175146	435	10	2.5	2.6	M1,6	3
20175153	445	10	2.5	2.6	M1,6	3
20175160	455	10	2.5	2.6	M1,6	3
20175177	465	10	2.5	2.6	M1,6	3
20175184	475	10	2.5	2.6	M1,6	3
20175191	485	10	2.5	2.6	M1,6	3
20175207	495	10	2.5	2.6	M1,6	3
20175214	515	10	2.5	2.6	M1,6	3
20175221	525	10	2.5	2.6	M1,6	3
20175238	535	10	2.5	2.6	M1,6	3
20175245	545	10	2.5	2.6	M1,6	3
20175252	555	10	2.5	2.6	M1,6	3
20175269	565	10	2.5	2.6	M1,6	3
20175276	575	10	2.5	2.6	M1,6	3
20175283	585	10	2.5	2.6	M1,6	3
20175290	595	10	2.5	2.6	M1,6	3
20175306	605	10	2.5	2.6	M1,6	3
20175313	615	10	2.5	2.6	M1,6	3
20175320	625	10	2.5	2.6	M1,6	3
20175337	635	10	2.5	2.6	M1,6	3
20175344	645	10	2.5	2.6	M1,6	3
20175351	655	10	2.5	2.6	M1,6	3
20175368	665	10	2.5	2.6	M1,6	3
20175375	675	10	2.5	2.6	M1,6	3
20175382	685	10	2.5	2.6	M1,6	3
20175399	695	10	2.5	2.6	M1,6	3
20175405	705	10	2.5	2.6	M1,6	3
20175412	715	10	2.5	2.6	M1,6	3
20175429	725	10	2.5	2.6	M1,6	3
20175436	735	10	2.5	2.6	M1,6	3
20175443	745	10	2.5	2.6	M1,6	3
20175450	755	10	2.5	2.6	M1,6	3
20175467	765	10	2.5	2.6	M1,6	3
20175474	775	10	2.5	2.6	M1,6	3
20175481	785	10	2.5	2.6	M1,6	3
20175498	795	10	2.5	2.6	M1,6	3
20175504	805	10	2.5	2.6	M1,6	3
20175511	815	10	2.5	2.6	M1,6	3
20175528	825	10	2.5	2.6	M1,6	3
20175535	835	10	2.5	2.6	M1,6	3
20175542	845	10	2.5	2.6	M1,6	3
20175559	855	10	2.5	2.6	M1,6	3
20175566	865	10	2.5	2.6	M1,6	3
20175573	875	10	2.5	2.6	M1,6	3
20175580	885	10	2.5	2.6	M1,6	3
20175597	895	10	2.5	2.6	M1,6	3
20175603	905	10	2.5	2.6	M1,6	3
20175610	915	10	2.5	2.6	M1,6	3
20175627	925	10	2.5	2.6	M1,6	3
20175634	935	10	2.5	2.6	M1,6	3
20175641	945	10	2.5	2.6	M1,6	3
20175658	955	10	2.5	2.6	M1,6	3
20175665	965	10	2.5	2.6	M1,6	3
20175672	975	10	2.5	2.6	M1,6	3
20175689	985	10	2.5	2.6	M1,6	3
20175696	995	10	2.5	2.6	M1,6	3



EL1010.05

Material

Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

Supplied with special low profile hex

screws.

Select the size and number of carriages to suit the required load (see part EL1010.C).

Other rail lengths on request.

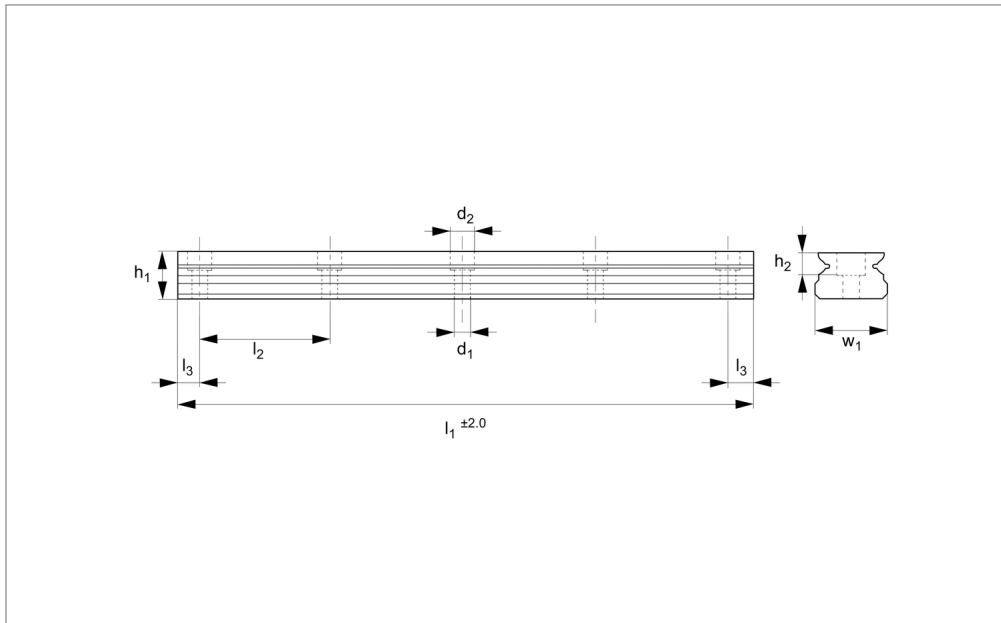
Weight: 0,12 Kg/m.

Important Notes

Must be ordered with corresponding sized carriage.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
20173203	40	15	5	3.5	1	2.4	3.5	M2	5	4.8
20173210	55	15	5	3.5	1	2.4	3.5	M2	5	6.6
20173227	70	15	5	3.5	1	2.4	3.5	M2	5	8.4
20173234	85	15	5	3.5	1	2.4	3.5	M2	5	10.2
20173241	100	15	5	3.5	1	2.4	3.5	M2	5	12.0
20173258	115	15	5	3.5	1	2.4	3.5	M2	5	13.8
20173265	130	15	5	3.5	1	2.4	3.5	M2	5	15.6
20173272	145	15	5	3.5	1	2.4	3.5	M2	5	17.4
20173289	160	15	5	3.5	1	2.4	3.5	M2	5	19.2
20173296	175	15	5	3.5	1	2.4	3.5	M2	5	21.0
20173302	190	15	5	3.5	1	2.4	3.5	M2	5	22.8
20169305	205	15	5	3.5	1	2.4	3.5	M2	5	24.6
20173319	220	15	5	3.5	1	2.4	3.5	M2	5	26.4
20173326	235	15	5	3.5	1	2.4	3.5	M2	5	28.2
20173333	250	15	5	3.5	1	2.4	3.5	M2	5	30.0
20173340	265	15	5	3.5	1	2.4	3.5	M2	5	31.8
20173357	280	15	5	3.5	1	2.4	3.5	M2	5	33.6
20173364	295	15	5	3.5	1	2.4	3.5	M2	5	35.4
20173371	310	15	5	3.5	1	2.4	3.5	M2	5	37.2
20173388	325	15	5	3.5	1	2.4	3.5	M2	5	39.0
20173395	340	15	5	3.5	1	2.4	3.5	M2	5	40.8
20173401	355	15	5	3.5	1	2.4	3.5	M2	5	42.6
20173418	370	15	5	3.5	1	2.4	3.5	M2	5	44.4
20173425	385	15	5	3.5	1	2.4	3.5	M2	5	46.2
20173432	400	15	5	3.5	1	2.4	3.5	M2	5	48.0
20173449	415	15	5	3.5	1	2.4	3.5	M2	5	49.8
20173456	430	15	5	3.5	1	2.4	3.5	M2	5	51.6
20173463	445	15	5	3.5	1	2.4	3.5	M2	5	53.4
20173470	460	15	5	3.5	1	2.4	3.5	M2	5	55.2
20173487	475	15	5	3.5	1	2.4	3.5	M2	5	57.0
20173494	490	15	5	3.5	1	2.4	3.5	M2	5	58.8
20173500	505	15	5	3.5	1	2.4	3.5	M2	5	60.6

Order No.	l ₁	l ₂	l ₃	h ₁	h ₂	d ₁	d ₂	For screws	w ₁	Weight kg
20173517	520	15	5	3.5	1	2.4	3.5	M2	5	62.4
20173524	535	15	5	3.5	1	2.4	3.5	M2	5	64.2
20173531	550	15	5	3.5	1	2.4	3.5	M2	5	66.0
20173548	565	15	5	3.5	1	2.4	3.5	M2	5	67.8
20173555	580	15	5	3.5	1	2.4	3.5	M2	5	69.6
20173562	595	15	5	3.5	1	2.4	3.5	M2	5	71.4
20173579	610	15	5	3.5	1	2.4	3.5	M2	5	73.2
20173586	625	15	5	3.5	1	2.4	3.5	M2	5	75.0
20173593	640	15	5	3.5	1	2.4	3.5	M2	5	76.8
20173609	655	15	5	3.5	1	2.4	3.5	M2	5	78.6
20173616	670	15	5	3.5	1	2.4	3.5	M2	5	80.4
20173623	685	15	5	3.5	1	2.4	3.5	M2	5	82.2
20173630	700	15	5	3.5	1	2.4	3.5	M2	5	84.0
20173647	715	15	5	3.5	1	2.4	3.5	M2	5	85.8
20173654	730	15	5	3.5	1	2.4	3.5	M2	5	87.6
20173661	745	15	5	3.5	1	2.4	3.5	M2	5	89.4
20173678	760	15	5	3.5	1	2.4	3.5	M2	5	91.2
20173685	775	15	5	3.5	1	2.4	3.5	M2	5	93.0
20173692	790	15	5	3.5	1	2.4	3.5	M2	5	94.8
20173708	805	15	5	3.5	1	2.4	3.5	M2	5	96.6
20173715	820	15	5	3.5	1	2.4	3.5	M2	5	98.4
20173722	835	15	5	3.5	1	2.4	3.5	M2	5	100.2
20173739	850	15	5	3.5	1	2.4	3.5	M2	5	102.0
20173746	865	15	5	3.5	1	2.4	3.5	M2	5	103.8
20173753	880	15	5	3.5	1	2.4	3.5	M2	5	105.6
20173760	895	15	5	3.5	1	2.4	3.5	M2	5	107.4
20173777	910	15	5	3.5	1	2.4	3.5	M2	5	109.2
20173784	925	15	5	3.5	1	2.4	3.5	M2	5	111.0
20173791	940	15	5	3.5	1	2.4	3.5	M2	5	112.8
20173807	955	15	5	3.5	1	2.4	3.5	M2	5	114.6
20173814	970	15	5	3.5	1	2.4	3.5	M2	5	116.4
20173821	985	15	5	3.5	1	2.4	3.5	M2	5	118.2
20173838	1000	15	5	3.5	1	2.4	3.5	M2	5	120.0



EL1010.07

Material

Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

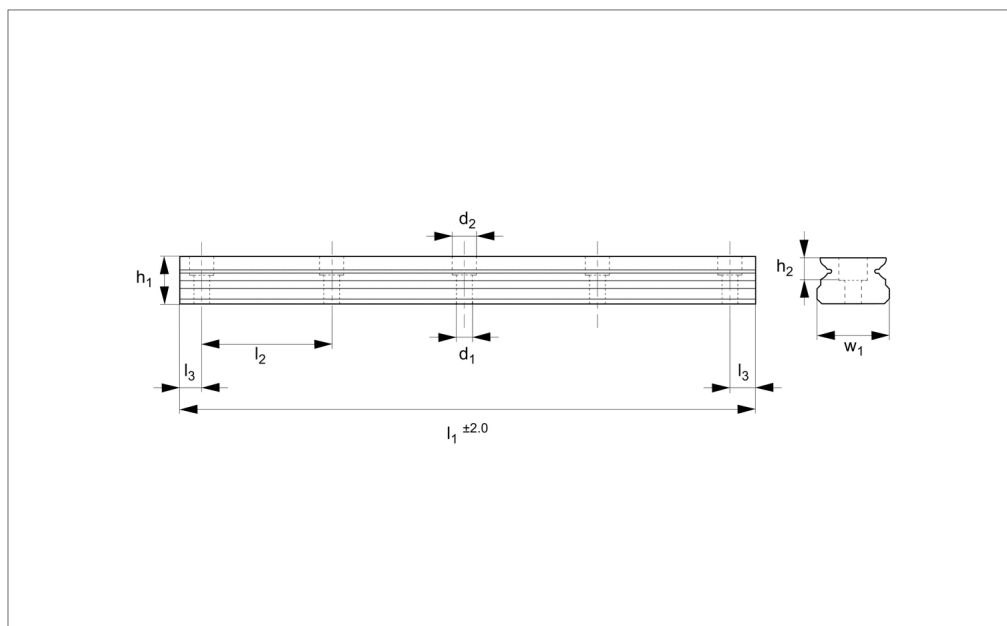
Select the size and number of carriages to suit the required load (see part EL1010.C).

Other rail lengths on request.

Weight: 0,22 Kg/m.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
20159351	40	15	5	4.7	2.3	2.4	4.2	M2	7	8.8
20159368	55	15	5	4.7	2.3	2.4	4.2	M2	7	12.1
20159375	70	15	5	4.7	2.3	2.4	4.2	M2	7	15.4
20159382	85	15	5	4.7	2.3	2.4	4.2	M2	7	18.7
20159399	100	15	5	4.7	2.3	2.4	4.2	M2	7	22.0
20159405	115	15	5	4.7	2.3	2.4	4.2	M2	7	25.3
20159412	130	15	5	4.7	2.3	2.4	4.2	M2	7	28.6
20159429	145	15	5	4.7	2.3	2.4	4.2	M2	7	31.9
20159436	160	15	5	4.7	2.3	2.4	4.2	M2	7	35.2
20159443	175	15	5	4.7	2.3	2.4	4.2	M2	7	38.5
20159450	190	15	5	4.7	2.3	2.4	4.2	M2	7	41.8
20159467	205	15	5	4.7	2.3	2.4	4.2	M2	7	45.1
20159474	220	15	5	4.7	2.3	2.4	4.2	M2	7	48.4
20159481	235	15	5	4.7	2.3	2.4	4.2	M2	7	51.7
20159498	250	15	5	4.7	2.3	2.4	4.2	M2	7	55.0
20159504	265	15	5	4.7	2.3	2.4	4.2	M2	7	58.3
20159511	280	15	5	4.7	2.3	2.4	4.2	M2	7	61.6
20159528	295	15	5	4.7	2.3	2.4	4.2	M2	7	64.9
20159535	310	15	5	4.7	2.3	2.4	4.2	M2	7	68.2
20159542	325	15	5	4.7	2.3	2.4	4.2	M2	7	71.5
20159559	340	15	5	4.7	2.3	2.4	4.2	M2	7	74.8
20159566	355	15	5	4.7	2.3	2.4	4.2	M2	7	78.1
20159573	370	15	5	4.7	2.3	2.4	4.2	M2	7	81.4
20159580	385	15	5	4.7	2.3	2.4	4.2	M2	7	84.7
20159597	400	15	5	4.7	2.3	2.4	4.2	M2	7	88.0
20159603	415	15	5	4.7	2.3	2.4	4.2	M2	7	91.3
20159610	430	15	5	4.7	2.3	2.4	4.2	M2	7	94.6
20159627	445	15	5	4.7	2.3	2.4	4.2	M2	7	97.9
20159634	460	15	5	4.7	2.3	2.4	4.2	M2	7	101.2
20159641	475	15	5	4.7	2.3	2.4	4.2	M2	7	104.5
20159658	490	15	5	4.7	2.3	2.4	4.2	M2	7	107.8
20159665	505	15	5	4.7	2.3	2.4	4.2	M2	7	111.1
20159672	520	15	5	4.7	2.3	2.4	4.2	M2	7	114.4
20159689	535	15	5	4.7	2.3	2.4	4.2	M2	7	117.7

Order No.	l ₁	l ₂	l ₃	h ₁	h ₂	d ₁	d ₂	For screws	w ₁	Weight kg
20159696	550	15	5	4.7	2.3	2.4	4.2	M2	7	121.0
20159702	565	15	5	4.7	2.3	2.4	4.2	M2	7	124.3
20159719	580	15	5	4.7	2.3	2.4	4.2	M2	7	127.6
20159726	595	15	5	4.7	2.3	2.4	4.2	M2	7	130.9
20159733	610	15	5	4.7	2.3	2.4	4.2	M2	7	134.2
20159740	625	15	5	4.7	2.3	2.4	4.2	M2	7	137.5
20159757	640	15	5	4.7	2.3	2.4	4.2	M2	7	140.8
20159764	655	15	5	4.7	2.3	2.4	4.2	M2	7	144.1
20159771	670	15	5	4.7	2.3	2.4	4.2	M2	7	147.4
20159788	685	15	5	4.7	2.3	2.4	4.2	M2	7	150.7
20159795	700	15	5	4.7	2.3	2.4	4.2	M2	7	154.0
20159801	715	15	5	4.7	2.3	2.4	4.2	M2	7	157.3
20159818	730	15	5	4.7	2.3	2.4	4.2	M2	7	160.6
20159825	745	15	5	4.7	2.3	2.4	4.2	M2	7	163.9
20159832	760	15	5	4.7	2.3	2.4	4.2	M2	7	167.2
20159849	775	15	5	4.7	2.3	2.4	4.2	M2	7	170.5
20159856	790	15	5	4.7	2.3	2.4	4.2	M2	7	173.8
20159863	805	15	5	4.7	2.3	2.4	4.2	M2	7	177.1
20159870	820	15	5	4.7	2.3	2.4	4.2	M2	7	180.4
20159887	835	15	5	4.7	2.3	2.4	4.2	M2	7	183.7
20159894	850	15	5	4.7	2.3	2.4	4.2	M2	7	187.0
20159900	865	15	5	4.7	2.3	2.4	4.2	M2	7	190.3
20159917	880	15	5	4.7	2.3	2.4	4.2	M2	7	193.6
20159924	895	15	5	4.7	2.3	2.4	4.2	M2	7	196.9
20159931	910	15	5	4.7	2.3	2.4	4.2	M2	7	200.2
20159948	925	15	5	4.7	2.3	2.4	4.2	M2	7	203.5
20159955	940	15	5	4.7	2.3	2.4	4.2	M2	7	206.8
20159962	955	15	5	4.7	2.3	2.4	4.2	M2	7	210.1
20159979	970	15	5	4.7	2.3	2.4	4.2	M2	7	213.4
20159986	985	15	5	4.7	2.3	2.4	4.2	M2	7	216.7
20159993	1000	15	5	4.7	2.3	2.4	4.2	M2	7	220.0



EL1010.09

Material

Corrosion resistant stainless steel, hardened (similar to 440C).

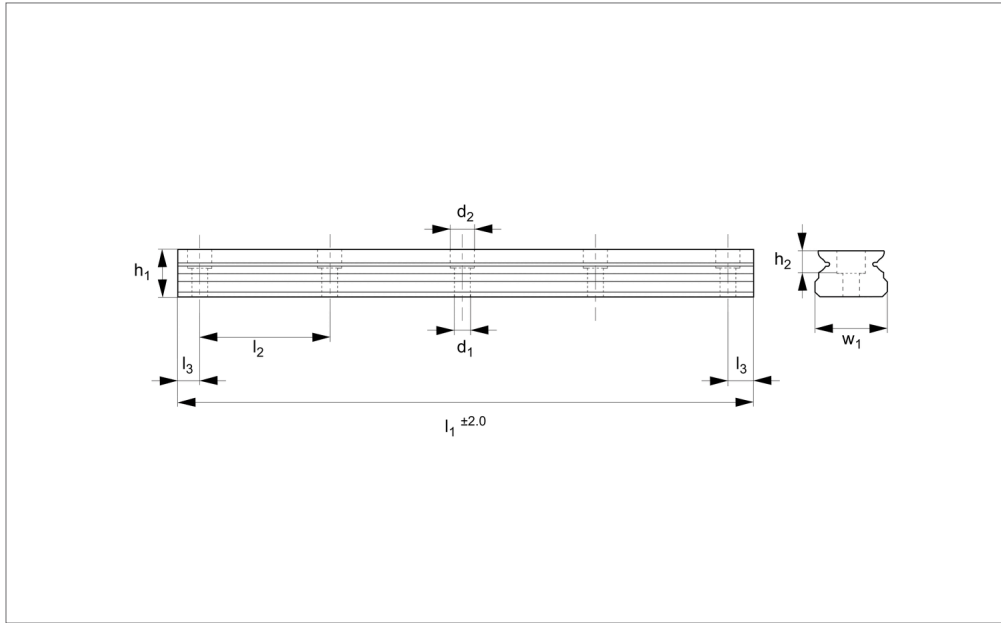
Technical Notes

Select the size and number of carriages to suit the required load (see part EL1010.C).

Other rail lengths on request.
Weight: 0,30 Kg/m.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
20160005	55	20	7.5	5.5	3.5	3.5	6	M3	9	16.5
20160012	75	20	7.5	5.5	3.5	3.5	6	M3	9	22.5
20160029	95	20	7.5	5.5	3.5	3.5	6	M3	9	28.5
20160036	115	20	7.5	5.5	3.5	3.5	6	M3	9	34.5
20160043	135	20	7.5	5.5	3.5	3.5	6	M3	9	40.5
20160050	155	20	7.5	5.5	3.5	3.5	6	M3	9	46.5
20160067	175	20	7.5	5.5	3.5	3.5	6	M3	9	52.5
20160074	195	20	7.5	5.5	3.5	3.5	6	M3	9	58.5
20160081	215	20	7.5	5.5	3.5	3.5	6	M3	9	64.5
20160098	235	20	7.5	5.5	3.5	3.5	6	M3	9	70.5
20160104	255	20	7.5	5.5	3.5	3.5	6	M3	9	76.5
20160111	275	20	7.5	5.5	3.5	3.5	6	M3	9	82.5
20160128	295	20	7.5	5.5	3.5	3.5	6	M3	9	88.5
20160135	315	20	7.5	5.5	3.5	3.5	6	M3	9	94.5
20160142	335	20	7.5	5.5	3.5	3.5	6	M3	9	100.5
20160159	355	20	7.5	5.5	3.5	3.5	6	M3	9	106.5
20160166	375	20	7.5	5.5	3.5	3.5	6	M3	9	112.5
20160173	395	20	7.5	5.5	3.5	3.5	6	M3	9	118.5
20160180	415	20	7.5	5.5	3.5	3.5	6	M3	9	124.5
20160197	435	20	7.5	5.5	3.5	3.5	6	M3	9	130.5
20160203	455	20	7.5	5.5	3.5	3.5	6	M3	9	136.5
20160210	475	20	7.5	5.5	3.5	3.5	6	M3	9	142.5
20160227	495	20	7.5	5.5	3.5	3.5	6	M3	9	148.5
20160234	515	20	7.5	5.5	3.5	3.5	6	M3	9	154.5
20160241	535	20	7.5	5.5	3.5	3.5	6	M3	9	160.5
20160258	555	20	7.5	5.5	3.5	3.5	6	M3	9	166.5
20160265	575	20	7.5	5.5	3.5	3.5	6	M3	9	172.5
20160272	595	20	7.5	5.5	3.5	3.5	6	M3	9	178.5
20160289	615	20	7.5	5.5	3.5	3.5	6	M3	9	184.5
20160296	635	20	7.5	5.5	3.5	3.5	6	M3	9	190.5
20160302	655	20	7.5	5.5	3.5	3.5	6	M3	9	196.5
20160319	675	20	7.5	5.5	3.5	3.5	6	M3	9	202.5
20160326	695	20	7.5	5.5	3.5	3.5	6	M3	9	208.5
20160333	715	20	7.5	5.5	3.5	3.5	6	M3	9	214.5

Order No.	l ₁	l ₂	l ₃	h ₁	h ₂	d ₁	d ₂	For screws	w ₁	Weight kg
20160340	735	20	7.5	5.5	3.5	3.5	6	M3	9	220.5
20160357	755	20	7.5	5.5	3.5	3.5	6	M3	9	226.5
20160364	775	20	7.5	5.5	3.5	3.5	6	M3	9	232.5
20160371	795	20	7.5	5.5	3.5	3.5	6	M3	9	238.5
20160388	815	20	7.5	5.5	3.5	3.5	6	M3	9	244.5
20160395	835	20	7.5	5.5	3.5	3.5	6	M3	9	250.5
20160401	855	20	7.5	5.5	3.5	3.5	6	M3	9	256.5
20160418	875	20	7.5	5.5	3.5	3.5	6	M3	9	262.5
20160425	895	20	7.5	5.5	3.5	3.5	6	M3	9	268.5
20160432	915	20	7.5	5.5	3.5	3.5	6	M3	9	274.5
20160449	935	20	7.5	5.5	3.5	3.5	6	M3	9	280.5
20160456	955	20	7.5	5.5	3.5	3.5	6	M3	9	286.5
20160463	975	20	7.5	5.5	3.5	3.5	6	M3	9	292.5
20160470	995	20	7.5	5.5	3.5	3.5	6	M3	9	298.5



EL1010.12

Material

Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

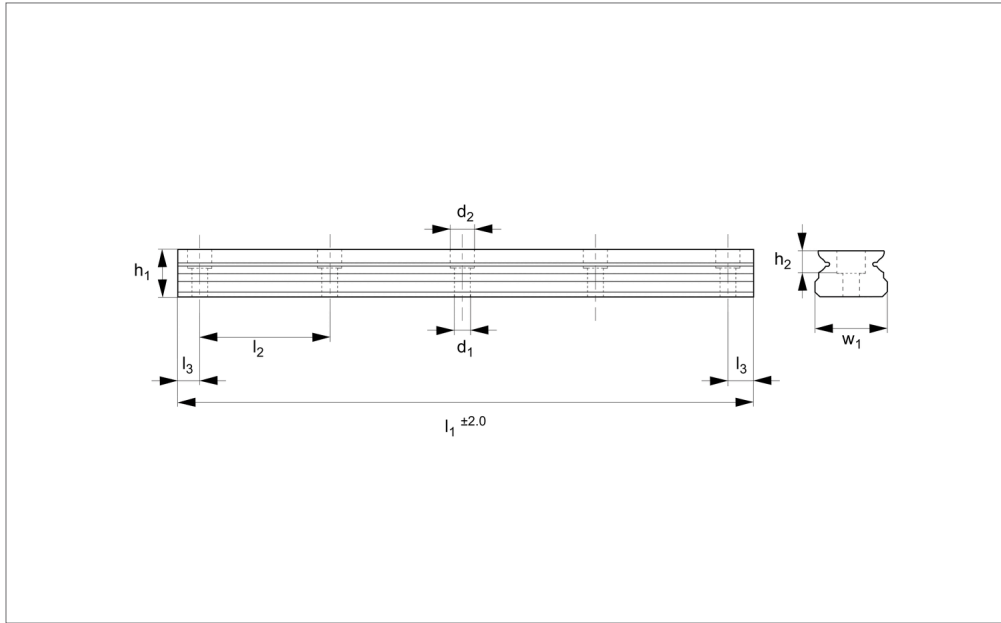
Select the size and number of carriages to suit the required load (see part EL1010.C).

Other rail lengths on request.

Weight: 0,60 Kg/m.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
20160487	70	25	10	7.5	4.5	3.5	6	M3	12	42
20160494	95	25	10	7.5	4.5	3.5	6	M3	12	57
20160500	120	25	10	7.5	4.5	3.5	6	M3	12	72
20160517	145	25	10	7.5	4.5	3.5	6	M3	12	87
20160524	170	25	10	7.5	4.5	3.5	6	M3	12	102
20160531	195	25	10	7.5	4.5	3.5	6	M3	12	117
20160548	220	25	10	7.5	4.5	3.5	6	M3	12	132
20160555	245	25	10	7.5	4.5	3.5	6	M3	12	147
20160562	270	25	10	7.5	4.5	3.5	6	M3	12	162
20160579	295	25	10	7.5	4.5	3.5	6	M3	12	177
20160586	320	25	10	7.5	4.5	3.5	6	M3	12	192
20160593	345	25	10	7.5	4.5	3.5	6	M3	12	207
20160609	370	25	10	7.5	4.5	3.5	6	M3	12	222
20160616	395	25	10	7.5	4.5	3.5	6	M3	12	237
20160623	420	25	10	7.5	4.5	3.5	6	M3	12	252
20160630	445	25	10	7.5	4.5	3.5	6	M3	12	267
20160647	470	25	10	7.5	4.5	3.5	6	M3	12	282
20160654	495	25	10	7.5	4.5	3.5	6	M3	12	297
20160661	520	25	10	7.5	4.5	3.5	6	M3	12	312
20160678	545	25	10	7.5	4.5	3.5	6	M3	12	327
20160685	570	25	10	7.5	4.5	3.5	6	M3	12	342
20160692	595	25	10	7.5	4.5	3.5	6	M3	12	357
20160708	620	25	10	7.5	4.5	3.5	6	M3	12	372
20160715	645	25	10	7.5	4.5	3.5	6	M3	12	387
20160722	670	25	10	7.5	4.5	3.5	6	M3	12	402
20160739	695	25	10	7.5	4.5	3.5	6	M3	12	417
20160746	720	25	10	7.5	4.5	3.5	6	M3	12	432
20160753	745	25	10	7.5	4.5	3.5	6	M3	12	447
20160760	770	25	10	7.5	4.5	3.5	6	M3	12	462
20160777	795	25	10	7.5	4.5	3.5	6	M3	12	477
20160784	820	25	10	7.5	4.5	3.5	6	M3	12	492
20160791	845	25	10	7.5	4.5	3.5	6	M3	12	507
20160807	870	25	10	7.5	4.5	3.5	6	M3	12	522
20160814	895	25	10	7.5	4.5	3.5	6	M3	12	537

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
20160821	920	25	10	7.5	4.5	3.5	6	M3	12	552
20160838	945	25	10	7.5	4.5	3.5	6	M3	12	567
20160845	970	25	10	7.5	4.5	3.5	6	M3	12	582
20160852	995	25	10	7.5	4.5	3.5	6	M3	12	597



EL1010.15

Material

Corrosion resistant stainless steel, hardened to 58-60 HRC (similar to 440C).

Technical Notes

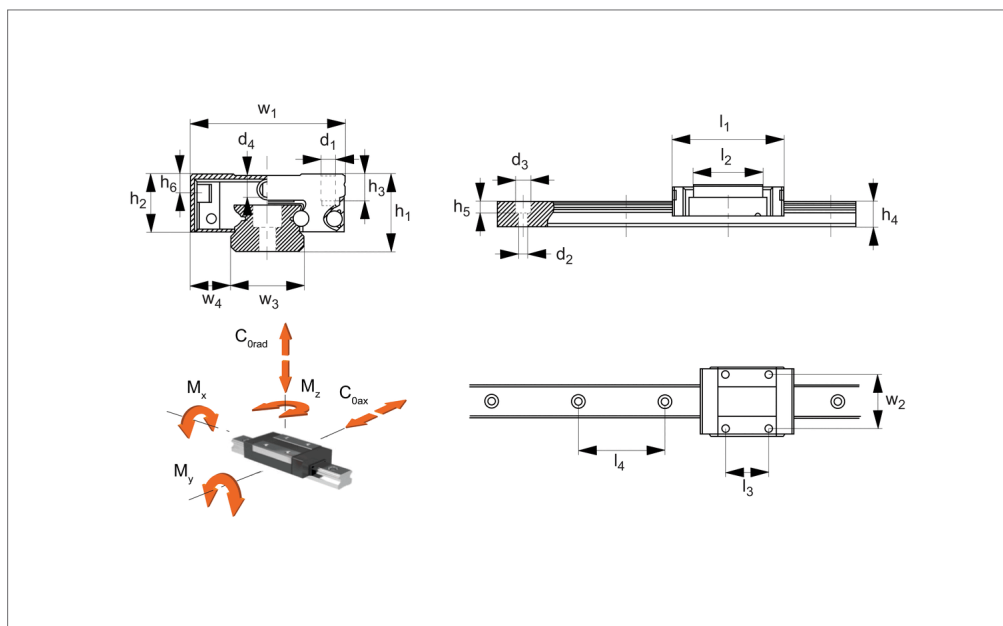
Select the size and number of carriages to suit the required load (see part EL1010.C).

Other rail lengths on request.
Weight: 0,93 Kg/m.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
20160869	70	40	15	9.5	4.5	3.5	6	M3	15	65.1
20160876	110	40	15	9.5	4.5	3.5	6	M3	15	102.3
20160883	150	40	15	9.5	4.5	3.5	6	M3	15	139.5
20160890	190	40	15	9.5	4.5	3.5	6	M3	15	176.7
20160906	230	40	15	9.5	4.5	3.5	6	M3	15	213.9
20160913	270	40	15	9.5	4.5	3.5	6	M3	15	251.1
20160920	310	40	15	9.5	4.5	3.5	6	M3	15	288.3
20160937	350	40	15	9.5	4.5	3.5	6	M3	15	325.5
20160944	390	40	15	9.5	4.5	3.5	6	M3	15	362.7
20160951	430	40	15	9.5	4.5	3.5	6	M3	15	399.9
20160968	470	40	15	9.5	4.5	3.5	6	M3	15	437.1
20160975	510	40	15	9.5	4.5	3.5	6	M3	15	474.3
20160982	550	40	15	9.5	4.5	3.5	6	M3	15	511.5
20160999	590	40	15	9.5	4.5	3.5	6	M3	15	548.7
20161002	630	40	15	9.5	4.5	3.5	6	M3	15	585.9
20161019	670	40	15	9.5	4.5	3.5	6	M3	15	623.1
20161026	710	40	15	9.5	4.5	3.5	6	M3	15	660.3
20161033	750	40	15	9.5	4.5	3.5	6	M3	15	697.5
20161040	790	40	15	9.5	4.5	3.5	6	M3	15	734.7
20161057	830	40	15	9.5	4.5	3.5	6	M3	15	771.9
20161064	870	40	15	9.5	4.5	3.5	6	M3	15	809.1
20161071	910	40	15	9.5	4.5	3.5	6	M3	15	846.3
20161088	950	40	15	9.5	4.5	3.5	6	M3	15	883.5
20161095	990	40	15	9.5	4.5	3.5	6	M3	15	920.7



EL1010.C



Material

Corrosion resistant stainless steel body (440C), with hardened stainless steel ball bearings. Black plastic end plates and ball bearing retainers.

Technical Notes

Max. speed 3 m/s. max. acceleration 40m/s².

Temperature range -40°C to +80°C.

Select the size and number of carriages to suit the required load then select the required rail length, (see part nos. EL1010.07 through to EL1010.15).

Tips

Carriages are supplied with a dummy plastic rail. When mounting carriages onto rail, slide directly from the dummy rail

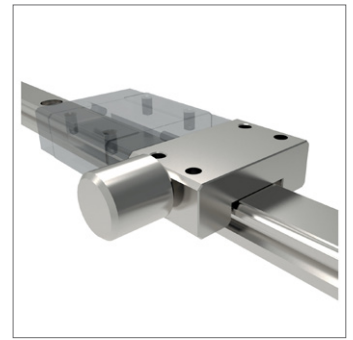
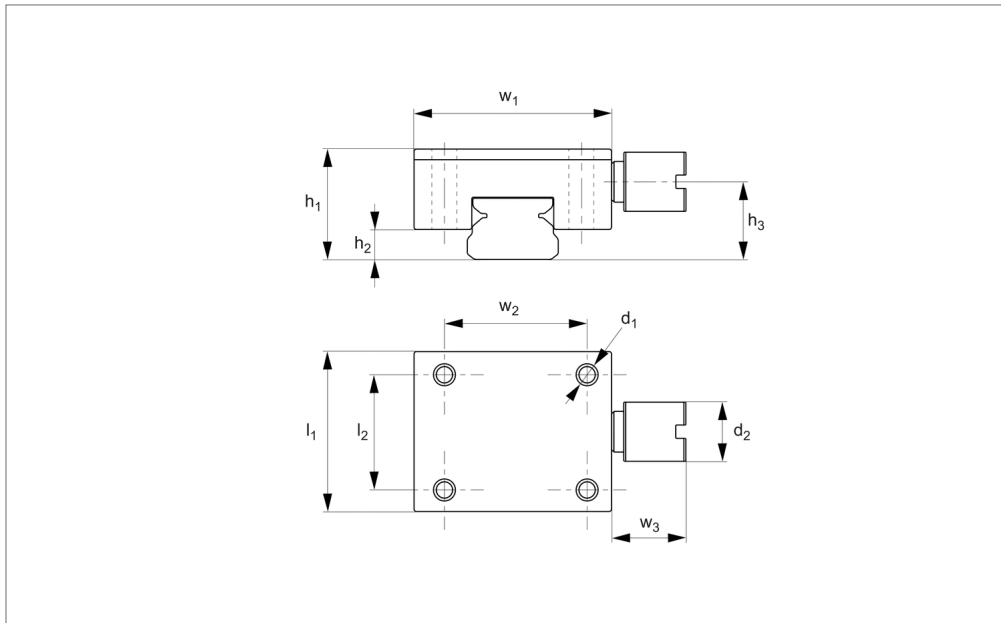
onto the steel rail. Do not simply remove the carriage from the dummy rail - the balls will become loose making the carriage unusable.

Important Notes

*Size 3 and Size 5 carriage must be ordered with rails.

Order No.	For rail	l ₁	l ₂	l ₃	l ₄	h ₁	h ₂	h ₃	h ₄	h ₅	h ₆	d ₂	d ₃	d ₄	For screws d ₁	Weight g
20159177	3*	11.7	6.8	3.5	10	4	3.0	1.1	2.6	-	1.5	-	M1,6	0.3	M1	0.9
20159184	3*	16.0	11.0	5.5	10	4	3.0	1.1	2.6	-	1.5	-	M1,6	0.3	M2	1.2
20158491	5*	16.0	10.0	-	15	6	4.6	1.5	3.5	1.0	2.0	2.4	3.5	0.7	M2	3.5
20158439	5*	19.6	13.5	7	15	6	4.6	2.0	3.5	1.0	2.0	2.4	3.5	0.7	M2,6	4.0
20158330	7	23.7	14.3	8	15	8	6.7	2.5	4.7	2.3	2.8	2.4	4.2	1.1	M2	8.0
20158446	7	31.2	21.8	13	15	8	6.7	2.5	4.7	2.3	2.8	2.4	4.2	1.1	M2	14.0
20158347	9	30.6	20.5	10	20	10	8.0	3.0	5.5	3.5	3.3	3.5	6.0	1.3	M3	18.0
20159146	9	40.9	30.8	16	20	10	8.0	3.0	5.5	3.5	3.3	3.5	6.0	1.3	M3	28.0
20158354	12	35.4	22.0	15	25	13	10.2	3.5	7.5	4.5	4.3	3.5	6.0	1.3	M3	34.0
20158408	12	47.6	34.0	20	25	13	10.2	3.5	7.5	4.5	4.3	3.5	6.0	1.3	M3	51.0
20158361	15	43.0	27.0	20	40	16	12.3	5.5	9.5	4.5	4.3	3.5	6.0	1.8	M3	61.0
20158422	15	60.0	44.0	25	40	16	12.3	5.5	9.5	4.5	4.3	3.5	6.0	1.8	M3	90.0

Order No.	Static load C _{Orad & ax} N	w ₁	w ₂	w ₃	w ₄	Dyn. load C _{rad & ax} N	M _x Nm	M _y Nm	M _z Nm
20159177	310	8	-	3	2.5	190	0.6	0.4	0.4
20159184	575	8	-	3	2.5	295	0.9	1.1	1.1
20158491	550	12	8	5	3.5	335	1.7	1.0	1.0
20158439	900	12	-	5	3.5	470	2.4	2.1	2.1
20158330	1400	17	12	7	5.0	890	5.2	3.3	3.3
20158446	2440	17	12	7	5.0	1310	9.0	7.7	7.7
20158347	2495	20	15	9	5.5	1570	11.7	6.4	6.4
20159146	3880	20	15	9	5.5	2135	18.2	12.4	12.4
20158354	3465	27	20	12	7.5	2308	21.5	12.9	12.9
20158408	5630	27	20	12	7.5	3240	34.9	30.2	30.2
20158361	5590	32	25	15	8.5	3810	43.6	27.0	27.0
20158422	9080	32	25	15	8.5	5350	70.0	63.0	63.0



EL1010.CL

Material

Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

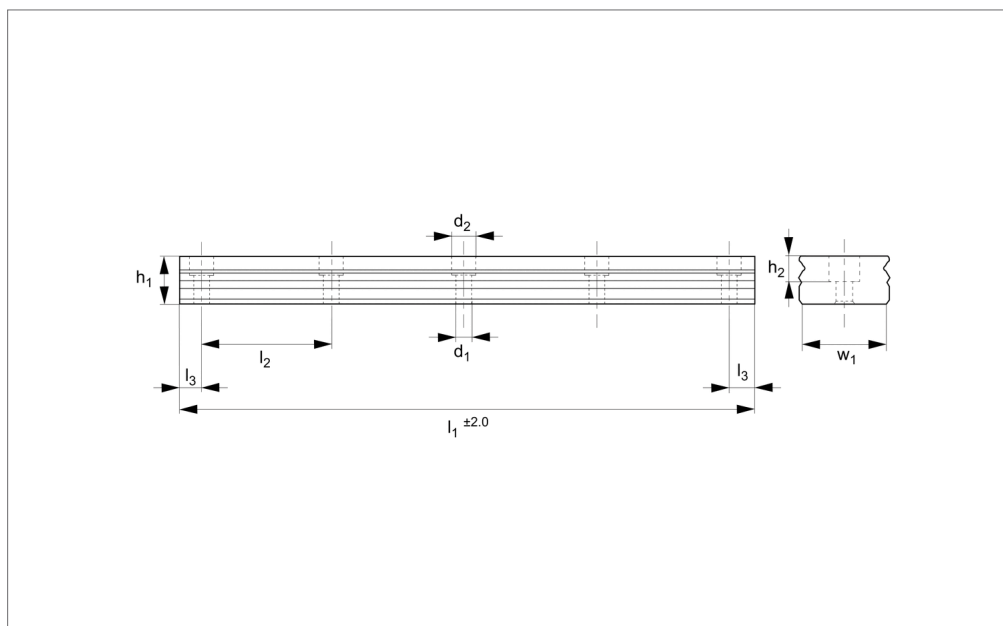
The manual rail clamps are used alongside the rail carriages. Activating the clamping

knob presses the clamp contact surfaces onto the rail, clamping it in place.

Order No.	For rail	h_1	l_1	w_1	h_2	h_3	l_2	w_2	w_3	d_1	d_2	Holding force kgf	Torque to Nm
20175870	L1010.07	8	12	17	2	4.3	8	12	7	M2	6	65	0.11
20175856	L1010.09	10	17	20	2.7	5.35	11	15	9	M3	8	100	0.17
20175887	L1010.12	13	19	27	3.5	7.15	13	20	10	M3	10	150	0.35
20175894	L1010.15	16	20	32	5	8.05	14	25	14	M3	12	180	0.75
20175900	L1012.14	9	12	25	3	4.3	8	19	6.65	M2	6	65	0.10
20175917	L1012.18	12	17	30	4.2	5.85	11	23	9	M3	8	100	0.17
20175924	L1012.24	14	19	40	4	7.65	13	30	10	M3	10	150	0.35
20175931	L1012.42	16	22	60	4.5	8.55	15	45	14.7	M4	12	180	0.75



EL1012.10



Material

Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

Select the size and number of carriages to suit the required load (see part EL1012.C).

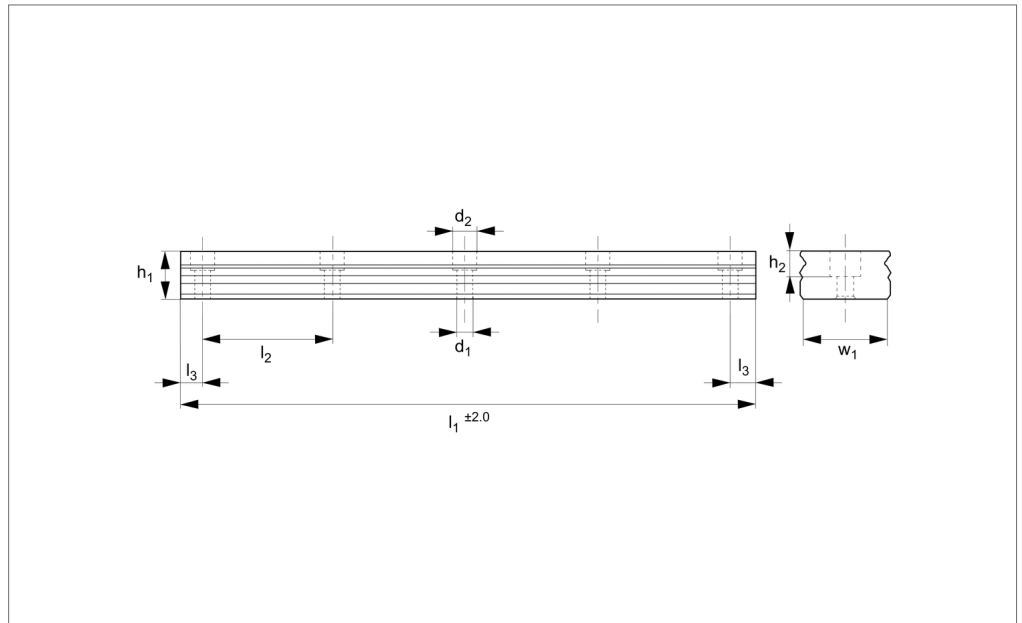
Other rail lengths on request.
Weight: 0,3 Kg/m.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
20173845	55	20	7.5	4	1.6	3	5.5	M2,5	10	16.5
20174132	75	20	7.5	4	1.6	3	5.5	M2,5	10	22.5
20174149	95	20	7.5	4	1.6	3	5.5	M2,5	10	28.5
20173852	115	20	7.5	4	1.6	3	5.5	M2,5	10	34.5
20174156	135	20	7.5	4	1.6	3	5.5	M2,5	10	40.5
20175702	155	20	7.5	4	1.6	3	5.5	M2,5	10	46.5
20173869	175	20	7.5	4	1.6	3	5.5	M2,5	10	52.5
20174163	195	20	7.5	4	1.6	3	5.5	M2,5	10	58.5
20174170	215	20	7.5	4	1.6	3	5.5	M2,5	10	64.5
20173876	235	20	7.5	4	1.6	3	5.5	M2,5	10	70.5
20174187	255	20	7.5	4	1.6	3	5.5	M2,5	10	76.5
20174194	275	20	7.5	4	1.6	3	5.5	M2,5	10	82.5
20173883	295	20	7.5	4	1.6	3	5.5	M2,5	10	88.5
20174200	315	20	7.5	4	1.6	3	5.5	M2,5	10	94.5
20174217	335	20	7.5	4	1.6	3	5.5	M2,5	10	100.5
20173890	355	20	7.5	4	1.6	3	5.5	M2,5	10	106.5
20174224	375	20	7.5	4	1.6	3	5.5	M2,5	10	112.5
20174231	395	20	7.5	4	1.6	3	5.5	M2,5	10	118.5
20173906	415	20	7.5	4	1.6	3	5.5	M2,5	10	124.5
20174248	435	20	7.5	4	1.6	3	5.5	M2,5	10	130.5
20174255	455	20	7.5	4	1.6	3	5.5	M2,5	10	136.5
20173913	475	20	7.5	4	1.6	3	5.5	M2,5	10	142.5
20174262	495	20	7.5	4	1.6	3	5.5	M2,5	10	148.5
20174279	515	20	7.5	4	1.6	3	5.5	M2,5	10	154.5
20173920	535	20	7.5	4	1.6	3	5.5	M2,5	10	160.5
20174286	555	20	7.5	4	1.6	3	5.5	M2,5	10	166.5
20174293	575	20	7.5	4	1.6	3	5.5	M2,5	10	172.5
20173937	595	20	7.5	4	1.6	3	5.5	M2,5	10	178.5
20174309	615	20	7.5	4	1.6	3	5.5	M2,5	10	184.5
20174316	635	20	7.5	4	1.6	3	5.5	M2,5	10	190.5
20173944	655	20	7.5	4	1.6	3	5.5	M2,5	10	196.5
20174323	675	20	7.5	4	1.6	3	5.5	M2,5	10	202.5
20174330	695	20	7.5	4	1.6	3	5.5	M2,5	10	208.5
20173951	715	20	7.5	4	1.6	3	5.5	M2,5	10	214.5

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
20174347	735	20	7.5	4	1.6	3	5.5	M2,5	10	220.5
20174354	755	20	7.5	4	1.6	3	5.5	M2,5	10	226.5
20173968	775	20	7.5	4	1.6	3	5.5	M2,5	10	232.5
20174361	795	20	7.5	4	1.6	3	5.5	M2,5	10	238.5
20174378	815	20	7.5	4	1.6	3	5.5	M2,5	10	244.5
20173975	835	20	7.5	4	1.6	3	5.5	M2,5	10	250.5
20174385	855	20	7.5	4	1.6	3	5.5	M2,5	10	256.5
20174392	875	20	7.5	4	1.6	3	5.5	M2,5	10	262.5
20173982	895	20	7.5	4	1.6	3	5.5	M2,5	10	268.5
20174408	915	20	7.5	4	1.6	3	5.5	M2,5	10	274.5
20174415	935	20	7.5	4	1.6	3	5.5	M2,5	10	280.5
20173999	955	20	7.5	4	1.6	3	5.5	M2,5	10	286.5
20174422	975	20	7.5	4	1.6	3	5.5	M2,5	10	292.5



EL1012.14



Material

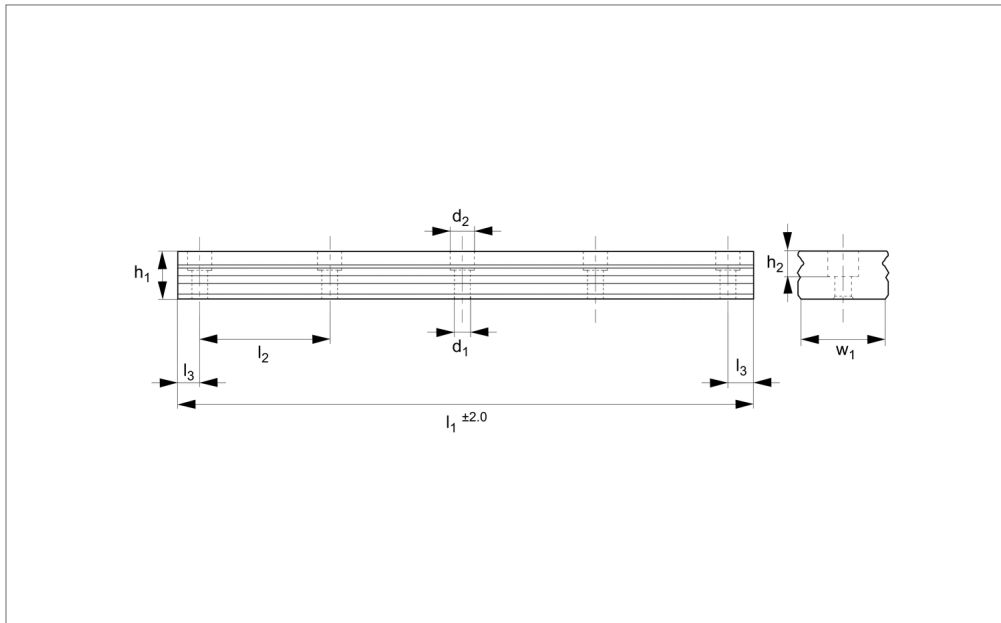
Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

Select the size and number of carriages to suit the required load (see part EL1012.C).

Other rail lengths on request.
Weight: 0,5 Kg/m.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
20174439	50	30	10	5.2	3.5	3.5	6	M3	14	25
20174446	80	30	10	5.2	3.5	3.5	6	M3	14	40
20174453	110	30	10	5.2	3.5	3.5	6	M3	14	55
20174460	140	30	10	5.2	3.5	3.5	6	M3	14	70
20174477	170	30	10	5.2	3.5	3.5	6	M3	14	85
20174484	200	30	10	5.2	3.5	3.5	6	M3	14	100
20174491	230	30	10	5.2	3.5	3.5	6	M3	14	115
20174507	260	30	10	5.2	3.5	3.5	6	M3	14	130
20174514	290	30	10	5.2	3.5	3.5	6	M3	14	145
20162443	320	30	10	5.2	3.5	3.5	6	M3	14	160
20174521	350	30	10	5.2	3.5	3.5	6	M3	14	175
20174538	380	30	10	5.2	3.5	3.5	6	M3	14	190
20174545	410	30	10	5.2	3.5	3.5	6	M3	14	205
20174552	440	30	10	5.2	3.5	3.5	6	M3	14	220
20174569	470	30	10	5.2	3.5	3.5	6	M3	14	235
20174576	500	30	10	5.2	3.5	3.5	6	M3	14	250
20174583	530	30	10	5.2	3.5	3.5	6	M3	14	265
20174590	560	30	10	5.2	3.5	3.5	6	M3	14	280
20174606	590	30	10	5.2	3.5	3.5	6	M3	14	295
20174613	620	30	10	5.2	3.5	3.5	6	M3	14	310
20174620	650	30	10	5.2	3.5	3.5	6	M3	14	325
20174637	680	30	10	5.2	3.5	3.5	6	M3	14	340
20174644	710	30	10	5.2	3.5	3.5	6	M3	14	355
20174651	740	30	10	5.2	3.5	3.5	6	M3	14	370
20174668	770	30	10	5.2	3.5	3.5	6	M3	14	385
20174675	800	30	10	5.2	3.5	3.5	6	M3	14	400
20174682	830	30	10	5.2	3.5	3.5	6	M3	14	415
20174699	860	30	10	5.2	3.5	3.5	6	M3	14	430
20174705	890	30	10	5.2	3.5	3.5	6	M3	14	445
20174712	920	30	10	5.2	3.5	3.5	6	M3	14	460
20174729	950	30	10	5.2	3.5	3.5	6	M3	14	475
20174736	980	30	10	5.2	3.5	3.5	6	M3	14	490



EL1012.18

Material

Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

Select the size and number of carriages to suit the required load (see part EL1012.C).

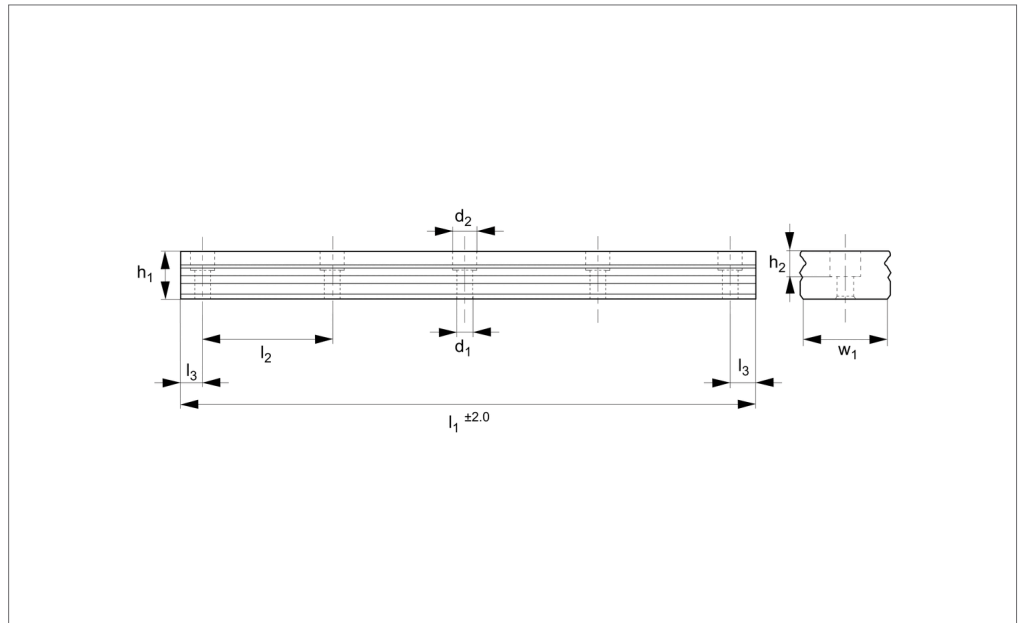
Other rail lengths on request.

Weight: 0,9 Kg/m.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
20161101	50	30	10	7.3	4.5	3.5	6	M3	18	45
20161118	80	30	10	7.3	4.5	3.5	6	M3	18	72
20161873	110	30	10	7.3	4.5	3.5	6	M3	18	99
20161125	140	30	10	7.3	4.5	3.5	6	M3	18	126
20161132	170	30	10	7.3	4.5	3.5	6	M3	18	153
20161149	200	30	10	7.3	4.5	3.5	6	M3	18	180
20161156	230	30	10	7.3	4.5	3.5	6	M3	18	207
20161163	260	30	10	7.3	4.5	3.5	6	M3	18	234
20161170	290	30	10	7.3	4.5	3.5	6	M3	18	261
20161187	320	30	10	7.3	4.5	3.5	6	M3	18	288
20161194	350	30	10	7.3	4.5	3.5	6	M3	18	315
20161200	380	30	10	7.3	4.5	3.5	6	M3	18	342
20161217	410	30	10	7.3	4.5	3.5	6	M3	18	369
20161224	440	30	10	7.3	4.5	3.5	6	M3	18	396
20161231	470	30	10	7.3	4.5	3.5	6	M3	18	423
20161248	500	30	10	7.3	4.5	3.5	6	M3	18	450
20161255	530	30	10	7.3	4.5	3.5	6	M3	18	477
20161262	560	30	10	7.3	4.5	3.5	6	M3	18	504
20161279	590	30	10	7.3	4.5	3.5	6	M3	18	531
20161286	620	30	10	7.3	4.5	3.5	6	M3	18	558
20161293	650	30	10	7.3	4.5	3.5	6	M3	18	585
20161309	680	30	10	7.3	4.5	3.5	6	M3	18	612
20161316	710	30	10	7.3	4.5	3.5	6	M3	18	639
20161323	740	30	10	7.3	4.5	3.5	6	M3	18	666
20161330	770	30	10	7.3	4.5	3.5	6	M3	18	693
20161347	800	30	10	7.3	4.5	3.5	6	M3	18	720
20161354	830	30	10	7.3	4.5	3.5	6	M3	18	747
20161361	860	30	10	7.3	4.5	3.5	6	M3	18	774
20161378	890	30	10	7.3	4.5	3.5	6	M3	18	801
20161385	920	30	10	7.3	4.5	3.5	6	M3	18	828
20161392	950	30	10	7.3	4.5	3.5	6	M3	18	855
20161408	980	30	10	7.3	4.5	3.5	6	M3	18	882



EL1012.24



Material

Corrosion resistant stainless steel, hardened (similar to 440C).

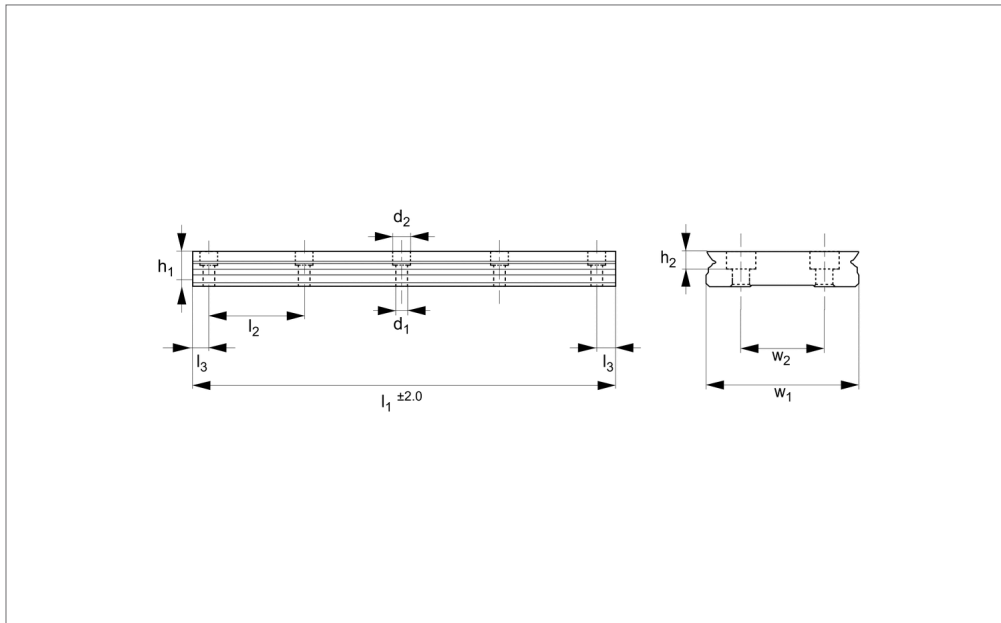
Technical Notes

Select the size and number of carriages to suit the required load (see part EL1012.C).

Other rail lengths on request.

Weight: 1,5 Kg/m.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	Weight kg
20161415	70	40	15	8.5	4.5	4.5	8	M4	24	0.105
20161422	110	40	15	8.5	4.5	4.5	8	M4	24	0.165
20161439	150	40	15	8.5	4.5	4.5	8	M4	24	0.225
20161446	190	40	15	8.5	4.5	4.5	8	M4	24	0.285
20161453	230	40	15	8.5	4.5	4.5	8	M4	24	0.345
20161460	270	40	15	8.5	4.5	4.5	8	M4	24	0.405
20161477	310	40	15	8.5	4.5	4.5	8	M4	24	0.465
20161484	350	40	15	8.5	4.5	4.5	8	M4	24	0.525
20161491	390	40	15	8.5	4.5	4.5	8	M4	24	0.585
20161507	430	40	15	8.5	4.5	4.5	8	M4	24	0.645
20161514	470	40	15	8.5	4.5	4.5	8	M4	24	0.705
20161521	510	40	15	8.5	4.5	4.5	8	M4	24	0.765
20161538	550	40	15	8.5	4.5	4.5	8	M4	24	0.825
20161545	590	40	15	8.5	4.5	4.5	8	M4	24	0.885
20161552	630	40	15	8.5	4.5	4.5	8	M4	24	0.945
20161569	670	40	15	8.5	4.5	4.5	8	M4	24	1.005
20161576	710	40	15	8.5	4.5	4.5	8	M4	24	1.065
20161583	750	40	15	8.5	4.5	4.5	8	M4	24	1.125
20161590	790	40	15	8.5	4.5	4.5	8	M4	24	1.185
20161606	830	40	15	8.5	4.5	4.5	8	M4	24	1.245
20161613	870	40	15	8.5	4.5	4.5	8	M4	24	1.305
20161620	910	40	15	8.5	4.5	4.5	8	M4	24	1.365
20161637	950	40	15	8.5	4.5	4.5	8	M4	24	1.425
20161644	990	40	15	8.5	4.5	4.5	8	M4	24	1.485



EL1012.42

Material

Corrosion resistant stainless steel, hardened (similar to 440C).

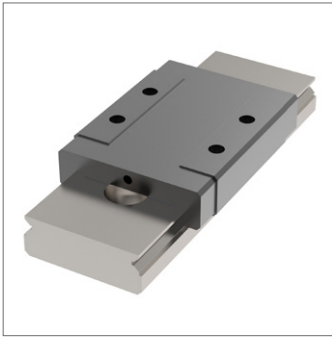
Technical Notes

Select the size and number of carriages to suit the required load (see part EL1012.C).

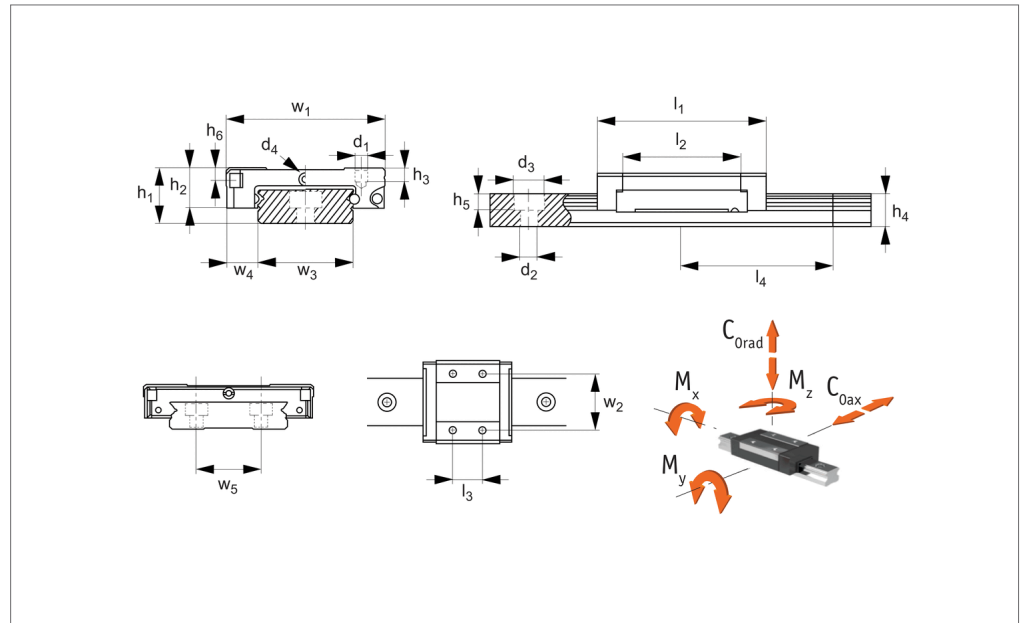
Other rail lengths on request.

Weight: 2,8 Kg/m.

Order No.	l_1	l_2	l_3	h_1	h_2	d_1	d_2	For screws	w_1	w_2	Weight kg
20161651	110	40	15	9.5	4.5	4.5	8	M4	42	23	0.308
20161668	150	40	15	9.5	4.5	4.5	8	M4	42	23	0.42
20161675	190	40	15	9.5	4.5	4.5	8	M4	42	23	0.532
20161682	230	40	15	9.5	4.5	4.5	8	M4	42	23	0.644
20161699	270	40	15	9.5	4.5	4.5	8	M4	42	23	0.756
20161705	310	40	15	9.5	4.5	4.5	8	M4	42	23	0.868
20159191	350	40	15	9.5	4.5	4.5	8	M4	42	23	0.98
20161712	390	40	15	9.5	4.5	4.5	8	M4	42	23	1.092
20161729	430	40	15	9.5	4.5	4.5	8	M4	42	23	1.204
20161736	470	40	15	9.5	4.5	4.5	8	M4	42	23	1.316
20161743	510	40	15	9.5	4.5	4.5	8	M4	42	23	1.428
20161750	550	40	15	9.5	4.5	4.5	8	M4	42	23	1.54
20161767	590	40	15	9.5	4.5	4.5	8	M4	42	23	1.652
20161774	630	40	15	9.5	4.5	4.5	8	M4	42	23	1.764
20161781	670	40	15	9.5	4.5	4.5	8	M4	42	23	1.876
20161798	710	40	15	9.5	4.5	4.5	8	M4	42	23	1.988
20161804	750	40	15	9.5	4.5	4.5	8	M4	42	23	2.1
20161811	790	40	15	9.5	4.5	4.5	8	M4	42	23	2.212
20161828	830	40	15	9.5	4.5	4.5	8	M4	42	23	2.324
20161835	870	40	15	9.5	4.5	4.5	8	M4	42	23	2.436
20161842	910	40	15	9.5	4.5	4.5	8	M4	42	23	2.548
20161859	950	40	15	9.5	4.5	4.5	8	M4	42	23	2.66
20161866	990	40	15	9.5	4.5	4.5	8	M4	42	23	2.772



EL1012.C



Material

Corrosion resistant stainless steel body (440C), with hardened stainless steel ball bearings.
Black plastic end plates and ball bearing retainers.

Technical Notes

Max. speed 3 m/s. max. acceleration 40m/s².

s².

Temperature range -40°C to +80°C.
Select the size and number of carriages to suit the required load then select the required rail length, (see part nos. EL1012.10 through to EL1012.42).

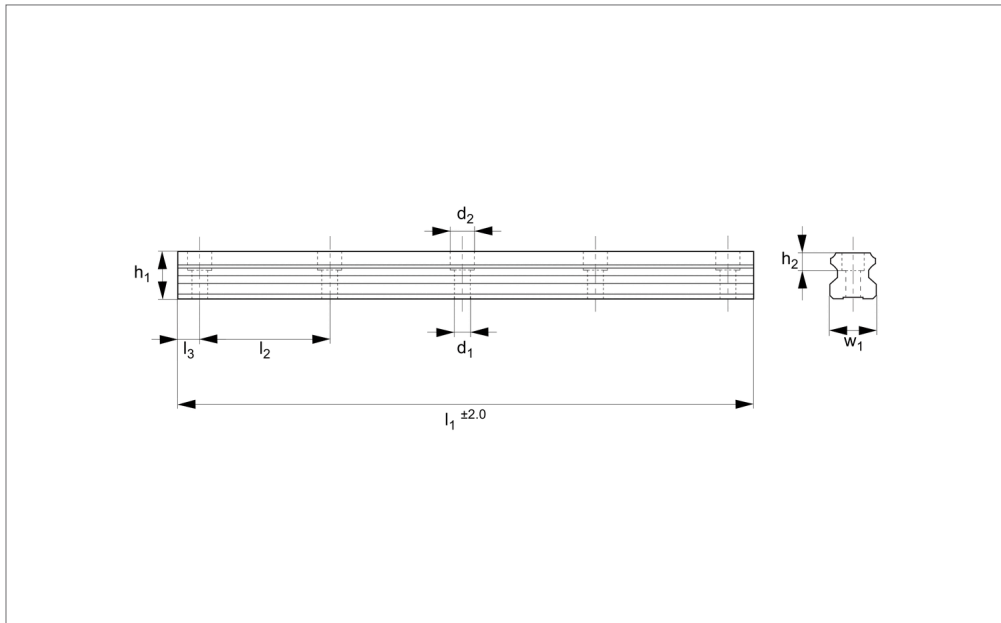
Tips

Carriages are supplied with a dummy

(plastic) rail. When mounting carriages onto rail, slide directly from the dummy rail onto the steel rail. Do not simply remove the carriage from the dummy rail - the balls will become loose making the carriage unusable.

Order No.	For rail	l_1	l_2	l_3	l_4	h_1	h_2	h_3	h_4	h_5	h_6	d_1	d_2	d_3	d_4	Static load $C_{0rad \& ax}$	Weight g
20159153	10	21.1	15.1	6.5	20	6.5	5.0	1.5	4	1.6	2.3	M2,5	3.0	5.5	0.9	900	8
20159160	10	27.2	21.2	11	20	6.5	5.0	1.5	4	1.6	2.3	M2,5	3.0	5.5	0.9	1315	19
20158460	14	31.6	21.2	10	30	9	7.0	3	5.2	3.5	3.2	M3	3.5	6	1.1	2095	27
20158477	14	40.5	30.1	19	30	9	7.0	3	5.2	3.5	3.2	M3	3.5	6	1.1	3140	37
20158378	18	39.1	27.9	12	30	12	8.6	3.0	7.3	4.5	4.0	M3	3.5	6	1.3	3605	37
20158453	18	50.7	39.5	24	30	12	8.6	3.0	7.3	4.5	4.0	M3	3.5	6	1.3	4990	57
20158385	24	44.4	31.0	15	40	14	10.1	3.5	8.5	4.5	4.5	M3	4.5	8	1.3	5200	65
20158415	24	59.4	46.0	28	40	14	10.1	3.5	8.5	4.5	4.5	M3	4.5	8	1.3	7800	93
20158392	42	55.3	38.5	20	40	16	12.0	4.5	9.5	4.5	4.5	M4	4.5	8	1.8	8385	137
20158484	42	74.4	57.6	35	40	16	12.0	4.5	9.5	4.5	4.5	M4	4.5	8	1.8	12580	200

Order No.	w_1	w_2	w_3	w_4	w_5	Dyn. load $C_{rad \& ax}$	M_x	M_y	M_z
						N	Nm	Nm	Nm
20159153	17	13	10	3.5	-	475	4.6	2.2	2.2
20159160	17	13	10	3.5	-	615	6.8	4.1	4.1
20158460	25	19	14	5.5	-	1180	15	7.3	7.3
20158477	25	19	14	5.5	-	1570	22.6	14.9	14.9
20158378	30	21	18	6	-	2030	33.2	13.7	13.7
20158453	30	23	18	6	-	2550	45.9	26.7	26.7
20158385	40	28	24	8	-	3065	63.7	26.3	26.3
20158415	40	28	24	8	-	4070	95.6	56.4	56.4
20158392	60	45	42	9	23	5065	171.7	45.7	45.7
20158484	60	45	42	9	23	6725	257	93.1	93.1



EL1016.15

Material

Hardened and ground steel (typically 60 HRC).

part nos. EL1016.F (flanged) and EL1016.U (unflanged).

Other rail lengths on request.

Weight: 1,4 Kg/m.

Tips

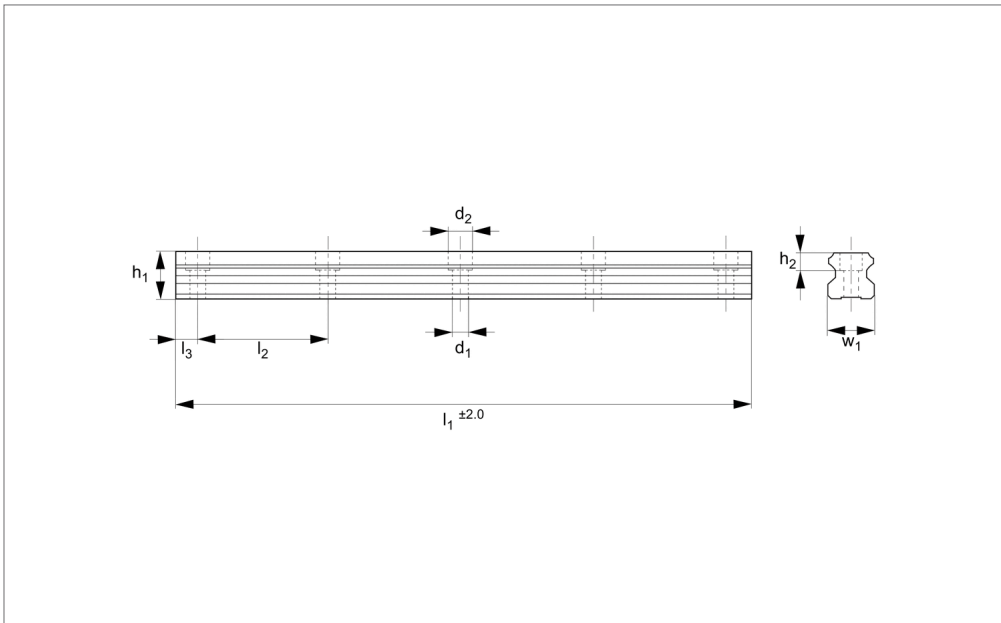
Plastic screw covers issued with the rails to protect screw holes from debris.

Technical Notes

For carriages to suit the required load see

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	d_2	For screws	Weight kg
20162481	15	220	13.0	60	15	20	6.0	4.5	7.5	M4	0.31
20162498	15	280	13.0	60	15	20	6.0	4.5	7.5	M4	0.39
20162504	15	340	13.0	60	15	20	6.0	4.5	7.5	M4	0.48
20162511	15	400	13.0	60	15	20	6.0	4.5	7.5	M4	0.56
20162528	15	460	13.0	60	15	20	6.0	4.5	7.5	M4	0.64
20162535	15	520	13.0	60	15	20	6.0	4.5	7.5	M4	0.73
20162542	15	580	13.0	60	15	20	6.0	4.5	7.5	M4	0.81
20162559	15	640	13.0	60	15	20	6.0	4.5	7.5	M4	0.90
20162566	15	700	13.0	60	15	20	6.0	4.5	7.5	M4	0.98
20162573	15	760	13.0	60	15	20	6.0	4.5	7.5	M4	1.06
20162580	15	820	13.0	60	15	20	6.0	4.5	7.5	M4	1.15
20162597	15	880	13.0	60	15	20	6.0	4.5	7.5	M4	1.23
20162603	15	940	13.0	60	15	20	6.0	4.5	7.5	M4	1.32
20162610	15	1000	13.0	60	15	20	6.0	4.5	7.5	M4	1.40
20162627	15	1060	13.0	60	15	20	6.0	4.5	7.5	M4	1.48
20165970	15	1120	13.0	60	15	20	6.0	4.5	7.5	M4	1.57
20162634	15	1180	13.0	60	15	20	6.0	4.5	7.5	M4	1.65
20162641	15	1240	13.0	60	15	20	6.0	4.5	7.5	M4	1.74
20162658	15	1300	13.0	60	15	20	6.0	4.5	7.5	M4	1.82
20162665	15	1360	13.0	60	15	20	6.0	4.5	7.5	M4	1.90
20162672	15	1420	13.0	60	15	20	6.0	4.5	7.5	M4	1.99
20162689	15	1480	13.0	60	15	20	6.0	4.5	7.5	M4	2.07
20162696	15	1540	13.0	60	15	20	6.0	4.5	7.5	M4	2.16
20162702	15	1600	13.0	60	15	20	6.0	4.5	7.5	M4	2.24
20162719	15	1660	13.0	60	15	20	6.0	4.5	7.5	M4	2.32
20162726	15	1720	13.0	60	15	20	6.0	4.5	7.5	M4	2.41
20162733	15	1780	13.0	60	15	20	6.0	4.5	7.5	M4	2.49
20162740	15	1840	13.0	60	15	20	6.0	4.5	7.5	M4	2.58
20162757	15	1900	13.0	60	15	20	6.0	4.5	7.5	M4	2.66
20162764	15	1960	13.0	60	15	20	6.0	4.5	7.5	M4	2.74
20162771	15	2020	13.0	60	15	20	6.0	4.5	7.5	M4	2.83
20162788	15	2080	13.0	60	15	20	6.0	4.5	7.5	M4	2.91

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	d_2	For screws	Weight kg
20162795	15	2140	13.0	60	15	20	6.0	4.5	7.5	M4	3.00
20162801	15	2220	13.0	60	15	20	6.0	4.5	7.5	M4	3.08
20162818	15	2260	13.0	60	15	20	6.0	4.5	7.5	M4	3.16
20162825	15	2320	13.0	60	15	20	6.0	4.5	7.5	M4	3.25
20162832	15	2380	13.0	60	15	20	6.0	4.5	7.5	M4	3.33
20162849	15	2440	13.0	60	15	20	6.0	4.5	7.5	M4	3.42
20162856	15	2500	13.0	60	15	20	6.0	4.5	7.5	M4	3.50
20162863	15	2560	13.0	60	15	20	6.0	4.5	7.5	M4	3.58
20162870	15	2620	13.0	60	15	20	6.0	4.5	7.5	M4	3.67
20162887	15	2680	13.0	60	15	20	6.0	4.5	7.5	M4	3.75
20162894	15	2740	13.0	60	15	20	6.0	4.5	7.5	M4	3.84
20162900	15	2800	13.0	60	15	20	6.0	4.5	7.5	M4	3.92
20162917	15	2860	13.0	60	15	20	6.0	4.5	7.5	M4	4.00
20162924	15	2920	13.0	60	15	20	6.0	4.5	7.5	M4	4.09
20162931	15	2980	13.0	60	15	20	6.0	4.5	7.5	M4	4.17
20162948	15	3040	13.0	60	15	20	6.0	4.5	7.5	M4	4.26
20162955	15	3100	13.0	60	15	20	6.0	4.5	7.5	M4	4.34
20162962	15	3160	13.0	60	15	20	6.0	4.5	7.5	M4	4.42
20162979	15	3220	13.0	60	15	20	6.0	4.5	7.5	M4	4.51
20162986	15	3280	13.0	60	15	20	6.0	4.5	7.5	M4	4.59
20162993	15	3340	13.0	60	15	20	6.0	4.5	7.5	M4	4.68
20163006	15	3400	13.0	60	15	20	6.0	4.5	7.5	M4	4.76
20165987	15	3460	13.0	60	15	20	6.0	4.5	7.5	M4	4.84
20163013	15	3520	13.0	60	15	20	6.0	4.5	7.5	M4	4.93
20163020	15	3580	13.0	60	15	20	6.0	4.5	7.5	M4	5.01
20163037	15	3640	13.0	60	15	20	6.0	4.5	7.5	M4	5.10
20163044	15	3700	13.0	60	15	20	6.0	4.5	7.5	M4	5.18
20163051	15	3760	13.0	60	15	20	6.0	4.5	7.5	M4	5.26
20163068	15	3820	13.0	60	15	20	6.0	4.5	7.5	M4	5.35
20163075	15	3880	13.0	60	15	20	6.0	4.5	7.5	M4	5.43
20163082	15	3940	13.0	60	15	20	6.0	4.5	7.5	M4	5.52
20163099	15	4000	13.0	60	15	20	6.0	4.5	7.5	M4	5.60



EL1016.20

Material

Hardened and ground steel (typically 60 HRC).

Technical Notes

For carriages to suit the required load see

part nos. EL1016.F (flanged) and EL1016.U (unflanged).

Other rail lengths on request.

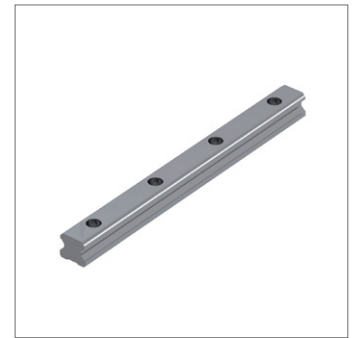
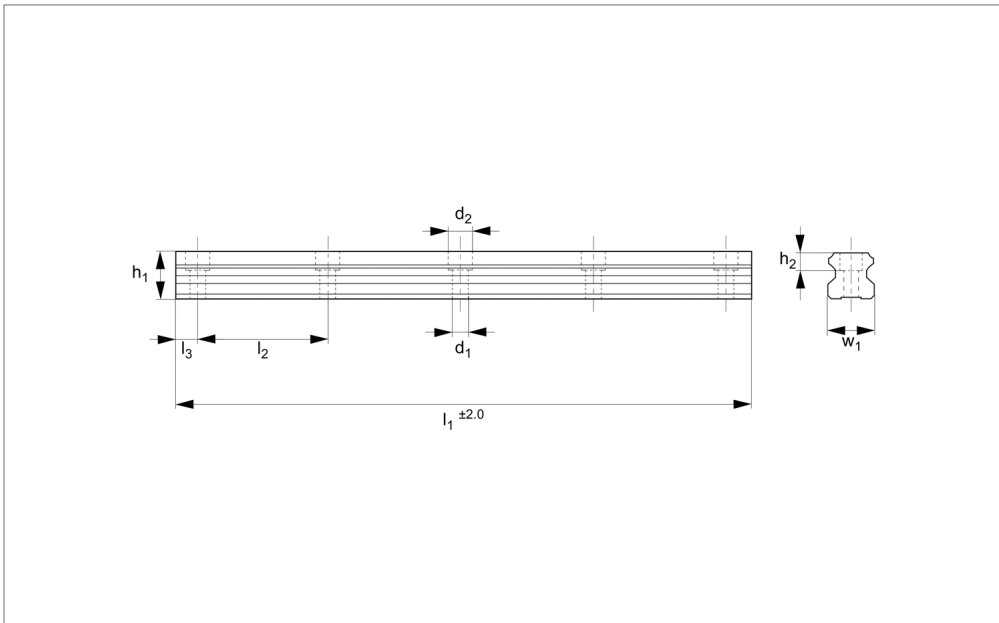
Weight: 2,6 Kg/m.

Tips

Plastic screw covers issued with the rails to protect the holes from debris.

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	d_2	For screws	Weight kg
20163105	20	160	16.3	60	20	20	8.5	6	9.5	M5	0.42
20163112	20	220	16.3	60	20	20	8.5	6	9.5	M5	0.57
20163129	20	280	16.3	60	20	20	8.5	6	9.5	M5	0.73
20163136	20	340	16.3	60	20	20	8.5	6	9.5	M5	0.88
20163143	20	400	16.3	60	20	20	8.5	6	9.5	M5	1.04
20163150	20	460	16.3	60	20	20	8.5	6	9.5	M5	1.20
20163167	20	520	16.3	60	20	20	8.5	6	9.5	M5	1.35
20163174	20	580	16.3	60	20	20	8.5	6	9.5	M5	1.51
20163181	20	640	16.3	60	20	20	8.5	6	9.5	M5	1.66
20163198	20	700	16.3	60	20	20	8.5	6	9.5	M5	1.82
20163204	20	760	16.3	60	20	20	8.5	6	9.5	M5	1.98
20163211	20	820	16.3	60	20	20	8.5	6	9.5	M5	2.13
20163228	20	880	16.3	60	20	20	8.5	6	9.5	M5	2.29
20163235	20	940	16.3	60	20	20	8.5	6	9.5	M5	2.44
20163242	20	1000	16.3	60	20	20	8.5	6	9.5	M5	2.60
20163259	20	1060	16.3	60	20	20	8.5	6	9.5	M5	2.76
20163266	20	1120	16.3	60	20	20	8.5	6	9.5	M5	2.91
20163273	20	1180	16.3	60	20	20	8.5	6	9.5	M5	3.07
20163280	20	1240	16.3	60	20	20	8.5	6	9.5	M5	3.22
20163297	20	1300	16.3	60	20	20	8.5	6	9.5	M5	3.38
20163303	20	1360	16.3	60	20	20	8.5	6	9.5	M5	3.54
20163310	20	1420	16.3	60	20	20	8.5	6	9.5	M5	3.69
20163327	20	1480	16.3	60	20	20	8.5	6	9.5	M5	3.85
20163334	20	1540	16.3	60	20	20	8.5	6	9.5	M5	4.00
20163341	20	1600	16.3	60	20	20	8.5	6	9.5	M5	4.16
20163358	20	1660	16.3	60	20	20	8.5	6	9.5	M5	4.32
20163365	20	1720	16.3	60	20	20	8.5	6	9.5	M5	4.47
20163372	20	1780	16.3	60	20	20	8.5	6	9.5	M5	4.63
20163389	20	1840	16.3	60	20	20	8.5	6	9.5	M5	4.78
20163396	20	1900	16.3	60	20	20	8.5	6	9.5	M5	4.94
20163402	20	1960	16.3	60	20	20	8.5	6	9.5	M5	5.10
20163419	20	2020	16.3	60	20	20	8.5	6	9.5	M5	5.25

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	d_2	For screws	Weight kg
20163426	20	2080	16.3	60	20	20	8.5	6	9.5	M5	5.41
20163433	20	2140	16.3	60	20	20	8.5	6	9.5	M5	5.56
20163440	20	2200	16.3	60	20	20	8.5	6	9.5	M5	5.72
20163457	20	2260	16.3	60	20	20	8.5	6	9.5	M5	5.88
20163464	20	2320	16.3	60	20	20	8.5	6	9.5	M5	6.03
20163471	20	2380	16.3	60	20	20	8.5	6	9.5	M5	6.19
20163488	20	2440	16.3	60	20	20	8.5	6	9.5	M5	6.34
20163495	20	2500	16.3	60	20	20	8.5	6	9.5	M5	6.50
20163501	20	2560	16.3	60	20	20	8.5	6	9.5	M5	6.66
20163518	20	2620	16.3	60	20	20	8.5	6	9.5	M5	6.81
20163525	20	2680	16.3	60	20	20	8.5	6	9.5	M5	6.97
20163532	20	2740	16.3	60	20	20	8.5	6	9.5	M5	7.12
20163549	20	2800	16.3	60	20	20	8.5	6	9.5	M5	7.28
20163556	20	2860	16.3	60	20	20	8.5	6	9.5	M5	7.44
20163563	20	2920	16.3	60	20	20	8.5	6	9.5	M5	7.59
20163570	20	2980	16.3	60	20	20	8.5	6	9.5	M5	7.75
20163587	20	3040	16.3	60	20	20	8.5	6	9.5	M5	7.90
20163594	20	3100	16.3	60	20	20	8.5	6	9.5	M5	8.06
20163600	20	3160	16.3	60	20	20	8.5	6	9.5	M5	8.22
20163617	20	3220	16.3	60	20	20	8.5	6	9.5	M5	8.37
20163624	20	3280	16.3	60	20	20	8.5	6	9.5	M5	8.53
20163631	20	3340	16.3	60	20	20	8.5	6	9.5	M5	8.68
20163648	20	3400	16.3	60	20	20	8.5	6	9.5	M5	8.84
20163655	20	3460	16.3	60	20	20	8.5	6	9.5	M5	9.00
20163662	20	3520	16.3	60	20	20	8.5	6	9.5	M5	9.15
20163679	20	3580	16.3	60	20	20	8.5	6	9.5	M5	9.31
20163686	20	3640	16.3	60	20	20	8.5	6	9.5	M5	9.46
20163693	20	3700	16.3	60	20	20	8.5	6	9.5	M5	9.62
20163709	20	3760	16.3	60	20	20	8.5	6	9.5	M5	9.78
20163716	20	3820	16.3	60	20	20	8.5	6	9.5	M5	9.93
20163723	20	3880	16.3	60	20	20	8.5	6	9.5	M5	10.09
20163730	20	3940	16.3	60	20	20	8.5	6	9.5	M5	10.24
20163747	20	4000	16.3	60	20	20	8.5	6	9.5	M5	10.40



EL1016.25

Material

Hardened and ground steel (typically 60 HRC).

part nos. EL1016.F (flanged) and EL1016.U (unflanged).

Other rail lengths on request.

Weight: 3,6 Kg/m.

Tips

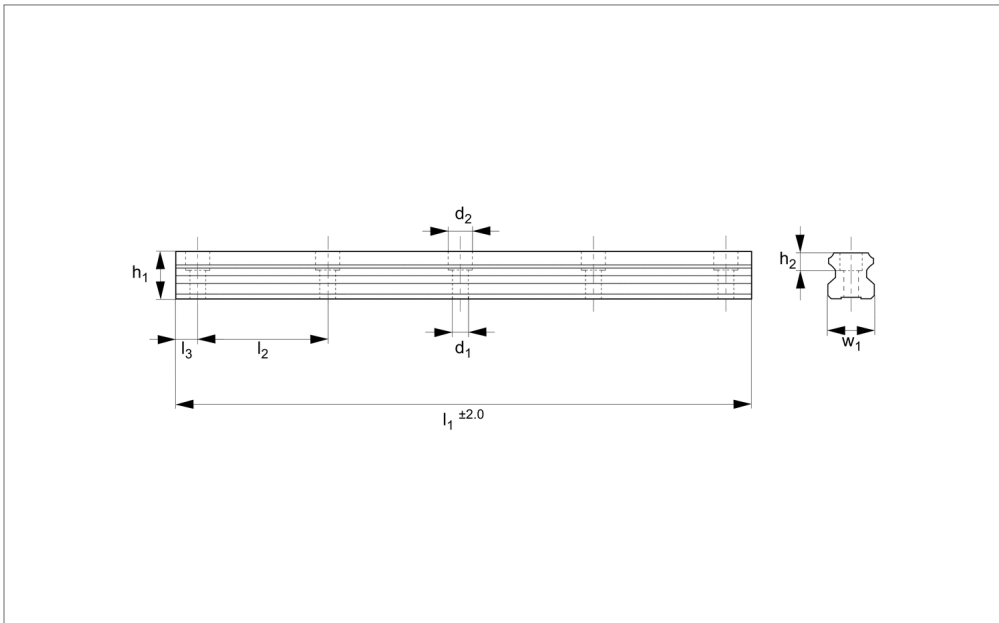
Plastic screw covers issued with the rails to protect the holes from debris.

Technical Notes

For carriages to suit the required load see

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	d_2	For screws	Weight kg
20163754	25	160	19.2	60	23	20	9	7	11	M6	0.58
20163761	25	220	19.2	60	23	20	9	7	11	M6	0.79
20163778	25	280	19.2	60	23	20	9	7	11	M6	1.01
20163785	25	340	19.2	60	23	20	9	7	11	M6	1.22
20163792	25	400	19.2	60	23	20	9	7	11	M6	1.44
20163808	25	460	19.2	60	23	20	9	7	11	M6	1.66
20163815	25	520	19.2	60	23	20	9	7	11	M6	1.87
20163822	25	580	19.2	60	23	20	9	7	11	M6	2.09
20163839	25	640	19.2	60	23	20	9	7	11	M6	2.30
20163846	25	700	19.2	60	23	20	9	7	11	M6	2.52
20163853	25	760	19.2	60	23	20	9	7	11	M6	2.74
20163860	25	820	19.2	60	23	20	9	7	11	M6	2.95
20163877	25	880	19.2	60	23	20	9	7	11	M6	3.17
20163884	25	940	19.2	60	23	20	9	7	11	M6	3.38
20163891	25	1000	19.2	60	23	20	9	7	11	M6	3.60
20163907	25	1060	19.2	60	23	20	9	7	11	M6	3.82
20165994	25	1120	19.2	60	23	20	9	7	11	M6	4.03
20163914	25	1180	19.2	60	23	20	9	7	11	M6	4.25
20163921	25	1240	19.2	60	23	20	9	7	11	M6	4.46
20163938	25	1300	19.2	60	23	20	9	7	11	M6	4.68
20163945	25	1360	19.2	60	23	20	9	7	11	M6	4.90
20163952	25	1420	19.2	60	23	20	9	7	11	M6	5.11
20163969	25	1480	19.2	60	23	20	9	7	11	M6	5.33
20163976	25	1540	19.2	60	23	20	9	7	11	M6	5.54
20163983	25	1600	19.2	60	23	20	9	7	11	M6	5.76
20163990	25	1660	19.2	60	23	20	9	7	11	M6	5.98
20164003	25	1720	19.2	60	23	20	9	7	11	M6	6.19
20164010	25	1780	19.2	60	23	20	9	7	11	M6	6.41
20164027	25	1840	19.2	60	23	20	9	7	11	M6	6.62
20164034	25	1900	19.2	60	23	20	9	7	11	M6	6.84
20164041	25	1960	19.2	60	23	20	9	7	11	M6	7.06
20166007	25	2020	19.2	60	23	20	9	7	11	M6	7.27

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	d_2	For screws	Weight kg
20164058	25	2080	19.2	60	23	20	9	7	11	M6	7.49
20164065	25	2140	19.2	60	23	20	9	7	11	M6	7.70
20164072	25	2200	19.2	60	23	20	9	7	11	M6	7.92
20164089	25	2260	19.2	60	23	20	9	7	11	M6	8.14
20164096	25	2320	19.2	60	23	20	9	7	11	M6	8.35
20164102	25	2380	19.2	60	23	20	9	7	11	M6	8.57
20164119	25	2440	19.2	60	23	20	9	7	11	M6	8.78
20164126	25	2500	19.2	60	23	20	9	7	11	M6	9.00
20164133	25	2560	19.2	60	23	20	9	7	11	M6	9.22
20164140	25	2620	19.2	60	23	20	9	7	11	M6	9.43
20164157	25	2680	19.2	60	23	20	9	7	11	M6	9.65
20164164	25	2740	19.2	60	23	20	9	7	11	M6	9.86
20164171	25	2800	19.2	60	23	20	9	7	11	M6	10.08
20164188	25	2860	19.2	60	23	20	9	7	11	M6	10.30
20164195	25	2920	19.2	60	23	20	9	7	11	M6	10.51
20164201	25	2980	19.2	60	23	20	9	7	11	M6	10.73
20164218	25	3040	19.2	60	23	20	9	7	11	M6	10.94
20164225	25	3100	19.2	60	23	20	9	7	11	M6	11.16
20164232	25	3160	19.2	60	23	20	9	7	11	M6	11.38
20164249	25	3220	19.2	60	23	20	9	7	11	M6	11.59
20164256	25	3280	19.2	60	23	20	9	7	11	M6	11.81
20164263	25	3340	19.2	60	23	20	9	7	11	M6	12.02
20164270	25	3400	19.2	60	23	20	9	7	11	M6	12.24
20166014	25	3460	19.2	60	23	20	9	7	11	M6	12.46
20164287	25	3520	19.2	60	23	20	9	7	11	M6	12.67
20164294	25	3580	19.2	60	23	20	9	7	11	M6	12.89
20164300	25	3640	19.2	60	23	20	9	7	11	M6	13.10
20164317	25	3700	19.2	60	23	20	9	7	11	M6	13.32
20164324	25	3760	19.2	60	23	20	9	7	11	M6	13.54
20164331	25	3820	19.2	60	23	20	9	7	11	M6	13.75
20164348	25	3880	19.2	60	23	20	9	7	11	M6	13.97
20164355	25	3940	19.2	60	23	20	9	7	11	M6	14.18
20159221	25	4000	19.2	60	23	20	9	7	11	M6	14.40



EL1016.30

Material

Hardened and ground steel (typically 60 HRC).

part nos. EL1016.F (flanged) and EL1016.U (unflanged).

Other rail lengths on request.

Weight: 5,2 Kg/m.

Tips

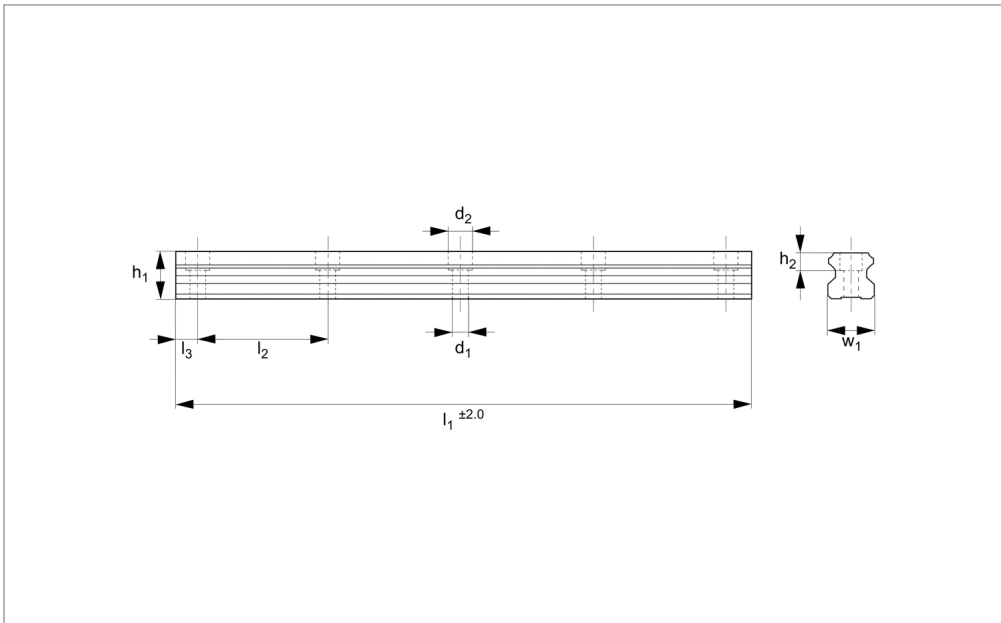
Plastic screw covers issued with the rails to protect the holes from debris.

Technical Notes

For carriages to suit the required load see

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	d_2	For screws	Weight kg
20164362	30	200	22.8	80	28	20	12	9	14	M8	1.04
20164379	30	280	22.8	80	28	20	12	9	14	M8	1.46
20164386	30	360	22.8	80	28	20	12	9	14	M8	1.87
20164393	30	440	22.8	80	28	20	12	9	14	M8	2.29
20164409	30	520	22.8	80	28	20	12	9	14	M8	2.70
20162474	30	600	22.8	80	28	20	12	9	14	M8	3.12
20164416	30	680	22.8	80	28	20	12	9	14	M8	3.54
20164423	30	760	22.8	80	28	20	12	9	14	M8	3.95
20164430	30	840	22.8	80	28	20	12	9	14	M8	4.37
20164447	30	920	22.8	80	28	20	12	9	14	M8	4.78
20164454	30	1000	22.8	80	28	20	12	9	14	M8	5.20
20164461	30	1080	22.8	80	28	20	12	9	14	M8	5.62
20164478	30	1160	22.8	80	28	20	12	9	14	M8	6.03
20164485	30	1240	22.8	80	28	20	12	9	14	M8	6.45
20164492	30	1320	22.8	80	28	20	12	9	14	M8	6.86
20164508	30	1400	22.8	80	28	20	12	9	14	M8	7.28
20164515	30	1480	22.8	80	28	20	12	9	14	M8	7.70
20164522	30	1560	22.8	80	28	20	12	9	14	M8	8.11
20164539	30	1640	22.8	80	28	20	12	9	14	M8	8.53
20164546	30	1720	22.8	80	28	20	12	9	14	M8	8.94
20164553	30	1800	22.8	80	28	20	12	9	14	M8	9.36
20164560	30	1880	22.8	80	28	20	12	9	14	M8	9.78
20164577	30	1960	22.8	80	28	20	12	9	14	M8	10.19
20164584	30	2040	22.8	80	28	20	12	9	14	M8	10.61
20164591	30	2120	22.8	80	28	20	12	9	14	M8	11.02
20164607	30	2200	22.8	80	28	20	12	9	14	M8	11.44
20164614	30	2280	22.8	80	28	20	12	9	14	M8	11.86
20164621	30	2360	22.8	80	28	20	12	9	14	M8	12.27
20164638	30	2440	22.8	80	28	20	12	9	14	M8	12.69
20164645	30	2520	22.8	80	28	20	12	9	14	M8	13.10
20164652	30	2600	22.8	80	28	20	12	9	14	M8	13.52
20164669	30	2680	22.8	80	28	20	12	9	14	M8	13.94

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	d_2	For screws	Weight kg
20164676	30	2760	22.8	80	28	20	12	9	14	M8	14.35
20164683	30	2840	22.8	80	28	20	12	9	14	M8	14.77
20164690	30	2920	22.8	80	28	20	12	9	14	M8	15.18
20164706	30	3000	22.8	80	28	20	12	9	14	M8	15.60
20164713	30	3080	22.8	80	28	20	12	9	14	M8	16.02
20164720	30	3160	22.8	80	28	20	12	9	14	M8	16.43
20164737	30	3240	22.8	80	28	20	12	9	14	M8	16.85
20164744	30	3320	22.8	80	28	20	12	9	14	M8	17.26
20164751	30	3400	22.8	80	28	20	12	9	14	M8	17.68
20164768	30	3480	22.8	80	28	20	12	9	14	M8	18.10
20164775	30	3560	22.8	80	28	20	12	9	14	M8	18.51
20164782	30	3640	22.8	80	28	20	12	9	14	M8	18.93
20164799	30	3720	22.8	80	28	20	12	9	14	M8	19.34
20164805	30	3800	22.8	80	28	20	12	9	14	M8	19.76
20164812	30	3880	22.8	80	28	20	12	9	14	M8	20.18
20164829	30	3960	22.8	80	28	20	12	9	14	M8	20.59
20159207	30	4000	22.8	80	28	20	12	9	14	M8	20.80



EL1016.35

Material

Hardened and ground steel (typically 60 HRC).

part nos. EL1016.F (flanged) and EL1016.U (unflanged).

Other rail lengths on request.

Weight: 7,2 Kg/m.

Tips

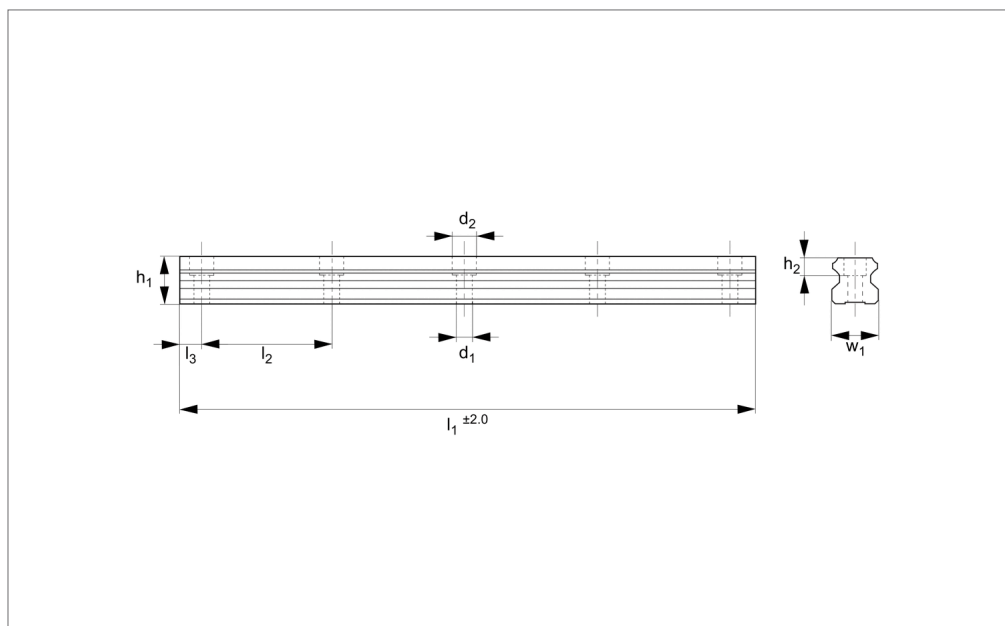
Plastic screw covers issued with the rails to protect the holes from debris.

Technical Notes

For carriages to suit the required load see

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	d_2	For screws	Weight kg
20164836	35	200	26.0	80	34	20	12	9	14	M8	1.44
20164843	35	280	26.0	80	34	20	12	9	14	M8	2.02
20164850	35	360	26.0	80	34	20	12	9	14	M8	2.59
20164867	35	440	26.0	80	34	20	12	9	14	M8	3.17
20164874	35	520	26.0	80	34	20	12	9	14	M8	3.74
20164881	35	600	26.0	80	34	20	12	9	14	M8	4.32
20164898	35	680	26.0	80	34	20	12	9	14	M8	4.90
20164904	35	760	26.0	80	34	20	12	9	14	M8	5.47
20164911	35	840	26.0	80	34	20	12	9	14	M8	6.05
20164928	35	920	26.0	80	34	20	12	9	14	M8	6.62
20164935	35	1000	26.0	80	34	20	12	9	14	M8	7.20
20164942	35	1080	26.0	80	34	20	12	9	14	M8	7.78
20164959	35	1160	26.0	80	34	20	12	9	14	M8	8.35
20164966	35	1240	26.0	80	34	20	12	9	14	M8	8.93
20164973	35	1320	26.0	80	34	20	12	9	14	M8	9.50
20164980	35	1400	26.0	80	34	20	12	9	14	M8	10.08
20164997	35	1480	26.0	80	34	20	12	9	14	M8	10.66
20165000	35	1560	26.0	80	34	20	12	9	14	M8	11.23
20165017	35	1640	26.0	80	34	20	12	9	14	M8	11.81
20165024	35	1720	26.0	80	34	20	12	9	14	M8	12.38
20165031	35	1800	26.0	80	34	20	12	9	14	M8	12.96
20165048	35	1880	26.0	80	34	20	12	9	14	M8	13.54
20165055	35	1960	26.0	80	34	20	12	9	14	M8	14.11
20165062	35	2040	26.0	80	34	20	12	9	14	M8	14.69
20165079	35	2120	26.0	80	34	20	12	9	14	M8	15.26
20165086	35	2200	26.0	80	34	20	12	9	14	M8	15.84
20165093	35	2280	26.0	80	34	20	12	9	14	M8	16.42
20165109	35	2360	26.0	80	34	20	12	9	14	M8	16.99
20165116	35	2440	26.0	80	34	20	12	9	14	M8	17.57
20165123	35	2520	26.0	80	34	20	12	9	14	M8	18.14
20165130	35	2600	26.0	80	34	20	12	9	14	M8	18.72
20165147	35	2680	26.0	80	34	20	12	9	14	M8	19.30

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	d_2	For screws	Weight kg
20165154	35	2760	26.0	80	34	20	12	9	14	M8	19.87
20165161	35	2840	26.0	80	34	20	12	9	14	M8	20.45
20165178	35	2920	26.0	80	34	20	12	9	14	M8	21.02
20165185	35	3000	26.0	80	34	20	12	9	14	M8	21.60
20165192	35	3080	26.0	80	34	20	12	9	14	M8	22.18
20165208	35	3160	26.0	80	34	20	12	9	14	M8	22.75
20165215	35	3240	26.0	80	34	20	12	9	14	M8	23.33
20165222	35	3320	26.0	80	34	20	12	9	14	M8	23.90
20165239	35	3400	26.0	80	34	20	12	9	14	M8	24.48
20165246	35	3480	26.0	80	34	20	12	9	14	M8	25.06
20165253	35	3560	26.0	80	34	20	12	9	14	M8	25.63
20165260	35	3640	26.0	80	34	20	12	9	14	M8	26.21
20165277	35	3720	26.0	80	34	20	12	9	14	M8	26.78
20165284	35	3800	26.0	80	34	20	12	9	14	M8	27.36
20165291	35	3880	26.0	80	34	20	12	9	14	M8	27.94
20165307	35	3960	26.0	80	34	20	12	9	14	M8	28.51
20159214	35	4000	26.0	80	34	20	12	9	14	M8	28.80



EL1016.45

Material

Hardened and ground steel (typically 60 HRC).

Technical Notes

For carriages to suit the required load see

part nos. EL1016.F (flanged) and EL1016.U (unflanged).

Other rail lengths on request.

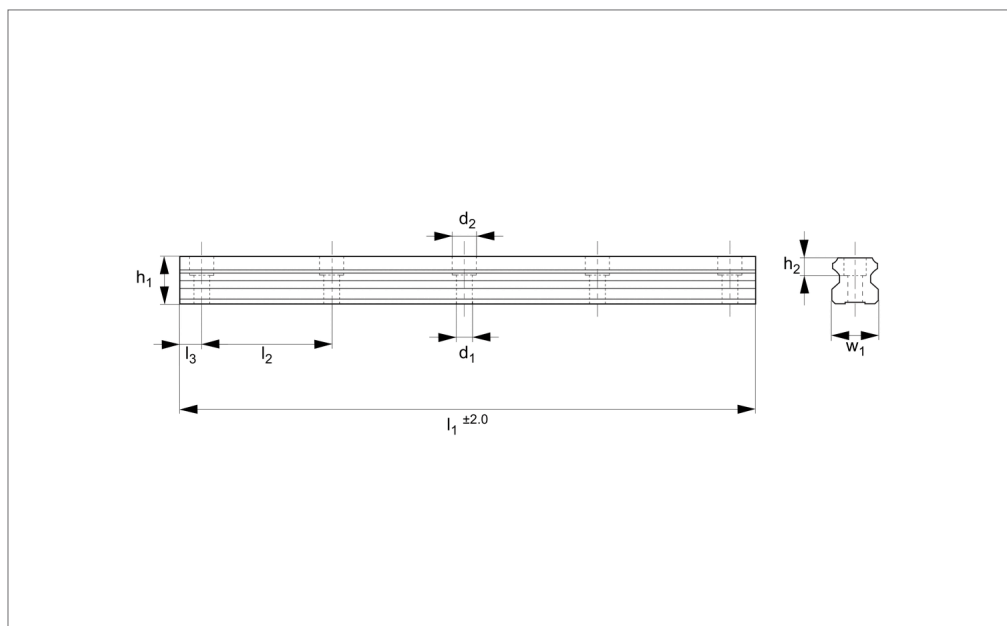
Weight: 12,3 Kg/m.

Tips

Plastic screw covers issued with the rails to protect the holes from debris.

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	d_2	For screws	Weight kg
20165314	45	255	31.1	105	45	22.5	17	14	20	M12	3.14
20165321	45	360	31.1	105	45	22.5	17	14	20	M12	4.43
20165338	45	465	31.1	105	45	22.5	17	14	20	M12	5.72
20165345	45	570	31.1	105	45	22.5	17	14	20	M12	7.01
20165352	45	675	31.1	105	45	22.5	17	14	20	M12	8.30
20165369	45	780	31.1	105	45	22.5	17	14	20	M12	9.59
20165376	45	885	31.1	105	45	22.5	17	14	20	M12	10.89
20165383	45	990	31.1	105	45	22.5	17	14	20	M12	12.18
20165390	45	1095	31.1	105	45	22.5	17	14	20	M12	13.47
20165406	45	1200	31.1	105	45	22.5	17	14	20	M12	14.76
20165413	45	1305	31.1	105	45	22.5	17	14	20	M12	16.05
20165420	45	1410	31.1	105	45	22.5	17	14	20	M12	17.34
20165437	45	1515	31.1	105	45	22.5	17	14	20	M12	18.63
20165444	45	1620	31.1	105	45	22.5	17	14	20	M12	19.93
20165451	45	1725	31.1	105	45	22.5	17	14	20	M12	21.22
20165468	45	1830	31.1	105	45	22.5	17	14	20	M12	22.51
20165475	45	1935	31.1	105	45	22.5	17	14	20	M12	23.80
20165482	45	2040	31.1	105	45	22.5	17	14	20	M12	25.09
20165499	45	2145	31.1	105	45	22.5	17	14	20	M12	26.38
20165505	45	2250	31.1	105	45	22.5	17	14	20	M12	27.68
20165512	45	2355	31.1	105	45	22.5	17	14	20	M12	28.97
20165529	45	2460	31.1	105	45	22.5	17	14	20	M12	30.26
20165536	45	2565	31.1	105	45	22.5	17	14	20	M12	31.55
20165543	45	2670	31.1	105	45	22.5	17	14	20	M12	32.84
20165550	45	2880	31.1	105	45	22.5	17	14	20	M12	35.42
20165567	45	2985	31.1	105	45	22.5	17	14	20	M12	36.72
20165574	45	3090	31.1	105	45	22.5	17	14	20	M12	38.01
20165581	45	3195	31.1	105	45	22.5	17	14	20	M12	39.30
20165598	45	3300	31.1	105	45	22.5	17	14	20	M12	40.59
20165604	45	3405	31.1	105	45	22.5	17	14	20	M12	41.88
20165611	45	3510	31.1	105	45	22.5	17	14	20	M12	43.17
20165628	45	3615	31.1	105	45	22.5	17	14	20	M12	44.46

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	d_2	For screws	Weight kg
20165635	45	3720	31.1	105	45	22.5	17	14	20	M12	45.76
20165642	45	3825	31.1	105	45	22.5	17	14	20	M12	47.05
20165659	45	3930	31.1	105	45	22.5	17	14	20	M12	48.34
20159238	45	4000	31.1	105	45	22.5	17	14	20	M12	49.20



EL1016.55

Material

Hardened and ground steel (typically 60 HRC).

part nos. EL1016.F (flanged) and EL1016.U (unflanged).

Other rail lengths on request.

Weight: 14,5 Kg/m.

Tips

Plastic screw covers issued with the rails to protect the holes from debris.

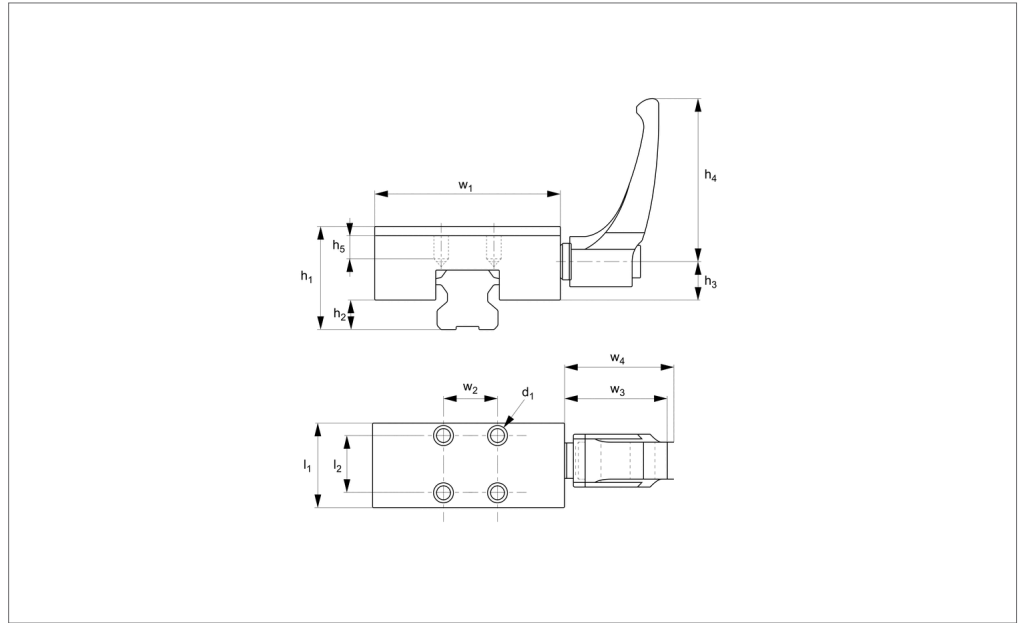
Technical Notes

For carriages to suit the required load see

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	d_2	For screws	Weight kg
20165666	55	300	38.0	120	53	30	20	16	23	M14	4.35
20165673	55	420	38.0	120	53	30	20	16	23	M14	6.09
20165680	55	540	38.0	120	53	30	20	16	23	M14	7.83
20165697	55	660	38.0	120	53	30	20	16	23	M14	9.57
20165703	55	780	38.0	120	53	30	20	16	23	M14	11.31
20165710	55	900	38.0	120	53	30	20	16	23	M14	13.05
20165727	55	1020	38.0	120	53	30	20	16	23	M14	14.79
20165734	55	1140	38.0	120	53	30	20	16	23	M14	16.53
20165741	55	1260	38.0	120	53	30	20	16	23	M14	18.27
20165758	55	1380	38.0	120	53	30	20	16	23	M14	20.01
20165765	55	1500	38.0	120	53	30	20	16	23	M14	21.75
20165772	55	1620	38.0	120	53	30	20	16	23	M14	23.49
20165789	55	1740	38.0	120	53	30	20	16	23	M14	25.23
20165796	55	1860	38.0	120	53	30	20	16	23	M14	26.97
20165802	55	1980	38.0	120	53	30	20	16	23	M14	28.71
20165819	55	2100	38.0	120	53	30	20	16	23	M14	30.45
20165826	55	2220	38.0	120	53	30	20	16	23	M14	32.19
20165833	55	2340	38.0	120	53	30	20	16	23	M14	33.93
20165840	55	2460	38.0	120	53	30	20	16	23	M14	35.67
20165857	55	2580	38.0	120	53	30	20	16	23	M14	37.41
20165864	55	2700	38.0	120	53	30	20	16	23	M14	39.15
20165871	55	2820	38.0	120	53	30	20	16	23	M14	40.89
20165888	55	2940	38.0	120	53	30	20	16	23	M14	42.63
20165895	55	3060	38.0	120	53	30	20	16	23	M14	44.37
20165901	55	3180	38.0	120	53	30	20	16	23	M14	46.11
20165918	55	3300	38.0	120	53	30	20	16	23	M14	47.85
20165925	55	3420	38.0	120	53	30	20	16	23	M14	49.59
20165932	55	3540	38.0	120	53	30	20	16	23	M14	51.33
20165949	55	3660	38.0	120	53	30	20	16	23	M14	53.07
20165956	55	3780	38.0	120	53	30	20	16	23	M14	54.81
20165963	55	3900	38.0	120	53	30	20	16	23	M14	56.55
20174002	55	4000	38.0	120	53	30	20	16	23	M14	58.00



EL1016.CL



Material

Aluminium body, steel contact faces.

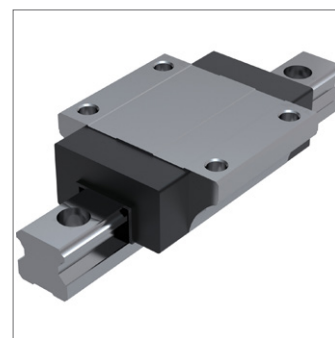
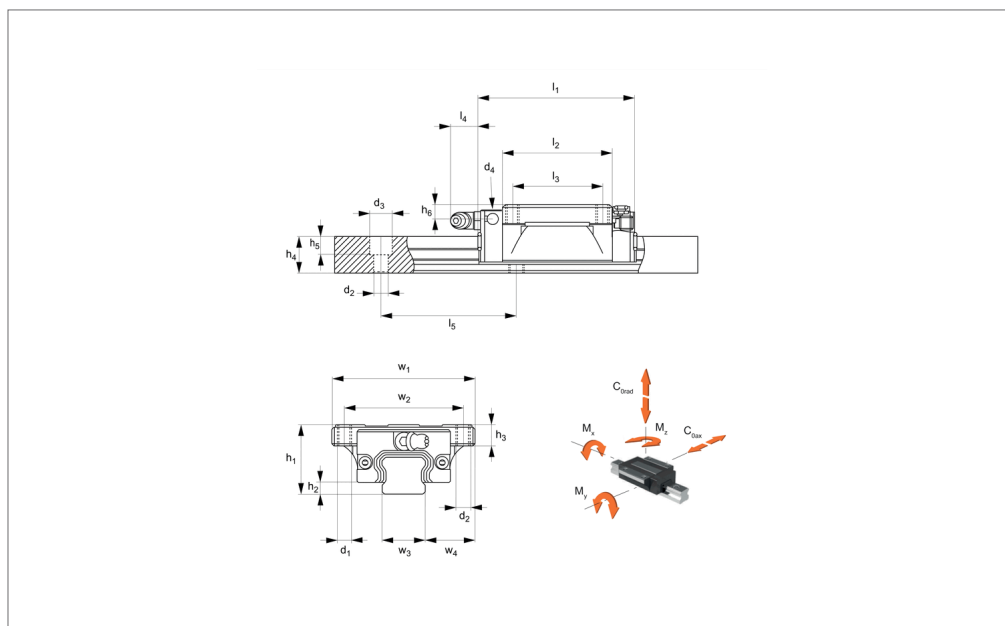
Technical Notes

The manual rail clamps are used in

conjunction with the rail carriages EL1016.F and EL1016.U (flanged and unflanged). By adjusting the clamping lever, the contact sections are pressed into

contact with the rail, clamping the carriage in place.

Order No.	For rail	h_1	l_1	w_1	h_2	h_3	h_4	l_2	w_2	w_3	w_4	d_1	Holding force N	Torque to Nm
20175719	15	24	25	47	4.5	12.5	44	17	17	30.5	33.5	M 4	1200	5
20175818	15	28	25	47	4.5	12.5	44	17	17	30.5	33.5	M 4	1200	5
20175795	20	28	24	60	8.0	13.0	63	15	15	38.5	41.5	M 5	1200	7
20175863	20	30	24	60	8.0	13.0	63	15	15	38.5	41.5	M 5	1200	7
20175764	25	33	30	70	9.0	15.0	63	20	20	38.5	41.5	M 6	1200	7
20175788	25	36	30	70	9.0	15.0	63	20	20	38.5	41.5	M 6	1200	7
20175948	25	40	30	70	9.0	15.0	63	20	20	38.5	41.5	M 6	1200	7
20175726	30	42	39	90	12.0	21.5	78	22	22	46.5	50.5	M 6	2000	15
20175771	35	48	39	100	13.0	21.5	78	24	24	46.5	50.5	M 8	2000	15
20175955	45	60	44	120	12.0	26.5	78	26	26	46.5	50.5	M10	2000	15
20175801	55	70	49	140	17.0	31.0	95	30	30	56.5	61.5	M14	2000	22



EL1016.F

Material

Hardened and ground steel.

Technical Notes

Select the size and number of carriages to suit the required load then select the

required rail length, (see part nos. EL1016.15 through to EL1016.55). Standard preload carriages are K_0 (no preload) or K_1 (0,02 x dynamic load capacity). Other preloads available on request.

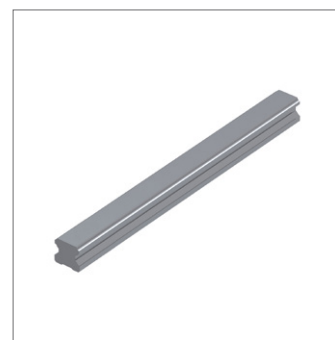
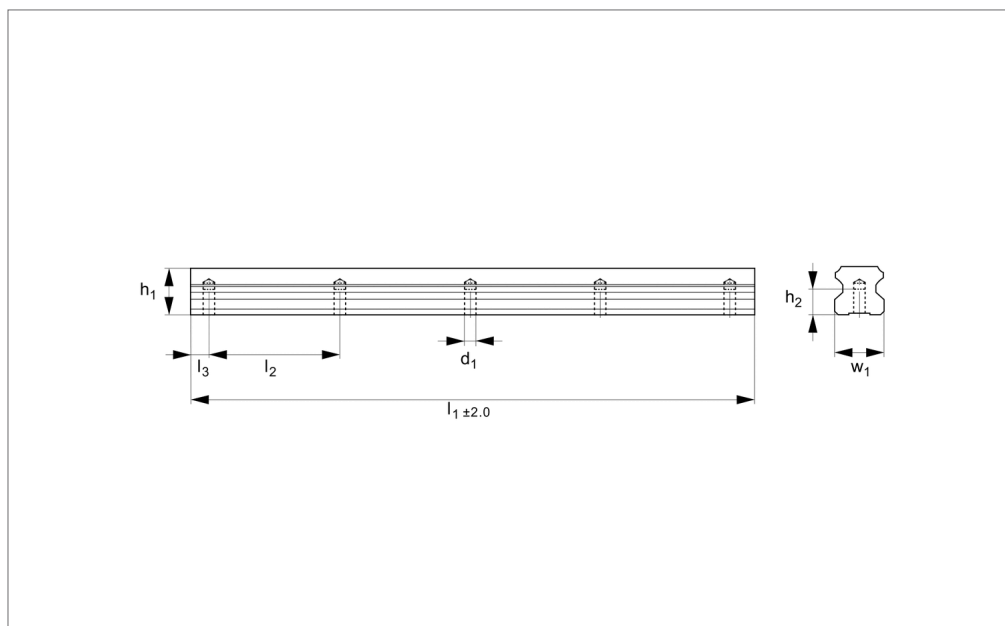
Tips

Improved version with ball cages allowing the carriages to be removed from the rail without the balls falling out.

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	h_3	h_4	d_1	h_5	d_2	h_6	w_2	w_3	w_4	l_4	Weight kg
20158637	15	58.6	24	40.2	47	30	3.4	7.5	13.0	M5	5.5	4.4	5.5	38	15	16.0	5.7	0.21
20158767	15	66.1	24	47.7	47	30	3.4	7.5	13.0	M5	5.5	4.4	5.5	38	15	16.0	5.7	0.23
20158644	20	70.1	30	48.5	63	40	4.5	9.0	16.3	M6	8.5	5.4	7.1	53	20	21.5	12.3	0.40
20158651	20	82.9	30	61.3	63	40	4.5	9.0	16.3	M6	8.5	5.4	7.1	53	20	21.5	12.3	0.46
20158668	25	79.2	36	57.5	70	45	5.8	10.1	19.2	M8	9.0	6.8	10.2	57	23	23.5	12.2	0.57
20158774	25	93.9	36	72.2	70	45	5.8	10.1	19.2	M8	9.0	6.8	10.2	57	23	23.5	12.2	0.72
20158675	25	108.6	36	86.9	70	45	5.8	10.1	19.2	M8	9.0	6.8	10.2	57	23	23.5	12.2	0.89
20158682	30	94.8	42	67.8	90	52	7.0	12.0	22.8	M10	12.0	8.6	10.0	72	28	31.0	11.7	1.10
20158781	30	105.0	42	78.0	90	52	7.0	12.0	22.8	M10	12.0	8.6	10.0	72	28	31.0	11.7	1.34
20158699	30	130.5	42	103.5	90	52	7.0	12.0	22.8	M10	12.0	8.6	10.0	72	28	31.0	11.7	1.66
20158705	35	111.5	48	80.5	100	62	7.5	14.0	26.0	M10	12.0	8.6	11.5	82	34	33.0	11.5	1.50
20158798	35	123.5	48	92.5	100	62	7.5	14.0	26.0	M10	12.0	8.6	11.5	82	34	33.0	11.5	1.90
20158712	35	153.5	48	122.5	100	62	7.5	14.0	26.0	M10	12.0	8.6	11.5	82	34	33.0	11.5	2.54
20158729	45	129.0	60	94.0	120	80	8.9	16.0	31.1	M12	17.0	10.6	14.4	100	45	37.5	10.8	2.27
20158804	45	145.0	60	110.0	120	80	8.9	16.0	31.1	M12	17.0	10.6	14.4	100	45	37.5	10.8	2.68
20158736	45	174.0	60	139.0	120	80	8.9	16.0	31.1	M12	17.0	10.6	14.4	100	45	37.5	10.8	3.42
20158743	55	155.0	70	116.0	140	95	12.7	19.0	38.0	M14	20.0	12.6	14.0	116	53	43.5	10.8	3.44
20158811	55	193.0	70	154.0	140	95	12.7	19.0	38.0	M14	20.0	12.6	14.0	116	53	43.5	10.8	4.63
20158750	55	210.0	70	171.0	140	95	12.7	19.0	38.0	M14	20.0	12.6	14.0	116	53	43.5	10.8	5.16

Order No.	l_5	d_3	d_4	M_x Nm	M_y Nm	M_z Nm	Dyn. load $C_{rad \& ax}$ kN	Static load $C_{Orad \& ax}$ kN
20158637	60	7.5	M3 x 0,5	137	120	120	11.67	19.90
20158767	60	7.5	M3 x 0,5	166	171	171	14.12	24.05
20158644	60	9.5	M6 x 1,0	289	224	224	17.98	30.96
20158651	60	9.5	M6 x 1,0	376	366	366	23.30	40.11
20158668	60	11.0	M6 x 1,0	447	358	358	25.25	41.73
20158774	60	11.0	M6 x 1,0	576	577	577	32.44	53.63
20158675	60	11.0	M6 x 1,0	691	833	833	36.58	64.30
20158682	80	14.0	M6 x 1,0	719	560	560	37.33	55.50
20158781	80	14.0	M6 x 1,0	931	836	836	48.35	71.88
20158699	80	14.0	M6 x 1,0	1142	1361	1361	53.83	88.18

Order No.	l_5	d_3	d_4	M_x Nm	M_y Nm	M_z Nm	Dyn. load $C_{rad \& ax}$ kN	Static load $C_{Orad \& ax}$ kN
20158705	80	14.0	M6 x 1,0	1307	991	991	53.31	82.66
20158798	80	14.0	M6 x 1,0	1633	1424	1424	66.61	103.29
20158712	80	14.0	M6 x 1,0	2020	2330	2330	73.29	127.68
20158729	105	20.0	M8 x 1,25	2353	1559	1559	73.14	111.30
20158804	105	20.0	M8 x 1,25	2798	2170	2170	86.99	132.39
20158736	105	20.0	M8 x 1,25	3527	3455	3455	100.52	166.87
20158743	120	23.0	M8 x 1,25	3385	2361	2361	88.26	136.62
20158811	120	23.0	M8 x 1,25	4538	4202	4202	119.10	183.14
20158750	120	23.0	M8 x 1,25	6430	6617	6617	161.43	259.71



EL1016.RF15

Material

Hardened and ground steel (typically 60 HRC).

part nos. EL1016.F (flanged) and EL1016.U (unflanged).

Other rail lengths on request.

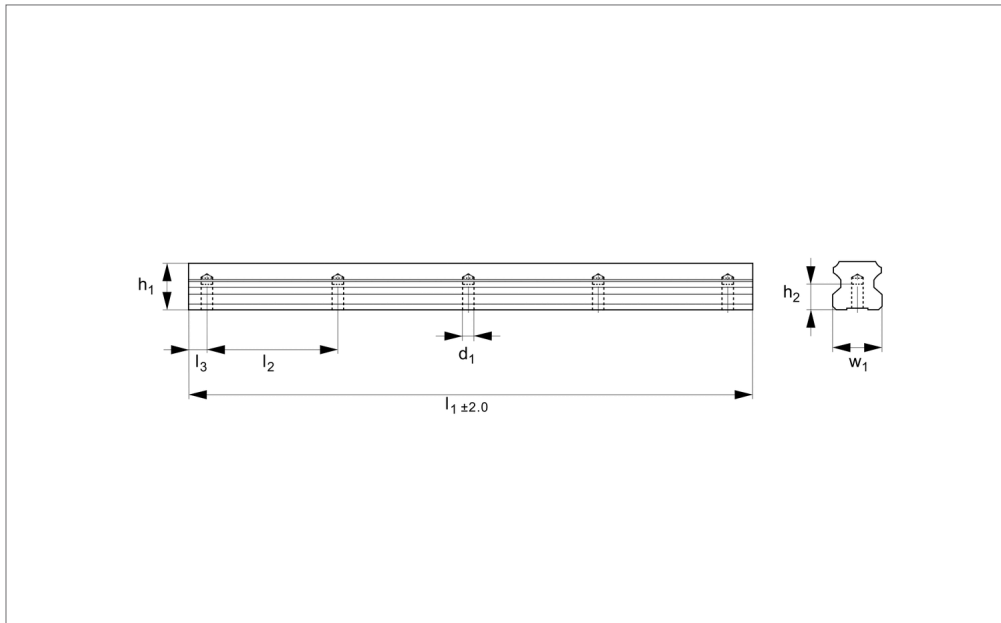
Weight: 1,4 Kg/m.

Technical Notes

For carriages to suit the required load see

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	Weight kg
20166021	15	160	13.0	60	15	20	8	M5	0.22
20166038	15	220	13.0	60	15	20	8	M5	0.31
20166045	15	280	13.0	60	15	20	8	M5	0.39
20166052	15	340	13.0	60	15	20	8	M5	0.48
20166069	15	400	13.0	60	15	20	8	M5	0.56
20166076	15	460	13.0	60	15	20	8	M5	0.64
20166083	15	520	13.0	60	15	20	8	M5	0.73
20166090	15	580	13.0	60	15	20	8	M5	0.81
20166106	15	640	13.0	60	15	20	8	M5	0.90
20166113	15	700	13.0	60	15	20	8	M5	0.98
20166120	15	760	13.0	60	15	20	8	M5	1.06
20166137	15	820	13.0	60	15	20	8	M5	1.15
20166144	15	880	13.0	60	15	20	8	M5	1.23
20166151	15	940	13.0	60	15	20	8	M5	1.32
20166168	15	1000	13.0	60	15	20	8	M5	1.40
20166175	15	1060	13.0	60	15	20	8	M5	1.48
20166182	15	1120	13.0	60	15	20	8	M5	1.57
20166199	15	1180	13.0	60	15	20	8	M5	1.65
20166205	15	1240	13.0	60	15	20	8	M5	1.74
20166212	15	1300	13.0	60	15	20	8	M5	1.82
20166229	15	1360	13.0	60	15	20	8	M5	1.90
20166236	15	1420	13.0	60	15	20	8	M5	1.99
20166243	15	1480	13.0	60	15	20	8	M5	2.07
20166250	15	1540	13.0	60	15	20	8	M5	2.16
20166267	15	1600	13.0	60	15	20	8	M5	2.24
20166274	15	1660	13.0	60	15	20	8	M5	2.32
20166281	15	1720	13.0	60	15	20	8	M5	2.41
20166298	15	1780	13.0	60	15	20	8	M5	2.49
20166304	15	1840	13.0	60	15	20	8	M5	2.58
20166311	15	1900	13.0	60	15	20	8	M5	2.66
20166328	15	1960	13.0	60	15	20	8	M5	2.74
20166335	15	2020	13.0	60	15	20	8	M5	2.83

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	Weight kg
20166342	15	2080	13.0	60	15	20	8	M5	2.91
20166359	15	2140	13.0	60	15	20	8	M5	3.00
20166366	15	2220	13.0	60	15	20	8	M5	3.08
20166373	15	2260	13.0	60	15	20	8	M5	3.16
20166380	15	2320	13.0	60	15	20	8	M5	3.25
20166397	15	2380	13.0	60	15	20	8	M5	3.33
20166403	15	2440	13.0	60	15	20	8	M5	3.42
20166410	15	2500	13.0	60	15	20	8	M5	3.50
20166427	15	2560	13.0	60	15	20	8	M5	3.58
20166434	15	2620	13.0	60	15	20	8	M5	3.67
20166441	15	2680	13.0	60	15	20	8	M5	3.75
20166458	15	2740	13.0	60	15	20	8	M5	3.84
20166465	15	2800	13.0	60	15	20	8	M5	3.92
20166472	15	2860	13.0	60	15	20	8	M5	4.00
20166489	15	2920	13.0	60	15	20	8	M5	4.09
20166496	15	2980	13.0	60	15	20	8	M5	4.17
20166502	15	3040	13.0	60	15	20	8	M5	4.26
20166519	15	3100	13.0	60	15	20	8	M5	4.34
20166526	15	3160	13.0	60	15	20	8	M5	4.42
20166533	15	3220	13.0	60	15	20	8	M5	4.51
20166540	15	3280	13.0	60	15	20	8	M5	4.59
20166557	15	3340	13.0	60	15	20	8	M5	4.68
20166564	15	3400	13.0	60	15	20	8	M5	4.76
20166571	15	3460	13.0	60	15	20	8	M5	4.84
20166588	15	3520	13.0	60	15	20	8	M5	4.93
20166595	15	3580	13.0	60	15	20	8	M5	5.01
20166601	15	3640	13.0	60	15	20	8	M5	5.10
20166618	15	3700	13.0	60	15	20	8	M5	5.18
20166625	15	3760	13.0	60	15	20	8	M5	5.26
20166632	15	3820	13.0	60	15	20	8	M5	5.35
20166649	15	3880	13.0	60	15	20	8	M5	5.43
20166656	15	3940	13.0	60	15	20	8	M5	5.52
20166663	15	4000	13.0	60	15	20	8	M5	5.60



EL1016.RF20

Material

Hardened and ground steel (typically 60 HRC).

part nos. EL1016.F (flanged) and EL1016.U (unflanged).

Other rail lengths on request.

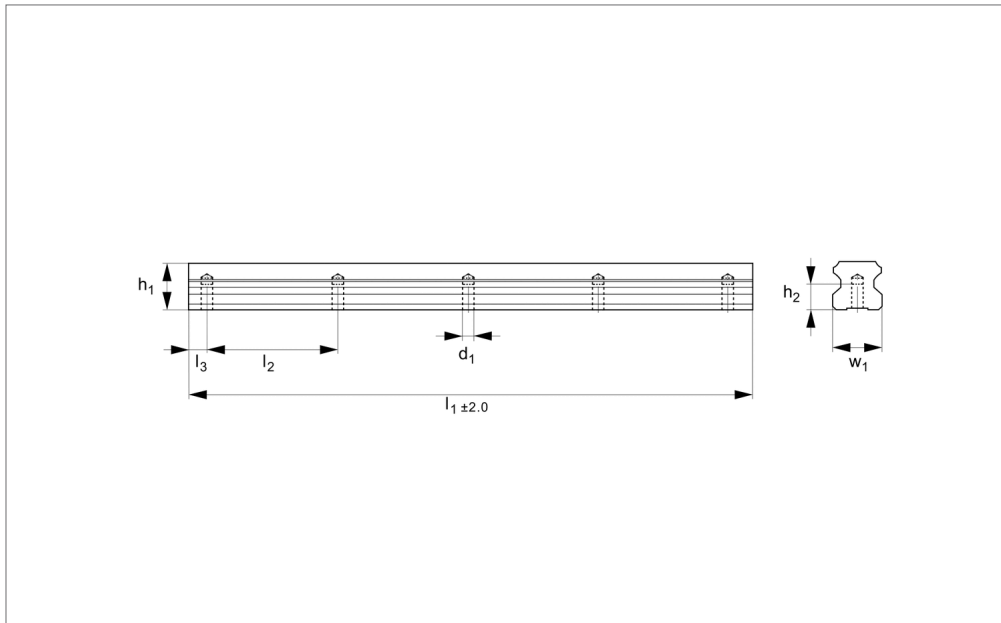
Weight: 2,6 Kg/m.

Technical Notes

For carriages to suit the required load see

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	Weight kg
20166670	20	160	16.3	60	20	20	10	M6	0.42
20166687	20	220	16.3	60	20	20	10	M6	0.57
20166694	20	280	16.3	60	20	20	10	M6	0.73
20166700	20	340	16.3	60	20	20	10	M6	0.88
20166717	20	400	16.3	60	20	20	10	M6	1.04
20166724	20	460	16.3	60	20	20	10	M6	1.20
20166731	20	520	16.3	60	20	20	10	M6	1.35
20166748	20	580	16.3	60	20	20	10	M6	1.51
20166755	20	640	16.3	60	20	20	10	M6	1.66
20166762	20	700	16.3	60	20	20	10	M6	1.82
20166779	20	760	16.3	60	20	20	10	M6	1.98
20166786	20	820	16.3	60	20	20	10	M6	2.13
20166793	20	880	16.3	60	20	20	10	M6	2.29
20166809	20	940	16.3	60	20	20	10	M6	2.44
20166816	20	1000	16.3	60	20	20	10	M6	2.60
20166823	20	1060	16.3	60	20	20	10	M6	2.76
20166830	20	1120	16.3	60	20	20	10	M6	2.91
20166847	20	1180	16.3	60	20	20	10	M6	3.07
20166854	20	1240	16.3	60	20	20	10	M6	3.22
20166861	20	1300	16.3	60	20	20	10	M6	3.38
20166878	20	1360	16.3	60	20	20	10	M6	3.54
20166885	20	1420	16.3	60	20	20	10	M6	3.69
20166892	20	1480	16.3	60	20	20	10	M6	3.85
20166908	20	1540	16.3	60	20	20	10	M6	4.00
20166915	20	1600	16.3	60	20	20	10	M6	4.16
20166922	20	1660	16.3	60	20	20	10	M6	4.32
20166939	20	1720	16.3	60	20	20	10	M6	4.47
20166946	20	1780	16.3	60	20	20	10	M6	4.63
20166953	20	1840	16.3	60	20	20	10	M6	4.78
20166960	20	1900	16.3	60	20	20	10	M6	4.94
20166977	20	1960	16.3	60	20	20	10	M6	5.10
20166984	20	2020	16.3	60	20	20	10	M6	5.25

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	Weight kg
20166991	20	2080	16.3	60	20	20	10	M6	5.41
20167004	20	2140	16.3	60	20	20	10	M6	5.56
20167011	20	2200	16.3	60	20	20	10	M6	5.72
20167028	20	2260	16.3	60	20	20	10	M6	5.88
20167035	20	2320	16.3	60	20	20	10	M6	6.03
20167042	20	2380	16.3	60	20	20	10	M6	6.19
20167059	20	2440	16.3	60	20	20	10	M6	6.34
20167066	20	2500	16.3	60	20	20	10	M6	6.50
20167073	20	2560	16.3	60	20	20	10	M6	6.66
20167080	20	2620	16.3	60	20	20	10	M6	6.81
20167097	20	2680	16.3	60	20	20	10	M6	6.97
20167103	20	2740	16.3	60	20	20	10	M6	7.12
20167110	20	2800	16.3	60	20	20	10	M6	7.28
20167127	20	2860	16.3	60	20	20	10	M6	7.44
20167134	20	2920	16.3	60	20	20	10	M6	7.59
20167141	20	2980	16.3	60	20	20	10	M6	7.75
20167158	20	3040	16.3	60	20	20	10	M6	7.90
20167165	20	3100	16.3	60	20	20	10	M6	8.06
20167172	20	3160	16.3	60	20	20	10	M6	8.22
20167189	20	3220	16.3	60	20	20	10	M6	8.37
20167196	20	3280	16.3	60	20	20	10	M6	8.53
20167202	20	3340	16.3	60	20	20	10	M6	8.68
20167219	20	3400	16.3	60	20	20	10	M6	8.84
20167226	20	3460	16.3	60	20	20	10	M6	9.00
20167233	20	3520	16.3	60	20	20	10	M6	9.15
20167240	20	3580	16.3	60	20	20	10	M6	9.31
20167257	20	3640	16.3	60	20	20	10	M6	9.46
20167264	20	3700	16.3	60	20	20	10	M6	9.62
20167271	20	3760	16.3	60	20	20	10	M6	9.78
20167288	20	3820	16.3	60	20	20	10	M6	9.93
20167295	20	3880	16.3	60	20	20	10	M6	10.09
20167301	20	3940	16.3	60	20	20	10	M6	10.24
20167318	20	4000	16.3	60	20	20	10	M6	10.40



EL1016.RF25

Material

Hardened and ground steel (typically 60 HRC).

part nos. EL1016.F (flanged) and EL1016.U (unflanged).

Other rail lengths on request.

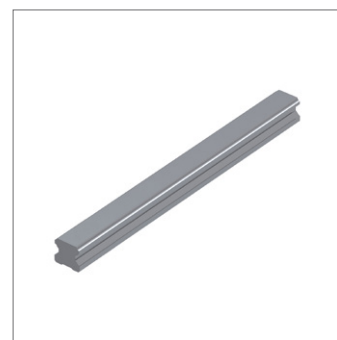
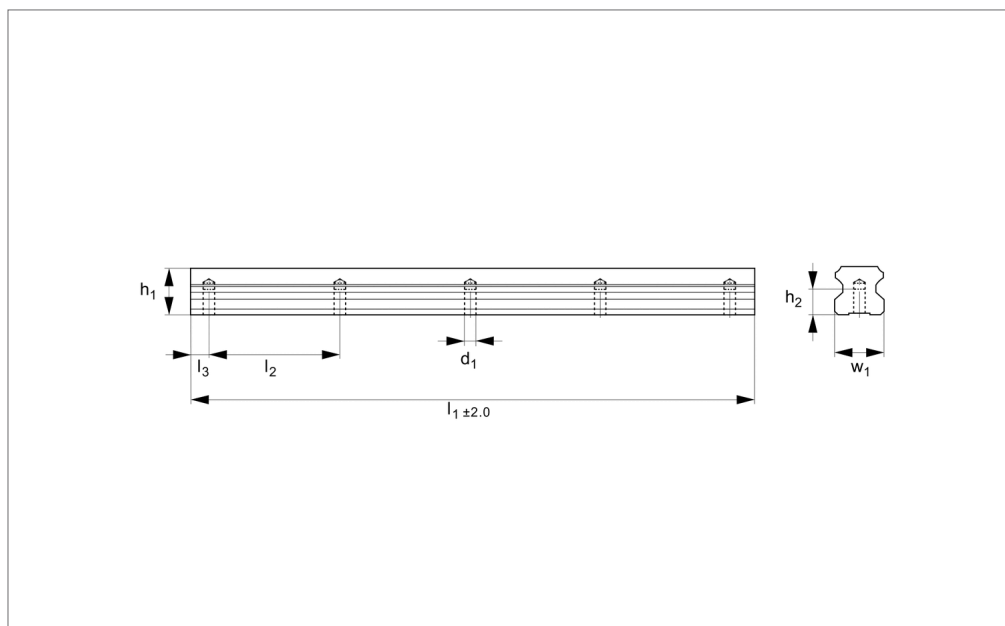
Weight: 3,6 Kg/m.

Technical Notes

For carriages to suit the required load see

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	Weight kg
20167325	25	160	19.2	60	23	20	12	M6	0.58
20167332	25	220	19.2	60	23	20	12	M6	0.79
20167349	25	280	19.2	60	23	20	12	M6	1.01
20167356	25	340	19.2	60	23	20	12	M6	1.22
20167363	25	400	19.2	60	23	20	12	M6	1.44
20167370	25	460	19.2	60	23	20	12	M6	1.66
20167387	25	520	19.2	60	23	20	12	M6	1.87
20167394	25	580	19.2	60	23	20	12	M6	2.09
20167400	25	640	19.2	60	23	20	12	M6	2.30
20167417	25	700	19.2	60	23	20	12	M6	2.52
20167424	25	760	19.2	60	23	20	12	M6	2.74
20167431	25	820	19.2	60	23	20	12	M6	2.95
20167448	25	880	19.2	60	23	20	12	M6	3.17
20167455	25	940	19.2	60	23	20	12	M6	3.38
20167462	25	1000	19.2	60	23	20	12	M6	3.60
20167479	25	1060	19.2	60	23	20	12	M6	3.82
20167486	25	1120	19.2	60	23	20	12	M6	4.03
20167493	25	1180	19.2	60	23	20	12	M6	4.25
20167509	25	1240	19.2	60	23	20	12	M6	4.46
20167516	25	1300	19.2	60	23	20	12	M6	4.68
20167523	25	1360	19.2	60	23	20	12	M6	4.90
20167530	25	1420	19.2	60	23	20	12	M6	5.11
20167547	25	1480	19.2	60	23	20	12	M6	5.33
20167554	25	1540	19.2	60	23	20	12	M6	5.54
20167561	25	1600	19.2	60	23	20	12	M6	5.76
20167578	25	1660	19.2	60	23	20	12	M6	5.98
20167585	25	1720	19.2	60	23	20	12	M6	6.19
20167592	25	1780	19.2	60	23	20	12	M6	6.41
20167608	25	1840	19.2	60	23	20	12	M6	6.62
20167615	25	1900	19.2	60	23	20	12	M6	6.84
20167622	25	1960	19.2	60	23	20	12	M6	7.06
20167639	25	2020	19.2	60	23	20	12	M6	7.27

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	Weight kg
20167646	25	2080	19.2	60	23	20	12	M6	7.49
20167653	25	2140	19.2	60	23	20	12	M6	7.70
20167660	25	2200	19.2	60	23	20	12	M6	7.92
20167677	25	2260	19.2	60	23	20	12	M6	8.14
20167684	25	2320	19.2	60	23	20	12	M6	8.35
20167691	25	2380	19.2	60	23	20	12	M6	8.57
20167707	25	2440	19.2	60	23	20	12	M6	8.78
20167714	25	2500	19.2	60	23	20	12	M6	9.00
20167721	25	2560	19.2	60	23	20	12	M6	9.22
20167738	25	2620	19.2	60	23	20	12	M6	9.43
20167745	25	2680	19.2	60	23	20	12	M6	9.65
20167752	25	2740	19.2	60	23	20	12	M6	9.86
20167769	25	2800	19.2	60	23	20	12	M6	10.08
20167776	25	2860	19.2	60	23	20	12	M6	10.30
20167783	25	2920	19.2	60	23	20	12	M6	10.51
20167790	25	2980	19.2	60	23	20	12	M6	10.73
20167806	25	3040	19.2	60	23	20	12	M6	10.94
20167813	25	3100	19.2	60	23	20	12	M6	11.16
20167820	25	3160	19.2	60	23	20	12	M6	11.38
20167837	25	3220	19.2	60	23	20	12	M6	11.59
20167844	25	3280	19.2	60	23	20	12	M6	11.81
20167851	25	3340	19.2	60	23	20	12	M6	12.02
20167868	25	3400	19.2	60	23	20	12	M6	12.24
20167875	25	3460	19.2	60	23	20	12	M6	12.46
20167882	25	3520	19.2	60	23	20	12	M6	12.67
20167899	25	3580	19.2	60	23	20	12	M6	12.89
20167905	25	3640	19.2	60	23	20	12	M6	13.10
20167912	25	3700	19.2	60	23	20	12	M6	13.32
20167929	25	3760	19.2	60	23	20	12	M6	13.54
20167936	25	3820	19.2	60	23	20	12	M6	13.75
20167943	25	3880	19.2	60	23	20	12	M6	13.97
20167950	25	3940	19.2	60	23	20	12	M6	14.18
20167967	25	4000	19.2	60	23	20	12	M6	14.40



EL1016.RF30

Material

Hardened and ground steel (typically 60 HRC).

part nos. EL1016.F (flanged) and EL1016.U (unflanged).

Other rail lengths on request.

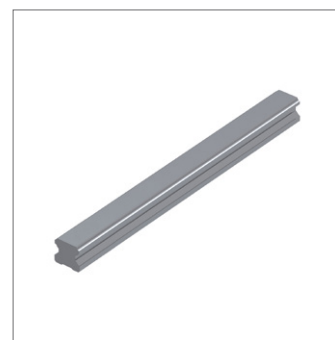
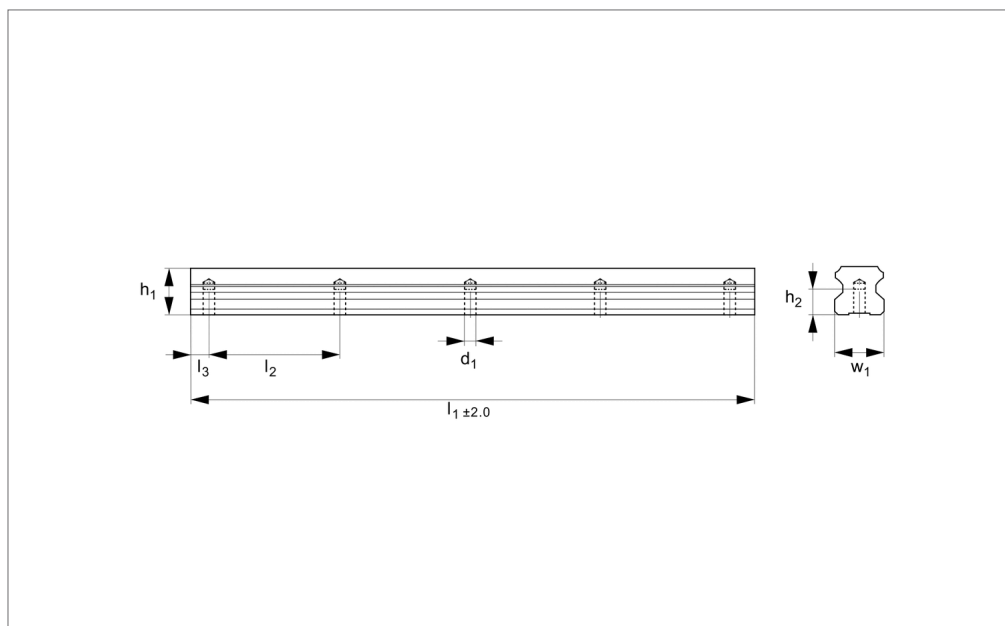
Weight: 5,2 Kg/m.

Technical Notes

For carriages to suit the required load see

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	Weight kg
20167974	30	200	22.8	80	28	20	15	M8	1.04
20167981	30	280	22.8	80	28	20	15	M8	1.46
20167998	30	360	22.8	80	28	20	15	M8	1.87
20168001	30	440	22.8	80	28	20	15	M8	2.29
20168018	30	520	22.8	80	28	20	15	M8	2.70
20168025	30	600	22.8	80	28	20	15	M8	3.12
20168032	30	680	22.8	80	28	20	15	M8	3.54
20168049	30	760	22.8	80	28	20	15	M8	3.95
20168056	30	840	22.8	80	28	20	15	M8	4.37
20168063	30	920	22.8	80	28	20	15	M8	4.78
20168070	30	1000	22.8	80	28	20	15	M8	5.20
20168087	30	1080	22.8	80	28	20	15	M8	5.62
20168094	30	1160	22.8	80	28	20	15	M8	6.03
20168100	30	1240	22.8	80	28	20	15	M8	6.45
20168117	30	1320	22.8	80	28	20	15	M8	6.86
20168124	30	1400	22.8	80	28	20	15	M8	7.28
20168131	30	1480	22.8	80	28	20	15	M8	7.70
20168148	30	1560	22.8	80	28	20	15	M8	8.11
20168155	30	1640	22.8	80	28	20	15	M8	8.53
20168162	30	1720	22.8	80	28	20	15	M8	8.94
20168179	30	1800	22.8	80	28	20	15	M8	9.36
20168186	30	1880	22.8	80	28	20	15	M8	9.78
20168193	30	1960	22.8	80	28	20	15	M8	10.19
20168209	30	2040	22.8	80	28	20	15	M8	10.61
20168216	30	2120	22.8	80	28	20	15	M8	11.02
20168223	30	2200	22.8	80	28	20	15	M8	11.44
20168230	30	2280	22.8	80	28	20	15	M8	11.86
20168247	30	2360	22.8	80	28	20	15	M8	12.27
20168254	30	2440	22.8	80	28	20	15	M8	12.69
20168261	30	2520	22.8	80	28	20	15	M8	13.10
20168278	30	2600	22.8	80	28	20	15	M8	13.52
20168285	30	2680	22.8	80	28	20	15	M8	13.94

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	Weight kg
20168292	30	2760	22.8	80	28	20	15	M8	14.35
20168308	30	2840	22.8	80	28	20	15	M8	14.77
20168315	30	2920	22.8	80	28	20	15	M8	15.18
20168322	30	3000	22.8	80	28	20	15	M8	15.60
20168339	30	3080	22.8	80	28	20	15	M8	16.02
20168346	30	3160	22.8	80	28	20	15	M8	16.43
20168353	30	3240	22.8	80	28	20	15	M8	16.85
20168360	30	3320	22.8	80	28	20	15	M8	17.26
20168377	30	3400	22.8	80	28	20	15	M8	17.68
20168384	30	3480	22.8	80	28	20	15	M8	18.10
20168391	30	3560	22.8	80	28	20	15	M8	18.51
20168407	30	3640	22.8	80	28	20	15	M8	18.93
20168414	30	3720	22.8	80	28	20	15	M8	19.34
20168421	30	3800	22.8	80	28	20	15	M8	19.76
20168438	30	3880	22.8	80	28	20	15	M8	20.18
20168445	30	3960	22.8	80	28	20	15	M8	20.59
20168452	30	4000	22.8	80	28	20	15	M8	20.80



EL1016.RF35

Material

Hardened and ground steel (typically 60 HRC).

part nos. EL1016.F (flanged) and EL1016.U (unflanged).

Other rail lengths on request.

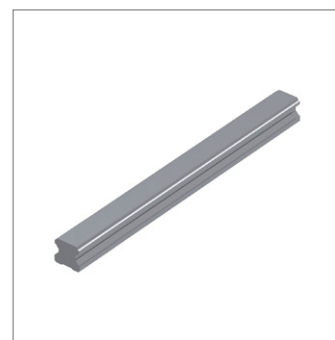
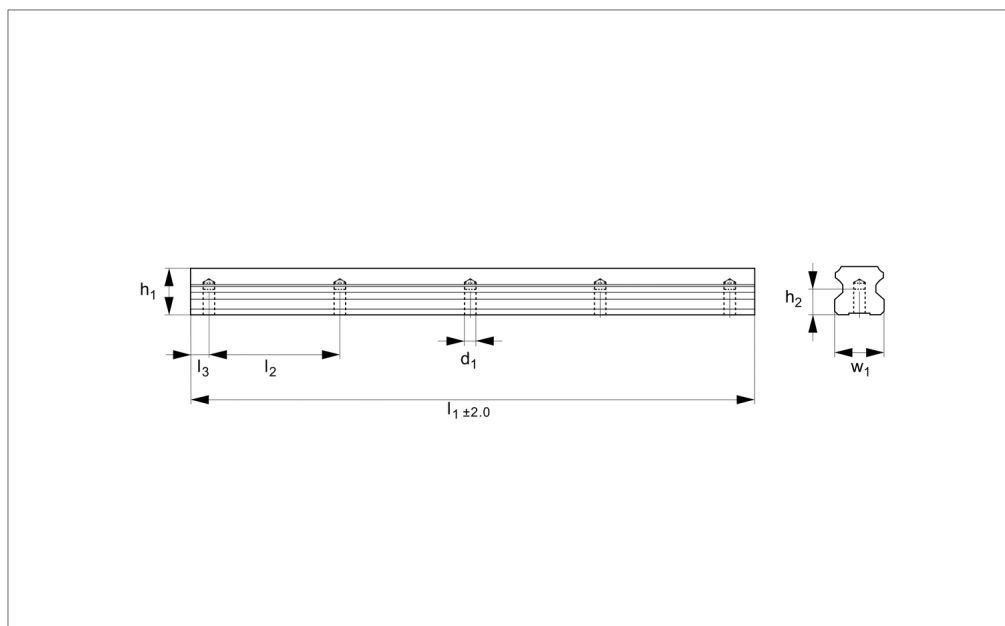
Weight: 7,2 Kg/m.

Technical Notes

For carriages to suit the required load see

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	Weight kg
20168469	35	200	26.0	80	34	20	15	M8	1.44
20168476	35	280	26.0	80	34	20	15	M8	2.02
20168483	35	360	26.0	80	34	20	15	M8	2.59
20168490	35	440	26.0	80	34	20	15	M8	3.17
20168506	35	520	26.0	80	34	20	15	M8	3.74
20168513	35	600	26.0	80	34	20	15	M8	4.32
20168520	35	680	26.0	80	34	20	15	M8	4.90
20168537	35	760	26.0	80	34	20	15	M8	5.47
20168544	35	840	26.0	80	34	20	15	M8	6.05
20168551	35	920	26.0	80	34	20	15	M8	6.62
20168568	35	1000	26.0	80	34	20	15	M8	7.20
20168575	35	1080	26.0	80	34	20	15	M8	7.78
20168582	35	1160	26.0	80	34	20	15	M8	8.35
20168599	35	1240	26.0	80	34	20	15	M8	8.93
20168605	35	1320	26.0	80	34	20	15	M8	9.50
20168612	35	1400	26.0	80	34	20	15	M8	10.08
20168629	35	1480	26.0	80	34	20	15	M8	10.66
20168636	35	1560	26.0	80	34	20	15	M8	11.23
20168643	35	1640	26.0	80	34	20	15	M8	11.81
20168650	35	1720	26.0	80	34	20	15	M8	12.38
20168667	35	1800	26.0	80	34	20	15	M8	12.96
20168674	35	1880	26.0	80	34	20	15	M8	13.54
20168681	35	1960	26.0	80	34	20	15	M8	14.11
20168698	35	2040	26.0	80	34	20	15	M8	14.69
20168704	35	2120	26.0	80	34	20	15	M8	15.26
20168711	35	2200	26.0	80	34	20	15	M8	15.84
20168728	35	2280	26.0	80	34	20	15	M8	16.42
20168735	35	2360	26.0	80	34	20	15	M8	16.99
20168742	35	2440	26.0	80	34	20	15	M8	17.57
20168759	35	2520	26.0	80	34	20	15	M8	18.14
20168766	35	2600	26.0	80	34	20	15	M8	18.72
20168773	35	2680	26.0	80	34	20	15	M8	19.30

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	Weight kg
20168780	35	2760	26.0	80	34	20	15	M8	19.87
20168797	35	2840	26.0	80	34	20	15	M8	20.45
20168803	35	2920	26.0	80	34	20	15	M8	21.02
20168810	35	3000	26.0	80	34	20	15	M8	21.60
20168827	35	3080	26.0	80	34	20	15	M8	22.18
20168834	35	3160	26.0	80	34	20	15	M8	22.75
20168841	35	3240	26.0	80	34	20	15	M8	23.33
20168858	35	3320	26.0	80	34	20	15	M8	23.90
20168865	35	3400	26.0	80	34	20	15	M8	24.48
20168872	35	3480	26.0	80	34	20	15	M8	25.06
20168889	35	3560	26.0	80	34	20	15	M8	25.63
20168896	35	3640	26.0	80	34	20	15	M8	26.21
20168902	35	3720	26.0	80	34	20	15	M8	26.78
20168919	35	3800	26.0	80	34	20	15	M8	27.36
20168926	35	3880	26.0	80	34	20	15	M8	27.94
20168933	35	3960	26.0	80	34	20	15	M8	28.51
20168940	35	4000	26.0	80	34	20	15	M8	28.80



EL1016.RF45

Material

Hardened and ground steel (typically 60 HRC).

part nos. EL1016.F (flanged) and EL1016.U (unflanged).

Other rail lengths on request.

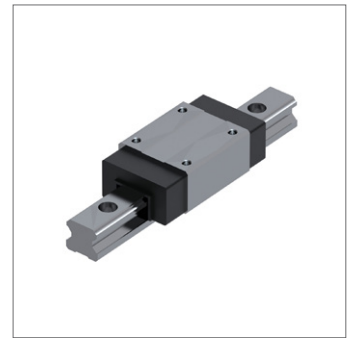
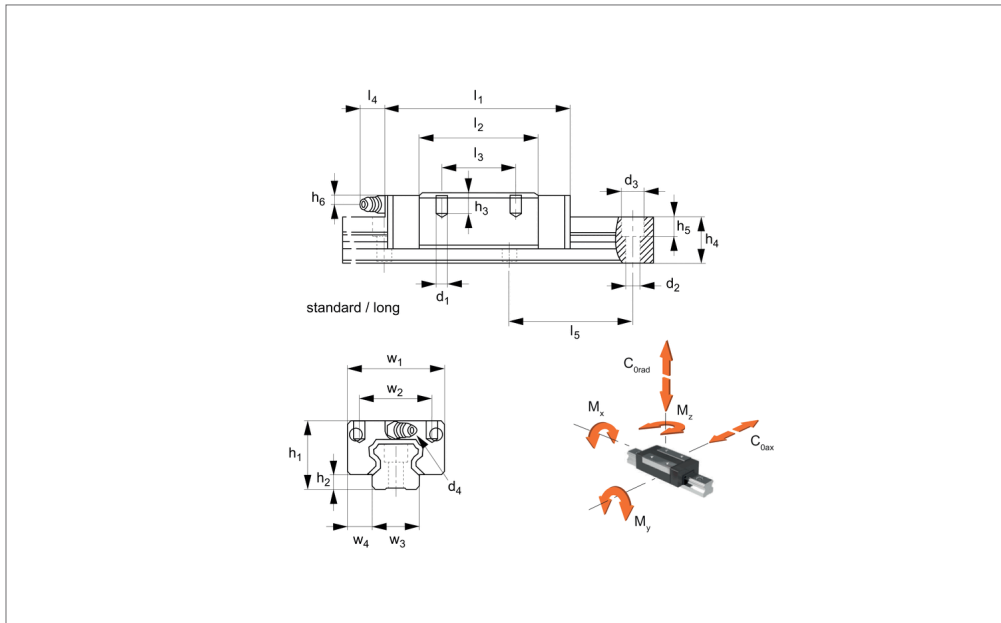
Weight: 12,3 Kg/m.

Technical Notes

For carriages to suit the required load see

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	Weight kg
20168957	45	255	31.1	105	45	22.5	24	M12	26.09
20168964	45	360	31.1	105	45	22.5	24	M12	36.83
20168971	45	465	31.1	105	45	22.5	24	M12	47.57
20168988	45	570	31.1	105	45	22.5	24	M12	58.31
20168995	45	675	31.1	105	45	22.5	24	M12	69.05
20169008	45	780	31.1	105	45	22.5	24	M12	79.79
20169015	45	885	31.1	105	45	22.5	24	M12	90.54
20169022	45	990	31.1	105	45	22.5	24	M12	101.28
20169039	45	1095	31.1	105	45	22.5	24	M12	13.47
20169046	45	1200	31.1	105	45	22.5	24	M12	14.76
20169053	45	1305	31.1	105	45	22.5	24	M12	16.05
20169060	45	1410	31.1	105	45	22.5	24	M12	17.34
20169077	45	1515	31.1	105	45	22.5	24	M12	18.63
20169084	45	1620	31.1	105	45	22.5	24	M12	19.93
20169091	45	1725	31.1	105	45	22.5	24	M12	21.22
20169107	45	1830	31.1	105	45	22.5	24	M12	22.51
20169114	45	1935	31.1	105	45	22.5	24	M12	23.80
20169121	45	2040	31.1	105	45	22.5	24	M12	25.09
20169138	45	2145	31.1	105	45	22.5	24	M12	26.38
20169145	45	2250	31.1	105	45	22.5	24	M12	27.68
20169152	45	2355	31.1	105	45	22.5	24	M12	28.97
20169169	45	2460	31.1	105	45	22.5	24	M12	30.26
20169176	45	2565	31.1	105	45	22.5	24	M12	31.55
20169183	45	2670	31.1	105	45	22.5	24	M12	32.84
20169190	45	2880	31.1	105	45	22.5	24	M12	35.42
20169206	45	2985	31.1	105	45	22.5	24	M12	36.72
20169213	45	3090	31.1	105	45	22.5	24	M12	38.01
20169220	45	3195	31.1	105	45	22.5	24	M12	39.30
20169237	45	3300	31.1	105	45	22.5	24	M12	40.59
20169244	45	3405	31.1	105	45	22.5	24	M12	41.88
20169251	45	3510	31.1	105	45	22.5	24	M12	43.17
20169268	45	3615	31.1	105	45	22.5	24	M12	44.46

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	d_1	Weight kg
20169275	45	3720	31.1	105	45	22.5	24	M12	45.76
20169282	45	3825	31.1	105	45	22.5	24	M12	47.05
20169299	45	3930	31.1	105	45	22.5	24	M12	48.34
20174750	45	4000	31.1	105	45	22.5	24	M12	49.20



EL1016.U

LINEAR GUIDEWAYS

Material

Hardened and ground steel.

Technical Notes

Select the size and number of carriages to suit the required load then select the

required rail length, (see part nos. EL1016.15 through to EL1016.55). Standard preload carriages are K₀ (no preload) or K₁ (0,02 x dynamic load capacity). Other preloads available on request.

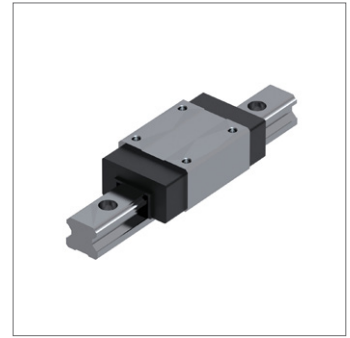
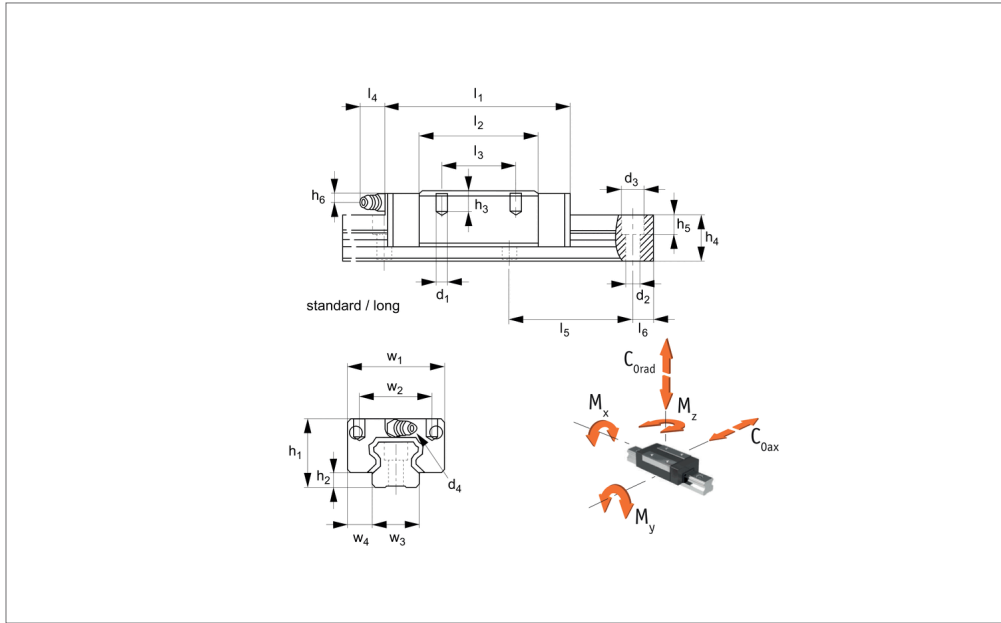
Tips

Improved version with ball cages allowing the carriages to be removed from the rail without the balls falling out.

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	h_3	h_4	d_1	h_5	d_2	h_6	w_2	w_3	w_4	l_4	Weight kg
20158507	15	58.6	28	40.2	34	26	3.3	6.0	13.0	M 4	6.0	4.5	9.5	26	15	9.5	5.0	0.19
20158514	20	69.3	30	48.5	44	36	4.5	6.5	16.3	M 5	8.5	6.0	7.1	32	20	12.0	15.6	0.31
20158521	20	82.1	30	61.3	44	36	4.5	6.5	16.3	M 5	8.5	6.0	7.1	32	20	12.0	15.6	0.36
20158545	25	79.2	40	57.5	48	35	5.8	9.0	19.2	M 6	9.0	7.0	14.2	35	23	12.5	15.6	0.45
20158828	25	93.9	40	72.2	48	35	5.8	9.0	19.2	M 6	9.0	7.0	14.2	35	23	12.5	15.6	0.66
20158538	25	108.6	40	86.9	48	50	5.8	9.0	19.2	M 6	9.0	7.0	14.2	35	23	12.5	15.6	0.80
20158569	30	94.8	45	67.8	60	40	7.0	12.0	22.8	M 8	12.0	9.0	13.0	40	28	16.0	15.6	0.91
20158835	30	105.0	45	78.0	60	40	7.0	12.0	22.8	M 8	12.0	9.0	13.0	40	28	16.0	15.6	1.04
20158552	30	130.5	45	103.5	60	60	7.0	12.0	22.8	M 8	12.0	9.0	13.0	40	28	16.0	15.6	1.36
20158583	35	111.5	55	80.5	70	50	7.5	12.0	26.0	M 8	12.0	9.0	18.5	50	34	18.0	15.6	1.50
20158842	35	123.5	55	92.5	70	50	7.5	12.0	26.0	M 8	12.0	9.0	18.5	50	34	18.0	15.6	1.80
20158576	35	153.5	55	122.5	70	72	7.5	12.0	26.0	M 8	12.0	9.0	18.5	50	34	18.0	15.6	2.34
20158606	45	129.0	70	94.0	86	60	8.9	18.0	31.1	M10	17.0	14.0	24.5	60	45	20.5	16.0	2.28
20158859	45	145.0	70	110.0	86	60	8.9	18.0	31.1	M10	17.0	14.0	24.5	60	45	20.5	16.0	2.67
20158590	45	174.0	70	139.0	86	80	8.9	18.0	31.1	M10	17.0	14.0	24.5	60	45	20.5	16.0	3.35
20158620	55	155.0	80	116.0	100	75	12.7	22.0	38.0	M12	20.0	16.0	24.0	75	53	23.5	16.0	3.42
20158866	55	193.0	80	154.0	100	75	12.7	22.0	38.0	M12	20.0	16.0	24.0	75	53	23.5	16.0	4.57
20158613	55	210.0	80	171.0	100	95	12.7	22.0	38.0	M12	20.0	16.0	24.0	75	53	23.5	16.0	5.08

Order No.	l_5	d_3	d_4	M_x Nm	M_y Nm	M_z Nm	Dyn. load $C_{rad \& ax}$ kN	Static load $C_{Orad \& ax}$ kN
20158507	60	7.5	M3 x 0,5	137	120	120	11.67	19.90
20158514	60	9.5	M6 x 1,0	289	224	224	17.98	30.96
20158521	60	9.5	M6 x 1,0	376	366	366	23.30	40.11
20158545	60	11.0	M6 x 1,0	447	358	358	25.25	41.73
20158828	60	11.0	M6 x 1,0	576	577	577	32.44	53.63
20158538	60	11.0	M6 x 1,0	691	833	833	36.58	64.30
20158569	80	14.0	M6 x 1,0	719	560	560	37.33	55.50
20158835	80	14.0	M6 x 1,0	931	836	836	48.35	71.88
20158552	80	14.0	M6 x 1,0	1142	1361	1361	53.83	88.18
20158583	80	14.0	M6 x 1,0	1307	991	991	53.31	82.66
20158842	80	14.0	M6 x 1,0	1633	1424	1424	66.61	103.29

Order No.	l_5	d_3	d_4	M_x Nm	M_y Nm	M_z Nm	Dyn. load $C_{rad \& ax}$ kN	Static load $C_{Orad \& ax}$ kN
20158576	80	14.0	M6 x 1,0	2020	2330	2330	73.29	127.68
20158606	105	20.0	M8 x 1,25	2353	1559	1559	73.14	111.30
20158859	105	20.0	M8 x 1,25	2798	2170	2170	86.99	132.39
20158590	105	20.0	M8 x 1,25	3527	3455	3455	100.52	166.87
20158620	120	23.0	M8 x 1,25	3385	2361	2361	88.26	136.62
20158866	120	23.0	M8 x 1,25	4538	4202	4202	119.10	183.14
20158613	120	23.0	M8 x 1,25	6430	6617	6617	161.43	259.71



EL1016.U.L

Material

Hardened and ground steel.

Technical Notes

Select the size and number of carriages to

suit the required load then select the required rail length, (see part nos. EL1016.15 through to EL1016.55). Standard preload carriages are K_0 (no

preload) or K_1 (0,02 x dynamic load capacity). Other preloads available on request.

Order No.	Rail size	l_1	h_1	l_2	w_1	l_3	h_2	h_3	h_4	d_1	h_5	d_2	h_6	w_2	w_3	w_4	l_4	Weight kg
20158873	15	40.6	24	22.2	34	-	3.3	4.8	13.0	M 4	6.0	4.5	5.5	26	15	9.5	5.0	0.10
20158880	15	58.6	24	40.2	34	26	3.3	4.8	13.0	M 4	6.0	4.5	5.5	26	15	9.5	5.0	0.17
20158897	15	66.1	24	47.7	34	26	3.0	4.8	13.0	M 4	6.0	4.5	5.5	26	15	9.5	5.0	0.18
20158903	20	48.3	28	27.5	42	-	4.5	5.5	16.3	M 5	8.5	6.0	5.1	32	20	11.0	15.6	0.17
20158910	20	69.3	28	48.5	42	32	4.5	5.5	16.3	M 5	8.5	6.0	7.1	32	20	11.0	15.6	0.26
20158927	25	54.0	33	32.3	48	-	5.8	6.8	19.2	M 6	9.0	7.0	7.2	35	23	12.5	15.6	0.21
20158934	25	79.2	33	57.5	48	35	5.8	6.8	19.2	M 6	9.0	7.0	7.2	35	23	12.5	15.6	0.38
20158941	30	64.2	42	37.2	60	-	7.0	10.0	22.8	M 8	12.0	9.0	10.0	40	28	16.0	15.6	0.50
20158958	30	94.8	42	67.8	60	40	7.0	10.0	22.8	M 8	12.0	9.0	10.0	40	28	16.0	15.6	0.80
20158965	30	105.0	42	78.0	60	40	7.0	10.0	22.8	M 8	12.0	9.0	10.0	40	28	16.0	15.6	0.94
20158972	30	130.5	42	103.5	60	60	7.0	10.0	22.8	M 8	12.0	9.0	10.0	40	28	16.0	15.6	1.16
20158989	35	75.5	48	44.5	70	-	7.5	10.0	26.0	M 8	12.0	9.0	11.5	50	34	18.0	16.0	0.80
20158996	35	111.5	48	80.5	70	50	7.5	10.0	26.0	M 8	12.0	9.0	11.5	50	34	18.0	16.0	1.20
20159009	35	123.5	48	92.5	70	50	7.5	10.0	26.0	M 8	12.0	9.0	11.5	50	34	18.0	16.0	1.40
20159016	35	153.5	48	122.5	70	72	7.5	10.0	26.0	M 8	12.0	9.0	11.5	50	34	18.0	16.0	1.84
20159023	45	129.0	60	94.0	86	60	8.9	15.5	31.1	M10	17.0	14.0	14.4	60	45	20.5	16.0	1.64
20159030	45	145.0	60	110.0	86	60	8.9	15.5	31.1	M10	17.0	14.0	14.4	60	45	20.5	16.0	1.93
20159047	45	174.0	60	139.0	86	80	8.9	15.5	31.1	M10	17.0	14.0	14.4	60	45	20.5	16.0	2.42
20159054	55	155.0	70	116.0	100	75	12.7	18.0	38.0	M12	20.0	16.0	14.0	75	53	23.5	16.0	2.67
20159061	55	193.0	70	154.0	100	75	12.7	18.0	38.0	M12	20.0	16.0	14.0	75	53	23.5	16.0	3.57
20159078	55	210.0	70	171.0	100	95	12.7	18.0	38.0	M12	20.0	16.0	14.0	75	53	23.5	16.0	3.97

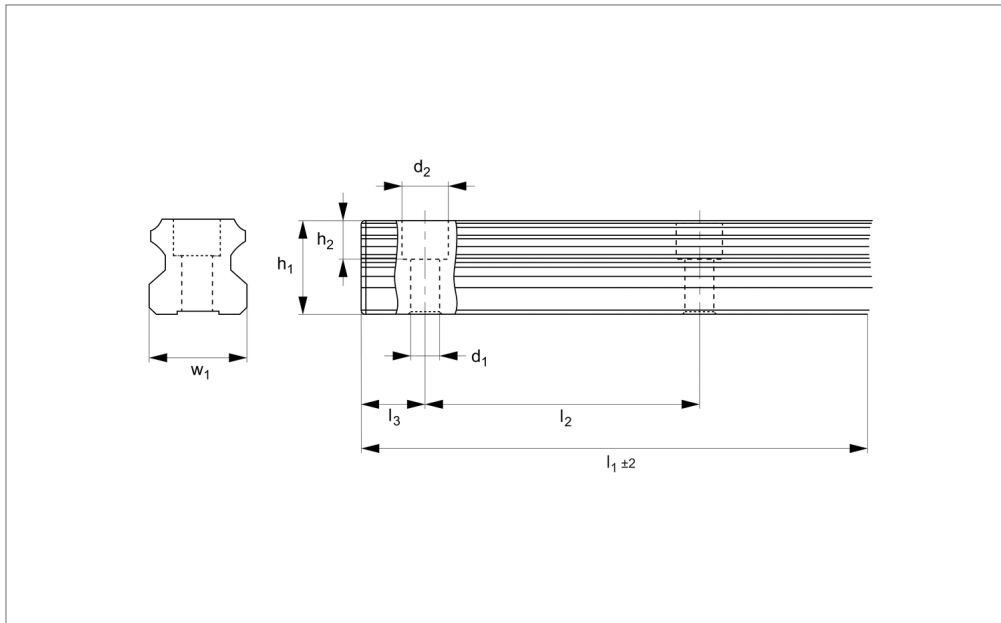
Order No.	l_5	l_6	d_3	d_4	M_x Nm	M_y Nm	M_z Nm	Dyn. load $C_{rad \& ax}$ kN	Static load $C_{0rad \& ax}$ kN
20158873	60	20.0	7.5	M3x0,5	69	32	32	5.81	9.90
20158880	60	20.0	7.5	M3x0,5	137	120	120	11.67	19.90
20158897	60	20.0	7.5	M3x0,5	166	171	171	14.12	24.05
20158903	60	20.0	9.5	M6x1,0	148	66	66	9.25	15.93
20158910	60	20.0	9.5	M6x1,0	289	224	224	17.98	30.96
20158927	60	20.0	11.0	M6x1,0	230	103	103	12.87	21.34
20158934	60	20.0	11.0	M6x1,0	447	358	358	25.25	41.73
20158941	80	20.0	14.0	M6x1,0	356	153	153	18.50	27.51
20158958	80	20.0	14.0	M6x1,0	719	560	560	37.33	55.50

Order No.	l_5	l_6	d_3	d_4	M_x Nm	M_y Nm	M_z Nm	Dyn. load $C_{rad \& ax}$ kN	Static load $C_{0rad \& ax}$ kN
20158965	80	20.0	14.0	M6x1,0	931	836	836	48.35	71.88
20158972	80	20.0	14.0	M6x1,0	1142	1361	1361	53.83	88.18
20158989	80	20.0	14.0	M6x1,0	655	275	275	26.72	41.43
20158996	80	20.0	14.0	M6x1,0	1307	991	991	53.31	82.66
20159009	80	20.0	14.0	M6x1,0	1633	1424	1424	66.61	103.29
20159016	80	20.0	14.0	M6x1,0	2020	2330	2330	73.29	127.68
20159023	105	22.5	20.0	M8x1,25	2353	1559	1559	73.14	111.30
20159030	105	22.5	20.0	M8x1,25	2798	2170	2170	86.99	132.39
20159047	105	22.5	20.0	M8x1,25	3527	3455	3455	100.52	166.87
20159054	120	30.0	23.0	M8x1,25	3385	2361	2361	88.26	136.62
20159061	120	30.0	23.0	M8x1,25	4538	4202	4202	119.10	183.14
20159078	120	30.0	23.0	M8x1,25	6430	6617	6617	161.43	259.71

15mm Aluminium Linear Guide Rail

with stainless raceways

Linear Guide-ways



EL1018.15

LINEAR GUIDEWAYS

Material

Aluminium profile (AlMgSi0.5, anodized 12-15µ). Raceway stainless steel (X46Cr13), hardened to 58-62HRC.

versus steel versions. The aluminium rails are made of high quality aluminium alloy with hardened stainless steel raceway.

weight aluminium carriages. For standard steel linear guideways and carriages see part no. EL1016.

Technical Notes

Compact, light-weight design. 60% saving

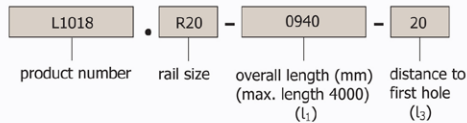
Tips

These are very lightweight aluminium rails and can only be used with our light-

Order No.	l_1	w_1	h_1	d_1	d_2	h_2	l_2	l_3	Weight kg
20169336	180	15	14.0	4.4	7.5	6.2	60	28	10.30
20169343	240	15	14.0	4.4	7.5	6.2	60	28	13.70
20169350	300	15	14.0	4.4	7.5	6.2	60	28	17.10
20169367	360	15	14.0	4.4	7.5	6.2	60	28	20.50
20169374	420	15	14.0	4.4	7.5	6.2	60	28	23.90
20169381	480	15	14.0	4.4	7.5	6.2	60	28	27.40
20169398	540	15	14.0	4.4	7.5	6.2	60	28	30.80
20169404	600	15	14.0	4.4	7.5	6.2	60	28	34.20
20169411	660	15	14.0	4.4	7.5	6.2	60	28	37.60
20169428	720	15	14.0	4.4	7.5	6.2	60	28	41.00
20169435	780	15	14.0	4.4	7.5	6.2	60	28	44.50
20169442	840	15	14.0	4.4	7.5	6.2	60	28	47.90
20169459	900	15	14.0	4.4	7.5	6.2	60	28	51.30
20169466	960	15	14.0	4.4	7.5	6.2	60	28	54.70
20169473	1020	15	14.0	4.4	7.5	6.2	60	28	58.14
20169480	1080	15	14.0	4.4	7.5	6.2	60	28	61.56
20169497	1140	15	14.0	4.4	7.5	6.2	60	28	64.98
20169503	1200	15	14.0	4.4	7.5	6.2	60	28	68.40
20169510	1260	15	14.0	4.4	7.5	6.2	60	28	71.82
20169527	1320	15	14.0	4.4	7.5	6.2	60	28	75.24
20169534	1380	15	14.0	4.4	7.5	6.2	60	28	78.66
20169541	1440	15	14.0	4.4	7.5	6.2	60	28	82.08
20169558	1550	15	14.0	4.4	7.5	6.2	60	28	88.35
20169565	1560	15	14.0	4.4	7.5	6.2	60	28	88.92
20169572	1620	15	14.0	4.4	7.5	6.2	60	28	92.34
20169589	1680	15	14.0	4.4	7.5	6.2	60	28	95.76
20169596	1740	15	14.0	4.4	7.5	6.2	60	28	99.18
20169602	1800	15	14.0	4.4	7.5	6.2	60	28	102.60
20169619	1860	15	14.0	4.4	7.5	6.2	60	28	106.02
20169626	1920	15	14.0	4.4	7.5	6.2	60	28	109.44
20169633	1980	15	14.0	4.4	7.5	6.2	60	28	112.86

Order No.	l_1	w_1	h_1	d_1	d_2	h_2	l_2	l_3	Weight kg
20169640	2040	15	14.0	4.4	7.5	6.2	60	28	116.28
20169657	2100	15	14.0	4.4	7.5	6.2	60	28	119.70
20169664	2160	15	14.0	4.4	7.5	6.2	60	28	123.12
20169671	2220	15	14.0	4.4	7.5	6.2	60	28	126.54
20169688	2280	15	14.0	4.4	7.5	6.2	60	28	129.96
20169695	2340	15	14.0	4.4	7.5	6.2	60	28	133.38
20169701	2400	15	14.0	4.4	7.5	6.2	60	28	136.80
20169718	2460	15	14.0	4.4	7.5	6.2	60	28	140.22
20169725	2520	15	14.0	4.4	7.5	6.2	60	28	143.64
20169732	2580	15	14.0	4.4	7.5	6.2	60	28	147.06
20169749	2640	15	14.0	4.4	7.5	6.2	60	28	150.48
20169756	2700	15	14.0	4.4	7.5	6.2	60	28	153.90
20169763	2760	15	14.0	4.4	7.5	6.2	60	28	157.32
20169770	2820	15	14.0	4.4	7.5	6.2	60	28	160.74
20169787	2880	15	14.0	4.4	7.5	6.2	60	28	164.16
20169794	2940	15	14.0	4.4	7.5	6.2	60	28	167.58
20169812	3000	15	14.0	4.4	7.5	6.2	60	28	171.00
20169800	3060	15	14.0	4.4	7.5	6.2	60	28	174.42
20169817	3120	15	14.0	4.4	7.5	6.2	60	28	177.84
20169824	3180	15	14.0	4.4	7.5	6.2	60	28	181.26
20169831	3240	15	14.0	4.4	7.5	6.2	60	28	184.68
20169848	3300	15	14.0	4.4	7.5	6.2	60	28	188.10
20169855	3360	15	14.0	4.4	7.5	6.2	60	28	191.52
20169862	3420	15	14.0	4.4	7.5	6.2	60	28	194.94
20169879	3480	15	14.0	4.4	7.5	6.2	60	28	198.36
20169886	3540	15	14.0	4.4	7.5	6.2	60	28	201.78
20169893	3600	15	14.0	4.4	7.5	6.2	60	28	205.20
20169909	3660	15	14.0	4.4	7.5	6.2	60	28	208.62
20169916	3720	15	14.0	4.4	7.5	6.2	60	28	212.04
20169923	3780	15	14.0	4.4	7.5	6.2	60	28	215.46
20169930	3840	15	14.0	4.4	7.5	6.2	60	28	218.88
20169947	3900	15	14.0	4.4	7.5	6.2	60	28	222.30
20169954	3960	15	14.0	4.4	7.5	6.2	60	28	225.72
20169961	4000	15	14.0	4.4	7.5	6.2	60	28	228.00

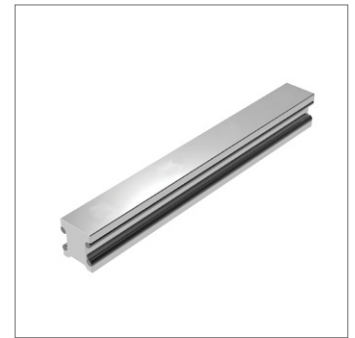
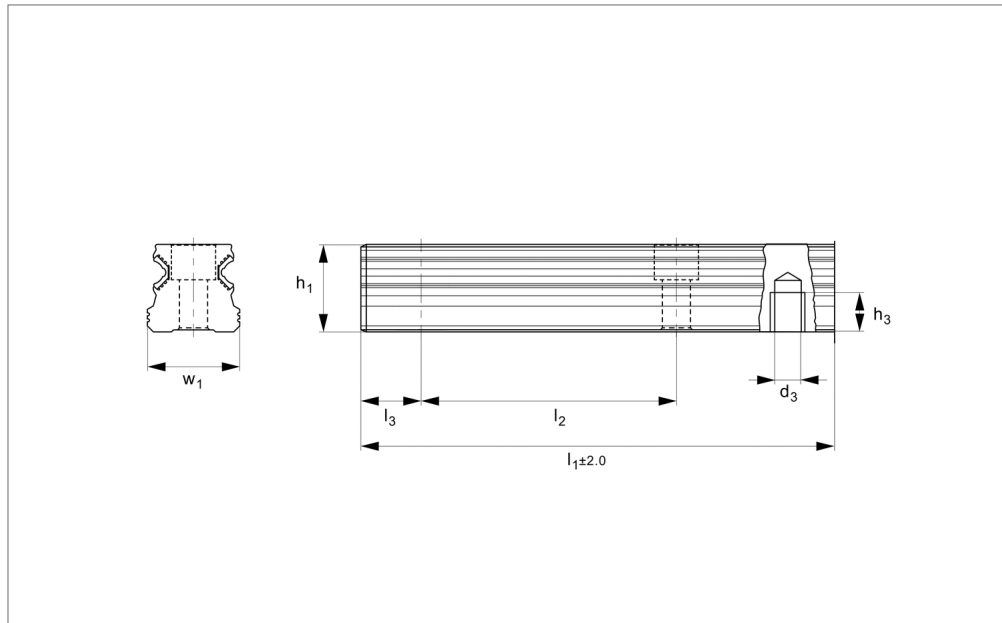
Ordering Example



15mm Aluminium Linear Guide Rail

rear fixing with stainless raceways

Linear Guideways



EL1018.15R

LINEAR GUIDEWAYS

Material

Aluminium profile (AlMgSi0.5, anodized 12-15 μ). Raceway stainless steel (X46Cr13), hardened to 58-62HRC.

Technical Notes

Compact, light-weight design. 60% saving

versus steel versions. The aluminium rails are made of high quality aluminium alloy with hardened stainless steel raceway.

Tips

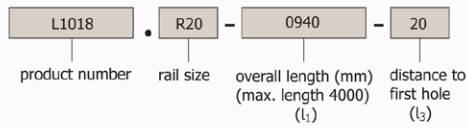
These are very lightweight aluminium rails and can only be used with our light-

weight aluminium carriages. For standard steel linear guideways and carriages see part no. EL1016.

Order No.	Rail size	l_1	w_1	h_1	d_3	h_3	l_2	l_3	Weight kg
20171261	15	180	15	14.3	M5	7	60	28	0.1
20171278	15	240	15	14.3	M5	7	60	28	0.1
20171285	15	300	15	14.3	M5	7	60	28	0.2
20171292	15	360	15	14.3	M5	7	60	28	0.2
20171308	15	420	15	14.3	M5	7	60	28	0.2
20171315	15	480	15	14.3	M5	7	60	28	0.3
20171322	15	540	15	14.3	M5	7	60	28	0.3
20171339	15	600	15	14.3	M5	7	60	28	0.3
20171346	15	660	15	14.3	M5	7	60	28	0.4
20171353	15	720	15	14.3	M5	7	60	28	0.4
20171360	15	780	15	14.3	M5	7	60	28	0.4
20171377	15	840	15	14.3	M5	7	60	28	0.5
20171384	15	900	15	14.3	M5	7	60	28	0.5
20171391	15	960	15	14.3	M5	7	60	28	0.5
20171407	15	1020	15	14.3	M5	7	60	28	0.6
20171414	15	1080	15	14.3	M5	7	60	28	0.6
20171421	15	1140	15	14.3	M5	7	60	28	0.6
20171438	15	1200	15	14.3	M5	7	60	28	0.7
20171445	15	1260	15	14.3	M5	7	60	28	0.7
20171452	15	1320	15	14.3	M5	7	60	28	0.8
20171469	15	1380	15	14.3	M5	7	60	28	0.8
20171476	15	1440	15	14.3	M5	7	60	28	0.8
20171483	15	1500	15	14.3	M5	7	60	28	0.9
20171490	15	1560	15	14.3	M5	7	60	28	0.9
20171506	15	1620	15	14.3	M5	7	60	28	0.9
20171513	15	1680	15	14.3	M5	7	60	28	1.0
20171520	15	1740	15	14.3	M5	7	60	28	1.0
20171537	15	1800	15	14.3	M5	7	60	28	1.0
20171544	15	1860	15	14.3	M5	7	60	28	1.1
20171551	15	1980	15	14.3	M5	7	60	28	1.1
20171568	15	2040	15	14.3	M5	7	60	28	1.2

Order No.	Rail size	l_1	w_1	h_1	d_3	h_3	l_2	l_3	Weight kg
20171575	15	2100	15	14.3	M5	7	60	28	1.2
20171582	15	2160	15	14.3	M5	7	60	28	1.2
20171599	15	2220	15	14.3	M5	7	60	28	1.3
20171605	15	2280	15	14.3	M5	7	60	28	1.3
20171612	15	2340	15	14.3	M5	7	60	28	1.3
20171629	15	2400	15	14.3	M5	7	60	28	1.4
20171636	15	2460	15	14.3	M5	7	60	28	1.4
20171643	15	2520	15	14.3	M5	7	60	28	1.4
20171650	15	2580	15	14.3	M5	7	60	28	1.5
20171667	15	2640	15	14.3	M5	7	60	28	1.5
20171674	15	2700	15	14.3	M5	7	60	28	1.5
20171681	15	2760	15	14.3	M5	7	60	28	1.6
20171698	15	2820	15	14.3	M5	7	60	28	1.6
20171704	15	2880	15	14.3	M5	7	60	28	1.6
20171711	15	2940	15	14.3	M5	7	60	28	1.7
20171728	15	3000	15	14.3	M5	7	60	28	1.7
20171735	15	3060	15	14.3	M5	7	60	28	1.7
20171742	15	3120	15	14.3	M5	7	60	28	1.8
20171759	15	3180	15	14.3	M5	7	60	28	1.8
20171766	15	3240	15	14.3	M5	7	60	28	1.8
20171773	15	3300	15	14.3	M5	7	60	28	1.9
20171780	15	3360	15	14.3	M5	7	60	28	1.9
20171797	15	3420	15	14.3	M5	7	60	28	1.9
20171803	15	3480	15	14.3	M5	7	60	28	2.0
20171810	15	3540	15	14.3	M5	7	60	28	2.0
20171827	15	3600	15	14.3	M5	7	60	28	2.1
20171834	15	3660	15	14.3	M5	7	60	28	2.1
20171841	15	3720	15	14.3	M5	7	60	28	2.1
20171858	15	3780	15	14.3	M5	7	60	28	2.2
20171865	15	3840	15	14.3	M5	7	60	28	2.2
20171872	15	3900	15	14.3	M5	7	60	28	2.2
20171889	15	3960	15	14.3	M5	7	60	28	2.3
20171896	15	4000	15	14.3	M5	7	60	28	2.3

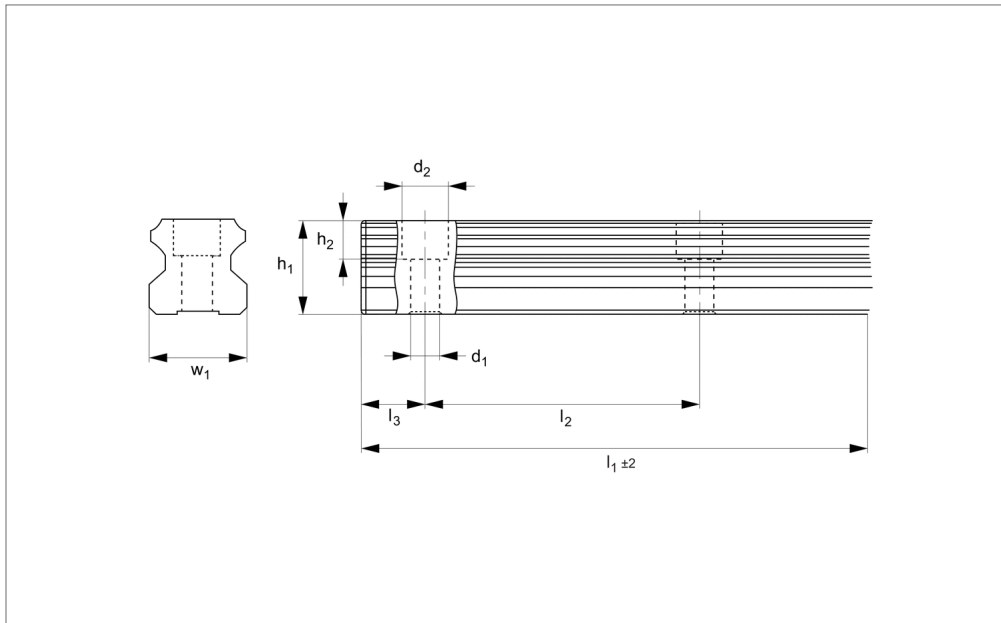
Ordering Example



20mm Aluminium Linear Guide Rail

with stainless raceways

Linear Guide-ways



EL1018.20

LINEAR GUIDEWAYS

Material

Aluminium profile (AlMgSi0.5, anodized 12-15 μ). Raceway stainless steel (X46Cr13), hardened to 58-62HRC.

versus steel versions. The aluminium rails are made of high quality aluminium alloy with hardened stainless steel raceway.

weight aluminium carriages. For standard steel linear guideways and carriages see part no. EL1016.

Technical Notes

Compact, light-weight design. 60% saving

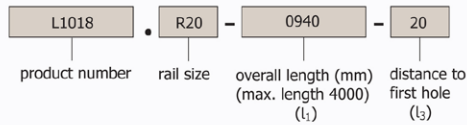
Tips

These are very lightweight aluminium rails and can only be used with our light-

Order No.	Rail size	l_1	w_1	h_1	d_1	d_2	h_2	l_2	l_3	Weight kg
20169978	20	180	20	19.3	6.0	9.4	7.7	60	30	0.1
20169985	20	240	20	19.3	6.0	9.4	7.7	60	30	0.1
20169992	20	300	20	19.3	6.0	9.4	7.7	60	30	0.2
20170004	20	360	20	19.3	6.0	9.4	7.7	60	30	0.2
20170011	20	420	20	19.3	6.0	9.4	7.7	60	30	0.2
20170028	20	480	20	19.3	6.0	9.4	7.7	60	30	0.3
20170035	20	540	20	19.3	6.0	9.4	7.7	60	30	0.3
20170042	20	600	20	19.3	6.0	9.4	7.7	60	30	0.3
20170059	20	660	20	19.3	6.0	9.4	7.7	60	30	0.4
20170066	20	720	20	19.3	6.0	9.4	7.7	60	30	0.4
20170073	20	780	20	19.3	6.0	9.4	7.7	60	30	0.4
20170080	20	840	20	19.3	6.0	9.4	7.7	60	30	0.5
20170097	20	900	20	19.3	6.0	9.4	7.7	60	30	0.5
20170103	20	960	20	19.3	6.0	9.4	7.7	60	30	0.5
20170110	20	1020	20	19.3	6.0	9.4	7.7	60	30	0.6
20170127	20	1080	20	19.3	6.0	9.4	7.7	60	30	0.6
20170134	20	1140	20	19.3	6.0	9.4	7.7	60	30	0.6
20170141	20	1200	20	19.3	6.0	9.4	7.7	60	30	0.7
20170158	20	1260	20	19.3	6.0	9.4	7.7	60	30	0.7
20170165	20	1320	20	19.3	6.0	9.4	7.7	60	30	0.8
20170172	20	1380	20	19.3	6.0	9.4	7.7	60	30	0.8
20170189	20	1440	20	19.3	6.0	9.4	7.7	60	30	0.8
20170196	20	1500	20	19.3	6.0	9.4	7.7	60	30	0.9
20170202	20	1560	20	19.3	6.0	9.4	7.7	60	30	0.9
20170219	20	1620	20	19.3	6.0	9.4	7.7	60	30	0.9
20170226	20	1680	20	19.3	6.0	9.4	7.7	60	30	1.0
20170233	20	1740	20	19.3	6.0	9.4	7.7	60	30	1.0
20170240	20	1800	20	19.3	6.0	9.4	7.7	60	30	1.0
20170257	20	1860	20	19.3	6.0	9.4	7.7	60	30	1.1
20170264	20	1920	20	19.3	6.0	9.4	7.7	60	30	1.1
20170271	20	1980	20	19.3	6.0	9.4	7.7	60	30	1.1

Order No.	Rail size	l_1	w_1	h_1	d_1	d_2	h_2	l_2	l_3	Weight kg
20170288	20	2040	20	19.3	6.0	9.4	7.7	60	30	1.2
20170295	20	2100	20	19.3	6.0	9.4	7.7	60	30	1.2
20170301	20	2160	20	19.3	6.0	9.4	7.7	60	30	1.2
20170318	20	2220	20	19.3	6.0	9.4	7.7	60	30	1.3
20170325	20	2280	20	19.3	6.0	9.4	7.7	60	30	1.3
20170332	20	2340	20	19.3	6.0	9.4	7.7	60	30	1.3
20170349	20	2400	20	19.3	6.0	9.4	7.7	60	30	1.4
20170356	20	2460	20	19.3	6.0	9.4	7.7	60	30	1.4
20170363	20	2520	20	19.3	6.0	9.4	7.7	60	30	1.4
20170370	20	2580	20	19.3	6.0	9.4	7.7	60	30	1.5
20170387	20	2640	20	19.3	6.0	9.4	7.7	60	30	1.5
20170394	20	2700	20	19.3	6.0	9.4	7.7	60	30	1.5
20170400	20	2760	20	19.3	6.0	9.4	7.7	60	30	1.6
20170417	20	2820	20	19.3	6.0	9.4	7.7	60	30	1.6
20170424	20	2880	20	19.3	6.0	9.4	7.7	60	30	1.6
20170431	20	2940	20	19.3	6.0	9.4	7.7	60	30	1.7
20169329	20	3000	20	19.3	6.0	9.4	7.7	60	30	1.7
20170448	20	3060	20	19.3	6.0	9.4	7.7	60	30	1.7
20170455	20	3120	20	19.3	6.0	9.4	7.7	60	30	1.8
20170462	20	3180	20	19.3	6.0	9.4	7.7	60	30	1.8
20170479	20	3240	20	19.3	6.0	9.4	7.7	60	30	1.8
20170486	20	3300	20	19.3	6.0	9.4	7.7	60	30	1.9
20170493	20	3360	20	19.3	6.0	9.4	7.7	60	30	1.9
20170509	20	3420	20	19.3	6.0	9.4	7.7	60	30	1.9
20170516	20	3480	20	19.3	6.0	9.4	7.7	60	30	2.0
20170523	20	3540	20	19.3	6.0	9.4	7.7	60	30	2.0
20170530	20	3600	20	19.3	6.0	9.4	7.7	60	30	2.1
20170547	20	3660	20	19.3	6.0	9.4	7.7	60	30	2.1
20170554	20	3720	20	19.3	6.0	9.4	7.7	60	30	2.1
20170561	20	3780	20	19.3	6.0	9.4	7.7	60	30	2.2
20170578	20	3840	20	19.3	6.0	9.4	7.7	60	30	2.2
20170585	20	3900	20	19.3	6.0	9.4	7.7	60	30	2.2
20170592	20	3960	20	19.3	6.0	9.4	7.7	60	30	2.3
20170608	20	4000	20	19.3	6.0	9.4	7.7	60	30	2.3

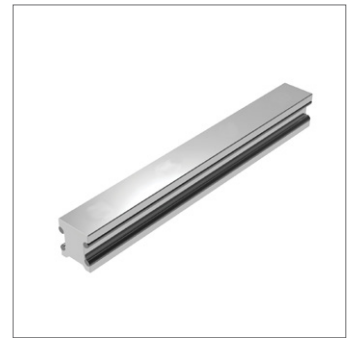
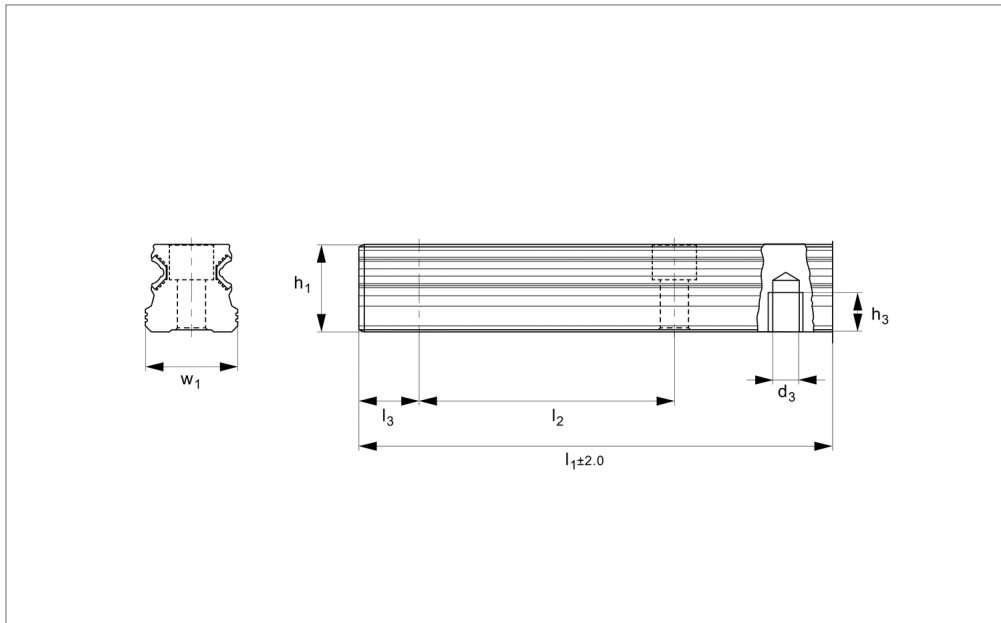
Ordering Example



20mm Aluminium Linear Guide Rail

rear fixing with stainless raceways

Linear Guideways



EL1018.20R

LINEAR GUIDEWAYS

Material

Aluminium profile (AlMgSi0.5, anodized 12-15 μ). Raceway stainless steel (X46Cr13), hardened to 58-62HRC.

Technical Notes

Compact, light-weight design. 60% saving

versus steel versions. The aluminium rails are made of high quality aluminium alloy with hardened stainless steel raceway.

Tips

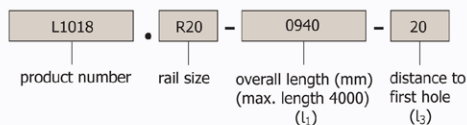
These are very lightweight aluminium rails and can only be used with our light-

weight aluminium carriages. For standard steel linear guideways and carriages see part no. EL1016.

Order No.	Rail size	w ₁	h ₁	d ₁	d ₃	h ₃	l ₂	l ₃	Weight kg
20171902	20	20	19.3	180	M6	9	60	28	0.2
20171919	20	20	19.3	240	M6	9	60	28	0.2
20171926	20	20	19.3	300	M6	9	60	28	0.3
20171933	20	20	19.3	360	M6	9	60	28	0.4
20171940	20	20	19.3	420	M6	9	60	28	0.4
20171957	20	20	19.3	480	M6	9	60	28	0.5
20171964	20	20	19.3	540	M6	9	60	28	0.5
20171971	20	20	19.3	600	M6	9	60	28	0.6
20171988	20	20	19.3	660	M6	9	60	28	0.6
20171995	20	20	19.3	720	M6	9	60	28	0.7
20172008	20	20	19.3	780	M6	9	60	28	0.8
20172015	20	20	19.3	840	M6	9	60	28	0.8
20172022	20	20	19.3	900	M6	9	60	28	0.9
20172039	20	20	19.3	960	M6	9	60	28	0.9
20172046	20	20	19.3	1020	M6	9	60	28	1.0
20172053	20	20	19.3	1080	M6	9	60	28	1.1
20172060	20	20	19.3	1140	M6	9	60	28	1.1
20172077	20	20	19.3	1200	M6	9	60	28	1.2
20172084	20	20	19.3	1260	M6	9	60	28	1.2
20172091	20	20	19.3	1320	M6	9	60	28	1.3
20172107	20	20	19.3	1380	M6	9	60	28	1.4
20172114	20	20	19.3	1440	M6	9	60	28	1.4
20172121	20	20	19.3	1500	M6	9	60	28	1.5
20172138	20	20	19.3	1560	M6	9	60	28	1.5
20172145	20	20	19.3	1620	M6	9	60	28	1.6
20172152	20	20	19.3	1680	M6	9	60	28	1.6
20172169	20	20	19.3	1740	M6	9	60	28	1.7
20172176	20	20	19.3	1800	M6	9	60	28	1.8
20172183	20	20	19.3	1860	M6	9	60	28	1.8
20172190	20	20	19.3	1920	M6	9	60	28	1.9
20172206	20	20	19.3	1980	M6	9	60	28	1.9

Order No.	Rail size	w ₁	h ₁	d ₁	d ₃	h ₃	l ₂	l ₃	Weight kg
20172213	20	20	19.3	2040	M6	9	60	28	2.0
20172220	20	20	19.3	2100	M6	9	60	28	2.1
20172237	20	20	19.3	2160	M6	9	60	28	2.1
20172244	20	20	19.3	2220	M6	9	60	28	2.2
20172251	20	20	19.3	2280	M6	9	60	28	2.2
20172268	20	20	19.3	2340	M6	9	60	28	2.3
20172275	20	20	19.3	2400	M6	9	60	28	2.4
20172282	20	20	19.3	2460	M6	9	60	28	2.4
20172299	20	20	19.3	2520	M6	9	60	28	2.5
20172305	20	20	19.3	2580	M6	9	60	28	2.5
20172312	20	20	19.3	2640	M6	9	60	28	2.6
20172329	20	20	19.3	2700	M6	9	60	28	2.6
20172336	20	20	19.3	2760	M6	9	60	28	2.7
20172343	20	20	19.3	2820	M6	9	60	28	2.8
20172350	20	20	19.3	2880	M6	9	60	28	2.8
20172367	20	20	19.3	2940	M6	9	60	28	2.9
20172374	20	20	19.3	3000	M6	9	60	28	2.9
20172381	20	20	19.3	3060	M6	9	60	28	3.0
20172398	20	20	19.3	3120	M6	9	60	28	3.1
20172404	20	20	19.3	3180	M6	9	60	28	3.1
20172411	20	20	19.3	3240	M6	9	60	28	3.2
20172428	20	20	19.3	3300	M6	9	60	28	3.2
20172435	20	20	19.3	3360	M6	9	60	28	3.3
20172442	20	20	19.3	3420	M6	9	60	28	3.4
20172459	20	20	19.3	3480	M6	9	60	28	3.4
20172466	20	20	19.3	3540	M6	9	60	28	3.5
20172473	20	20	19.3	3600	M6	9	60	28	3.5
20172480	20	20	19.3	3660	M6	9	60	28	3.6
20172497	20	20	19.3	3720	M6	9	60	28	3.6
20172503	20	20	19.3	3780	M6	9	60	28	3.7
20172510	20	20	19.3	3840	M6	9	60	28	3.8
20172527	20	20	19.3	3900	M6	9	60	28	3.8
20172534	20	20	19.3	3960	M6	9	60	28	3.9
20172541	20	20	19.3	4000	M6	9	60	28	3.9

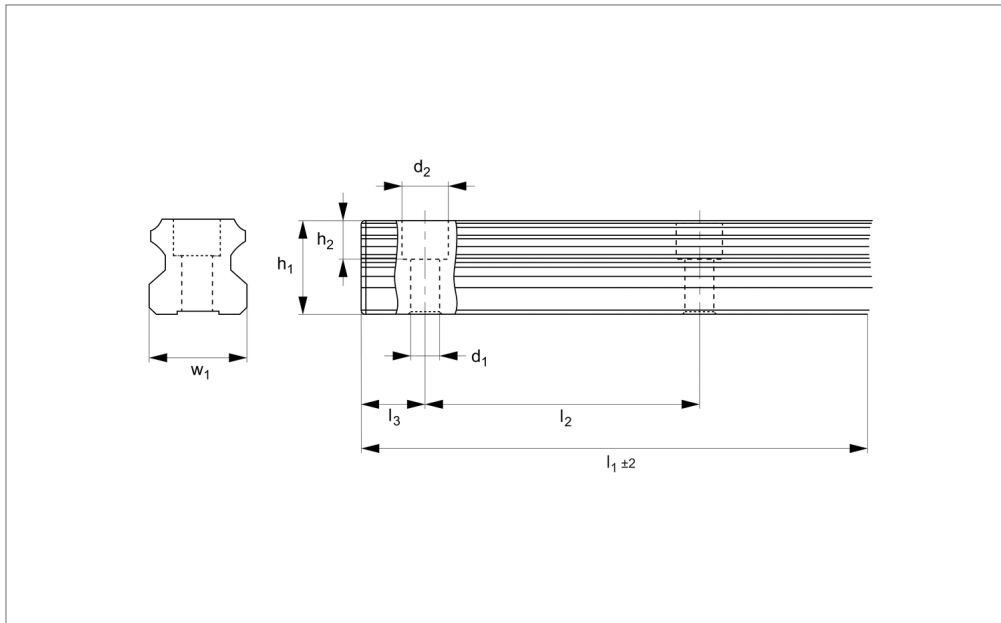
Ordering Example



25mm Aluminium Linear Guide Rail

with stainless raceways

Linear Guide-ways



EL1018.25

LINEAR GUIDEWAYS

Material

Aluminium profile (AlMgSi0.5, anodized 12-15µ). Raceway stainless steel (X46Cr13), hardened to 58-62HRC.

versus steel versions. The aluminium rails are made of high quality aluminium alloy with hardened stainless steel raceway.

weight aluminium carriages. For standard steel linear guideways and carriages see part no. EL1016.

Technical Notes

Compact, light-weight design. 60% saving

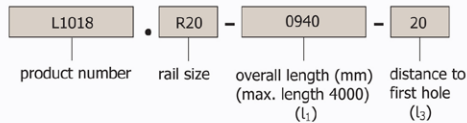
Tips

These are very lightweight aluminium rails and can only be used with our light-

Order No.	Rail size	l_1	w_1	h_1	d_1	d_2	h_2	l_2	l_3	Weight kg
20170615	25	180	25	21.8	7.0	11.0	8.9	60	30	0.2
20170622	25	240	25	21.8	7.0	11.0	8.9	60	30	0.3
20170639	25	300	25	21.8	7.0	11.0	8.9	60	30	0.4
20170646	25	360	25	21.8	7.0	11.0	8.9	60	30	0.5
20170653	25	420	25	21.8	7.0	11.0	8.9	60	30	0.5
20170660	25	480	25	21.8	7.0	11.0	8.9	60	30	0.6
20170677	25	540	25	21.8	7.0	11.0	8.9	60	30	0.7
20170684	25	600	25	21.8	7.0	11.0	8.9	60	30	0.8
20170691	25	660	25	21.8	7.0	11.0	8.9	60	30	0.8
20170707	25	720	25	21.8	7.0	11.0	8.9	60	30	0.9
20170714	25	780	25	21.8	7.0	11.0	8.9	60	30	1.0
20170721	25	840	25	21.8	7.0	11.0	8.9	60	30	1.1
20170738	25	900	25	21.8	7.0	11.0	8.9	60	30	1.1
20170745	25	960	25	21.8	7.0	11.0	8.9	60	30	1.2
20170752	25	1020	25	21.8	7.0	11.0	8.9	60	30	1.2
20170769	25	1080	25	21.8	7.0	11.0	8.9	60	30	1.3
20170776	25	1140	25	21.8	7.0	11.0	8.9	60	30	1.3
20170783	25	1200	25	21.8	7.0	11.0	8.9	60	30	1.4
20170790	25	1260	25	21.8	7.0	11.0	8.9	60	30	1.4
20170806	25	1320	25	21.8	7.0	11.0	8.9	60	30	1.5
20170813	25	1380	25	21.8	7.0	11.0	8.9	60	30	1.5
20170820	25	1440	25	21.8	7.0	11.0	8.9	60	30	1.6
20170837	25	1500	25	21.8	7.0	11.0	8.9	60	30	1.6
20170844	25	1560	25	21.8	7.0	11.0	8.9	60	30	1.7
20170851	25	1620	25	21.8	7.0	11.0	8.9	60	30	1.7
20170868	25	1680	25	21.8	7.0	11.0	8.9	60	30	1.8
20170875	25	1740	25	21.8	7.0	11.0	8.9	60	30	1.8
20170882	25	1800	25	21.8	7.0	11.0	8.9	60	30	1.9
20170899	25	1860	25	21.8	7.0	11.0	8.9	60	30	1.9
20170905	25	1920	25	21.8	7.0	11.0	8.9	60	30	2.0
20170912	25	1980	25	21.8	7.0	11.0	8.9	60	30	2.0

Order No.	Rail size	l_1	w_1	h_1	d_1	d_2	h_2	l_2	l_3	Weight kg
20170929	25	2040	25	21.8	7.0	11.0	8.9	60	30	0.1
20170936	25	2100	25	21.8	7.0	11.0	8.9	60	30	0.1
20170943	25	2160	25	21.8	7.0	11.0	8.9	60	30	0.2
20170950	25	2220	25	21.8	7.0	11.0	8.9	60	30	0.3
20170967	25	2280	25	21.8	7.0	11.0	8.9	60	30	0.4
20170974	25	2340	25	21.8	7.0	11.0	8.9	60	30	0.4
20170981	25	2400	25	21.8	7.0	11.0	8.9	60	30	0.5
20170998	25	2460	25	21.8	7.0	11.0	8.9	60	30	0.6
20171001	25	2520	25	21.8	7.0	11.0	8.9	60	30	0.7
20171018	25	2580	25	21.8	7.0	11.0	8.9	60	30	0.7
20171025	25	2640	25	21.8	7.0	11.0	8.9	60	30	0.8
20171032	25	2700	25	21.8	7.0	11.0	8.9	60	30	0.9
20171049	25	2760	25	21.8	7.0	11.0	8.9	60	30	1.0
20171056	25	2820	25	21.8	7.0	11.0	8.9	60	30	1.0
20171063	25	2880	25	21.8	7.0	11.0	8.9	60	30	1.1
20171070	25	2940	25	21.8	7.0	11.0	8.9	60	30	1.2
20171087	25	3000	25	21.8	7.0	11.0	8.9	60	30	0.0
20171094	25	3060	25	21.8	7.0	11.0	8.9	60	30	0.1
20171100	25	3120	25	21.8	7.0	11.0	8.9	60	30	0.2
20171117	25	3180	25	21.8	7.0	11.0	8.9	60	30	0.2
20171124	25	3240	25	21.8	7.0	11.0	8.9	60	30	0.3
20171131	25	3300	25	21.8	7.0	11.0	8.9	60	30	0.4
20171148	25	3360	25	21.8	7.0	11.0	8.9	60	30	0.5
20171155	25	3420	25	21.8	7.0	11.0	8.9	60	30	0.5
20171162	25	3480	25	21.8	7.0	11.0	8.9	60	30	0.6
20171179	25	3540	25	21.8	7.0	11.0	8.9	60	30	0.7
20171186	25	3600	25	21.8	7.0	11.0	8.9	60	30	0.8
20171193	25	3660	25	21.8	7.0	11.0	8.9	60	30	0.8
20171209	25	3720	25	21.8	7.0	11.0	8.9	60	30	0.9
20171216	25	3780	25	21.8	7.0	11.0	8.9	60	30	1.0
20171223	25	3840	25	21.8	7.0	11.0	8.9	60	30	1.1
20171230	25	3900	25	21.8	7.0	11.0	8.9	60	30	1.1
20171247	25	3960	25	21.8	7.0	11.0	8.9	60	30	1.2
20171254	25	4000	25	21.8	7.0	11.0	28	60	30	5.0

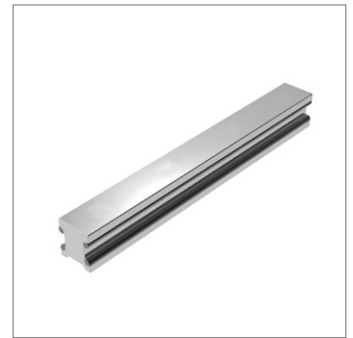
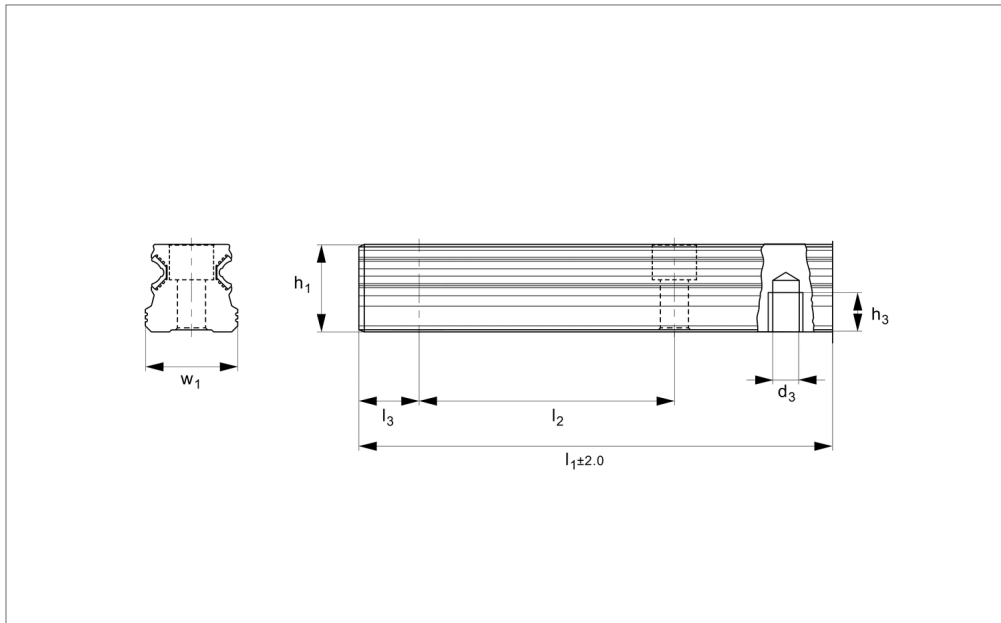
Ordering Example



25mm Aluminium Linear Guide Rail

rear fixing with stainless raceways

Linear Guideways



EL1018.25R

LINEAR GUIDEWAYS

Material

Aluminium profile (AlMgSi0.5, anodized 12-15 μ). Raceway stainless steel (X46Cr13), hardened to 58-62HRC.

Technical Notes

Compact, light-weight design. 60% saving

versus steel versions. The aluminium rails are made of high quality aluminium alloy with hardened stainless steel raceway.

Tips

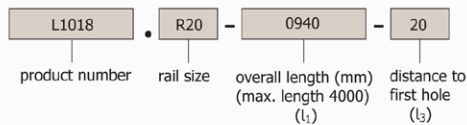
These are very lightweight aluminium rails and can only be used with our light-

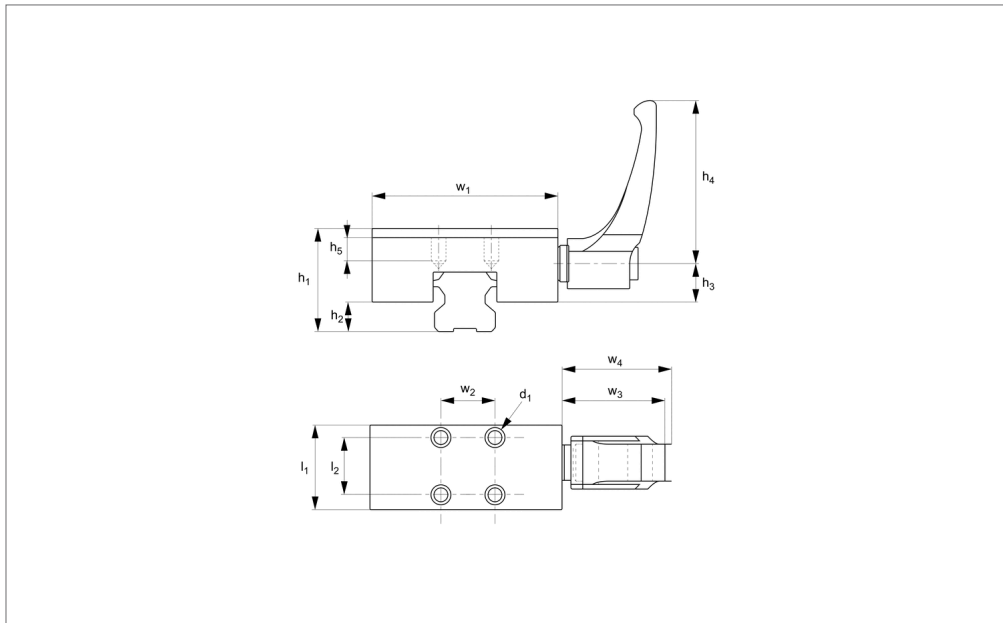
weight aluminium carriages. For standard steel linear guideways and carriages see part no. EL1016.

Order No.	Rail size	l_1	w_1	h_1	d_3	h_3	l_2	l_3	Weight kg
20172558	25	180	25	21.8	M6	12	60	28	0.2
20172565	25	240	25	21.8	M6	12	60	28	0.3
20172572	25	300	25	21.8	M6	12	60	28	0.4
20172589	25	360	25	21.8	M6	12	60	28	0.5
20172596	25	420	25	21.8	M6	12	60	28	0.5
20172602	25	480	25	21.8	M6	12	60	28	0.6
20172619	25	540	25	21.8	M6	12	60	28	0.7
20172626	25	600	25	21.8	M6	12	60	28	0.8
20172633	25	660	25	21.8	M6	12	60	28	0.8
20172640	25	720	25	21.8	M6	12	60	28	0.9
20172657	25	780	25	21.8	M6	12	60	28	1.0
20172664	25	840	25	21.8	M6	12	60	28	1.1
20172671	25	900	25	21.8	M6	12	60	28	1.1
20172688	25	960	25	21.8	M6	12	60	28	1.2
20172695	25	1020	25	21.8	M6	12	60	28	1.3
20172701	25	1080	25	21.8	M6	12	60	28	1.4
20172718	25	1140	25	21.8	M6	12	60	28	1.4
20172725	25	1200	25	21.8	M6	12	60	28	1.5
20172732	25	1260	25	21.8	M6	12	60	28	1.6
20172749	25	1320	25	21.8	M6	12	60	28	1.7
20172756	25	1380	25	21.8	M6	12	60	28	1.7
20172763	25	1440	25	21.8	M6	12	60	28	1.8
20172770	25	1500	25	21.8	M6	12	60	28	1.9
20172787	25	1560	25	21.8	M6	12	60	28	2.0
20172794	25	1620	25	21.8	M6	12	60	28	2.0
20172800	25	1680	25	21.8	M6	12	60	28	2.1
20172817	25	1740	25	21.8	M6	12	60	28	2.2
20172824	25	1800	25	21.8	M6	12	60	28	2.3
20172831	25	1860	25	21.8	M6	12	60	28	2.3
20172848	25	1920	25	21.8	M6	12	60	28	2.4
20172855	25	1980	25	21.8	M6	12	60	28	2.5

Order No.	Rail size	l_1	w_1	h_1	d_3	h_3	l_2	l_3	Weight kg
20172862	25	2040	25	21.8	M6	12	60	28	2.6
20172879	25	2100	25	21.8	M6	12	60	28	2.6
20172886	25	2160	25	21.8	M6	12	60	28	2.7
20172893	25	2220	25	21.8	M6	12	60	28	2.8
20172909	25	2280	25	21.8	M6	12	60	28	2.9
20172916	25	2340	25	21.8	M6	12	60	28	2.9
20172923	25	2400	25	21.8	M6	12	60	28	3.0
20172930	25	2460	25	21.8	M6	12	60	28	3.1
20172947	25	2520	25	21.8	M6	12	60	28	3.2
20172954	25	2580	25	21.8	M6	12	60	28	3.2
20172961	25	2640	25	21.8	M6	12	60	28	3.3
20172978	25	2700	25	21.8	M6	12	60	28	3.4
20172985	25	2760	25	21.8	M6	12	60	28	3.5
20172992	25	2820	25	21.8	M6	12	60	28	3.5
20173005	25	2880	25	21.8	M6	12	60	28	3.6
20173012	25	2940	25	21.8	M6	12	60	28	3.7
20173029	25	3000	25	21.8	M6	12	60	28	3.8
20173036	25	3060	25	21.8	M6	12	60	28	3.8
20173043	25	3120	25	21.8	M6	12	60	28	3.9
20173050	25	3180	25	21.8	M6	12	60	28	4.0
20173067	25	3240	25	21.8	M6	12	60	28	4.1
20173074	25	3300	25	21.8	M6	12	60	28	4.1
20173081	25	3360	25	21.8	M6	12	60	28	4.2
20173098	25	3420	25	21.8	M6	12	60	28	4.3
20173104	25	3480	25	21.8	M6	12	60	28	4.4
20173111	25	3540	25	21.8	M6	12	60	28	4.4
20173128	25	3600	25	21.8	M6	12	60	28	4.5
20173135	25	3660	25	21.8	M6	12	60	28	4.6
20173142	25	3720	25	21.8	M6	12	60	28	4.7
20173159	25	3780	25	21.8	M6	12	60	28	4.7
20173166	25	3840	25	21.8	M6	12	60	28	4.8
20173173	25	3900	25	21.8	M6	12	60	28	4.9
20173180	25	3960	25	21.8	M6	12	60	28	5.0
20173197	25	4000	25	21.8	M6	12	60	28	5.0

Ordering Example





EL1018.CL

LINEAR GUIDEWAYS

Material

Aluminium body, plastic contact faces.

contact sections are pressed into contact with the rail, clamping the carriage in place.

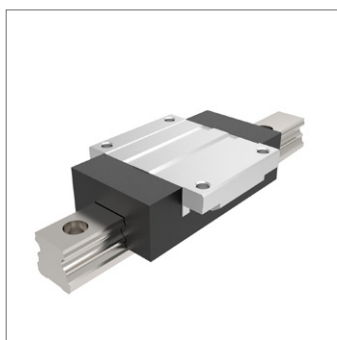
EL1018.

Technical Notes

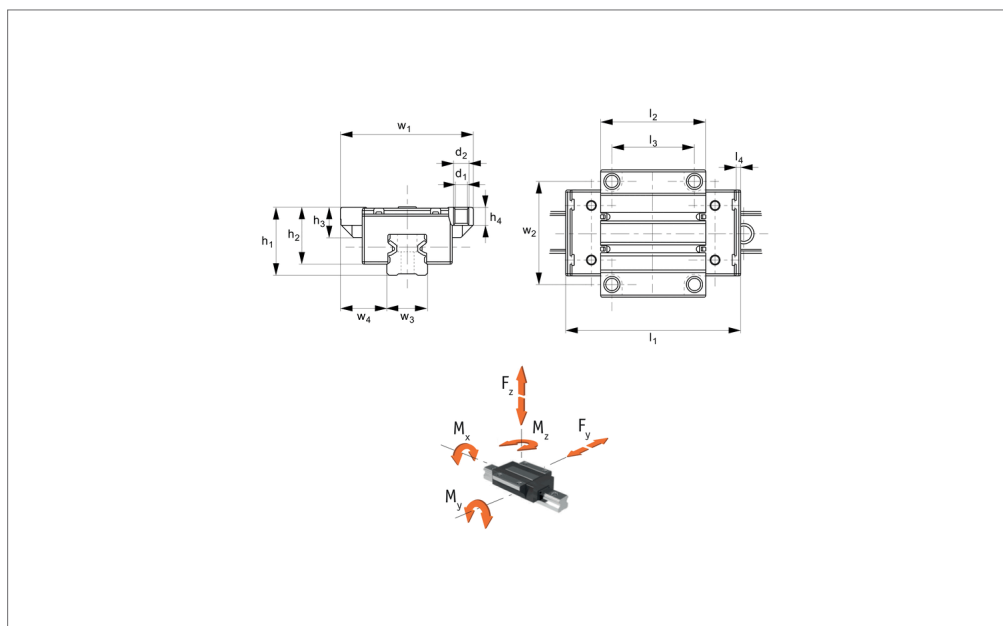
By adjusting the clamping lever, the

Suitable for our aluminium linear rails

Order No.	For rail	h_1	l_1	w_1	h_2	h_3	h_4	l_2	w_2	w_3	w_4	d_1	Holding force N	Torque to Nm max.
20175825	15	24	20	34	4.5	12.9	40	10	10	29.9	33.3	M 3	130	3
20175832	20	30	24	44	6.0	16.0	40	12	12	29.9	33.4	M 4	250	3
20175849	25	36	30	48	7.0	19.6	44	15	15	29.8	33.3	M 5	330	3



EL1018.F



Material

Aluminium block (X46Cr13 hardened to F35), tensile strength 350N/mm².
Stainless steel inserts hardened, and stainless ball bearings (DIN 1.4034).

Technical Notes

Compact, light-weight design. 60% saving versus steel versions.
Select the size and number of carriages to suit the required load then select the

required rail length, (see rail part nos. EL1018). Standard carriages are not preloaded.
Mounting dimensions are identical to those of most steel linear guide rails, making them interchangeable.

Tips

These are aluminium rail carriages and can only be used with corresponding aluminium linear rails L1018. For stan-

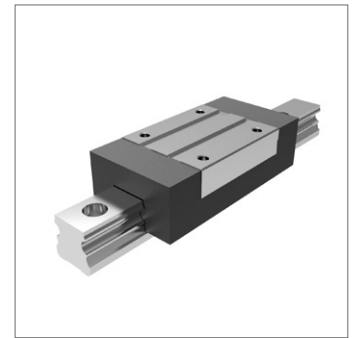
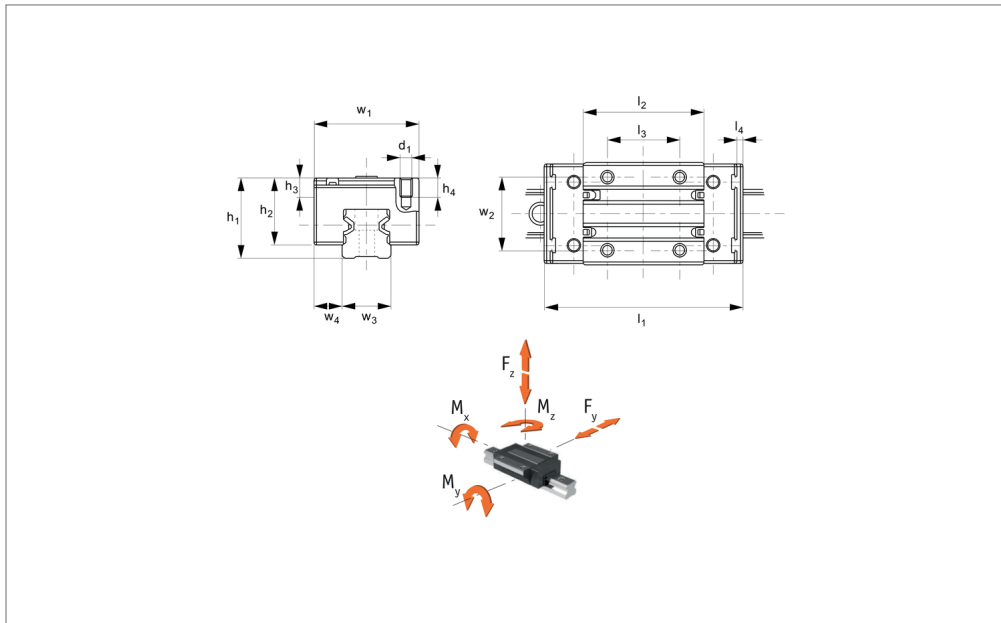
ard steel linear guideways and carriages see part no. EL1016.

Important Notes

Static loads ratings are difficult to calculate clearly due to the combination of materials. Do not exceed F_{max} or maximum static moment load rating. See load calculations on technical pages.

Order No.	Rail size	l_1	w_1	h_1 ± 0.03	d_1	d_2	h_2	h_3	h_4	l_2	l_3	l_4	w_2	Weight kg
20159085	15	64.0	47	24	4.3	M5	19.8	11	6.0	37.8	30	2.5	38	0.08
20159092	20	85.9	63	30	5.3	M6	24.7	13	8.0	51.5	40	2.8	53	0.18
20159108	25	96.0	70	36	6.7	M8	29.9	17	9.3	58.0	45	3.0	57	0.26

Order No.	w_3	w_4 ± 0.05	F max. C_0 N rad & ax	Dyn. load C N	Dyn. moment M_x Nm	Dyn. moment $M_{y \& z}$ Nm	Static moment M_x Nm	Static moment $M_{y \& z}$ Nm
20159085	15	16.0	2.000	5.000	36	29	14	12
20159092	20	21.5	4.400	11.000	101	89	40	35
20159108	23	23.5	6.400	16.000	165	147	66	59



EL1018.U

Material

Aluminium block (X46Cr13 hardened to F35), tensile strength 350N/mm².
Stainless steel inserts hardened, and stainless ball bearings (DIN 1.4034).

Technical Notes

Compact, light-weight design. 60% saving versus steel versions.

Select the size and number of carriages to suit the required load then select the

required rail length, (see rail part nos. EL1018). Standard carriages are not preloaded.

Mounting dimensions are identical to those of most steel linear guide rails, making them interchangeable.

Tips

These are aluminium rail carriages and can only be used with corresponding aluminium linear rails EL1018. For stan-

dard steel linear guideways and carriages see part no. EL1016.

Important Notes

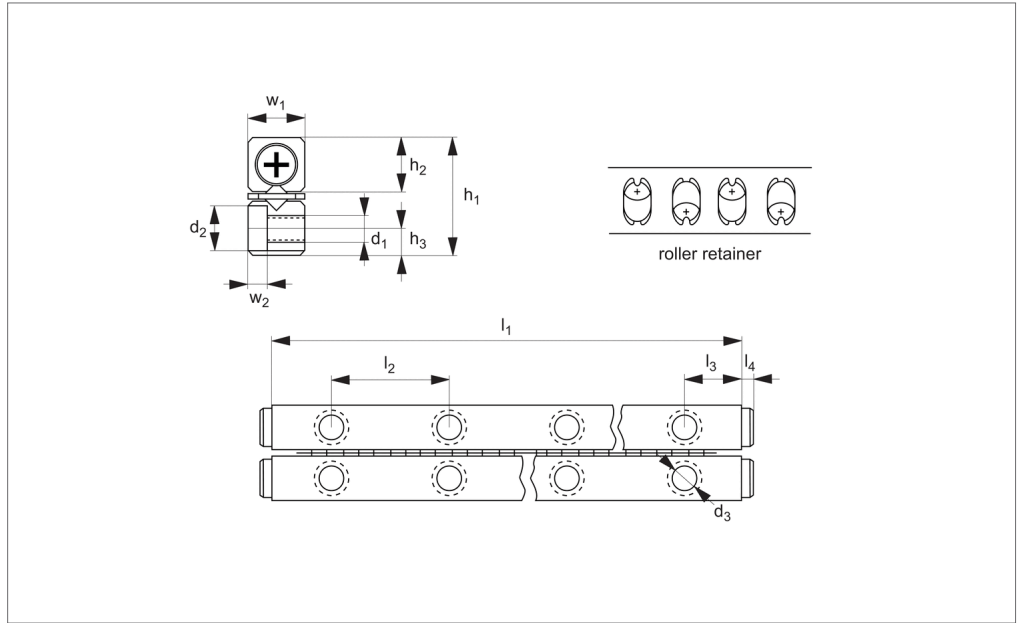
Static loads ratings are difficult to calculate clearly due to the combination of materials. Do not exceed F_{max} or maximum static moment load rating. See load calculations on technical pages.

Order No.	Rail size	l_1	w_1	h_1 ± 0.03	d_1	h_2	h_3	h_4	l_2	l_3	l_4	w_2	w_3	Weight kg
20159115	15	64.0	34	24	M4	19.8	4.1	6.0	37.8	26	2.5	26	15	0.07
20159122	20	85.9	44	30	M5	24.7	5.5	7.5	51.5	36	2.8	32	20	0.15
20159139	25	96.0	48	36	M6	29.9	6.4	9.0	58.0	35	3.0	35	23	0.22

Order No.	w_4 ± 0.05	F N max.	Dyn. load $C_{rad \& ax}$ N	M_x dyn. Nm	M_x static Nm max.	$M_y + M_z$ dyn. Nm	$M_y + M_z$ static Nm max.
20159115	9.5	2.000	5.000	36	14	29	12
20159122	12.0	4.400	11.000	101	40	89	35
20159139	12.5	6.400	16.000	165	66	147	59



EL1000



Material

Alloy steel rail and roller (DIN 1.2842), through hardened to 60±2 HRC.
Stainless steel roller retainer (AISI 304).

Technical Notes

Supplied in sets of 4 rails (with 2 roller cages and 8 end screws as standard). See table for number of rollers in each cage.

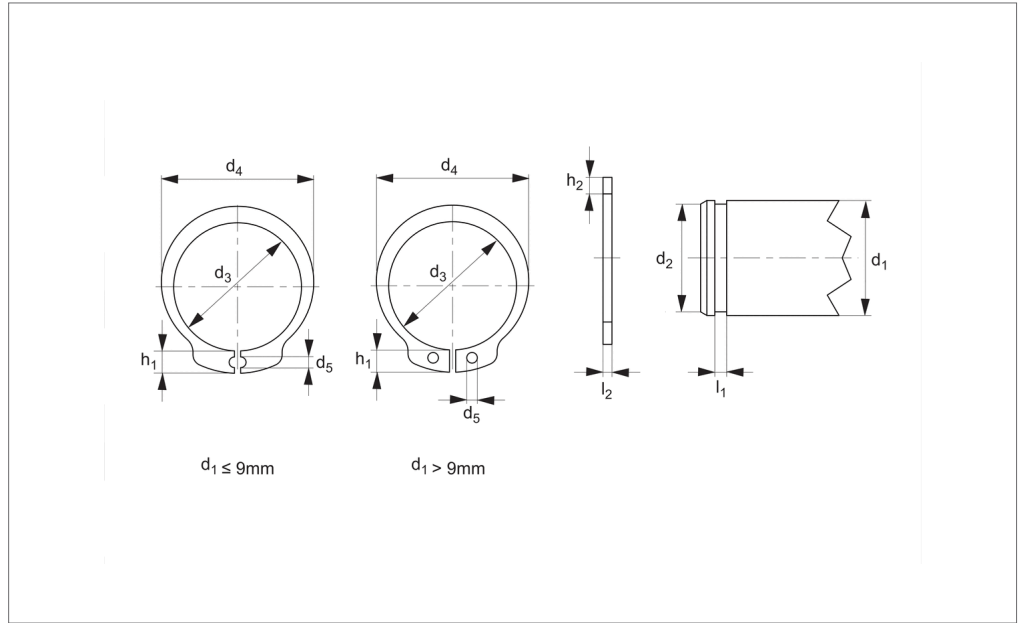
Crossed roller cages can be cut to length to alter stroke - but this affects load rating, please see technical pages.

Order No.	l_1	Stroke max.	w_1	d_1	d_2	d_3	h_1 +0 -0.3	h_2	h_3	l_2	l_3	l_4	w_2	No. of rollers	Dyn. load C kN max.	Static load C_0 kN max.	Weight kg
20161897	20	13	4	1,65	3,0	M 2	8,5	3,9	1,8	10	5	1,3	1,4	5	0,63	0,72	0,01
20161903	30	21	4	1,65	3,0	M 2	8,5	3,9	1,8	10	5	1,3	1,4	7	0,88	1,00	0,01
20161910	40	29	4	1,65	3,0	M 2	8,5	3,9	1,8	10	5	1,3	1,4	9	1,13	1,30	0,02
20161927	50	37	4	1,65	3,0	M 2	8,5	3,9	1,8	10	5	1,3	1,4	11	1,38	1,58	0,02
20161934	60	45	4	1,65	3,0	M 2	8,5	3,9	1,8	10	5	1,3	1,4	13	1,63	1,88	0,02
20161941	70	53	4	1,65	3,0	M 2	8,5	3,9	1,8	10	5	1,3	1,4	15	1,88	2,16	0,03
20161958	80	61	4	1,65	3,0	M 2	8,5	3,9	1,8	10	5	1,3	1,4	17	12,1	2,45	0,03
20161965	30	24	6	2,55	4,4	M 3	12	5,5	2,5	15	7,5	1,5	2,0	5	1,47	1,46	0,03
20161972	45	30	6	2,55	4,4	M 3	12	5,5	2,5	15	7,5	1,5	2,0	8	2,34	2,34	0,04
20161989	60	44	6	2,55	4,4	M 3	12	5,5	2,5	15	7,5	1,5	2,0	10	2,93	2,92	0,05
20161996	75	58	6	2,55	4,4	M 3	12	5,5	2,5	15	7,5	1,5	2,0	12	3,52	3,50	0,06
20162009	90	72	6	2,55	4,4	M 3	12	5,5	2,5	15	7,5	1,5	2,0	14	4,10	4,09	0,08
20162016	105	86	6	2,55	4,4	M 3	12	5,5	2,5	15	7,5	1,5	2,0	16	4,69	4,67	0,09
20162023	120	100	6	2,55	4,4	M 3	12	5,5	2,5	15	7,5	1,5	2,0	18	5,27	5,26	0,11
20162030	135	106	6	2,55	4,4	M 3	12	5,5	2,5	15	7,5	1,5	2,0	21	6,15	6,13	0,12
20162047	150	120	6	2,55	4,4	M 3	12	5,5	2,5	15	7,5	1,5	2,0	23	6,74	6,72	0,13
20174033	165	134	6	2,55	4,4	M 3	12	5,5	2,5	15	7,5	1,5	2,0	25	7,33	7,30	0,14
20162054	180	148	6	2,55	4,4	M 3	12	5,5	2,5	15	7,5	1,5	2,0	27	7,91	7,88	0,16
20162061	50	34	8	3,3	6,0	M 4	18	8,3	3,5	25	12,5	2,0	3,1	7	4,47	5,33	0,92
20162078	75	54	8	3,3	6,0	M 4	18	8,3	3,5	25	12,5	2,0	3,1	10	6,38	7,61	0,14
20162085	100	74	8	3,3	6,0	M 4	18	8,3	3,5	25	12,5	2,0	3,1	13	8,29	9,89	0,18
20162092	125	104	8	3,3	6,0	M 4	18	8,3	3,5	25	12,5	2,0	3,1	15	9,57	11,4	0,23
20162108	150	124	8	3,3	6,0	M 4	18	8,3	3,5	25	12,5	2,0	3,1	18	11,5	13,7	0,27
20162115	175	144	8	3,3	6,0	M 4	18	8,3	3,5	25	12,5	2,0	3,1	21	13,4	16,0	0,32
20162122	200	164	8	3,3	6,0	M 4	18	8,3	3,5	25	12,5	2,0	3,1	24	15,3	18,3	0,36
20162139	225	184	8	3,3	6,0	M 4	18	8,3	3,5	25	12,5	2,0	3,1	27	17,2	20,6	0,41
20162146	250	204	8	3,3	6,0	M 4	18	8,3	3,5	25	12,5	2,0	3,1	30	19,1	22,8	0,45
20162153	275	224	8	3,3	6,0	M 4	18	8,3	3,5	25	12,5	2,0	3,1	33	21,1	25,1	0,49
20162160	300	244	8	3,3	6,0	M 4	18	8,3	3,5	25	12,5	2,0	3,1	36	23,0	27,4	0,54
20159344	80	54	11	4,3	7,5	M 5	22	10	4,5	40	20	2,0	4,1	8	9,84	9,36	0,25
20159313	120	92	11	4,3	7,5	M 5	22	10	4,5	40	20	2,0	4,1	11	13,5	12,9	0,36
20162177	160	130	11	4,3	7,5	M 5	22	10	4,5	40	20	2,0	4,1	14	17,2	16,4	0,38

Order No.	l_1	Stroke max.	w_1	d_1	d_2	d_3	h_1 +0 -0.3	h_2	h_3	l_2	l_3	l_4	w_2	No. of rollers	Dyn. load C kN max.	Static load C_0 kN max.	Weight kg
20161880	200	154	11	4,3	7,5	M 5	22	10	4,5	40	20	2,0	4,1	18	22,1	21,1	0,60
20162184	240	192	11	4,3	7,5	M 5	22	10	4,5	40	20	2,0	4,1	21	25,8	24,6	0,71
20162467	280	230	11	4,3	7,5	M 5	22	10	4,5	40	20	2,0	4,1	24	29,5	28,1	0,83
20162191	320	254	11	4,3	7,5	M 5	22	10	4,5	40	20	2,0	4,1	28	34,4	32,8	0,95
20162207	360	292	11	4,3	7,5	M 5	22	10	4,5	40	20	2,0	4,1	31	38,1	36,3	1,06
20162214	400	330	11	4,3	7,5	M 5	22	10	4,5	40	20	2,0	4,1	34	41,8	39,8	1,18
20162450	440	354	11	4,3	7,5	M 5	22	10	4,5	40	20	2,0	4,1	38	46,7	44,5	1,40
20162221	480	392	11	4,3	7,5	M 5	22	10	4,5	40	20	2,0	4,1	41	50,4	48,0	1,41
20162238	100	80	15	5,3	9,5	M 6	31	14	6	50	25	2,0	5,2	7	18,0	18,4	0,58
20162245	150	108	15	5,3	9,5	M 6	31	14	6	50	25	2,0	5,2	11	28,3	29,0	0,87
20162252	200	154	15	5,3	9,5	M 6	31	14	6	50	25	2,0	5,2	14	36,0	36,9	1,16
20162269	250	200	15	5,3	9,5	M 6	31	14	6	50	25	2,0	5,2	17	43,7	44,7	1,44
20162276	300	246	15	5,3	9,5	M 6	31	14	6	50	25	2,0	5,2	20	51,4	52,6	1,73
20162283	350	274	15	5,3	9,5	M 6	31	14	6	50	25	2,0	5,2	24	61,7	63,2	2,01
20162290	400	320	15	5,3	9,5	M 6	31	14	6	50	25	2,0	5,2	27	69,4	71,1	2,30
20162306	450	366	15	5,3	9,5	M 6	31	14	6	50	25	2,0	5,2	30	77,1	79,0	2,59
20162313	500	412	15	5,3	9,5	M 6	31	14	6	50	25	2,0	5,2	33	84,8	86,9	2,87
20162320	550	458	15	5,3	9,5	M 6	31	14	6	50	25	2,0	5,2	36	92,5	94,8	3,16
20162337	600	486	15	5,3	9,5	M 6	31	14	6	50	25	2,0	5,2	40	103,0	105,0	2,55
20162344	200	158	22	6,8	10,5	M 8	44	20,2	9	100	50	3,5	5,2	9	64,7	65,5	2,54
20162351	300	246	22	6,8	10,5	M 8	44	20,2	9	100	50	3,5	5,2	13	93,5	94,6	3,78
20162368	400	306	22	6,8	10,5	M 8	44	20,2	9	100	50	3,5	5,2	18	129,0	131,0	5,02
20162375	500	394	22	6,8	10,5	M 8	44	20,2	9	100	50	3,5	5,2	22	158,0	160,0	6,27
20162382	600	482	22	6,8	10,5	M 8	44	20,2	9	100	50	3,5	5,2	26	187,0	189,0	7,51
20174040	700	570	22	6,8	10,5	M 8	44	20,2	9	100	50	3,5	5,2	30	216,0	218,0	9,26
20174057	800	658	22	6,8	10,5	M 8	44	20,2	9	100	50	3,5	5,2	34	245,0	247,0	9,83
20174064	900	746	22	6,8	10,5	M 8	44	20,2	9	100	50	3,5	5,2	38	273,0	276,0	11,05
20159320	1000	805	22	6,8	10,5	M 8	44	20,2	9	100	50	3,5	5,2	43	309,0	311,0	12,20
20159337	1100	894	22	6,8	10,5	M 8	44	20,2	9	100	50	3,5	5,2	47	337,0	341,0	13,50
20174071	1200	982	22	6,8	10,5	M 8	44	20,2	9	100	50	3,5	5,2	51	366,0	371,0	14,70
20162399	200	160	28	8,5	13,5	M10	58	26,9	12	100	50	3,5	8,2	7	103,0	92,3	4,23
20162405	300	216	28	8,5	13,5	M10	58	26,9	12	100	50	3,5	8,2	11	162,0	145,0	6,32
20162412	400	308	28	8,5	13,5	M10	58	26,9	12	100	50	3,5	8,2	14	206,0	185,0	8,39
20162429	500	400	28	8,5	13,5	M10	58	26,9	12	100	50	3,5	8,2	17	250,0	224,0	10,49
20162436	600	492	28	8,5	13,5	M10	58	26,9	12	100	50	3,5	8,2	20	294,0	264,0	12,520
20174088	700	548	28	8,5	13,5	M10	58	26,9	12	100	50	3,5	8,2	24	353,0	317,0	15,47
20174095	800	640	28	8,5	13,5	M10	58	26,9	12	100	50	3,5	8,2	27	397,0	356,0	17,66
20174101	900	732	28	8,5	13,5	M10	58	26,9	12	100	50	3,5	8,2	30	441,0	396,0	18,52
20159290	1000	824	28	8,5	13,5	M10	58	26,9	12	100	50	3,5	8,2	33	485,0	435,0	20,40
20174118	1100	916	28	8,5	13,5	M10	58	26,9	12	100	50	3,5	8,2	36	529,0	474,0	22,60
20174125	1200	972	28	8,5	13,5	M10	58	26,9	12	100	50	3,5	8,2	40	588,0	527,0	24,70



ER3447



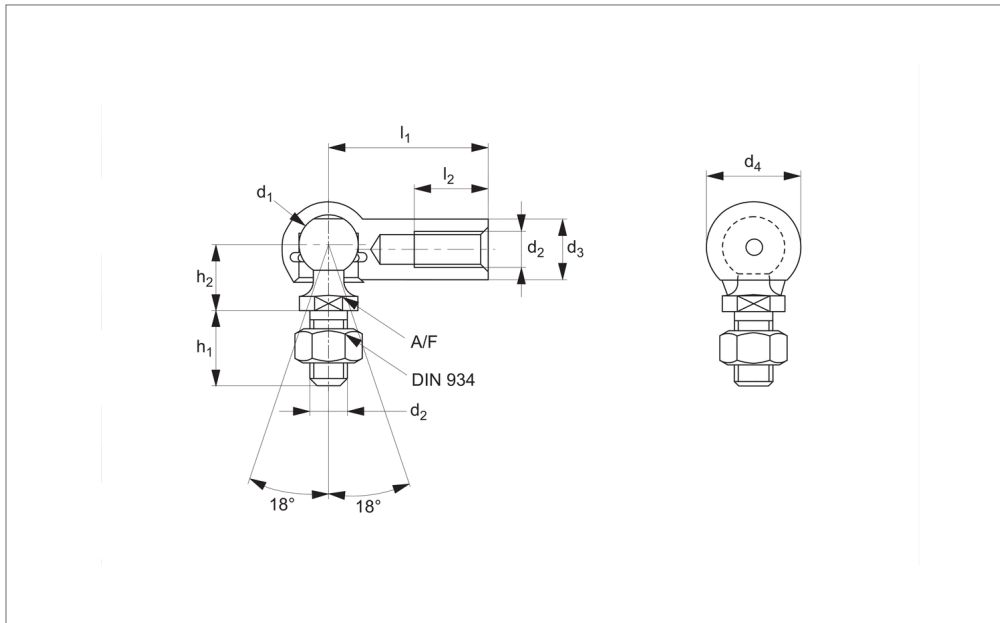
Material

Stainless steel (AISI 303).

Technical Notes

To DIN 471, for use with ER3454 clevis pins and ER3402-ER3403 clevis joints.

Order No.	d ₁	d ₂	d ₃	d ₄	d ₅ min.	h ₁	h ₂	l ₁	l ₂
20212773	5	4.8	3.7	6.2	1.0	2.5	1.1	0.7	0.6
20212780	6	5.7	5.6	7.5	1.15	2.7	1.3	0.8	0.7
20212797	8	7.6	7.4	9.6	1.2	3.2	1.5	1.1	0.8
20212803	10	9.6	9.3	12.7	1.7	3.3	1.8	1.1	1.0
20212810	12	11.5	11.0	7.7	1.7	3.3	1.8	1.1	1.0
20212827	16	15.2	14.7	12.2	1.7	3.7	2.2	1.1	1.0
20212834	20	19.0	18.5	16.2	2.0	4.0	2.6	1.3	1.2



ER3460

Material

Steel, silver zinc plated, ball stud: minimum tensile strength $R_m=600N/mm^2$.
Housing: minimum tensile strength $R_m=500N/mm^2$.

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

For sealing cap version, see ER3470.
Standard thread is right hand, (for left hand thread see ER3461).

Important Notes

Thread is not full length. There is a min 1.5mm unthreaded shank. If using part without the supplied nut, then please consider a counterbore to accommodate the unthreaded shank.

Order No.	Thread hand	d ₁	l ₁ ±0.3	d ₂	d ₃	d ₄	h ₁ ±0.3	Weight g
20212841	Right	8	22	M 5	8	12.8	10.2	15.2
20212858	Right	10	25	M 6	10	14.8	12.5	25.2
20212865	Right	13	30	M 8	13	19.3	16.5	53.1
20212872	Right	16	35	M10	16	24.0	20.0	103.8
20212889	Right	16	35	M12	16	24.0	20.0	103.8
20212896	Right	22	45	M14x1,5*	22	30.0	28.0	220.9
20212902	Right	22	45	M14	22	30.0	28.0	220.9
20212919	Right	22	45	M16	22	30.0	28.0	220.9

Order No.	h ₂ ±0.3	l ₂ min.	A/F tol. h14	Extraction force kg min.	Static load kg max.	Dyn. load C kg max.	Force required for movement kg max.
20212841	9	10.2	7	3	50	20	3
20212858	11	11.5	8	4	100	40	4
20212865	13	14.0	11	6	200	80	6
20212872	16	15.5	13	8	400	160	8
20212889	16	15.5	13	8	400	160	8
20212896	22	21.5	16	10	800	320	10
20212902	22	21.5	16	10	800	320	10
20212919	22	21.5	16	10	800	320	10

Ball & Socket Joints

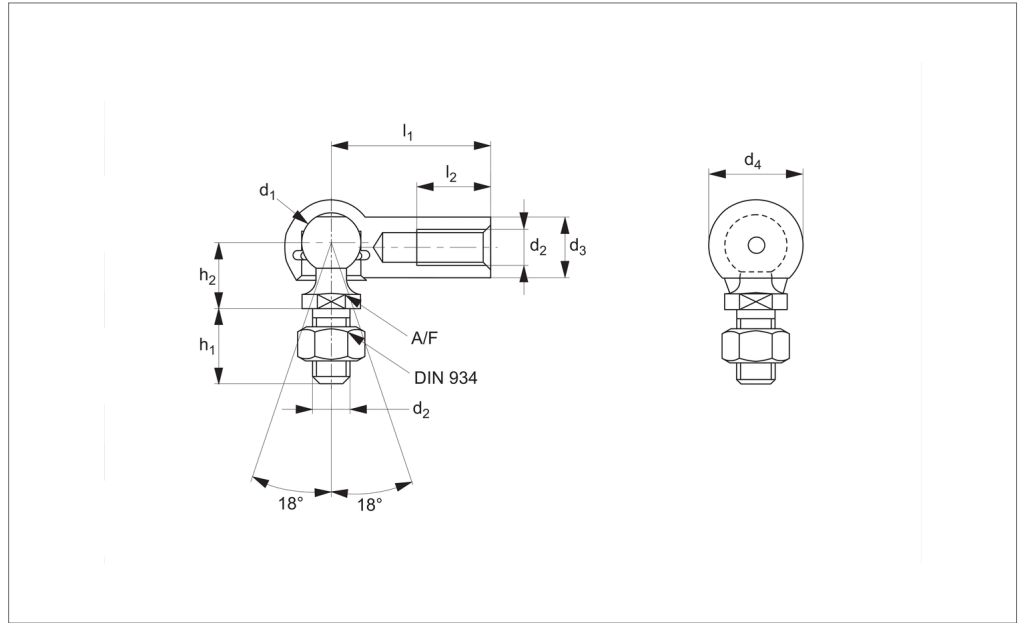
Ball and Socket Joints

left hand thread

BALL & SOCKET JOINTS



ER3461



Material

Steel, silver zinc plated, ball stud: minimum tensile strength $R_m=600N/mm^2$.
Housing: minimum tensile strength $R_m=500N/mm^2$.

hexagon nut.

Safety ring aids the retention of the ball stud in the housing.
*M14x1,5 is a fine pitch thread.

Important Notes

Thread is not full length. There is a min 1.5mm unthreaded shank. If using part without the supplied nut, then please consider a counterbore to accommodate the unthreaded shank.

Technical Notes

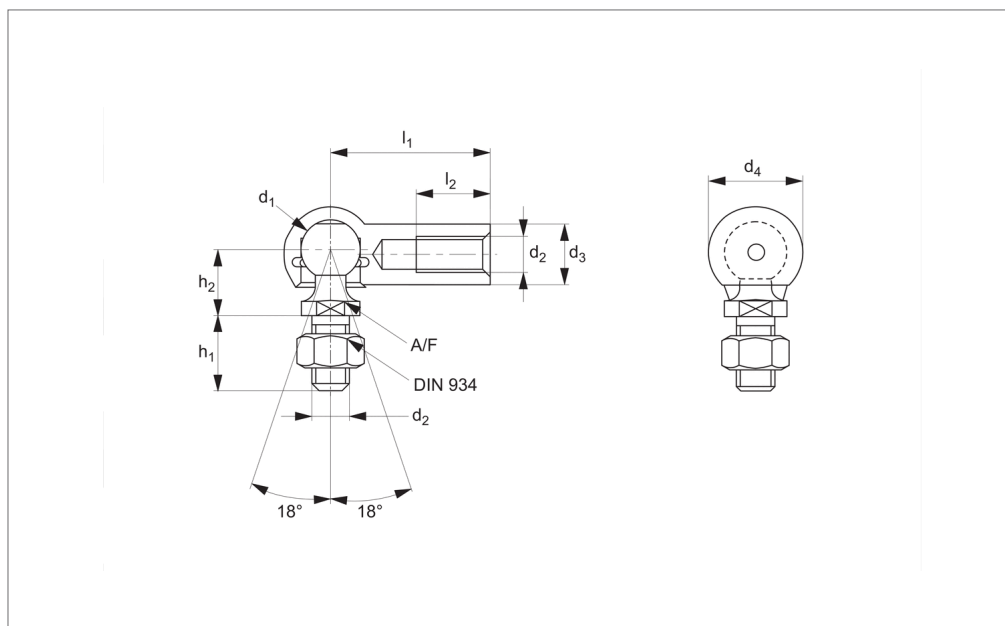
To DIN 71802 form CS, supplied with

Tips

Stud: right hand thread.
Housing: left hand thread.
For sealing cap version, see ER3471.

Order No.	Thread hand	d ₁	l ₁ ±0.3	d ₂	d ₃	d ₄	h ₁ ±0.3	Weight g
20212940	Left	8	22	M 5	8	12.8	10.2	15.2
20212957	Left	10	25	M 6	10	14.8	12.5	25.2
20212964	Left	13	30	M 8	13	19.3	16.5	53.1
20212971	Left	16	35	M10	16	24.0	20.0	103.8
20212988	Left	16	35	M12	16	24.0	20.0	103.8
20212995	Left	22	45	M14x1,5*	22	30.0	28.0	220.9
20213008	Left	22	45	M14	22	30.0	28.0	220.9
20213015	Left	22	45	M16	22	30.0	28.0	220.9

Order No.	h ₂ ±0.3	l ₂ min.	A/F tol. h14	Extraction force kg min.	Static load kg max.	Dyn. load C kg max.	Force required for movement kg max.
20212940	9	10.2	7	3	50	20	3
20212957	11	11.5	8	4	100	40	4
20212964	13	14.0	11	6	200	80	6
20212971	16	15.5	13	8	400	160	8
20212988	16	15.5	13	8	400	160	8
20212995	22	21.5	16	10	800	320	10
20213008	22	21.5	16	10	800	320	10
20213015	22	21.5	16	10	800	320	10



ER3466

Material

Stainless steel (A2, AISI 303).

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

For sealing cap version, see ER3476, standard thread is right hand, (for left hand thread see ER3467).

Important Notes

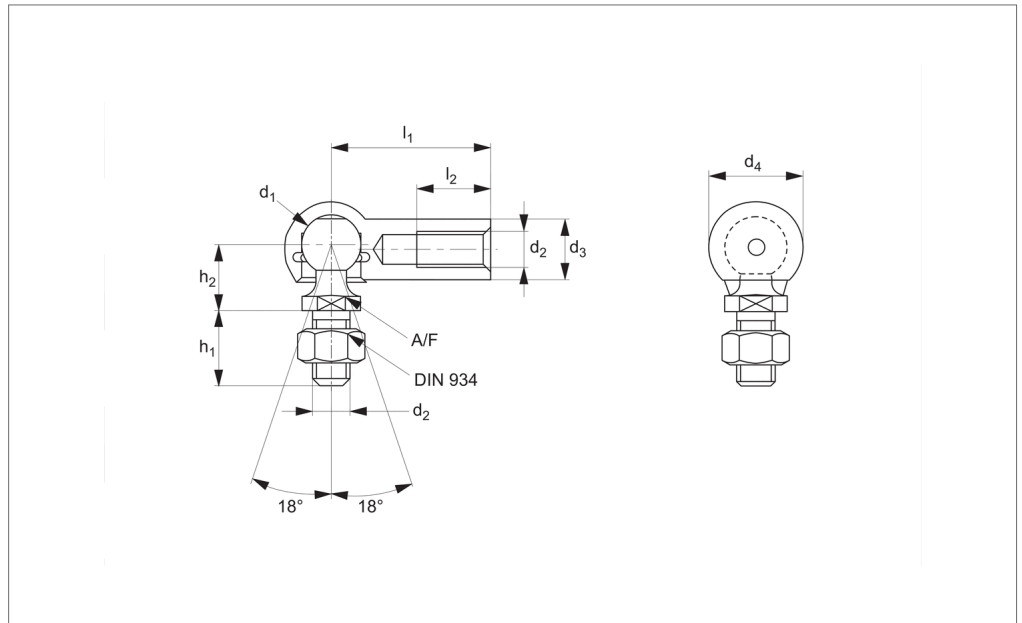
Thread is not full length. There is a min 1.5mm unthreaded shank. If using part without the supplied nut, then please consider a counterbore to accommodate the unthreaded shank.

Order No.	Thread hand	d ₁	l ₁ ±0.3	d ₂	d ₃	d ₄	h ₁ ±0.3	Weight g
20213022	Right	8	22	M 5	8	12.8	10.2	15.2
20213039	Right	10	25	M 6	10	14.8	12.5	25.2
20213046	Right	13	30	M 8	13	19.3	16.5	53.1
20213053	Right	16	35	M10	16	24.0	20.0	103.8
20213060	Right	16	35	M12	16	24.0	20.0	103.8
20213077	Right	19	45	M14x1,5*	22	30.0	28.0	220.9
20213084	Right	19	45	M14	22	30.0	28.0	220.9
20213091	Right	19	45	M16	22	30.0	28.0	220.9

Order No.	h ₂ ±0.3	l ₂ min.	A/F tol. h14	Extraction force kg min.	Static load kg max.	Dyn. load C kg max.	Force required for movement kg max.
20213022	9	10.2	7	3	50	20	3
20213039	11	11.5	8	4	100	40	4
20213046	13	14.0	11	6	200	80	6
20213053	16	15.5	13	8	400	160	8
20213060	16	15.5	13	8	400	160	8
20213077	22	21.5	16	10	800	320	10
20213084	22	21.5	16	10	800	320	10
20213091	22	21.5	16	10	800	320	10



ER3467



Material

Stainless steel (A2, AISI 303).

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

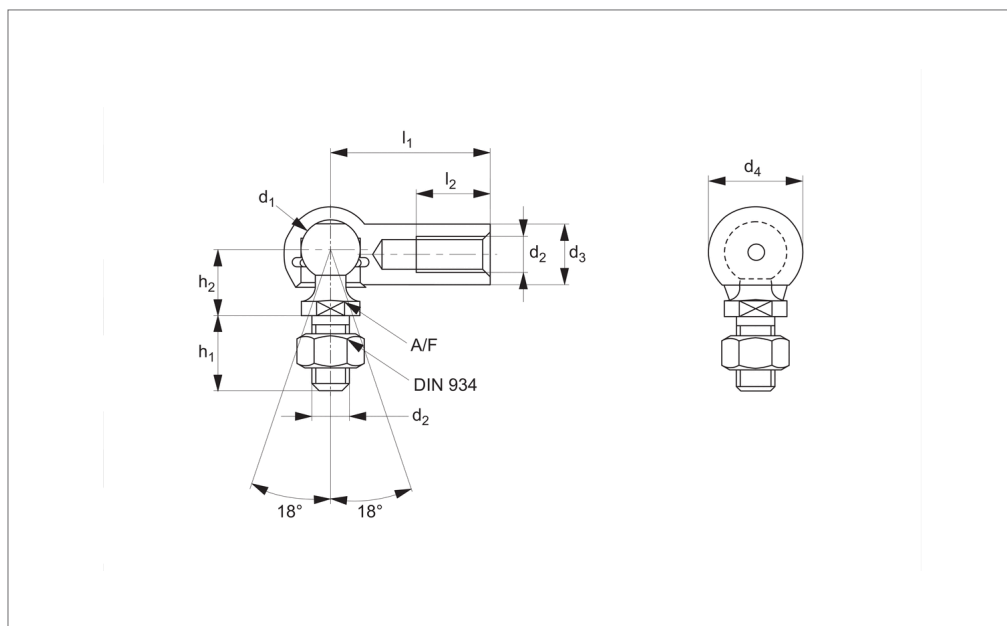
For sealing cap version, see ER3477.

Important Notes

Thread is not full length. There is a min 1.5mm unthreaded shank. If using part without the supplied nut, then please consider a counterbore to accommodate the unthreaded shank.

Order No.	Thread hand	d ₁	l ₁ ±0.3	d ₂	d ₃	d ₄	h ₁ ±0.3	Weight g
20213107	Left	8	22	M 5	8	12.8	10.2	15.2
20213114	Left	10	25	M 6	10	14.8	12.5	25.2
20213121	Left	13	30	M 8	13	19.3	16.5	53.1
20213138	Left	16	35	M10	16	24.0	20.0	103.8
20213145	Left	16	35	M12	16	24.0	20.0	103.8
20213152	Left	22	45	M14x1,5*	22	30.0	28.0	220.9
20213169	Left	22	45	M14	22	30.0	28.0	220.9
20213176	Left	22	45	M16	22	30.0	28.0	220.9

Order No.	h ₂ ±0.3	l ₂ min.	A/F tol. h14	Extraction force kg min.	Static load kg max.	Dyn. load C kg max.	Force required for movement kg max.
20213107	9	10.2	7	3	50	20	3
20213114	11	11.5	8	4	100	40	4
20213121	13	14.0	11	6	200	80	6
20213138	16	15.5	13	8	400	160	8
20213145	16	15.5	13	8	400	160	8
20213152	22	21.5	16	10	800	320	10
20213169	22	21.5	16	10	800	320	10
20213176	22	21.5	16	10	800	320	10



ER3468

Material

Stainless steel (A4, AISI 316).

Technical Notes

To DIN 71802 form CS, supplied with hexagon nut.

Safety ring aids the retention of the ball

stud in the housing.

Tips

For sealing cap version, see ER3476, standard thread is right hand, (for left hand thread see ER3467).

Important Notes

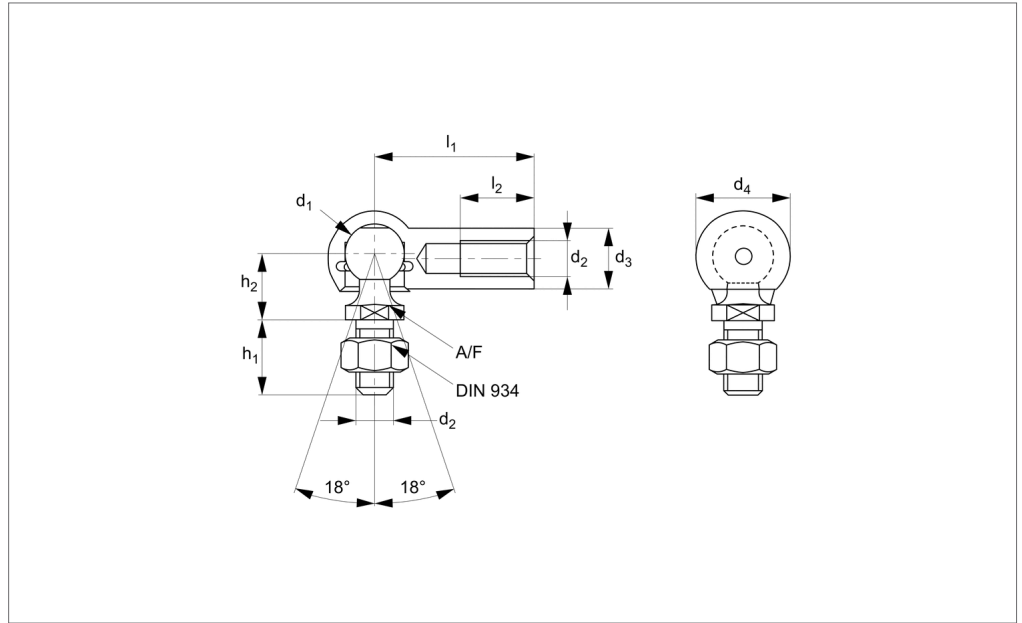
Thread is not full length. There is a min 1.5mm unthreaded shank. If using part without the supplied nut, then please consider a counterbore to accommodate the unthreaded shank.

Order No.	Thread hand	d ₁	l ₁ ±0.3	d ₂	d ₃	d ₄	h ₁ ±0.3	Weight g
20217020	Right	8	22	M 5	8	12.8	10.2	15.2
20217037	Right	10	25	M 6	10	14.8	12.5	25.2
20217044	Right	13	30	M 8	13	19.3	16.5	53.1
20217051	Right	16	35	M10	16	24.0	20.0	103.8

Order No.	h ₂ ±0.3	l ₂ min.	A/F tol. h14	Extraction force kg min.	Static load kg max.	Dyn. load C kg max.	Force required for movement kg max.
20217020	9	10.2	7	3	50	20	3
20217037	11	11.5	8	4	100	40	4
20217044	13	14.0	11	6	200	80	6
20217051	16	15.5	13	8	400	160	8



ER3470



Material

Steel, silver zinc plated, ball stud: steel minimum tensile strength $R_m=600N/mm^2$. Housing: steel minimum tensile strength $R_m=500N/mm^2$, 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 ER3471).

Important Notes

Thread is not full length. There is a min 1.5mm unthreaded shank. If using part without the supplied nut, then please consider a counterbore to accommodate the unthreaded shank.

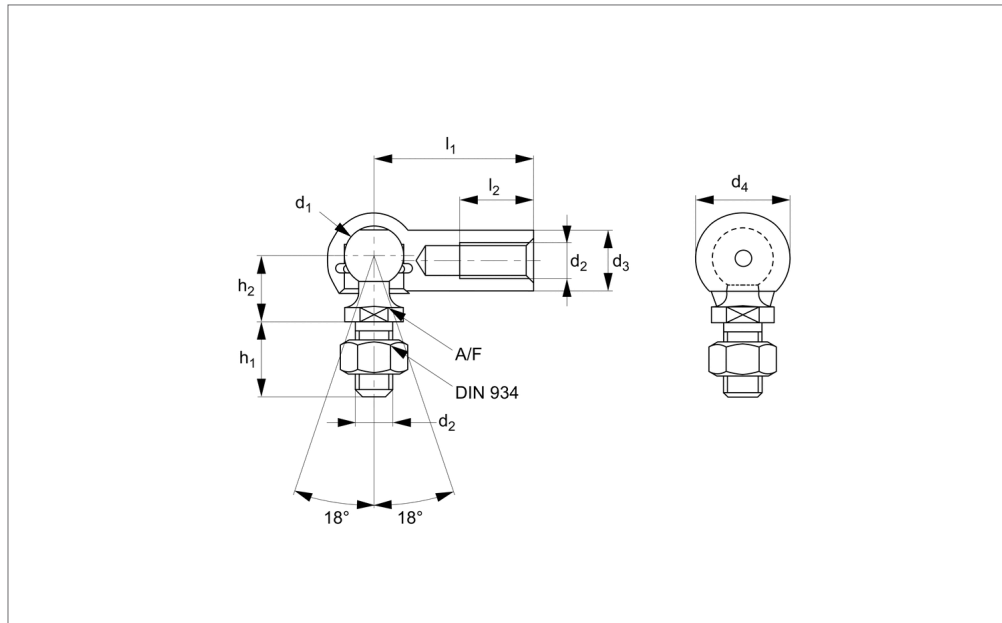
Order No.	Thread hand	d_1	l_1 ± 0.3	d_2	d_3	d_4	h_1 ± 0.3	Weight g
20213190	Right	8	22	M 5	8	12.8	10.2	15.2
20213206	Right	10	25	M 6	10	14.8	12.5	25.2
20213213	Right	13	30	M 8	13	19.3	16.5	53.1
20213220	Right	16	35	M10	16	24.0	20.0	103.8
20213237	Right	16	35	M12	16	24.0	20.0	103.8
20213244	Right	22	45	M14x1,5*	22	30.0	28.0	220.9
20213251	Right	22	45	M14	22	30.0	28.0	220.9
20213268	Right	22	45	M16	22	30.0	28.0	220.9

Order No.	h_2 ± 0.3	l_2 min.	A/F tol. h14	Extraction force kg min.	Static load kg max.	Dyn. load C kg max.	Force required for movement kg max.
20213190	9	10.2	7	3	50	20	3
20213206	11	11.5	8	4	100	40	4
20213213	13	14.0	11	6	200	80	6
20213220	16	15.5	13	8	400	160	8
20213237	16	15.5	13	8	400	160	8
20213244	22	21.5	16	10	800	320	10
20213251	22	21.5	16	10	800	320	10
20213268	22	21.5	16	10	800	320	10

Ball and Socket Joints

with sealing cap - left hand thread

Ball & Socket Joints



ER3471

BALL & SOCKET JOINTS

Material

Silver zinc plated, ball stud: minimum tensile strength $R_m=600N/mm^2$.
Housing: minimum tensile strength $R_m=500N/mm^2$, sealing cap: Neoprene.

hexagon nut.

Safety ring aids the retention of the ball stud in the housing.

*M14x1,5 is a fine pitch thread.

Important Notes

Thread is not full length. There is a min 1.5mm unthreaded shank. If using part without the supplied nut, then please consider a counterbore to accommodate the unthreaded shank.

Technical Notes

To DIN 71802 form CS, supplied with

Tips

Stud: right hand thread.

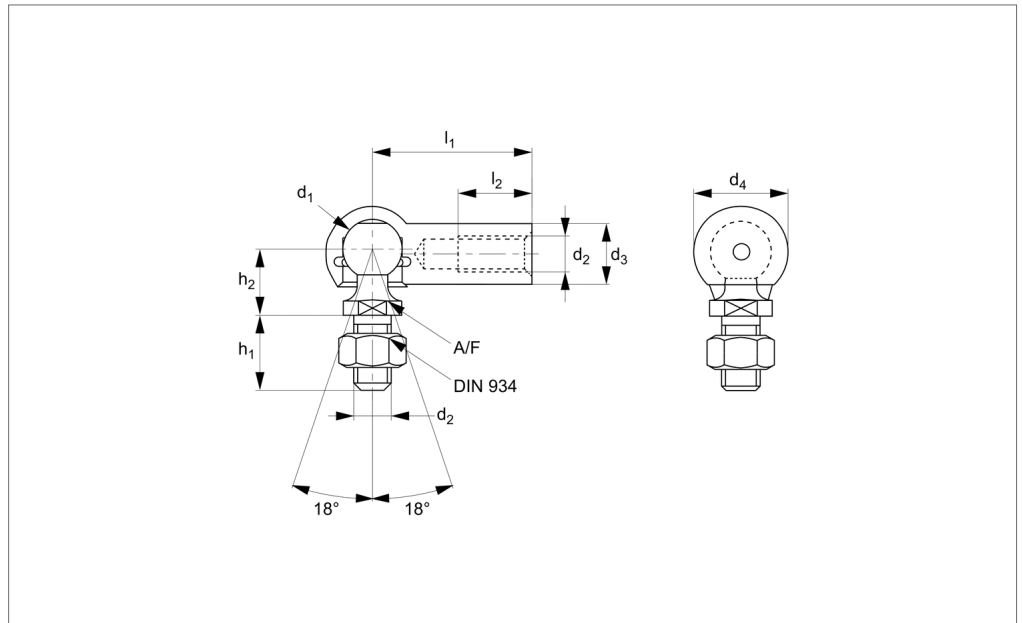
Housing: left hand thread

Order No.	Thread hand	d_1	l_1 ± 0.3	d_2	d_3	d_4	h_1 ± 0.3	Weight g
20213275	Left	8	22	M 5	8	12.8	10.2	15.2
20213282	Left	10	25	M 6	10	14.8	12.5	25.2
20213299	Left	13	30	M 8	13	19.3	16.5	53.1
20213305	Left	16	35	M10	16	24.0	20.0	103.8
20213312	Left	16	35	M12	16	24.0	20.0	103.8
20213329	Left	22	45	M14x1,5*	22	30.0	28.0	220.9
20213336	Left	22	45	M14	22	30.0	28.0	220.9
20213343	Left	22	45	M16	22	30.0	28.0	220.9

Order No.	h_2 ± 0.3	l_2 min.	A/F tol. h14	Extraction force kg min.	Static load kg max.	Dyn. load C kg max.	Force required for movement kg max.
20213275	9	10.2	7	3	50	20	3
20213282	11	11.5	8	4	100	40	4
20213299	13	14.0	11	6	200	80	6
20213305	16	15.5	13	8	400	160	8
20213312	16	15.5	13	8	400	160	8
20213329	22	21.5	16	10	800	320	10
20213336	22	21.5	16	10	800	320	10
20213343	22	21.5	16	10	800	320	10



ER3476



Material

Stainless steel (A2, AISI 303), sealing cap: neoprene.

Technical Notes

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 see ER3477).

Important Notes

Thread is not full length. There is a min 1.5mm unthreaded shank. If using part without the supplied nut, then please consider a counterbore to accommodate the unthreaded shank.

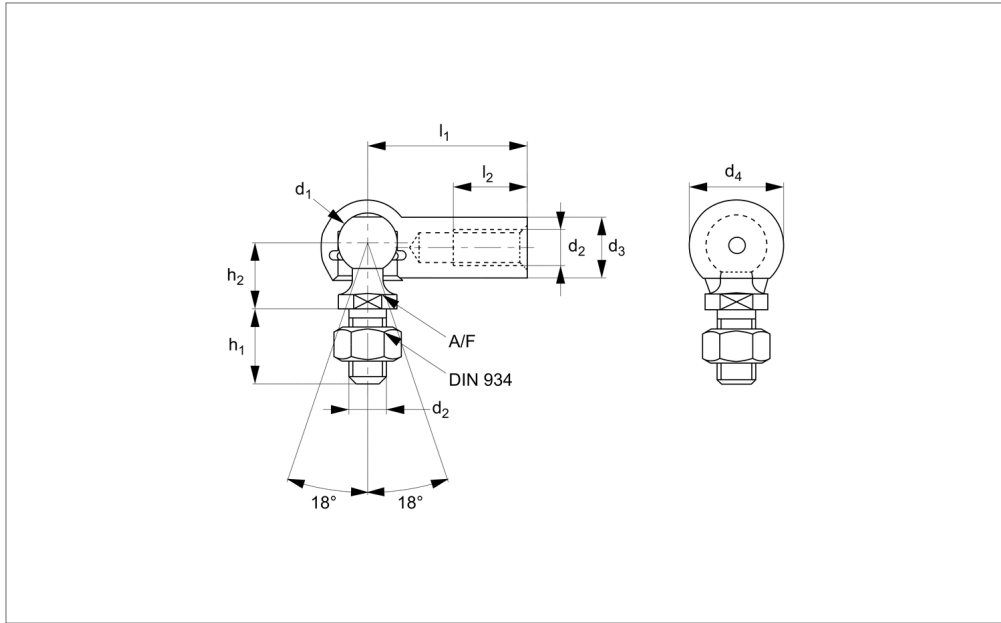
Order No.	Thread hand	d ₁	l ₁ ±0.3	d ₂	d ₃	d ₄	h ₁ ±0.3	Weight g
20213350	Right	8	22	M 5	8	12.8	10.2	15.2
20213367	Right	10	25	M 6	10	14.8	12.5	25.2
20213374	Right	13	30	M 8	13	19.3	16.5	53.1
20213381	Right	16	35	M10	16	24.0	20.0	103.8
20213398	Right	16	35	M12	16	24.0	20.0	103.8
20213404	Right	22	45	M14x1,5*	22	30.0	28.0	220.9
20213411	Right	22	45	M14	22	30.0	28.0	220.9
20213428	Right	22	45	M16	22	30.0	28.0	220.9

Order No.	h ₂ ±0.3	l ₂ min.	A/F tol. h14	Extraction force kg min.	Static load kg max.	Dyn. load C kg max.	Force required for movement kg max.
20213350	9	10.2	7	3	50	20	3
20213367	11	11.5	8	4	100	40	4
20213374	13	14.0	11	6	200	80	6
20213381	16	15.5	13	8	400	160	8
20213398	16	15.5	13	8	400	160	8
20213404	22	21.5	16	10	800	320	10
20213411	22	21.5	16	10	800	320	10
20213428	22	21.5	16	10	800	320	10

Stainless Ball and Socket Joint

with sealing cap - left hand thread

Ball & Socket Joints



ER3477

BALL & SOCKET JOINTS

Material

Stainless steel (A2, AISI 303), sealing cap: neoprene.

Technical Notes

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

Important Notes

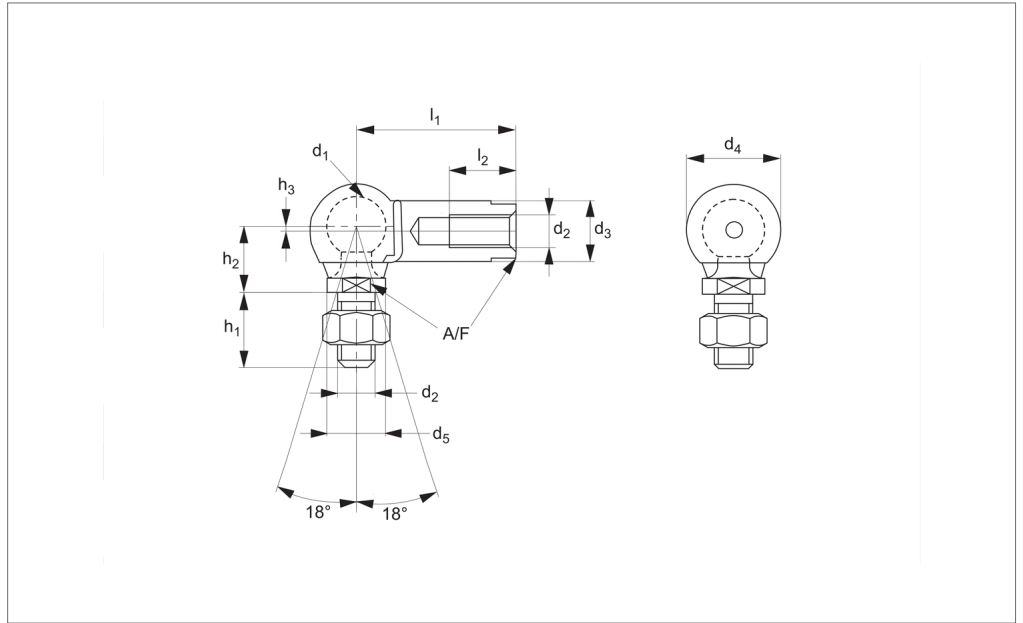
Thread is not full length. There is a min 1.5mm unthreaded shank. If using part without the supplied nut, then please consider a counterbore to accommodate the unthreaded shank.

Order No.	Thread hand	d ₁	l ₁ ±0.3	d ₂	d ₃	d ₄	h ₁ ±0.3	Weight g
20213442	Left	8	22	M 5	8	12.8	10.2	15.2
20213459	Left	10	25	M 6	10	14.8	12.5	25.2
20213466	Left	13	30	M 8	13	19.3	16.5	53.1
20213473	Left	16	35	M10	16	24.0	20.0	103.8
20213480	Left	16	35	M12	16	24.0	20.0	103.8
20213497	Left	22	45	M14x1,5*	22	30.0	28.0	220.9
20213503	Left	22	45	M14	22	30.0	28.0	220.9
20213510	Left	22	45	M16	22	30.0	28.0	220.9

Order No.	h ₂ ±0.3	l ₂ min.	A/F tol. h14	Extraction force kg min.	Static load kg max.	Dyn. load C kg max.	Force required for movement kg max.
20213442	9	10.2	7	3	50	20	3
20213459	11	11.5	8	4	100	40	4
20213466	13	14.0	11	6	200	80	6
20213473	16	15.5	13	8	400	160	8
20213480	16	15.5	13	8	400	160	8
20213497	22	21.5	16	10	800	320	10
20213503	22	21.5	16	10	800	320	10
20213510	22	21.5	16	10	800	320	10



ER3490



Material

Stud: carbon steel, sealing cap: neoprene.
Housing: steel (9sMnPb28), silver zinc plated.

Technical Notes

To DIN 71802 form CS, supplied without 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 ER3491).

Important Notes

Thread is not full length. There is a min 1.5mm unthreaded shank. If using part without a nut, then please consider a counterbore to accommodate the unthreaded shank.

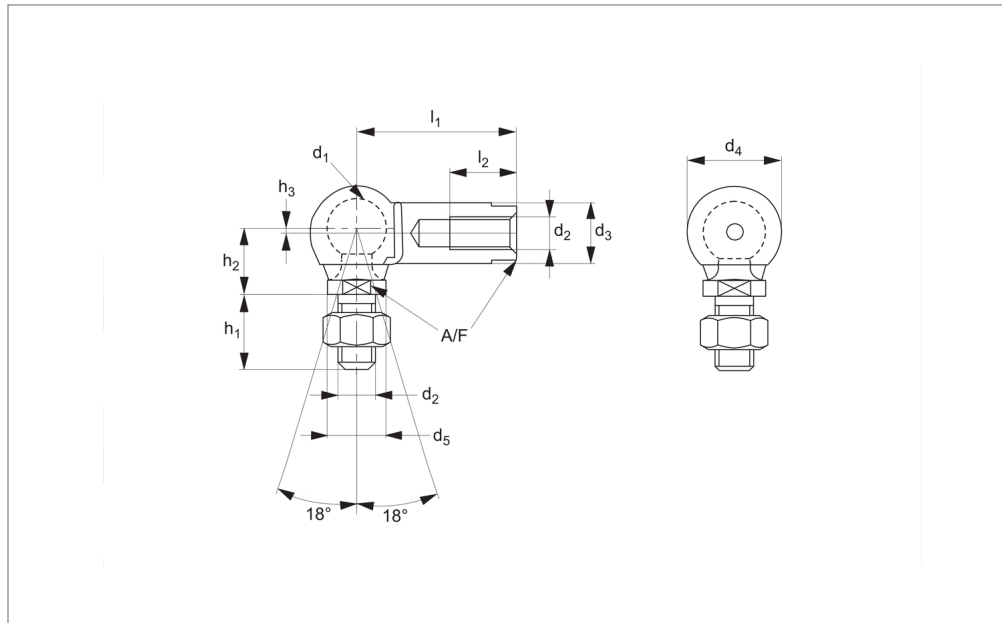
Order No.	Thread hand	d ₁	l ₁ ±0.3	d ₂	d ₃ ±0.5	d ₄ ±0.5	d ₅ ±0.5	Weight g
20213541	Right	8	22	M 5	8	12.8	8	15.2
20213558	Right	10	25	M 6	10	14.8	10	25.2
20213572	Right	13	30	M 8	13	19.3	13	53.1
20213589	Right	16	35	M10	16	24.0	16	103.8
20213596	Right	16	35	M12	16	24.0	16	103.8
20213602	Right	19	45	M14x1,5*	22	30.0	22	220.9
20213619	Right	19	45	M14	22	30.0	22	220.9
20213626	Right	19	45	M16	22	30.0	22	220.9

Order No.	h ₁ ±0.3	h ₂ ±0.3	h ₃	l ₂ min.	A/F tol. h14	Extraction force kg min.	Static load kg max.	Dyn. load C kg max.	Force required for movement kg max.
20213541	10.0	9	0.65	10.2	7	3	50	20	3
20213558	12.5	11	0.70	11.5	8	4	100	40	4
20213572	16.5	13	1.15	14.0	11	6	200	80	6
20213589	20.0	16	1.15	15.5	13	8	400	160	8
20213596	20.0	16	1.15	15.5	13	8	400	160	8
20213602	28.0	20	0.50	21.5	17	10	800	320	10
20213619	28.0	20	0.50	21.5	17	10	800	320	10
20213626	28.0	20	0.50	21.5	17	10	800	320	10

Ball and Socket Joint

left hand thread- with flats on housing

Ball & Socket Joints



ER3491

BALL & SOCKET JOINTS

Material

Stud: carbon steel, sealing cap: neoprene.
Housing: steel (9sMnPb28), silver zinc plated.

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

Important Notes

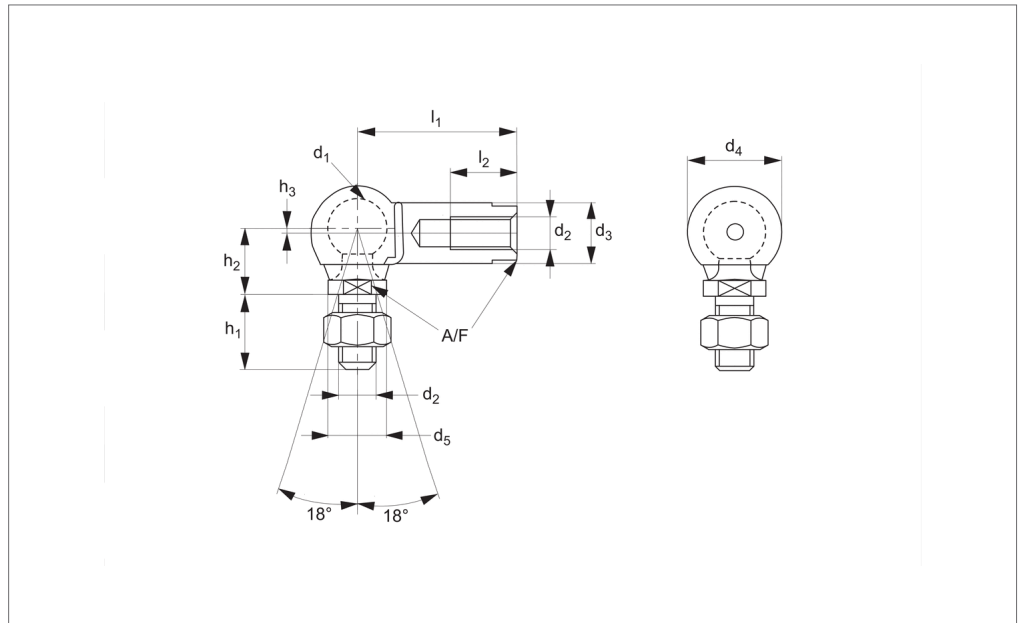
Thread is not full length. There is a min 1.5mm unthreaded shank. If using part without the supplied nut, then please consider a counterbore to accommodate the unthreaded shank.

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	h ₃	Weight g
20213633	Left	8	22	M5	8	12.8	8	10.0	9	0.65	15.2
20213640	Left	10	25	M6	10	14.8	10	12.5	11	0.70	25.2
20213657	Left	13	30	M8	13	19.3	13	16.5	13	1.15	53.1
20213664	Left	16	35	M10	16	24.0	16	20.0	16	1.15	103.8
20213671	Left	16	35	M12	16	24.0	16	20.0	16	1.15	103.8
20213688	Left	22	45	M14x1,5	22	30.0	22	28.0	20	0.50	220.9
20213695	Left	22	45	M14	22	30.0	22	28.0	20	0.50	220.9
20213701	Left	22	45	M16	22	30.0	22	28.0	20	0.50	220.9

Order No.	l ₂ min.	A/F tol. h14	Extraction force kg min.	Static load kg max.	Dyn. load C kg max.	Force required for movement kg max.
20213633	10.2	7	3	50	20	3
20213640	11.5	8	4	100	40	4
20213657	14.0	11	6	200	80	6
20213664	15.5	13	8	400	160	8
20213671	15.5	13	8	400	160	8
20213688	21.5	17	10	800	320	10
20213695	21.5	17	10	800	320	10
20213701	21.5	17	10	800	320	10



ER3496



Material

Stainless steel (A2, 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 ER3497).

Important Notes

Thread is not full length. There is a min 1.5mm unthreaded shank. If using part without the supplied nut, then please consider a counterbore to accommodate the unthreaded shank.

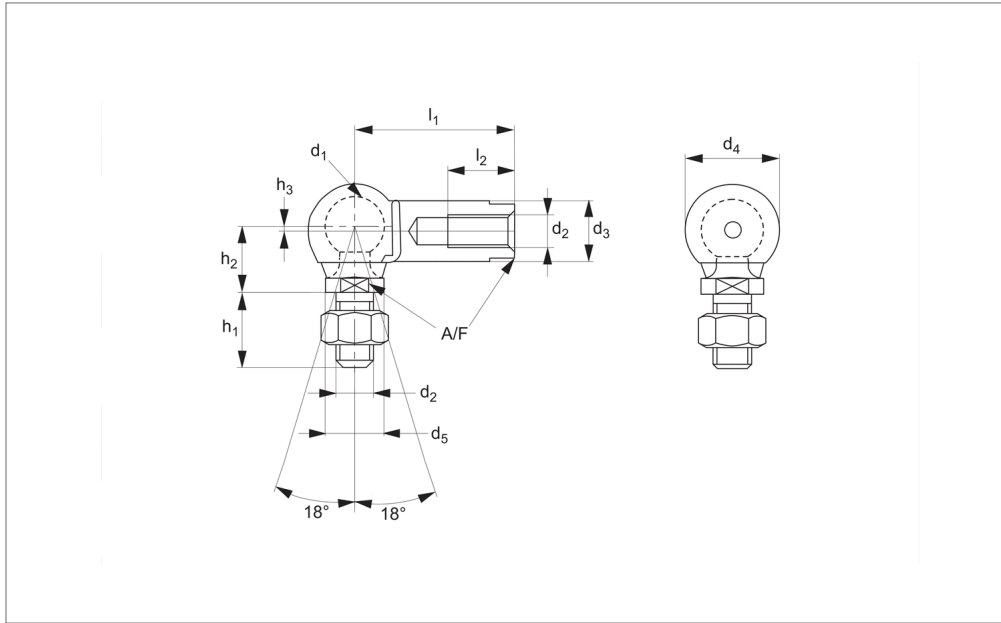
Order No.	Thread hand	d ₁	l ₁ ±0.3	d ₂	d ₃ ±0.5	d ₄ ±0.5	d ₅ ±0.5	h ₁ ±0.3	h ₂ ±0.3	h ₃	Weight g
20213718	Right	8	22	M5	8	12.8	8	10.0	9	0.65	15.2
20213725	Right	10	25	M6	10	14.8	10	12.5	11	0.70	25.2
20213732	Right	13	30	M8	13	19.3	13	16.5	13	1.15	53.1
20213749	Right	16	35	M10	16	24.0	16	20.0	16	1.15	103.8
20213756	Right	16	35	M12	16	24.0	16	20.0	16	1.15	103.8
20213763	Right	22	45	M14x1,5*	22	30.0	22	28.0	20	0.50	220.9
20213770	Right	22	45	M14	22	30.0	22	28.0	20	0.50	220.9
20213787	Right	22	45	M16	22	30.0	22	28.0	20	0.50	220.9

Order No.	l ₂ min.	A/F tol. h14	Extraction force kg min.	Static load kg max.	Dyn. load C kg max.	Force required for movement kg max.
20213718	10.2	7	3	50	20	3
20213725	11.5	8	4	100	40	4
20213732	14.0	11	6	200	80	6
20213749	15.5	13	8	400	160	8
20213756	15.5	13	8	400	160	8
20213763	21.5	17	10	800	320	10
20213770	21.5	17	10	800	320	10
20213787	21.5	17	10	800	320	10

Stainless Ball and Socket Joint

left hand thread - with flats on housing

Ball & Socket Joints



ER3497

BALL & SOCKET JOINTS

Material

Stainless steel (A2, AISI 303), sealing cap: neoprene.

Safety ring aids the retention of the ball stud in the housing.

*M14x1,5 is a fine pitch thread.

Important Notes

Thread is not full length. There is a min 1.5mm unthreaded shank. If using part without the supplied nut, then please consider a counterbore to accommodate the unthreaded shank.

Technical Notes

To DIN 71802 form CS, supplied with hexagon nut.

Tips

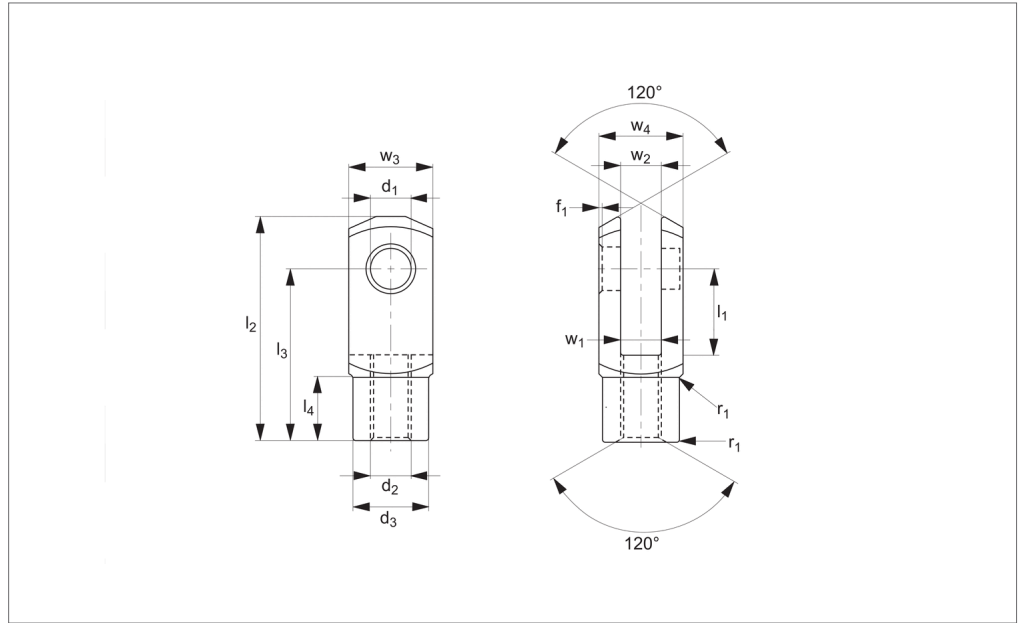
Stud: right hand thread.
Housing: left hand thread

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	h ₃	Weight g
20213794	Left	8	22	M5	8	12.8	8	10.0	9	0.65	15.2
20213800	Left	10	25	M6	10	14.8	10	12.5	11	0.70	25.2
20213817	Left	13	30	M8	13	19.3	13	16.5	13	1.15	53.1
20213824	Left	16	35	M10	16	24.0	16	20.0	16	1.15	103.8
20213831	Left	16	35	M12	16	24.0	16	20.0	16	1.15	103.8
20213848	Left	22	45	M14x1,5*	22	30.0	22	28.0	20	0.50	220.9
20213855	Left	22	45	M14	22	30.0	22	28.0	20	0.50	220.9

Order No.	l ₂ min.	A/F tol. h14	Extraction force kg min.	Static load kg max.	Dyn. load C kg max.	Force required for movement kg max.
20213794	10.2	7	3	50	20	3
20213800	11.5	8	4	100	40	4
20213817	14.0	11	6	200	80	6
20213824	15.5	13	8	400	160	8
20213831	15.5	13	8	400	160	8
20213848	21.5	17	10	800	320	10
20213855	21.5	17	10	800	320	10



ER3385



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

For yellow zinc plated version see ER3393, standard thread is right hand, (for left

hand, see ER3386).

Important Notes

For sizes M4-M12, f_1 and $r_1=0,5$, for sizes M14-M16, f_1 and $r_1=1$

For sizes M18-M20, $f_1=1$, $r_1=1,5$, for M24 f_1 and $r_1=1,5$, for sizes M27-M30, $f_1=1,5$, $r_1=2$

For M36 $f_1=2$, $r_1=3$, for sizes M42-M48, $f_1=3$, $r_1=5$, for r_1 , 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 = $\pm 0,3$

l_2 : size 4x8-6x12 = $\pm 0,3$

All others $\pm 0,4$

l_3 : M4-M16 = $\pm 0,2$

M18-M48 = $\pm 0,3$

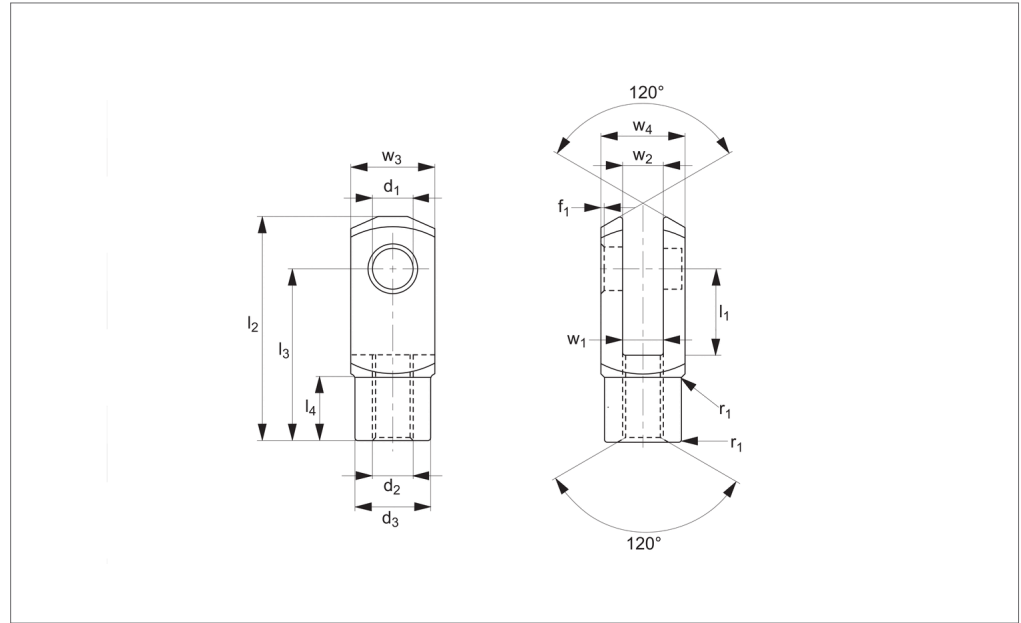
r_1 : M18-M48 = $\pm 0,5$

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	Weight g
20209339	4x8	Right	Coarse	4	8	M4	8	21	16	6.0	4	4	8	8	5
20209346	4x16	Right	Coarse	4	16	M4	8	29	24	6.0	4	4	8	8	7
20209353	5x10	Right	Coarse	5	10	M5	9	26	20	7.5	5	5	10	10	9
20209360	5x20	Right	Coarse	5	20	M5	9	36	30	7.5	5	5	10	10	13
20209377	6x12	Right	Coarse	6	12	M6	10	31	24	9.0	6	6	12	12	15
20209384	6x24	Right	Coarse	6	24	M6	10	43	36	9.0	6	6	12	12	21
20209391	8x16	Right	Coarse	8	16	M8	14	42	32	12.0	8	8	16	16	37
20209407	8x16	Right	Fine	8	16	M8x1	14	42	32	12.0	8	8	16	16	37
20209414	8x32	Right	Coarse	8	32	M8	14	58	48	12.0	8	8	16	16	54
20209421	8x32	Right	Fine	8	32	M8x1	14	58	48	12.0	8	8	16	16	54
20209438	10x20	Right	Coarse	10	20	M10	18	52	40	15.0	10	10	20	20	74
20209445	10x20	Right	Fine	10	20	M10x1,25	18	52	40	15.0	10	10	20	20	74
20209452	10x40	Right	Coarse	10	40	M10	18	72	60	15.0	10	10	20	20	116
20209469	10x40	Right	Fine	10	40	M10x1,25	18	72	60	15.0	10	10	20	20	116
20209476	12x24	Right	Coarse	12	24	M12	20	62	48	18.0	12	12	24	24	121
20209483	12x24	Right	Fine	12	24	M12x1,25	20	62	48	18.0	12	12	24	24	121
20209490	12x48	Right	Coarse	12	48	M12	20	86	72	18.0	12	12	24	24	175
20209506	12x48	Right	Fine	12	48	M12x1,25	20	86	72	18.0	12	12	24	24	175
20209513	14x28	Right	Coarse	14	28	M14	24	72	56	22.5	14	14	27	27	178
20209520	14x28	Right	Fine	14	28	M14x1,5	24	72	56	22.5	14	14	27	27	178
20209537	14x56	Right	Coarse	14	56	M14	24	101	85	22.5	14	14	27	27	258
20209544	14x56	Right	Fine	14	56	M14x1,5	24	101	85	22.5	14	14	27	27	258
20209551	16x32	Right	Coarse	16	32	M16	26	83	64	24.0	16	16	32	32	282
20209568	16x32	Right	Fine	16	32	M16x1,5	26	83	64	24.0	16	16	32	32	282
20209575	16x64	Right	Coarse	16	64	M16	26	115	96	24.0	16	16	32	32	411
20209582	16x64	Right	Fine	16	64	M16x1,5	26	115	96	24.0	16	16	32	32	411

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	Weight g
20209599	18x36	Right	Coarse	18	36	M18	30	94	72	27.0	18	18	36	36	390
20209605	18x36	Right	Fine	18	36	M18x1,5	30	94	72	27.0	18	18	36	36	390
20209612	20x40	Right	Coarse	20	40	M20	34	105	80	30.0	20	20	40	40	550
20209629	20x40	Right	Fine	20	40	M20x1,5	34	105	80	30.0	20	20	40	40	550
20209636	20x80	Right	Coarse	20	80	M20	34	145	120	30.0	20	20	40	40	800
20209643	20x80	Right	Fine	20	80	M20x1,5	34	145	120	30.0	20	20	40	40	800
20209650	25x50	Right	Coarse	25	50	M24	42	132	100	36.0	25	25	50	50	1100
20209667	25x50	Right	Fine	25	50	M24x2	42	132	100	36.0	25	25	50	50	1100
20209674	28x56	Right	Coarse	28	56	M27	48	148	112	40.0	28	28	55	55	1500
20209681	28x56	Right	Fine	28	56	M27x2	48	148	112	40.0	28	28	55	55	1500
20209698	30x54	Right	Fine	30	54	M27x2	48	148	110	40.0	30	30	55	55	1440
20209704	30x60	Right	Coarse	30	60	M30	52	160	120	42.0	30	30	60	60	1970
20209711	30x60	Right	Fine	30	60	M30x2	52	160	120	42.0	30	30	60	60	1970
20209728	35x54	Right	Fine	35	54	M36x2	60	188	144	54.0	35	35	70	70	2930
20209735	35x72	Right	Coarse	35	72	M36	60	188	144	54.0	35	35	70	70	2930
20209742	35x72	Right	Fine	35	72	M36x2	60	188	144	54.0	35	35	70	70	2930
20209759	36x72	Right	Coarse	35	72	M36	60	188	144	54.0	36	36	70	70	2930
20209766	36x72	Right	Fine	35	72	M36x2	60	188	144	54.0	36	36	70	70	2930
20209773	40x84	Right	Fine	40	84	M42x2	70	232	168	63.5	40	40	85	85	5640
20209780	42x84	Right	Coarse	42	84	M42	70	232	168	63.5	42	42	85	85	5340
20209797	42x84	Right	Fine	42	84	M42x2	70	232	168	63.5	42	42	85	85	5340
20209803	50x96	Right	Coarse	50	96	M48	82	265	192	73.0	50	50	96	96	7860
20209810	50x96	Right	Fine	50	96	M48x2	82	265	192	73.0	50	50	96	96	7860



ER3386



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

For yellow zinc plated version see ER3394.

Important Notes

For sizes M4-M12, f_1 and $r_1 = 0,5$, for sizes M14-M16, f_1 and $r_1 = 1$

For sizes M18-M20, $f_1 = 1$, $r_1 = 1,5$, for M24 f_1 and $r_1 = 1,5$, for sizes M27-M30, $f_1 = 1,5$, $r_1 = 2$

For M36 $f_1 = 2$, $r_1 = 3$, for sizes M42-M48, $f_1 = 3$, $r_1 = 5$, for r_1 , 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_1 : 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	Weight g
20209827	4x8	Left	Coarse	4	8	M4	8	21	16	6.0	4	4	8	8	5
20209834	4x16	Left	Coarse	4	16	M4	8	29	24	6.0	4	4	8	8	7
20209841	5x10	Left	Coarse	5	10	M5	9	26	20	7.5	5	5	10	10	9
20209858	5x20	Left	Coarse	5	20	M5	9	36	30	7.5	5	5	10	10	13
20209865	6x12	Left	Coarse	6	12	M6	10	31	24	9.0	6	6	12	12	15
20209872	6x24	Left	Coarse	6	24	M6	10	43	36	9.0	6	6	12	12	21
20209889	8x16	Left	Coarse	8	16	M8	14	42	32	12.0	8	8	16	16	37
20209896	8x16	Left	Fine	8	16	M8x1	14	42	32	12.0	8	8	16	16	37
20209902	8x32	Left	Coarse	8	32	M8	14	58	48	12.0	8	8	16	16	54
20209919	8x32	Left	Fine	8	32	M8x1	14	58	48	12.0	8	8	16	16	54
20209926	10x20	Left	Coarse	10	20	M10	18	52	40	15.0	10	10	20	20	74
20209933	10x20	Left	Fine	10	20	M10x1,25	18	52	40	15.0	10	10	20	20	74
20209940	10x40	Left	Coarse	10	40	M10	18	72	60	15.0	10	10	20	20	116
20209957	10x40	Left	Fine	10	40	M10x1,25	18	72	60	15.0	10	10	20	20	116
20209964	12x24	Left	Coarse	12	24	M12	20	62	48	18.0	12	12	24	24	121
20209971	12x24	Left	Fine	12	24	M12x1,25	20	62	48	18.0	12	12	24	24	121
20209988	12x48	Left	Coarse	12	48	M12	20	86	72	18.0	12	12	24	24	175
20209995	12x48	Left	Fine	12	48	M12x1,25	20	86	72	18.0	12	12	24	24	175
20210007	14x28	Left	Coarse	14	28	M14	24	72	56	22.5	14	14	27	27	178
20210014	14x28	Left	Fine	14	28	M14x1,5	24	72	56	22.5	14	14	27	27	178
20210021	14x56	Left	Coarse	14	56	M14	24	101	85	22.5	14	14	27	27	258
20210038	14x56	Left	Fine	14	56	M14x1,5	24	101	85	22.5	14	14	27	27	258
20210045	16x32	Left	Coarse	16	32	M16	26	83	64	24.0	16	16	32	32	282
20210052	16x32	Left	Fine	16	32	M16x1,5	26	83	64	24.0	16	16	32	32	282
20210069	16x64	Left	Coarse	16	64	M16	26	115	96	24.0	16	16	32	32	411
20210076	16x64	Left	Fine	16	64	M16x1,5	26	115	96	24.0	16	16	32	32	411

Steel Clevis Joints

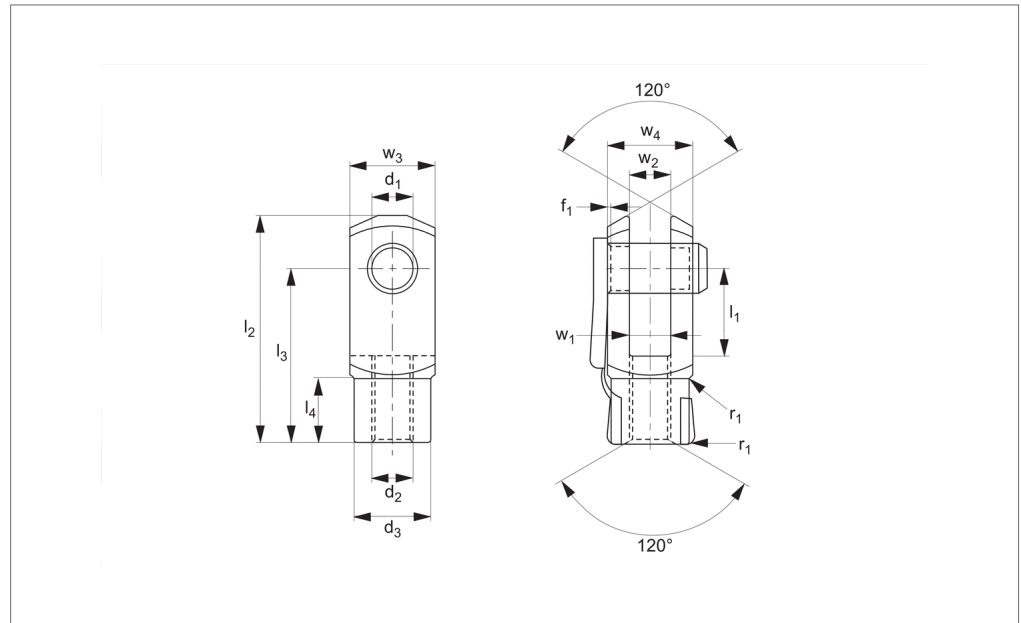
left hand - silver zinc plated

Clevis Joints & Clips

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	Weight g
20210083	18x36	Left	Coarse	18	36	M18	30	94	72	27.0	18	18	36	36	390
20210090	18x36	Left	Fine	18	36	M18x1,5	30	94	72	27.0	18	18	36	36	390
20210106	20x40	Left	Coarse	20	40	M20	34	105	80	30.0	20	20	40	40	550
20210113	20x40	Left	Fine	20	40	M20x1,5	34	105	80	30.0	20	20	40	40	550
20210120	20x80	Left	Coarse	20	80	M20	34	145	120	30.0	20	20	40	40	800
20210137	20x80	Left	Fine	20	80	M20x1,5	34	145	120	30.0	20	20	40	40	800
20210144	25x50	Left	Coarse	25	50	M24	42	132	100	36.0	25	25	50	50	1100
20210151	25x50	Left	Fine	25	50	M24x2	42	132	100	36.0	25	25	50	50	1100
20210168	28x56	Left	Coarse	28	56	M27	48	148	112	40.0	28	28	55	55	1500
20210175	28x56	Left	Fine	28	56	M27x2	48	148	112	40.0	28	28	55	55	1500
20210182	30x54	Left	Fine	30	54	M27x2	48	148	110	40.0	30	30	55	55	1440
20210199	30x60	Left	Coarse	30	60	M30	52	160	120	42.0	30	30	60	60	1970
20210205	30x60	Left	Fine	30	60	M30x2	52	160	120	42.0	30	30	60	60	1970
20210212	35x54	Left	Fine	35	54	M36x2	60	188	144	54.0	35	35	70	70	2930
20210229	35x72	Left	Coarse	35	72	M36	60	188	144	54.0	35	35	70	70	2930
20210236	35x72	Left	Fine	35	72	M36x2	60	188	144	54.0	35	35	70	70	2930
20210243	36x72	Left	Coarse	35	72	M36	60	188	144	54.0	36	36	70	70	2930
20210250	36x72	Left	Fine	35	72	M36x2	60	188	144	54.0	36	36	70	70	2930
20210267	40x84	Left	Fine	40	84	M42x2	70	232	168	63.5	40	40	85	85	5640
20210274	42x84	Left	Coarse	42	84	M42	70	232	168	63.5	42	42	85	85	5340
20210281	42x84	Left	Fine	42	84	M42x2	70	232	168	63.5	42	42	85	85	5340
20210298	50x96	Left	Coarse	50	96	M48	82	265	192	73.0	50	50	96	96	7860
20210304	50x96	Left	Fine	50	96	M48x2	82	265	192	73.0	50	50	96	96	7860



ER3387



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

For yellow zinc plated version see ER3398, standard thread is right hand, (for left hand, see ER3388).

Assembly made up using ER3385 clevis joint and ER3435 clevis retention clip.

Important Notes

For sizes M4-M12, f_1 and $r_1=0,5$, for sizes M14-M16, f_1 and $r_1=1$

For sizes M18-M20, $f_1=1$, $r_1=1,5$, for M24 f_1 and $r_1=1,5$, for sizes M27-M30, $f_1=1,5$, $r_1=2$

For M36 $f_1=2$, $r_1=3$, for sizes M42-M48, $f_1=3$, $r_1=5$, for r_1 , 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_1 : 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	Weight g
20215521	4x8	Right	Coarse	4	8	M4	8	21	16	6.0	4	4	8	8	5
20215538	5x10	Right	Coarse	5	10	M5	9	26	20	7.5	5	5	10	10	9
20215545	5x20	Right	Coarse	5	20	M5	9	36	30	7.5	5	5	10	10	13
20215552	6x12	Right	Coarse	6	12	M6	10	31	24	9.0	6	6	12	12	15
20215569	6x24	Right	Coarse	6	24	M6	10	43	36	9.0	6	6	12	12	21
20215576	8x16	Right	Coarse	8	16	M8	14	42	32	12.0	8	8	16	16	37
20215583	8x16	Right	Fine	8	16	M8x1	14	42	32	12.0	8	8	16	16	37
20215590	8x32	Right	Coarse	8	32	M8	14	58	48	12.0	8	8	16	16	54
20215606	8x32	Right	Fine	8	32	M8x1	14	58	48	12.0	8	8	16	16	54
20215613	10x20	Right	Coarse	10	20	M10	18	52	40	15.0	10	10	20	20	74
20215620	10x20	Right	Fine	10	20	M10x1,25	18	52	40	15.0	10	10	20	20	74
20215637	10x40	Right	Coarse	10	40	M10	18	72	60	15.0	10	10	20	20	116
20215644	10x40	Right	Fine	10	40	M10x1,25	18	72	60	15.0	10	10	20	20	116
20215651	12x24	Right	Coarse	12	24	M12	20	62	48	18.0	12	12	24	24	121
20215668	12x24	Right	Fine	12	24	M12x1,25	20	62	48	18.0	12	12	24	24	121
20215675	12x48	Right	Coarse	12	48	M12	20	86	72	18.0	12	12	24	24	175
20215682	12x48	Right	Fine	12	48	M12x1,25	20	86	72	18.0	12	12	24	24	175
20215699	14x28	Right	Coarse	14	28	M14	24	72	56	22.5	14	14	27	27	178
20215705	14x28	Right	Fine	14	28	M14x1,5	24	72	56	22.5	14	14	27	27	178
20215712	14x56	Right	Coarse	14	56	M14	24	101	85	22.5	14	14	27	27	258
20215729	14x56	Right	Fine	14	56	M14x1,5	24	101	85	22.5	14	14	27	27	258
20215736	16x32	Right	Coarse	16	32	M16	26	83	64	24.0	16	16	32	32	282
20215743	16x32	Right	Fine	16	32	M16x1,5	26	83	64	24.0	16	16	32	32	282
20215750	16x64	Right	Coarse	16	64	M16	26	115	96	24.0	16	16	32	32	411
20215767	16x64	Right	Fine	16	64	M16x1,5	26	115	96	24.0	16	16	32	32	411

Steel Clevis Joints with Retention Clips

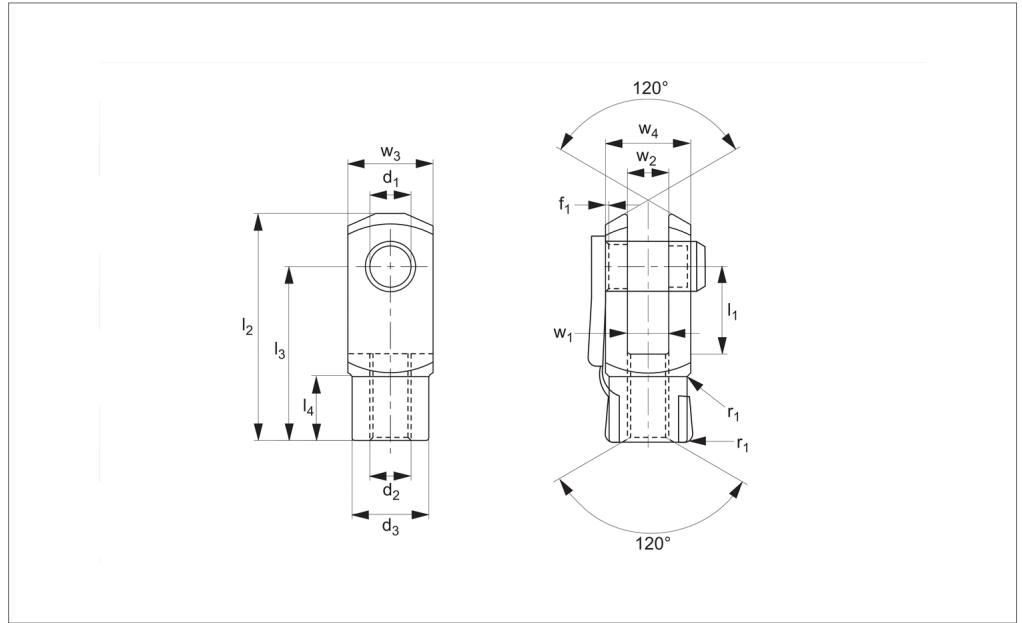
silver zinc plated

Clevis Joints & Clips

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	Weight g
20215774	20x40	Right	Coarse	20	40	M20	34	105	80	30.0	20	20	40	40	550
20215781	20x40	Right	Fine	20	40	M20x1,5	34	105	80	30.0	20	20	40	40	550



ER3388



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

For yellow zinc plated version see ER3399, assembly made up using ER3386 clevis

joint and ER3435 clevis retention clip.

Important Notes

For sizes M4-M12, f_1 and $r_1=0,5$

For sizes M4-M16, f_1 and $r_1=1$

For sizes M20, $f_1=1$, $r_1=1,5$

For r_1 , 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_1 : M20 = ±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	Weight g
20215798	4x8	Left	Coarse	4	8	M4	8	21	16	6.0	4	4	8	8	5
20215804	5x10	Left	Coarse	5	10	M5	9	26	20	7.5	5	5	10	10	9
20215811	5x20	Left	Coarse	5	20	M5	9	36	30	7.5	5	5	10	10	13
20215828	6x12	Left	Coarse	6	12	M6	10	31	24	9.0	6	6	12	12	15
20215835	6x24	Left	Coarse	6	24	M6	10	43	36	9.0	6	6	12	12	21
20215842	8x16	Left	Coarse	8	16	M8	14	42	32	12.0	8	8	16	16	37
20215859	8x16	Left	Fine	8	16	M8x1	14	42	32	12.0	8	8	16	16	37
20215866	8x32	Left	Coarse	8	32	M8	14	58	48	12.0	8	8	16	16	54
20215873	8x32	Left	Fine	8	32	M8x1	14	58	48	12.0	8	8	16	16	54
20215880	10x20	Left	Coarse	10	20	M10	18	52	40	15.0	10	10	20	20	74
20215897	10x20	Left	Fine	10	20	M10x1,25	18	52	40	15.0	10	10	20	20	74
20215903	10x40	Left	Coarse	10	40	M10	18	72	60	15.0	10	10	20	20	116
20215910	10x40	Left	Fine	10	40	M10x1,25	18	72	60	15.0	10	10	20	20	116
20215927	12x24	Left	Coarse	12	24	M12	20	62	48	18.0	12	12	24	24	121
20215934	12x24	Left	Fine	12	24	M12x1,25	20	62	48	18.0	12	12	24	24	121
20215941	12x48	Left	Coarse	12	48	M12	20	86	72	18.0	12	12	24	24	175
20215958	12x48	Left	Fine	12	48	M12x1,25	20	86	72	18.0	12	12	24	24	175
20215965	14x28	Left	Coarse	14	28	M14	24	72	56	22.5	14	14	27	27	178
20215972	14x28	Left	Fine	14	28	M14x1,5	24	72	56	22.5	14	14	27	27	178
20215989	14x56	Left	Coarse	14	56	M14	24	101	85	22.5	14	14	27	27	258
20215996	14x56	Left	Fine	14	56	M14x1,5	24	101	85	22.5	14	14	27	27	258
20216009	16x32	Left	Coarse	16	32	M16	26	83	64	24.0	16	16	32	32	282
20216016	16x32	Left	Fine	16	32	M16x1,5	26	83	64	24.0	16	16	32	32	282
20216023	16x64	Left	Coarse	16	64	M16	26	115	96	24.0	16	16	32	32	411
20216030	16x64	Left	Fine	16	64	M16x1,5	26	115	96	24.0	16	16	32	32	411
20216047	20x40	Left	Coarse	20	40	M20	34	105	80	30.0	20	20	40	40	550

Steel Clevis Joints with Retention Clips

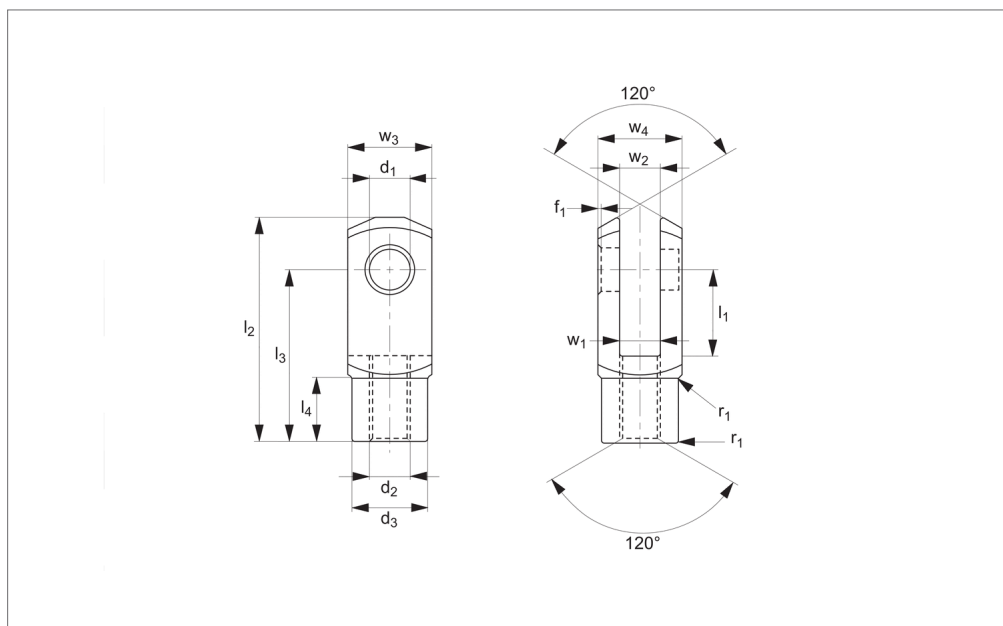
left hand thread - silver zinc plated

Clevis Joints & Clips

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	Weight g
20216054	20x40	Left	Fine	20	40	M20x1,5	34	105	80	30.0	20	20	40	40	550



ER3389



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 ER3390).

Assembly is made up using ER3385 clevis

joint, ER3455 clevis pin, EP0330 washer, and EP1240 split cotter pin.

Important Notes

For sizes M4-M12, f_1 and $r_1=0,5$, for sizes M14-M16, f_1 and $r_1=1$

For sizes M18-M20, $f_1=1$, $r_1=1,5$, for M24 f_1 and $r_1=1,5$, for sizes M27-M30, $f_1=1,5$, $r_1=2$

For M36 $f_1=2$, $r_1=3$, for sizes M42-M48, $f_1=3$, $r_1=5$, for r_1 , 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_1 : M18-M48 = ±0,5

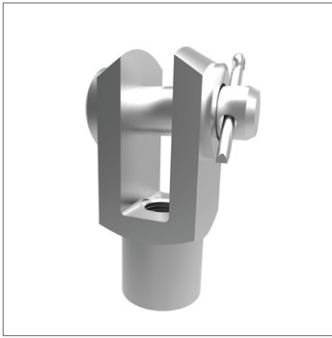
Order No.	Size	Thread hand	Thread type	d_1 tol. H9	l_1 ±0.5	d_2	d_3	l_2 ±0.5	l_3	l_4	w_1 tol. B13	w_2	w_3 tol. h11	w_4	Weight g
20192860	5x10	Right	Coarse	5	10	M5	9	26	20	7.5	5	5	10	10	9
20192877	5x20	Right	Coarse	5	20	M5	9	36	30	7.5	5	5	10	10	13
20192846	6x12	Right	Coarse	6	12	M6	10	31	24	9.0	6	6	12	12	15
20192853	6x24	Right	Coarse	6	24	M6	10	43	36	9.0	6	6	12	12	21
20192884	8x16	Right	Coarse	8	16	M8	14	42	32	12.0	8	8	16	16	37
20192891	8x16	Right	Fine	8	16	M8x1	14	42	32	12.0	8	8	16	16	37
20192907	8x32	Right	Coarse	8	32	M8	14	58	48	12.0	8	8	16	16	54
20192914	8x32	Right	Fine	8	32	M8x1	14	58	48	12.0	8	8	16	16	54
20192921	10x20	Right	Coarse	10	20	M10	18	52	40	15.0	10	10	20	20	74
20192938	10x20	Right	Fine	10	20	M10x1,25	18	52	40	15.0	10	10	20	20	74
20192945	10x40	Right	Coarse	10	40	M10	18	72	60	15.0	10	10	20	20	116
20192952	10x40	Right	Fine	10	40	M10x1,25	18	72	60	15.0	10	10	20	20	116
20192969	12x24	Right	Coarse	12	24	M12	20	62	48	18.0	12	12	24	24	121
20192976	12x24	Right	Fine	12	24	M12x1,25	20	62	48	18.0	12	12	24	24	121
20192983	12x48	Right	Coarse	12	48	M12	20	86	72	18.0	12	12	24	24	175
20192990	12x48	Right	Fine	12	48	M12x1,25	20	86	72	18.0	12	12	24	24	175
20193003	14x28	Right	Coarse	14	28	M14	24	72	56	22.5	14	14	27	27	178
20193010	14x28	Right	Fine	14	28	M14x1,5	24	72	56	22.5	14	14	27	27	178
20193027	14x56	Right	Coarse	14	56	M14	24	101	85	22.5	14	14	27	27	258
20193034	14x56	Right	Fine	14	56	M14x1,5	24	101	85	22.5	14	14	27	27	258
20193041	16x32	Right	Coarse	16	32	M16	26	83	64	24.0	16	16	32	32	282
20193058	16x32	Right	Fine	16	32	M16x1,5	26	83	64	24.0	16	16	32	32	282
20193065	16x64	Right	Coarse	16	64	M16	26	115	96	24.0	16	16	32	32	411
20193072	16x64	Right	Fine	16	64	M16x1,5	26	115	96	24.0	16	16	32	32	411
20193089	18x36	Right	Coarse	18	36	M18	30	94	72	27.0	18	18	36	36	390

Steel Clevis Joint with Pin

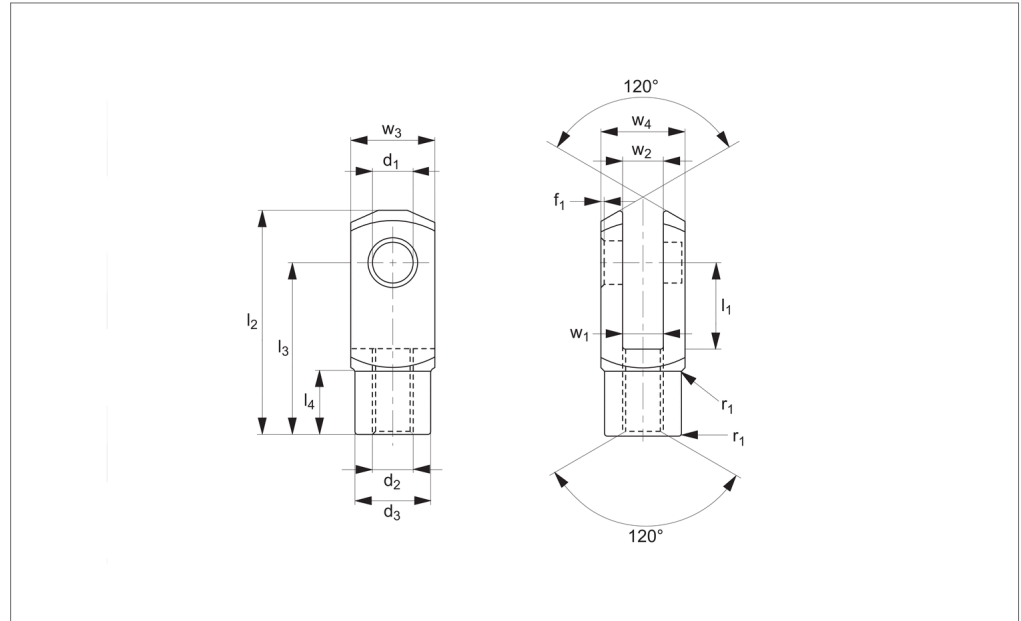
silver zinc plated

Clevis Joints & Clips

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	Weight g
20193096	18x36	Right	Fine	18	36	M18x1,5	30	94	72	27.0	18	18	36	36	390
20193102	20x40	Right	Coarse	20	40	M20	34	105	80	30.0	20	20	40	40	550
20193119	20x40	Right	Fine	20	40	M20x1,5	34	105	80	30.0	20	20	40	40	550
20193126	20x80	Right	Coarse	20	80	M20	34	145	120	30.0	20	20	40	40	800
20193133	20x80	Right	Fine	20	80	M20x1,5	34	145	120	30.0	20	20	40	40	800
20193140	25x50	Right	Coarse	25	50	M24	42	132	100	36.0	25	25	50	50	1100
20193157	25x50	Right	Fine	25	50	M24x2	42	132	100	36.0	25	25	50	50	1100
20193164	28x56	Right	Coarse	28	56	M27	48	148	112	40.0	28	28	55	55	1500
20193171	28x56	Right	Fine	28	56	M27x2	48	148	112	40.0	28	28	55	55	1500
20193188	30x54	Right	Fine	30	54	M27x2	48	148	110	40.0	30	30	55	55	1440
20193195	30x60	Right	Coarse	30	60	M30	52	160	120	42.0	30	30	60	60	1970
20193201	30x60	Right	Fine	30	60	M30x2	52	160	120	42.0	30	30	60	60	1970
20193218	35x54	Right	Fine	35	54	M36x2	60	188	144	54.0	35	35	70	70	2930
20193225	35x72	Right	Coarse	35	72	M36	60	188	144	54.0	35	35	70	70	2930
20193232	35x72	Right	Fine	35	72	M36x2	60	188	144	54.0	35	35	70	70	2930
20193249	36x72	Right	Coarse	35	72	M36	60	188	144	54.0	36	36	70	70	2930
20193256	36x72	Right	Fine	35	72	M36x2	60	188	144	54.0	36	36	70	70	2930
20193263	40x84	Right	Fine	40	84	M42x2	70	232	168	63.5	40	40	85	85	5640
20193270	42x84	Right	Coarse	42	84	M42	70	232	168	63.5	42	42	85	85	5340
20193287	42x84	Right	Fine	42	84	M42x2	70	232	168	63.5	42	42	85	85	5340
20193294	50x96	Right	Coarse	50	96	M48	82	265	192	73.0	50	50	96	96	7860
20193300	50x96	Right	Fine	50	96	M48x2	82	265	192	73.0	50	50	96	96	7860



ER3390



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 ER3386 clevis joint, ER3455 clevis pin, EP0330

washer, and EP1240 split cotter pin.

Important Notes

For sizes M4-M12, f_1 and $r_1=0,5$, for sizes M14-M16, f_1 and $r_1=1$

For sizes M18-M20, $f_1=1$, $r_1=1,5$, for M24 f_1 and $r_1=1,5$, for sizes M27-M30, $f_1=1,5$, $r_1=2$

For M36 $f_1=2$, $r_1=3$, for sizes M42-M48, $f_1=3$, $r_1=5$, for r_1 , 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_1 : 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	Weight g
20193317	5x10	Left	Coarse	5	10	M5	9	26	20	7.5	5	5	10	10	9
20193324	5x20	Left	Coarse	5	20	M5	9	36	30	7.5	5	5	10	10	13
20193331	6x12	Left	Coarse	6	12	M6	10	31	24	9.0	6	6	12	12	15
20193348	6x24	Left	Coarse	6	24	M6	10	43	36	9.0	6	6	12	12	21
20193355	8x16	Left	Coarse	8	16	M8	14	42	32	12.0	8	8	16	16	37
20193362	8x16	Left	Fine	8	16	M8x1	14	42	32	12.0	8	8	16	16	37
20193379	8x32	Left	Coarse	8	32	M8	14	58	48	12.0	8	8	16	16	54
20193386	8x32	Left	Fine	8	32	M8x1	14	58	48	12.0	8	8	16	16	54
20193393	10x20	Left	Coarse	10	20	M10	18	52	40	15.0	10	10	20	20	74
20193409	10x20	Left	Fine	10	20	M10x1,25	18	52	40	15.0	10	10	20	20	74
20193416	10x40	Left	Coarse	10	40	M10	18	72	60	15.0	10	10	20	20	116
20193423	10x40	Left	Fine	10	40	M10x1,25	18	72	60	15.0	10	10	20	20	116
20193430	12x24	Left	Coarse	12	24	M12	20	62	48	18.0	12	12	24	24	121
20193447	12x24	Left	Fine	12	24	M12x1,25	20	62	48	18.0	12	12	24	24	121
20193454	12x48	Left	Coarse	12	48	M12	20	86	72	18.0	12	12	24	24	175
20193461	12x48	Left	Fine	12	48	M12x1,25	20	86	72	18.0	12	12	24	24	175
20193478	14x28	Left	Coarse	14	28	M14	24	72	56	22.5	14	14	27	27	178
20193485	14x28	Left	Fine	14	28	M14x1,5	24	72	56	22.5	14	14	27	27	178
20193492	14x56	Left	Coarse	14	56	M14	24	101	85	22.5	14	14	27	27	258
20193508	14x56	Left	Fine	14	56	M14x1,5	24	101	85	22.5	14	4	27	27	258
20193515	16x32	Left	Coarse	16	32	M16	26	83	64	24.0	16	16	32	32	282
20193522	16x32	Left	Fine	16	32	M16x1,5	26	83	64	24.0	16	16	32	32	282
20193539	16x64	Left	Coarse	16	64	M16	26	115	96	24.0	16	16	32	32	411
20193546	16x64	Left	Fine	16	64	M16x1,5	26	115	96	24.0	16	16	32	32	411
20193553	18x36	Left	Coarse	18	36	M18	30	94	72	27.0	18	18	36	36	390
20193560	18x36	Left	Fine	18	36	M18x1,5	30	94	72	27.0	18	18	36	36	390

Steel Clevis Joints with Pin

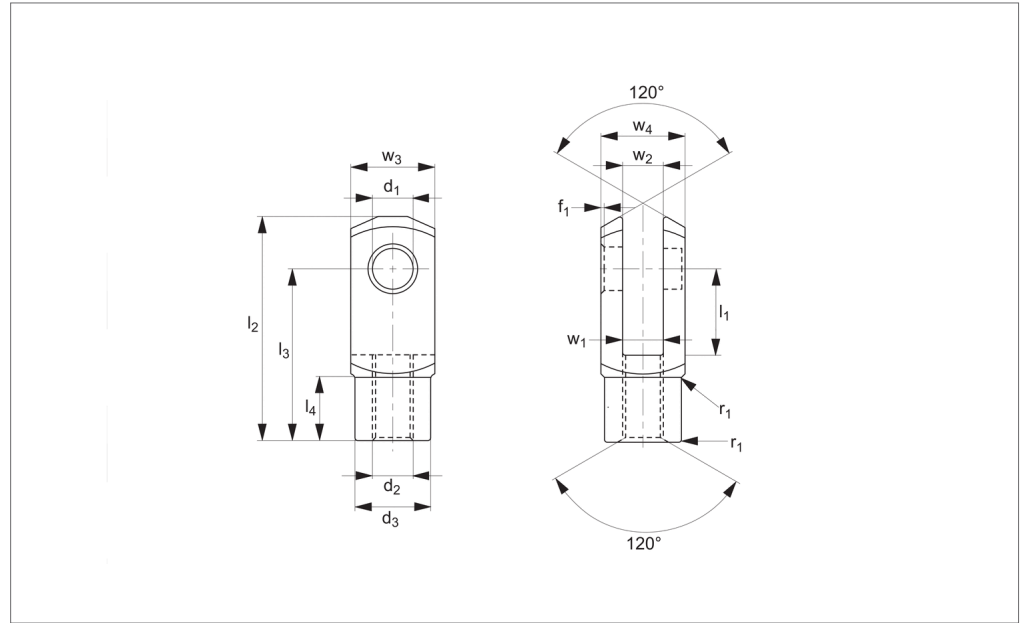
left hand thread - silver zinc plated

Clevis Joints & Clips

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	Weight g
20193577	20x40	Left	Coarse	20	40	M20	34	105	80	30.0	20	20	40	40	550
20193584	20x40	Left	Fine	20	40	M20x1,5	34	105	80	30.0	20	20	40	40	550
20193591	20x80	Left	Coarse	20	80	M20	34	145	120	30.0	20	20	40	40	800
20193607	20x80	Left	Fine	20	80	M20x1,5	34	145	120	30.0	20	20	40	40	800
20193614	25x50	Left	Coarse	25	50	M24	42	132	100	36.0	25	25	50	50	1100
20193621	25x50	Left	Fine	25	50	M24x2	42	132	100	36.0	25	25	50	50	1100
20193638	28x56	Left	Coarse	28	56	M27	48	148	112	40.0	28	28	55	55	1500
20193645	28x56	Left	Fine	28	56	M27x2	48	148	112	40.0	28	28	55	55	1500
20193652	30x54	Left	Fine	30	54	M27x2	48	148	110	40.0	30	30	55	55	1440
20193669	30x60	Left	Coarse	30	60	M30	52	160	120	42.0	30	30	60	60	1970
20193676	30x60	Left	Fine	30	60	M30x2	52	160	120	42.0	30	30	60	60	1970
20193683	35x54	Left	Fine	35	54	M36x2	60	188	144	54.0	35	35	70	70	2930
20193690	35x72	Left	Course	35	72	M36	60	188	144	54.0	35	35	70	70	2930
20193706	35x72	Left	Fine	35	72	M36x2	60	188	144	54.0	35	35	70	70	2930
20193713	36x72	Left	Course	35	72	M36	60	188	144	54.0	36	36	70	70	2930
20193720	36x72	Left	Fine	35	72	M36x2	60	188	144	54.0	36	36	70	70	2930
20193737	40x84	Left	Fine	40	84	M42x2	70	232	168	63.5	40	40	85	85	5640
20193744	42x84	Left	Coarse	42	84	M42	70	232	168	63.5	42	42	85	85	5340
20193751	42x84	Left	Fine	42	84	M42x2	70	232	168	63.5	42	42	85	85	5340
20193768	50x96	Left	Coarse	50	96	M48	82	265	192	73.0	50	50	96	96	7860
20193775	50x96	Left	Fine	50	96	M48x2	82	265	192	73.0	50	50	96	96	7860



ER3402



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 ER3403).

Important Notes

For sizes M4-M12, f_1 and $r_1 = 0,5$, for sizes M14-M16, f_1 and $r_1 = 1$, for size M20, $f_1 = 1, r_1 = 1,5$

For M24, f_1 and $r_1 = 1,5$, for M27, $f_1 = 1,5, r_1 = 2$, for r_1 , 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

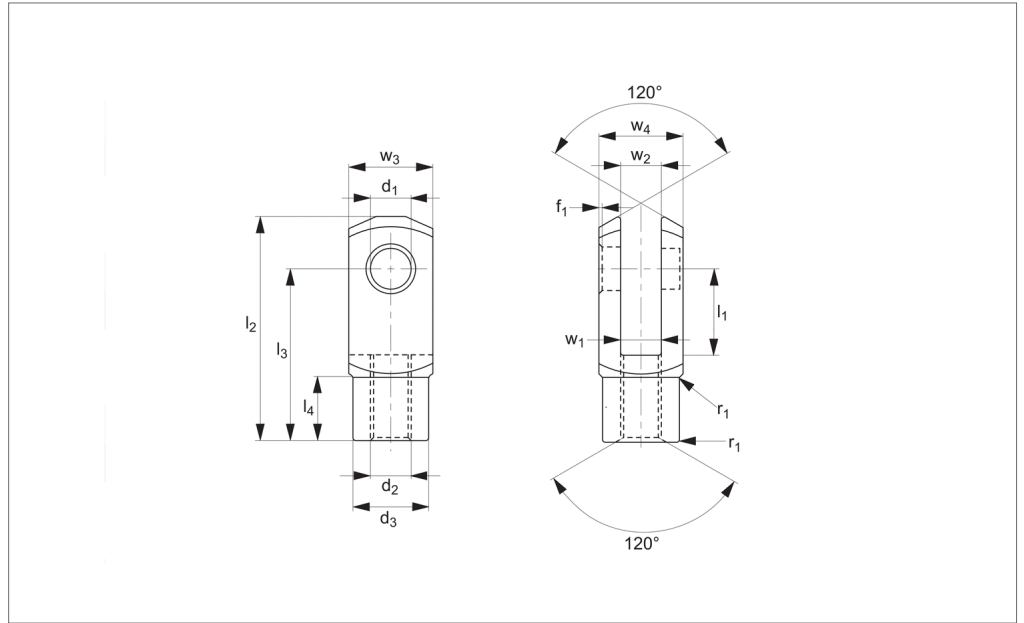
From size 6x24 = ±0,4

Order No.	Size	Thread hand	Thread type	d_1 tol. 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 tol. h11	w_4	Weight g
20210311	4x8	Right	Coarse	4	8	M 4	8	21	16	6.0	4	4	8	8	5
20210328	4x16	Right	Coarse	4	16	M 4	8	29	24	6.0	4	4	8	8	7
20210335	5x10	Right	Coarse	5	10	M 5	9	26	20	7.5	5	5	10	10	9
20210342	5x20	Right	Coarse	5	20	M 5	9	36	30	7.5	5	5	10	10	13
20210359	6x12	Right	Coarse	6	12	M 6	10	31	24	9.0	6	6	12	12	15
20210366	6x24	Right	Coarse	6	24	M 6	10	43	36	9.0	6	6	12	12	21
20210373	8x16	Right	Coarse	8	16	M 8	14	42	32	12.0	8	8	16	16	37
20210380	8x16	Right	Fine	8	16	M 8x1	14	42	32	12.0	8	8	16	16	37
20210397	8x32	Right	Coarse	8	32	M 8	14	58	48	12.0	8	8	16	16	54
20210403	8x32	Right	Fine	8	32	M 8x1	14	58	48	12.0	8	8	16	16	54
20210410	10x20	Right	Coarse	10	20	M10	18	52	40	15.0	10	10	20	20	74
20210427	10x20	Right	Fine	10	20	M10x1,25	18	52	40	15.0	10	10	20	20	74
20210434	10x40	Right	Coarse	10	40	M10	18	72	60	15.0	10	10	20	20	116
20210441	10x40	Right	Fine	10	40	M10x1,25	18	72	60	15.0	10	10	20	20	116
20210458	12x24	Right	Coarse	12	24	M12	20	62	48	18.0	12	12	24	24	121
20210465	12x24	Right	Fine	12	24	M12x1,25	20	62	48	18.0	12	12	24	24	121
20210472	12x48	Right	Coarse	12	48	M12	20	86	72	18.0	12	12	24	24	175
20210489	12x48	Right	Fine	12	48	M12x1,25	20	86	72	18.0	12	12	24	24	175
20210496	14x28	Right	Coarse	14	28	M14	24	72	56	22.5	14	14	27	27	178
20210502	14x28	Right	Fine	14	28	M14x1,5	24	72	56	22.5	14	14	27	27	178
20210519	14x56	Right	Coarse	14	56	M14	24	101	85	22.5	14	14	27	27	258
20210526	14x56	Right	Fine	14	56	M14x1,5	24	101	85	22.5	14	14	27	27	258
20210533	16x32	Right	Coarse	16	32	M16	26	83	64	24.0	16	16	32	32	282
20210540	16x32	Right	Fine	16	32	M16x1,5	26	83	64	24.0	16	16	32	32	282
20210557	16x64	Right	Coarse	16	64	M16	26	115	96	24.0	16	16	32	32	411
20210564	16x64	Right	Fine	16	64	M16x1,5	26	115	96	24.0	16	16	32	32	411
20210571	20x40	Right	Coarse	20	40	M20	34	105	80	30.0	20	20	40	40	550

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 ±0.5	w ₂	w ₃ tol. h11	w ₄	Weight g
20210588	20x40	Right	Fine	20	40	M20x1,5	34	105	80	30.0	20	20	40	40	550
20210595	25x50	Right	Coarse	25	50	M24	42	132	100	36.0	25	25	50	50	1100
20210601	25x50	Right	Fine	25	50	M24x2	42	132	100	36.0	25	25	50	50	1100
20210618	30x54	Right	Fine	30	54	M27x2	48	148	110	40.0	30	30	55	55	1440



ER3402.A4



Material

Stainless steel (1,4404, AISI 316).

Technical Notes

M4-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 ER3403).

Important Notes

For sizes M4-M12, f and $r = 0,5$, for sizes M14-M16, f and $r = 1$, for size M20, $f=1$, $r = 1,5$

Other Tolerances:-

w_4 : M4-M16 = $+0,3 -0,16$
M20 = $+0,5 - 0,2$

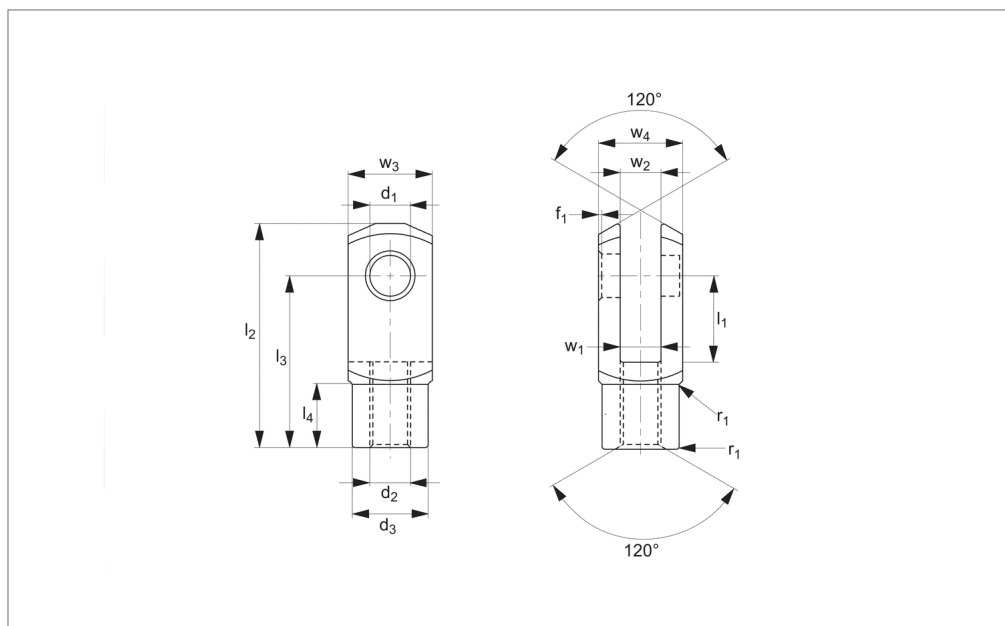
w_2 : Size 4x8-10x20 = B13

Size 10x40-30x54 = $+0,7 +0,15$

l_3 : up to size 6x12 = $\pm 0,3$

From size 6x24 = $\pm 0,4$

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 ± 0.5	w_2	w_3 tol. h11	w_4	Weight g
20217327	4x8	Right	Coarse	4	8	M4	8	21	16	6.0	4	4	8	8	5
20217334	5x10	Right	Coarse	5	10	M5	9	26	20	7.5	5	5	10	10	9
20217341	6x12	Right	Coarse	6	12	M6	10	31	24	9.0	6	6	12	12	15
20217358	8x16	Right	Coarse	8	16	M8	14	42	32	12.0	8	8	16	16	37
20217365	8x32	Right	Coarse	8	32	M8	14	58	48	12.0	8	8	16	16	54
20217372	10x20	Right	Coarse	10	20	M10	18	52	40	15.0	10	10	20	20	74
20217389	10x40	Right	Coarse	10	40	M10	18	72	60	15.0	10	10	20	20	116
20217396	12x24	Right	Coarse	12	24	M12	20	62	48	18.0	12	12	24	24	121
20217402	14x28	Right	Coarse	14	28	M14	24	72	56	22.5	14	14	27	27	178
20217419	16x32	Right	Coarse	16	32	M16	26	83	64	24.0	16	16	32	32	282
20217426	20x40	Right	Coarse	20	40	M20	34	105	80	30.0	20	20	40	40	550



ER3403

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.

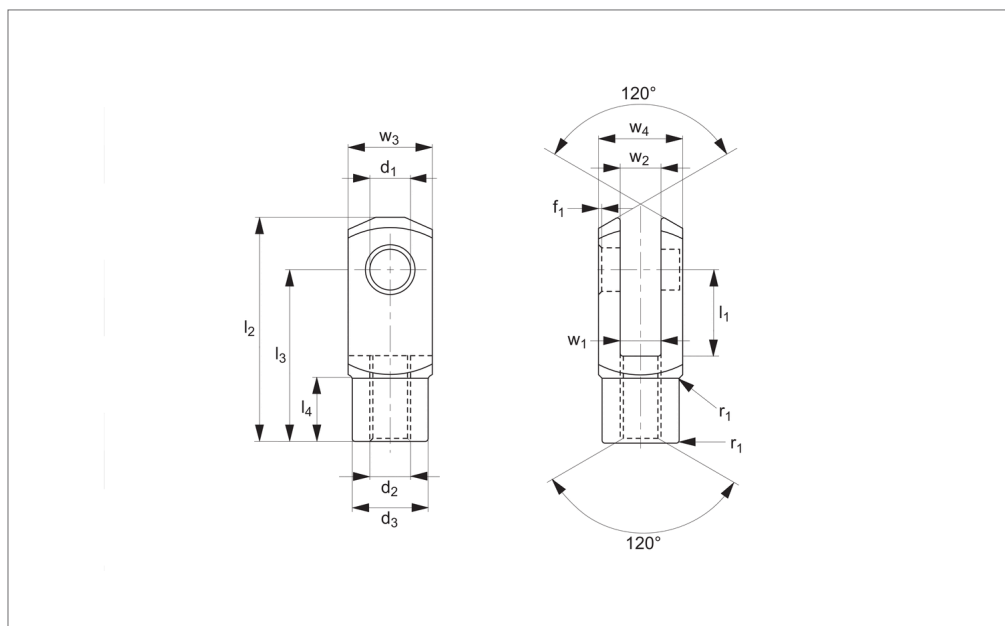
Important Notes

For sizes M4-M12, f_1 and $r_1 = 0,5$, for sizes M14-M16, f_1 and $r_1 = 1$, for size M20, $f_1=1$, $r_1 = 1,5$
For M24, f_1 and $r_1 = 1,5$, for M27, $f_1=1,5$, $r_1 = 2$, for r_1 , 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 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	Weight g
20210625	4x8	Left	Coarse	4	8	M4	8	21	16	6.0	4	4	8	8	5
20210632	4x16	Left	Coarse	4	16	M4	8	29	24	6.0	4	4	8	8	7
20210649	5x10	Left	Coarse	5	10	M5	9	26	20	7.5	5	5	10	10	9
20210656	5x20	Left	Coarse	5	20	M5	9	36	30	7.5	5	5	10	10	13
20210663	6x12	Left	Coarse	6	12	M6	10	31	24	9.0	6	6	12	12	15
20210670	6x24	Left	Coarse	6	24	M6	10	43	36	9.0	6	6	12	12	21
20210687	8x16	Left	Coarse	8	16	M8	14	42	32	12.0	8	8	16	16	37
20210694	8x16	Left	Fine	8	16	M8x1	14	42	32	12.0	8	8	16	16	37
20210700	8x32	Left	Coarse	8	32	M8	14	58	48	12.0	8	8	16	16	54
20210717	8x32	Left	Fine	8	32	M8x1	14	58	48	12.0	8	8	16	16	54
20210724	10x20	Left	Coarse	10	20	M10	18	52	40	15.0	10	10	20	20	74
20210731	10x20	Left	Fine	10	20	M10x1,25	18	52	40	15.0	10	10	20	20	74
20210748	10x40	Left	Coarse	10	40	M10	18	72	60	15.0	10	10	20	20	116
20210755	10x40	Left	Fine	10	40	M10x1,25	18	72	60	15.0	10	10	20	20	116
20210762	12x24	Left	Coarse	12	24	M12	20	62	48	18.0	12	12	24	24	121
20210779	12x24	Left	Fine	12	24	M12x1,25	20	62	48	18.0	12	12	24	24	121
20210786	12x48	Left	Coarse	12	48	M12	20	86	72	18.0	12	12	24	24	175
20210793	12x48	Left	Fine	12	48	M12x1,25	20	86	72	18.0	12	12	24	24	175
20210809	14x28	Left	Coarse	14	28	M14	24	72	56	22.5	14	14	27	27	178
20210816	14x28	Left	Fine	14	28	M14x1,5	24	72	56	22.5	14	14	27	27	178
20210823	14x56	Left	Coarse	14	56	M14	24	101	85	22.5	14	14	27	27	258
20210830	14x56	Left	Fine	14	56	M14x1,5	24	101	85	22.5	14	4	27	27	258
20210847	16x32	Left	Coarse	16	32	M16	26	83	64	24.0	16	16	32	32	282
20210854	16x32	Left	Fine	16	32	M16x1,5	26	83	64	24.0	16	16	32	32	282
20210861	16x64	Left	Coarse	16	64	M16	26	115	96	24.0	16	16	32	32	411
20210878	16x64	Left	Fine	16	64	M16x1,5	26	115	96	24.0	16	16	32	32	411
20210885	20x40	Left	Coarse	20	40	M20	34	105	80	30.0	20	20	40	40	550
20210892	20x40	Left	Fine	20	40	M20x1,5	34	105	80	30.0	20	20	40	40	550
20210908	25x50	Left	Coarse	25	50	M24	42	132	100	36.0	25	25	50	50	1100
20210915	25x50	Left	Fine	25	50	M24x2	42	132	100	36.0	25	25	50	50	1100

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	Weight g
20210922	30x54	Left	Fine	30	54	M27x2	48	148	110	40.0	30	30	55	55	1440



ER3404

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 ER3405).

Assembly is made up using ER3402 clevis joint, ER3456 pin, EP0330 washer, and EP1241 split cotter pin.

Important Notes

For sizes M5-M12, f_1 and $r_1 = 0,5$, for sizes M14-M16, f_1 and $r_1 = 1$

For size M20, $f_1=1$, $r_1 = 1,5$, for M24, f_1 and

$r_1 = 1,5$, for r_1 , 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

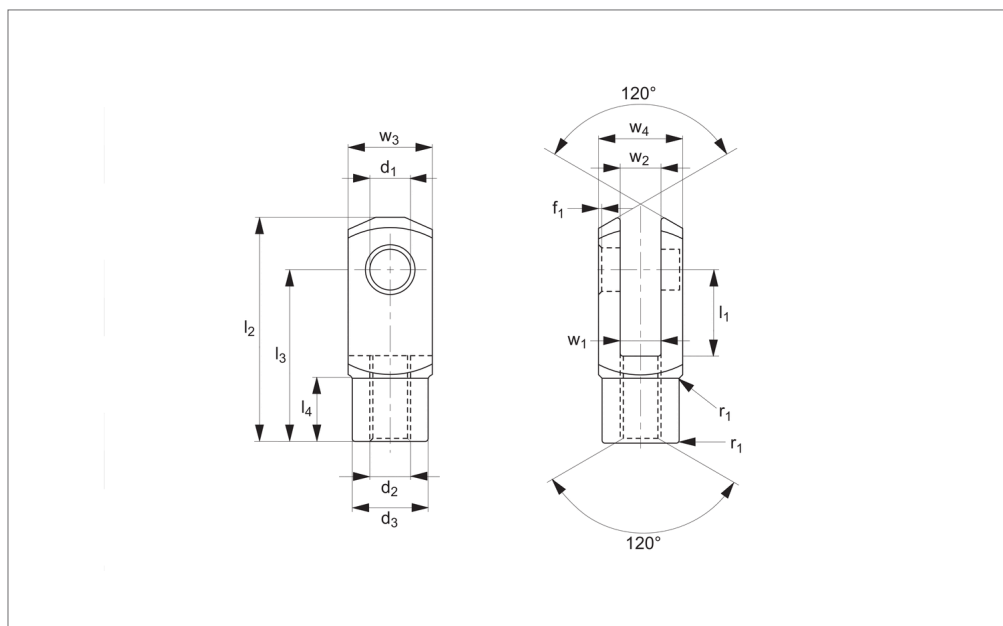
Size 10x40-25x50 = +0,7 +0,15

l_3 : up to size 6x12 = ±0,3

From size 6x24 = ±0,4

Order No.	Size	Thread hand	Thread type	d_1 tol. 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 tol. h11	w_4	Weight g
20193782	5x10	Right	Coarse	5	10	M5	9	26	20	7.5	5	5	10	10	9
20193799	5x20	Right	Coarse	5	20	M5	9	36	30	7.5	5	5	10	10	13
20193805	6x12	Right	Coarse	6	12	M6	10	31	24	9.0	6	6	12	12	15
20193812	6x24	Right	Coarse	6	24	M6	10	43	36	9.0	6	6	12	12	21
20193829	8x16	Right	Coarse	8	16	M8	14	42	32	12.0	8	8	16	16	37
20193836	8x16	Right	Fine	8	16	M8x1	14	42	32	12.0	8	8	16	16	37
20193843	8x32	Right	Coarse	8	32	M8	14	58	48	12.0	8	8	16	16	54
20193850	8x32	Right	Fine	8	32	M8x1	14	58	48	12.0	8	8	16	16	54
20193867	10x20	Right	Coarse	10	20	M10	18	52	40	15.0	10	10	20	20	74
20193874	10x20	Right	Fine	10	20	M10x1,25	18	52	40	15.0	10	10	20	20	74
20193881	10x40	Right	Coarse	10	40	M10	18	72	60	15.0	10	10	20	20	116
20193898	10x40	Right	Fine	10	40	M10x1,25	18	72	60	15.0	10	10	20	20	116
20193904	12x24	Right	Coarse	12	24	M12	20	62	48	18.0	12	12	24	24	121
20193911	12x24	Right	Fine	12	24	M12x1,25	20	62	48	18.0	12	12	24	24	121
20193928	12x48	Right	Coarse	12	48	M12	20	86	72	18.0	12	12	24	24	175
20193935	12x48	Right	Fine	12	48	M12x1,25	20	86	72	18.0	12	12	24	24	175
20193942	14x28	Right	Coarse	14	28	M14	24	72	56	22.5	14	14	27	27	178
20193959	14x28	Right	Fine	14	28	M14x1,5	24	72	56	22.5	14	14	27	27	178
20193966	14x56	Right	Coarse	14	56	M14	24	101	85	22.5	14	14	27	27	258
20193973	14x56	Right	Fine	14	56	M14x1,5	24	101	85	22.5	14	14	27	27	258
20193980	16x32	Right	Coarse	16	32	M16	26	83	64	24.0	16	16	32	32	282
20192839	16x32	Right	Fine	16	32	M16x1,5	26	83	64	24.0	16	16	32	32	282
20193997	16x64	Right	Coarse	16	64	M16	26	115	96	24.0	16	16	32	32	411
20194000	16x64	Right	Fine	16	64	M16x1,5	26	115	96	24.0	16	16	32	32	411
20194017	20x40	Right	Coarse	20	40	M20	34	105	80	30.0	20	20	40	40	550
20194024	20x40	Right	Fine	20	40	M20x1,5	34	105	80	30.0	20	20	40	40	550
20194031	25x50	Right	Coarse	25	50	M24	42	132	100	36.0	25	25	50	50	1100

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 ±0.5	w ₂	w ₃ tol. h11	w ₄	Weight g
20194048	25x50	Right	Fine	25	50	M24x2	42	132	100	36.0	25	25	50	50	1100



ER3405

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 ER3403 clevis

joint, ER3456 pin, EP0330 washer, and EP1241 split cotter pin.

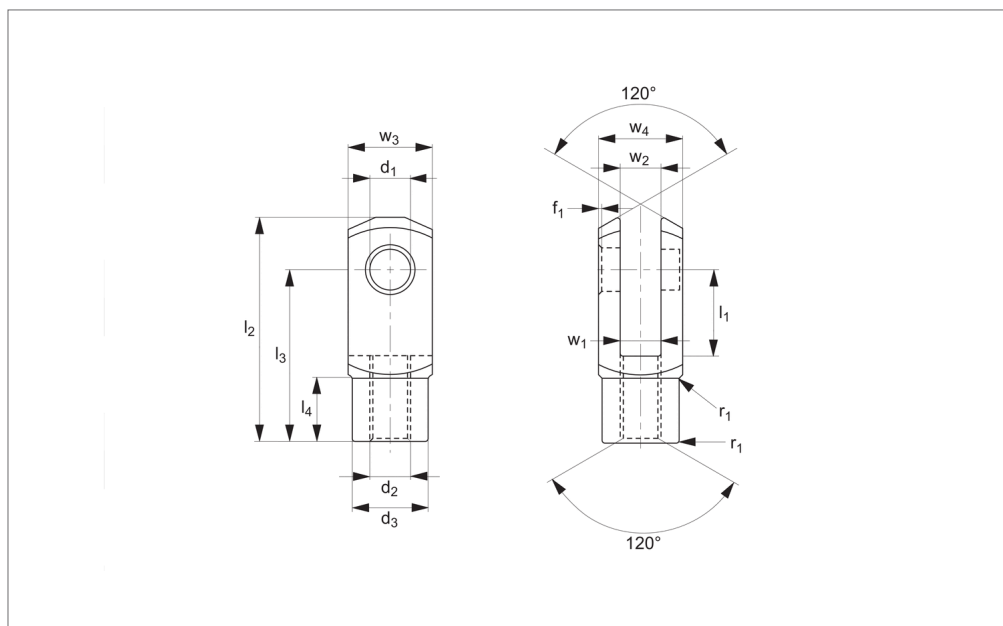
Important Notes

For sizes M5-M12, f_1 and $r_1 = 0,5$, for sizes M14-M16, f_1 and $r_1 = 1$
For size M20, $f_1 = 1$, $r_1 = 1,5$, for M24, f_1 and $r_1 = 1,5$, for r_1 , 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 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	Weight g
20194055	5x10	Left	Coarse	5	10	M5	9	26	20	7.5	5	5	10	10	9
20194062	5x20	Left	Coarse	5	20	M5	9	36	30	7.5	5	5	10	10	13
20194079	6x12	Left	Coarse	6	12	M6	10	31	24	9.0	6	6	12	12	15
20194086	6x24	Left	Coarse	6	24	M6	10	43	36	9.0	6	6	12	12	21
20194093	8x16	Left	Coarse	8	16	M8	14	42	32	12.0	8	8	16	16	37
20194109	8x16	Left	Fine	8	16	M8x1	14	42	32	12.0	8	8	16	16	37
20194116	8x32	Left	Coarse	8	32	M8	14	58	48	12.0	8	8	16	16	54
20194123	8x32	Left	Fine	8	32	M8x1	14	58	48	12.0	8	8	16	16	54
20194130	10x20	Left	Coarse	10	20	M10	18	52	40	15.0	10	10	20	20	74
20194147	10x20	Left	Fine	10	20	M10x1,25	18	52	40	15.0	10	10	20	20	74
20194154	10x40	Left	Coarse	10	40	M10	18	72	60	15.0	10	10	20	20	116
20194161	10x40	Left	Fine	10	40	M10x1,25	18	72	60	15.0	10	10	20	20	116
20194178	12x24	Left	Coarse	12	24	M12	20	62	48	18.0	12	12	24	24	121
20194185	12x24	Left	Fine	12	24	M12x1,25	20	62	48	18.0	12	12	24	24	121
20194192	12x48	Left	Coarse	12	48	M12	20	86	72	18.0	12	12	24	24	175
20194208	12x48	Left	Fine	12	48	M12x1,25	20	86	72	18.0	12	12	24	24	175
20194215	14x28	Left	Coarse	14	28	M14	24	72	56	22.5	14	14	27	27	178
20194222	14x28	Left	Fine	14	28	M14x1,5	24	72	56	22.5	14	14	27	27	178
20194239	14x56	Left	Coarse	14	56	M14	24	101	85	22.5	14	14	27	27	258
20194246	14x56	Left	Fine	14	56	M14x1,5	24	101	85	22.5	14	14	27	27	258
20194253	16x32	Left	Coarse	16	32	M16	26	83	64	24.0	16	16	32	32	282
20194260	16x32	Left	Fine	16	32	M16x1,5	26	83	64	24.0	16	16	32	32	282
20194277	16x64	Left	Coarse	16	64	M16	26	115	96	24.0	16	16	32	32	411
20194284	16x64	Left	Fine	16	64	M16x1,5	26	115	96	24.0	16	16	32	32	411
20194291	20x40	Left	Coarse	20	40	M20	34	105	80	30.0	20	20	40	40	550
20194307	20x40	Left	Fine	20	40	M20x1,5	34	105	80	30.0	20	20	40	40	550
20194314	25x50	Left	Coarse	25	50	M24	42	132	100	36.0	25	25	50	50	1100

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	Weight g
20194321	25x50	Left	Fine	25	50	M24x2	42	132	100	36.0	25	25	50	50	1100



ER3406

CLEVIS JOINTS & CLIPS

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 ER3407).

Assembly is made up using ER3402 clevis joint, ER3454 pin, and 2 off ER3447 circlips.

Important Notes

For sizes M5-M12, f_1 and $r_1 = 0,5$, for sizes M16, f_1 and $r_1 = 1$

For size M20, $f_1=1$, $r_1 = 1,5$, for r_1 , 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

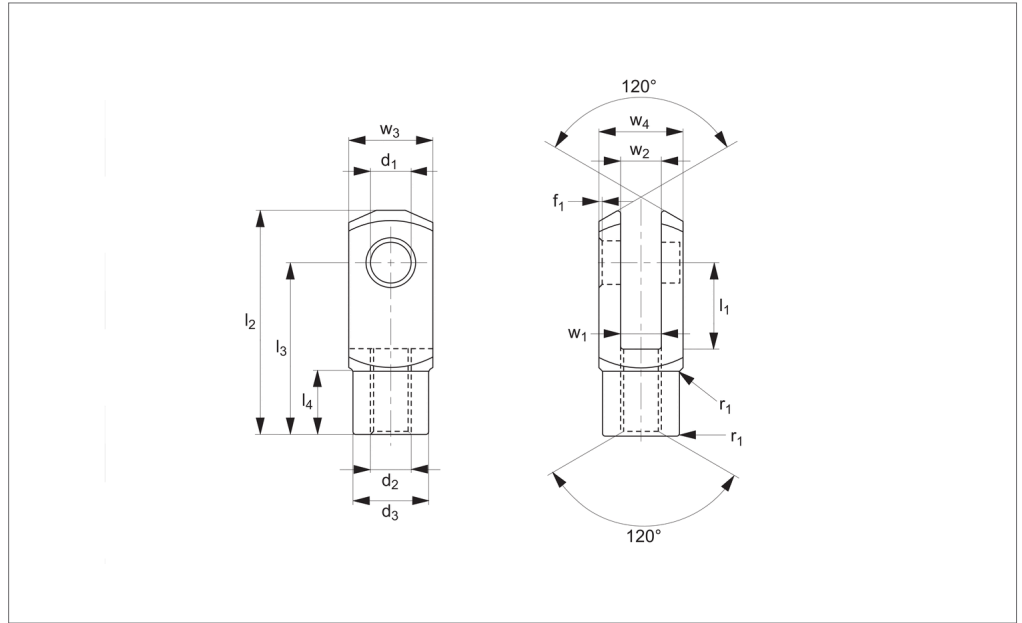
l_3 : up to size 6x12 = ±0,3

From size 6x24 = ±,4

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 ±0.5	w_2	w_3 tol. h11	w_4	Weight g
20192235	5x10	Right	Coarse	5	10	M5	9	26	20	7.5	5	5	10	10	9
20194338	5x20	Right	Coarse	5	20	M5	9	36	30	7.5	5	5	10	10	13
20192242	6x12	Right	Coarse	6	12	M6	10	31	24	9.0	6	6	12	12	15
20194345	6x24	Right	Coarse	6	24	M6	10	43	36	9.0	6	6	12	12	21
20192259	8x16	Right	Coarse	8	16	M8	14	42	32	12.0	8	8	16	16	37
20194352	8x16	Right	Fine	8	16	M8x1	14	42	32	12.0	8	8	16	16	37
20194369	8x32	Right	Coarse	8	32	M8	14	58	48	12.0	8	8	16	16	54
20194376	8x32	Right	Fine	8	32	M8x1	14	58	48	12.0	8	8	16	16	54
20192266	10x20	Right	Coarse	10	20	M10	18	52	40	15.0	10	10	20	20	74
20194383	10x20	Right	Fine	10	20	M10x1,25	18	52	40	15.0	10	10	20	20	74
20194390	10x40	Right	Coarse	10	40	M10	18	72	60	15.0	10	10	20	20	116
20194406	10x40	Right	Fine	10	40	M10x1,25	18	72	60	15.0	10	10	20	20	116
20192273	12x24	Right	Coarse	12	24	M12	20	62	48	18.0	12	12	24	24	121
20194413	12x24	Right	Fine	12	24	M12x1,25	20	62	48	18.0	12	12	24	24	121
20194420	12x48	Right	Coarse	12	48	M12	20	86	72	18.0	12	12	24	24	175
20194437	12x48	Right	Fine	12	48	M12x1,25	20	86	72	18.0	12	12	24	24	175
20192280	16x32	Right	Coarse	16	32	M16	26	83	64	24.0	16	16	32	32	282
20194444	16x32	Right	Fine	16	32	M16x1,5	26	83	64	24.0	16	16	32	32	282
20194451	16x64	Right	Coarse	16	64	M16	26	115	96	24.0	16	16	32	32	411
20194468	16x64	Right	Fine	16	64	M16x1,5	26	115	96	24.0	16	16	32	32	411
20192297	20x40	Right	Coarse	20	40	M20	34	105	80	30.0	20	20	40	40	550
20194475	20x40	Right	Fine	20	40	M20x1,5	34	105	80	30.0	20	20	40	40	550



ER3407



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 ER3403 clevis

joint, ER3454 pin, and 2 off ER3447 circlips.

Important Notes

For sizes M5-M12, f_1 and $r_1 = 0,5$, for sizes M16, f_1 and $r_1 = 1$

For size M20, $f_1=1$, $r_1 = 1,5$, for r_1 , radius or 45° bevelling.

Other Tolerances:-

w_4 : M4-M16 = +0,3 -0,16

M20 = +0,5 - 0,2

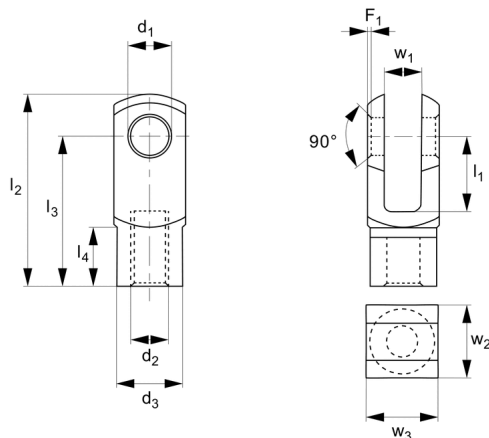
w_2 : Size 4x8-10x20 = B13

Size 10x40-20x40 = +0,7 +0,15

l_3 : up to size 6x12 = $\pm 0,3$

From size 6x24 = $\pm 0,4$

Order No.	Size	Thread hand	Thread type	d_1 tol. H9	l_1 $\pm 0,5$	d_2	d_3	l_2 $\pm 0,5$	l_3	l_4	w_1 tol. B13	w_2	w_3 tol. h11	w_4	Weight g
20192303	5x10	Left	Coarse	5	10	M5	9	26	20	7.5	5	5	10	10	9
20194482	5x20	Left	Coarse	5	20	M5	9	36	30	7.5	5	5	10	10	13
20192310	6x12	Left	Coarse	6	12	M6	10	31	24	9.0	6	6	12	12	15
20194499	6x24	Left	Coarse	6	24	M6	10	43	36	9.0	6	6	12	12	21
20192327	8x16	Left	Coarse	8	16	M8	14	42	32	12.0	8	8	16	16	37
20194505	8x16	Left	Fine	8	16	M8x1	14	42	32	12.0	8	8	16	16	37
20194512	8x32	Left	Coarse	8	32	M8	14	58	48	12.0	8	8	16	16	54
20194529	8x32	Left	Fine	8	32	M8x1	14	58	48	12.0	8	8	16	16	54
20192334	10x20	Left	Coarse	10	20	M10	18	52	40	15.0	10	10	20	20	74
20194536	10x20	Left	Fine	10	20	M10x1,25	18	52	40	15.0	10	10	20	20	74
20194543	10x40	Left	Coarse	10	40	M10	18	72	60	15.0	10	10	20	20	116
20194550	10x40	Left	Fine	10	40	M10x1,25	18	72	60	15.0	10	10	20	20	116
20192341	12x24	Left	Coarse	12	24	M12	20	62	48	18.0	12	12	24	24	121
20194567	12x24	Left	Fine	12	24	M12x1,25	20	62	48	18.0	12	12	24	24	121
20194574	12x48	Left	Coarse	12	48	M12	20	86	72	18.0	12	12	24	24	175
20194581	12x48	Left	Fine	12	48	M12x1,25	20	86	72	18.0	12	12	24	24	175
20192358	16x32	Left	Coarse	16	32	M16	26	83	64	24.0	16	16	32	32	282
20194598	16x32	Left	Fine	16	32	M16x1,5	26	83	64	24.0	16	16	32	32	282
20194604	16x64	Left	Coarse	16	64	M16	26	115	96	24.0	16	16	32	32	411
20194611	16x64	Left	Fine	16	64	M16x1,5	26	115	96	24.0	16	16	32	32	411
20192365	20x40	Left	Coarse	20	40	M20	34	105	80	30.0	20	20	40	40	550
20194628	20x40	Left	Fine	20	40	M20x1,5	34	105	80	30.0	20	20	40	40	550



ER3409

CLEVIS JOINTS & CLIPS

Material

Black Plastic (Igumid G)

Technical Notes

Light weight, Universal corrosion resistance.

High tensile strength, vibration and noise dampening.

Can be used in conjunction with rod ends ER3582 and ER3583.

Tips

Standard thread is right hand thread.

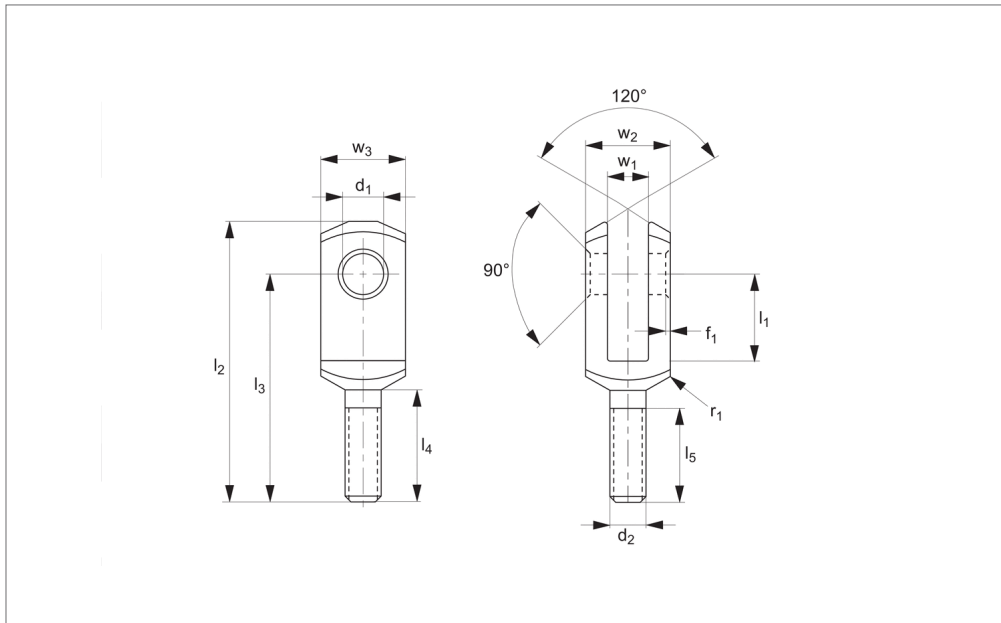
Important Notes

For pins and clips, see ER3453 and ER3446.

Order No.	Size	Thread hand	Thread type	d_1 tol. h9	l_1 tol. h11	d_2 tol. 6H	d_3 +0.3 -0.3	f +0.3 -0.3	l_2 ±0.5	l_3 +0.3 -0.3	Weight g
20211110	4x8	Right	Coarse	4	8	M3,5	8.0	0.5	21.0	16.0	0.8
20211127	4x8	Right	Coarse	4	8	M4	8.0	0.5	21.0	16.0	0.8
20211134	5x10	Right	Coarse	5	10	M5	9.0	0.5	25.5	20.0	1.5
20211141	5x12	Right	Coarse	5	12	M5	10.0	0.5	30.6	24.0	2.7
20211158	6x12	Right	Coarse	6	12	M6	10.0	0.5	30.6	24.0	2.7
20211165	8x16	Right	Coarse	8	16	M8	14.0	0.5	41.6	32.0	6.3
20211172	10x20	Right	Coarse	10	20	M10	18.0	0.5	51.3	40.0	13.1
20211189	10x20	Right	Fine	10	20	M10x1,25	18.0	0.5	51.3	40.0	13.1
20211196	12x24	Right	Coarse	12	24	M12	20.0	0.5	61.3	48.0	20.2
20211202	12x24	Right	Fine	12	24	M12x1,25	20.0	0.5	61.3	48.0	20.2
20211219	14x28	Right	Coarse	14	28	M14	24.0	0.5	71.3	56.0	29.6
20211226	15x28	Right	Coarse	15	28	M14	24.0	0.5	71.3	56.0	30.0
20211233	16x32	Right	Coarse	16	32	M16	26.0	1.0	81.9	64.0	43.3
20211240	16x32	Right	Fine	16	32	M16x1,5	26.0	1.0	81.9	64.0	43.3
20211257	17x32	Right	Coarse	17	32	M16	26.0	1.0	81.9	64.0	43.3
20211264	17x32	Right	Fine	17	32	M16x1,5	26.0	1.0	83.0	64.0	43.3
20211271	20x40	Right	Fine	20	40	M20x1,5	34.0	1.0	105.0	80.0	95.1
20211288	20x40	Right	-	20	40	M20x2,5	34.0	1.0	105.0	80.0	95.1
20210939	4x8	Left	Coarse	4	8	M3,5	8.0	0.5	21.0	16.0	0.8
20210946	4x8	Left	Coarse	4	8	M4	8.0	0.5	21.0	16.0	0.8
20210953	5x10	Left	Coarse	5	10	M5	9.0	0.5	25.5	20.0	1.5
20210960	5x12	Left	Coarse	5	12	M5	10.0	0.5	30.6	24.0	2.7
20210977	6x12	Left	Coarse	6	12	M6	10.0	0.5	30.6	24.0	2.7
20210984	8x16	Left	Coarse	8	16	M8	14.0	0.5	41.6	32.0	6.3
20210991	10x20	Left	Coarse	10	20	M10	18.0	0.5	51.3	40.0	13.1
20211004	10x20	Left	Fine	10	20	M10x1,25	18.0	0.5	51.3	40.0	13.1
20211011	12x24	Left	Coarse	12	24	M12	20.0	0.5	61.3	48.0	20.2
20211028	12x24	Left	Fine	12	24	M12x1,25	20.0	0.5	61.3	48.0	20.2
20211035	14x28	Left	Coarse	14	28	M14	24.0	0.5	71.3	56.0	29.6
20211042	15x28	Left	Coarse	15	28	M14	24.0	0.5	71.3	56.0	30.0
20211059	16x32	Left	Coarse	16	32	M16	26.0	1.0	81.9	64.0	43.3
20211066	16x32	Left	Fine	16	32	M16x1,5	26.0	1.0	81.9	64.0	43.3

Order No.	Size	Thread hand	Thread type	d ₁ tol. h9	l ₁ tol. h11	d ₂ tol. 6H	d ₃ +0.3 -0.3	f +0.3 -0.3	l ₂ ±0.5	l ₃ +0.3 -0.3	Weight g
20211073	17x32	Left	Coarse	17	32	M16	26.0	1.0	83.0	64.0	43.3
20211080	17x32	Left	Fine	17	32	M16x1,5	26.0	1.0	83.0	64.0	43.3
20211097	20x40	Left	Fine	20	40	M20x1,5	34.0	1.0	105.0	80.0	95.1
20211103	20x40	Left	Fine	20	40	M20x2,5	34.0	1.0	105.0	80.0	95.1

Order No.	l ₄ ±0.2	w ₁ tol. B13	w ₂ +0.3 -0.16	w ₃ tol. B13	Static axial tensile strength (short term)	Static axial tensile strength (long term)	Torque strength
					N max.	N max.	Nm max.
20211110	6.0	4	8	8	650	325	0.4
20211127	6.0	4	8	8	650	325	0.4
20211134	7.5	5	10	10	1000	500	0.5
20211141	9.0	6	12	12	1200	600	0.5
20211158	9.0	6	12	12	1400	700	1.5
20211165	12.0	8	16	16	2700	1350	5.0
20211172	15.0	10	20	20	4700	2350	15.0
20211189	15.0	10	20	20	4700	2350	6.0
20211196	18.0	12	24	24	5700	2850	20.0
20211202	18.0	12	24	24	5700	2850	15.0
20211219	22.5	14	27	27	6600	3300	25.0
20211226	22.5	14	27	27	3200	1600	25.0
20211233	24.0	16	32	32	7500	3750	30.0
20211240	24.0	16	32	32	7500	3750	27.5
20211257	24.0	16	32	32	3600	1800	30
20211264	24.0	16	32	32	3600	1800	27.5
20211271	30.0	20	40	40	9500	4750	60.0
20211288	30.0	20	40	40	9500	4750	80.0
20210939	6.0	8	8	4	650	325	0.4
20210946	6.0	8	8	4	650	325	0.4
20210953	7.5	10	10	5	1000	500	0.5
20210960	9.0	12	12	6	1200	600	0.5
20210977	9.0	12	12	6	1400	700	1.5
20210984	12.0	16	16	8	2700	1350	5.0
20210991	15.0	20	20	10	4700	2350	15.0
20211004	15.0	20	20	10	4700	2350	6.0
20211011	18.0	24	24	12	5700	2850	20.0
20211028	18.0	24	24	12	5700	2850	15.0
20211035	22.5	27	27	14	6600	3300	25.0
20211042	22.5	27	27	14	3200	1600	25.0
20211059	24.0	32	32	16	7500	3750	30.0
20211066	24.0	32	32	16	7500	3750	27.5
20211073	24.0	32	32	16	3600	1800	30.0
20211080	24.0	32	32	16	3600	1800	27.5
20211097	30.0	40	40	20	9500	4750	60.0
20211103	30.0	40	40	20	9500	4750	80.0



ER3410

Material

Steel (1.0718) silver zinc plated.

standard.

Other Tolerances: for r_1 , radius or 45° bevelling.

Technical Notes

Similar to DIN 71 752/DIN ISO 8140/CETOP

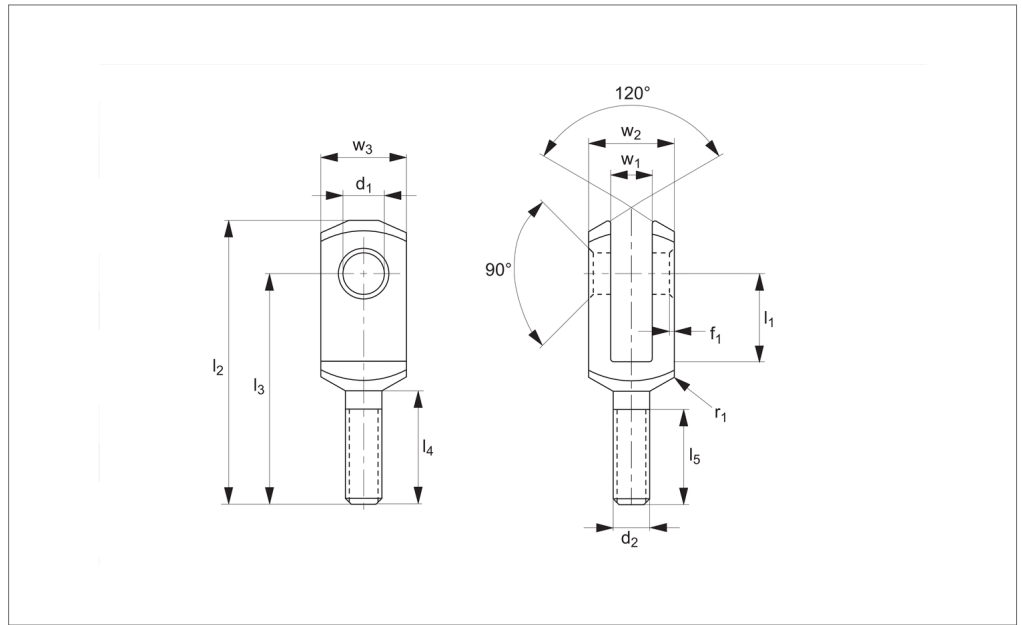
Tips

Standard thread is right hand, (for left hand, see ER3411).

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_1 ± 0.2	r_1	Weight g
20211295	6x12	Right	6	12	M6	44	37	20	15	6	12	12	0.5	0.8	15
20211301	8x16	Right	8	16	M8	57	47	25	20	8	16	16	0.5	0.8	36
20211318	10x20	Right	10	20	M10	69	57	30	25	10	20	20	0.5	0.8	68
20211325	12x24	Right	12	24	M12	82	68	35	30	12	24	24	0.5	0.8	112
20211332	14x28	Right	14	28	M14	94	78	40	35	14	27	27	1.0	1.2	171
20211349	16x32	Right	16	32	M16	108	89	45	40	16	32	32	1.0	1.2	288
20211356	20x40	Right	20	40	M20	134	109	55	50	20	40	40	1.0	1.5	550



ER3411



Material

Steel (1.0718) silver zinc plated.

standard.

Other Tolerances: for r_1 , radius or 45° beveling.

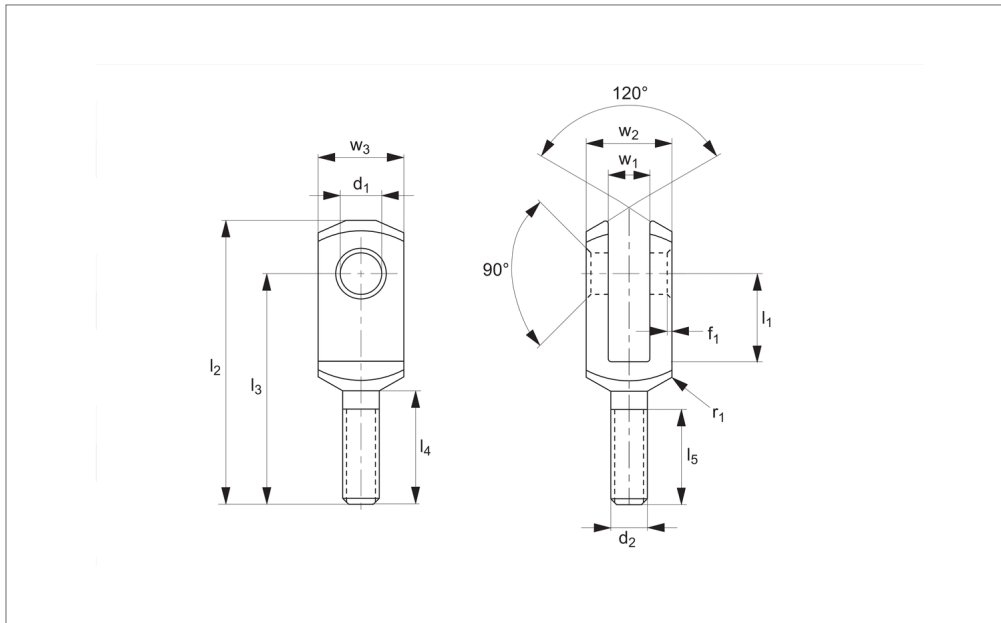
Technical Notes

Similar to DIN 71 752/DIN ISO 8140/CETOP

Tips

Standard thread is right hand, (for left hand, see ER3411).

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_1 ± 0.2	r_1	Weight g
20211363	6x12	Left	6	12	M6	44	37	20	15	6	12	12	0.5	0.8	15
20211370	8x16	Left	8	16	M8	57	47	25	20	8	16	16	0.5	0.8	36
20211387	10x20	Left	10	20	M10	69	57	30	25	10	20	20	0.5	0.8	68
20211394	12x24	Left	12	24	M12	82	68	35	30	12	24	24	0.5	0.8	112
20211400	14x28	Left	14	28	M14	94	78	40	35	14	27	27	1.0	1.2	171
20211417	16x32	Left	16	32	M16	108	89	45	40	16	32	32	1.0	1.2	288
20211424	20x40	Left	20	40	M20	134	109	55	50	20	40	40	1.0	1.5	550



ER3416

CLEVIS JOINTS & CLIPS

Material

Stainless steel (1,4305 AISI 303).

standard.

Other Tolerances: For r_1 , radius or 45° bevelling.

Technical Notes

Similar to DIN 71 752/DIN ISO 8140/CETOP

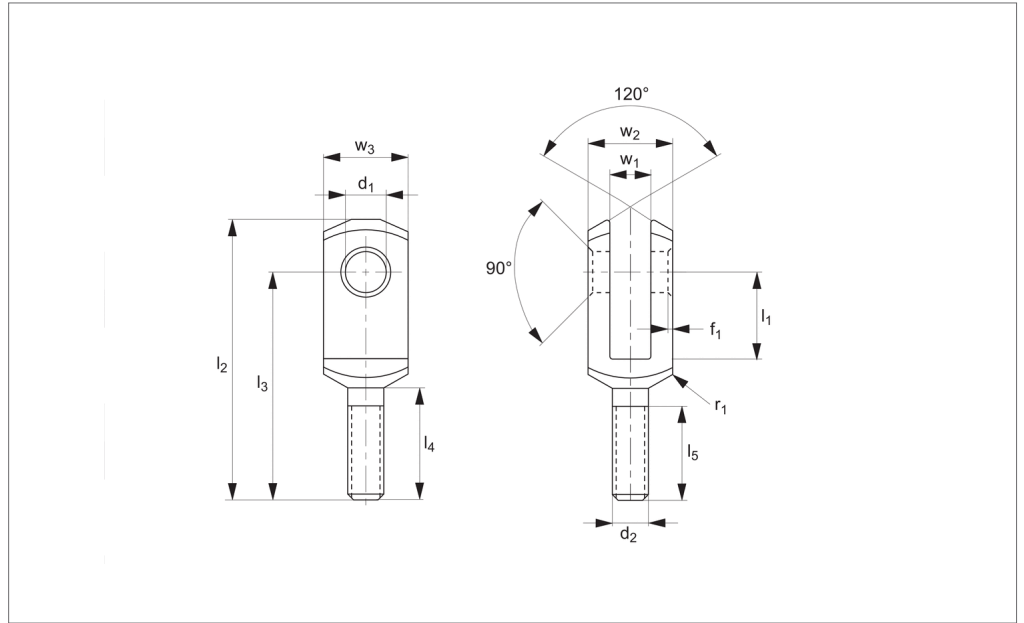
Tips

Standard is right hand thread, (For left hand see ER3417).

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_1 ± 0.2	r_1	Weight g
20211431	6x12	Right	6	12	M 6	44	37	20	15	6	12	12	0.5	0.8	15
20211448	8x16	Right	8	16	M 8	57	47	25	20	8	16	16	0.5	0.8	36
20211455	10x20	Right	10	20	M10	69	57	30	25	10	20	20	0.5	0.8	68
20211462	12x24	Right	12	24	M12	82	68	35	30	12	24	24	0.5	0.8	112
20211479	14x28	Right	14	28	M14	94	78	40	35	14	27	27	1.0	1.2	171
20211486	16x32	Right	16	32	M16	108	89	45	40	16	32	32	1.0	1.2	288
20211493	20x40	Right	20	40	M20	134	109	55	50	20	40	40	1.0	1.5	550



ER3417



Material

Stainless steel (1,4305 AISI 303).

standard.

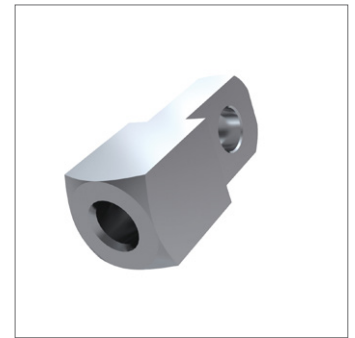
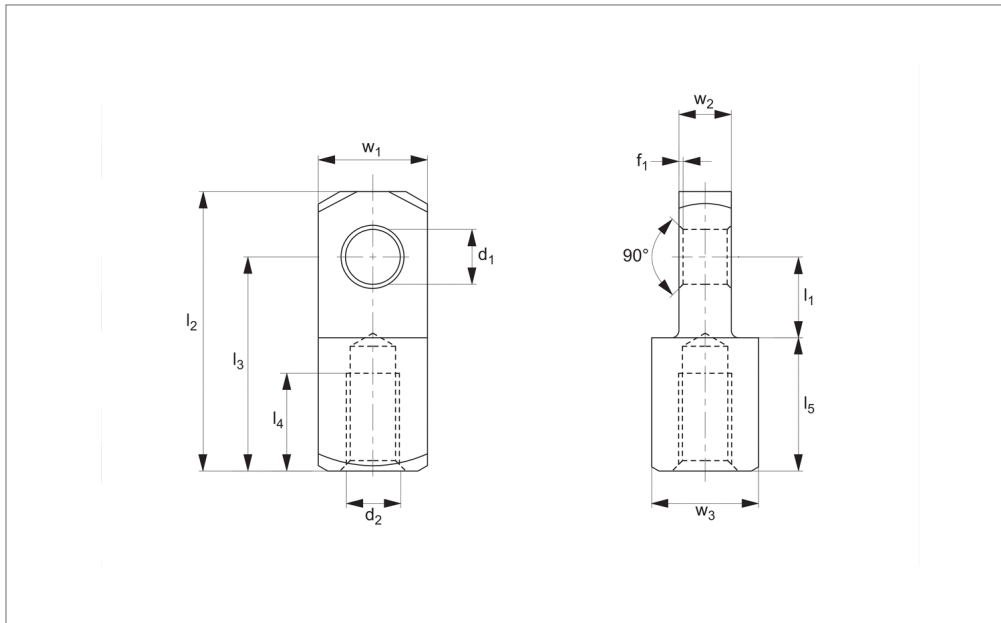
Technical Notes

Similar to DIN 71 752/DIN ISO 8140/CETOP

Tips

Other Tolerances: For r_1 , 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_1 ± 0.2	r_1	Weight g
20211509	6x12	Left	6	12	M6	44	37	20	15	6	12	12	0.5	0.8	15
20211516	8x16	Left	8	16	M8	57	47	25	20	8	16	16	0.5	0.8	36
20211523	10x20	Left	10	20	M10	69	57	30	25	10	20	20	0.5	0.8	68
20211530	12x24	Left	12	24	M12	82	68	35	30	12	24	24	0.5	0.8	112
20211547	14x28	Left	14	28	M14	94	78	40	35	14	27	27	1.0	1.2	171
20211554	16x32	Left	16	32	M16	108	89	45	40	16	32	32	1.0	1.2	288
20211561	20x40	Left	20	40	M20	134	109	55	50	20	40	40	1.0	1.5	550



ER3420

Material

Steel (1.0718), silver zinc plated.

hand thread, see ER3421).

Thin end of mating piece is designed to fit in between forks of clevis joint.

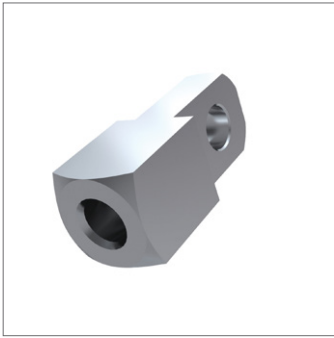
joint, (e.g. M5 mating piece will fit on M5 clevis joint).

Tips

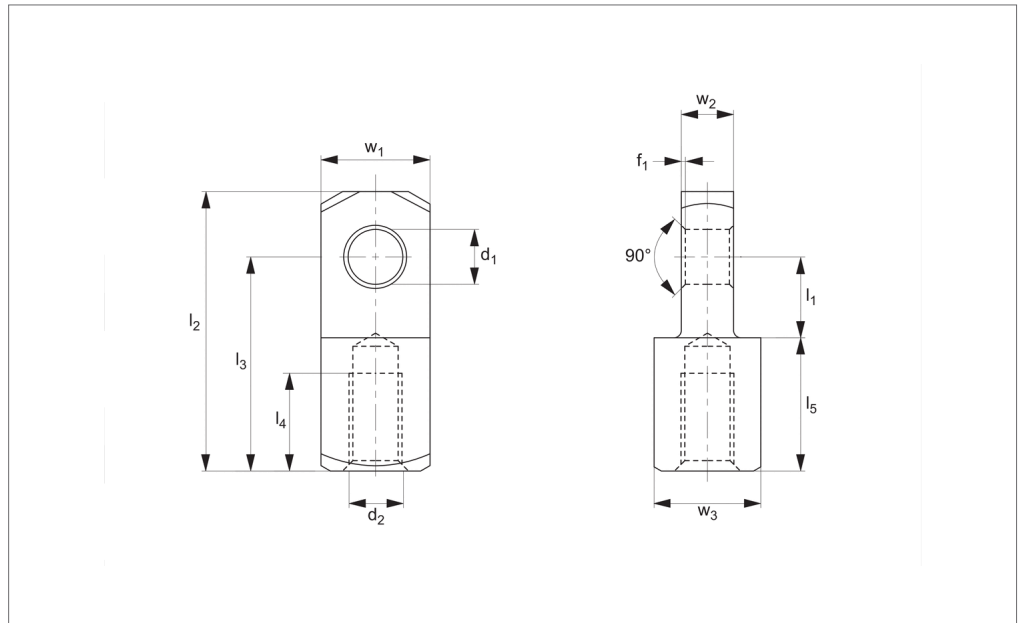
Standard thread is right hand, (for left

Designed so thread size matches clevis

Order No.	Thread hand	Thread type	d ₁ tol. H9	l ₁ ±0.5	d ₂	l ₂ ±0.5	l ₃ ±0.5	l ₄	l ₅ ±0.2	w ₁ tol. h11	w ₂ -0.2	w ₃ tol. h11	f ₁ ±0.2	Weight g
20211578	Right	Coarse	4	6.0	M4	21	16	6	10	8	4	8	0.5	6
20211585	Right	Coarse	5	7.5	M5	26	20	8	12.5	10	5	10	0.5	12
20211592	Right	Coarse	6	9.0	M6	31	24	11	15	12	6	12	0.5	21
20211608	Right	Coarse	8	12.0	M8	42	32	14	20	16	8	16	0.5	51
20211615	Right	Fine	8	12.0	M8x1	42	32	14	20	16	8	16	0.5	51
20211622	Right	Coarse	10	15.0	M10	52	40	18	25	20	10	20	0.5	98
20211639	Right	Fine	10	15.0	M10x1,25	52	40	18	25	20	10	20	0.5	98
20211646	Right	Coarse	12	18.0	M12	62	48	22	30	24	12	24	0.5	168
20211653	Right	Fine	12	18.0	M12x1,25	62	48	22	30	24	12	24	0.5	167
20211660	Right	Coarse	14	21.0	M14	72	56	25	35	27	14	27	1.0	247
20211677	Right	Fine	14	21.0	M14x1,5	72	56	25	35	27	14	27	1.0	245
20211684	Right	Coarse	16	24.0	M16	83	64	30	40	32	16	32	1.0	397
20211691	Right	Fine	16	24.0	M16x1,5	83	64	30	40	32	16	32	1.0	395
20211707	Right	Coarse	20	30.0	M20	105	80	38	50	40	20	40	1.0	783
20211714	Right	Fine	20	30.0	M20x1,5	105	80	38	50	40	20	40	1.0	776



ER3421



Material

Steel (1.0718), silver zinc plated.

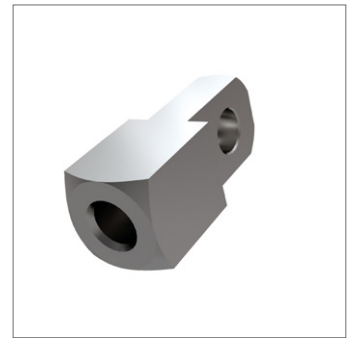
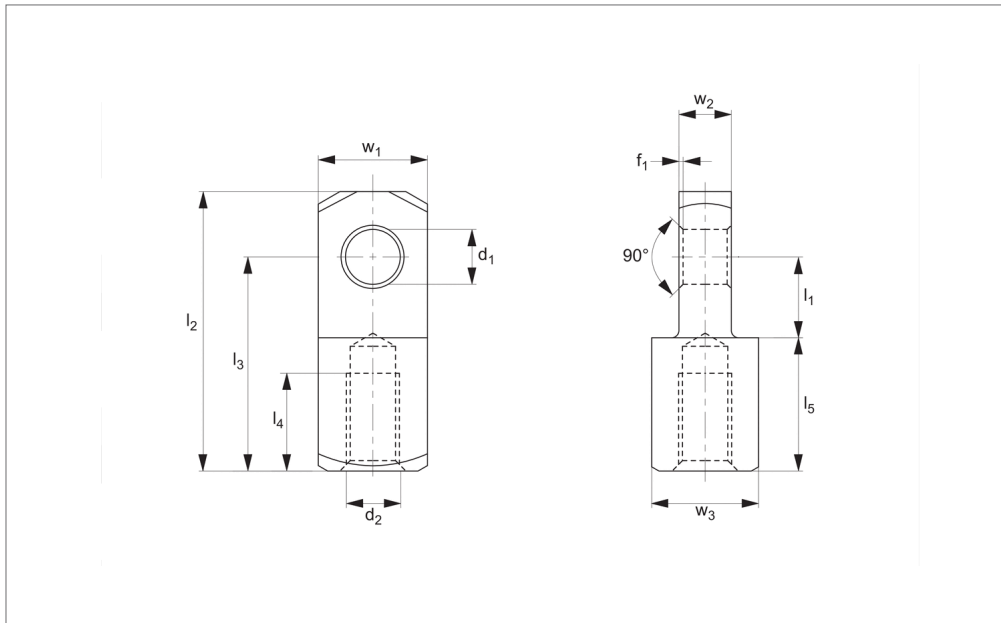
Tips

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 tol. H9	l ₁ ±0.5	d ₂	l ₂ ±0.5	l ₃ ±0.5	l ₄	l ₅ ±0.2	w ₁ tol. h11	w ₂ -0,2	w ₃ tol. h11	f ₁ ±0.2	Weight g
20211721	Left	Coarse	4	6	M4	21	16	6	10.0	8	4	8	0.5	6
20211738	Left	Coarse	5	7.5	M5	26	20	8	12.5	10	5	10	0.5	12
20211745	Left	Coarse	6	9	M6	31	24	11	15.0	12	6	12	0.5	21
20211752	Left	Coarse	8	12	M8	42	32	14	20.0	16	8	16	0.5	51
20211769	Left	Fine	8	12	M8x1	42	32	14	20.0	16	8	16	0.5	51
20211776	Left	Coarse	10	15	M10	52	40	18	25.0	20	10	20	0.5	98
20211783	Left	Fine	10	15	M10x1,25	52	40	18	25.0	20	10	20	0.5	98
20211790	Left	Coarse	12	18	M12	62	48	22	30.0	24	12	24	0.5	168
20211806	Left	Fine	12	18	M12x1,25	62	48	22	30.0	24	12	24	0.5	167
20211813	Left	Coarse	14	21	M14	72	56	25	35.0	27	14	27	1.0	247
20211820	Left	Fine	14	21	M14x1,5	72	56	25	35.0	27	14	27	1.0	245
20211837	Left	Coarse	16	24	M16	83	64	30	40.0	32	16	32	1.0	397
20211844	Left	Fine	16	24	M16x1,5	83	64	30	40.0	32	16	32	1.0	395
20211851	Left	Coarse	20	30	M20	105	80	38	50.0	40	20	40	1.0	783
20211868	Left	Fine	20	30	M20x1,5	105	80	38	50.0	40	20	40	1.0	776



ER3426

Material

Stainless steel (AISI 303 1.4305).

hand thread see ER3427).

clevis joint).

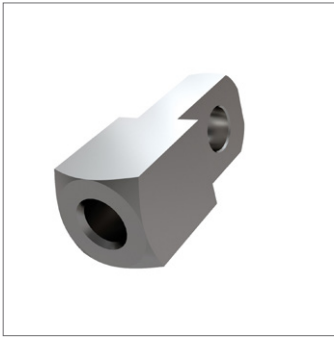
Thin end of mating piece is designed to fit in between forks of clevis joint.

Tips

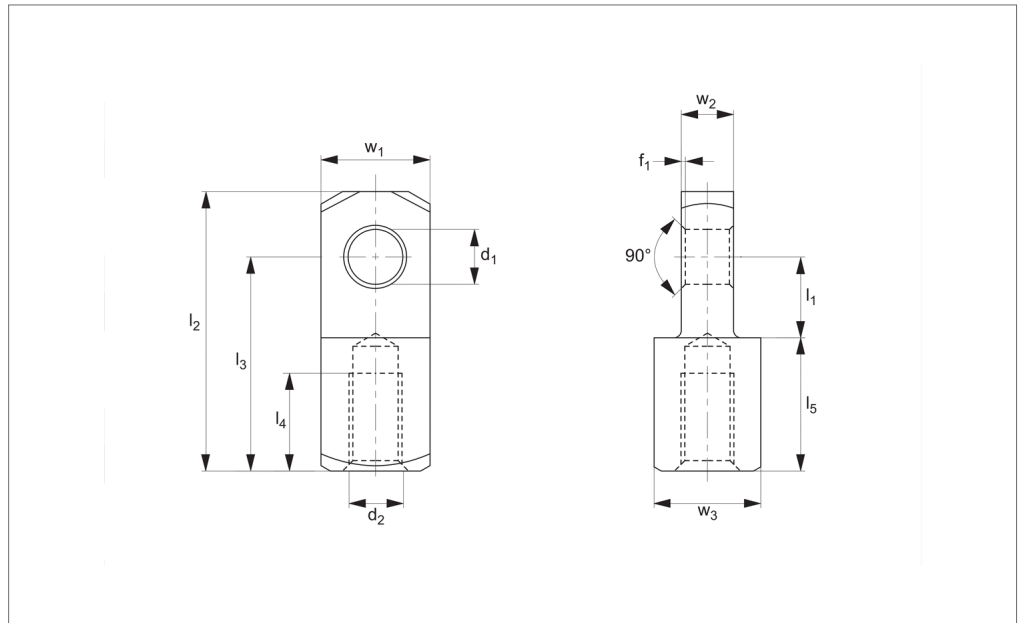
Standard thread is right hand, (for left

joint, (e.g. M5 mating piece will fit on M5

Order No.	Thread hand	Thread type	d ₁ tol. H9	l ₁ ±0.5	d ₂	l ₂ ±0.5	l ₃ ±0.5	l ₄	l ₅ ±0.2	w ₁ tol. h11	w ₂ -0.2	w ₃ tol. h11	f ₁ ±0.2	Weight g
20211875	Right	Coarse	4	6	M4	21	16	6	10.0	8	4	8	0.5	6
20211882	Right	Coarse	5	7.5	M5	26	20	8	12.5	10	5	10	0.5	12
20211899	Right	Coarse	6	9	M6	31	24	11	15.0	12	6	12	0.5	21
20211905	Right	Coarse	8	12	M8	42	32	14	20.0	16	8	16	0.5	51
20211912	Right	Fine	8	12	M8x1	42	32	14	20.0	16	8	16	0.5	51
20211929	Right	Coarse	10	15	M10	52	40	18	25.0	20	10	20	0.5	98
20211936	Right	Fine	10	15	M10x1,25	52	40	18	25.0	20	10	20	0.5	98
20211943	Right	Coarse	12	18	M12	62	48	22	30.0	24	12	24	0.5	168
20211950	Right	Fine	12	18	M12x1,25	62	48	22	30.0	24	12	24	0.5	167
20211967	Right	Coarse	14	21	M14	72	56	25	35.0	27	14	27	1.0	247
20211974	Right	Fine	14	21	M14x1,5	72	56	25	35.0	27	14	27	1.0	245
20211981	Right	Coarse	16	24	M16	83	64	30	40.0	32	16	32	1.0	397
20211998	Right	Fine	16	24	M16x1,5	83	64	30	40.0	32	16	32	1.0	395
20212001	Right	Coarse	20	30	M20	105	80	38	50.0	40	20	40	1.0	783
20212018	Right	Fine	20	30	M20x1,5	105	80	38	50.0	40	20	40	1.0	776



ER3427



Material

Stainless steel (AISI 303 1.4305).

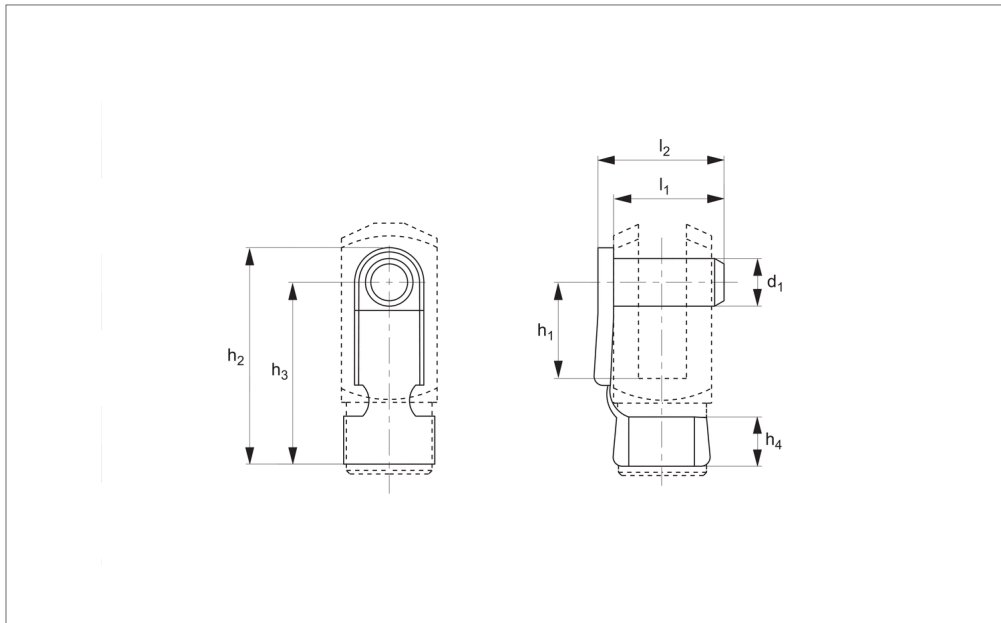
Tips

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 tol. H9	l ₁ ±0.5	d ₂	l ₂ ±0.5	l ₃ ±0.5	l ₄	l ₅ ±0.2	w ₁ tol. h11	w ₂ -0,2	w ₃ tol. h11	f ₁ ±0.2	Weight g
20212025	Left	Coarse	4	6	M4	21	16	6	10.0	8	4	8	0.5	6
20212032	Left	Coarse	5	7.5	M5	26	20	8	12.5	10	5	10	0.5	12
20212049	Left	Coarse	6	9	M6	31	24	11	15.0	12	6	12	0.5	21
20212056	Left	Coarse	8	12	M8	42	32	14	20.0	16	8	16	0.5	51
20212063	Left	Fine	8	12	M8x1	42	32	14	20.0	16	8	16	0.5	51
20212070	Left	Coarse	10	15	M10	52	40	18	25.0	20	10	20	0.5	98
20212087	Left	Fine	10	15	M10x1,25	52	40	18	25.0	20	10	20	0.5	98
20212094	Left	Coarse	12	18	M12	62	48	22	30.0	24	12	24	0.5	168
20212100	Left	Fine	12	18	M12x1,25	62	48	22	30.0	24	12	24	0.5	167
20212117	Left	Coarse	14	21	M14	72	56	25	35.0	27	14	27	1.0	247
20212124	Left	Fine	14	21	M14x1,5	72	56	25	35.0	27	14	27	1.0	245
20212131	Left	Coarse	16	24	M16	83	64	30	40.0	32	16	32	1.0	397
20212148	Left	Fine	16	24	M16x1,5	83	64	30	40.0	32	16	32	1.0	395
20212155	Left	Coarse	20	30	M20	105	80	38	50.0	40	20	40	1.0	783
20212162	Left	Fine	20	30	M20x1,5	105	80	38	50.0	40	20	40	1.0	776



ER3435

Material

Pin - steel (9SMnPb28), spring - carbon steel C70, silver zinc plated.

Tips

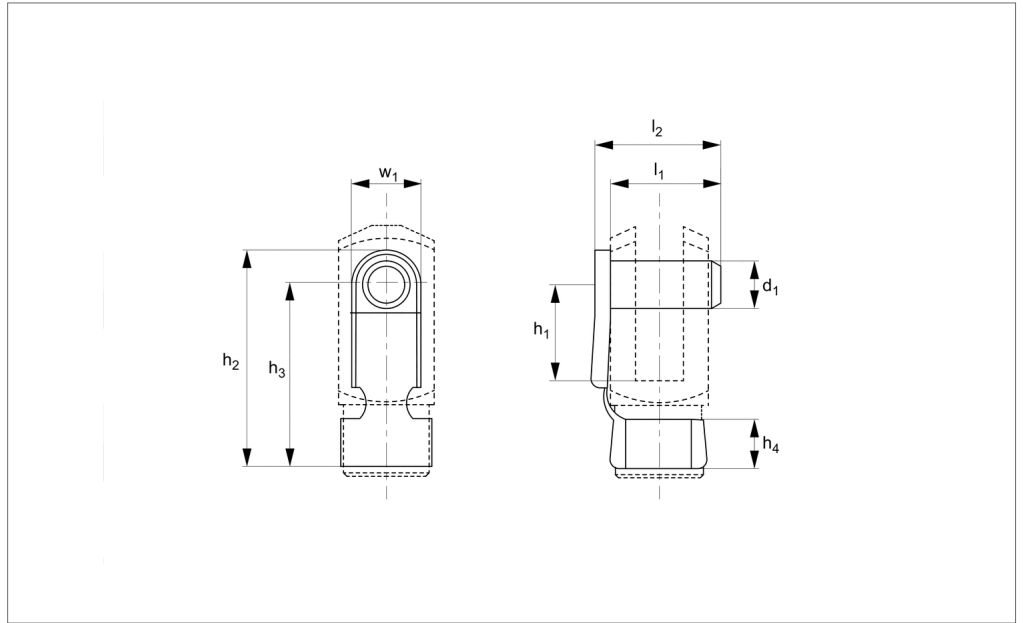
Clips on to base of clevis joint, for clevis joint see part numbers ER3385 and

ER3386.

Order No.	Size	d_1 tol. H11	h_1	h_2	h_3	h_4	l_1	l_2	Weight g
20212179	4x8	4	8	19	15	4	9	11	2
20212186	5x10	5	10	23	19	4.5	12	14	3
20212193	5x20	5	20	33	29	4.5	12	14	3
20212209	6x12	6	12	28	23	6	14	16	5
20212216	6x24	6	24	40	35	6	14	16	5
20212223	8x16	8	16	37	31	8	19	23	11
20212230	8x32	8	32	53	47	8	19	23	12
20212247	10x20	10	20	46	39	10	23	27	19
20212254	10x40	10	40	66	59	10	23	27	20
20212261	12x24	12	24	55	46	12	28	32	32
20212278	12x48	12	48	79	71	12	28	32	34
20212285	14x28	14	28	62	52	14	31	34	47
20212292	14x56	14	56	92	82	14	31	34	50
20212308	16x32	16	32	72	62	16	36	41	67
20212315	16x64	16	64	103	92	16	36	39	74
20212322	20x40	20	40	88	72	16	44	49	130



ER3437



Material

Black plastic (Igumid G).

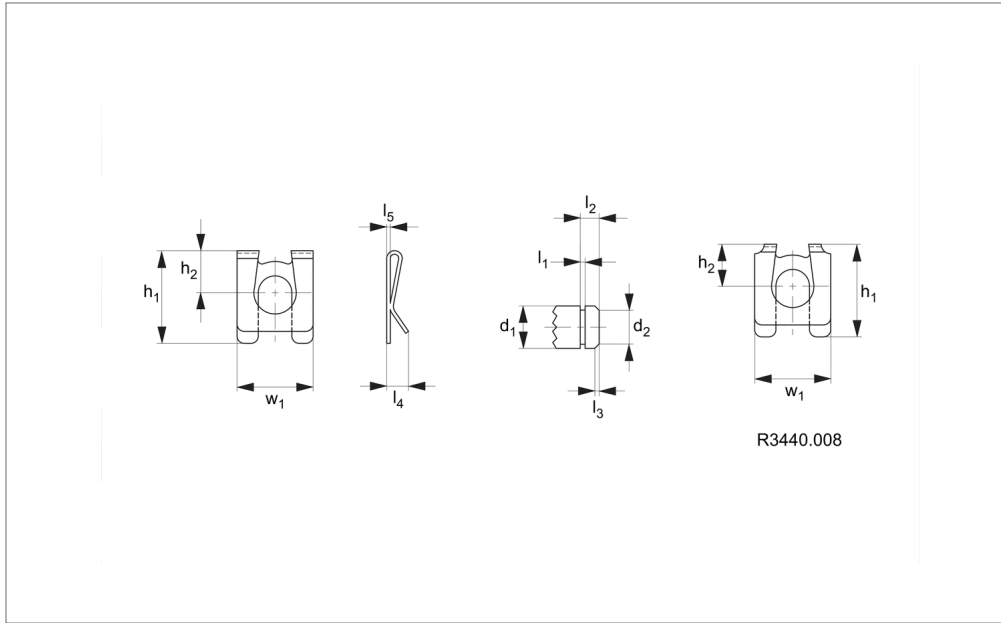
Technical Notes

Spring loaded pins.

Tips

Clips on to base of clevis joint, for clevis joint see part number ER3409.

Order No.	Size	d ₁ tol. h11	h ₁ ±0.5	h ₂	h ₃	h ₄	l ₁	l ₂	w ₁
20212339	4x8	4	8	19.0	15	4.5	9.5	10.5	8
20212346	5x10	5	10	23.0	19	5.5	12	13.5	8
20212353	5x12	5	12	27.0	23	6.5	14	15.5	8
20212360	6x12	6	12	27.0	23	6.5	14	15.5	8
20212377	8x16	8	16	35.5	30	8.0	19	21.0	11
20212384	10x20	10	20	45.0	38	10.0	23	25.5	14
20212391	12x24	12	24	53.0	45	12.0	28	31.0	16
20212407	16x32	16	32	73.0	62	16.0	36	40.0	22



ER3440

Material

Spring steel, silver zinc plated, hardened and annealed 1450 to 1600°C N/mm².

Tips

Easily assembled and removed by hand

without special tools, compatible with clevis pins.

Safety lip prevents accidental removal.

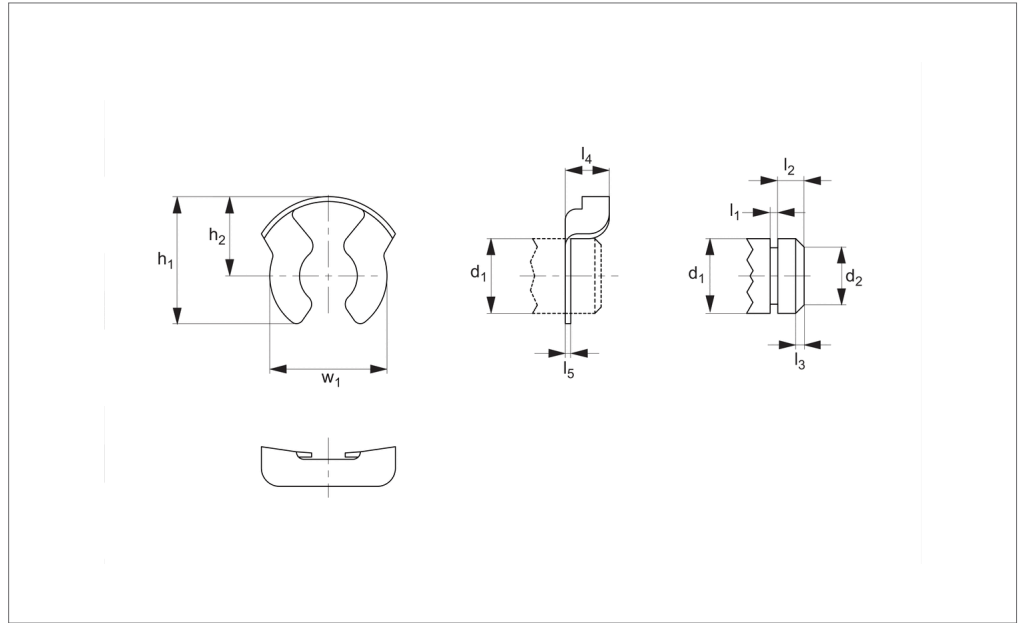
Assembly ,rattle' is eliminated by the fasteners concave back holding the clevis

pin under tension.

Order No.	d_1 tol. h11	d_2 tol. h11	h_1	h_2	l_1 +0.1	l_2	l_3	l_4	l_5	w_1	Axial thrust kN max.	Weight g
20212414	4	3.2	8.5	4.0	0.64	2.0	0.5	2.3	0.3	7	1.00	0.19
20212421	5	4.0	10.7	5.0	0.74	2.5	0.5	3.3	0.4	9	1.30	0.34
20212438	6	5.0	14.1	6.0	0.74	3.0	0.75	3.8	0.4	11	1.50	0.63
20212452	8	6.0	17.5	8.0	0.94	3.5	1.0	4.0	0.5	14	3.60	1.10
20212469	10	8.0	22.1	10.0	1.05	4.5	1.0	5.0	0.5	18	6.40	2.11
20212476	12	9.0	26.0	12.0	1.15	5.0	1.25	5.0	0.5	22	9.60	2.80
20212490	14	10.0	30.0	13.5	1.25	5.5	1.5	6.0	0.6	25	11.32	4.74
20212506	16	12.0	34.0	16.0	1.35	6.0	1.5	6.0	0.6	28	13.50	5.63



ER3444



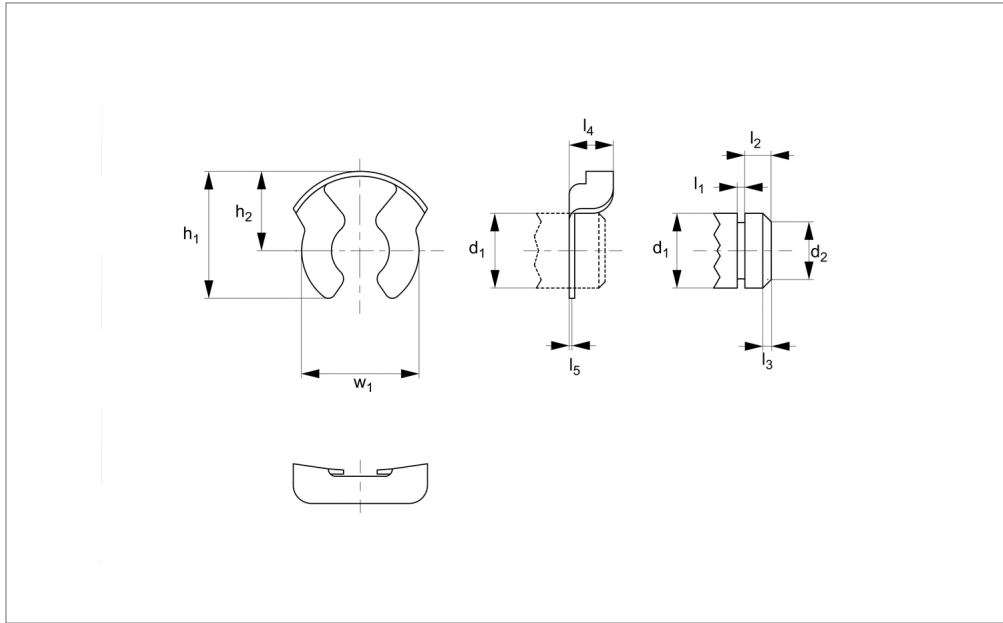
Material

Steel, silver zinc plated.

Tips

Easily assembled and removed by hand without special tools.

Order No.	d ₁ tol. h11	d ₂ tol. h11	h ₁	h ₂	l ₁ +0.10	l ₂	l ₃	l ₄	l ₅	w	Axial force kN max.
20212513	4	3.2	7.2	4.3	0.64	2.0	0.5	2.8	0.4	6.6	1.50
20212520	5	4.0	8.4	5.2	0.74	2.5	0.5	2.8	0.5	7.5	3.00
20212537	6	5.0	11.25	6.8	0.74	3.0	0.75	3.5	0.5	10.6	4.85
20212544	8	6.0	11.9	7.4	0.94	3.5	1.0	4.5	0.5	11.5	5.50
20212551	10	8.0	16.3	9.5	1.05	4.5	1.0	5.9	0.6	15.5	9.50
20212568	12	9.0	18.0	10.5	1.15	5.5	1.25	6.2	0.6	16.8	10.70
20212575	14	10.0	20.0	12.2	1.25	5.5	1.5	6.8	0.7	19.2	12.70
20212582	16-18	12.0	24.0	14.3	1.35	5,5-6,0	1.5	7.6	0.8	22.7	14.00
20212599	20-25	16-18	34.0	19.0	1.80	5,5-6,5	1.5	9.8	1.0	34.0	16.00



ER3445

Material

Steel, yellow zinc plated.

without special tools, for yellow zinc plated version see ER3445.

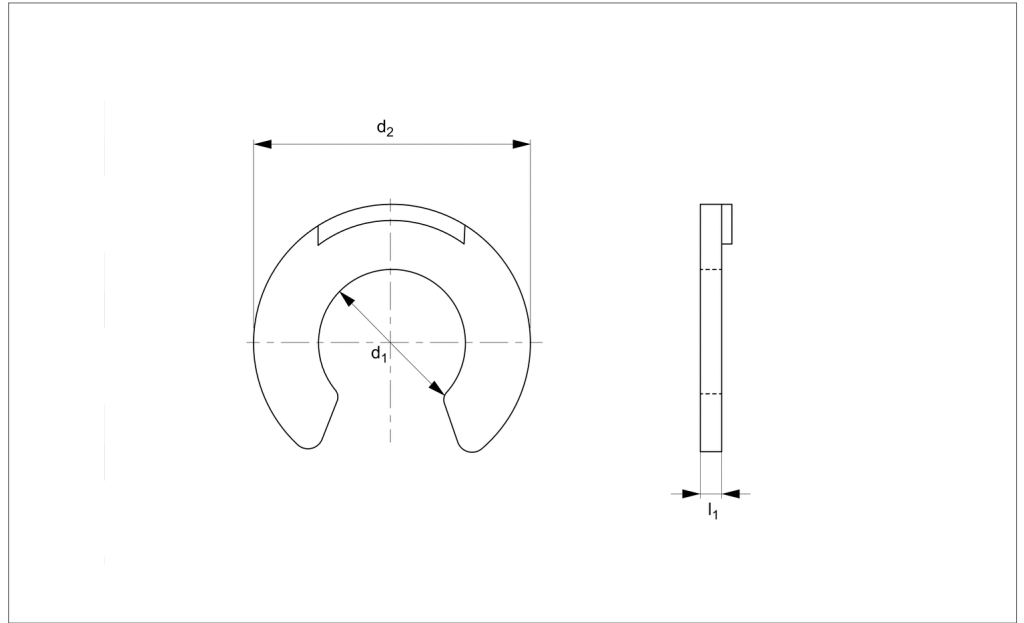
Tips

Easily assembled and removed by hand

Order No.	d ₁ tol. h11	d ₂ tol. h11	h ₁	h ₂	l ₁ +0.10	l ₂	l ₃	l ₄	l ₅	w	Axial force kN max.
20212605	4	3.2	7.2	4.3	0.64	2.0	0.5	2.8	0.4	6.6	1.50
20212612	5	4.0	8.4	5.2	0.74	2.5	0.5	2.8	0.5	7.5	3.00
20212629	6	5.0	11.25	6.8	0.74	3.0	0.75	3.5	0.5	10.6	4.85
20212636	8	6.0	11.9	7.4	0.94	3.5	1.0	4.5	0.5	11.5	5.50
20212643	10	8.0	16.3	9.5	1.05	4.5	1.0	5.9	0.6	15.5	9.50
20212650	12	9.0	18.0	10.5	1.15	5.5	1.25	6.2	0.6	16.8	10.70
20212674	14	10.0	20.0	12.2	1.25	5.5	1.5	6.8	0.7	19.2	12.70
20212681	16-18	12.0	24.0	14.3	1.35	5,5-6,0	1.5	7.6	0.8	22.7	14.00
20212698	20-25	16-18	34.0	19.0	1.80	5,5-6,5	1.5	9.8	1.0	34.0	16.00



ER3446



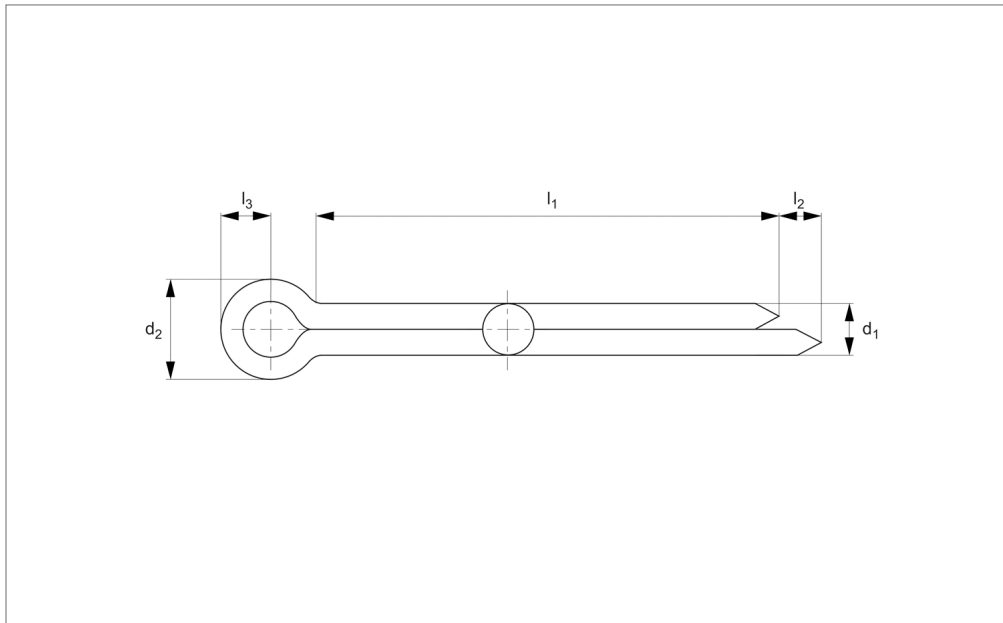
Material

Black plastic (POM).

Important Notes

For use with ER3409 clevis joints and ER3453 clevis pins.

Order No.	d_1	d_2	l_1
20212704	3.2	7.0	1.0
20212711	4.0	9.0	1.1
20212728	5.0	11.0	1.1
20212735	7.0	14.0	1.3
20212742	9.0	18.5	1.4
20212759	12.0	23.0	1.6
20212766	15.0	28.0	1.9



ER3448

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.

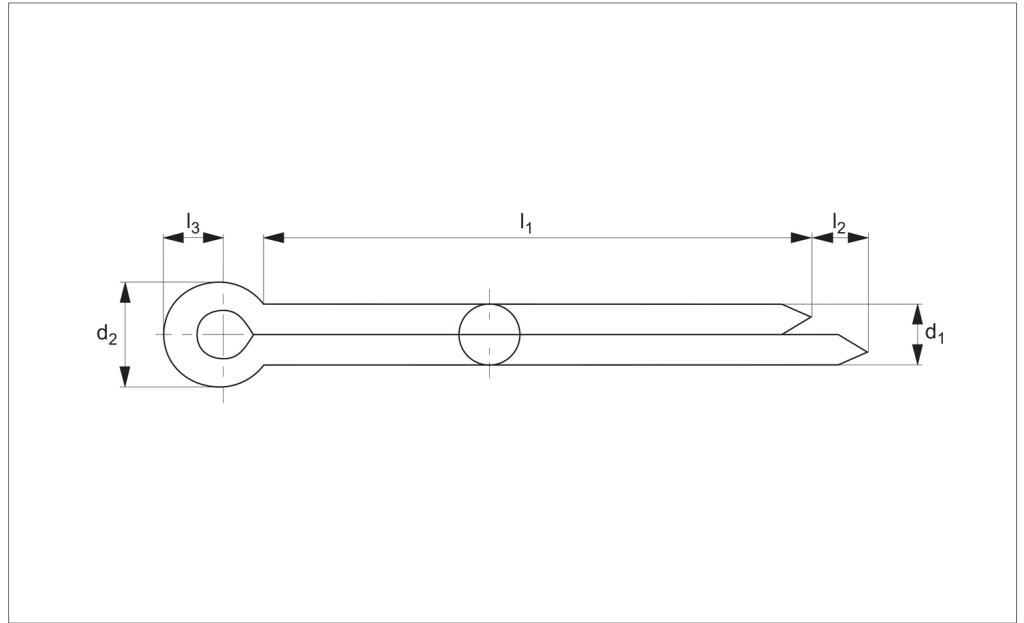
Tips

Used with clevis pins as denoted in product table, with clevis joints ER3385 and ER3386, and washers ER3457.

Order No.	d ₁ nom.	d ₁ min.	d ₁ max.	d ₂ min.	d ₂ max.	l ₁	l ₂	l ₃	For use with clevis pin
20194987	1.0	0.8	0.9	0.8	1.6	10	1.6	3	R3455.005
20194970	1.6	1.3	1.4	1.25	2.5	18	2.5	3.2	R3455.006
20195052	2.0	1.7	1.8	1.25	2.5	18	2.5	4.0	R3455.008
20194994	3.2	2.7	2.9	1.6	3.2	22	3.2	6.4	R3455.010
20195007	4.0	3.5	3.7	2.0	4.0	28	4	8	R3455.012-016
20195014	5.0	4.4	4.6	2.0	4.0	50	4	10	R3455.018-020
20195021	6.0	5.7	5.9	2.0	4.0	71	4	12.6	R3455.025-030
20195038	8.0	7.3	7.5	2.0	4.0	112	4	16	R3455.035-042
20195045	10.0	9.3	9.5	3.2	6.3	112	6.3	20	R3455.050



ER3449



Material

Stainless steel (A2, DIN 1,4301).

Technical Notes

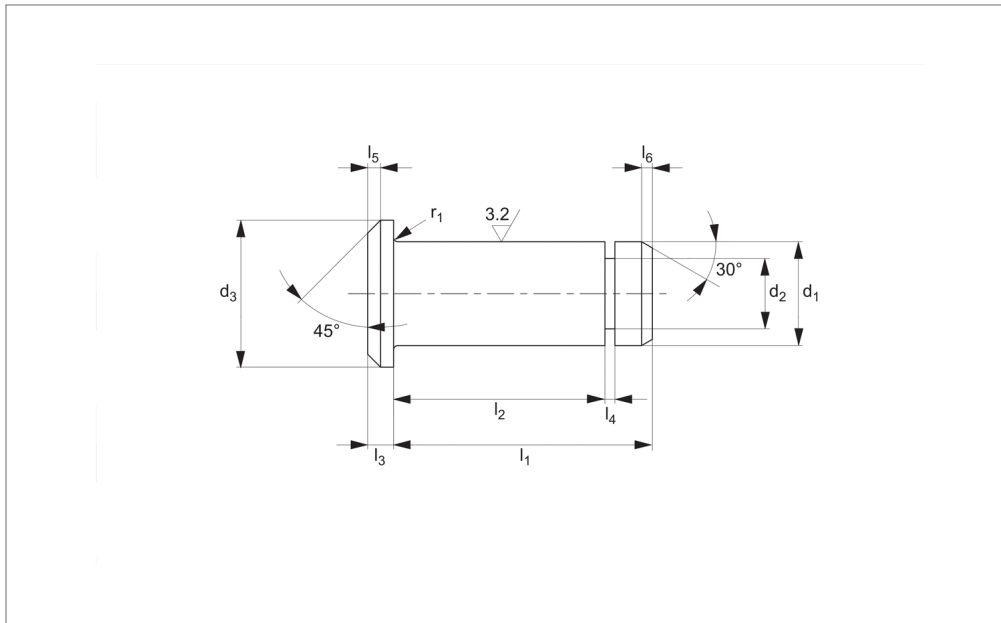
To DIN 94 (equivalent to ISO 1234).

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 product table, with clevis joints ER3402 and ER3403 and washer ER3458.

Order No.	d ₁ nom.	d ₁ min.	d ₁ max.	d ₂ min.	d ₂ max.	l ₁	l ₂	l ₃	For use with clevis pin
20195069	1.0	0.8	0.9	0.8	1.6	10	1.6	3	R3456.004-005
20195076	1.6	1.3	1.4	1.25	2.5	18	2.5	3.2	R3456.006
20195113	2.0	1.7	1.8	1.25	2.5	18	1.25	2.5	R3456.008
20195083	3.2	2.7	2.9	1.6	3.2	22	3.2	6.4	R3456.010
20194963	4.0	3.5	3.7	2.0	4.0	28	4	8	R3456.012-016
20195090	5.0	4.4	4.6	2.0	4.0	50	4	10	R3456.020
20195106	6.3	5.7	5.9	2.0	4.0	71	4	12.6	R3456.025



ER3450

Material

Steel (9SMnPb28), silver zinc plated.

Tips

For safety fasteners, see ER3440-ER3445.

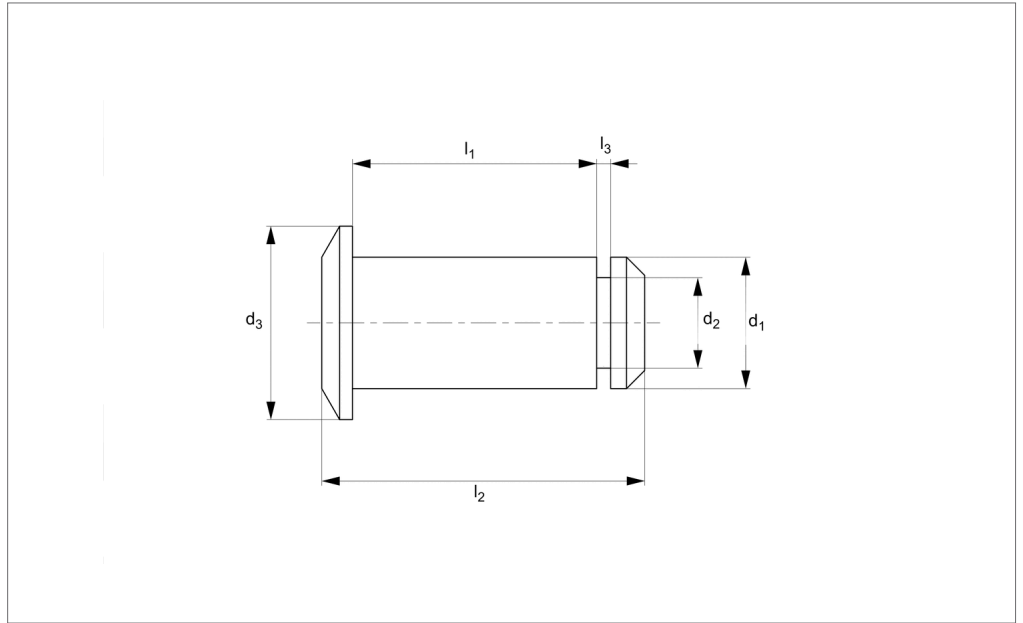
Technical Notes

Designed for use with clevis joints.

Order No.	d_1 tol. h11	d_2 tol. h11	d_3 tol. h12	l_1	l_2 +0.30	l_3 tol. js14	l_4 +0.10	l_5	l_6	R	Weight g
20194680	4	3.2	6	10.5	8.5	1.0	0.64	0.5	0.5	0.3	2
20194697	5	4.0	8	13.0	10.5	1.5	0.74	0.5	0.5	0.5	3
20194703	6	5.0	9	15.5	12.5	1.5	0.74	0.5	0.75	0.5	4
20194710	8	6.0	12	20.0	16.5	2.0	0.94	1.0	1.0	0.5	9
20194727	10	8.0	14	25.0	20.5	2.0	1.05	1.0	1.0	0.5	17
20194734	12	9.0	17	30.0	24.5	3.0	1.15	1.25	1.25	0.5	30
20192372	14	10.0	19	33.0	27.5	3.0	1.25	1.5	1.5	1.0	48
20194741	16	12.0	20	38.5	32.5	3.0	1.35	1.5	1.5	1.0	67
20194758	20	17.5	26	46.0	40.5	4.0	1.8	2.0	1.5	1.0	125
20194765	25	18.0	32	57.0	50.5	5.0	1.8	2.0	1.5	1.0	260
20194772	4	3.2	6	10.5	8.5	1.0	0.64	0.5	0.5	0.3	2
20194789	5	4.0	8	13.0	10.5	1.5	0.74	0.5	0.5	0.5	3
20194796	6	5.0	9	15.5	12.5	1.5	0.74	0.5	0.75	0.5	4
20194802	8	6.0	12	20.0	16.5	2.0	0.94	1.0	1.0	0.5	9
20194819	10	8.0	14	25.0	20.5	2.0	1.05	1.0	1.0	0.5	17
20194673	12	9.0	17	30.0	24.5	3.0	1.15	1.25	1.25	0.5	30
20194826	16	12.0	20	38.5	32.5	3.0	1.35	1.5	1.5	1.0	67
20194833	20	17.5	26	46.0	40.5	4.0	1.8	2.0	1.5	1.0	125
20194840	25	18.0	32	57.0	50.5	5.0	1.8	2.0	1.5	1.0	260



ER3453



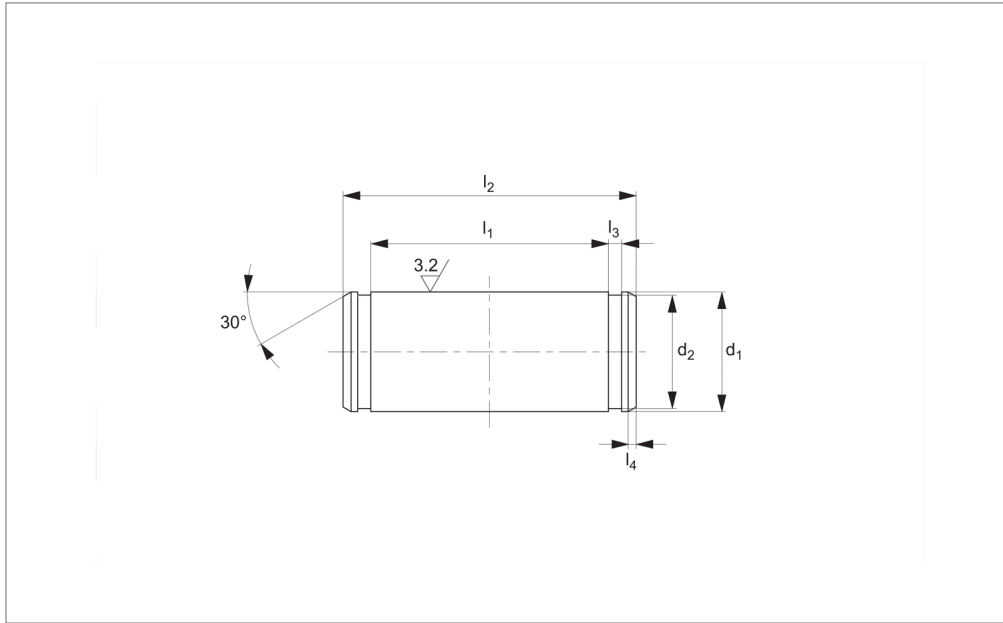
Material

Black plastic (Igumid G).

Important Notes

For use with ER3409 clevis joints and ER3446 circlips.

Order No.	d_1 tol. h11	d_2	d_3	l_1	l_2	l_3	Weight g
20192389	4	3.2	7	8	12.5	1.05	0.3
20192396	5	4.0	8	12	16.5	1.15	0.5
20192402	5	4.0	8	10	14.5	1.15	0.5
20192419	6	4.0	9	12	16.5	1.15	0.7
20192426	8	5.0	12	16	21.5	1.15	1.5
20192433	10	7.0	15	20	27.0	1.35	1.35
20192440	12	9.0	18	24	31.5	1.50	1.5
20192457	14	12.0	22	27	36.0	1.70	1.7
20192464	15	12.0	23	27	36.0	1.70	1.7
20192471	16	12.0	24	32	42.0	1.70	1.7
20192488	17	12.0	25	32	42.0	1.70	1.7
20192495	20	15.0	30	40	51.0	2.00	2.0



ER3454

CLEVIS JOINTS & CLIPS

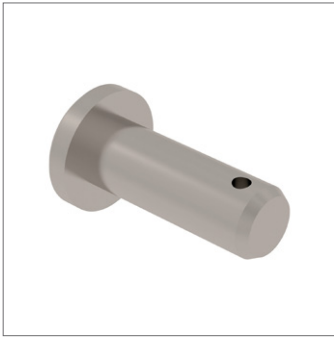
Material

Stainless steel (AISI 303).

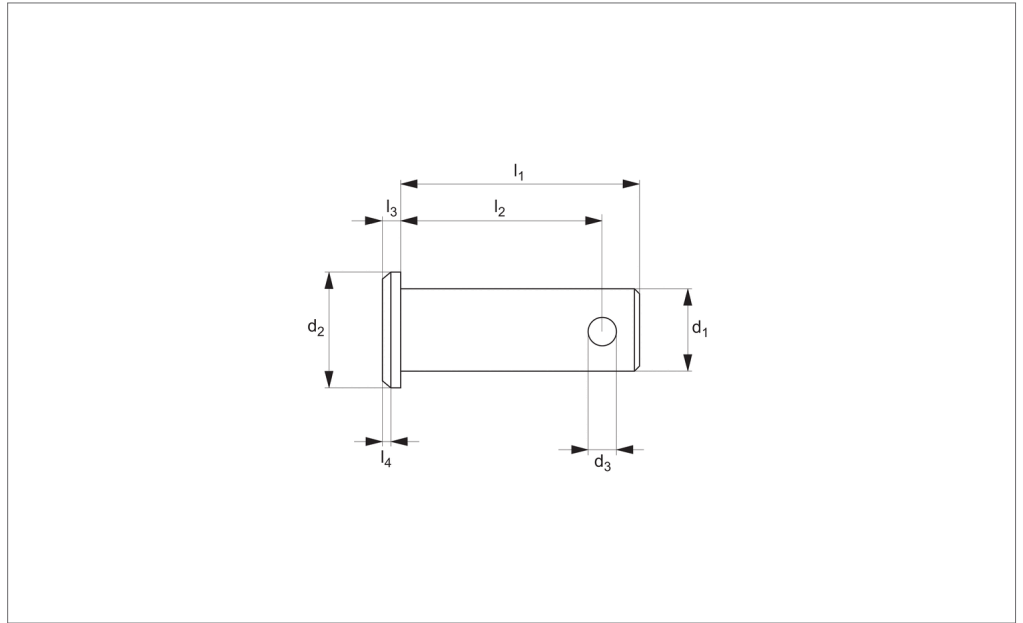
Technical Notes

For use with ER3402-ER3403 clevis joints and ER3447 circlips.

Order No.	d_1 tol. h11	d_2 tol. h11	l_1 +0.30	l_2 +0.40	l_3 tol. h13	l_4	Weight g
20192501	5	4.8	10.5	15	0.7	1	3
20192518	6	5.7	12.2	17	0.8	1	5
20192525	8	7.6	16.5	20	0.9	1	8
20192532	10	9.6	20.5	25	1.1	1	15
20192549	12	11.5	24.5	30	1.1	1	26
20192556	16	15.2	32.5	39	1.1	1	61
20192563	20	19.0	40.5	48	1.3	1	118



ER3455



Material

Sizes 5-14 steel 1,0214 (QST 36-3).
 Sizes 16-50 steel (1,0718 11SMnPb30+C).
 Zinc-plated.

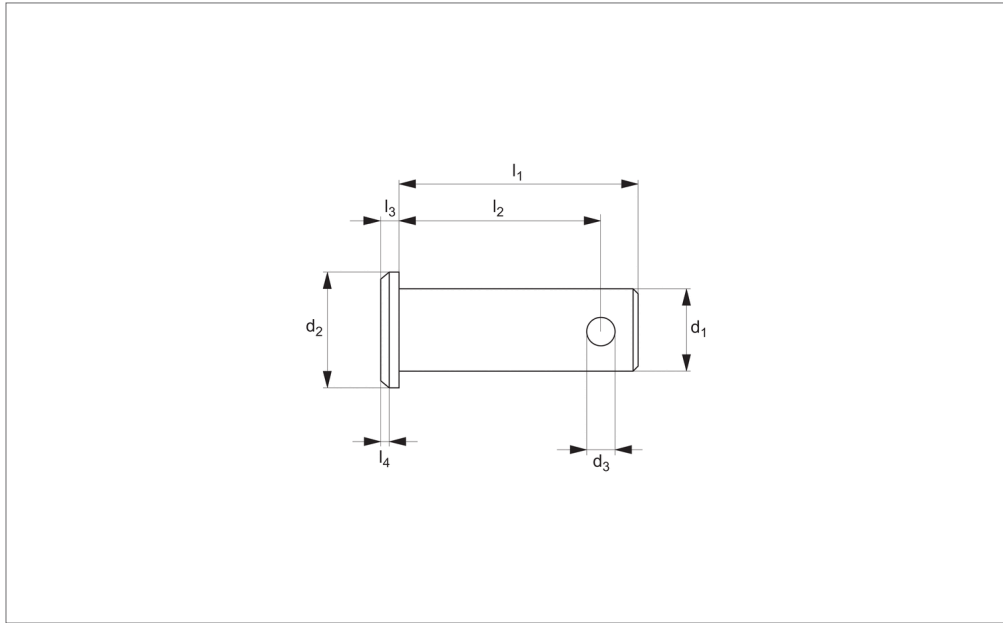
Technical Notes

Designed for use with clevis joints.

Tips

For use with clevis joints ER3385 and ER3386, for split cotter pins to suit see part number EP1240.
 For washers see part number EP0330-ZP.

Order No.	d_1 tol. h11	d_2 tol. h14	d_3 tol. h14	l_1 tol. js15	l_2 +0.5	l_3 tol. js14	l_4	Weight g
20192600	5	8	1.0	15	12.3	1.5	0.5	2.6
20192617	6	9	1.6	18	15.3	1.5	0.5	4.6
20192624	8	12	2.0	23	19.5	2.0	1.0	10.0
20192631	10	14	3.2	29	24.5	2.0	1.0	19.0
20192594	12	17	4.0	35	29.5	3.0	1.5	34.0
20192648	14	19	4.0	40	32.5	3.0	1.5	53.0
20192655	16	20	4.0	45	38.2	3.5	1.5	72.0
20192662	18	25	5.0	50	43.5	3.5	1.5	104.0
20192679	20	28	5.0	53	47.0	4.0	1.5	139.0
20192686	25	34	6.3	67	59.0	5.5	1.5	266.0
20192693	28	34	6.3	72	63.2	5.5	2.0	361.0
20192709	30	36	6.3	77	68.2	5.5	2.0	428.0
20192716	35	45	8.0	87	76.5	7.0	2.0	677.0
20192723	40	48	8.0	100	90.0	6.0	5.0	1035.0
20192730	42	48	8.0	100	90.0	7.0	5.0	1151.0
20192747	50	58	10.0	115	103.0	7.0	6.0	1846.0



ER3456

Material

Stainless steel (1.4305, X8CrNiS18-9), for sizes 6-8: stainless steel (1.4567, X3CrNiCu18-9-4).

Tips

For use with clevis joints ER3402 and ER3403, for split cotter pins to suit see part number EP1241.

For washers see part number EP0330.A2.

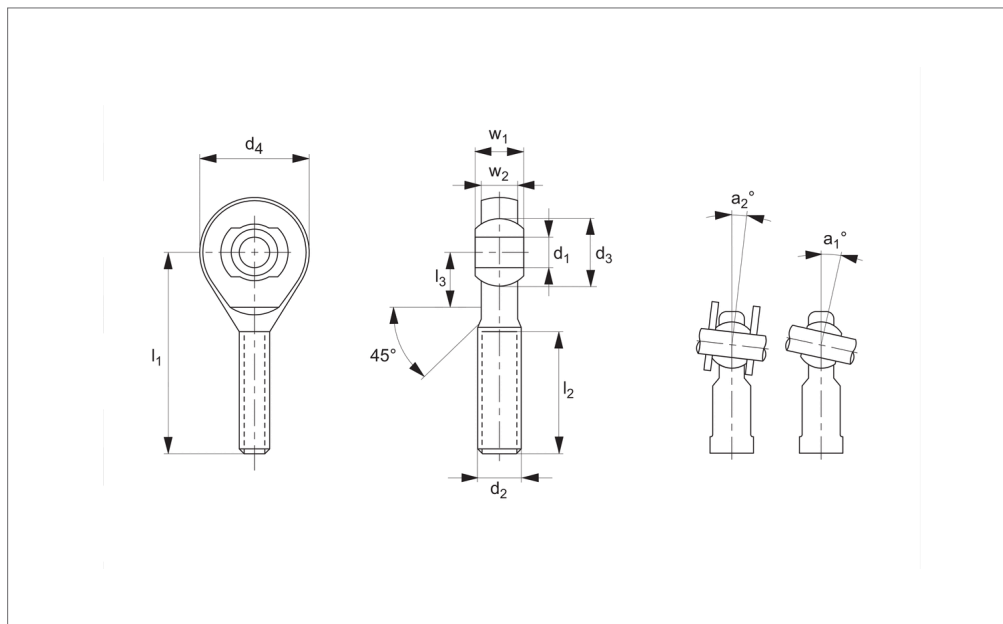
Technical Notes

Designed for use with clevis joints.

Order No.	d ₁ tol. h11	d ₂ tol. h14	d ₃ tol. h14	l ₁ tol. js15	l ₂ +0.5	l ₃ tol. js14	l ₄	Weight g
20192754	5	8	1.2	15	12.3	1.5	0.5	2.6
20192761	6	9	1.6	18	15.3	1.5	0.5	4.6
20192778	8	12	2.0	23	19.5	2.0	1.0	10.0
20192785	10	14	3.2	29	24.5	2.0	1.0	19.0
20192792	12	17	4.0	35	29.5	3.0	1.5	34.0
20192808	16	21	4.0	45	38.2	3.0	-	73.0
20192815	20	28	5.0	53	47.0	4.0	-	139.0
20192822	25	34	6.3	67	59.0	5.5	-	266.0



ER3550



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 technical pages.

Tips

Standard thread is right hand thread.

Important Notes

*Denotes fine pitch thread.

Order No.	Thread hand	d_1	l_1	d_2	d_3	l_2	d_4	a_1	Weight g
20263904	Right	5	33	M5	11.11	20	18	13.0	14
20263911	Right	6	36	M6	12.70	22	20	13.0	20
20263928	Right	8	42	M8	15.87	25	24	14.5	38
20263935	Right	10	48	M10	19.05	29	28	13.5	60
20263942	Right	12	54	M12	22.22	33	32	13.0	92
20263959	Right	14	60	M14	25.40	36	36	16.0	127
20263966	Right	16	66	M16	28.57	40	42	15.5	202
20263973	Right	18	72	M18x1,5*	31.75	44	46	15.0	250
20263980	Right	20	78	M20x1,5*	34.92	47	50	14.5	327
20263997	Right	22	84	M22x1,5*	38.10	51	54	15.5	440
20264000	Right	25	94	M24x2*	42.85	57	60	15.0	630
20264017	Right	30	110	M30x2*	50.75	66	70	17.0	1015
20263782	Left	5	33	M5	11.11	20	18	13.0	14
20263799	Left	6	36	M6	12.70	22	20	13.0	20
20263805	Left	8	42	M8	15.87	25	24	14.5	38
20263812	Left	10	48	M10	19.05	29	28	13.5	60
20263829	Left	12	54	M12	22.22	33	32	13.0	92
20263836	Left	14	60	M14	25.40	36	36	16.0	127
20263843	Left	16	66	M16	28.57	40	42	15.5	202
20263850	Left	18	72	M18x1,5*	31.75	44	46	15.0	250
20263867	Left	20	78	M20x1,5*	34.92	47	50	14.5	327
20263874	Left	22	84	M22x1,5*	38.10	51	54	15.5	440
20263881	Left	25	94	M24x2*	42.85	57	60	15.0	630
20263898	Left	30	110	M30x2*	50.80	66	70	17.0	1015

Order No.	a_2	l_3	w_1	w_2	Dyn. load C kN max.	Static load C ₀ kN max.
20263904	7.5	9	8	6.00	3.9	5.6
20263911	6.5	12	9	6.75	4.6	7.8
20263928	7.5	15	12	9.00	7.0	14.3
20263935	8.0	15	14	10.50	10.4	22.6

Heavy-Duty Rod Ends - Male

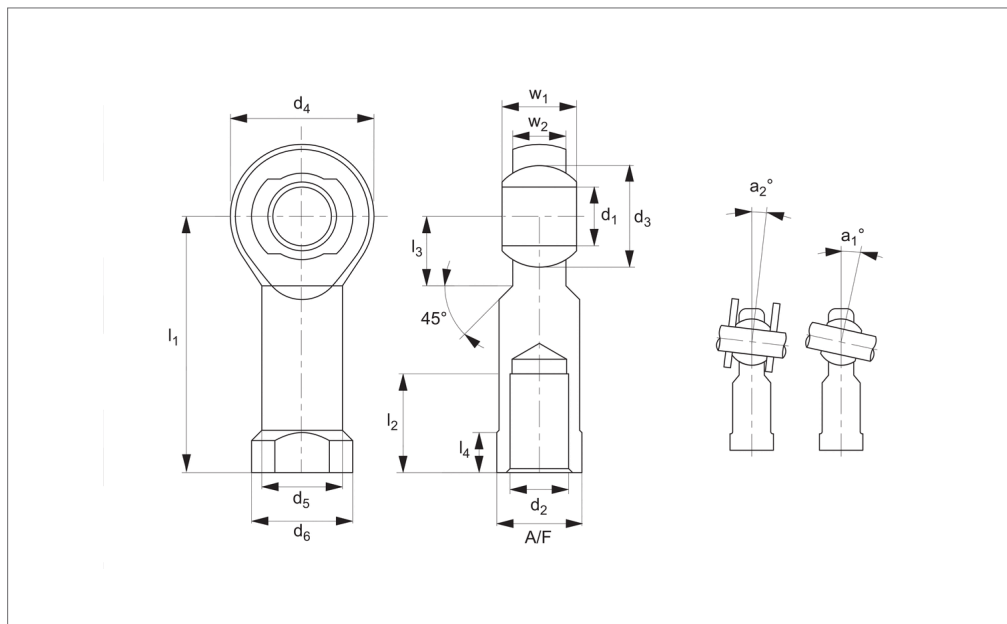
with integral spherical plain bearing

Rod Ends

Order No.	a_2	l_3	w_1	w_2	Dyn. load C kN max.	Static load C_0 kN max.
20263942	8.0	19	16	12.00	12.4	32.8
20263959	9.5	20	19	13.50	15.4	41.3
20263966	8.5	22	21	15.00	22.4	56.6
20263973	9.5	25	23	16.50	26.3	69.7
20263980	9.0	28	25	18.00	30.8	82.2
20263997	10.0	26	28	20.00	38.2	95.6
20264000	10.0	30	31	22.00	45.3	118.6
20264017	10.5	35	37	25.00	55.0	145.6
20263782	7.5	9	8	6.00	3.9	5.6
20263799	6.5	12	9	6.75	4.6	7.8
20263805	7.5	15	12	9.00	7.0	14.3
20263812	8.0	15	14	10.50	10.4	22.6
20263829	8.0	19	16	12.00	12.4	32.8
20263836	9.5	20	19	13.50	15.4	41.3
20263843	8.5	22	21	15.00	22.4	56.6
20263850	9.5	25	23	16.50	26.325	69.700
20263867	9.0	28	25	18.00	30.805	82.200
20263874	10.0	26	28	20.00	38.2	95.6
20263881	10.0	30	31	22.00	45.3	118.6
20263898	10.5	35	37	25.00	55.0	145.6



ER3551



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 technical pages.

Tips

Standard thread is right hand thread.

Important Notes

* Denotes fine pitch thread.

Order No.	Thread hand	d ₁	l ₁	d ₂	d ₃	d ₄	d ₅	d ₆	l ₂	Weight g
20264192	Right	5	27	M4	11.11	18	9.0	11	10	18
20264208	Right	5	27	M5	11.11	18	9.0	11	10	18
20264215	Right	6	30	M6	12.70	20	10.0	13	12	24
20264222	Right	8	36	M8	15.87	24	12.5	16	16	45
20264239	Right	10	43	M10	19.05	28	15.0	19	20	74
20264246	Right	10	43	M10x1,25*	19.05	28	15.0	19	20	74
20264253	Right	12	50	M12	22.22	32	17.5	22	22	109
20264260	Right	12	50	M12x1,25*	22.22	32	17.5	22	22	109
20264277	Right	14	57	M14	25.40	36	20.0	25	25	155
20264284	Right	16	64	M16	28.57	42	22.0	27	28	233
20264291	Right	16	64	M16x1,5*	28.57	42	22.0	27	28	233
20264307	Right	18	71	M18x1,5*	31.75	46	25.0	31	32	310
20264314	Right	20	77	M20x1,5*	34.92	50	27.5	34	33	386
20264321	Right	22	84	M22x1,5*	38.10	54	30.0	38	37	520
20264338	Right	25	94	M24x2*	42.85	60	33.5	42	42	705
20264345	Right	30	110	M30x2*	50.80	70	40.0	50	51	1084
20264352	Right	30	110	M27x2*	50.80	70	40.0	50	51	1084
20264024	Left	5	27	M4	11.11	18	9.0	11	10	18
20264031	Left	5	27	M5	11.11	18	9.0	11	10	18
20264048	Left	6	30	M6	12.70	20	10.0	13	12	24
20264055	Left	8	36	M8	15.87	24	12.5	16	16	45
20264062	Left	10	43	M10	19.05	28	15.0	19	20	74
20264079	Left	10	43	M10x1,25*	19.05	28	15.0	19	20	74
20264086	Left	12	50	M12	22.22	32	17.5	22	22	109
20264093	Left	12	50	M12x1,25*	22.22	32	17.5	22	22	109
20264109	Left	14	57	M14	25.40	36	20.0	25	25	155
20264116	Left	16	64	M16	28.57	42	22.0	27	28	233
20264123	Left	16	64	M16x1,5*	28.57	42	22.0	27	28	233
20264130	Left	18	71	M18x1,5*	31.75	46	25.0	31	32	310
20264147	Left	20	77	M20x1,5*	34.92	50	27.5	34	33	386
20264154	Left	22	84	M22x1,5*	38.10	54	30.0	38	37	520
20264161	Left	25	94	M24x2*	42.85	60	33.5	42	42	705

Heavy-Duty Rod Ends - Female

with integral spherical plain bearing

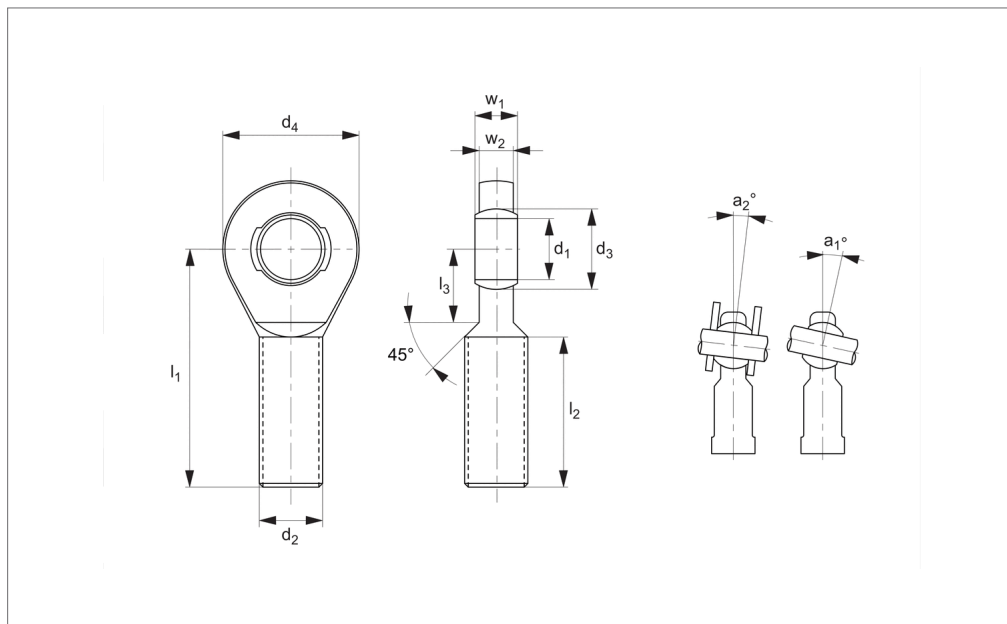
Rod Ends

Order No.	Thread hand	d ₁	l ₁	d ₂	d ₃	d ₄	d ₅	d ₆	l ₂	Weight g
20264178	Left	30	110	M30x2*	50.80	70	40.0	50	51	1084
20264185	Left	30	110	M27x2*	50.80	70	40.0	50	51	1084

Order No.	l ₃	l ₄	w ₁	w ₂	A/F	a ₁	a ₂	Dyn. load C kN max.	Static load C ₀ kN max.
20264192	10	4.0	8	6.00	9	13.0	7.5	3.91	10.8
20264208	10	4.0	8	6.00	9	13.0	7.5	3.91	10.8
20264215	12	5.0	9	6.75	11	13.0	6.5	4.59	12.8
20264222	12	5.0	12	9.00	14	14.5	7.5	6.965	19.2
20264239	15	6.5	14	10.50	17	13.5	8.0	10.42	27.4
20264246	15	6.5	14	10.50	17	13.5	8.0	10.42	27.4
20264253	16	6.5	16	12.00	19	13.0	8.0	12.42	33.4
20264260	16	6.5	16	12.00	19	13.0	8.0	12.42	33.4
20264277	20	8.0	19	13.50	22	16.0	9.5	15.44	41.3
20264284	22	8.0	21	15.00	22	15.5	8.5	22.41	59.6
20264291	22	8.0	21	15.00	22	15.5	8.5	22.41	59.6
20264307	24	10.0	23	16.50	27	15.0	9.5	26.32	69.7
20264314	26	10.0	25	18.00	30	14.5	9.0	30.80	82.2
20264321	26	12.0	28	20.00	32	15.5	10.0	38.23	95.60
20264338	30	12.0	31	22.00	36	15.0	10.0	45.35	118.6
20264345	35	15.0	37	25.00	41	17.0	10.5	55.01	145.6
20264352	35	15.0	37	25.00	41	17.0	10.5	55.01	145.6
20264024	10	4.0	8	6.00	9	13.0	7.5	3.91	10.8
20264031	10	4.0	8	6.00	9	13.0	7.5	3.91	10.8
20264048	12	5.0	9	6.75	11	13.0	6.5	4.59	12.8
20264055	12	5.0	12	9.00	14	14.5	7.5	6.965	19.2
20264062	15	6.5	14	10.50	17	13.5	8.0	10.42	27.4
20264079	15	6.5	14	10.50	17	13.5	8.0	10.42	27.4
20264086	16	6.5	16	12.00	19	13.0	8.0	12.42	33.4
20264093	16	6.5	16	12.00	19	13.0	8.0	12.42	33.4
20264109	20	8.0	19	13.50	22	16.0	9.5	15.44	41.3
20264116	22	8.0	21	15.00	22	15.5	8.5	22.41	59.6
20264123	22	8.0	21	15.00	22	15.5	8.5	22.41	59.6
20264130	24	10.0	23	16.50	27	15.0	9.5	26.32	69.7
20264147	26	10.0	25	18.00	30	14.5	9.0	30.80	82.2
20264154	26	12.0	28	20.00	32	15.5	10.0	38.23	95.6
20264161	30	12.0	31	22.00	36	15.0	10.0	45.35	118.6
20264178	35	15.0	37	25.00	41	17.0	10.5	55.01	145.6
20264185	35	15.0	37	25.00	41	17.0	10.5	55.01	145.6



ER3553



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 tech-

nical pages.

Tips

Standard thread is right hand thread.

Important Notes

*Denotes fine pitch thread.

Order No.	Thread hand	d ₁	l ₁	d ₂	d ₃	l ₂	d ₄	a ₁ °	Weight g
20264543	Right	6	36	M6	10.0	22	20	13.0	14
20264550	Right	8	42	M8	13.0	25	23	15.0	24
20264567	Right	10	48	M10	16.0	29	28	12.0	41
20264574	Right	12	54	M12	18.0	33	32	10.5	67
20264581	Right	15	63	M14	22.0	33	38	8.5	110
20264598	Right	17	69	M16	25.0	40	44	10.0	163
20264604	Right	20	78	M20x1,5*	29.0	47	51	9.0	270
20264611	Right	25	94	M24x2*	35.5	57	62	7.5	508
20264628	Right	30	110	M30x2*	40.7	66	70	6.0	785
20264635	Right	35	140	M36x3*	47.0	92	82	6.5	1330
20264642	Right	40	145	M42x3*	53.0	94	92	7.0	1890
20264659	Right	40	150	M39x3*	53.0	99	92	7.0	1785
20264666	Right	45	165	M45x3*	60.0	100	102	7.5	2620
20264673	Right	45	163	M42x3*	60.0	98	102	7.5	2430
20264680	Right	50	195	M52x3*	66.0	120	112	6.5	3865
20264697	Right	50	185	M45x3*	66.0	110	112	6.5	3225
20264703	Right	60	225	M60x4*	80.0	140	135	6.5	6400
20264710	Right	60	210	M60x4*	80.0	125	-	6.5	5430
20264369	Left	6	36	M6	10.0	22	20	13.0	14
20264376	Left	8	42	M8	13.0	25	23	15.0	24
20264383	Left	10	48	M10	16.0	29	28	12.0	41
20264390	Left	12	54	M12	18.0	33	32	10.5	67
20264406	Left	15	63	M14	22.0	33	38	8.5	110
20264413	Left	17	69	M16	25.0	40	44	10.0	163
20264420	Left	20	78	M20x1,5*	29.0	47	51	9.0	270
20264437	Left	25	94	M24x2*	35.5	57	62	7.5	508
20264444	Left	30	110	M30x2*	40.7	66	70	6.0	785
20264451	Left	35	140	M36x3*	47.0	92	82	6.5	1330
20264468	Left	40	145	M42x3*	53.0	94	92	7.0	1890
20264475	Left	40	150	M39x3*	53.0	99	92	7.0	1785
20264482	Left	45	165	M45x3*	60.0	100	102	7.5	2620
20264499	Left	45	163	M42x3*	60.0	98	102	7.5	2430

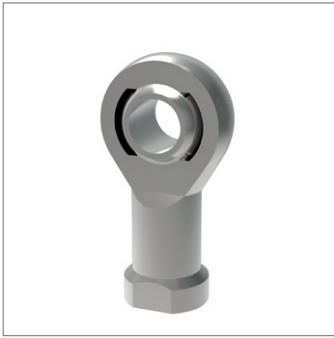
Heavy-Duty Rod Ends - Male

with integral spherical plain bearing

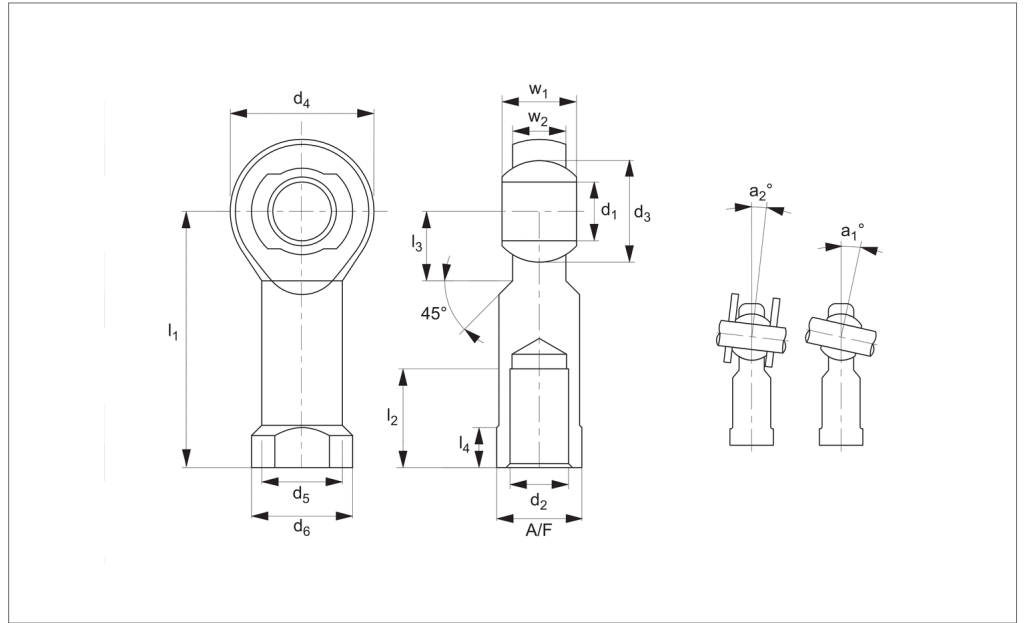
Rod Ends

Order No.	Thread hand	d ₁	l ₁	d ₂	d ₃	l ₂	d ₄	a ₁	Weight g
20264505	Left	50	195	M52x3,0*	66.0	120	112	6.5	3865
20264512	Left	50	185	M45x3,0*	66.0	110	112	6.5	3225
20264529	Left	60	225	M60x4,0*	80.0	140	135	6.5	6400
20264536	Left	60	210	M52x3,0*	80.0	125	135	6.5	5430

Order No.	a ₂	l ₃	w ₁	w ₂	Dyn. load C kN max.	Static load C ₀ kN max.
20264543	6.5	11	6	4	2.5	6.4
20264550	8.0	12	8	5	4.2	11.0
20264567	6.0	15	9	6	6.4	16.8
20264574	5.0	15	10	7	9.2	23.0
20264581	4.5	18	12	9	13.4	39.6
20264598	5.5	23	14	10	19.2	54.1
20264604	4.5	25	16	12	25.2	76.7
20264611	3.5	32	20	16	42.4	119.1
20264628	3.0	35	22	18	54.0	141.8
20264635	3.5	38	25	20	70.4	180.8
20264642	3.5	42	28	22	86.0	222.6
20264659	3.5	42	28	22	86.0	222.6
20264666	4.0	50	32	25	107.0	276.2
20264673	4.0	50	32	25	107.0	276.2
20264680	3.0	60	35	28	132.0	339.2
20264697	3.0	60	35	28	132.0	339.2
20264703	3.5	70	44	36	208.0	532.1
20264710	3.5	70	44	36	208.0	532.1
20264369	6.5	11	6	4	2.5	6.4
20264376	8.0	12	8	5	4.2	11.0
20264383	6.0	15	9	6	6.4	16.8
20264390	5.0	15	10	7	9.2	23.0
20264406	4.5	18	12	9	13.4	39.6
20264413	5.5	23	14	10	19.2	54.1
20264420	4.5	25	16	12	25.2	76.7
20264437	3.5	32	20	16	42.4	119.1
20264444	3.0	35	22	18	54.0	141.8
20264451	3.5	38	25	20	70.4	180.8
20264468	3.5	42	28	22	86.0	222.6
20264475	3.5	42	28	22	86.0	222.6
20264482	4.0	50	32	25	107.0	276.2
20264499	4.0	50	32	25	107.0	276.2
20264505	3.0	60	35	28	132.0	339.2
20264512	3.0	60	35	28	132.0	339.2
20264529	3.5	70	44	36	208.0	532.1
20264536	3.5	70	44	36	208.0	532.1



ER3566



Material

Rod end housing: Stainless steel DIN 12240-4 (AISI 304).
Joint Ball: Stainless steel 1.4412, hardened and ground, surface polished.
Race: nylon/teflon/glass compound.

Technical Notes

Maintenance free, standard thread is right hand thread.

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.

Order No.	Thread hand	d ₁	l ₁	d ₂	d ₃	d ₄	d ₅	d ₆	l ₂	Weight g
20264888	Right	5	36	M4	11.11	18	9.0	11	10	18
20264895	Right	5	36	M5	11.11	18	9.0	11	10	18
20264901	Right	6	40	M6	12.70	20	10.0	13	12	24
20264918	Right	8	48	M8	15.87	24	12.5	16	16	45
20264925	Right	10	57	M10	19.05	28	15.0	19	20	74
20264932	Right	10	57	M10x1,25*	19.05	28	15.0	19	20	74
20264949	Right	12	66	M12	22.22	32	17.5	22	22	109
20264956	Right	12	66	M12x1,25*	22.22	32	17.5	22	22	109
20264963	Right	14	75	M14	25.40	36	20.0	25	25	155
20264970	Right	16	85	M16	28.57	42	22.0	27	28	233
20264987	Right	16	85	M16x1,5*	28.57	42	22.0	27	28	233
20264994	Right	18	94	M18x1,5*	31.75	46	25.0	31	32	310
20265007	Right	20	102	M20x1,5*	34.92	50	27.5	34	33	386
20265014	Right	22	111	M22x1,5*	38.10	54	30.0	38	37	520
20265021	Right	25	124	M24x2*	42.85	60	33.5	42	42	705
20265038	Right	30	145	M30x2*	50.80	70	40.0	50	51	1084
20265137	Right	30	145	M27x2*	50.80	70	40.0	50	51	1084
20264727	Left	5	36	M4	11.11	18	9.0	11	10	18
20264734	Left	5	36	M5	11.11	18	9.0	11	10	18
20264741	Left	6	40	M6	12.70	20	10.0	13	12	24
20264758	Left	8	48	M8	15.87	24	12.5	16	16	45
20264765	Left	10	57	M10	19.05	28	15.0	19	20	74
20264772	Left	10	57	M10x1,25*	19.05	28	15.0	19	20	74
20264789	Left	12	66	M12	22.22	32	17.5	22	22	109
20264796	Left	12	66	M12x1,25*	22.22	32	17.5	22	22	109
20264802	Left	14	75	M14	25.40	36	20.0	25	25	155
20264819	Left	16	85	M16	28.57	42	22.0	27	28	233
20264826	Left	16	85	M16x1,5*	28.57	42	22.0	27	28	233
20264833	Left	18	94	M18x1,5*	31.75	46	25.0	31	32	310
20264840	Left	20	102	M20x1,5*	34.92	50	27.5	34	33	386
20264857	Left	22	111	M22x1,5*	38.10	54	30.0	38	37	520
20264864	Left	25	124	M24x2*	42.85	60	33.5	42	42	705

Stainless Heavy-Duty Rod Ends - Female

with integral spherical plain bearing

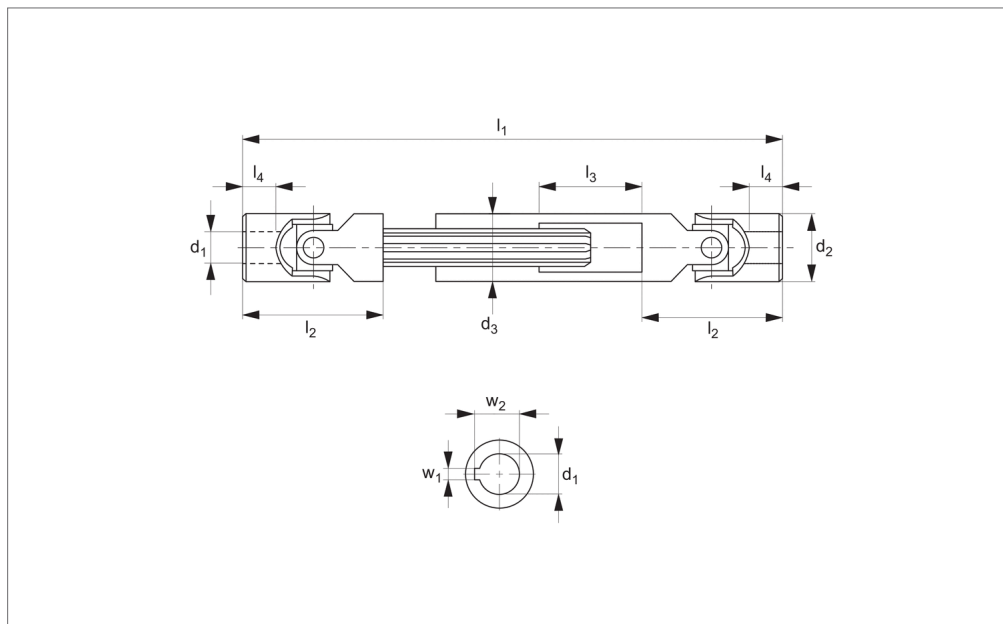
Rod Ends

Order No.	Thread hand	d ₁	l ₁	d ₂	d ₃	d ₄	d ₅	d ₆	l ₂	Weight g
20264871	Left	30	145	M30x2*	50.80	70	40.0	50	51	1084
20265144	Left	30	145	M27x2*	50.80	70	40.0	50	51	1084

Order No.	l ₃	l ₄	w ₁	w ₂	A/F	a ₁	a ₂	Dyn. load C kN max.	Static load C ₀ kN max.
20264888	10	4.0	8	6.00	9	13.0	7.5	3.9	7.9
20264895	10	4.0	8	6.00	9	13.0	7.5	3.9	7.9
20264901	12	5.0	9	6.75	11	13.0	6.5	4.6	9.4
20264918	12	5.0	12	9.00	14	14.5	7.5	7.0	14.1
20264925	15	6.5	14	10.50	17	13.5	8.0	10.4	20.1
20264932	15	6.5	14	10.50	17	13.5	8.0	10.4	20.1
20264949	16	6.5	16	12.00	19	13.0	8.0	12.4	24.5
20264956	16	6.5	16	12.00	19	13.0	8.0	12.4	24.5
20264963	20	8.0	19	13.50	22	16.0	9.5	15.4	30.4
20264970	22	8.0	21	15.00	22	15.5	8.5	22.4	43.7
20264987	22	8.0	21	15.00	22	15.5	8.5	22.4	43.7
20264994	24	10.0	23	16.50	27	15.0	9.5	26.3	51.2
20265007	26	10.0	25	18.00	30	14.5	9.0	30.8	60.3
20265014	26	12.0	28	20.00	32	15.5	10.0	38.2	70.0
20265021	30	12.0	31	22.00	36	15.0	10.0	45.4	87.0
20265038	35	15.0	37	25.00	41	17.0	10.5	55.0	106.8
20265137	35	15.0	37	25.00	41	17.0	10.5	55.0	106.8
20264727	10	4.0	8	6.00	9	13.0	7.5	3.9	7.9
20264734	10	4.0	8	6.00	9	13.0	7.5	3.9	7.9
20264741	12	5.0	9	6.75	11	13.0	6.5	4.6	9.4
20264758	12	5.0	12	9.00	14	14.5	7.5	7.0	14.1
20264765	15	6.5	14	10.50	17	13.5	8.0	10.4	20.1
20264772	15	6.5	14	10.50	17	13.5	8.0	10.4	20.1
20264789	16	6.5	16	12.00	19	13.0	8.0	12.4	24.5
20264796	16	6.5	16	12.00	19	13.0	8.0	12.4	24.5
20264802	20	8.0	19	13.50	22	16.0	9.5	15.4	30.4
20264819	22	8.0	21	15.00	22	15.5	8.5	22.4	43.7
20264826	22	8.0	21	15.00	22	15.5	8.5	22.4	43.7
20264833	24	10.0	23	16.50	27	15.0	9.5	26.3	51.2
20264840	26	10.0	25	18.00	30	14.5	9.0	30.8	60.3
20264857	26	12.0	28	20.00	32	15.5	10.0	38.2	70.0
20264864	30	12.0	31	22.00	36	15.0	10.0	45.4	87.0
20264871	35	15.0	37	25.00	41	17.0	10.5	55.0	106.8
20265144	35	15.0	37	25.00	41	17.0	10.5	55.0	106.8



ER3680



Material

Steel (9SMnPb28k, no. 10718, greased).
Bearing type: plain bearing.

Maximum bending angle 45° per joint. The drive speed of universal joints with journal bearings must not exceed 1000 rpm.

Tips

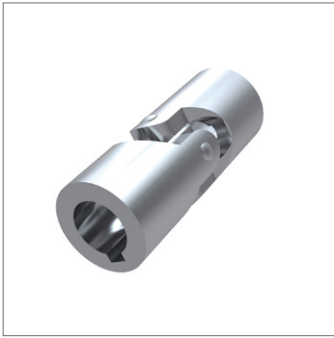
Double universal joints are used where large bending angles are required or where two shafts offset in relation to each other. Zinc plated available on request.

Technical Notes

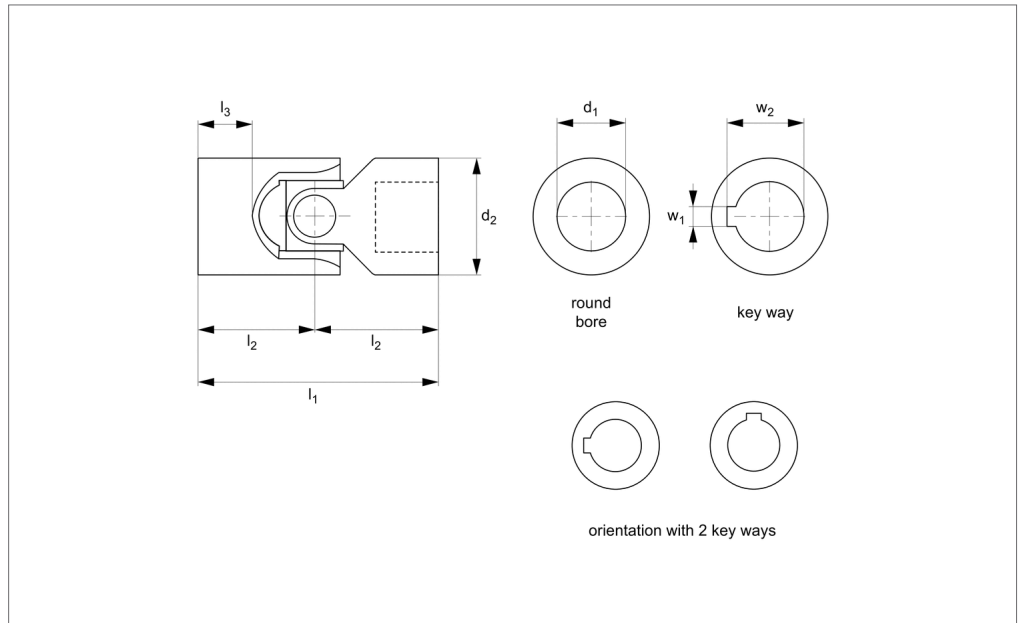
To DIN 808.

Order No.	d_1 tol. H7	d_2	d_3	l_1 min.	l_1 max.	l_2	l_3 stroke	l_4	w_1 tol. JS9	w_2	Shaft	Weight g
20213862	10	22	22	140	170	48	30	12	3	11.4	11x14x6	310
20213916	10	22	22	160	200	48	40	12	3	11.4	11x14x6	360
20213961	10	22	22	180	240	48	60	12	3	11.4	11x14x6	380
20214418	10	22	22	230	330	48	100	12	3	11.4	11x14x6	500
20213879	12	25	26	160	190	56	30	13	4	13.8	13x16x6	500
20213923	12	25	26	180	225	56	45	13	4	13.8	13x16x6	560
20213978	12	25	26	200	270	56	70	13	4	13.8	13x16x6	620
20214425	12	25	26	220	300	56	80	13	4	13.8	13x16x6	670
20214432	12	25	26	250	355	56	105	13	4	13.8	13x16x6	760
20214012	12	25	26	280	420	56	140	13	4	13.8	13x16x6	840
20214050	12	25	26	300	450	56	150	13	4	13.8	13x16x6	900
20214449	14	28	29	170	200	60	30	14	5	16.3	13x16x6	620
20214456	14	28	29	180	220	60	40	14	5	16.3	13x16x6	640
20214463	14	28	29	200	260	60	60	14	5	16.3	13x16x6	720
20214470	14	28	29	220	300	60	80	14	5	16.3	13x16x6	780
20214487	14	28	29	250	350	60	100	14	5	16.3	13x16x6	870
20214494	14	28	29	280	420	60	140	14	5	16.3	13x16x6	960
20214500	14	28	29	300	450	60	150	14	5	16.3	13x16x6	1030
20214517	14	28	29	350	550	60	200	14	5	16.3	13x16x6	1170
20214524	14	28	29	400	650	60	250	14	5	16.3	13x16x6	1330
20213886	16	32	32	190	220	68	30	16	5	18.3	16x20x6	900
20213930	16	32	32	210	250	68	40	16	5	18.3	16x20x6	980
20213985	16	32	32	240	320	68	80	16	5	18.3	16x20x6	1100
20214531	16	32	32	250	350	68	100	16	5	18.3	16x20x6	1140
20214548	16	32	32	275	390	68	115	16	5	18.3	16x20x6	1240
20214029	16	32	32	300	430	68	130	16	5	18.3	16x20x6	1330
20214067	16	32	32	380	590	68	210	16	5	18.3	16x20x6	1600
20214098	16	32	32	400	630	68	230	16	5	18.3	16x20x6	1730
20214555	18	36	37	230	280	74	50	17	6	20.8	18x22x6	1350
20214562	18	36	37	250	320	74	70	17	6	20.8	18x22x6	1460
20214579	18	36	37	270	370	74	100	17	6	20.8	18x22x6	1550
20214586	18	36	37	290	400	74	110	17	6	20.8	18x22x6	1660

Order No.	d ₁ tol. H7	d ₂	d ₃	l ₁ min.	l ₁ max.	l ₂	l ₃ stroke	l ₄	w ₁ tol. JS9	w ₂	Shaft	Weight g
20214593	18	36	37	300	415	74	115	17	6	20.8	18x22x6	1710
20214609	18	36	37	400	620	74	220	17	6	20.8	18x22x6	2230
20214616	18	36	37	500	820	74	320	17	6	20.8	18x22x6	2750
20214753	30	58	58	400	510	122	110	29	8	33.3	32x38x8	5850
20214760	30	58	58	450	620	122	170	29	8	33.3	32x38x8	6480
20214777	30	58	58	500	720	122	220	29	8	33.3	32x38x8	7140
20214784	30	58	58	540	795	122	255	29	8	33.3	32x38x8	7690
20213992	20	42	42	290	380	82	90	18	6	22.8	21x25x6	2250
20214074	20	42	42	500	800	82	300	18	6	22.8	21x25x6	3660
20214708	25	50	52	380	500	108	120	26	8	28.3	26x32x6	4200
20214661	22	45	47	290	350	95	60	22	6	24.8	23x28x6	2670
20214722	30	58	58	330	380	122	50	29	8	33.3	32x38x8	4900
20214715	25	50	52	420	590	108	170	26	8	28.3	26x32x6	4590
20213909	25	50	52	295	345	108	50	26	8	28.3	26x32x6	3390
20214678	22	45	47	330	430	95	100	22	6	24.8	23x28x6	3000
20214623	20	42	42	320	440	82	120	18	6	22.8	21x25x6	2460
20213893	20	42	42	250	300	82	50	18	6	22.8	21x25x6	1990
20214739	30	58	58	350	420	122	70	29	8	33.3	32x38x8	5170
20214630	20	42	42	380	560	82	180	18	6	22.8	21x25x6	2860
20214043	25	50	52	460	660	108	200	26	8	28.3	26x32x6	4980
20214647	22	45	47	250	280	95	30	22	6	24.8	23x28x6	2350
20213954	25	50	52	310	375	108	65	26	8	28.3	26x32x6	3520
20214685	22	45	47	350	470	95	120	22	6	24.8	23x28x6	3160
20214081	25	50	52	500	745	108	245	26	8	28.3	26x32x6	5370
20214036	20	42	42	420	640	82	220	18	6	22.8	21x25x6	3130
20214005	25	50	52	350	450	108	100	26	8	28.3	26x32x6	3920
20214746	30	58	58	370	455	122	85	29	8	33.3	32x38x8	5420
20214654	22	45	47	270	320	95	50	22	6	24.8	23x28x6	2510
20213947	20	42	42	270	340	82	70	18	6	22.8	21x25x6	2120
20214692	22	45	47	470	710	95	240	22	6	24.8	23x28x6	4130



ER3688



Material

Steel (9SMnPb28k, no. 10718).
Bearing type: plain bearing.

Technical Notes

To DIN 808/7551.
Maximum bending angle 45° per joint,

Max. drive speed of 1000 rpm.

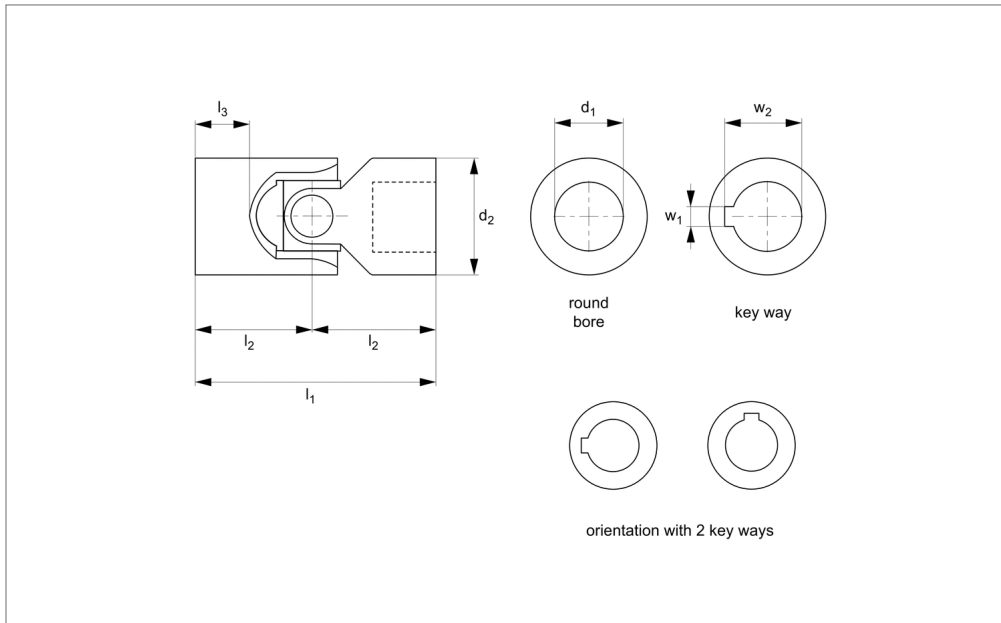
Tips

Single universal joints are used where shafts are off-set towards each other.
Product variations available on request, for square bores change the suffix to SQ for

square bores or HX for hex bores.
For stainless steel see ER3694

For needle roller bearings see part number ER3690.

Order No.	Bore dia.	d_1 tol. H7	d_2	l_1	l_2	l_3	w_1 tol. JS9	w_2	Weight g
20214111	Round bore	10	16	52	26	15	-	-	50
20214128	Round Bore	12	22	62	31	18	-	-	120
20214135	Round Bore	16	25	74	37	21	-	-	200
20214142	Round Bore	20	32	86	43	24	-	-	350
20214159	Round Bore	25	42	108	54	31	-	-	800
20214791	Round Bore	30	50	132	66	38	-	-	1200
20214166	Round Bore	40	70	166	83	47	-	-	2900
20214173	With keyway	10	16	52	26	15	3	11.4	50
20214180	With keyway	12	22	62	31	18	4	13.8	120
20214197	With keyway	16	25	74	37	21	5	18.3	200
20214203	With keyway	20	32	86	43	24	6	22.8	350
20214210	With keyway	25	42	108	54	31	8	28.3	800
20214807	With keyway	30	50	132	66	38	8	33.3	1200
20214227	With keyway	40	70	166	83	47	12	43.3	2900



ER3689

UNIVERSAL JOINTS

Material

Steel (9SMnPb28k, no. 10718).
Bearing type: plain bearing.

Maximum bending angle 45° per joint.
Max. drive speed of 1000 rpm.

Product variations available on request, for square bores change the suffix to SQ for square bores or HX for hex bores.
For stainless steel see ER3694.

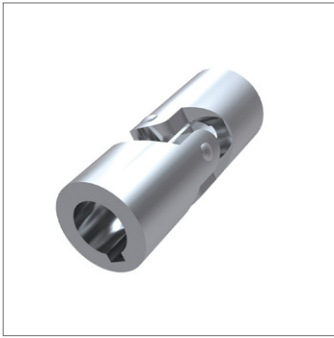
Technical Notes

To DIN 808.

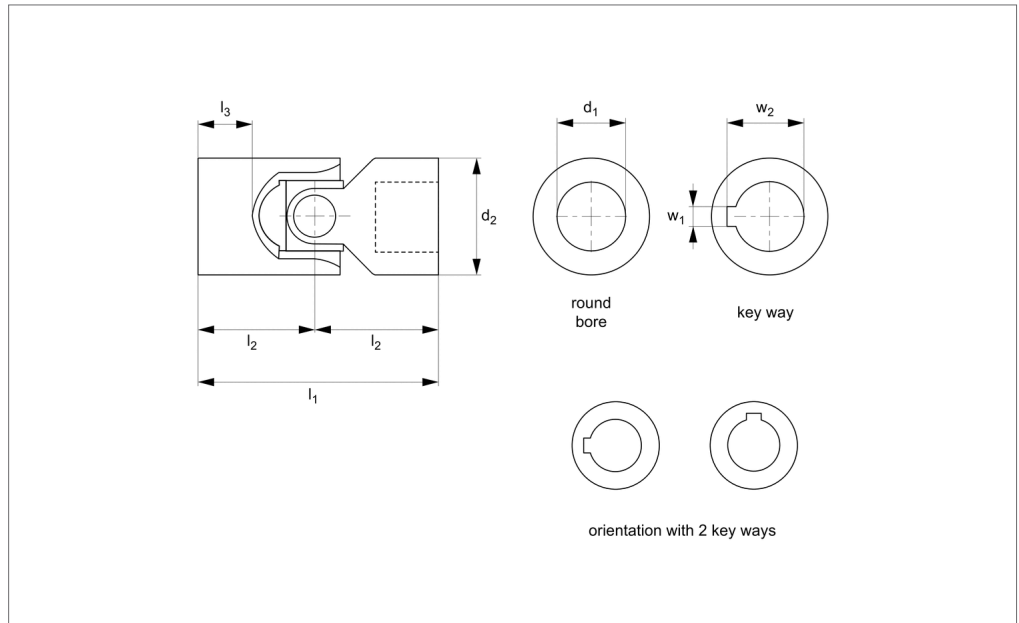
Tips

Single universal joints are used where shafts are off-set towards each other.

Order No.	Bore dia.	d_1 tol. H7	d_2	l_1	l_2	l_3	w_1 tol. JS9	w_2	Weight g
20214814	Round bore	6	16	34	17	8	-	-	50
20214821	Round bore	8	16	40	20	11	-	-	50
20214838	Round bore	10	22	48	24	12	-	-	100
20214845	Round bore	12	25	56	28	13	-	-	160
20214852	Round bore	14	28	60	30	14	-	-	200
20214869	Round bore	16	32	68	34	16	-	-	300
20214876	Round bore	18	36	74	37	17	-	-	450
20214883	Round bore	20	42	82	41	18	-	-	600
20214890	Round bore	22	45	95	47.5	22	-	-	950
20214906	Round bore	25	50	108	54	26	-	-	1200
20214913	Round bore	30	58	122	61	29	-	-	1850
20214920	Round bore	32	58	130	65	33	-	-	2000
20214937	Round bore	35	70	140	70	35	-	-	3150
20214944	Round bore	40	80	160	80	39	-	-	4600
20214951	Round bore	50	95	190	95	46	-	-	7600
20214968	With keyway	6	16	34	17	8	2	7.0	50
20214975	With Keyway	8	16	40	20	11	2	9.0	50
20214982	With Keyway	10	22	48	24	12	3	11.4	100
20214999	With Keyway	12	25	56	28	13	4	13.8	160
20215002	With Keyway	14	28	60	30	14	5	16.3	200
20215019	With Keyway	16	32	68	34	16	5	18.3	300
20215026	With Keyway	18	36	74	37	17	6	20.8	450
20215033	With Keyway	20	42	82	41	18	6	22.8	600
20215040	With Keyway	22	45	95	47.5	22	6	24.8	950
20215057	With Keyway	25	50	108	54	26	8	28.3	1200
20215064	With Keyway	30	58	122	61	29	8	33.3	1850
20215071	With Keyway	32	58	130	65	33	10	35.3	2000
20215088	With Keyway	35	70	140	70	35	10	38.3	3150
20215095	With Keyway	40	80	160	80	39	12	43.3	4600
20215101	With Keyway	50	95	190	95	46	14	53.8	7600
20217136	Square bore	12	25	56	28	13	-	-	160
20217310	Square bore	16	32	68	34	16	-	-	300



ER3690



Material

Steel (9SMnPb28k, no. 10718).
Bearing type: needle roller bearing.

Technical Notes

To DIN 808.
Maximum bending angle 45° per joint.

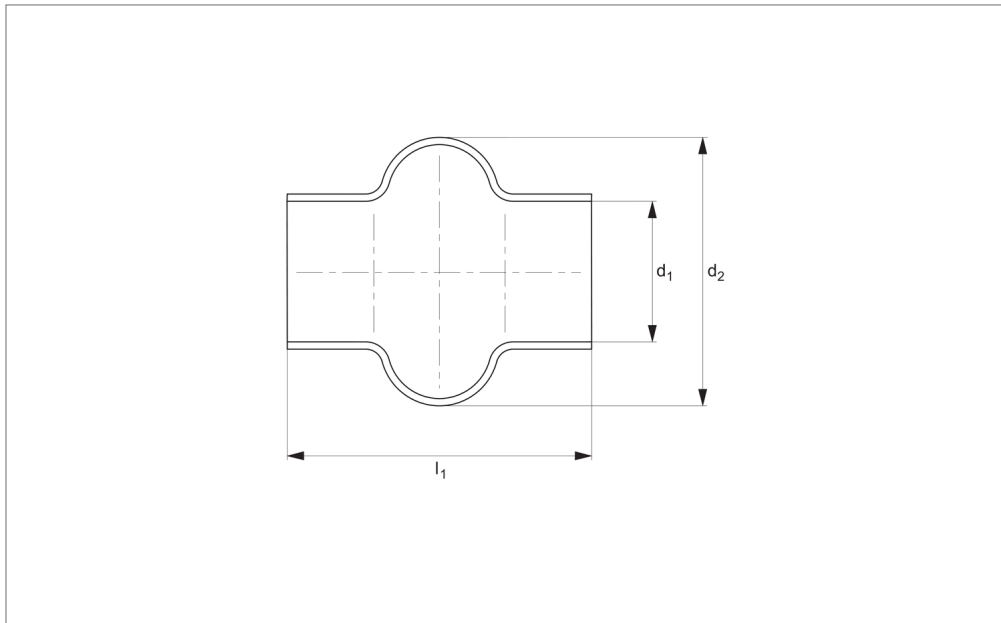
Roller bearing lubricated for life.
No maintenance required. Precise, silent and smooth running, Max. drive speed of 4000 rpm.

Tips

Single universal joints are used where

shafts are off-set towards each other.
Product variations available on request, for square bores change the suffix to SQ for square bores or HX for hex bores.

Order No.	Bore dia.	d ₁ tol. H7	d ₂	l ₁	l ₂	l ₃	w ₁ tol. JS9	w ₂	Weight g
20214234	Round bore	10	22	48	24	12	-	-	100
20214241	Round Bore	12	25	56	28	13	-	-	160
20215385	Round Bore	14	28	60	30	14	-	-	200
20214258	Round Bore	16	32	68	34	16	-	-	300
20215392	Round Bore	18	36	74	37	17	-	-	450
20214265	Round Bore	20	42	82	41	18	-	-	600
20215408	Round Bore	22	45	95	47.5	22	-	-	950
20214272	Round Bore	25	50	108	54	26	-	-	1200
20215415	Round Bore	30	58	122	61	29	-	-	1850
20214289	Round Bore	32	58	130	65	33	-	-	2000
20215422	Round Bore	35	70	140	70	35	-	-	3150
20215439	Round Bore	40	80	160	80	39	-	-	4600
20215446	Round Bore	50	95	190	95	46	-	-	7600
20214296	With keyway	10	22	48	24	12	3	11.4	100
20214302	With Keyway	12	25	56	28	13	4	13.8	160
20215453	With Keyway	14	28	60	30	14	5	16.3	200
20214319	With Keyway	16	32	68	34	16	5	18.3	300
20215460	With Keyway	18	36	74	37	17	6	20.8	450
20214326	With Keyway	20	42	82	41	18	6	22.8	600
20215477	With Keyway	22	45	95	47.5	22	6	24.8	950
20214333	With Keyway	25	50	108	54	26	8	28.3	1200
20215484	With Keyway	30	58	122	61	29	8	33.3	1850
20214340	With Keyway	32	58	130	65	33	10	35.3	2000
20215491	With Keyway	35	70	140	70	35	10	38.3	3150
20215507	With Keyway	40	80	160	80	39	12	43.3	4600
20215514	With Keyway	50	95	190	95	46	14	53.8	7600



ER3691

UNIVERSAL JOINTS

Material

Rubber.

Tips

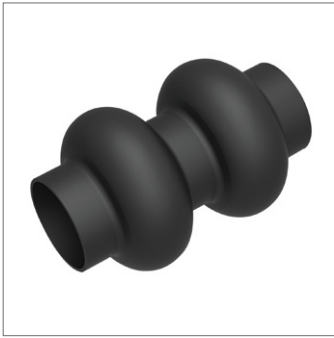
Bellows give universal joints full protec-

tion against ingress of dirt.

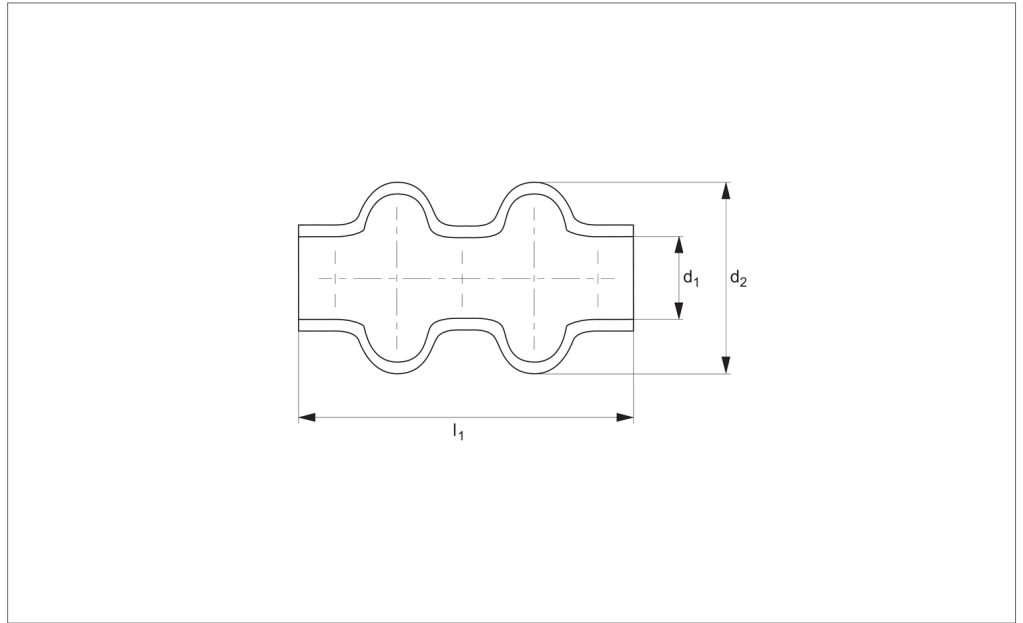
They can be filled with grease which gives long term lubrication for friction bearings. Bellows should be secured at each end with

two cable ties (not supplied).

Order No.	To suit joint of o.d	d ₁	d ₂	l ₁
20179854	16	15.0	28	34
20179892	18	16.5	32	40
20179908	22	20.5	40	45
20179861	25/26	24.5	48	50
20179915	28/29	27.5	52	56
20179878	32	30.5	56	65
20179922	36/37	35.5	66	72
20179939	42	40.0	75	82
20179946	45/47	45.0	84	95
20179885	50/52	50.0	92	108
20179953	58	56.0	100	122



ER3692



Material

Black elastomer plastic (smooth PVC)

Tips

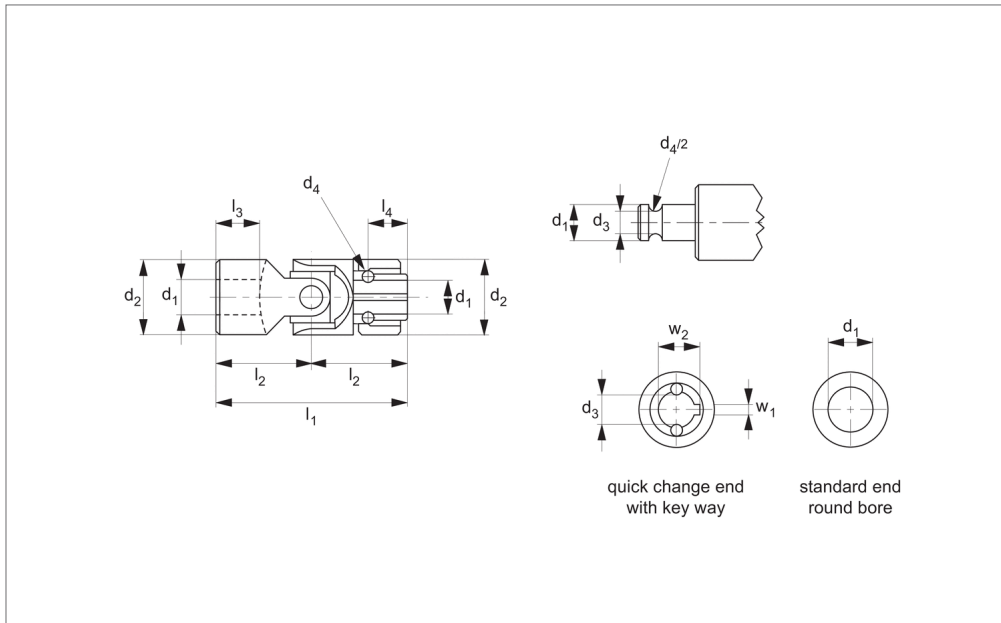
Bellows give universal joints full protec-

tion 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).

Order No.	To suit joint of o.d	d ₁	d ₂	l ₁
20179977	16	16	35	55
20179984	22	20	36	65
20179991	25	24	44	70
20180003	28	28	51	80
20180010	32	32	62	90
20179960	50	50	90	155



ER3693

Material

Steel (9 SMnPb28 k, no. 10718, greased).
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

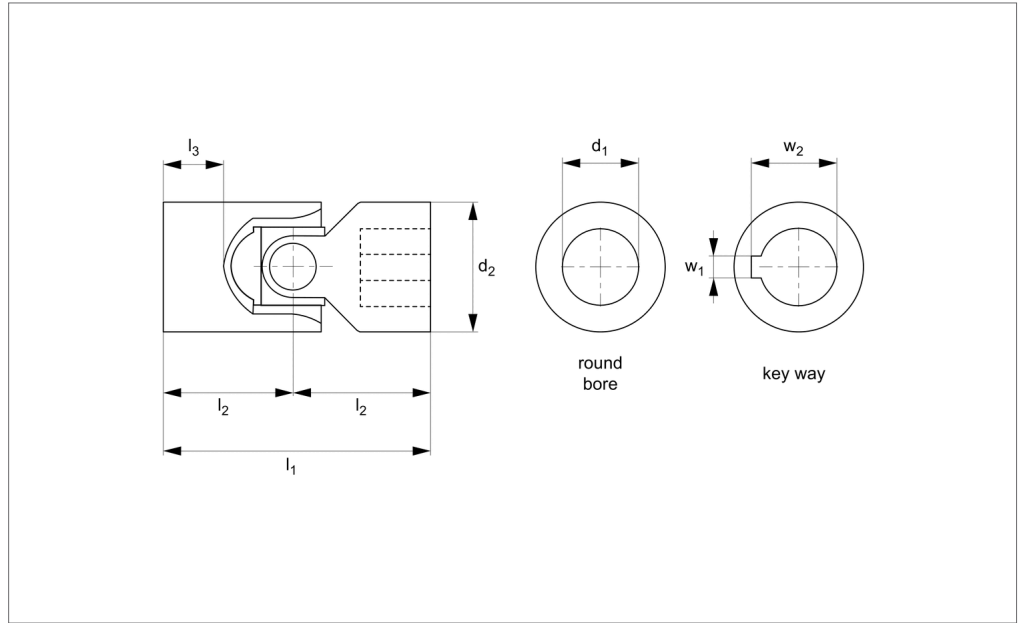
Rapid change coupling ideal where time is critical.
Retention of shaft accomplished with two ball bearings engaging the shaft via a round bore with keyway.

Product variations available on request: needle bearings and hex shaped bores. (Keyway and hex shaped bores on quick change end only unless requested otherwise.)

Order No.	d_1 tol. H7	d_2	d_3	d_4	l_1	l_2	l_3	l_4	w_1 tol. JS9	w_2	Weight g
20214357	10	22	8.7	4	62	31	17	11.5	3	11	100
20215118	12	25	11	4	74	37	21	13.5	4	13.3	160
20214364	14	25	13	4	74	37	21	13.5	5	15.3	160
20214371	16	32	14.8	6.35	86	43	24	14	5	17.3	310
20215125	18	36	16	8	96	48	28	19	6	19.8	460
20214388	20	42	18	8	108	54	31	19	6	22.8	610
20215132	22	45	20	10	120	60	34	20.5	6	24.8	960
20214395	25	50	23	10	132	66	38	20.5	8	28.3	1150
20214401	30	58	28	10	166	83	49	25	8	33.3	2080



ER3694



Material

Stainless steel (AISI 304)

Technical Notes

To DIN 808, maximum bending angle 45° per joint.

Tips

Single universal joints are used where shafts are off-set towards each other.

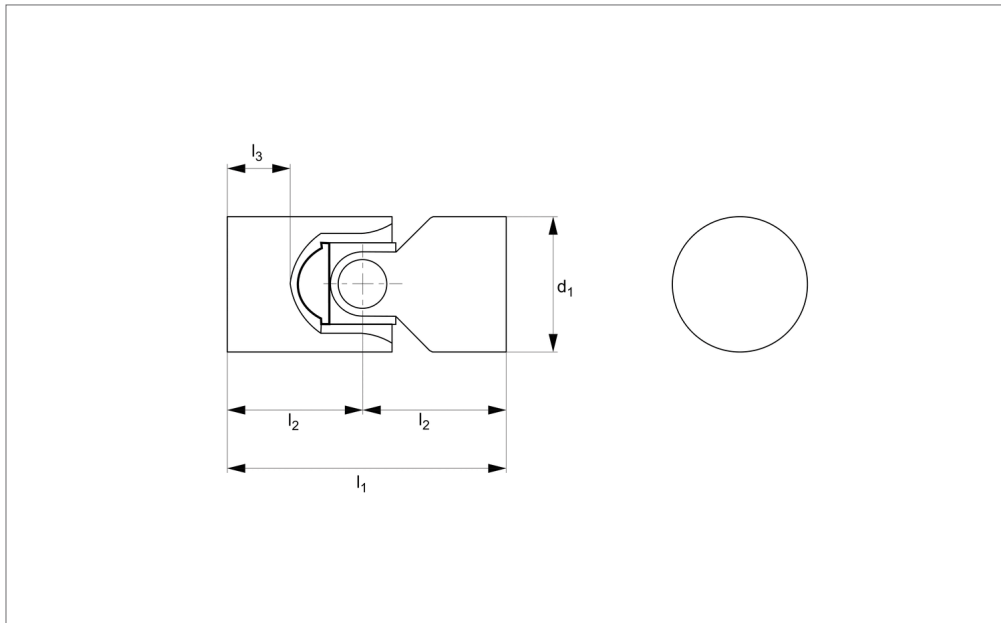
Product variations available on request, for square bores change the suffix to SQ for square bores or HX for hex bores.

Order No.	Bore dia.	d ₁ tol. H7	d ₂	l ₁	l ₂	l ₃	w ₁ tol. JS9	w ₂	Weight g
20215149	Round bore	6	16	34	17	8	-	-	50
20215156	Round Bore	8	16	40	20	11	-	-	50
20215163	Round Bore	10	22	48	24	12	-	-	100
20215170	Round Bore	12	25	56	28	13	-	-	160
20215187	Round Bore	16	32	68	34	16	-	-	300
20215194	Round Bore	20	42	82	41	18	-	-	600
20215200	Round Bore	25	50	108	54	26	-	-	1200
20215217	Round Bore	30	58	122	61	29	-	-	1850
20216269	keyway	6	16	34	17	8	2	7.0	50
20216450	Keyway	8	16	40	20	11	2	9.0	50
20216429	Keyway	10	22	48	24	12	3	11.4	100
20216481	Keyway	12	25	56	28	13	4	13.8	160
20216122	Keyway	16	32	68	34	16	5	18.3	300
20215330	Keyway	20	42	82	41	18	6	22.8	600
20215347	Keyway	25	50	108	54	26	8	28.3	1200
20216238	Keyway	30	58	122	61	29	8	33.3	1850

Stainless Single Universal Joint

Stainless unbored - solid ends

Universal Joints



ER3695

UNIVERSAL JOINTS

Material

Stainless steel (AISI 304), bearing type:
Plain bearing.

Maximum bending angle 45° per joint.
Max. drive speed of joints with journal
bearings 1000 rpm.

shafts off-set towards each other.
Product variations available on request:
square bores and hex bores.

Technical Notes

To DIN 808.

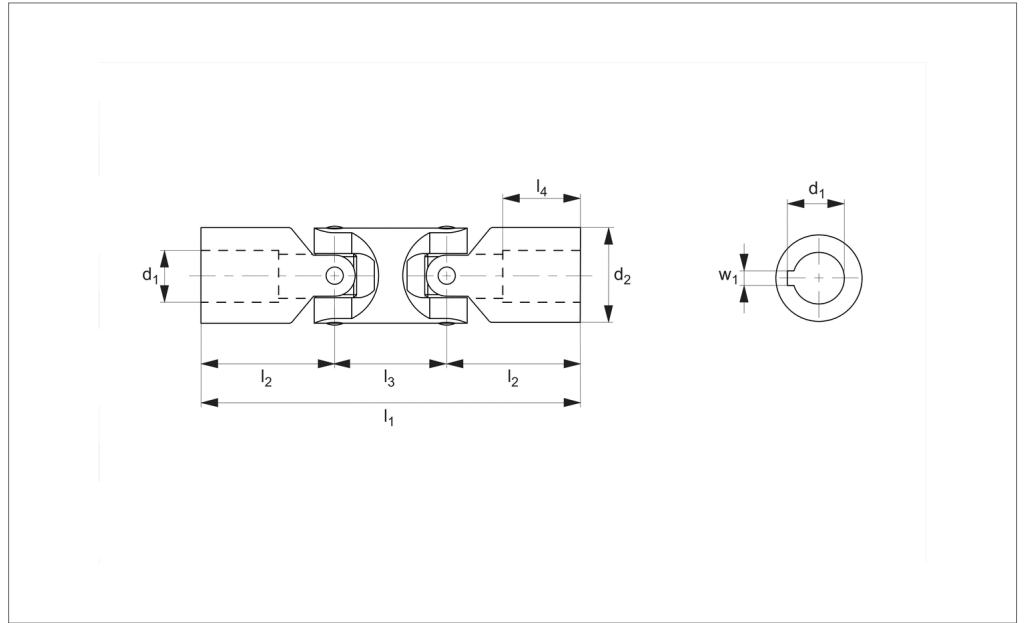
Tips

Single universal joints are used where

Order No.	Bore dia.	d tol. h4	l ₁	l ₂	l ₃	Weight g
20216498	Unbored	13	43	21	14	20
20216504	Unbored	17	53	26	18	50
20216511	Unbored	20	63	31	21	70
20216528	Unbored	25	57	28	16	150
20216467	Unbored	25	75	37	25	150
20216535	Unbored	32	87	43	26	290
20216382	Unbored	40	109	54	34	600
20216191	Unbored	50	133	66	42	1160



ER3696



Material

Stainless steel (AISI 304).

per joint.

square bores or HX for hex bores.

Technical Notes

To DIN 808, maximum bending angle 45°

Tips

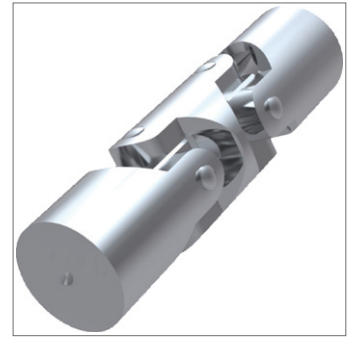
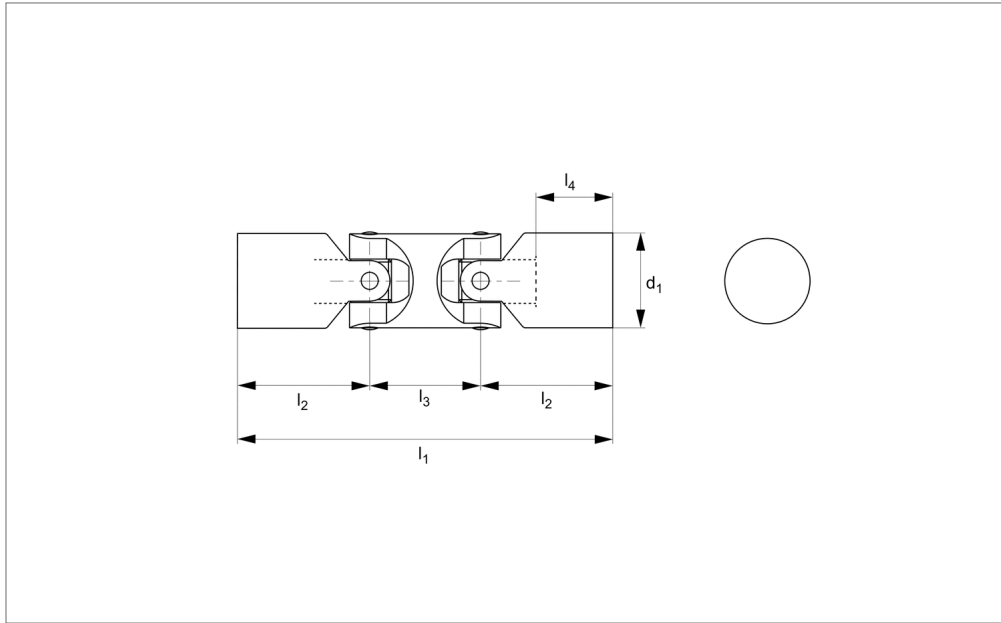
Product variations available on request, for square bores change the suffix to SQ for

Order No.	Bore dia.	d ₁ tol. H7	d ₂	l ₁	l ₂	l ₃	l ₄	w ₁	w ₂	Weight g
20215224	Round bore	6	16	56	17	22	8	-	-	80
20215231	Round Bore	8	16	62	20	22	11	-	-	80
20215248	Round Bore	10	22	74	24	26	12	-	-	150
20215255	Round Bore	12	25	86	28	30	13	-	-	250
20215262	Round Bore	16	32	104	34	36	16	-	-	450
20215279	Round Bore	20	42	128	41	46	18	-	-	1000
20215286	Round Bore	25	50	163	54	55	26	-	-	2000
20215293	Round Bore	30	58	190	61	68	29	-	-	2900
20216542	keyway	6	16	56	17	22	8	2	7.0	80
20216559	Keyway	8	16	62	20	22	11	2	9.0	80
20215378	Keyway	10	22	74	24	26	12	3	11.4	150
20216566	Keyway	12	25	86	28	30	13	4	13.8	250
20216573	Keyway	16	32	104	34	36	16	5	18.3	450
20216214	Keyway	20	42	128	41	46	18	6	22.8	1000
20215354	Keyway	25	50	163	54	55	26	8	28.3	2000
20216207	Keyway	30	58	190	61	68	29	8	33.3	2900

Stainless Double Universal Joint

Stainless unbored - solid ends

Universal Joints



ER3697

UNIVERSAL JOINTS

Material

Stainless steel (AISI 304), bearing type: Plain bearing.

Maximum bending angle 45° per joint.
Max. drive speed of joints with journal bearings 1000 rpm.

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.

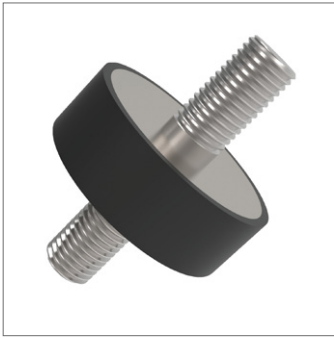
Technical Notes

To DIN 808.

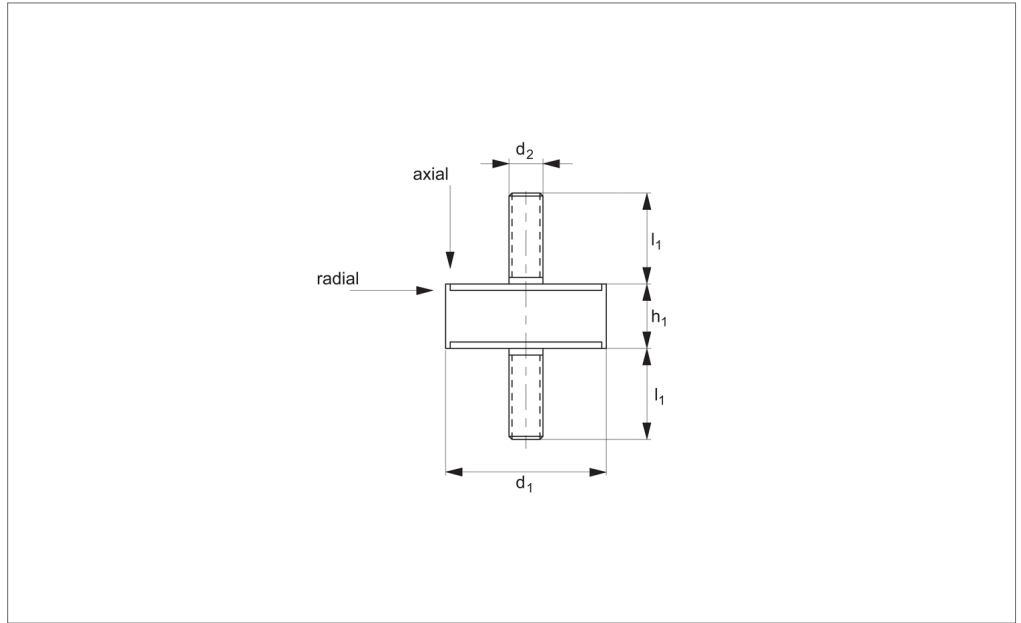
Tips

Double universal joints are used where

Order No.	Bore dia.	d_1 tol. H4	l_1	l_2	l_3	l_4	Weight g
20216580	Unbored	13	61	21	18	14	50
20216597	Unbored	17	63	20	22	12	80
20216603	Unbored	17	75	26	22	18	80
20216351	Unbored	20	89	31	26	21	150
20216610	Unbored	25	87	28	30	16	250
20216627	Unbored	25	105	37	30	25	350
20216634	Unbored	32	125	43	38	26	450
20216641	Unbored	40	155	54	46	34	1000
20216658	Unbored	50	189	66	56	42	2000
20216665	Unbored	60	237	83	70	53	3000



EP2004



Material

Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Technical Notes

Parts with small diameters (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. EP2005.

Tips

These cylinders are used to reduce vibration by allowing some movement (in axial

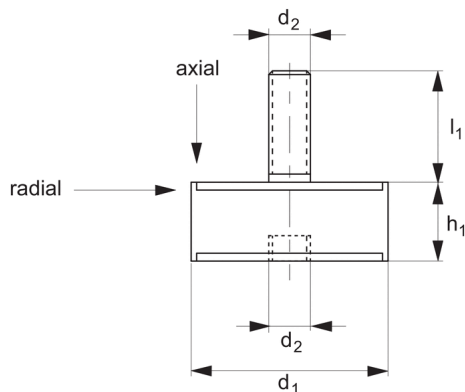
and radial as shown).

Typically used in machinery, compressors, air conditioning units, light engineering equipment etc.

Order No.	d_1	h_1	d_2	l_1	Axial load kgf max.	Radial load kgf max.
20195625	6	7	M 3	10	3	-
20195748	8	8	M 3	10	3	-
20195755	9	12	M 4	10	6	1.5
20195151	10	8	M 4	10	8	1.5
20195144	10	10	M 4	10	10	1.5
20195236	15	8	M 4	10-14	15	2.4
20195175	15	10	M 4	10-14	13	2.4
20197186	15	10	M 5	10-14	13	2.4
20195182	15	15	M 4	10-14	13	3.0
20197193	15	15	M 5	10-14	13	3.0
20195199	15	20	M 4	10-14	10	-
20197209	15	20	M 5	10-14	10	-
20195205	15	22	M 4	10-14	10	-
20195212	15	25	M 4	10-14	9	-
20195229	15	28	M 4	10-14	9	-
20197216	16	8	M 4	10	-	-
20197223	16	8	M 5	12	-	-
20197230	16	10	M 4	10	-	-
20197247	16	10	M 5	12	-	-
20195243	16	15	M 4	14	13	2.4
20197254	16	15	M 5	14	13	2.4
20197261	16	20	M 4	10	-	-
20197278	16	20	M 5	12	-	-
20197285	16	25	M 4	10	-	-
20197292	16	25	M 5	12	-	-
20195267	18	7.5	M 6	16	20	3.0
20195274	18	8.5	M 6	16	20	3.0
20195250	18	12	M 6	16	18	3.0
20195342	20	9	M 6	13-16	27	5.0

Order No.	d ₁	h ₁	d ₂	l ₁	Axial load kgf max.	Radial load kgf max.
20195281	20	10	M 6	16	30	5.0
20195298	20	15	M 6	16	25	5.0
20195304	20	20	M 6	18	21	4.5
20195311	20	25	M 6	16	20	4.0
20195328	20	30	M 6	16	18	3.5
20195335	20	35	M 6	13-16	18	3.5
20195359	25	10	M 6	10-18	46	9.0
20197179	25	10	M 8	18	46	9.0
20195366	25	15	M 6	18	44	8.5
20197308	25	15	M 8	18	44	8.5
20195373	25	20	M 6	18	41	8.0
20197315	25	20	M 8	18	41	8.0
20197322	25	22	M 6	16	-	-
20197339	25	22	M 8	20	-	-
20195380	25	25	M 6	18	40	7.5
20197346	25	25	M 8	18	40	7.5
20195397	25	30	M 6	18	40	7.0
20197353	25	30	M 8	18	40	7.0
20195403	25	40	M 6	18	36	4.0
20197360	25	40	M 8	18	36	4.0
20196974	30	10	M 8	20	-	-
20195410	30	15	M 8	20	90	12.0
20195427	30	20	M 8	20	90	10.5
20195434	30	25	M 8	20	85	10.5
20195441	30	30	M 8	20	80	10.5
20197377	30	40	M 8	20	-	-
20197384	35	35	M 8	20	-	-
20195458	35	40	M 8	23	54	13.0
20195465	40	12	M 8	23	120	20.0
20197162	40	20	M 8	20	160	20.0
20197391	40	20	M10	20	160	20.0
20195472	40	25	M 8	20	155	18.0
20197407	40	25	M10	20	155	18.0
20195489	40	28	M 8	20	155	16.0
20197414	40	28	M10	20	155	16.0
20195496	40	30	M 8	23	150	21.0
20197421	40	30	M10	23	150	21.0
20196981	40	35	M 8	20	-	-
20197438	40	35	M10	25	-	-
20197445	40	40	M 8	23	120	22.0
20197452	40	40	M10	23	120	22.0
20196998	40	45	M 8	20	-	-
20197469	40	45	M10	25	-	-
20195502	40	50	M 8	23	80	19.0
20197476	40	50	M10	23	80	19.0
20195519	45	30	M 8	23	112	24.0
20195526	50	20	M10	25	250	30.0
20197483	50	25	M10	25	-	-
20195533	50	30	M10	25	250	29.0
20197001	50	35	M10	25	-	-
20195540	50	40	M10	25	220	29.0
20195557	50	45	M10	25	-	-
20195564	50	50	M10	25	200	29.0
20197490	50	55	M10	25	-	-
20195571	60	20	M10	28	285	35.0
20197018	60	25	M10	30	285	35.0
20195588	60	30	M10	28	200	37.0
20195595	60	35	M10	30	350	39.0
20195601	60	45	M10	30	300	42.0
20195618	60	50	M10	37	185	42.0
20197506	60	50	M12	37	185	42.0
20197025	60	60	M10	30	-	-
20197032	70	35	M10	30	-	-
20195632	70	45	M10	35	270	55.0
20195649	70	50	M10	30	350	52.0
20197049	70	70	M10	30	-	-
20195656	75	25	M12	35	650	75.0

Order No.	d ₁	h ₁	d ₂	l ₁	Axial load kgf max.	Radial load kgf max.
20195663	75	30	M12	37	350	75.0
20195670	75	40	M12	35	500	75.0
20197131	75	45	M12	35	-	-
20195687	75	50	M12	37	330	65.0
20195694	75	55	M12	35	450	60.0
20195700	80	30	M14	35	900	75.0
20195717	80	40	M14	35	600	50.0
20195724	80	50	M14	35	750	65.0
20197513	80	70	M14	35	-	-
20195731	80	80	M14	51	280	60.0
20196813	95	40	M16	45	1200	70
20196820	95	55	M16	45	1000	70
20196837	95	60	M16	45	800	70
20197056	95	75	M16	45	800	70
20195120	100	40	M16	45	1200	95
20195137	100	60	M16	45	1100	90
20196844	100	75	M16	45	1000	90
20196851	120	50	M16	45	1500	100
20196868	120	75	M16	45	1200	100
20196875	120	100	M16	45	1000	100
20195168	130	40	M16	45	1900	110
20196882	130	50	M16	45	1600	110
20196899	130	75	M16	45	1450	100
20196905	130	100	M16	45	1200	120
20197520	150	50	M16	50	1800	150
20196912	150	50	M20	50	1800	150
20196929	150	60	M16	50	2200	150
20197537	150	60	M20	50	2200	150
20196936	150	75	M16	50	2000	150
20197544	150	75	M20	50	2000	150
20197551	150	100	M16	50	1400	150
20196943	150	100	M20	50	1400	150
20197568	150	120	M16	50	1300	150
20196950	150	120	M20	50	1300	150
20197575	150	140	M16	50	1200	150
20196967	150	140	M20	50	1200	150



EP2006

Material

Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

(d_1) and relatively long length (h) cannot accept radial loads (as shown in table).

tion by allowing some movement (in axial and radial as shown).

Technical Notes

Load tolerance parts with small diameters

Tips

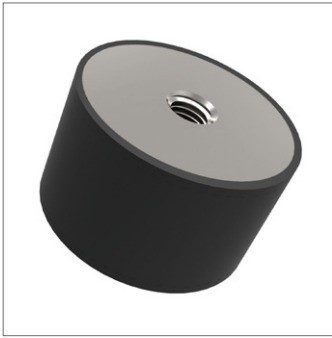
These cylinders are used to reduce vibra-

Typically used in machinery, compressors, air conditioning units, light engineering equipment etc.

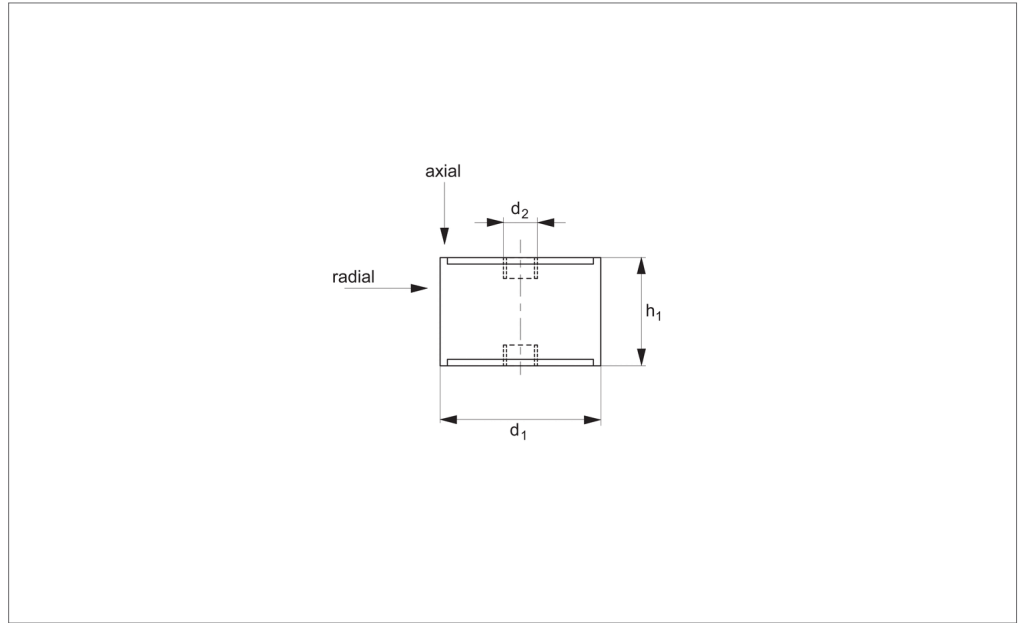
Order No.	d_1	h_1	d_2	l_1	Compression max.	Axial load kgf max.	Radial load kgf max.
20195823	15	22	M 4	14	4.5	10	2.5
20196202	8	8	M 3	10	1.5	3.5	-
20195793	10	10	M 4	10	2.0	10	1.2
20195809	12	31	M 5	20	3.5	6	1.3
20197599	15	8	M 4	10	-	-	-
20197605	15	8	M 5	12	-	-	-
20197612	15	10	M 4	10	-	-	-
20197629	15	10	M 5	12	-	-	-
20197636	15	15	M 4	10	3.0	13	2.0
20197643	15	15	M 5	12	-	-	-
20197650	15	20	M 4	10	4.0	10	2.0
20197667	15	20	M 5	12	-	-	-
20197674	15	25	M 4	10	5.0	9.5	2.0
20197681	15	25	M 5	12	-	-	-
20197698	20	10	M 6	13	-	-	-
20195847	20	15	M 6	13	3.0	25	5.0
20195854	20	20	M 6	18	4.0	25	4.0
20195861	20	25	M 6	18	5.0	25	4.0
20195878	20	30	M 6	18	7.0	25	3.0
20195885	20	35	M 6	16	8.0	18	2.0
20197704	25	10	M 6	16	-	-	-
20197711	25	10	M 8	20	-	-	-
20195892	25	15	M 6	16	3.0	50	8.0
20197728	25	15	M 8	16	3.0	50	8.0
20195908	25	20	M 6	16	4.0	50	8.0
20197735	25	20	M 8	16	4.0	50	8.0
20197742	25	22	M 6	16	-	-	-
20197759	25	22	M 8	20	-	-	-
20195915	25	25	M 6	18	5.0	40	7.0
20197766	25	25	M 8	18	5.0	40	7.0
20195922	25	30	M 6	16	6.0	40	7.0

Order No.	d ₁	h ₁	d ₂	l ₁	Compression max.	Axial load kgf max.	Radial load kgf max.
20197773	25	30	M 8	16	6.0	40	7.0
20195939	25	35	M 6	18	8.0	36	6.0
20197780	25	40	M 6	18	-	-	-
20195946	30	15	M 8	20	3.0	90	12.0
20195953	30	20	M 8	20	4.0	90	11.0
20197797	30	22	M 8	20	-	-	-
20195960	30	25	M 8	20	5.0	85	10.0
20195977	30	30	M 8	20	6.0	80	10.0
20197803	30	40	M 8	20	-	-	-
20197810	35	35	M 8	20	-	-	-
20195984	35	40	M 8	20	8.5	60	13.0
20197827	40	20	M 8	20	-	-	-
20197834	40	20	M10	25	-	-	-
20197841	40	25	M 8	20	-	-	-
20197858	40	25	M10	25	-	-	-
20197865	40	28	M 8	20	-	-	-
20197872	40	28	M10	25	-	-	-
20195991	40	30	M 8	20	8.0	150	21.0
20197889	40	30	M 10	25	8.0	150	21.0
20197896	40	35	M 8	20	-	-	-
20197902	40	35	M10	25	-	-	-
20196004	40	40	M 8	20	10.0	120	22.0
20197919	40	40	M 10	25	10.0	120	22.0
20197926	40	45	M 8	20	-	-	-
20197933	40	45	M 10	25	-	-	-
20196011	40	50	M 8	23	13.0	80	18.0
20196028	45	30	M 8	23	9.0	112	24.0
20197124	50	20	M10	25	8.0	250	29.0
20196035	50	30	M10	25	8.0	250	29.0
20197940	50	35	M10	25	-	-	-
20196042	50	40	M10	25	10.0	220	29.0
20196059	50	45	M10	25	11.0	210	28.0
20196066	50	50	M10	25	12.0	200	28.0
20197957	50	55	M10	25	-	-	-
20196073	50	60	M10	28	13.5	110	28.0
20197964	60	25	M10	30	-	-	-
20196080	60	30	M10	28	6.0	200	37.0
20196097	60	35	M10	30	7.0	350	39.0
20196103	60	45	M10	30	10.0	300	42.0
20196110	60	50	M10	37	11.0	185	42.0
20197971	60	60	M10	30	-	-	-
20197988	70	35	M10	30	-	-	-
20196127	70	45	M10	35	8.5	270	55.0
20196134	70	50	M10	30	10.0	350	52.0
20196141	70	55	M10	35	10.5	240	49.0
20197995	70	70	M10	30	-	-	-
20196158	75	25	M12	35	5.0	350	75.0
20196165	75	30	M12	37	7.0	345	72.0
20196172	75	40	M12	35	9.0	500	65.0
20198008	75	45	M12	35	-	-	-
20196196	75	55	M12	35	13.0	450	65.0
20196608	80	30	M14	35	5.5	900	75.0
20196615	80	40	M14	35	9.0	600	72.0
20196622	80	50	M14	35	10.0	750	65.0
20196639	80	70	M14	35	15.0	550	65.0
20196646	95	40	M14	45	8.0	1200	70.0
20196653	95	55	M14	45	11.0	1000	70.0
20196660	95	60	M16	45	12.0	800	70.0
20196677	95	75	M16	45	13.0	700	70.0
20195762	100	40	M16	45	8.0	1200	95.0
20195786	100	60	M16	45	15.0	1100	90.0
20196684	100	75	M16	45	17.0	1000	80.0
20196691	120	50	M16	45	9.0	1500	100.0
20196707	120	75	M16	45	13.0	1500	100.0
20196714	120	100	M16	45	16.0	1000	100.0
20195816	130	40	M16	45	16.0	1900	120.0
20196721	130	50	M16	45	9.0	1600	120.0

Order No.	d ₁	h ₁	d ₂	l ₁	Compression max.	Axial load kgf max.	Radial load kgf max.
20196738	130	75	M16	45	13.0	1450	120.0
20196745	130	100	M16	45	16.0	1200	120.0
20196752	150	50	M20	20	9.0	1800	150.0
20196769	150	60	M20	20	14.0	1800	150.0
20196776	150	75	M20	20	16.0	2000	150.0
20196783	150	100	M20	20	16.0	1400	150.0
20196790	150	120	M20	20	16.0	1300	150.0
20196806	150	140	M20	20	16.0	1200	150.0



EP2008



Material

Rubber on silver zinc plated steel (rubber hardness - 55 Shore A).

Tips

These cylinders are used to reduce vibra-

tion by allowing some movement (in axial and radial as shown).

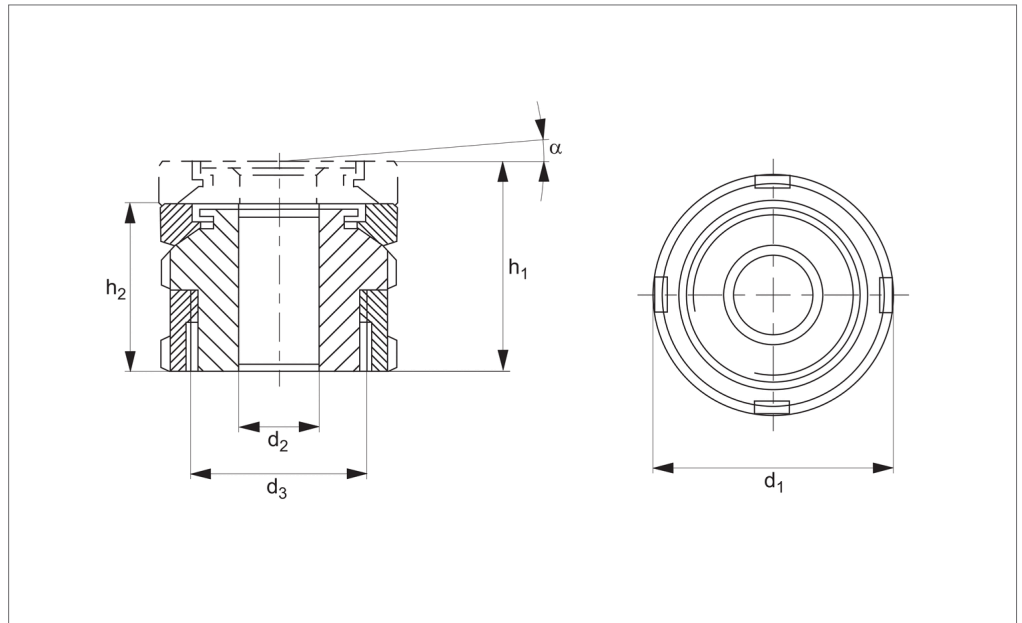
Typically used in machinery, compressors, air conditioning units, light engineering equipment etc.

Order No.	Compression max.	d ₁	h ₁	d ₂	Axial load kgf max.	Radial load N max.
20196271	3.0	15	15	M 4	13	3
20196288	4.0	15	20	M 4	10	3
20196295	4.5	15	22	M 4	10	2.5
20196301	5.0	15	25	M 4	9	2
20196318	5.5	15	28	M 4	9	2
20196325	4.0	20	20	M 6	25	4
20196332	5.0	20	25	M 6	25	5
20196349	7.0	20	30	M 6	25	3
20196356	8.0	20	35	M 6	16	2
20196363	4.0	25	20	M 6	50	8
20196370	5.0	25	25	M 6	40	8
20196387	6.0	25	30	M 6	30	8
20196394	8.0	25	35	M 6	35	9
20196400	4.0	30	20	M 8	90	11
20196417	5.0	30	25	M 8	85	10
20196424	6.0	30	30	M 8	80	10
20196431	8.5	35	40	M 8	60	13
20196448	8.0	40	30	M 8	150	18
20196455	10.0	40	40	M 8	120	18
20196462	12.5	40	50	M 8	80	18
20196479	8.0	50	30	M10	250	29
20196486	10.0	50	40	M10	220	29
20196493	12.0	50	50	M10	200	28
20196509	7.0	60	35	M10	350	39
20196516	10.0	60	45	M10	300	42
20196523	11.0	60	50	M10	285	42
20196554	9.0	75	40	M12	500	72
20196530	10.0	70	50	M10	350	52
20196547	10.5	70	55	M10	230	52
20196561	11.5	75	50	M12	330	65
20196578	13.0	75	55	M12	450	65

Order No.	Compression max.	d ₁	h ₁	d ₂	Axial load kgf max.	Radial load N max.
20196585	15.0	80	70	M14	550	65
20196226	8.0	100	40	M16	1200	95
20196233	16.0	100	55	M16	775	97
20196240	15.0	100	60	M16	1100	97
20196219	16.0	100	100	M16	500	80
20196257	6.0	130	40	M16	1900	120
20196264	11.0	130	60	M16	680	100



E62040



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.

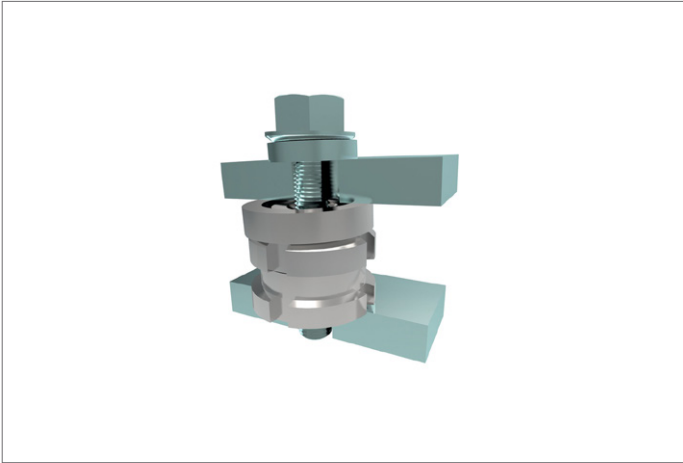
The net load that the unit can carry is the maximum load less the tightening torque recommended for the bolt. Please see useful info tab.

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. EP2186.

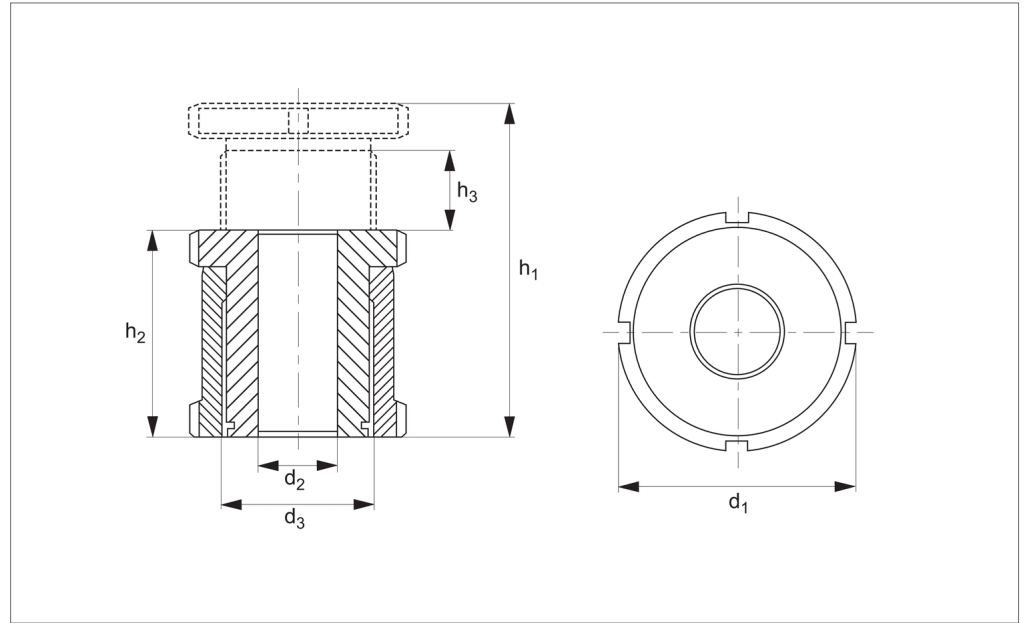
Order No.	Material	For bolt	h ₁	h ₂	d ₁	d ₂	d ₃		Load with bolt kN max.	Load w/o bolt kN max.
20202255	Steel	M 4	26	22	25	4.5	M15x1,0	4°	36.00	40.0
20202262	Steel	M 5	26	22	25	5.5	M15x1,0	4°	33.40	40.0
20200466	Steel	M 6	26	22	25	6.6	M15x1,0	4°	30.70	40.0
20200473	Steel	M 6	31	26	32	6.6	M20x1,0	4°	55.70	65.0
20200480	Steel	M 8	31	26	32	9.0	M20x1,0	4°	48.00	65.0
20200497	Steel	M10	31	26	32	11.0	M20x1,0	4°	37.90	65.0
20201197	Steel	M10	41	34	45	11.0	M30x1,5	4°	92.90	120.0
20201234	Steel	M12	41	34	45	13.5	M30x1,5	4°	80.40	120.0
20200503	Steel	M16	41	34	45	17.5	M30x1,5	4°	45.50	120.0
20201203	Steel	M16	53	44	58	17.5	M40x1,5	4°	136.00	210.0
20200510	Steel	M20	53	44	58	22.0	M40x1,5	4°	90.00	210.0
20200527	Steel	M24	53	44	58	26.0	M40x1,5	4°	37.00	210.0
20200534	Steel	M20	60	50	70	22.0	M50x1,5	4°	210.00	330.0
20200541	Steel	M24	60	50	70	26.0	M50x1,5	4°	157.00	330.0
20200558	Steel	M30	60	50	70	33.0	M50x1,5	4°	53.00	330.0
20199937	Stainless steel	M 4	26	22	25	4.5	M15x1,0	4°	24.14	27.1
20199944	Stainless steel	M 5	26	22	25	5.5	M15x1,0	4°	24.24	27.1
20201395	Stainless steel	M 6	26	22	25	6.6	M15x1,0	4°	20.26	27.1
20201401	Stainless steel	M 6	31	26	32	6.6	M20x1,0	4°	36.56	43.4
20201418	Stainless steel	M 8	31	26	32	9.0	M20x1,0	4°	30.86	43.4
20201425	Stainless steel	M10	31	26	32	11.0	M20x1,0	4°	23.41	43.4
20201432	Stainless steel	M10	41	34	45	11.0	M30x1,5	4°	64.01	84.0
20201449	Stainless steel	M12	41	34	45	13.5	M30x1,5	4°	54.82	84.0
20201456	Stainless steel	M16	41	34	45	17.5	M30x1,5	4°	28.90	84.0
20201463	Stainless steel	M16	53	44	58	17.5	M40x1,5	4°	92.90	148.0
20201470	Stainless steel	M20	53	44	58	22.0	M40x1,5	4°	59.08	148.0
20201487	Stainless steel	M24	53	44	58	26.0	M40x1,5	4°	20.30	148.0
20201494	Stainless steel	M20	60	50	70	22.0	M50x1,5	4°	136.08	225.0
20201500	Stainless steel	M24	60	50	70	26.0	M50x1,5	4°	97.30	225.0

Order No.	Material	For bolt	h_1	h_2	d_1	d_2	d_3		Load with bolt kN max.	Load w/o bolt kN max.
20201517	Stainless steel	M30	60	50	70	33.0	M50x1,5	4°	20.60	225.0





E62060



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

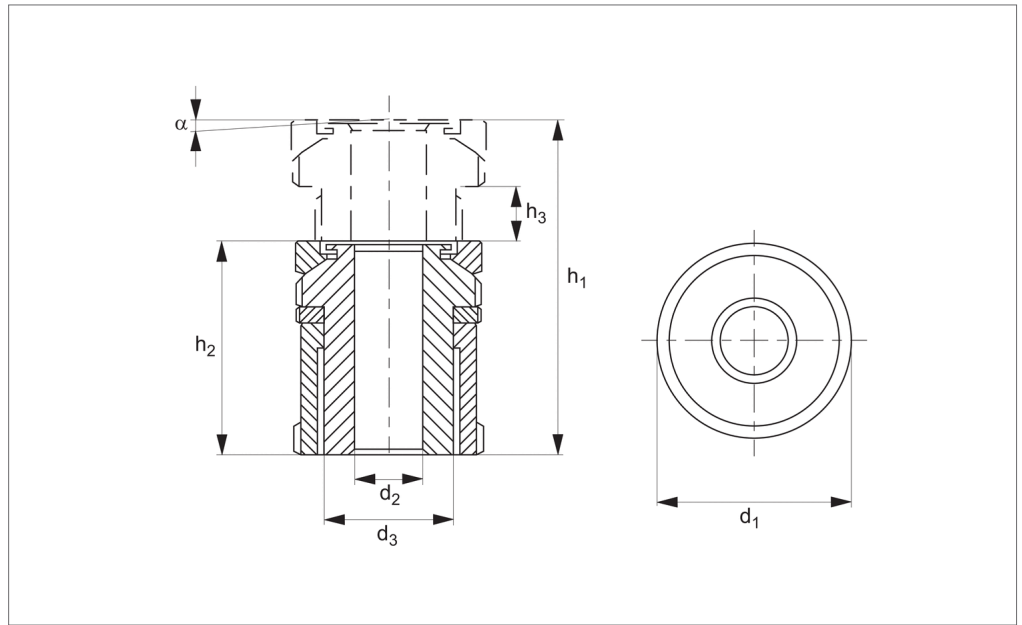
equal to 15 to 40mm.

Order No.	Material	For bolt	h_1	h_2	h_3	d_1	d_2	d_3	Load with bolt kN max.	Load w/o bolt kN max.
20202279	Steel	M 4	43	28	15	25	4.5	M15x1,0	36.00	40.00
20202286	Steel	M 5	43	28	15	25	5.5	M15x1,0	33.40	40.00
20200565	Steel	M 6	43	28	15	25	6.6	M15x1,0	30.70	40.00
20200572	Steel	M 6	55	35	20	32	6.6	M20x1,0	55.70	65.00
20200589	Steel	M 8	55	35	20	32	9.0	M20x1,0	48.00	65.00
20200596	Steel	M10	55	35	20	32	11.0	M20x1,0	37.90	65.00
20200602	Steel	M10	67	42	25	45	11.0	M30x1,5	92.90	120.00
20200619	Steel	M12	67	42	25	45	13.5	M30x1,5	80.40	120.00
20200626	Steel	M16	67	42	25	45	17.5	M30x1,5	45.50	120.00
20200633	Steel	M16	86	54	32	58	17.5	M40x1,5	136.00	210.00
20200640	Steel	M20	86	54	32	58	22.0	M40x1,5	90.00	210.00
20200657	Steel	M24	86	54	32	58	26.0	M40x1,5	37.00	210.00
20200664	Steel	M20	106	66	40	70	22.0	M50x1,5	210.00	330.00
20200671	Steel	M24	106	66	40	70	26.0	M50x1,5	157.00	330.00
20200688	Steel	M30	106	66	40	70	33.0	M50x1,5	53.00	330.00
20200251	Stainless steel	M 4	43	28	15	25	4.5	M15x1,0	24.14	27.10
20200268	Stainless steel	M 5	43	28	15	25	5.5	M15x1,0	22.24	27.10
20201524	Stainless steel	M 6	43	28	15	25	6.6	M15x1,0	20.26	27.10
20201531	Stainless steel	M 6	55	35	20	32	6.6	M20x1,0	36.56	43.40
20201548	Stainless steel	M 8	55	35	20	32	9.0	M20x1,0	30.86	43.40
20201555	Stainless steel	M10	55	35	20	32	11.0	M20x1,0	23.41	43.40
20201562	Stainless steel	M10	67	42	25	45	11.0	M30x1,5	64.01	84.00
20201579	Stainless steel	M12	67	42	25	45	13.5	M30x1,5	54.82	84.00
20201586	Stainless steel	M16	67	42	25	45	17.5	M30x1,5	28.90	84.00
20201593	Stainless steel	M16	86	54	32	58	17.5	M40x1,5	92.90	148.00
20201609	Stainless steel	M20	86	54	32	58	22.0	M40x1,5	59.08	148.00
20201616	Stainless steel	M24	86	54	32	58	26.0	M40x1,5	20.30	148.00
20201623	Stainless steel	M20	106	66	40	70	22.0	M50x1,5	136.08	225.00
20201630	Stainless steel	M24	106	66	40	70	26.0	M50x1,5	97.30	225.00
20201647	Stainless steel	M30	106	66	40	70	33.0	M50x1,5	20.60	225.00





E62120



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

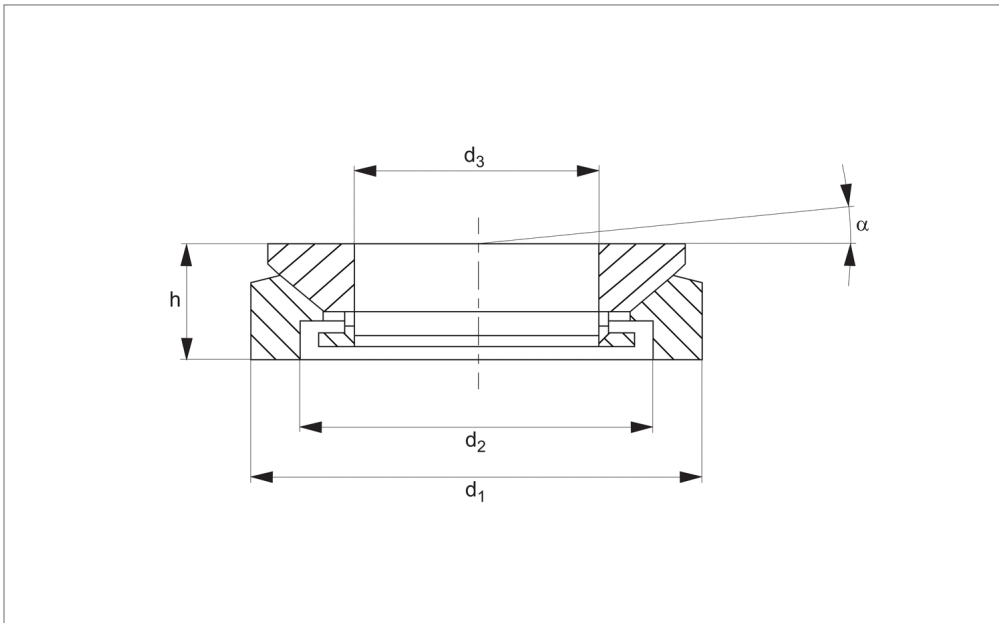
strength bolt.

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	app.	Load with bolt kN max.	Load w/o bolt kN max.
20200930	Steel	M 4	50	35	15	25	4.5	M15x1,0	4°	36.00	40.00
20200947	Steel	M 5	50	35	15	25	5.5	M15x1,0	4°	33.40	40.00
20200954	Steel	M 6	50	35	15	25	6.5	M15x1,0	4°	30.70	40.00
20200961	Steel	M 6	63	43	20	32	6.6	M20x1,0	4°	55.70	65.00
20201272	Steel	M 8	63	43	20	32	9.0	M20x1,0	4°	48.00	65.00
20200978	Steel	M10	63	43	20	32	11.0	M20x1,0	4°	37.90	65.00
20200985	Steel	M10	79	54	25	45	11.0	M30x1,5	4°	92.90	120.00
20200992	Steel	M12	79	54	25	45	13.5	M30x1,5	4°	80.40	120.00
20201005	Steel	M16	79	54	25	45	17.5	M30x1,5	4°	45.50	120.00
20201012	Steel	M16	102	70	32	58	17.5	M40x1,5	4°	136.00	210.00
20201029	Steel	M20	102	70	32	58	22.0	M40x1,5	4°	90.00	210.00
20201036	Steel	M24	102	70	32	58	26.0	M40x1,5	4°	37.00	210.00
20201043	Steel	M20	123	80	43	70	22.0	M50x1,5	4°	210.00	330.00
20201050	Steel	M24	123	80	43	70	26.0	M50x1,5	4°	157.00	330.00
20201067	Steel	M30	123	80	43	70	33.0	M50x1,5	4°	53.00	330.00
20201869	Stainless steel	M 4	50	35	15	25	4.5	M15x1,0	4°	24.14	27.10
20201876	Stainless steel	M 5	50	35	15	25	5.5	M15x1,0	4°	22.24	27.10
20201883	Stainless steel	M 6	50	35	15	25	6.5	M15x1,0	4°	20.26	27.10
20201890	Stainless steel	M 6	63	43	20	32	6.6	M20x1,0	4°	36.56	43.40
20202200	Stainless steel	M 8	63	43	20	32	9.0	M20x1,0	4°	30.86	43.40
20201906	Stainless steel	M10	63	43	20	32	11.0	M20x1,0	4°	23.14	43.40
20201913	Stainless steel	M10	79	54	25	45	11.0	M30x1,5	4°	64.01	84.00
20201920	Stainless steel	M12	79	54	25	45	13.5	M30x1,5	4°	54.82	84.00
20201937	Stainless steel	M16	79	54	25	45	17.5	M30x1,5	4°	28.90	84.00
20201944	Stainless steel	M16	102	70	32	58	17.5	M40x1,5	4°	92.90	148.00
20201951	Stainless steel	M20	102	70	32	58	22.0	M40x1,5	4°	59.08	148.00
20201968	Stainless steel	M24	102	70	32	58	26.0	M40x1,5	4°	20.30	148.00
20201975	Stainless steel	M20	123	80	43	70	22.0	M50x1,5	4°	136.08	225.00
20201982	Stainless steel	M24	123	80	43	70	26.0	M50x1,5	4°	97.30	225.00
20201999	Stainless steel	M30	123	80	43	70	33.0	M50x1,5	4°	20.60	225.00



E62140

LEVELLING FEET

Material

Steel (type 42 CrMo4 V, 1.7225) zinc plated or stainless steel A1 (A4 on request).

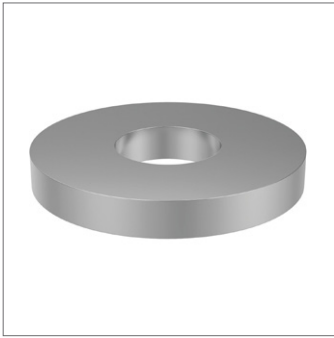
Technical Notes

Compensates for non-level surfaces with a maximum angle of tilt 4°. Please remember

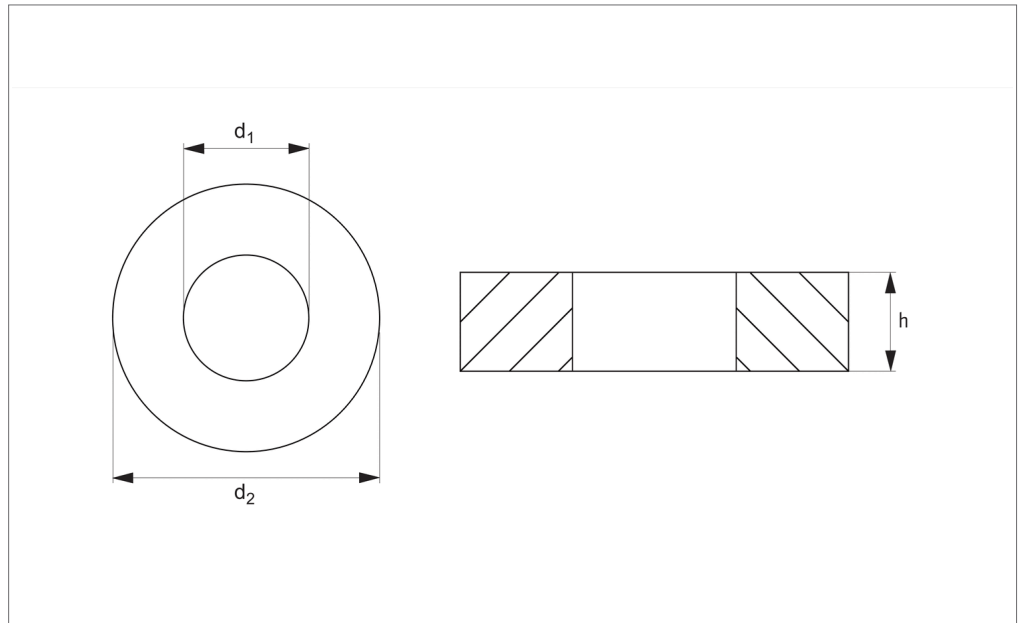
that the fixing screw and washer may also require support if the bearing surface is out of parallel by more than 1°.

The ball shim has no height adjustment feature.

Order No.	Material	For bolt	d ₁	d ₂	d ₃	h	app.
20201074	Steel	M 6	25	15	8.5	8.0	4°
20201289	Steel	M10	32	20	13.0	10.0	4°
20201081	Steel	M16	45	30	20.0	12.5	4°
20201098	Steel	M24	58	38	29.0	16.0	4°
20201104	Steel	M30	70	48	36.0	20.0	4°
20201111	Steel	M36	80	61	44.0	20.0	4°
20201128	Steel	M48	105	78	58.0	25.0	4°
20202002	Stainless steel	M 6	25	15	8.5	8.0	4°
20202019	Stainless steel	M10	32	20	13.0	10.0	4°
20202026	Stainless steel	M16	45	30	20.0	12.5	4°
20202033	Stainless steel	M24	58	38	29.0	16.0	4°
20202040	Stainless steel	M30	70	48	36.0	20.0	4°
20202057	Stainless steel	M36	80	61	44.0	20.0	4°
20202064	Stainless steel	M48	105	78	58.0	25.0	4°



E62160



Material

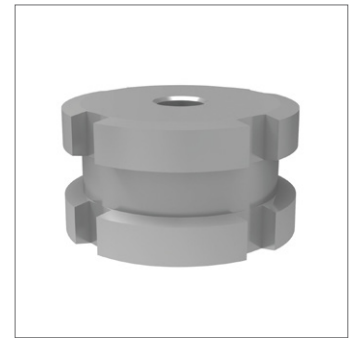
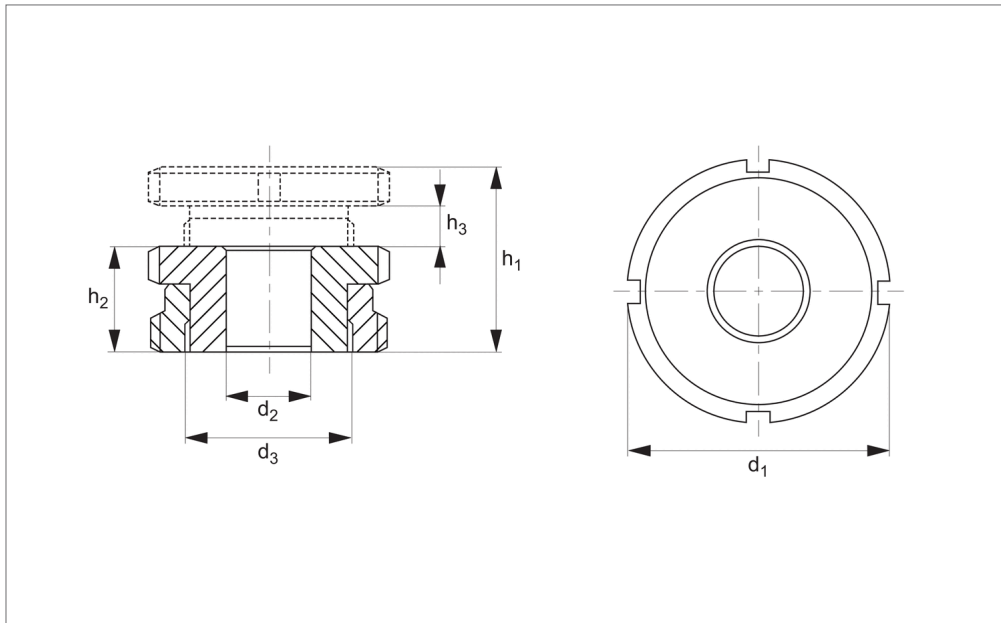
Steel (type 42 CrMo4 V, 1.7225) zinc plated or stainless steel A1 (A4 on request).

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
20201258	Steel	M 6	6.6	25	4
20201135	Steel	M10	11.0	32	5
20201142	Steel	M16	17.5	45	6
20201159	Steel	M24	26.0	58	8
20201166	Steel	M30	33.0	70	10
20201173	Steel	M36	39.0	80	12
20201180	Steel	M48	52.0	105	16
20202071	Stainless steel	M 6	6.6	25	4
20202088	Stainless steel	M10	11.0	32	5
20202095	Stainless steel	M16	17.5	45	6
20202101	Stainless steel	M24	26.0	58	8
20202118	Stainless steel	M30	33.0	70	10
20202125	Stainless steel	M36	39.0	80	12
20202132	Stainless steel	M48	52.0	105	16



E62000

Material

Steel (type 42 CrMo4 V, 1.7225) zinc plated or stainless steel A1 (A4 on request).

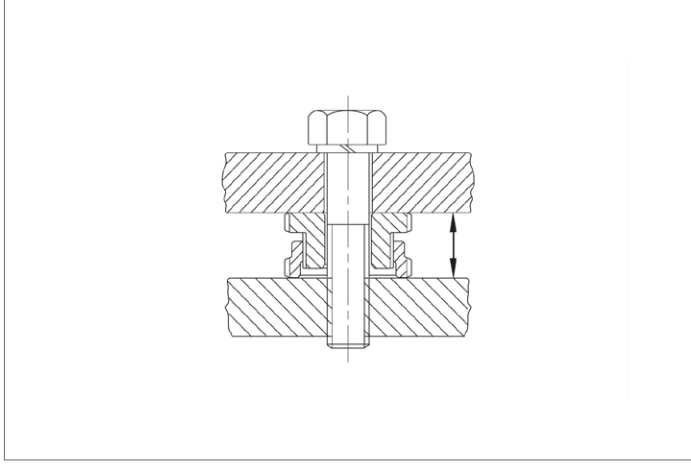
Technical Notes

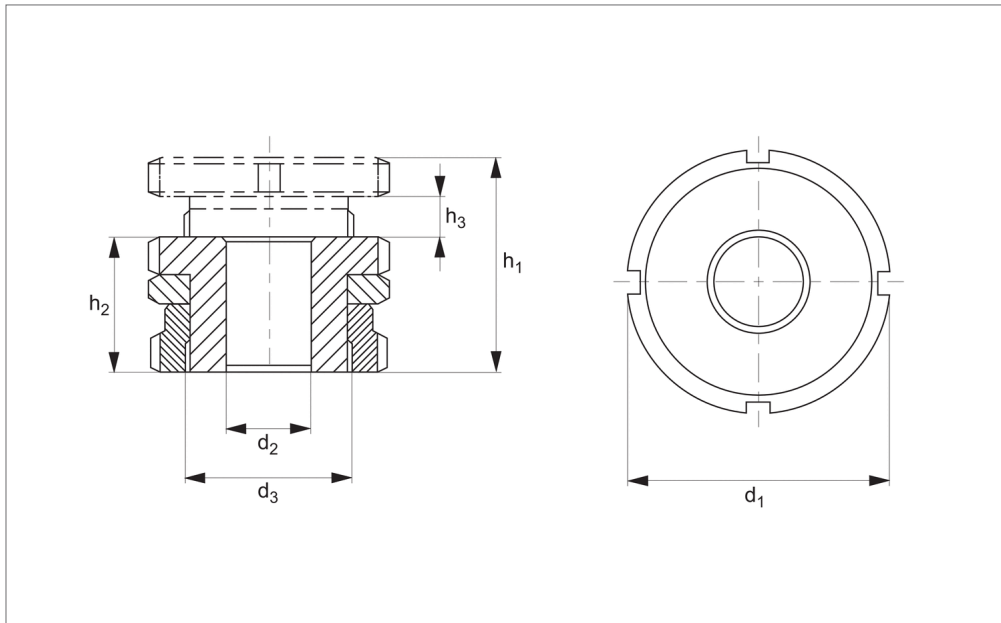
After setting the height, the structure can be bolted down using a suitable 8,8

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.

Order No.	Material	For bolt	h_1	h_2	h_3	d_1	d_2	d_3	Load with bolt kN max.	Load w/o bolt kN max.
20202217	Steel	M 4	19	15	4	25	4.5	M15x1,0	36.00	40.0
20202224	Steel	M 5	19	15	4	25	5.5	M15x1,0	33.40	40.0
20200367	Steel	M 6	19	15	4	25	6.6	M15x1,0	30.70	40.0
20200374	Steel	M 6	23	18	5	32	6.6	M20x1,0	55.70	65.0
20200381	Steel	M 8	23	18	5	32	9.0	M20x1,0	48.00	65.0
20200398	Steel	M10	23	18	5	32	11.0	M20x1,0	37.90	65.0
20200404	Steel	M10	29	22	7	45	11.0	M30x1,5	92.90	120.0
20201241	Steel	M12	29	22	7	45	13.5	M30x1,5	80.40	120.0
20200411	Steel	M16	29	22	7	45	17.5	M30x1,5	45.50	120.0
20200428	Steel	M16	37	28	9	58	17.5	M40x1,5	136.00	210.0
20200435	Steel	M20	37	28	9	58	22.0	M40x1,5	90.00	210.0
20200442	Steel	M24	37	28	9	58	26.0	M40x1,5	37.00	210.0
20202231	Steel	M20	43	33	10	70	22.0	M50x1,5	210.00	330.0
20200459	Steel	M24	43	33	10	70	26.0	M50x1,5	157.00	330.0
20202248	Steel	M30	43	33	10	70	33.0	M50x1,5	53.00	330.0
20199609	Stainless steel	M 4	19	15	4	25	4.5	M15x1,0	24.14	27.1
20199616	Stainless steel	M 5	19	15	4	25	5.5	M15x1,0	22.24	27.1
20201296	Stainless steel	M 6	19	15	4	25	6.6	M15x1,0	20.26	27.1
20201302	Stainless steel	M 6	23	18	5	32	6.6	M20x1,0	36.56	43.4
20201319	Stainless steel	M 8	23	18	5	32	9.0	M20x1,0	30.86	43.4
20201326	Stainless steel	M10	23	18	5	32	11.0	M20x1,0	23.41	43.4
20201333	Stainless steel	M10	29	22	7	45	11.0	M30x1,5	64.01	84.0
20201340	Stainless steel	M12	29	22	7	45	13.5	M30x1,5	54.82	84.0
20201357	Stainless steel	M16	29	22	7	45	17.5	M30x1,5	28.90	84.0
20201364	Stainless steel	M16	37	28	9	58	17.5	M40x1,5	92.90	148.0
20201371	Stainless steel	M20	37	28	9	58	22.0	M40x1,5	59.08	148.0
20201388	Stainless steel	M24	37	28	9	58	26.0	M40x1,5	20.30	148.0
20199593	Stainless steel	M20	43	33	10	70	22.0	M50x1,5	136.08	225.0
20202149	Stainless steel	M24	43	33	10	70	26.0	M50x1,5	97.30	225.0
20199623	Stainless steel	M30	43	33	10	70	33.0	M50x1,5	20.60	225.0





E62002

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.

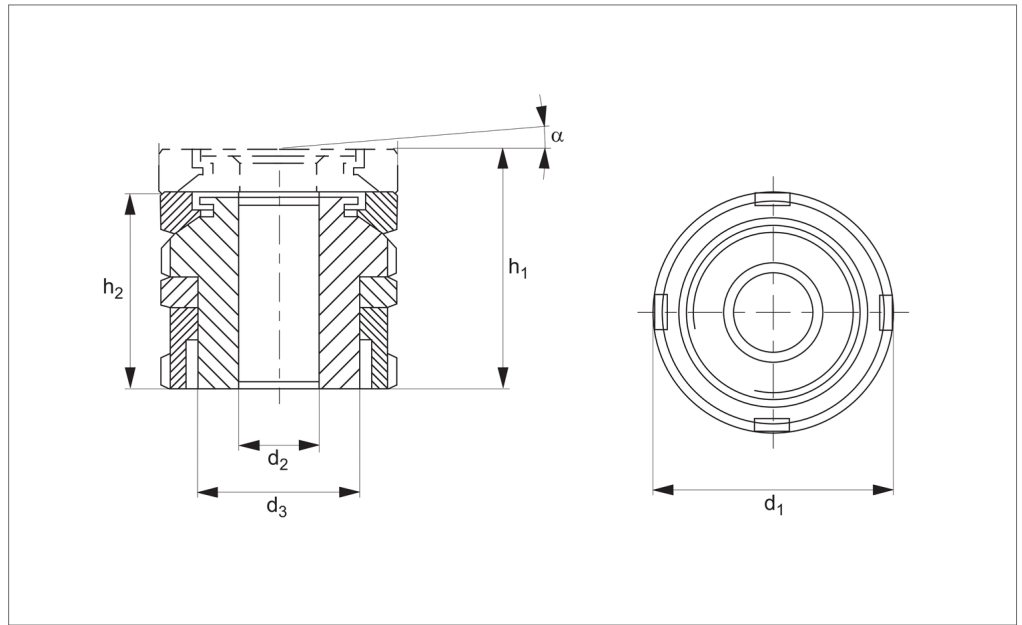
The net load that the unit can carry is the maximum load less the tightening torque recommended for the bolt. Designed for applications with limited space. Height adjustment is between 4 and 10mm. The

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.

Order No.	Material	For bolt	h_1	h_2	h_3	d_1	d_2	d_3	Load with bolt kN max.	Load w/o bolt kN max.
20199630	Steel	M 4	24	20	4	25	4.5	M15x1,0	36.00	40.00
20199647	Steel	M 5	24	20	4	25	5.5	M15x1,0	33.40	40.00
20199654	Steel	M 6	24	20	4	25	6.6	M15x1,0	30.70	40.00
20199661	Steel	M 6	29	24	5	32	6.6	M20x1,0	55.70	65.00
20199678	Steel	M 8	29	24	5	32	9.0	M20x1,0	48.00	65.00
20199685	Steel	M10	29	24	5	32	11.0	M20x1,0	37.90	65.00
20199692	Steel	M10	36	29	7	45	11.0	M30x1,5	92.90	120.00
20199708	Steel	M12	36	29	7	45	13.5	M30x1,5	80.40	120.00
20199715	Steel	M16	36	29	7	45	17.5	M30x1,5	45.50	120.00
20199722	Steel	M16	46	37	9	58	17.5	M40x1,5	136.00	210.00
20199739	Steel	M20	46	37	9	58	22.0	M40x1,5	90.00	210.00
20199746	Steel	M24	46	37	9	58	26.0	M40x1,5	37.00	210.00
20199753	Steel	M20	54	44	10	70	22.0	M50x1,5	210.00	330.00
20199760	Steel	M24	54	44	10	70	26.0	M50x1,5	157.00	330.00
20199777	Steel	M30	54	44	10	70	33.0	M50x1,5	53.00	330.00
20199784	Stainless Steel	M 4	24	20	4	25	4.5	M15x1,0	24.14	27.10
20199791	Stainless Steel	M 5	24	20	4	25	5.5	M15x1,0	24.14	27.10
20199807	Stainless Steel	M 6	24	20	4	25	6.6	M15x1,0	20.26	27.10
20199814	Stainless Steel	M 6	29	24	5	32	6.6	M20x1,0	36.56	43.40
20199821	Stainless Steel	M 8	29	24	5	32	9.0	M20x1,0	30.86	43.40
20199838	Stainless Steel	M10	29	24	5	32	11.0	M20x1,0	23.41	43.40
20199845	Stainless Steel	M10	36	29	7	45	11.0	M30x1,5	64.01	84.00
20199852	Stainless Steel	M12	36	29	7	45	13.5	M30x1,5	54.82	84.00
20199869	Stainless Steel	M16	36	29	7	45	17.5	M30x1,5	28.90	84.00
20199876	Stainless Steel	M16	46	37	9	58	17.5	M40x1,5	92.90	148.00
20199883	Stainless Steel	M20	46	37	9	58	22.0	M40x1,5	59.08	148.00
20199890	Stainless Steel	M24	46	37	9	58	26.0	M40x1,5	20.30	148.00
20199906	Stainless Steel	M20	54	44	10	70	22.0	M50x1,5	136.08	225.00
20199913	Stainless Steel	M24	54	44	10	70	26.0	M50x1,5	59.08	225.00
20199920	Stainless Steel	M30	54	44	10	70	33.0	M50x1,5	20.60	225.00



E62042



Material

Steel (type 42 CrMo4 V, 1.7225) zinc plated or stainless steel A1 (A4 on request).

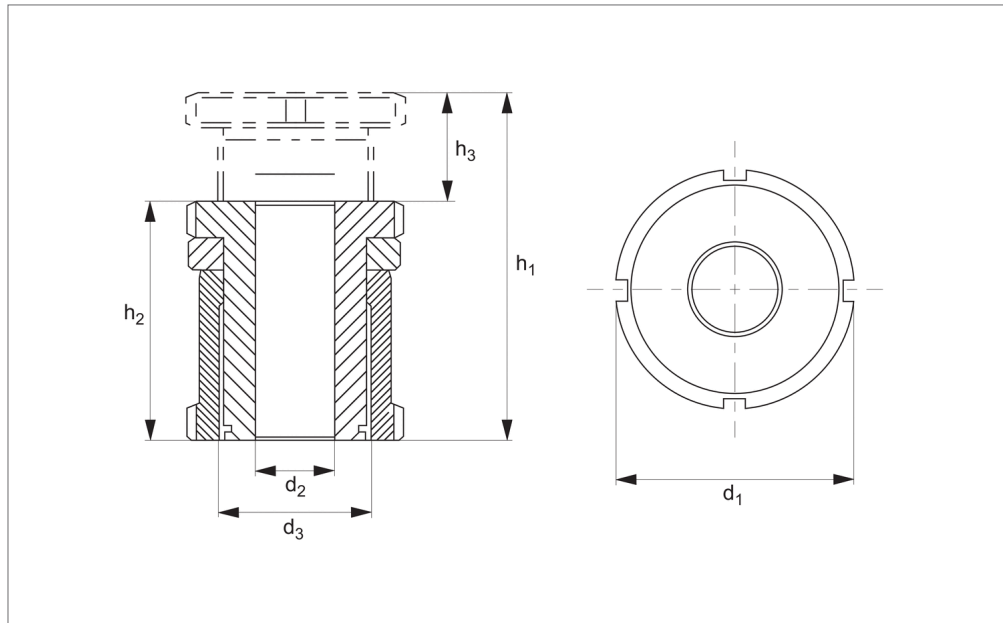
Technical Notes

The application of the ball head precision adjuster with lock nut facilitates precise

adjustment of non-parallel surfaces with a maximum adjustment angle of symbol α / symbol 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.

Order No.	Material	For bolt	h_1 min.	h_2 max.	d_1	d_2	d_3	app.	Load with bolt kN max.	Load w/o bolt kN max.
20199951	Steel	M 4	31	27	25	4.5	M15x1,0	4°	36.00	40.00
20199968	Steel	M 5	31	27	25	5.5	M15x1,0	4°	33.40	40.00
20199975	Steel	M 6	31	27	25	6.6	M15x1,0	4°	30.70	40.00
20199982	Steel	M 6	37	32	32	6.6	M20x1,0	4°	55.70	65.00
20199999	Steel	M 8	37	32	32	9.0	M20x1,0	4°	48.00	65.00
20200008	Steel	M10	37	32	32	11.0	M20x1,0	4°	37.90	65.00
20200015	Steel	M10	48	41	45	11.0	M30x1,5	4°	92.90	120.00
20200022	Steel	M12	48	41	45	13.5	M30x1,5	4°	80.40	120.00
20200039	Steel	M16	48	41	45	17.5	M30x1,5	4°	45.50	120.00
20200046	Steel	M16	62	53	58	17.5	M40x1,5	4°	136.00	210.00
20200053	Steel	M20	62	53	58	22.0	M40x1,5	4°	90.00	210.00
20200060	Steel	M24	62	53	58	26.0	M40x1,5	4°	37.00	210.00
20200077	Steel	M20	71	61	70	26.0	M50x1,5	4°	136.00	330.00
20200084	Steel	M24	71	61	70	33.0	M50x1,5	4°	157.00	330.00
20200091	Steel	M30	71	61	70	39.0	M50x1,5	4°	53.00	330.00
20200107	Stainless Steel	M 4	31	27	25	4.5	M15x1,0	4°	36.00	27.10
20200114	Stainless Steel	M 5	31	27	25	5.5	M15x1,0	4°	33.40	27.10
20200121	Stainless Steel	M 6	31	27	25	6.6	M15x1,0	4°	30.70	27.10
20200138	Stainless Steel	M 6	37	32	32	6.6	M20x1,0	4°	36.56	43.40
20200145	Stainless Steel	M 8	37	32	32	9.0	M20x1,0	4°	30.86	43.40
20200152	Stainless Steel	M10	37	32	32	11.0	M20x1,0	4°	23.41	43.40
20200169	Stainless Steel	M10	48	41	45	11.0	M30x1,5	4°	64.01	84.00
20200176	Stainless Steel	M12	48	41	45	13.5	M30x1,5	4°	54.82	84.00
20200183	Stainless Steel	M16	48	41	45	17.5	M30x1,5	4°	28.90	84.00
20200190	Stainless Steel	M16	62	53	58	17.5	M40x1,5	4°	92.90	148.00
20200206	Stainless Steel	M20	62	53	58	22.0	M40x1,5	4°	59.08	148.00
20200213	Stainless Steel	M24	62	53	58	26.0	M40x1,5	4°	20.30	148.00
20200220	Stainless Steel	M20	71	61	70	26.0	M50x1,5	4°	136.08	225.00
20200237	Stainless Steel	M24	71	61	70	33.0	M50x1,5	4°	97.30	225.00
20200244	Stainless Steel	M30	71	61	70	39.0	M50x1,5	4°	20.60	225.00



E62080

Material

Steel (type 42 CrMo4 V, 1.7225) zinc plated or stainless steel A2 (A4 on request).

Technical Notes

After setting the height, the structure can be bolted down using a suitable 8,8

strength bolt.

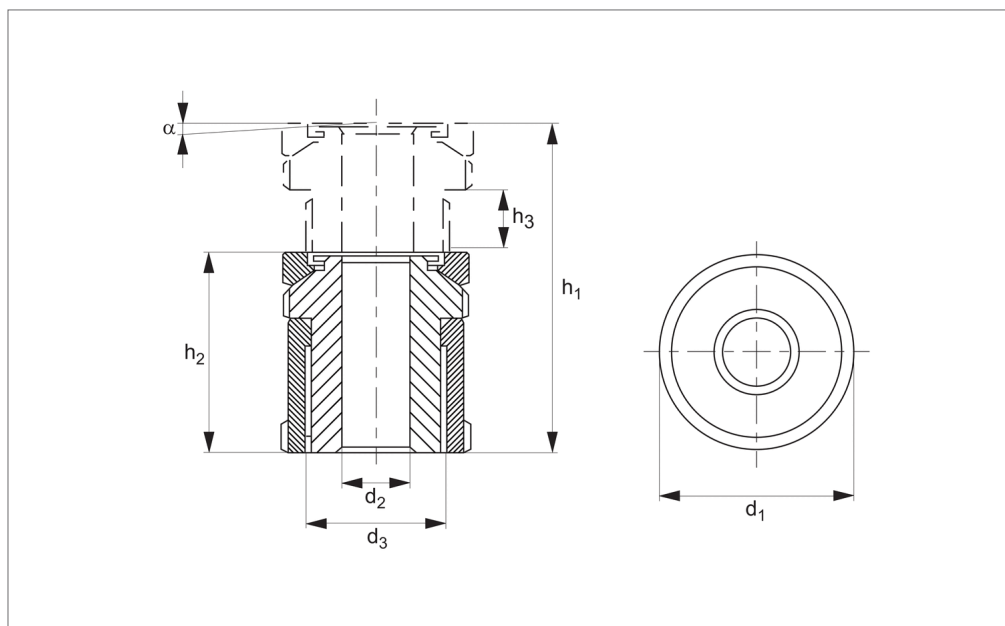
The net load that the unit can carry is the maximum load less the tightening torque recommended for the bolt.

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.

Order No.	Material	For bolt	h_1	h_2	h_3	d_1	d_2	d_3	Load with bolt kN max.	Load w/o bolt kN max.
20202293	Steel	M 4	43	33	10	25	4.5	M15x1,0	36.00	40.00
20202309	Steel	M 5	43	33	10	25	5.5	M15x1,0	33.40	40.00
20200695	Steel	M 6	43	33	10	25	6.6	M15x1,0	30.70	40.00
20200701	Steel	M 6	55	41	14	32	6.6	M20x1,0	55.70	65.00
20200718	Steel	M 8	55	41	14	32	9.0	M20x1,0	48.00	65.00
20202316	Steel	M10	55	41	14	32	11.0	M20x1,0	37.90	65.00
20200725	Steel	M10	67	49	18	45	11.0	M30x1,5	92.90	120.00
20200732	Steel	M12	67	49	18	45	13.5	M30x1,5	80.40	120.00
20200749	Steel	M16	67	49	18	45	17.5	M30x1,5	45.50	120.00
20200756	Steel	M16	86	63	23	58	17.5	M40x1,5	136.00	210.00
20200763	Steel	M20	86	63	23	58	22.0	M40x1,5	90.00	210.00
20200770	Steel	M24	86	63	23	58	26.0	M40x1,5	37.00	210.00
20201227	Steel	M20	106	77	29	70	22.0	M50x1,5	210.00	330.00
20200787	Steel	M24	106	77	29	70	26.0	M50x1,5	157.00	330.00
20201210	Steel	M30	106	77	29	70	33.0	M50x1,5	53.00	330.00
20200275	Stainless steel	M 4	43	33	10	25	4.5	M15x1,0	24.14	27.10
20200282	Stainless steel	M 5	43	33	10	25	5.5	M15x1,0	22.24	27.10
20201654	Stainless steel	M 6	43	33	10	25	6.6	M15x1,0	20.26	27.10
20201661	Stainless steel	M 6	55	41	14	32	6.6	M20x1,0	36.56	43.40
20201678	Stainless steel	M 8	55	41	14	32	9.0	M20x1,0	30.86	43.40
20202156	Stainless steel	M10	55	41	14	32	11.0	M20x1,0	23.41	43.40
20200299	Stainless steel	M10	67	49	18	45	11.0	M30x1,5	64.01	84.00
20201685	Stainless steel	M12	67	49	18	45	13.5	M30x1,5	54.82	84.00
20201692	Stainless steel	M16	67	49	18	45	17.5	M30x1,5	28.90	84.00
20201708	Stainless steel	M16	86	63	23	58	17.5	M40x1,5	92.90	148.00
20202163	Stainless steel	M20	86	63	23	58	22.0	M40x1,5	59.08	148.00
20201715	Stainless steel	M24	86	63	23	58	26.0	M40x1,5	20.30	148.00
20202170	Stainless steel	M20	106	77	29	70	22.0	M50x1,5	136.08	225.00
20201722	Stainless steel	M24	106	77	29	70	26.0	M50x1,5	97.30	225.00
20201739	Stainless steel	M30	106	77	29	70	33.0	M50x1,5	20.60	225.00





E62100

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.

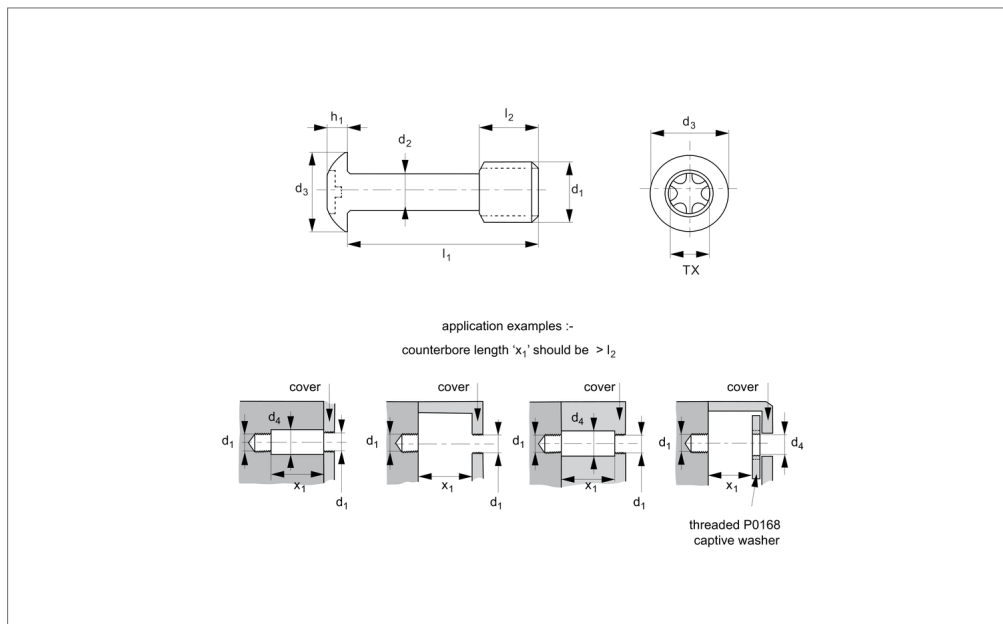
The net load that the unit can carry is the maximum load less the tightening torque recommended for the bolt. Designed for applications where a wide adjustment range is required - height adjustment is

equal to 15 to 40mm.

Order No.	Material	For bolt	h_1 min.	h_2 max.	d_1	d_2	d_3	app.	Load with bolt kN max.	Load w/o bolt kN max.
20200794	Steel	M 4	35	50	25	4.5	M15x1,0	4°	36.00	40.00
20200800	Steel	M 5	35	50	25	5.5	M15x1,0	4°	33.40	40.00
20200817	Steel	M 6	35	50	25	6.6	M15x1,0	4°	30.70	40.00
20200824	Steel	M 6	43	63	32	6.6	M20x1,0	4°	56.70	65.00
20201265	Steel	M 8	43	63	32	9.0	M20x1,0	4°	48.90	65.00
20200831	Steel	M10	43	63	32	11.0	M20x1,0	4°	37.90	65.00
20200848	Steel	M10	54	79	45	11.0	M30x1,5	4°	92.90	120.00
20200855	Steel	M12	54	79	45	13.5	M30x1,5	4°	80.40	120.00
20200862	Steel	M16	54	79	45	17.5	M30x1,5	4°	45.50	120.00
20200879	Steel	M16	70	102	58	22.0	M40x1,5	4°	136.00	210.00
20200886	Steel	M20	70	102	58	26.0	M40x1,5	4°	90.80	210.00
20200893	Steel	M24	70	102	58	26.0	M40x1,5	4°	37.00	210.00
20200909	Steel	M20	83	123	70	22.0	M50x1,5	4°	210.00	330.00
20200916	Steel	M24	83	123	70	26.0	M50x1,5	4°	157.00	330.00
20200923	Steel	M30	83	123	70	33.0	M50x1,5	4°	53.00	330.00
20201746	Stainless Steel	M 4	35	50	25	4.5	M15x1,0	4°	24.14	27.10
20201753	Stainless Steel	M 5	35	50	25	5.5	M15x1,0	4°	22.24	27.10
20201760	Stainless Steel	M 6	35	50	25	6.6	M15x1,0	4°	20.26	27.10
20201777	Stainless Steel	M 6	43	63	32	6.6	M20x1,0	4°	36.56	43.40
20202187	Stainless Steel	M 8	43	63	32	9.0	M20x1,0	4°	30.86	43.40
20201784	Stainless Steel	M10	43	63	32	11.0	M20x1,0	4°	23.41	43.40
20200305	Stainless Steel	M10	54	79	45	11.0	M30x1,5	4°	64.01	84.00
20201791	Stainless Steel	M12	54	79	45	13.5	M30x1,5	4°	54.52	84.00
20201807	Stainless Steel	M16	54	79	45	17.5	M30x1,5	4°	28.90	84.00
20201814	Stainless Steel	M16	70	102	58	22.0	M40x1,5	4°	92.90	148.00
20201821	Stainless Steel	M20	70	102	58	26.0	M40x1,5	4°	59.08	148.00
20201838	Stainless Steel	M24	70	102	58	26.0	M40x1,5	4°	20.30	148.00
20202194	Stainless Steel	M20	83	123	70	22.0	M50x1,5	4°	136.08	225.00
20201845	Stainless Steel	M24	83	123	70	26.0	M50x1,5	4°	97.30	225.00
20201852	Stainless Steel	M30	83	123	70	33.0	M50x1,5	4°	20.60	225.00



EP0149.A2



Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm².

Proof stress min. 190 N/mm², austenitic stainless steel. Also available with blackened finish (EP0149.B2), in marine grade stainless steel (AISI 316 series; EP0149.A4), in titanium (EP0149.Ti), or in other materials such as steel, brass, aluminium etc. on request.

Technical Notes

Used to comply with the Machinery Directive 2006/42/EC. Generally to ISO 7380-1. Often used with our captive washers (EP0168) or retaining flanges (EP0169 - for sheet metal applications). The use of our captive washers should be considered when fitted in panels with unthreaded holes.

Important Notes

This product was formerly known as EP0151.TX. 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 d₁.

Order No.	d ₁	l ₁	d ₂	d ₃	d ₄	h ₁	l ₂	TX size
		0,25	0,12	max.	min.	max.	-0,2	
20188597	M 2,5	8	1.7	4.5	2.8	1.50	3.7	TX- 8
20188603	M 2,5	10	1.7	4.5	2.8	1.50	3.7	TX- 8
20188610	M 2,5	12	1.7	4.5	2.8	1.50	3.7	TX- 8
20188627	M 2,5	16	1.7	4.5	2.8	1.50	3.7	TX- 8
20188634	M 2,5	20	1.7	4.5	2.8	1.50	3.7	TX- 8
20188641	M 3	10	2.0	5.7	3.5	1.65	4.5	TX-10
20188658	M 3	16	2.0	5.7	3.5	1.65	4.5	TX-10
20188665	M 3	20	2.0	5.7	3.5	1.65	4.5	TX-10
20188672	M 3	25	2.0	5.7	3.5	1.65	4.5	TX-10
20188689	M 3	30	2.0	5.7	3.5	1.65	4.5	TX-10
20188696	M 3	40	2.0	5.7	3.5	1.65	5.0	TX-10
20188702	M 4	12	2.8	7.6	4.5	3.10	6.0	TX-20
20188719	M 4	16	2.8	7.6	4.5	3.10	6.0	TX-20
20188726	M 4	20	2.8	7.6	4.5	3.10	6.0	TX-20
20188733	M 4	25	2.8	7.6	4.5	3.10	6.0	TX-20
20188740	M 4	30	2.8	7.6	4.5	3.10	6.0	TX-20
20188757	M 4	40	2.8	7.6	4.5	3.10	6.0	TX-20
20188764	M 4	50	2.8	7.6	4.5	3.10	6.0	TX-20
20188771	M 4	60	2.8	7.6	4.5	3.10	6.0	TX-20
20188788	M 5	12	3.7	9.5	5.5	3.70	7.5	TX-25
20188795	M 5	16	3.7	9.5	5.5	3.70	7.5	TX-25
20188801	M 5	20	3.7	9.5	5.5	3.70	7.5	TX-25
20188818	M 5	25	3.7	9.5	5.5	3.70	7.5	TX-25
20188825	M 5	30	3.7	9.5	5.5	3.70	7.5	TX-25
20188832	M 5	40	3.7	9.5	5.5	3.70	7.5	TX-25
20188849	M 5	50	3.7	9.5	5.5	3.70	7.5	TX-25
20188856	M 5	60	3.7	9.5	5.5	3.70	7.5	TX-25

Captive Screws - Button Head

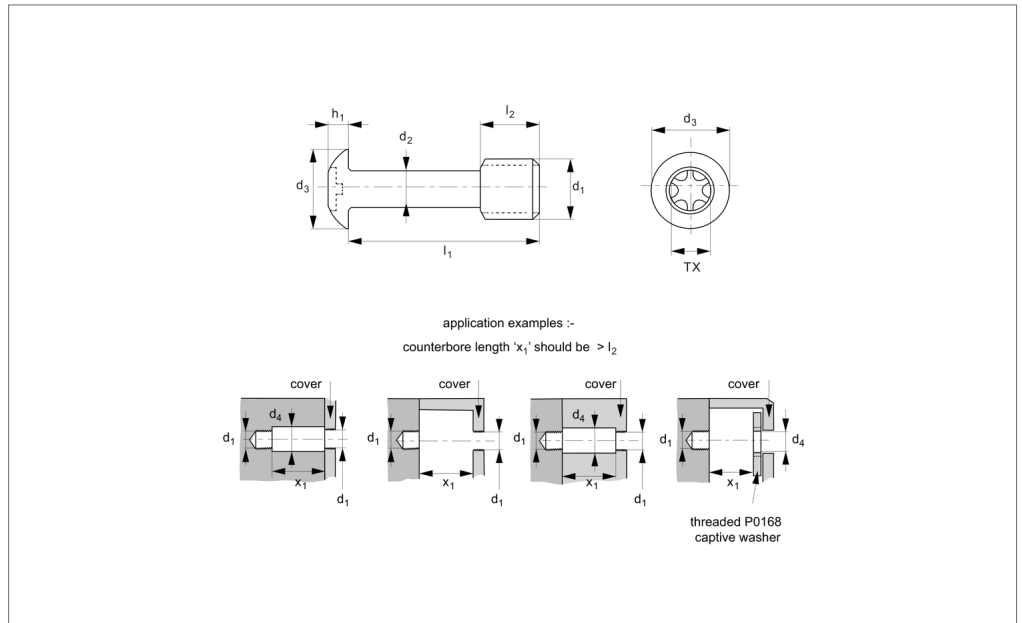
TX drive - 303 stainless

Captive Screws

Order No.	d ₁	l ₁ 0,25	d ₂ 0,12	d ₃ max.	d ₄ min.	h ₁ max.	l ₂ -0.2	TX size
20188863	M 6	16	4.2	10.5	6.5	4.70	7.5	TX-30
20188870	M 6	20	4.2	10.5	6.5	4.70	7.5	TX-30
20188887	M 6	25	4.2	10.5	6.5	4.70	7.5	TX-30
20188894	M 6	30	4.2	10.5	6.5	4.70	7.5	TX-30
20188900	M 6	40	4.2	10.5	6.5	4.70	7.5	TX-30
20188917	M 6	50	4.2	10.5	6.5	4.70	7.5	TX-30
20188924	M 6	60	4.2	10.5	6.5	4.70	7.5	TX-30
20188931	M 6	80	4.2	10.5	6.5	4.70	7.5	TX-30



EP0149.A4



Material

Stainless steel (AISI 316, 1.4401). Tensile strength 480 N/mm². Proof stress min. 200 N/mm², austenitic stainless steel. Also available in titanium (EP0149.Ti), the less expensive AISI 303 series stainless steel (EP0149.A2), or 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 7380. Often used with our captive washers (EP0168) or retaining flanges (EP0169 - 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 d₁.

Order No.	d ₁	l ₁ 0,25	d ₂ 0,12	d ₃ max.	d ₄ min.	h ₁ max.	l ₂ -0,2	TX size
20188948	M 2,5	8	1.7	4.5	2.8	1.5	3.7	TX- 8
20188955	M 2,5	10	1.7	4.5	2.8	1.5	3.7	TX- 8
20188962	M 2,5	12	1.7	4.5	2.8	1.5	3.7	TX- 8
20188979	M 2,5	16	1.7	4.5	2.8	1.5	3.7	TX- 8
20188986	M 2,5	20	1.7	4.5	2.8	1.5	3.7	TX- 8
20188993	M 3	10	2.0	5.7	3.5	1.65	4.5	TX-10
20189006	M 3	16	2.0	5.7	3.5	1.65	4.5	TX-10
20189013	M 3	20	2.0	5.7	3.5	1.65	4.5	TX-10
20189020	M 3	25	2.0	5.7	3.5	1.65	4.5	TX-10
20189037	M 3	30	2.0	5.7	3.5	1.65	4.5	TX-10
20189044	M 3	40	2.0	5.7	3.5	1.65	5.0	TX-10
20189051	M 4	12	2.8	7.6	4.5	3.1	6.0	TX-20
20189068	M 4	16	2.8	7.6	4.5	3.1	6.0	TX-20
20189075	M 4	20	2.8	7.6	4.5	3.1	6.0	TX-20
20189082	M 4	25	2.8	7.6	4.5	3.1	6.0	TX-20
20189099	M 4	30	2.8	7.6	4.5	3.1	6.0	TX-20
20189105	M 4	40	2.8	7.6	4.5	3.1	6.0	TX-20
20189112	M 4	50	2.8	7.6	4.5	3.1	6.0	TX-20
20189129	M 4	60	2.8	7.6	4.5	3.1	6.0	TX-20
20189136	M 5	12	3.7	9.5	5.5	3.7	7.5	TX-25
20189143	M 5	16	3.7	9.5	5.5	3.7	7.5	TX-25
20189150	M 5	20	3.7	9.5	5.5	3.7	7.5	TX-25
20189167	M 5	25	3.7	9.5	5.5	3.7	7.5	TX-25
20189174	M 5	30	3.7	9.5	5.5	3.7	7.5	TX-25
20189181	M 5	40	3.7	9.5	5.5	3.7	7.5	TX-25
20189198	M 5	50	3.7	9.5	5.5	3.7	7.5	TX-25
20189204	M 5	60	3.7	9.5	5.5	3.7	7.5	TX-25
20189211	M 6	16	4.2	10.5	6.5	4.7	7.5	TX-30

Captive Screws - Button Head

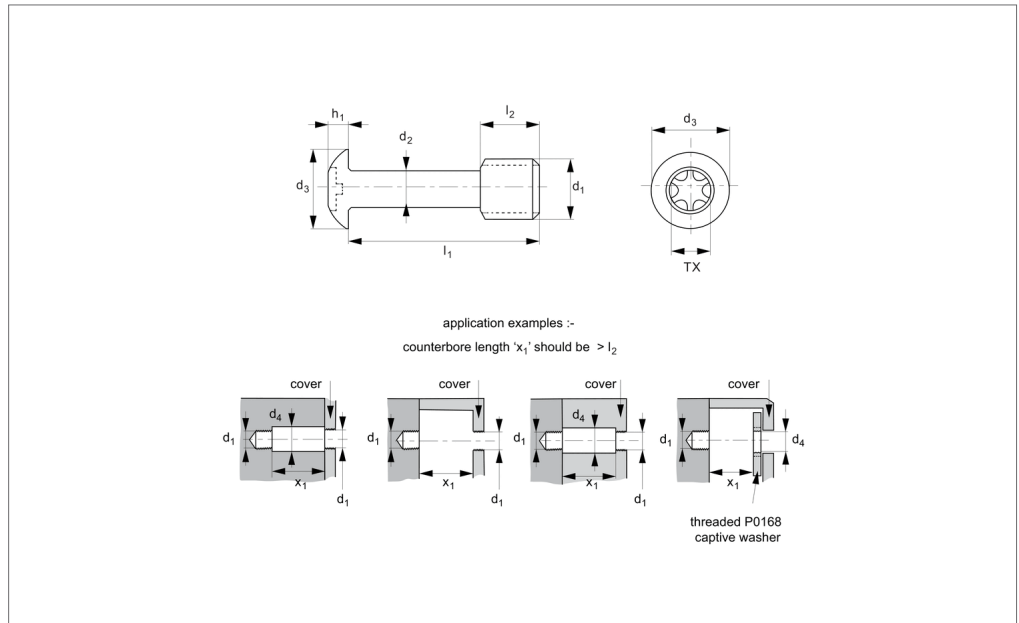
TX drive - 316 stainless

Captive Screws

Order No.	d ₁	l ₁ 0,25	d ₂ 0,12	d ₃ max.	d ₄ min.	h ₁ max.	l ₂ -0.2	TX size
20189228	M 6	20	4.2	10.5	6.5	4.7	7.5	TX-30
20189235	M 6	25	4.2	10.5	6.5	4.7	7.5	TX-30
20189242	M 6	30	4.2	10.5	6.5	4.7	7.5	TX-30
20189259	M 6	40	4.2	10.5	6.5	4.7	7.5	TX-30
20189266	M 6	50	4.2	10.5	6.5	4.7	7.5	TX-30
20189273	M 6	60	4.2	10.5	6.5	4.7	7.5	TX-30
20189280	M 6	80	4.2	10.5	6.5	4.7	7.5	TX-30



EP0149.B2



Material

Stainless steel (AISI 303, 1.4305), black oxide coating. Tensile strength 550 N/mm². Proof stress min. 190 N/mm², austenitic stainless steel.

Also available in marine grade stainless steel (AISI 316 series; EP0149.B4), titanium (EP0149.Ti) and 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 7380-1. Often used with our captive washers (EP0168) or retaining flanges (EP0169 - 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 d₁.

Order No.	d ₁	l ₁	d ₂	l ₂	d ₃	d ₄	h ₁	TX size
		0,25	0,12	-0.2	max.	min.	max.	
20189297	M 2,5	8	1.7	3.7	4.5	2.8	1.5	TX- 8
20189303	M 2,5	10	1.7	3.7	4.5	2.8	1.5	TX- 8
20189310	M 2,5	12	1.7	3.7	4.5	2.8	1.5	TX- 8
20189327	M 2,5	16	1.7	3.7	4.5	2.8	1.5	TX- 8
20189334	M 2,5	20	1.7	3.7	4.5	2.8	1.5	TX- 8
20189341	M 3	10	2.0	4.5	5.7	3.5	1.65	TX-10
20189358	M 3	16	2.0	4.5	5.7	3.5	1.65	TX-10
20189365	M 3	20	2.0	4.5	5.7	3.5	1.65	TX-10
20189372	M 3	25	2.0	4.5	5.7	3.5	1.65	TX-10
20189389	M 3	30	2.0	4.5	5.7	3.5	1.65	TX-10
20189396	M 3	40	2.0	5.0	5.7	3.5	1.65	TX-10
20189402	M 4	12	2.8	6.0	7.6	4.5	3.1	TX-20
20189419	M 4	16	2.8	6.0	7.6	4.5	3.1	TX-20
20189426	M 4	20	2.8	6.0	7.6	4.5	3.1	TX-20
20189433	M 4	25	2.8	6.0	7.6	4.5	3.1	TX-20
20189440	M 4	30	2.8	6.0	7.6	4.5	3.1	TX-20
20189457	M 4	40	2.8	6.0	7.6	4.5	3.1	TX-20
20189464	M 4	50	2.8	6.0	7.6	4.5	3.1	TX-20
20189471	M 4	60	2.8	6.0	7.6	4.5	3.1	TX-20
20189488	M 5	12	3.7	7.5	9.5	5.5	3.7	TX-25
20189495	M 5	16	3.7	7.5	9.5	5.5	3.7	TX-25
20189501	M 5	20	3.7	7.5	9.5	5.5	3.7	TX-25
20189518	M 5	25	3.7	7.5	9.5	5.5	3.7	TX-25
20189525	M 5	30	3.7	7.5	9.5	5.5	3.7	TX-25
20189532	M 5	40	3.7	7.5	9.5	5.5	3.7	TX-25
20189549	M 5	50	3.7	7.5	9.5	5.5	3.7	TX-25
20189556	M 5	60	3.7	7.5	9.5	5.5	3.7	TX-25
20189563	M 6	16	4.2	7.5	10.5	6.5	4.7	TX-30

Captive Screws - Button Head

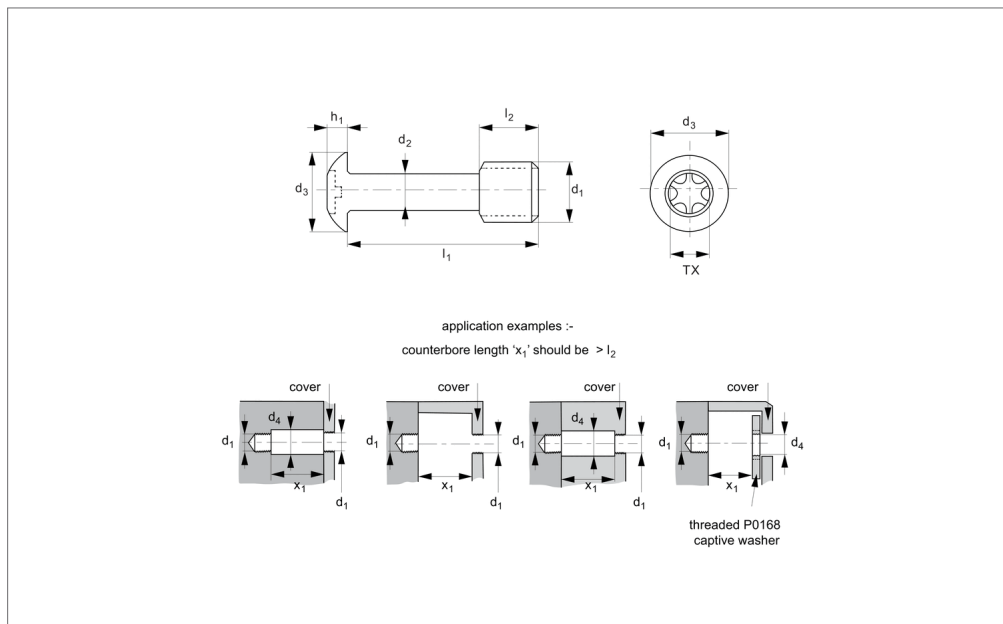
TX drive - 303 stainless, blackened

Captive Screws

Order No.	d ₁	l ₁ 0,25	d ₂ 0,12	l ₂ -0.2	d ₃ max.	d ₄ min.	h ₁ max.	TX size
20189570	M 6	20	4.2	7.5	10.5	6.5	4.7	TX-30
20189587	M 6	25	4.2	7.5	10.5	6.5	4.7	TX-30
20189594	M 6	30	4.2	7.5	10.5	6.5	4.7	TX-30
20189600	M 6	40	4.2	7.5	10.5	6.5	4.7	TX-30
20189617	M 6	50	4.2	7.5	10.5	6.5	4.7	TX-30
20189624	M 6	60	4.2	7.5	10.5	6.5	4.7	TX-30
20189631	M 6	80	4.2	7.5	10.5	6.5	4.7	TX-30



EP0149.B4



Material

Stainless steel (AISI 316, 1.4401), black oxide coating. Tensile strength 550 N/mm².

For version without black oxide coating, see EP0149.A4, or for a cheaper version in 303 series stainless steel, see EP0149.A2. Also available in titanium (EP0149.Ti) and on request in steel, brass, aluminium etc.

Technical Notes

Used to comply with the Machinery Directive 2006/42/EC. Generally to ISO 7380-1. Often used with our captive washers (EP0168) or retaining flanges (EP0169 - 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 d₁.

Order No.	d ₁	l ₁	d ₂	l ₂	d ₃	d ₄	h ₁	TX size
		0,25	0,12	-0,2	max.	min.	max.	
20189648	M 2,5	8	1.7	3.7	4.5	2.8	1.5	TX- 8
20189655	M 2,5	10	1.7	3.7	4.5	2.8	1.5	TX- 8
20189662	M 2,5	12	1.7	3.7	4.5	2.8	1.5	TX- 8
20189679	M 2,5	16	1.7	3.7	4.5	2.8	1.5	TX- 8
20189686	M 2,5	20	1.7	3.7	4.5	2.8	1.5	TX- 8
20189693	M 3	10	2.0	4.5	5.7	3.5	1.65	TX-10
20189709	M 3	16	2.0	4.5	5.7	3.5	1.65	TX-10
20189716	M 3	20	2.0	4.5	5.7	3.5	1.65	TX-10
20189723	M 3	25	2.0	4.5	5.7	3.5	1.65	TX-10
20189730	M 3	30	2.0	4.5	5.7	3.5	1.65	TX-10
20189747	M 3	40	2.0	5.0	5.7	3.5	1.65	TX-10
20189754	M 4	12	2.8	6.0	7.6	4.5	3.1	TX-20
20189761	M 4	16	2.8	6.0	7.6	4.5	3.1	TX-20
20189778	M 4	20	2.8	6.0	7.6	4.5	3.1	TX-20
20189785	M 4	25	2.8	6.0	7.6	4.5	3.1	TX-20
20189792	M 4	30	2.8	6.0	7.6	4.5	3.1	TX-20
20189808	M 4	40	2.8	6.0	7.6	4.5	3.1	TX-20
20189815	M 4	50	2.8	6.0	7.6	4.5	3.1	TX-20
20189822	M 4	60	2.8	6.0	7.6	4.5	3.1	TX-20
20189839	M 5	12	3.7	7.5	9.5	5.5	3.7	TX-25
20189846	M 5	16	3.7	7.5	9.5	5.5	3.7	TX-25
20189853	M 5	20	3.7	7.5	9.5	5.5	3.7	TX-25
20189860	M 5	25	3.7	7.5	9.5	5.5	3.7	TX-25
20189877	M 5	30	3.7	7.5	9.5	5.5	3.7	TX-25
20189884	M 5	40	3.7	7.5	9.5	5.5	3.7	TX-25
20189891	M 5	50	3.7	7.5	9.5	5.5	3.7	TX-25
20189907	M 5	60	3.7	7.5	9.5	5.5	3.7	TX-25
20189914	M 6	16	4.2	7.5	10.5	6.5	4.7	TX-30

Captive Screws - Button Head

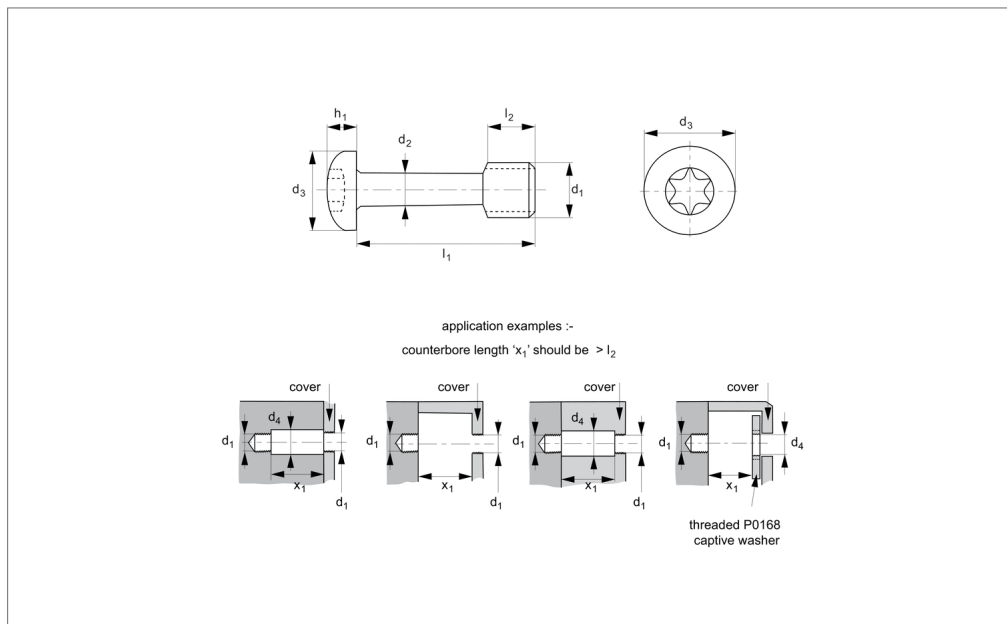
TX drive - 316 stainless, blackened

Captive Screws

Order No.	d ₁	l ₁ 0,25	d ₂ 0,12	l ₂ -0.2	d ₃ max.	d ₄ min.	h ₁ max.	TX size
20189921	M 6	20	4.2	7.5	10.5	6.5	4.7	TX-30
20189938	M 6	25	4.2	7.5	10.5	6.5	4.7	TX-30
20189945	M 6	30	4.2	7.5	10.5	6.5	4.7	TX-30
20189952	M 6	40	4.2	7.5	10.5	6.5	4.7	TX-30
20189969	M 6	50	4.2	7.5	10.5	6.5	4.7	TX-30
20189976	M 6	60	4.2	7.5	10.5	6.5	4.7	TX-30
20189983	M 6	80	4.2	7.5	10.5	6.5	4.7	TX-30



EP0150.A2



Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm². Proof stress min. 190 N/mm², 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 threaded captive washers or retaining flanges (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 d₁.

Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	d ₃ max.	d ₄ min.	h ₁ max.	l ₂ ±0.25	TX size
20140083	M 3	8	2.0	6	3.5	2.5	4.5	TX-10
20137670	M 3	10	2.0	6	3.5	2.5	4.5	TX-10
20137687	M 3	16	2.0	6	3.5	2.5	4.5	TX-10
20137694	M 3	20	2.0	6	3.5	2.5	4.5	TX-10
20137700	M 3	25	2.0	6	3.5	2.5	4.5	TX-10
20138257	M 3	30	2.0	6	3.5	2.5	4.5	TX-10
20140090	M 4	6	2.8	8	4.5	3.2	6.0	TX-20
20140076	M 4	8	2.8	8	4.5	3.2	6.0	TX-20
20140106	M 4	10	2.8	8	4.5	3.2	6.0	TX-20
20137717	M 4	12	2.8	8	4.5	3.2	6.0	TX-20
20137724	M 4	16	2.8	8	4.5	3.2	6.0	TX-20
20137731	M 4	20	2.8	8	4.5	3.2	6.0	TX-20
20139179	M 4	25	2.8	8	4.5	3.2	6.0	TX-20
20137748	M 4	30	2.8	8	4.5	3.2	6.0	TX-20
20137755	M 4	40	2.8	8	4.5	3.2	6.0	TX-20
20137762	M 4	50	2.8	8	4.5	3.2	6.0	TX-20
20140113	M 5	10	3.7	10	5.5	3.9	7.5	TX-25
20137779	M 5	12	3.7	10	5.5	3.9	7.5	TX-25
20137786	M 5	16	3.7	10	5.5	3.9	7.5	TX-25
20137793	M 5	20	3.7	10	5.5	3.9	7.5	TX-25
20140120	M 5	25	3.7	10	5.5	3.9	7.5	TX-25
20137809	M 5	30	3.7	10	5.5	3.9	7.5	TX-25
20137816	M 5	40	3.7	10	5.5	3.9	7.5	TX-25
20137823	M 5	50	3.7	10	5.5	3.9	7.5	TX-25
20140137	M 6	10	4.2	12	6.5	4.7	7.5	TX-30
20140144	M 6	12	4.2	12	6.5	4.7	7.5	TX-30
20137830	M 6	16	4.2	12	6.5	4.7	7.5	TX-30
20137847	M 6	20	4.2	12	6.5	4.7	7.5	TX-30
20140151	M 6	25	4.2	12	6.5	4.7	7.5	TX-30

Captive Screws - Pan Head

TX drive - 303 stainless

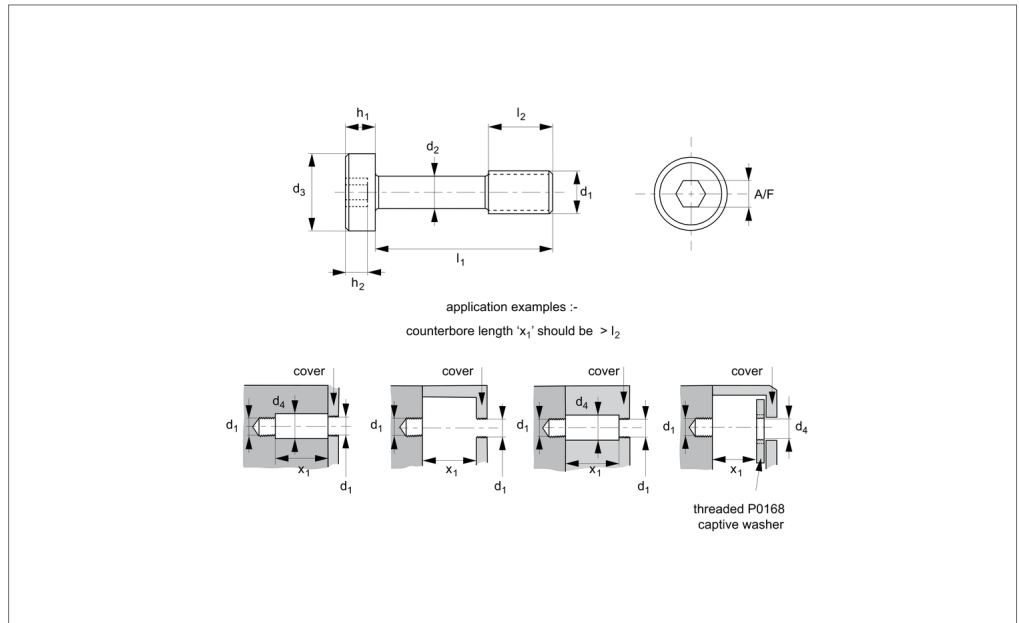
Captive Screws

Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	d ₃ max.	d ₄ min.	h ₁ max.	l ₂ ±0.25	TX size
20137854	M 6	30	4.2	12	6.5	4.7	7.5	TX-30
20137861	M 6	40	4.2	12	6.5	4.7	7.5	TX-30
20137878	M 6	50	4.2	12	6.5	4.7	7.5	TX-30
20137885	M 6	60	4.2	12	6.5	4.7	7.5	TX-30
20140403	M 6	80	4.2	12	6.5	4.7	7.5	TX-30
20140168	M 8	12	6.0	16	8.5	6.1	10.0	TX-30*
20140175	M 8	16	6.0	16	8.5	6.1	10.0	TX-30*
20140410	M 8	20	6.0	16	8.5	6.1	10.0	TX-30*
20140182	M 8	25	6.0	16	8.5	6.1	10.0	TX-30*
20140199	M 8	30	6.0	16	8.5	6.1	10.0	TX-30*
20140427	M 8	25	6.0	16	8.5	6.1	10.0	TX-30*
20140205	M 8	40	6.0	16	8.5	6.1	10.0	TX-30*
20140434	M 8	45	6.0	16	8.5	6.1	10.0	TX-30*
20140212	M 8	50	6.0	16	8.5	6.1	10.0	TX-30*
20140229	M 8	60	6.0	16	8.5	6.1	10.0	TX-30*
20140236	M 8	80	6.0	16	8.5	6.1	10.0	TX-30*

CAPTIVE SCREWS



EP0152.A2



Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm². Proof stress min. 190 N/mm², 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 Direc-

tive 2006/42/EC. Generally to ISO 1207. Often used with our threaded captive washers or retaining flanges (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 d₁.

Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	d ₃	d ₄ min.	h ₁	h ₂	l ₂ ±0.25	A/F
20137267	M 2	10	1.2	3.8	2.5	1.3	0.85	3.0	1.3
20137274	M 2	12	1.2	3.8	2.5	1.3	0.85	3.0	1.3
20137281	M 2	16	1.2	3.8	2.5	1.3	0.85	3.0	1.3
20137298	M 2	20	1.2	3.8	2.5	1.3	0.85	3.0	1.3
20140779	M 2,5	8	1.7	4.5	2.8	1.6	1.00	3.7	1.5
20137304	M 2,5	10	1.7	4.5	2.8	1.6	1.00	3.7	1.5
20137205	M 2,5	16	1.7	4.5	2.8	1.6	1.00	3.7	1.5
20137311	M 2,5	20	1.7	4.5	2.8	1.6	1.00	3.7	1.5
20137328	M 2,5	25	1.7	4.5	2.8	1.6	1.00	3.7	1.5
20137335	M 2,5	30	1.7	4.5	2.8	1.6	1.00	3.7	1.5
20137342	M 3	10	2.0	5.5	3.5	2.0	1.30	4.5	2
20138837	M 3	11	2.0	5.5	3.5	2.0	1.30	4.5	2
20138844	M 3	13	2.0	5.5	3.5	2.0	1.30	4.5	2
20137359	M 3	16	2.0	5.5	3.5	2.0	1.30	4.5	2
20138868	M 3	18	2.0	5.5	3.5	2.0	1.30	4.5	2
20137366	M 3	20	2.0	5.5	3.5	2.0	1.30	4.5	2
20137373	M 3	25	2.0	5.5	3.5	2.0	1.30	4.5	2
20137380	M 3	30	2.0	5.5	3.5	2.0	1.30	4.5	2
20137397	M 3	40	2.0	5.5	3.5	2.0	1.30	4.5	2
20137403	M 3,5	10	2.3	6.0	3.8	2.4	1.4	5.2	2.5
20137410	M 3,5	16	2.3	6.0	3.8	2.4	1.4	5.2	2.5
20137427	M 3,5	20	2.3	6.0	3.8	2.4	1.4	5.2	2.5
20137434	M 3,5	25	2.3	6.0	3.8	2.4	1.4	5.2	2.5
20137441	M 3,5	30	2.3	6.0	3.8	2.4	1.4	5.2	2.5
20137458	M 3,5	40	2.3	6.0	3.8	2.4	1.4	5.2	2.5
20140380	M 4	10	2.8	7.0	4.5	2.6	1.6	6.0	2.5
20137465	M 4	12	2.8	7.0	4.5	2.6	1.6	6.0	2.5
20137472	M 4	16	2.8	7.0	4.5	2.6	1.6	6.0	2.5

Captive Screws - Cheese Head

hex drive - 303 stainless

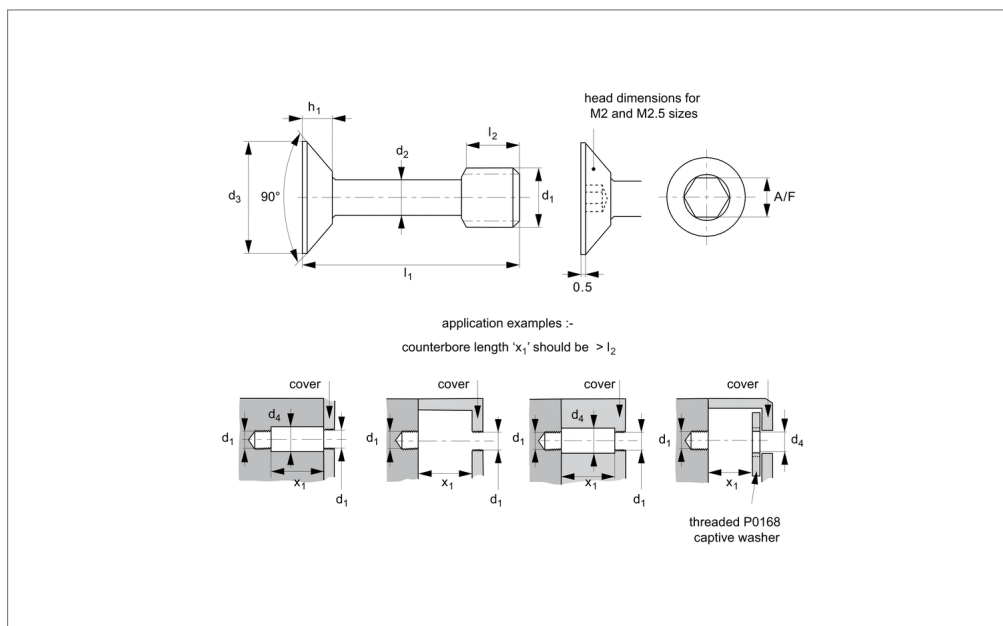
Captive Screws

Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	d ₃	d ₄ min.	h ₁	h ₂	l ₂ ±0.25	A/F
20138806	M 4	18	2.8	7.0	4.5	2.6	1.6	6.0	2.5
20138813	M 4	19	2.8	7.0	4.5	2.6	1.6	6.0	2.5
20137489	M 4	20	2.8	7.0	4.5	2.6	1.6	6.0	2.5
20138875	M 4	25	2.8	7.0	4.5	2.6	1.6	6.0	2.5
20137496	M 4	30	2.8	7.0	4.5	2.6	1.6	6.0	2.5
20137502	M 4	40	2.8	7.0	4.5	2.6	1.6	6.0	2.5
20138882	M 4	50	2.8	7.0	4.5	2.6	1.6	6.0	2.5
20137519	M 4	60	2.8	7.0	4.5	2.6	1.6	6.0	2.5
20140632	M 5	10	3.7	8.5	5.5	3.3	2.0	7.5	3
20137526	M 5	12	3.7	8.5	5.5	3.3	2.0	7.5	3
20137533	M 5	16	3.7	8.5	5.5	3.3	2.0	7.5	3
20138899	M 5	18	3.7	8.5	5.5	3.3	2.0	7.5	3
20137540	M 5	20	3.7	8.5	5.5	3.3	2.0	7.5	3
20138820	M 5	22	3.7	8.5	5.5	3.3	2.0	7.5	3
20138905	M 5	25	3.7	8.5	5.5	3.3	2.0	7.5	3
20137557	M 5	30	3.7	8.5	5.5	3.3	2.0	7.5	3
20137564	M 5	40	3.7	8.5	5.5	3.3	2.0	7.5	3
20137571	M 5	50	3.7	8.5	5.5	3.3	2.0	7.5	3
20137588	M 5	60	3.7	8.5	5.5	3.3	2.0	7.5	3
20137595	M 5	80	3.7	8.5	5.5	3.3	2.0	7.5	3
20137601	M 6	16	4.2	10.0	6.5	3.9	2.3	7.5	4
20137618	M 6	20	4.2	10.0	6.5	3.9	2.3	7.5	4
20138912	M 6	25	4.2	10.0	6.5	3.9	2.3	7.5	4
20137625	M 6	30	4.2	10.0	6.5	3.9	2.3	7.5	4
20137632	M 6	40	4.2	10.0	6.5	3.9	2.3	7.5	4
20137649	M 6	50	4.2	10.0	6.5	3.9	2.3	7.5	4
20137656	M 6	60	4.2	10.0	6.5	3.9	2.3	7.5	4
20137663	M 6	80	4.2	10.0	6.5	3.9	2.3	7.5	4

CAPTIVE SCREWS



EP0153.A2



Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm². Proof stress min. 190 N/mm², 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 Direc-

tive 2006/42/EC. Generally to ISO 10642. Often used with our captive washers (EP0168) or retaining flanges (EP0169 - 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 d₁. To accommodate the slight undercut at the top of the shank, the hex socket is smaller than on a similar threaded machine screw.

Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	d ₃ max.	d ₄ min.	h ₁ max.	l ₂ ±0.25	A/F
20180737	M 2	10	1.2	3.8	2.5	1.20	3.5	1.3
20180744	M 2	12	1.2	3.8	2.5	1.20	3.5	1.3
20180751	M 2	16	1.2	3.8	2.5	1.20	3.5	1.3
20180768	M 2	20	1.2	3.8	2.5	1.20	3.5	1.3
20180775	M 2,5	10	1.7	4.7	2.8	1.80	3.7	1.5
20180782	M 2,5	12	1.7	4.7	2.8	1.80	3.7	1.5
20180799	M 2,5	16	1.7	4.7	2.8	1.80	3.7	1.5
20180805	M 2,5	20	1.7	4.7	2.8	1.80	3.7	1.5
20182182	M 3	8	2.0	5.6	3.5	1.65	4.5	2
20180812	M 3	10	2.0	5.6	3.5	1.65	4.5	2
20181758	M 3	12	2.0	5.6	3.5	1.65	4.5	2
20180829	M 3	16	2.0	5.6	3.5	1.65	4.5	2
20180836	M 3	20	2.0	5.6	3.5	1.65	4.5	2
20180843	M 3	25	2.0	5.6	3.5	1.65	4.5	2
20180850	M 3	30	2.0	5.6	3.5	1.65	4.5	2
20188474	M 3	35	2.0	5.6	3.5	1.65	4.5	2
20180867	M 3	40	2.0	5.6	3.5	1.65	4.5	2
20182199	M 4	10	2.8	7.5	4.5	2.20	6.0	2.5
20180874	M 4	12	2.8	7.5	4.5	2.20	6.0	2.5
20188481	M 4	14	2.8	7.5	4.5	2.20	6.0	2.5
20180881	M 4	16	2.8	7.5	4.5	2.20	6.0	2.5
20180898	M 4	20	2.8	7.5	4.5	2.20	6.0	2.5
20181079	M 4	25	2.8	7.5	4.5	2.20	6.0	2.5
20180904	M 4	30	2.8	7.5	4.5	2.20	6.0	2.5
20188498	M 4	35	2.8	7.5	4.5	2.20	6.0	2.5
20180911	M 4	40	2.8	7.5	4.5	2.20	6.0	2.5

Captive Screws - Countersunk

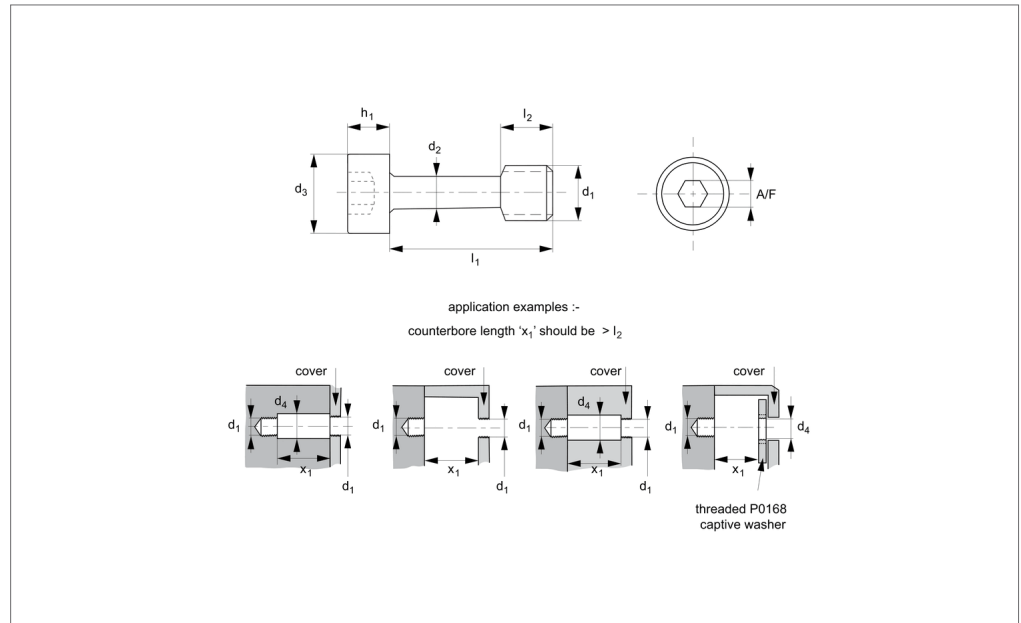
hex drive - 303 stainless

Captive Screws

Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	d ₃ max.	d ₄ min.	h ₁ max.	l ₂ ±0.25	A/F
20180928	M 4	50	2.8	7.5	4.5	2.20	6.0	2.5
20180935	M 4	60	2.8	7.5	4.5	2.20	6.0	2.5
20180942	M 5	12	3.7	9.2	5.5	2.50	7.5	3
20188504	M 5	14	3.7	9.2	5.5	2.50	7.5	3
20180959	M 5	16	3.7	9.2	5.5	2.50	7.5	3
20180966	M 5	20	3.7	9.2	5.5	2.50	7.5	3
20181086	M 5	25	3.7	9.2	5.5	2.50	7.5	3
20180973	M 5	30	3.7	9.2	5.5	2.50	7.5	3
20188511	M 5	35	3.7	9.2	5.5	2.50	7.5	3
20180980	M 5	40	3.7	9.2	5.5	2.50	7.5	3
20180997	M 5	50	3.7	9.2	5.5	2.50	7.5	3
20181000	M 5	60	3.7	9.2	5.5	2.50	7.5	3
20181017	M 6	16	4.2	11.0	6.5	3.00	8.0	4
20181024	M 6	20	4.2	11.0	6.5	3.00	8.0	4
20181093	M 6	25	4.2	11.0	6.5	3.00	8.0	4
20181031	M 6	30	4.2	11.0	6.5	3.00	8.0	4
20188528	M 6	35	4.2	11.0	6.5	3.00	8.0	4
20181048	M 6	40	4.2	11.0	6.5	3.00	8.0	4
20181055	M 6	50	4.2	11.0	6.5	3.00	8.0	4
20181062	M 6	60	4.2	11.0	6.5	3.00	8.0	4
20182229	M 8	20	6.0	15.0	8.5	4.10	10.0	4
20186104	M 8	25	6.0	15.0	8.5	4.10	10.0	4
20186111	M 8	30	6.0	15.0	8.5	4.10	10.0	4
20186128	M 8	40	6.0	15.0	8.5	4.10	10.0	4
20186135	M 8	50	6.0	15.0	8.5	4.10	10.0	4
20186142	M 8	60	6.0	15.0	8.5	4.10	10.0	4



EP0154.A2



Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm². Proof stress min. 190 N/mm², 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 Direc-

tive 2006/42/EC. Generally to ISO 4762.

Often used with our threaded captive washers or retaining flanges (for sheet metal applications). The use of our captive washers should be considered when fitted in panels with unthreaded holes.

Tips

For TX drive style, see our Captive Screws - Cap Head range.

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 d₁.

Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	d ₃ max.	d ₄ min.	h ₁ max.	l ₂ ±0.25	A/F
20139193	M 2,5	5	1.8	4.5	2.8	2.5	3.0	2
20139209	M 2,5	8	1.8	4.5	2.8	2.5	3.0	2
20139469	M 2,5	10	1.8	4.5	2.8	2.5	3.0	2
20139476	M 2,5	12	1.8	4.5	2.8	2.5	3.0	2
20139148	M 3	8	2.0	5.5	3.5	3.0	4.5	2.5
20137212	M 3	10	2.0	5.5	3.5	3.0	4.5	2.5
20139162	M 3	12	2.0	5.5	3.5	3.0	4.5	2.5
20138264	M 3	16	2.0	5.5	3.5	3.0	4.5	2.5
20138271	M 3	20	2.0	5.5	3.5	3.0	4.5	2.5
20138288	M 3	25	2.0	5.5	3.5	3.0	4.5	2.5
20138295	M 3	30	2.0	5.5	3.5	3.0	4.5	2.5
20140243	M 4	10	2.8	7.0	4.5	4.0	6.0	3
20138301	M 4	12	2.8	7.0	4.5	4.0	6.0	3
20137182	M 4	16	2.8	7.0	4.5	4.0	6.0	3
20138318	M 4	20	2.8	7.0	4.5	4.0	6.0	3
20138929	M 4	25	2.8	7.0	4.5	4.0	6.0	3
20138325	M 4	30	2.8	7.0	4.5	4.0	6.0	3
20140441	M 4	35	2.8	7.0	4.5	4.0	6.0	3
20138936	M 4	40	2.8	7.0	4.5	4.0	6.0	3
20138332	M 4	50	2.8	7.0	4.5	4.0	6.0	3
20138349	M 5	12	3.7	8.5	5.5	5.0	7.5	4
20137243	M 5	16	3.7	8.5	5.5	5.0	7.5	4
20137236	M 5	20	3.7	8.5	5.5	5.0	7.5	4
20138943	M 5	25	3.7	8.5	5.5	5.0	7.5	4
20138356	M 5	30	3.7	8.5	5.5	5.0	7.5	4
20140397	M 5	35	3.7	8.5	5.5	5.0	7.5	4

Captive Screws - Cap Head

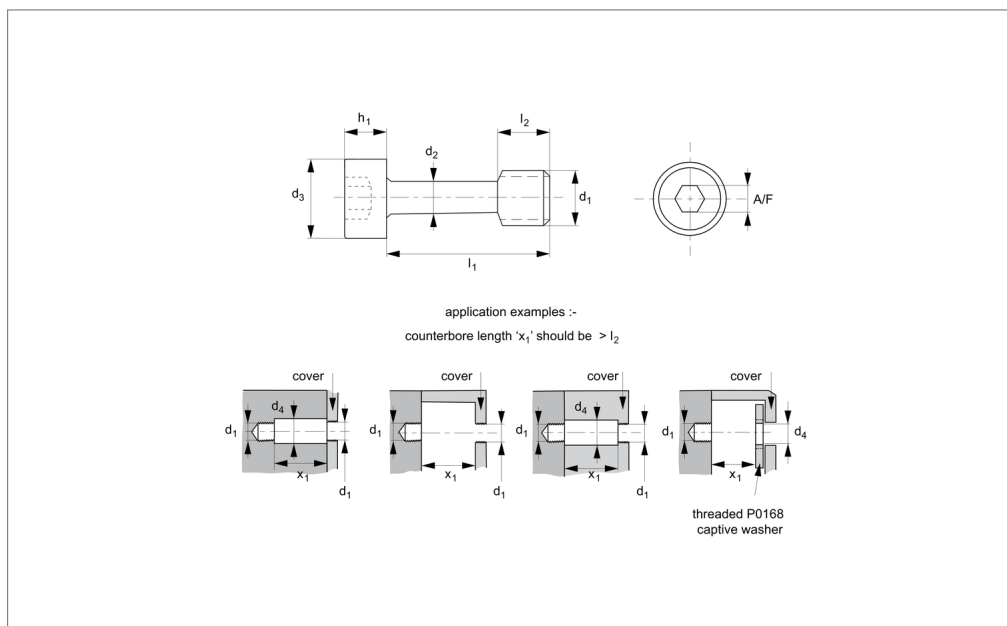
hex drive - 303 stainless

Captive Screws

Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	d ₃ max.	d ₄ min.	h ₁ max.	l ₂ ±0.25	A/F
20138363	M 5	40	3.7	8.5	5.5	5.0	7.5	4
20138370	M 5	50	3.7	8.5	5.5	5.0	7.5	4
20137168	M 6	12	4.2	10.0	6.5	6.0	7.5	5
20137175	M 6	16	4.2	10.0	6.5	6.0	7.5	5
20137229	M 6	20	4.2	10.0	6.5	6.0	7.5	5
20138851	M 6	25	4.2	10.0	6.5	6.0	7.5	5
20137151	M 6	30	4.2	10.0	6.5	6.0	7.5	5
20140458	M 6	35	4.2	10.0	6.5	6.0	7.5	5
20138240	M 6	40	4.2	10.0	6.5	6.0	7.5	5
20138387	M 6	50	4.2	10.0	6.5	6.0	7.5	5
20138394	M 6	60	4.2	10.0	6.5	6.0	7.5	5
20138400	M 6	80	4.2	10.0	6.5	6.0	7.5	5
20138417	M 8	16	6.0	13.0	8.5	8.0	10.0	6
20137250	M 8	20	6.0	13.0	8.5	8.0	10.0	6
20138950	M 8	25	6.0	13.0	8.5	8.0	10.0	6
20137199	M 8	30	6.0	13.0	8.5	8.0	10.0	6
20138967	M 8	35	6.0	13.0	8.5	8.0	10.0	6
20138424	M 8	40	6.0	13.0	8.5	8.0	10.0	6
20138974	M 8	45	6.0	13.0	8.5	8.0	10.0	6
20138431	M 8	50	6.0	13.0	8.5	8.0	10.0	6
20138448	M 8	60	6.0	13.0	8.5	8.0	10.0	6
20138455	M 8	80	6.0	13.0	8.5	8.0	10.0	6
20138462	M10	20	7.5	16.0	10.6	10.0	12.5	8
20138479	M10	25	7.5	16.0	10.6	10.0	12.5	8
20138486	M10	30	7.5	16.0	10.6	10.0	12.5	8
20138493	M10	35	7.5	16.0	10.6	10.0	12.5	8
20138509	M10	40	7.5	16.0	10.6	10.0	12.5	8
20138516	M10	45	7.5	16.0	10.6	10.0	12.5	8
20138523	M10	50	7.5	16.0	10.6	10.0	12.5	8
20138530	M10	60	7.5	16.0	10.6	10.0	12.5	8
20138547	M10	80	7.5	16.0	10.6	10.0	12.5	8
20138554	M12	25	8.0	18.0	13.2	12.0	15.0	10
20138561	M12	30	8.0	18.0	13.2	12.0	15.0	10
20138578	M12	35	8.0	18.0	13.2	12.0	15.0	10
20138585	M12	40	8.0	18.0	13.2	12.0	15.0	10
20138592	M12	45	8.0	18.0	13.2	12.0	15.0	10
20138608	M12	50	8.0	18.0	13.2	12.0	15.0	10
20138615	M12	60	8.0	18.0	13.2	12.0	15.0	10
20138622	M12	80	8.0	18.0	13.2	12.0	15.0	10
20140267	M16	30	12.0	24.0	17.5	16.0	20.0	14
20140274	M16	35	12.0	24.0	17.5	16.0	20.0	14
20140281	M16	40	12.0	24.0	17.5	16.0	20.0	14
20140298	M16	45	12.0	24.0	17.5	16.0	20.0	14
20140304	M16	50	12.0	24.0	17.5	16.0	20.0	14
20140311	M16	60	12.0	24.0	17.5	16.0	20.0	14
20140328	M16	80	12.0	24.0	17.5	16.0	20.0	14
20140335	M16	100	12.0	24.0	17.5	16.0	20.0	14
20140342	M20	40	16.0	30.0	22.0	20.0	25.0	19
20140359	M20	60	16.0	30.0	22.0	20.0	25.0	19
20140250	M20	80	16.0	30.0	22.0	20.0	25.0	19
20140366	M20	100	16.0	30.0	22.0	20.0	25.0	19
20140373	M20	120	16.0	30.0	22.0	20.0	25.0	19



EP0154.A4



Material

Stainless steel (AISI 316, 1.440).
Tensile strength 480 N/mm². Proof stress min. 200 N/mm², austenitic stainless steel.
Also available on request in steel (anodised, black oxide or zinc plated), stainless steel (AISI 303, 1.4305), brass, aluminium etc.

Technical Notes

Used to comply with the Machinery Direc-

tive 2006/42/EC. Generally to ISO 4762. Often used with our captive washers (EP0168) or retaining flanges (EP0169 - for sheet metal applications). The use of our captive washers (EP0168) should be considered when fitted in panels with unthreaded holes.

Tips

For TX drive style, see EP0156.

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 d₁.

Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	d ₃ max.	d ₄ min.	h ₁ max.	l ₂ ±0.25	A/F
20185367	M 2,5	5	1.8	4.5	2.8	2.5	3.0	2
20182311	M 2,5	8	1.8	4.5	2.8	2.5	3.0	2
20181895	M 2,5	10	1.8	4.5	2.8	2.5	3.0	2
20185374	M 2,5	12	1.8	4.5	2.8	2.5	3.0	2
20182250	M 3	8	2.0	5.5	3.5	3.0	4.5	2.5
20182397	M 3	10	2.0	5.5	3.5	3.0	4.5	2.5
20182328	M 3	12	2.0	5.5	3.5	3.0	4.5	2.5
20180720	M 3	16	2.0	5.5	3.5	3.0	4.5	2.5
20182410	M 3	20	2.0	5.5	3.5	3.0	4.5	2.5
20182380	M 3	25	2.0	5.5	3.5	3.0	4.5	2.5
20182366	M 3	30	2.0	5.5	3.5	3.0	4.5	2.5
20182359	M 4	12	2.8	7.0	4.5	4.0	6.0	3
20181826	M 4	16	2.8	7.0	4.5	4.0	6.0	3
20182298	M 4	20	2.8	7.0	4.5	4.0	6.0	3
20182243	M 4	25	2.8	7.0	4.5	4.0	6.0	3
20182403	M 4	30	2.8	7.0	4.5	4.0	6.0	3
20186203	M 4	35	2.8	7.0	4.5	4.0	6.0	3
20185381	M 4	40	2.8	7.0	4.5	4.0	6.0	3
20182212	M 4	50	2.8	7.0	4.5	4.0	6.0	3
20185398	M 5	12	3.7	8.5	5.5	5.0	7.5	4
20182274	M 5	16	3.7	8.5	5.5	5.0	7.5	4
20181765	M 5	20	3.7	8.5	5.5	5.0	7.5	4
20181871	M 5	25	3.7	8.5	5.5	5.0	7.5	4
20181888	M 5	30	3.7	8.5	5.5	5.0	7.5	4
20181833	M 5	35	3.7	8.5	5.5	5.0	7.5	4
20185404	M 5	40	3.7	8.5	5.5	5.0	7.5	4

Captive Screws - Cap Head

hex drive - 316 stainless

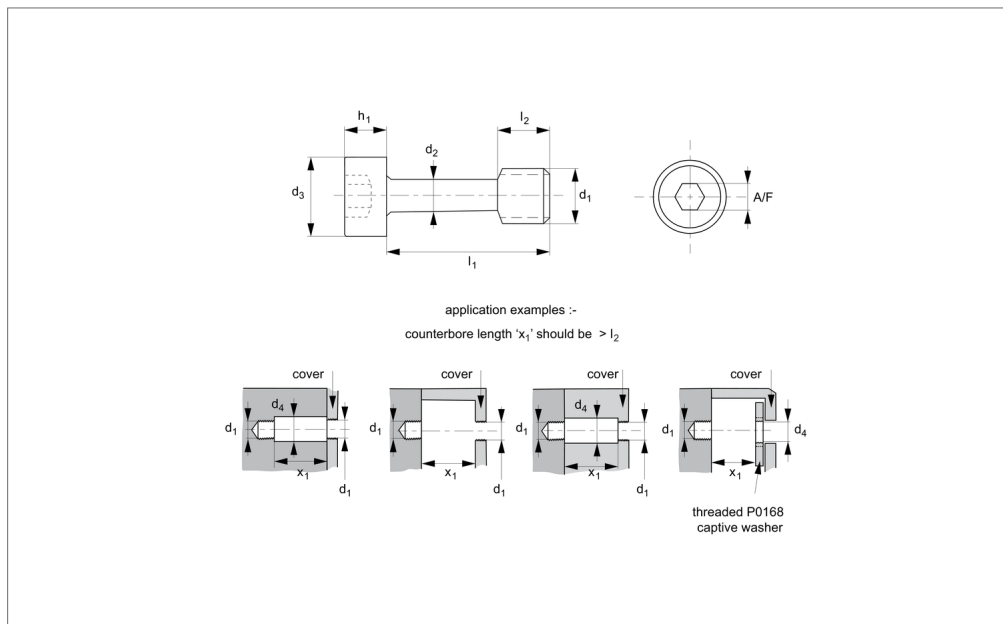
Captive Screws

Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	d ₃ max.	d ₄ min.	h ₁ max.	l ₂ ±0.25	A/F
20185411	M 5	50	3.7	8.5	5.5	5.0	7.5	4
20180188	M 6	12	4.2	10.0	6.5	6.0	7.5	5
20181802	M 6	16	4.2	10.0	6.5	6.0	7.5	5
20182267	M 6	20	4.2	10.0	6.5	6.0	7.5	5
20182175	M 6	25	4.2	10.0	6.5	6.0	7.5	5
20181789	M 6	30	4.2	10.0	6.5	6.0	7.5	5
20186098	M 6	35	4.2	10.0	6.5	6.0	7.5	5
20181857	M 6	40	4.2	10.0	6.5	6.0	7.5	5
20181864	M 6	50	4.2	10.0	6.5	6.0	7.5	5
20185428	M 6	60	4.2	10.0	6.5	6.0	7.5	5
20185435	M 6	80	4.2	10.0	6.5	6.0	7.5	5
20185343	M 8	16	6.0	13.0	8.5	8.0	10.0	6
20182427	M 8	20	6.0	13.0	8.5	8.0	10.0	6
20182342	M 8	25	6.0	13.0	8.5	8.0	10.0	6
20182335	M 8	30	6.0	13.0	8.5	8.0	10.0	6
20185442	M 8	35	6.0	13.0	8.5	8.0	10.0	6
20181772	M 8	40	6.0	13.0	8.5	8.0	10.0	6
20181819	M 8	45	6.0	13.0	8.5	8.0	10.0	6
20185459	M 8	50	6.0	13.0	8.5	8.0	10.0	6
20185466	M 8	60	6.0	13.0	8.5	8.0	10.0	6
20185473	M 8	80	6.0	13.0	8.5	8.0	10.0	6
20185480	M10	20	7.5	16.0	10.6	10.0	12.5	8
20185497	M10	25	7.5	16.0	10.6	10.0	12.5	8
20185350	M10	30	7.5	16.0	10.6	10.0	12.5	8
20182205	M10	35	7.5	16.0	10.6	10.0	12.5	8
20181796	M10	40	7.5	16.0	10.6	10.0	12.5	8
20185503	M10	45	7.5	16.0	10.6	10.0	12.5	8
20185510	M10	50	7.5	16.0	10.6	10.0	12.5	8
20185527	M10	60	7.5	16.0	10.6	10.0	12.5	8
20185534	M10	80	7.5	16.0	10.6	10.0	12.5	8
20185541	M12	25	8.0	18.0	13.2	12.0	15.0	10
20182434	M12	30	8.0	18.0	13.2	12.0	15.0	10
20185558	M12	35	8.0	18.0	13.2	12.0	15.0	10
20185565	M12	40	8.0	18.0	13.2	12.0	15.0	10
20185572	M12	45	8.0	18.0	13.2	12.0	15.0	10
20185589	M12	50	8.0	18.0	13.2	12.0	15.0	10
20185596	M12	60	8.0	18.0	13.2	12.0	15.0	10
20185602	M12	80	8.0	18.0	13.2	12.0	15.0	10
20185619	M16	30	12.0	24.0	17.5	16.0	20.0	14
20185626	M16	35	12.0	24.0	17.5	16.0	20.0	14
20185633	M16	40	12.0	24.0	17.5	16.0	20.0	14
20185640	M16	45	12.0	24.0	17.5	16.0	20.0	14
20185657	M16	50	12.0	24.0	17.5	16.0	20.0	14
20185664	M16	60	12.0	24.0	17.5	16.0	20.0	14
20185671	M16	80	12.0	24.0	17.5	16.0	20.0	14
20185688	M16	100	12.0	24.0	17.5	16.0	20.0	14
20185695	M20	40	16.0	30.0	22.0	20.0	25.0	19
20185701	M20	60	16.0	30.0	22.0	20.0	25.0	19
20185718	M20	80	16.0	30.0	22.0	20.0	25.0	19
20185725	M20	100	16.0	30.0	22.0	20.0	25.0	19
20185732	M20	120	16.0	30.0	22.0	20.0	25.0	19

CAPTIVE SCREWS



EP0154.B2



Material

Stainless steel (AISI 303, 1.4305), black oxide coating. Tensile strength 550 N/mm². Proof stress min. 190 N/mm², 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 4762. Often used with our captive washers (EP0168) or retaining flanges (EP0169 - for sheet metal applications). The use of our captive washers should be considered when fitted in panels with unthreaded holes.

Tips

For TX drive style, see EP0156.

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 d₁.

Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	l ₂ ±0.25	d ₃ max.	d ₄ min.	h ₁ max.	A/F
20182854	M 2,5	5	1.8	3.0	4.5	2.8	2.5	2
20182236	M 2,5	8	1.8	3.0	4.5	2.8	2.5	2
20182861	M 2,5	10	1.8	3.0	4.5	2.8	2.5	2
20182878	M 2,5	12	1.8	3.0	4.5	2.8	2.5	2
20182885	M 3	8	2.0	4.5	5.5	3.5	3.0	2.5
20182892	M 3	10	2.0	4.5	5.5	3.5	3.0	2.5
20182908	M 3	12	2.0	4.5	5.5	3.5	3.0	2.5
20182915	M 3	16	2.0	4.5	5.5	3.5	3.0	2.5
20182922	M 3	20	2.0	4.5	5.5	3.5	3.0	2.5
20182939	M 3	25	2.0	4.5	5.5	3.5	3.0	2.5
20182946	M 3	30	2.0	4.5	5.5	3.5	3.0	2.5
20182953	M 4	10	2.8	6.0	7.0	4.5	4.0	3
20182960	M 4	12	2.8	6.0	7.0	4.5	4.0	3
20182977	M 4	16	2.8	6.0	7.0	4.5	4.0	3
20182984	M 4	20	2.8	6.0	7.0	4.5	4.0	3
20182991	M 4	25	2.8	6.0	7.0	4.5	4.0	3
20183004	M 4	30	2.8	6.0	7.0	4.5	4.0	3
20186210	M 4	35	2.8	6.0	7.0	4.5	4.0	3
20183011	M 4	40	2.8	6.0	7.0	4.5	4.0	3
20183028	M 4	50	2.8	6.0	7.0	4.5	4.0	3
20183035	M 5	12	3.7	7.5	8.5	5.5	5.0	4
20183042	M 5	16	3.7	7.5	8.5	5.5	5.0	4
20183059	M 5	20	3.7	7.5	8.5	5.5	5.0	4
20183066	M 5	25	3.7	7.5	8.5	5.5	5.0	4
20183073	M 5	30	3.7	7.5	8.5	5.5	5.0	4
20186227	M 5	35	3.7	7.5	8.5	5.5	5.0	4
20183080	M 5	40	3.7	7.5	8.5	5.5	5.0	4
20183097	M 5	50	3.7	7.5	8.5	5.5	5.0	4

Captive Screws - Cap Head

hex drive - 303 stainless, blackened

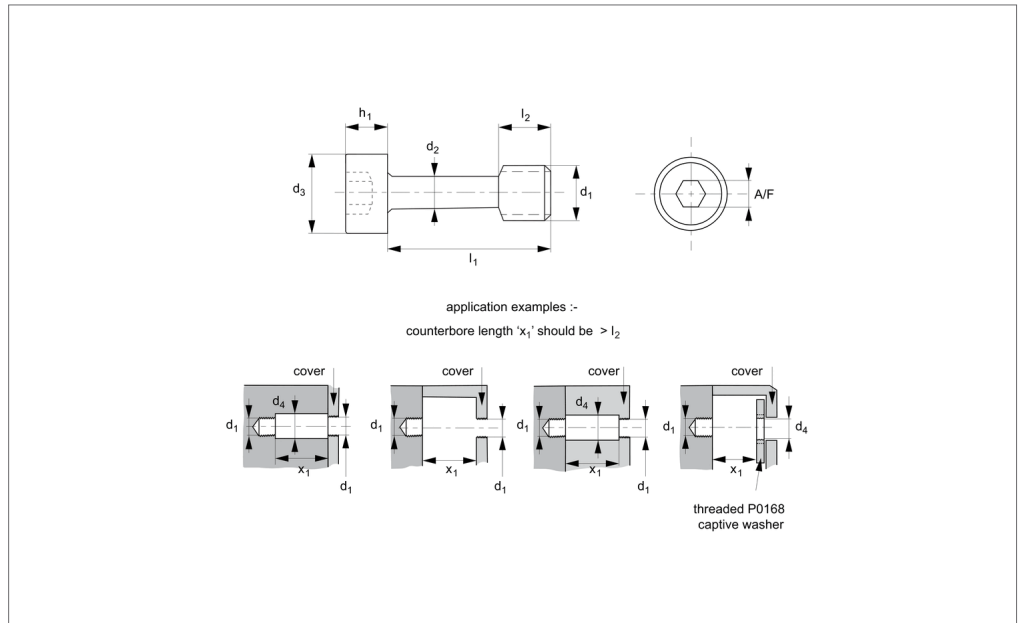
Captive Screws

Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	l ₂ ±0.25	d ₃ max.	d ₄ min.	h ₁ max.	A/F
20183103	M 6	12	4.2	7.5	10.0	6.5	6.0	5
20183110	M 6	16	4.2	7.5	10.0	6.5	6.0	5
20182373	M 6	20	4.2	7.5	10.0	6.5	6.0	5
20183127	M 6	25	4.2	7.5	10.0	6.5	6.0	5
20183134	M 6	30	4.2	7.5	10.0	6.5	6.0	5
20186234	M 6	35	4.2	7.5	10.0	6.5	6.0	5
20183141	M 6	40	4.2	7.5	10.0	6.5	6.0	5
20183158	M 6	50	4.2	7.5	10.0	6.5	6.0	5
20183165	M 6	60	4.2	7.5	10.0	6.5	6.0	5
20183172	M 6	80	4.2	7.5	10.0	6.5	6.0	5
20183189	M 8	16	6.0	10.0	13.0	8.5	8.0	6
20183196	M 8	20	6.0	10.0	13.0	8.5	8.0	6
20183202	M 8	25	6.0	10.0	13.0	8.5	8.0	6
20183219	M 8	30	6.0	10.0	13.0	8.5	8.0	6
20183226	M 8	35	6.0	10.0	13.0	8.5	8.0	6
20183233	M 8	40	6.0	10.0	13.0	8.5	8.0	6
20183240	M 8	45	6.0	10.0	13.0	8.5	8.0	6
20183257	M 8	50	6.0	10.0	13.0	8.5	8.0	6
20183264	M 8	60	6.0	10.0	13.0	8.5	8.0	6
20183271	M 8	80	6.0	10.0	13.0	8.5	8.0	6
20183288	M10	20	7.5	12.5	16.0	10.6	10.0	8
20183295	M10	25	7.5	12.5	16.0	10.6	10.0	8
20183301	M10	30	7.5	12.5	16.0	10.6	10.0	8
20183318	M10	35	7.5	12.5	16.0	10.6	10.0	8
20183325	M10	40	7.5	12.5	16.0	10.6	10.0	8
20183332	M10	45	7.5	12.5	16.0	10.6	10.0	8
20183349	M10	50	7.5	12.5	16.0	10.6	10.0	8
20183356	M10	60	7.5	12.5	16.0	10.6	10.0	8
20183363	M10	80	7.5	12.5	16.0	10.6	10.0	8
20183370	M12	25	8.0	15.0	18.0	13.2	12.0	10
20183387	M12	30	8.0	15.0	18.0	13.2	12.0	10
20183394	M12	35	8.0	15.0	18.0	13.2	12.0	10
20183400	M12	40	8.0	15.0	18.0	13.2	12.0	10
20183417	M12	45	8.0	15.0	18.0	13.2	12.0	10
20183424	M12	50	8.0	15.0	18.0	13.2	12.0	10
20183431	M12	60	8.0	15.0	18.0	13.2	12.0	10
20183448	M12	80	8.0	15.0	18.0	13.2	12.0	10
20186241	M16	30	12.0	20.0	24.0	17.5	16.0	14
20186258	M16	35	12.0	20.0	24.0	17.5	16.0	14
20186265	M16	40	12.0	20.0	24.0	17.5	16.0	14
20186272	M16	45	12.0	20.0	24.0	17.5	16.0	14
20186289	M16	50	12.0	20.0	24.0	17.5	16.0	14
20186296	M16	60	12.0	20.0	24.0	17.5	16.0	14
20186302	M16	80	12.0	20.0	24.0	17.5	16.0	14
20186319	M16	100	12.0	20.0	24.0	17.5	16.0	14
20186326	M20	40	16.0	25.0	30.0	22.0	20.0	19
20186333	M20	60	16.0	25.0	30.0	22.0	20.0	19
20186340	M20	80	16.0	25.0	30.0	22.0	20.0	19
20186357	M20	100	16.0	25.0	30.0	22.0	20.0	19
20186364	M20	120	16.0	25.0	30.0	22.0	20.0	19

CAPTIVE SCREWS



EP0154.B4



Material

Stainless steel (AISI 316, 1.440), black oxide coating. Tensile strength 480 N/mm². Proof stress min. 200 N/mm², austenitic stainless steel.

Also available on request in steel (anodised, black oxide or zinc plated) stainless steel (AISI 303, 1.4305), 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 (EP0168) or retaining flanges (EP0169 - for sheet metal applications). The use of our captive washers should be considered when fitted in panels with unthreaded holes.

Tips

For TX drive style, see EP0156.

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 d₁.

Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	l ₂ ±0.25	d ₃ max.	d ₄ min.	h ₁ max.	A/F
20185749	M 2,5	5	1.8	3.0	4.5	2.8	2.5	2
20183455	M 2,5	8	1.8	3.0	4.5	2.8	2.5	2
20185756	M 2,5	10	1.8	3.0	4.5	2.8	2.5	2
20185763	M 2,5	12	1.8	3.0	4.5	2.8	2.5	2
20183462	M 3	8	2.0	4.5	5.5	3.5	3.0	2.5
20183479	M 3	10	2.0	4.5	5.5	3.5	3.0	2.5
20183486	M 3	12	2.0	4.5	5.5	3.5	3.0	2.5
20183493	M 3	16	2.0	4.5	5.5	3.5	3.0	2.5
20183509	M 3	20	2.0	4.5	5.5	3.5	3.0	2.5
20183516	M 3	25	2.0	4.5	5.5	3.5	3.0	2.5
20183523	M 3	30	2.0	4.5	5.5	3.5	3.0	2.5
20183530	M 4	16	2.8	6.0	7.0	4.5	4.0	3
20183547	M 4	20	2.8	6.0	7.0	4.5	4.0	3
20183554	M 4	25	2.8	6.0	7.0	4.5	4.0	3
20183561	M 4	30	2.8	6.0	7.0	4.5	4.0	3
20186371	M 4	35	2.8	6.0	7.0	4.5	4.0	3
20185770	M 4	40	2.8	6.0	7.0	4.5	4.0	3
20183578	M 4	50	2.8	6.0	7.0	4.5	4.0	3
20185787	M 5	12	3.7	7.5	8.5	5.5	5.0	4
20183585	M 5	16	3.7	7.5	8.5	5.5	5.0	4
20183592	M 5	20	3.7	7.5	8.5	5.5	5.0	4
20183608	M 5	25	3.7	7.5	8.5	5.5	5.0	4
20183615	M 5	30	3.7	7.5	8.5	5.5	5.0	4
20183622	M 5	35	3.7	7.5	8.5	5.5	5.0	4
20185794	M 5	40	3.7	7.5	8.5	5.5	5.0	4
20185800	M 5	50	3.7	7.5	8.5	5.5	5.0	4
20183639	M 6	12	4.2	7.5	10.0	6.5	6.0	5
20183646	M 6	16	4.2	7.5	10.0	6.5	6.0	5

Captive Screws - Cap Head

hex drive - 316 stainless, blackened

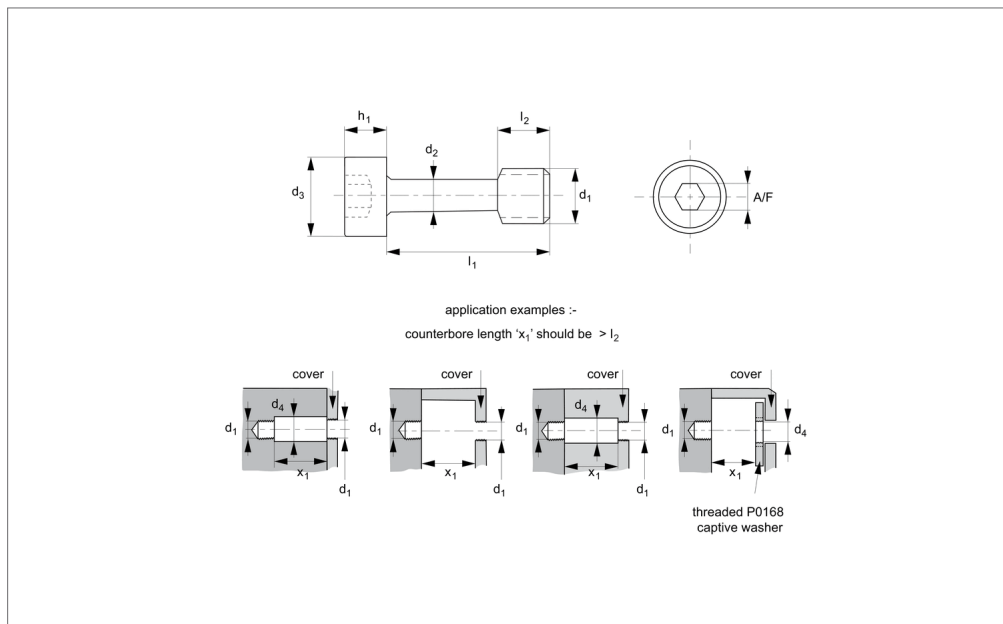
Captive Screws

Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	l ₂ ±0.25	d ₃ max.	d ₄ min.	h ₁ max.	A/F
20183653	M 6	20	4.2	7.5	10.0	6.5	6.0	5
20183660	M 6	25	4.2	7.5	10.0	6.5	6.0	5
20183677	M 6	30	4.2	7.5	10.0	6.5	6.0	5
20186388	M 6	35	4.2	7.5	10.0	6.5	6.0	5
20183684	M 6	40	4.2	7.5	10.0	6.5	6.0	5
20183691	M 6	50	4.2	7.5	10.0	6.5	6.0	5
20185817	M 6	60	4.2	7.5	10.0	6.5	6.0	5
20185824	M 6	80	4.2	7.5	10.0	6.5	6.0	5
20185831	M 8	16	6.0	10.0	13.0	8.5	8.0	6
20185848	M 8	20	6.0	10.0	13.0	8.5	8.0	6
20183707	M 8	25	6.0	10.0	13.0	8.5	8.0	6
20182281	M 8	30	6.0	10.0	13.0	8.5	8.0	6
20185855	M 8	35	6.0	10.0	13.0	8.5	8.0	6
20183714	M 8	40	6.0	10.0	13.0	8.5	8.0	6
20183721	M 8	45	6.0	10.0	13.0	8.5	8.0	6
20185862	M 8	50	6.0	10.0	13.0	8.5	8.0	6
20185879	M 8	60	6.0	10.0	13.0	8.5	8.0	6
20185886	M 8	80	6.0	10.0	13.0	8.5	8.0	6
20185893	M10	20	7.5	12.5	16.0	10.6	10.0	8
20185909	M10	25	7.5	12.5	16.0	10.6	10.0	8
20185916	M10	30	7.5	12.5	16.0	10.6	10.0	8
20183738	M10	35	7.5	12.5	16.0	10.6	10.0	8
20183745	M10	40	7.5	12.5	16.0	10.6	10.0	8
20185923	M10	45	7.5	12.5	16.0	10.6	10.0	8
20185930	M10	50	7.5	12.5	16.0	10.6	10.0	8
20185947	M10	60	7.5	12.5	16.0	10.6	10.0	8
20185954	M10	80	7.5	12.5	16.0	10.6	10.0	8
20185961	M12	25	8.0	15.0	18.0	13.2	12.0	10
20185978	M12	30	8.0	15.0	18.0	13.2	12.0	10
20185985	M12	35	8.0	15.0	18.0	13.2	12.0	10
20185992	M12	40	8.0	15.0	18.0	13.2	12.0	10
20186005	M12	45	8.0	15.0	18.0	13.2	12.0	10
20186012	M12	50	8.0	15.0	18.0	13.2	12.0	10
20186029	M12	60	8.0	15.0	18.0	13.2	12.0	10
20186036	M12	80	8.0	15.0	18.0	13.2	12.0	10
20186395	M16	30	12.0	20.0	24.0	17.5	16.0	14
20186401	M16	35	12.0	20.0	24.0	17.5	16.0	14
20186418	M16	40	12.0	20.0	24.0	17.5	16.0	14
20186425	M16	45	12.0	20.0	24.0	17.5	16.0	14
20186432	M16	50	12.0	20.0	24.0	17.5	16.0	14
20186449	M16	60	12.0	20.0	24.0	17.5	16.0	14
20186456	M16	80	12.0	20.0	24.0	17.5	16.0	14
20186463	M16	100	12.0	20.0	24.0	17.5	16.0	14
20186470	M20	40	16.0	25.0	30.0	22.0	20.0	19
20186487	M20	60	16.0	25.0	30.0	22.0	20.0	19
20186494	M20	80	16.0	25.0	30.0	22.0	20.0	19
20186500	M20	100	16.0	25.0	30.0	22.0	20.0	19
20186517	M20	120	16.0	25.0	30.0	22.0	20.0	19

CAPTIVE SCREWS



EP0154.Ti



Material

Titanium grade 2 (tensile strength 345 N/mm²), or grade 5 (tensile strength 900 N/mm²).

Also available on request in steel (anodised, black oxide or zinc plated) stainless steel (AISI 316, 1.440 or AISI 303, 1.4305), brass, aluminium etc.

Technical Notes

Used to comply with the Machinery Direc-

tive 2006/42/EC. Generally to ISO 4762.

Often used with our captive washer (EP0168) or retaining flanges (EP0169 - for sheet metal applications). The use of our captive washer should be considered when fitted in panels with unthreaded holes.

T5 also available on request.

Replace -T2 with -T5 at the end of part number.

Tips

For TX drive style, see EP0156.

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 d₁.

Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	l ₂ ±0.25	d ₃ max.	d ₄ min.	h ₁ max.	A/F	Material
20186524	M 2,5	5	1.8	3.0	4.5	2.8	2.5	2	Grade 2
20186531	M 2,5	8	1.8	3.0	4.5	2.8	2.5	2	Grade 2
20186548	M 2,5	10	1.8	3.0	4.5	2.8	2.5	2	Grade 2
20186555	M 2,5	12	1.8	3.0	4.5	2.8	2.5	2	Grade 2
20186562	M 3	8	2.0	4.5	5.5	3.5	3.0	2.5	Grade 2
20186579	M 3	10	2.0	4.5	5.5	3.5	3.0	2.5	Grade 2
20186586	M 3	12	2.0	4.5	5.5	3.5	3.0	2.5	Grade 2
20186593	M 3	16	2.0	4.5	5.5	3.5	3.0	2.5	Grade 2
20186609	M 3	20	2.0	4.5	5.5	3.5	3.0	2.5	Grade 2
20186043	M 3	25	2.0	4.5	5.5	3.5	3.0	2.5	Grade 2
20186616	M 3	30	2.0	4.5	5.5	3.5	3.0	2.5	Grade 2
20186623	M 4	12	2.8	6.0	7.0	4.5	4.0	3	Grade 2
20186630	M 4	16	2.8	6.0	7.0	4.5	4.0	3	Grade 2
20186647	M 4	20	2.8	6.0	7.0	4.5	4.0	3	Grade 2
20186654	M 4	25	2.8	6.0	7.0	4.5	4.0	3	Grade 2
20186661	M 4	30	2.8	6.0	7.0	4.5	4.0	3	Grade 2
20186678	M 4	35	2.8	6.0	7.0	4.5	4.0	3	Grade 2
20186685	M 4	40	2.8	6.0	7.0	4.5	4.0	3	Grade 2
20186692	M 4	50	2.8	6.0	7.0	4.5	4.0	3	Grade 2
20186708	M 5	12	3.7	7.5	8.5	5.5	5.0	4	Grade 2
20186715	M 5	16	3.7	7.5	8.5	5.5	5.0	4	Grade 2
20186722	M 5	20	3.7	7.5	8.5	5.5	5.0	4	Grade 2
20186739	M 5	25	3.7	7.5	8.5	5.5	5.0	4	Grade 2
20186746	M 5	30	3.7	7.5	8.5	5.5	5.0	4	Grade 2
20186753	M 5	35	3.7	7.5	8.5	5.5	5.0	4	Grade 2
20186760	M 5	40	3.7	7.5	8.5	5.5	5.0	4	Grade 2

Captive Screws - Cap Head

hex drive - titanium

Captive Screws

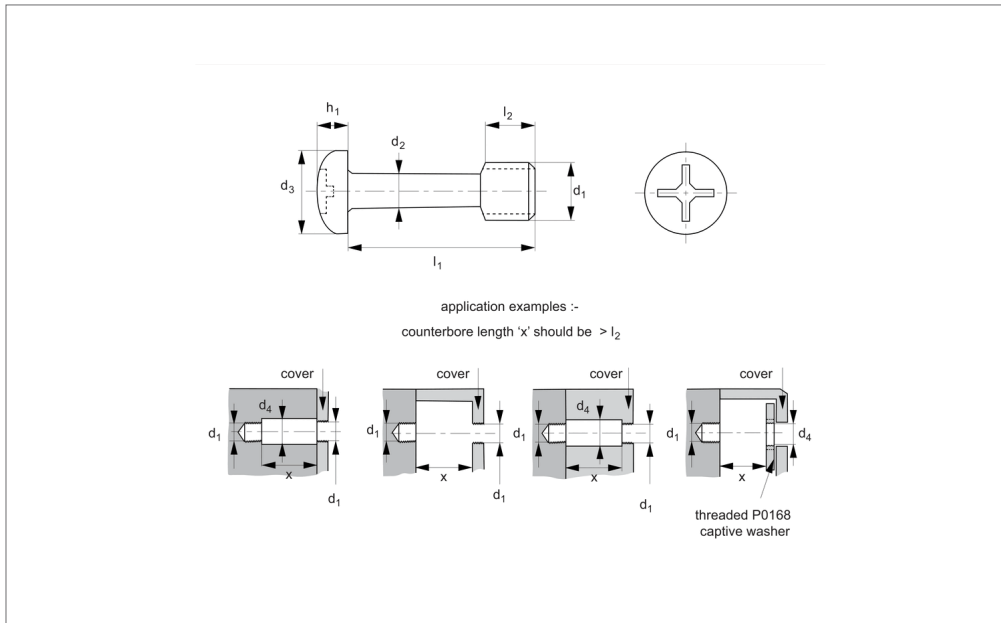
Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	l ₂ ±0.25	d ₃ max.	d ₄ min.	h ₁ max.	A/F	Material
20186777	M 5	50	3.7	7.5	8.5	5.5	5.0	4	Grade 2
20186784	M 6	12	4.2	7.5	10.0	6.5	6.0	5	Grade 2
20186791	M 6	16	4.2	7.5	10.0	6.5	6.0	5	Grade 2
20186807	M 6	20	4.2	7.5	10.0	6.5	6.0	5	Grade 2
20186814	M 6	25	4.2	7.5	10.0	6.5	6.0	5	Grade 2
20186821	M 6	30	4.2	7.5	10.0	6.5	6.0	5	Grade 2
20186838	M 6	35	4.2	7.5	10.0	6.5	6.0	5	Grade 2
20186845	M 6	40	4.2	7.5	10.0	6.5	6.0	5	Grade 2
20186852	M 6	50	4.2	7.5	10.0	6.5	6.0	5	Grade 2
20186869	M 6	60	4.2	7.5	10.0	6.5	6.0	5	Grade 2
20186876	M 6	80	4.2	7.5	10.0	6.5	6.0	5	Grade 2
20186883	M 8	16	6.0	10.0	13.0	8.5	8.0	6	Grade 2
20186890	M 8	20	6.0	10.0	13.0	8.5	8.0	6	Grade 2
20186906	M 8	25	6.0	10.0	13.0	8.5	8.0	6	Grade 2
20186913	M 8	30	6.0	10.0	13.0	8.5	8.0	6	Grade 2
20186920	M 8	35	6.0	10.0	13.0	8.5	8.0	6	Grade 2
20186937	M 8	40	6.0	10.0	13.0	8.5	8.0	6	Grade 2
20186944	M 8	45	6.0	10.0	13.0	8.5	8.0	6	Grade 2
20186951	M 8	50	6.0	10.0	13.0	8.5	8.0	6	Grade 2
20186968	M 8	60	6.0	10.0	13.0	8.5	8.0	6	Grade 2
20186975	M 8	80	6.0	10.0	13.0	8.5	8.0	6	Grade 2
20186982	M10	20	7.5	12.5	16.0	10.6	10.0	8	Grade 2
20186999	M10	25	7.5	12.5	16.0	10.6	10.0	8	Grade 2
20187002	M10	30	7.5	12.5	16.0	10.6	10.0	8	Grade 2
20187019	M10	35	7.5	12.5	16.0	10.6	10.0	8	Grade 2
20187026	M10	40	7.5	12.5	16.0	10.6	10.0	8	Grade 2
20187033	M10	45	7.5	12.5	16.0	10.6	10.0	8	Grade 2
20187040	M10	50	7.5	12.5	16.0	10.6	10.0	8	Grade 2
20187057	M10	60	7.5	12.5	16.0	10.6	10.0	8	Grade 2
20187064	M10	80	7.5	12.5	16.0	10.6	10.0	8	Grade 2
20187071	M12	25	8.0	15.0	18.0	13.2	12.0	10	Grade 2
20187088	M12	30	8.0	15.0	18.0	13.2	12.0	10	Grade 2
20187095	M12	35	8.0	15.0	18.0	13.2	12.0	10	Grade 2
20187101	M12	40	8.0	15.0	18.0	13.2	12.0	10	Grade 2
20187118	M12	45	8.0	15.0	18.0	13.2	12.0	10	Grade 2
20187125	M12	50	8.0	15.0	18.0	13.2	12.0	10	Grade 2
20187132	M12	60	8.0	15.0	18.0	13.2	12.0	10	Grade 2
20187149	M12	80	8.0	15.0	18.0	13.2	12.0	10	Grade 2
20187156	M16	30	12.0	20.0	24.0	17.5	16.0	14	Grade 2
20187163	M16	35	12.0	20.0	24.0	17.5	16.0	14	Grade 2
20187170	M16	40	12.0	20.0	24.0	17.5	16.0	14	Grade 2
20187187	M16	45	12.0	20.0	24.0	17.5	16.0	14	Grade 2
20187194	M16	50	12.0	20.0	24.0	17.5	16.0	14	Grade 2
20187200	M16	60	12.0	20.0	24.0	17.5	16.0	14	Grade 2
20187217	M16	80	12.0	20.0	24.0	17.5	16.0	14	Grade 2
20187224	M16	100	12.0	20.0	24.0	17.5	16.0	14	Grade 2
20187231	M20	40	16.0	25.0	30.0	22.0	20.0	19	Grade 2
20187248	M20	60	16.0	25.0	30.0	22.0	20.0	19	Grade 2
20187255	M20	80	16.0	25.0	30.0	22.0	20.0	19	Grade 2
20187262	M20	100	16.0	25.0	30.0	22.0	20.0	19	Grade 2
20187279	M20	120	16.0	25.0	30.0	22.0	20.0	19	Grade 2
20187286	M 2,5	5	1.8	3.0	4.5	2.8	2.5	2	Grade 5
20187293	M 2,5	8	1.8	3.0	4.5	2.8	2.5	2	Grade 5
20187309	M 2,5	10	1.8	3.0	4.5	2.8	2.5	2	Grade 5
20187316	M 2,5	12	1.8	3.0	4.5	2.8	2.5	2	Grade 5
20187323	M 3	8	2.0	4.5	5.5	3.5	3.0	3	Grade 5
20187330	M 3	10	2.0	4.5	5.5	3.5	3.0	3	Grade 5
20187347	M 3	12	2.0	4.5	5.5	3.5	3.0	3	Grade 5
20187354	M 3	16	2.0	4.5	5.5	3.5	3.0	3	Grade 5
20187361	M 3	20	2.0	4.5	5.5	3.5	3.0	3	Grade 5
20186050	M 3	25	2.0	4.5	5.5	3.5	3.0	3	Grade 5
20187378	M 3	30	2.0	4.5	5.5	3.5	3.0	3	Grade 5
20187385	M 4	12	2.8	6.0	7.0	4.5	4.0	3	Grade 5
20187392	M 4	16	2.8	6.0	7.0	4.5	4.0	3	Grade 5
20187408	M 4	20	2.8	6.0	7.0	4.5	4.0	3	Grade 5
20187415	M 4	25	2.8	6.0	7.0	4.5	4.0	3	Grade 5
20187422	M 4	30	2.8	6.0	7.0	4.5	4.0	3	Grade 5
20187439	M 4	35	2.8	6.0	7.0	4.5	4.0	3	Grade 5

Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	l ₂ ±0.25	d ₃ max.	d ₄ min.	h ₁ max.	A/F	Material
20187446	M 4	40	2.8	6.0	7.0	4.5	4.0	3	Grade 5
20187453	M 4	50	2.8	6.0	7.0	4.5	4.0	3	Grade 5
20187460	M 5	12	3.7	7.5	8.5	5.5	5.0	4	Grade 5
20187477	M 5	16	3.7	7.5	8.5	5.5	5.0	4	Grade 5
20187484	M 5	20	3.7	7.5	8.5	5.5	5.0	4	Grade 5
20187491	M 5	25	3.7	7.5	8.5	5.5	5.0	4	Grade 5
20187507	M 5	30	3.7	7.5	8.5	5.5	5.0	4	Grade 5
20187514	M 5	35	3.7	7.5	8.5	5.5	5.0	4	Grade 5
20187521	M 5	40	3.7	7.5	8.5	5.5	5.0	4	Grade 5
20187538	M 5	50	3.7	7.5	8.5	5.5	5.0	4	Grade 5
20187545	M 6	12	4.2	7.5	10.0	6.5	6.0	5	Grade 5
20187552	M 6	16	4.2	7.5	10.0	6.5	6.0	5	Grade 5
20187569	M 6	20	4.2	7.5	10.0	6.5	6.0	5	Grade 5
20187576	M 6	25	4.2	7.5	10.0	6.5	6.0	5	Grade 5
20187583	M 6	30	4.2	7.5	10.0	6.5	6.0	5	Grade 5
20187590	M 6	35	4.2	7.5	10.0	6.5	6.0	5	Grade 5
20187606	M 6	40	4.2	7.5	10.0	6.5	6.0	5	Grade 5
20187613	M 6	50	4.2	7.5	10.0	6.5	6.0	5	Grade 5
20187620	M 6	60	4.2	7.5	10.0	6.5	6.0	5	Grade 5
20187637	M 6	80	4.2	7.5	10.0	6.5	6.0	5	Grade 5
20187644	M 8	16	6.0	10.0	13.0	8.5	8.0	6	Grade 5
20187651	M 8	20	6.0	10.0	13.0	8.5	8.0	6	Grade 5
20187668	M 8	25	6.0	10.0	13.0	8.5	8.0	6	Grade 5
20187675	M 8	30	6.0	10.0	13.0	8.5	8.0	6	Grade 5
20187682	M 8	35	6.0	10.0	13.0	8.5	8.0	6	Grade 5
20187699	M 8	40	6.0	10.0	13.0	8.5	8.0	6	Grade 5
20187705	M 8	45	6.0	10.0	13.0	8.5	8.0	6	Grade 5
20187712	M 8	50	6.0	10.0	13.0	8.5	8.0	6	Grade 5
20187729	M 8	60	6.0	10.0	13.0	8.5	8.0	6	Grade 5
20187736	M 8	80	6.0	10.0	13.0	8.5	8.0	6	Grade 5
20187743	M10	20	7.5	12.5	16.0	10.6	10.0	8	Grade 5
20187750	M10	25	7.5	12.5	16.0	10.6	10.0	8	Grade 5
20187767	M10	30	7.5	12.5	16.0	10.6	10.0	8	Grade 5
20186067	M10	35	7.5	12.5	16.0	10.6	10.0	8	Grade 5
20187774	M10	40	7.5	12.5	16.0	10.6	10.0	8	Grade 5
20187781	M10	45	7.5	12.5	16.0	10.6	10.0	8	Grade 5
20187798	M10	50	7.5	12.5	16.0	10.6	10.0	8	Grade 5
20187804	M10	60	7.5	12.5	16.0	10.6	10.0	8	Grade 5
20187811	M10	80	7.5	12.5	16.0	10.6	10.0	8	Grade 5
20187828	M12	25	8.0	15.0	18.0	13.2	12.0	10	Grade 5
20187835	M12	30	8.0	15.0	18.0	13.2	12.0	10	Grade 5
20187842	M12	35	8.0	15.0	18.0	13.2	12.0	10	Grade 5
20187859	M12	40	8.0	15.0	18.0	13.2	12.0	10	Grade 5
20187866	M12	45	8.0	15.0	18.0	13.2	12.0	10	Grade 5
20187873	M12	50	8.0	15.0	18.0	13.2	12.0	10	Grade 5
20187880	M12	60	8.0	15.0	18.0	13.2	12.0	10	Grade 5
20187897	M12	80	8.0	15.0	18.0	13.2	12.0	10	Grade 5
20187903	M16	30	12.0	20.0	24.0	17.5	16.0	14	Grade 5
20187910	M16	35	12.0	20.0	24.0	17.5	16.0	14	Grade 5
20187927	M16	40	12.0	20.0	24.0	17.5	16.0	14	Grade 5
20187934	M16	45	12.0	20.0	24.0	17.5	16.0	14	Grade 5
20187941	M16	50	12.0	20.0	24.0	17.5	16.0	14	Grade 5
20187958	M16	60	12.0	20.0	24.0	17.5	16.0	14	Grade 5
20187965	M16	80	12.0	20.0	24.0	17.5	16.0	14	Grade 5
20187972	M16	100	12.0	20.0	24.0	17.5	16.0	14	Grade 5
20187989	M20	40	16.0	25.0	30.0	22.0	20.0	19	Grade 5
20187996	M20	60	16.0	25.0	30.0	22.0	20.0	19	Grade 5
20188009	M20	80	16.0	25.0	30.0	22.0	20.0	19	Grade 5
20188016	M20	100	16.0	25.0	30.0	22.0	20.0	19	Grade 5
20188023	M20	120	16.0	25.0	30.0	22.0	20.0	19	Grade 5

Captive Screws - Pan Head

Phillips drive, 303 stainless

Captive Screws



EP0157.A2

CAPTIVE SCREWS

Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm². Proof stress min. 190 N/mm², 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 Direc-

tive 2006/42/EC. Generally to ISO 14583. Often used with our captive washers (EP0168) or retaining flanges (EP0169 - for sheet metal applications). The use of our captive washers should be considered when fitted in panels with unthreaded holes.

Tips

Other head drive styles - add suffix:
-TX for Torx (hexalobular).

-PZ for Pozidrive.

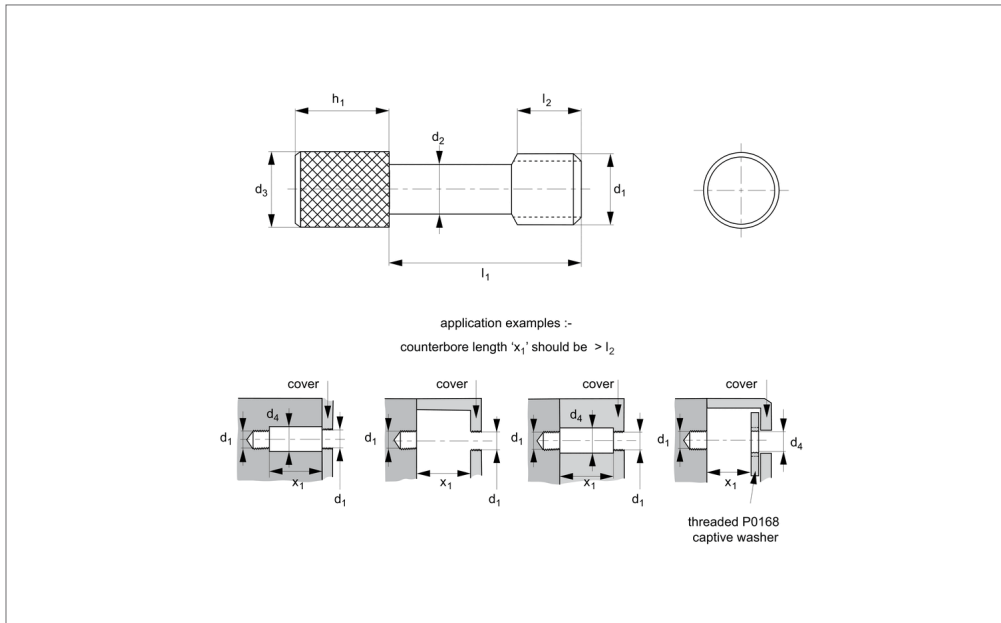
-SE for snake-eye security.

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 d₁.

Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	d ₃ max.	d ₄ max.	h ₁ max.	h ₂	l ₂ ±0.25	Drive #
20180034	M 2,5	8	1.7	5.0	3.5	2.1	0.70	3.7	1
20180058	M 2,5	10	1.7	5.0	3.5	2.1	0.70	3.7	1
20182304	M 3	10	2.0	5.6	4.5	2.4	0.74	4.5	1
20180065	M 3	16	2.0	5.6	4.5	2.4	0.74	4.5	1
20180072	M 3	20	2.0	5.6	4.5	2.4	0.74	4.5	1
20188030	M 3	25	2.0	5.6	4.5	2.4	0.74	4.5	1
20186074	M 3	30	2.0	5.6	4.5	2.4	0.74	4.5	1
20188047	M 3	40	2.0	5.6	4.5	2.4	0.74	4.5	1
20188054	M 4	10	2.8	8.0	5.5	3.1	0.93	6.0	2
20180089	M 4	12	2.8	8.0	5.5	3.1	0.93	6.0	2
20180096	M 4	16	2.8	8.0	5.5	3.1	0.93	6.0	2
20180102	M 4	20	2.8	8.0	5.5	3.1	0.93	6.0	2
20188061	M 4	25	2.8	8.0	5.5	3.1	0.93	6.0	2
20180195	M 4	30	2.8	8.0	5.5	3.1	0.93	6.0	2
20180201	M 4	40	2.8	8.0	5.5	3.1	0.93	6.0	2
20188078	M 4	50	2.8	8.0	5.5	3.1	0.93	6.0	2
20188085	M 4	60	2.8	8.0	5.5	3.1	0.93	6.0	2
20188092	M 5	10	3.7	9.5	6.5	3.7	1.00	7.5	2
20180119	M 5	12	3.7	9.5	6.5	3.7	1.00	7.5	2
20180126	M 5	16	3.7	9.5	6.5	3.7	1.00	7.5	2
20180133	M 5	20	3.7	9.5	6.5	3.7	1.00	7.5	2
20188108	M 5	25	3.7	9.5	6.5	3.7	1.00	7.5	2
20180218	M 5	30	3.7	9.5	6.5	3.7	1.00	7.5	2
20188115	M 5	40	3.7	9.5	6.5	3.7	1.00	7.5	2
20188122	M 5	50	3.7	9.5	6.5	3.7	1.00	7.5	2
20188139	M 5	60	3.7	9.5	6.5	3.7	1.00	7.5	2

Order No.	d ₁	l ₁ ±0.25	d ₂ ±0.12	d ₃ max.	d ₄ max.	h ₁ max.	h ₂	l ₂ ±0.25	Drive #
20180713	M 6	12	4.2	12.0	8.5	4.7	1.14	7.5	3
20180157	M 6	16	4.2	12.0	8.5	4.7	1.14	7.5	3
20180140	M 6	20	4.2	12.0	8.5	4.7	1.14	7.5	3
20188146	M 6	25	4.2	12.0	8.5	4.7	1.14	7.5	3
20180041	M 6	30	4.2	12.0	8.5	4.7	1.14	7.5	3
20188153	M 6	40	4.2	12.0	8.5	4.7	1.14	7.5	3
20180225	M 6	50	4.2	12.0	8.5	4.7	1.14	7.5	3
20188160	M 6	60	4.2	12.0	8.5	4.7	1.14	7.5	3
20188177	M 6	80	4.2	12.0	8.5	4.7	1.14	7.5	3



EP0160.A2

CAPTIVE SCREWS

Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm². Proof stress min. 190 N/mm², 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

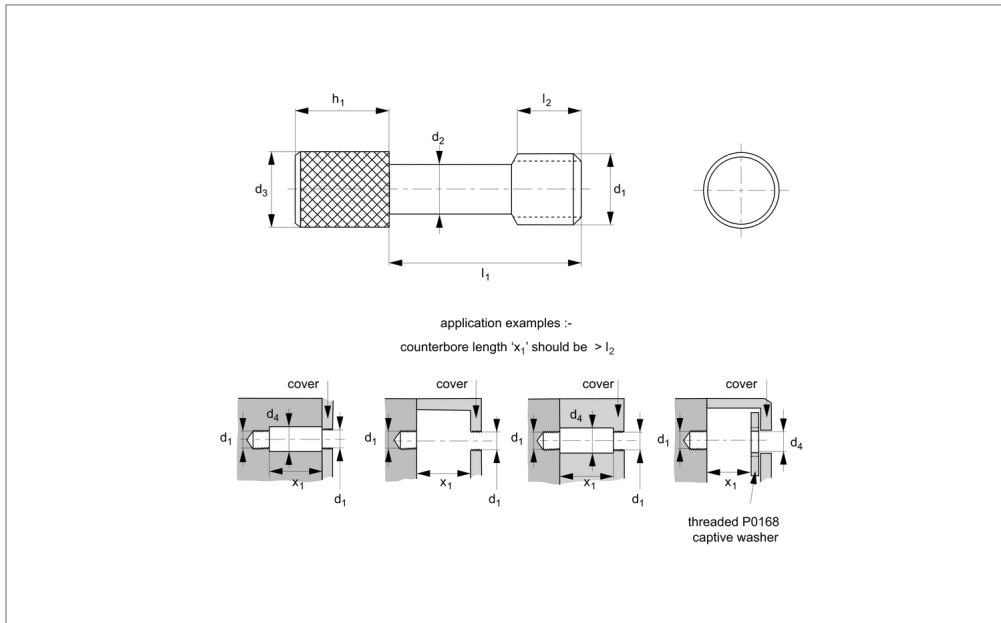
Used to comply with the Machinery Directive 2006/42/EC. Often used with our threaded captive washers or retaining flanges (for sheet metal applications). The use of our captive washers should be considered when fitted in panels with unthreaded holes.

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 d₁.

Order No.	d ₁	d ₂ ±0.12	l ₁ ±0.25	l ₂ ±0.25	d ₃	d ₄ min.	h ₁
20137892	M 3	2.0	16	8.0	5	3.5	10
20137908	M 3	2.0	20	10.0	5	3.5	10
20137915	M 3	2.0	25	12.5	5	3.5	10
20137922	M 3	2.0	30	15.0	5	3.5	10
20137939	M 3	2.0	35	17.5	5	3.5	10
20137946	M 3	2.0	40	20.0	5	3.5	10
20137953	M 3	2.0	50	25.0	5	3.5	10
20137960	M 3,5	2.3	16	8.0	5	3.8	10
20137977	M 3,5	2.3	20	10.0	5	3.8	10
20137984	M 3,5	2.3	25	12.5	5	3.8	10
20137991	M 3,5	2.3	30	15.0	5	3.8	10
20138004	M 3,5	2.3	35	17.5	5	3.8	10
20138011	M 3,5	2.3	40	20.0	5	3.8	10
20138028	M 3,5	2.3	50	25.0	5	3.8	10
20138035	M 4	2.8	16	8.0	5	4.5	10
20138042	M 4	2.8	20	10.0	5	4.5	10
20138059	M 4	2.8	25	12.5	5	4.5	10
20138066	M 4	2.8	30	15.0	5	4.5	10
20138073	M 4	2.8	35	17.5	5	4.5	10
20138080	M 4	2.8	40	20.0	5	4.5	10
20138097	M 4	2.8	50	25.0	5	4.5	10
20138103	M 5	3.7	16	8.0	6	5.5	12
20138110	M 5	3.7	20	10.0	6	5.5	12
20138127	M 5	3.7	25	12.5	6	5.5	12
20138134	M 5	3.7	30	15.0	6	5.5	12
20138141	M 5	3.7	35	17.5	6	5.5	12
20138158	M 5	3.7	40	24.0	6	5.5	12
20138165	M 5	3.7	50	25.0	6	5.5	12
20138172	M 6	4.2	16	8.0	8	6.5	12

Order No.	d ₁	d ₂ ±0.12	l ₁ ±0.25	l ₂ ±0.25	d ₃	d ₄ min.	h ₁
20138189	M 6	4.2	20	10.0	8	6.5	12
20138196	M 6	4.2	25	12.5	8	6.5	12
20138202	M 6	4.2	30	15.0	8	6.5	12
20138219	M 6	4.2	35	17.5	8	6.5	12
20138226	M 6	4.2	40	20.0	8	6.5	12
20138233	M 6	4.2	50	25.0	8	6.5	12
20140700	M 8	6.0	16	8.0	10	8.5	16
20140717	M 8	6.0	20	10.0	10	8.5	16
20140724	M 8	6.0	25	12.5	10	8.5	16
20140731	M 8	6.0	30	15.0	10	8.5	16
20140748	M 8	6.0	35	17.5	10	8.5	16
20140755	M 8	6.0	40	20.0	10	8.5	16
20140762	M 8	6.0	50	25.0	10	8.5	16



EP0160.A4

CAPTIVE SCREWS

Material

Stainless steel (AISI 316, 1.440).
Tensile strength 480 N/mm². Proof stress min. 200 N/mm², austenitic stainless steel.
Also available on request in steel (anodised, black oxide or zinc plated), stainless steel (AISI 303, 1.4305), brass, aluminium etc.

Technical Notes

Used to comply with the Machinery Directive 2006/42/EC. Often used with our captive washer (EP0168) or retaining flanges (EP0169 - for sheet metal applications). The use of our captive washer 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 d₁.

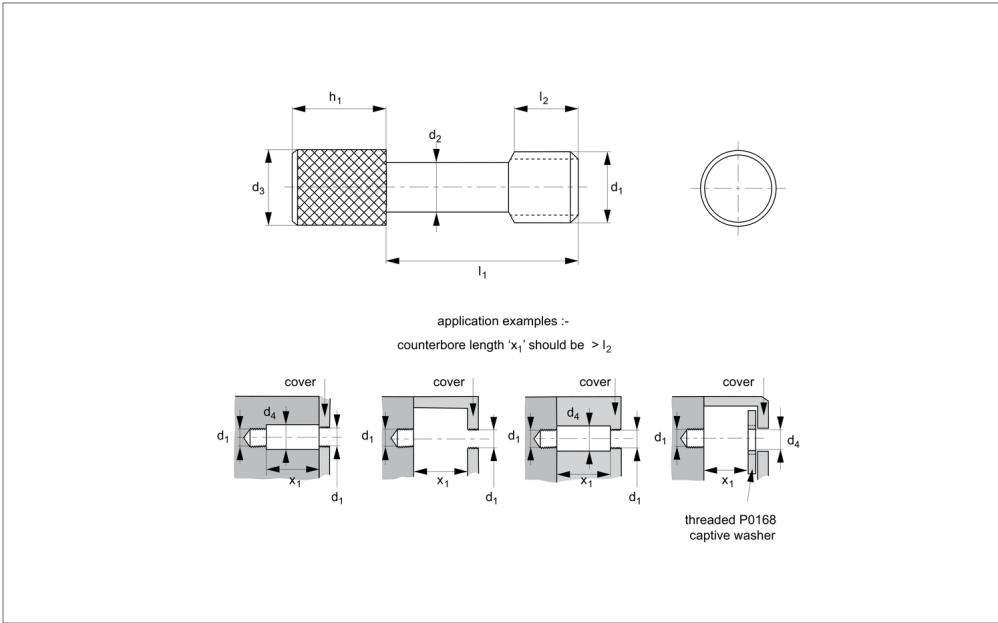
Order No.	d ₁	d ₂ ±0.12	l ₁ ±0.25	l ₂ ±0.25	d ₃	d ₄ min.	h ₁
20181116	M 3	2.0	16	8.0	5	3.5	10
20181123	M 3	2.0	20	10.0	5	3.5	10
20181130	M 3	2.0	25	12.5	5	3.5	10
20181147	M 3	2.0	30	15.0	5	3.5	10
20181154	M 3	2.0	35	17.5	5	3.5	10
20181161	M 3	2.0	40	20.0	5	3.5	10
20181178	M 3	2.0	50	25.0	5	3.5	10
20181185	M 3,5	2.3	16	8.0	5	3.8	10
20181192	M 3,5	2.3	20	10.0	5	3.8	10
20181208	M 3,5	2.3	25	12.5	5	3.8	10
20181215	M 3,5	2.3	30	15.0	5	3.8	10
20181222	M 3,5	2.3	35	17.5	5	3.8	10
20181239	M 3,5	2.3	40	20.0	5	3.8	10
20181246	M 3,5	2.3	50	25.0	5	3.8	10
20181253	M 4	2.8	16	8.0	5	4.5	10
20181260	M 4	2.8	20	10.0	5	4.5	10
20181277	M 4	2.8	25	12.5	5	4.5	10
20181284	M 4	2.8	30	15.0	5	4.5	10
20181291	M 4	2.8	35	17.5	5	4.5	10
20181307	M 4	2.8	40	20.0	5	4.5	10
20181314	M 4	2.8	50	25.0	5	4.5	10
20181321	M 5	3.7	16	8.0	6	5.5	12
20181338	M 5	3.7	20	10.0	6	5.5	12
20181345	M 5	3.7	25	12.5	6	5.5	12
20181352	M 5	3.7	30	15.0	6	5.5	12
20181369	M 5	3.7	35	17.5	6	5.5	12
20181376	M 5	3.7	40	24.0	6	5.5	12
20181383	M 5	3.7	50	25.0	6	5.5	12
20181390	M 6	4.2	16	8.0	8	6.5	12

Order No.	d ₁	d ₂ ±0.12	l ₁ ±0.25	l ₂ ±0.25	d ₃	d ₄ min.	h ₁
20181406	M 6	4.2	20	10.0	8	6.5	12
20181413	M 6	4.2	25	12.5	8	6.5	12
20181420	M 6	4.2	30	15.0	8	6.5	12
20181437	M 6	4.2	35	17.5	8	6.5	12
20181444	M 6	4.2	40	20.0	8	6.5	12
20181451	M 6	4.2	50	25.0	8	6.5	12

Captive Thumb Screws

303 stainless, blackened

Captive Screws



EP0160.B2

CAPTIVE SCREWS

Material

Stainless steel (AISI 303, 1.4305), black oxide coating. Tensile strength 550 N/mm². Proof stress min. 190 N/mm², 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. Often used with our captive washer (EP0168) or retaining flanges (EP0169 - for sheet metal applications). The use of our captive washer

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 d₁.

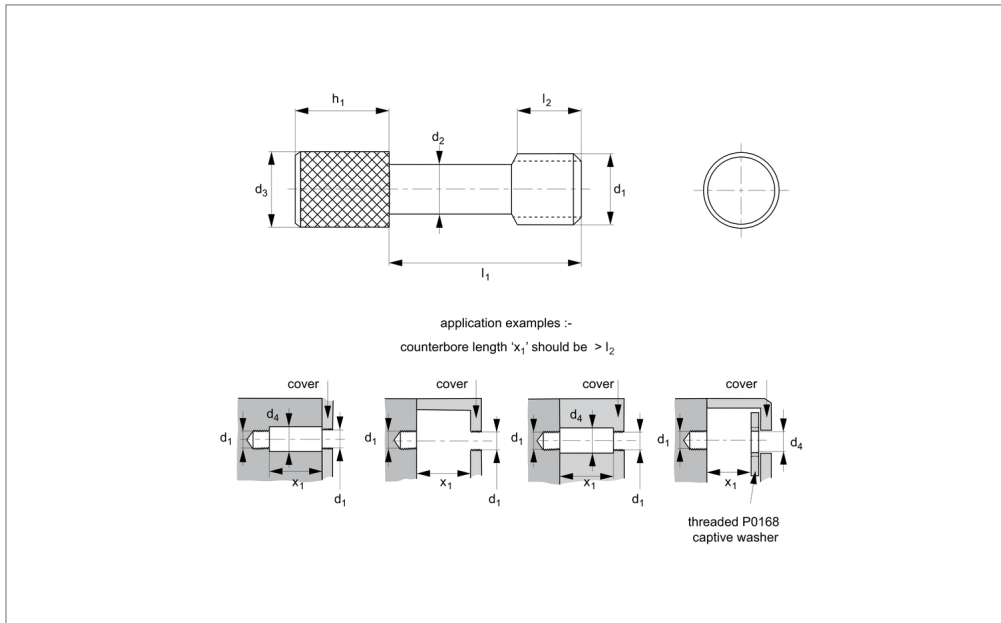
Order No.	d ₁	d ₂ ±0.12	l ₁ ±0.25	l ₂ ±0.25	d ₃	d ₄ min.	h ₁
20183752	M 3	2.0	16	8.0	5	3.5	10
20183769	M 3	2.0	20	10.0	5	3.5	10
20183776	M 3	2.0	25	12.5	5	3.5	10
20183783	M 3	2.0	30	15.0	5	3.5	10
20183790	M 3	2.0	35	17.5	5	3.5	10
20183806	M 3	2.0	40	20.0	5	3.5	10
20183813	M 3	2.0	50	25.0	5	3.5	10
20183820	M 3,5	2.3	16	8.0	5	3.8	10
20183837	M 3,5	2.3	20	10.0	5	3.8	10
20183844	M 3,5	2.3	25	12.5	5	3.8	10
20183851	M 3,5	2.3	30	15.0	5	3.8	10
20183868	M 3,5	2.3	35	17.5	5	3.8	10
20183875	M 3,5	2.3	40	20.0	5	3.8	10
20183882	M 3,5	2.3	50	25.0	5	3.8	10
20183899	M 4	2.8	16	8.0	5	4.5	10
20183905	M 4	2.8	20	10.0	5	4.5	10
20183912	M 4	2.8	25	12.5	5	4.5	10
20183929	M 4	2.8	30	15.0	5	4.5	10
20183936	M 4	2.8	35	17.5	5	4.5	10
20183943	M 4	2.8	40	20.0	5	4.5	10
20183950	M 4	2.8	50	25.0	5	4.5	10
20183967	M 5	3.7	16	8.0	6	5.5	12
20183974	M 5	3.7	20	10.0	6	5.5	12
20183981	M 5	3.7	25	12.5	6	5.5	12
20183998	M 5	3.7	30	15.0	6	5.5	12
20184001	M 5	3.7	35	17.5	6	5.5	12
20184018	M 5	3.7	40	24.0	6	5.5	12
20184025	M 5	3.7	50	25.0	6	5.5	12
20184032	M 6	4.2	16	8.0	8	6.5	12

Order No.	d ₁	d ₂ ±0.12	l ₁ ±0.25	l ₂ ±0.25	d ₃	d ₄ min.	h ₁
20184049	M 6	4.2	20	10.0	8	6.5	12
20184056	M 6	4.2	25	12.5	8	6.5	12
20184063	M 6	4.2	30	15.0	8	6.5	12
20184070	M 6	4.2	35	17.5	8	6.5	12
20184087	M 6	4.2	40	20.0	8	6.5	12
20184094	M 6	4.2	50	25.0	8	6.5	12

Captive Thumb Screws

316 stainless, blackened

Captive Screws



EP0160.B4

CAPTIVE SCREWS

Material

Stainless steel (AISI 316, 1.440), black oxide coating. Tensile strength 480 N/mm². Proof stress min. 200 N/mm², austenitic stainless steel.

Also available on request in steel (anodised, black oxide or zinc plated) stainless steel (AISI 303, 1.4305), brass,

aluminium etc.

Technical Notes

Used to comply with the Machinery Directive 2006/42/EC. Often used with our captive washer (EP0168) or retaining flanges (EP0169 - for sheet metal applications). The use of our captive washer

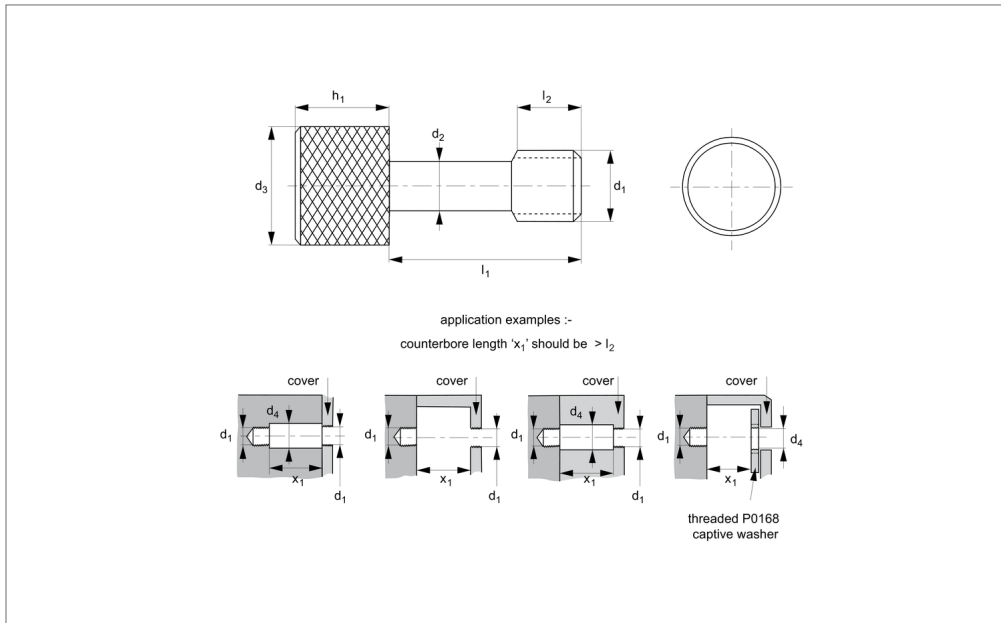
should be considered when fitted in panels with unthreaded holes.

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 d₁.

Order No.	d ₁	d ₂ ±0.12	l ₁ ±0.25	l ₂ ±0.25	d ₃	d ₄ min.	h ₁
20184100	M 3	2.0	16	8.0	5	3.5	10
20184117	M 3	2.0	20	10.0	5	3.5	10
20184124	M 3	2.0	25	12.5	5	3.5	10
20184131	M 3	2.0	30	15.0	5	3.5	10
20184148	M 3	2.0	35	17.5	5	3.5	10
20184155	M 3	2.0	40	20.0	5	3.5	10
20184162	M 3	2.0	50	25.0	5	3.5	10
20184179	M 3,5	2.3	16	8.0	5	3.8	10
20184186	M 3,5	2.3	20	10.0	5	3.8	10
20184193	M 3,5	2.3	25	12.5	5	3.8	10
20184209	M 3,5	2.3	30	15.0	5	3.8	10
20184216	M 3,5	2.3	35	17.5	5	3.8	10
20184223	M 3,5	2.3	40	20.0	5	3.8	10
20184230	M 3,5	2.3	50	25.0	5	3.8	10
20184247	M 4	2.8	16	8.0	5	4.5	10
20184254	M 4	2.8	20	10.0	5	4.5	10
20184261	M 4	2.8	25	12.5	5	4.5	10
20184278	M 4	2.8	30	15.0	5	4.5	10
20184285	M 4	2.8	35	17.5	5	4.5	10
20184292	M 4	2.8	40	20.0	5	4.5	10
20184308	M 4	2.8	50	25.0	5	4.5	10
20184315	M 5	3.7	16	8.0	6	5.5	12
20184322	M 5	3.7	20	10.0	6	5.5	12
20184339	M 5	3.7	25	12.5	6	5.5	12
20184346	M 5	3.7	30	15.0	6	5.5	12
20184353	M 5	3.7	35	17.5	6	5.5	12
20184360	M 5	3.7	40	24.0	6	5.5	12
20184377	M 5	3.7	50	25.0	6	5.5	12
20184384	M 6	4.2	16	8.0	8	6.5	12

Order No.	d ₁	d ₂ ±0.12	l ₁ ±0.25	l ₂ ±0.25	d ₃	d ₄ min.	h ₁
20184391	M 6	4.2	20	10.0	8	6.5	12
20184407	M 6	4.2	25	12.5	8	6.5	12
20184414	M 6	4.2	30	15.0	8	6.5	12
20184421	M 6	4.2	35	17.5	8	6.5	12
20184438	M 6	4.2	40	20.0	8	6.5	12
20184445	M 6	4.2	50	25.0	8	6.5	12



EP0161.A2

CAPTIVE SCREWS

Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm². Proof stress min. 190 N/mm², 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

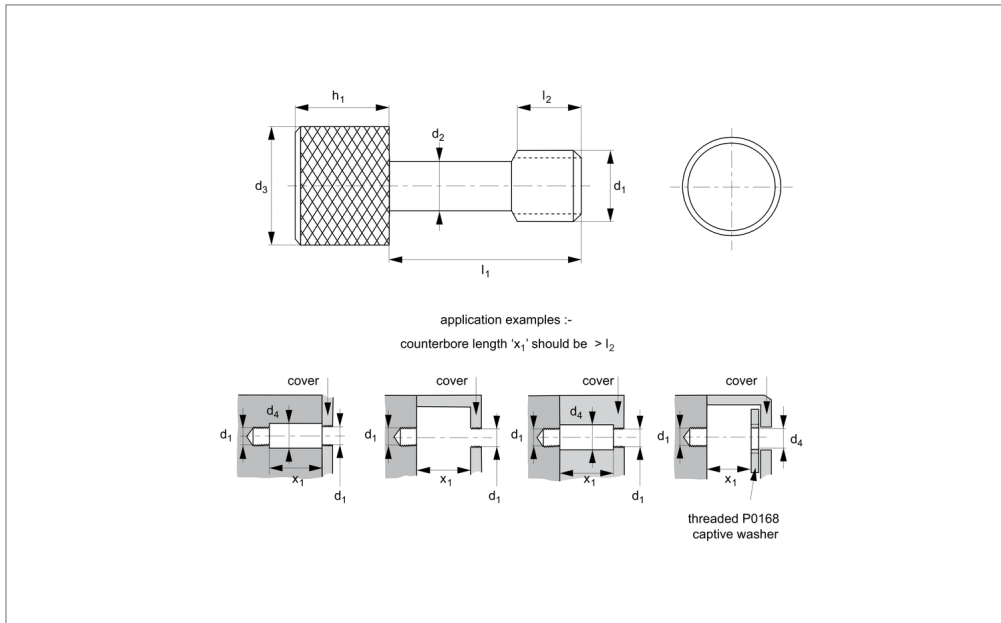
Used to comply with the Machinery Directive 2006/42/EC. Often used with our threaded captive washer or retaining flanges (for sheet metal applications). The use of our captive washer should be considered when fitted in panels with unthreaded holes.

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 d₁.

Order No.	d ₁	d ₂ ±0.12	l ₁ ±0.25	l ₂ ±0.25	d ₃	d ₄ min.	h ₁
20138639	M 3	2.0	8	4.5	8	3.5	5
20138646	M 3	2.0	10	4.5	8	3.5	5
20138653	M 3	2.0	12	4.5	8	3.5	5
20138981	M 3	2.0	14	4.5	8	3.5	5
20138998	M 3	2.0	16	4.5	8	3.5	5
20138660	M 3,5	2.3	8	6.0	8	3.8	5
20138677	M 3,5	2.3	10	6.0	8	3.8	5
20138684	M 3,5	2.3	12	6.0	8	3.8	5
20139001	M 3,5	2.3	14	6.0	8	3.8	5
20139018	M 3,5	2.3	16	6.0	8	3.8	5
20138691	M 4	2.8	10	6.0	10	4.5	5
20138707	M 4	2.8	12	6.0	10	4.5	5
20139117	M 4	2.8	14	6.0	10	4.5	5
20138714	M 4	2.8	16	6.0	10	4.5	5
20139025	M 4	2.8	18	6.0	10	4.5	5
20139032	M 4	2.8	20	6.0	10	4.5	5
20139049	M 4	2.8	25	6.0	10	4.5	5
20138721	M 5	3.7	10	7.5	10	5.5	5
20138738	M 5	3.7	12	7.5	10	5.5	5
20139056	M 5	3.7	14	7.5	10	5.5	5
20138745	M 5	3.7	16	7.5	10	5.5	5
20140625	M 5	3.7	18	7.5	10	5.5	5
20139063	M 5	3.7	20	7.5	10	5.5	5
20139070	M 5	3.7	25	7.5	10	5.5	5
20139087	M 5	3.7	30	7.5	10	5.5	5
20138752	M 6	4.5	12	7.5	12	6.5	6
20139094	M 6	4.5	14	7.5	12	6.5	6
20138769	M 6	4.5	16	7.5	12	6.5	6
20138776	M 6	4.5	18	7.5	12	6.5	6

Order No.	d ₁	d ₂ ±0.12	l ₁ ±0.25	l ₂ ±0.25	d ₃	d ₄ min.	h ₁
20138783	M 6	4.5	20	7.5	12	6.5	6
20138790	M 6	4.5	25	7.5	12	6.5	6
20139100	M 6	4.5	30	7.5	12	6.5	6
20140649	M 8	6.0	16	10.0	16	8.5	8
20140656	M 8	6.0	18	10.0	16	8.5	8
20140663	M 8	6.0	20	10.0	16	8.5	8
20140670	M 8	6.0	25	10.0	16	8.5	8
20140687	M 8	6.0	30	10.0	16	8.5	8
20140694	M 8	6.0	35	10.0	16	8.5	8



EP0161.A4

CAPTIVE SCREWS

Material

Stainless steel (AISI 316, 1.440).
Tensile strength 480 N/mm². Proof stress min. 200 N/mm², austenitic stainless steel.
Also available on request in steel (anodised, black oxide or zinc plated), stainless steel (AISI 303, 1.4305), brass, aluminium etc.

Technical Notes

Used to comply with the Machinery Directive 2006/42/EC. Often used with our captive washer (EP0168) or retaining flanges (EP0169 - for sheet metal applications). The use of our captive washer 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 .

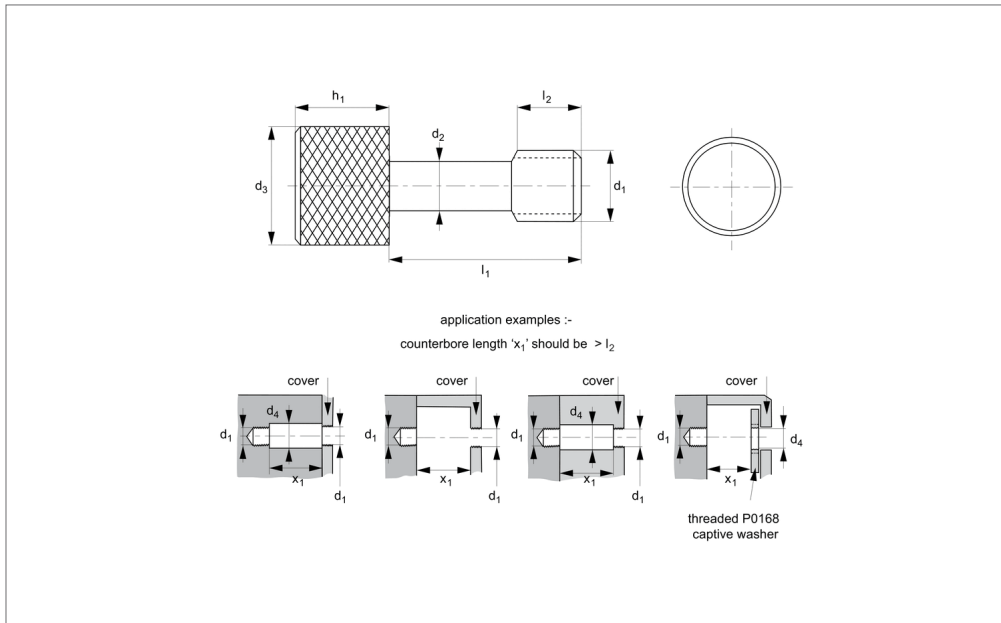
Order No.	d_1	d_2 ± 0.12	l_1 ± 0.25	l_2 ± 0.25	d_3	d_4 min.	h_1
20181468	M 3	2.0	8	4.5	8	3.5	5
20181475	M 3	2.0	10	4.5	8	3.5	5
20181482	M 3	2.0	12	4.5	8	3.5	5
20181499	M 3	2.0	14	4.5	8	3.5	5
20181505	M 3	2.0	16	4.5	8	3.5	5
20181512	M3,5	2.3	8	6.0	8	3.8	5
20181529	M3,5	2.3	10	6.0	8	3.8	5
20181536	M3,5	2.3	12	6.0	8	3.8	5
20181543	M3,5	2.3	14	6.0	8	3.8	5
20181550	M3,5	2.3	16	6.0	8	3.8	5
20181567	M 4	2.8	10	6.0	10	4.5	5
20181574	M 4	2.8	12	6.0	10	4.5	5
20181581	M 4	2.8	14	6.0	10	4.5	5
20181598	M 4	2.8	16	6.0	10	4.5	5
20181604	M 4	2.8	18	6.0	10	4.5	5
20181611	M 4	2.8	20	6.0	10	4.5	5
20181628	M 4	2.8	25	6.0	10	4.5	5
20181635	M 5	3.7	10	7.5	10	5.5	5
20181642	M 5	3.7	12	7.5	10	5.5	5
20181109	M 5	3.7	14	7.5	10	5.5	5
20181659	M 5	3.7	16	7.5	10	5.5	5
20188184	M 5	3.7	18	7.5	10	5.5	5
20181666	M 5	3.7	20	7.5	10	5.5	5
20181673	M 5	3.7	25	7.5	10	5.5	5
20181680	M 5	3.7	30	7.5	10	5.5	5
20181840	M 6	4.5	12	7.5	12	6.5	6
20181697	M 6	4.5	14	7.5	12	6.5	6
20181703	M 6	4.5	16	7.5	12	6.5	6
20181710	M 6	4.5	18	7.5	12	6.5	6

Order No.	d ₁	d ₂ ±0.12	l ₁ ±0.25	l ₂ ±0.25	d ₃	d ₄ min.	h ₁
20181727	M 6	4.5	20	7.5	12	6.5	6
20181734	M 6	4.5	25	7.5	12	6.5	6
20181741	M 6	4.5	30	7.5	12	6.5	6
20189990	M 8	6.0	16	10.0	16	8.5	8
20190002	M 8	6.0	18	10.0	16	8.5	8
20190019	M 8	6.0	20	10.0	16	8.5	8
20190026	M 8	6.0	25	10.0	16	8.5	8
20190033	M 8	6.0	30	10.0	16	8.5	8
20190040	M 8	6.0	35	10.0	16	8.5	8

Captive Thumb Screws

303 stainless, blackened

Captive Screws



EP0161.B2

CAPTIVE SCREWS

Material

Stainless steel (AISI 303, 1.4305), black oxide coating. Tensile strength 550 N/mm². Proof stress min. 190 N/mm², 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. Often used with our captive washer (EP0168) or retaining flanges (EP0169 - for sheet metal applications). The use of our captive washer

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 .

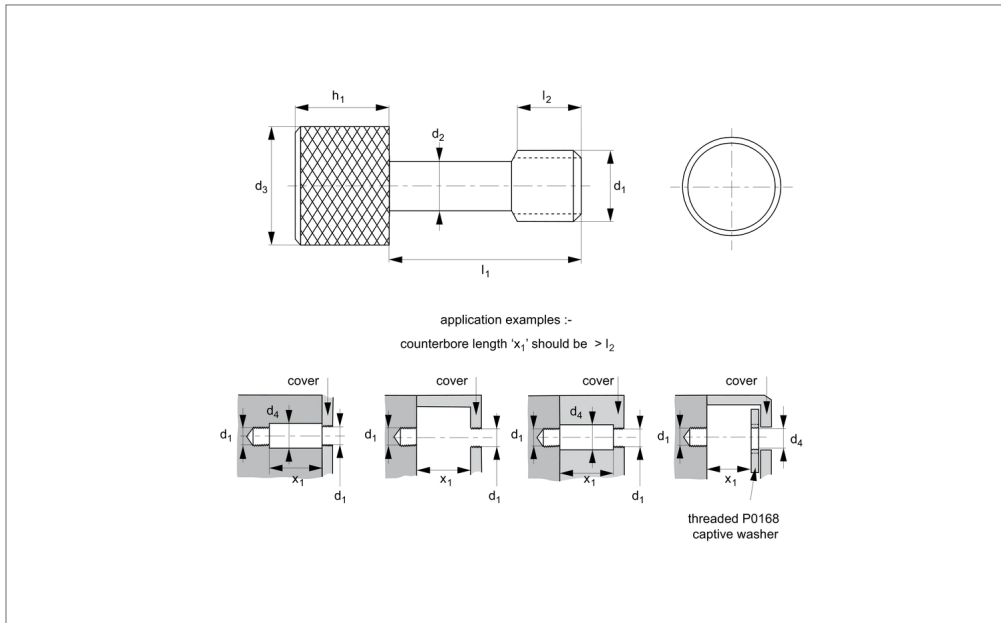
Order No.	d_1	d_2 ± 0.12	l_1 ± 0.25	l_2 ± 0.25	d_3	d_4 min.	h_1
20184452	M 3	2.0	8	4.5	8	3.5	5
20184469	M 3	2.0	10	4.5	8	3.5	5
20184476	M 3	2.0	12	4.5	8	3.5	5
20184483	M 3	2.0	14	4.5	8	3.5	5
20184490	M 3	2.0	16	4.5	8	3.5	5
20184506	M 3,5	2.3	8	6.0	8	3.8	5
20184513	M 3,5	2.3	10	6.0	8	3.8	5
20184520	M 3,5	2.3	12	6.0	8	3.8	5
20184537	M 3,5	2.3	14	6.0	8	3.8	5
20184544	M 3,5	2.3	16	6.0	8	3.8	5
20184551	M 4	2.8	10	6.0	10	4.5	5
20184568	M 4	2.8	12	6.0	10	4.5	5
20184575	M 4	2.8	14	6.0	10	4.5	5
20184582	M 4	2.8	16	6.0	10	4.5	5
20184599	M 4	2.8	18	6.0	10	4.5	5
20184605	M 4	2.8	20	6.0	10	4.5	5
20184612	M 4	2.8	25	6.0	10	4.5	5
20184629	M 5	3.7	10	7.5	10	5.5	5
20184636	M 5	3.7	12	7.5	10	5.5	5
20184643	M 5	3.7	14	7.5	10	5.5	5
20184650	M 5	3.7	16	7.5	10	5.5	5
20186081	M 5	3.7	18	7.5	10	5.5	5
20184667	M 5	3.7	20	7.5	10	5.5	5
20184674	M 5	3.7	25	7.5	10	5.5	5
20184681	M 5	3.7	30	7.5	10	5.5	5
20184698	M 6	4.5	12	7.5	12	6.5	6
20184704	M 6	4.5	14	7.5	12	6.5	6
20184711	M 6	4.5	16	7.5	12	6.5	6
20184728	M 6	4.5	18	7.5	12	6.5	6

Order No.	d ₁	d ₂ ±0.12	l ₁ ±0.25	l ₂ ±0.25	d ₃	d ₄ min.	h ₁
20184735	M 6	4.5	20	7.5	12	6.5	6
20184742	M 6	4.5	25	7.5	12	6.5	6
20184759	M 6	4.5	30	7.5	12	6.5	6
20190057	M 8	6.0	16	10.0	16	8.5	8
20190064	M 8	6.0	18	10.0	16	8.5	8
20190071	M 8	6.0	20	10.0	16	8.5	8
20190088	M 8	6.0	25	10.0	16	8.5	8
20190095	M 8	6.0	30	10.0	16	8.5	8
20190101	M 8	6.0	35	10.0	16	8.5	8

Captive Thumb Screws

316 stainless, blackened

Captive Screws



EP0161.B4

CAPTIVE SCREWS

Material

Stainless steel (AISI 316, 1.440), black oxide coating. Tensile strength 480 N/mm². Proof stress min. 200 N/mm², austenitic stainless steel.

Also available on request in steel (anodised, black oxide or zinc plated) stainless steel (AISI 303, 1.4305), brass,

aluminium etc.

Technical Notes

Used to comply with the Machinery Directive 2006/42/EC. Often used with our captive washer (EP0168) or retaining flanges (EP0169 - for sheet metal applications). The use of our captive washer

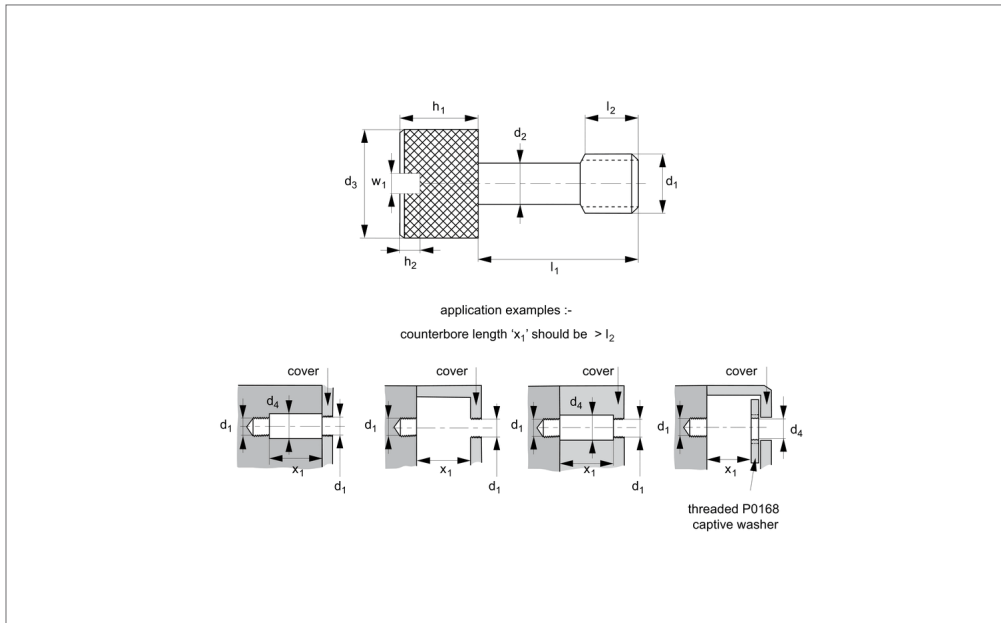
should be considered when fitted in panels with unthreaded holes.

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 d₁.

Order No.	d ₁	d ₂ ±0.12	l ₁ ±0.25	l ₂ ±0.25	d ₃	d ₄ min.	h ₁
20184766	M 3	2.0	8	4.5	8	3.5	5
20184773	M 3	2.0	10	4.5	8	3.5	5
20184780	M 3	2.0	12	4.5	8	3.5	5
20184797	M 3	2.0	14	4.5	8	3.5	5
20184803	M 3	2.0	16	4.5	8	3.5	5
20184810	M 3,5	2.3	8	6.0	8	3.8	5
20184827	M 3,5	2.3	10	6.0	8	3.8	5
20184834	M 3,5	2.3	12	6.0	8	3.8	5
20184841	M 3,5	2.3	14	6.0	8	3.8	5
20184858	M 3,5	2.3	16	6.0	8	3.8	5
20184865	M 4	2.8	10	6.0	10	4.5	5
20184872	M 4	2.8	12	6.0	10	4.5	5
20184889	M 4	2.8	14	6.0	10	4.5	5
20184896	M 4	2.8	16	6.0	10	4.5	5
20184902	M 4	2.8	18	6.0	10	4.5	5
20184919	M 4	2.8	20	6.0	10	4.5	5
20184926	M 4	2.8	25	6.0	10	4.5	5
20184933	M 5	3.7	10	7.5	10	5.5	5
20184940	M 5	3.7	12	7.5	10	5.5	5
20184957	M 5	3.7	14	7.5	10	5.5	5
20184964	M 5	3.7	16	7.5	10	5.5	5
20188191	M 5	3.7	18	7.5	10	5.5	5
20184971	M 5	3.7	20	7.5	10	5.5	5
20184988	M 5	3.7	25	7.5	10	5.5	5
20184995	M 5	3.7	30	7.5	10	5.5	5
20185008	M 6	4.5	12	7.5	12	6.5	6
20185015	M 6	4.5	14	7.5	12	6.5	6
20185022	M 6	4.5	16	7.5	12	6.5	6
20185039	M 6	4.5	18	7.5	12	6.5	6

Order No.	d ₁	d ₂ ±0.12	l ₁ ±0.25	l ₂ ±0.25	d ₃	d ₄ min.	h ₁
20185046	M 6	4.5	20	7.5	12	6.5	6
20185053	M 6	4.5	25	7.5	12	6.5	6
20185060	M 6	4.5	30	7.5	12	6.5	6
20190118	M 8	6.0	16	10.0	16	8.5	8
20190125	M 8	6.0	18	10.0	16	8.5	8
20190132	M 8	6.0	20	10.0	16	8.5	8
20190149	M 8	6.0	25	10.0	16	8.5	8
20190156	M 8	6.0	30	10.0	16	8.5	8
20190163	M 8	6.0	35	10.0	16	8.5	8



EP0162.A2

CAPTIVE SCREWS

Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm². Proof stress min. 190 N/mm², 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. Often used with our threaded captive washer or retaining flanges (for sheet metal applications). The use of our captive washer should be considered when fitted in panels with unthreaded holes.

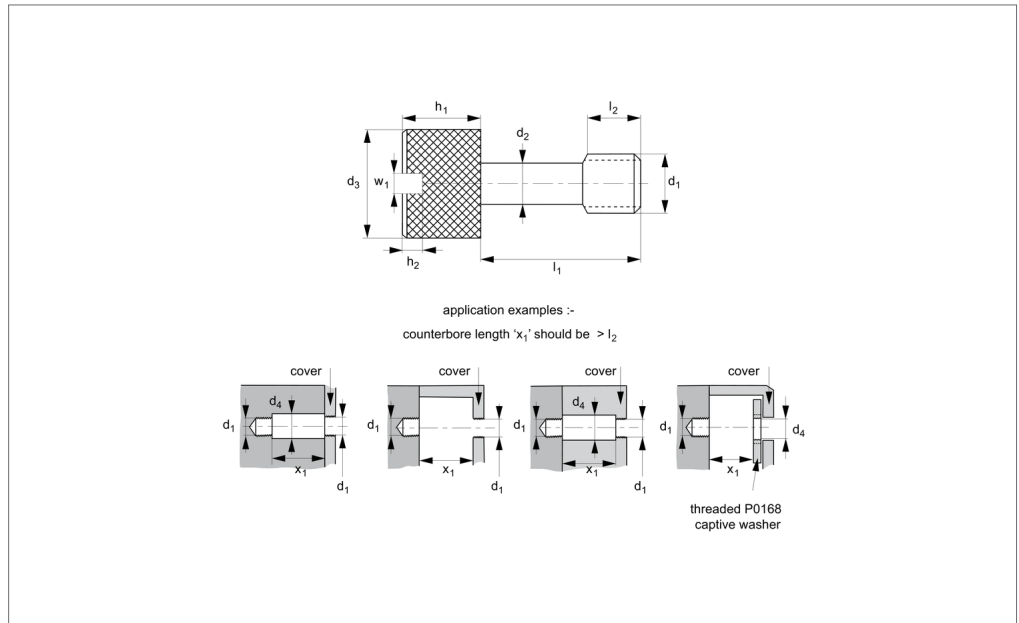
Important Notes

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 d₁.

Order No.	d ₁	d ₂ ±0.12	l ₁ ±0.25	l ₂ ±0.25	d ₃	d ₄ min.	h ₁	h ₂	w ₁
20139186	M 3	2.0	8.0	4.5	8	3.5	5	1.8	0.8
20139216	M 3	2.0	10.0	4.5	8	3.5	5	1.8	0.8
20139223	M 3	2.0	12.0	4.5	8	3.5	5	1.8	0.8
20139230	M 3	2.0	14.0	4.5	8	3.5	5	1.8	0.8
20139247	M 3	2.0	16.0	4.5	8	3.5	5	1.8	0.8
20139254	M 4	2.8	10.0	6.0	10	4.5	5	2.2	1.0
20139261	M 4	2.8	12.0	6.0	10	4.5	5	2.2	1.0
20139278	M 4	2.8	14.0	6.0	10	4.5	5	2.2	1.0
20139285	M 4	2.8	16.0	6.0	10	4.5	5	2.2	1.0
20139292	M 4	2.8	18.0	6.0	10	4.5	5	2.2	1.0
20139308	M 4	2.8	20.0	6.0	10	4.5	5	2.2	1.0
20139315	M 4	2.8	25.0	6.0	10	4.5	5	2.2	1.0
20139322	M 5	3.7	10.0	7.5	10	5.5	5	2.8	1.2
20139339	M 5	3.7	12.0	7.5	10	5.5	5	2.8	1.2
20139346	M 5	3.7	14.0	7.5	10	5.5	5	2.8	1.2
20139353	M 5	3.7	16.0	7.5	10	5.5	5	2.8	1.2
20139360	M 5	3.7	18.0	7.5	10	5.5	5	2.8	1.2
20139377	M 5	3.7	20.0	7.5	10	5.5	5	2.8	1.2
20139384	M 5	3.7	25.0	7.5	10	5.5	5	2.8	1.2
20139391	M 5	3.7	30.0	7.5	10	5.5	5	2.8	1.2
20139407	M 6	4.5	12.0	7.5	12	6.5	6	3.5	1.6
20139414	M 6	4.5	14.0	7.5	12	6.5	6	3.5	1.6
20139155	M 6	4.5	16.0	7.5	12	6.5	6	3.5	1.6
20139421	M 6	4.5	18.0	7.5	12	6.5	6	3.5	1.6
20139438	M 6	4.5	20.0	7.5	12	6.5	6	3.5	1.6
20139445	M 6	4.5	25.0	7.5	12	6.5	6	3.5	1.6
20139452	M 6	4.5	30.0	7.5	12	6.5	6	3.5	1.6



EP0162.A4



Material

Stainless steel (AISI 316, 1.440).
Tensile strength 480 N/mm². Proof stress min. 200 N/mm², austenitic stainless steel.
Also available on request in steel (anodised, black oxide or zinc plated), stainless steel (AISI 303, 1.4305), brass, aluminium etc.

Technical Notes

Used to comply with the Machinery Directive 2006/42/EC. Often used with our captive washer (EP0168) or retaining flanges (EP0169 - for sheet metal applications). The use of our captive washer should be considered when fitted in panels with unthreaded holes.

Important Notes

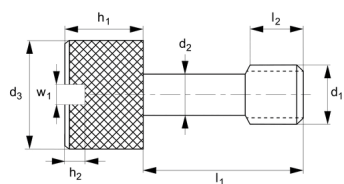
Please note that these screws have a reduced diameter shank and should not be tightened to the recommended torque for an equivalent machine screw of size d₁.

Order No.	d ₁	d ₂ ±0.12	l ₁ ±0.25	l ₂ ±0.25	d ₃	d ₄ min.	h ₁	h ₂	w ₁
20181901	M 3	2.0	8.0	4.5	8	3.5	5	1.8	0.8
20181918	M 3	2.0	10.0	4.5	8	3.5	5	1.8	0.8
20181925	M 3	2.0	12.0	4.5	8	3.5	5	1.8	0.8
20181932	M 3	2.0	14.0	4.5	8	3.5	5	1.8	0.8
20181949	M 3	2.0	16.0	4.5	8	3.5	5	1.8	0.8
20181956	M 4	2.8	10.0	6.0	10	4.5	5	2.2	1.0
20181963	M 4	2.8	12.0	6.0	10	4.5	5	2.2	1.0
20181970	M 4	2.8	14.0	6.0	10	4.5	5	2.2	1.0
20181987	M 4	2.8	16.0	6.0	10	4.5	5	2.2	1.0
20181994	M 4	2.8	18.0	6.0	10	4.5	5	2.2	1.0
20182007	M 4	2.8	20.0	6.0	10	4.5	5	2.2	1.0
20182014	M 4	2.8	25.0	6.0	10	4.5	5	2.2	1.0
20182021	M 5	3.7	10.0	7.5	10	5.5	5	2.8	1.2
20182038	M 5	3.7	12.0	7.5	10	5.5	5	2.8	1.2
20182045	M 5	3.7	14.0	7.5	10	5.5	5	2.8	1.2
20182052	M 5	3.7	16.0	7.5	10	5.5	5	2.8	1.2
20182069	M 5	3.7	18.0	7.5	10	5.5	5	2.8	1.2
20182076	M 5	3.7	20.0	7.5	10	5.5	5	2.8	1.2
20182083	M 5	3.7	25.0	7.5	10	5.5	5	2.8	1.2
20182090	M 5	3.7	30.0	7.5	10	5.5	5	2.8	1.2
20182106	M 6	4.5	12.0	7.5	12	6.5	6	3.5	1.6
20182113	M 6	4.5	14.0	7.5	12	6.5	6	3.5	1.6
20182120	M 6	4.5	16.0	7.5	12	6.5	6	3.5	1.6
20182137	M 6	4.5	18.0	7.5	12	6.5	6	3.5	1.6
20182144	M 6	4.5	20.0	7.5	12	6.5	6	3.5	1.6
20182151	M 6	4.5	25.0	7.5	12	6.5	6	3.5	1.6
20182168	M 6	4.5	30.0	7.5	12	6.5	6	3.5	1.6

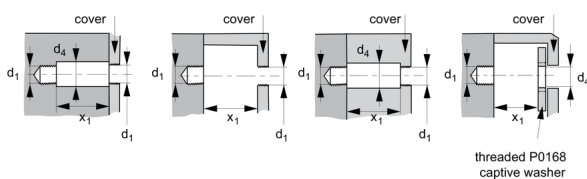
Captive Thumb Screws

slot drive - 303 stainless, blackened

Captive Screws



application examples :-
counterbore length 'x₁' should be > l₂



EP0162.B2

CAPTIVE SCREWS

Material

Stainless steel (AISI 303, 1.4305), black oxide coating. Tensile strength 550 N/mm². Proof stress min. 190 N/mm², 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. Often used with our captive washer (EP0168) or retaining flanges (EP0169 - for sheet metal applications). The use of our captive washer

should be considered when fitted in panels with unthreaded holes.

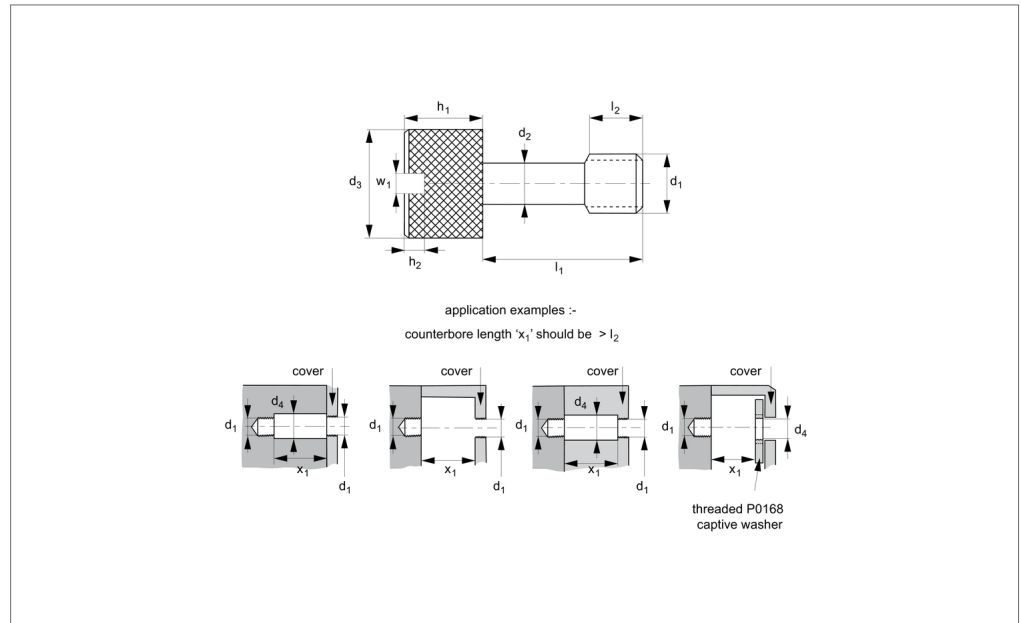
Important Notes

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 d₁.

Order No.	d ₁	d ₂ ±0.12	l ₁ ±0.25	l ₂ ±0.25	d ₃	d ₄ min.	h ₁	h ₂	w ₁
20185077	M 3	2.0	8.0	4.5	8	3.5	5	1.8	0.8
20185084	M 3	2.0	10.0	4.5	8	3.5	5	1.8	0.8
20185091	M 3	2.0	12.0	4.5	8	3.5	5	1.8	0.8
20185107	M 3	2.0	14.0	4.5	8	3.5	5	1.8	0.8
20185114	M 3	2.0	16.0	4.5	8	3.5	5	1.8	0.8
20185121	M 4	2.8	10.0	6.0	10	4.5	5	2.2	1.0
20185138	M 4	2.8	12.0	6.0	10	4.5	5	2.2	1.0
20185145	M 4	2.8	14.0	6.0	10	4.5	5	2.2	1.0
20185152	M 4	2.8	16.0	6.0	10	4.5	5	2.2	1.0
20185169	M 4	2.8	18.0	6.0	10	4.5	5	2.2	1.0
20185176	M 4	2.8	20.0	6.0	10	4.5	5	2.2	1.0
20185183	M 4	2.8	25.0	6.0	10	4.5	5	2.2	1.0
20185190	M 5	3.7	10.0	7.5	10	5.5	5	2.8	1.2
20185206	M 5	3.7	12.0	7.5	10	5.5	5	2.8	1.2
20185213	M 5	3.7	14.0	7.5	10	5.5	5	2.8	1.2
20185220	M 5	3.7	16.0	7.5	10	5.5	5	2.8	1.2
20185237	M 5	3.7	18.0	7.5	10	5.5	5	2.8	1.2
20185244	M 5	3.7	20.0	7.5	10	5.5	5	2.8	1.2
20185251	M 5	3.7	25.0	7.5	10	5.5	5	2.8	1.2
20185268	M 5	3.7	30.0	7.5	10	5.5	5	2.8	1.2
20185275	M 6	4.5	12.0	7.5	12	6.5	6	3.5	1.6
20185282	M 6	4.5	14.0	7.5	12	6.5	6	3.5	1.6
20185299	M 6	4.5	16.0	7.5	12	6.5	6	3.5	1.6
20185305	M 6	4.5	18.0	7.5	12	6.5	6	3.5	1.6
20185312	M 6	4.5	20.0	7.5	12	6.5	6	3.5	1.6
20185329	M 6	4.5	25.0	7.5	12	6.5	6	3.5	1.6
20185336	M 6	4.5	30.0	7.5	12	6.5	6	3.5	1.6



EP0162.B4



Material

Stainless steel (AISI 316, 1.440), black oxide coating. Tensile strength 480 N/mm². Proof stress min. 200 N/mm², austenitic stainless steel.

Also available on request in steel (anodised, black oxide or zinc plated) stainless steel (AISI 303, 1.4305), brass,

aluminium etc.

Technical Notes

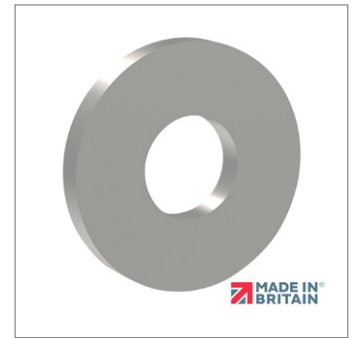
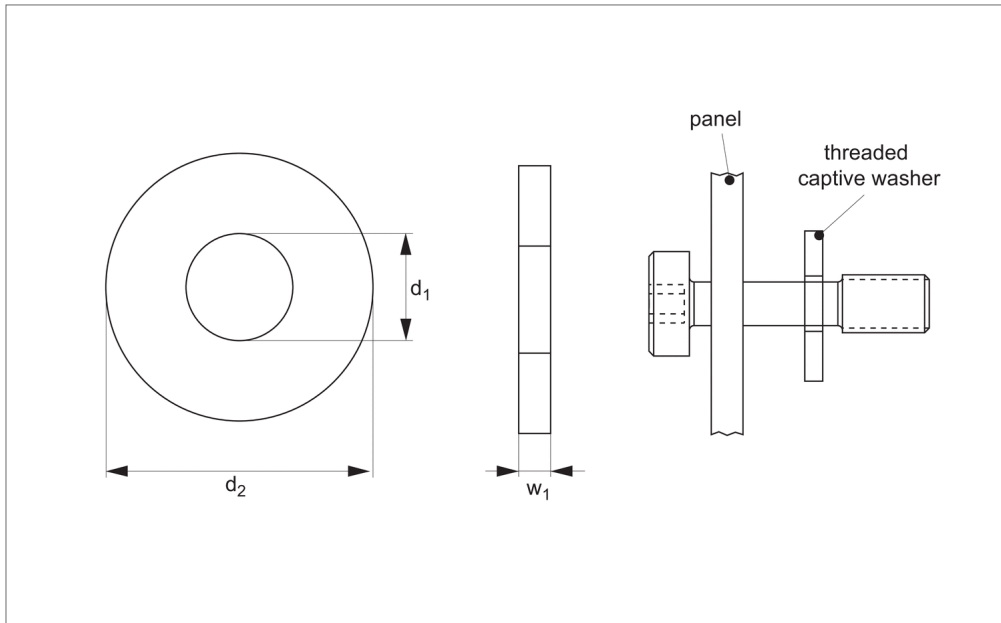
Used to comply with the Machinery Directive 2006/42/EC. Often used with our captive washer (EP0168) or retaining flanges (EP0169 - for sheet metal applications). The use of our captive washer

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 d₁.

Order No.	d ₁	d ₂ ±0.12	l ₁ ±0.25	l ₂ ±0.25	d ₃	d ₄ min.	h ₁	h ₂	w ₁
20188207	M 3	2.0	8.0	4.5	8	3.5	5	1.8	0.8
20188214	M 3	2.0	10.0	4.5	8	3.5	5	1.8	0.8
20188221	M 3	2.0	12.0	4.5	8	3.5	5	1.8	0.8
20188238	M 3	2.0	14.0	4.5	8	3.5	5	1.8	0.8
20188245	M 3	2.0	16.0	4.5	8	3.5	5	1.8	0.8
20188252	M 4	2.8	10.0	6.0	10	4.5	5	2.2	1.0
20188269	M 4	2.8	12.0	6.0	10	4.5	5	2.2	1.0
20188276	M 4	2.8	14.0	6.0	10	4.5	5	2.2	1.0
20188283	M 4	2.8	16.0	6.0	10	4.5	5	2.2	1.0
20188290	M 4	2.8	18.0	6.0	10	4.5	5	2.2	1.0
20188306	M 4	2.8	20.0	6.0	10	4.5	5	2.2	1.0
20188313	M 4	2.8	25.0	6.0	10	4.5	5	2.2	1.0
20188320	M 5	3.7	10.0	7.5	10	5.5	5	2.8	1.2
20188337	M 5	3.7	12.0	7.5	10	5.5	5	2.8	1.2
20188344	M 5	3.7	14.0	7.5	10	5.5	5	2.8	1.2
20188351	M 5	3.7	16.0	7.5	10	5.5	5	2.8	1.2
20188368	M 5	3.7	18.0	7.5	10	5.5	5	2.8	1.2
20188375	M 5	3.7	20.0	7.5	10	5.5	5	2.8	1.2
20188382	M 5	3.7	25.0	7.5	10	5.5	5	2.8	1.2
20188399	M 5	3.7	30.0	7.5	10	5.5	5	2.8	1.2
20188405	M 6	4.5	12.0	7.5	12	6.5	6	3.5	1.6
20188412	M 6	4.5	14.0	7.5	12	6.5	6	3.5	1.6
20188429	M 6	4.5	16.0	7.5	12	6.5	6	3.5	1.6
20188436	M 6	4.5	18.0	7.5	12	6.5	6	3.5	1.6
20188443	M 6	4.5	20.0	7.5	12	6.5	6	3.5	1.6
20188450	M 6	4.5	25.0	7.5	12	6.5	6	3.5	1.6
20188467	M 6	4.5	30.0	7.5	12	6.5	6	3.5	1.6



EP0168

Material

Stainless steel (AISI 303, 1.4305 and AISI 316, 1.440), steel (zinc-plated or black-oxide) 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.

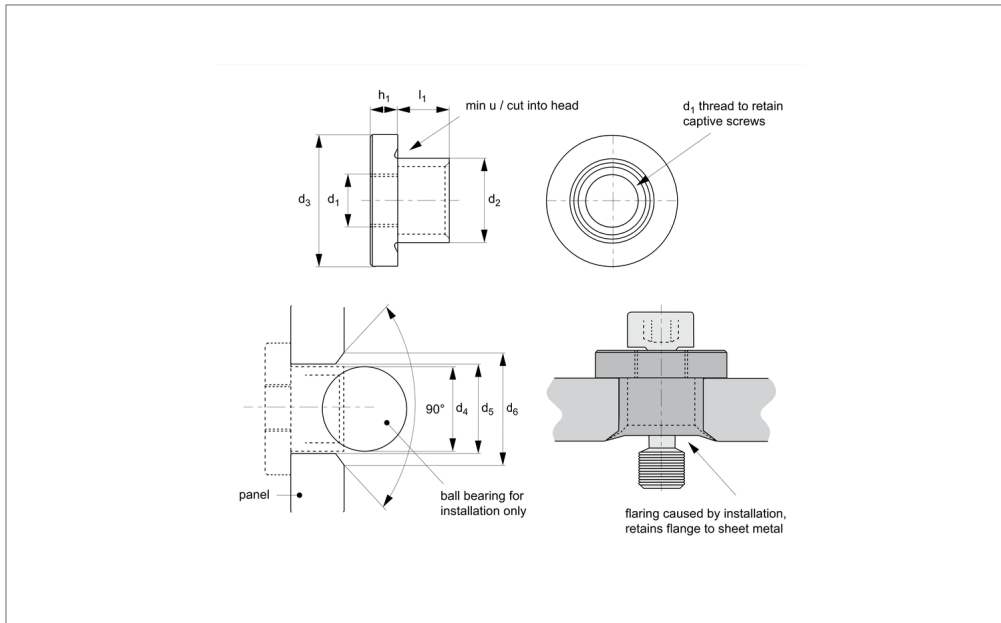
Tips

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.

Order No.	d ₁	w ₁ ±0.05	d ₂	Material
20145682	M 2,5	1.0	5.0	Stainless steel 303
20145620	M 3	1.0	6.0	Stainless steel 303
20145637	M 3,5	1.2	8.0	Stainless steel 303
20145644	M 4	1.2	8.0	Stainless steel 303
20145651	M 5	1.5	10.0	Stainless steel 303
20145668	M 6	1.6	12.0	Stainless steel 303
20145675	M 8	2.0	16.0	Stainless steel 303
20145699	M10	3.0	20.0	Stainless steel 303
20145705	M12	3.5	24.0	Stainless steel 303
20146429	M16	4.0	32.0	Stainless steel 303
20146528	M20	5.0	40.0	Stainless steel 303
20145781	M 2,5	1.0	5.0	Stainless steel 316
20145798	M 3	1.0	6.0	Stainless steel 316
20145804	M 3,5	1.2	8.0	Stainless steel 316
20145811	M 4	1.2	8.0	Stainless steel 316
20145767	M 5	1.5	10.0	Stainless steel 316
20145712	M 6	1.6	12.0	Stainless steel 316
20145729	M 8	2.0	16.0	Stainless steel 316
20145828	M10	3.0	20.0	Stainless steel 316
20145774	M12	3.5	24.0	Stainless steel 316
20146009	M16	4.0	32.0	Stainless steel 316
20146016	M20	5.0	40.0	Stainless steel 316
20146054	M 3	1.0	6.0	Blackened stainless 303
20146061	M 3,5	1.2	8.0	Blackened stainless 303
20146078	M 4	1.2	8.0	Blackened stainless 303
20146085	M 5	1.5	10.0	Blackened stainless 303
20146092	M 6	1.6	12.0	Blackened stainless 303
20146108	M 8	2.0	16.0	Blackened stainless 303
20146115	M10	3.0	20.0	Blackened stainless 303
20146122	M12	3.5	24.0	Blackened stainless 303

Order No.	d ₁	w ₁ ±0.05	d ₂	Material
20146436	M16	4.0	32.0	Blackened stainless 303
20146443	M20	5.0	40.0	Blackened stainless 303
20146139	M 2,5	1.0	5.0	Blackened stainless 316
20146146	M 3	1.0	6.0	Blackened stainless 316
20146153	M 3,5	1.2	8.0	Blackened stainless 316
20146160	M 4	1.2	8.0	Blackened stainless 316
20146177	M 5	1.5	10.0	Blackened stainless 316
20146184	M 6	1.6	12.0	Blackened stainless 316
20146191	M 8	2.0	16.0	Blackened stainless 316
20146207	M10	3.0	20.0	Blackened stainless 316
20146214	M12	3.5	24.0	Blackened stainless 316
20146450	M16	4.0	32.0	Blackened stainless 316
20146467	M20	5.0	40.0	Blackened stainless 316
20145835	M 2,5	1.0	5.0	Zinc-plated steel
20145842	M 3	1.0	6.0	Zinc-plated steel
20145859	M 3,5	1.2	8.0	Zinc-plated steel
20145866	M 4	1.2	8.0	Zinc-plated steel
20145750	M 5	1.5	10.0	Zinc-plated steel
20145736	M 6	1.6	12.0	Zinc-plated steel
20145873	M 8	2.0	16.0	Zinc-plated steel
20145743	M10	3.0	20.0	Zinc-plated steel
20145880	M12	3.5	24.0	Zinc-plated steel
20146474	M16	4.0	32.0	Zinc-plated steel
20146481	M20	5.0	40.0	Zinc-plated steel
20145897	M 2,5	1.0	5.0	Blackened steel
20145903	M 3	1.0	6.0	Blackened steel
20145910	M 3,5	1.2	8.0	Blackened steel
20145927	M 4	1.2	8.0	Blackened steel
20145934	M 5	1.5	10.0	Blackened steel
20145941	M 6	1.6	12.0	Blackened steel
20145958	M 8	2.0	16.0	Blackened steel
20145965	M10	3.0	20.0	Blackened steel
20145972	M12	3.5	24.0	Blackened steel
20146498	M16	4.0	32.0	Blackened steel
20146504	M20	5.0	40.0	Blackened steel
20146221	M 2,5	1.0	5.0	Grade 2 titanium
20146238	M 3	1.0	6.0	Grade 2 titanium
20146245	M 3,5	1.2	8.0	Grade 2 titanium
20146252	M 4	1.2	8.0	Grade 2 titanium
20146269	M 5	1.5	10.0	Grade 2 titanium
20146276	M 6	1.6	12.0	Grade 2 titanium
20146283	M 8	2.0	16.0	Grade 2 titanium
20146290	M10	3.0	20.0	Grade 2 titanium
20146306	M12	3.5	24.0	Grade 2 titanium
20146313	M16	4.0	32.0	Grade 2 titanium
20146320	M20	5.0	40.0	Grade 2 titanium
20146337	M 2,5	1.0	5.0	Grade 5 titanium
20146344	M 3	1.0	6.0	Grade 5 titanium
20146351	M 3,5	1.2	8.0	Grade 5 titanium
20146368	M 4	1.2	8.0	Grade 5 titanium
20146375	M 5	1.5	10.0	Grade 5 titanium
20146382	M 6	1.6	12.0	Grade 5 titanium
20146399	M 8	2.0	16.0	Grade 5 titanium
20146023	M10	3.0	20.0	Grade 5 titanium
20146405	M12	3.5	24.0	Grade 5 titanium
20146511	M16	4.0	32.0	Grade 5 titanium
20146412	M20	5.0	40.0	Grade 5 titanium



EP0169.A2

CAPTIVE SCREWS

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.
 For aluminium retainer flanges please see
 part no. P0169.AL.

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°.

Technical Notes

Select the retainer flange to suit thread of

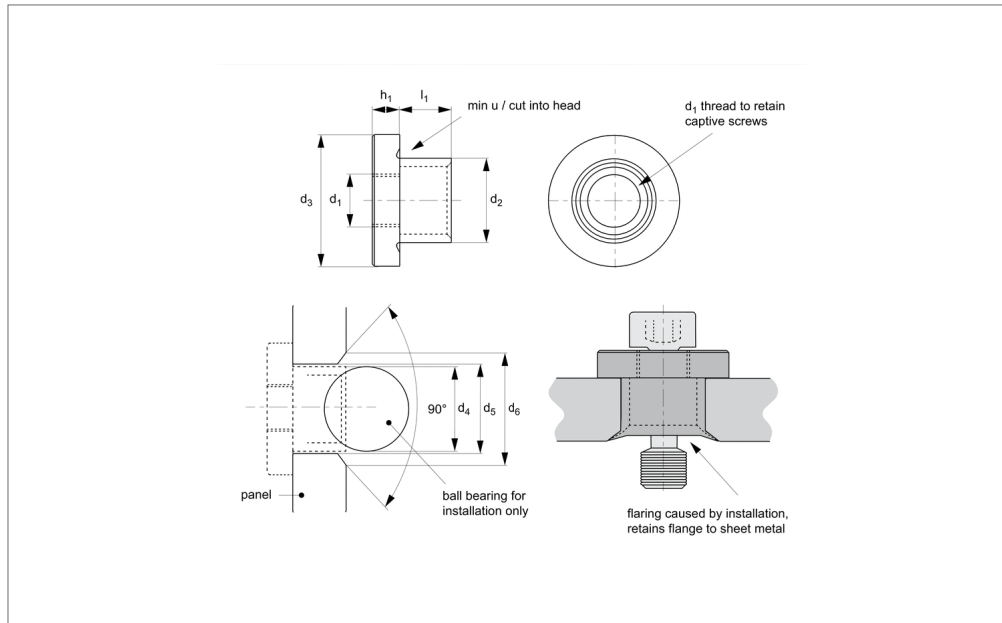
Order No.	For thread d_1	Panel t_1 ±8%	d_2	h_1	l_1	d_3	Installation ball dia. d_4	d_5 tol. H9	d_6	Sheet metal gauge
20180232	M 3	0.70	5.0	1.5	0.70	7.5	5	5.0	6.0	22
20180249	M 3	0.90	5.0	1.5	0.90	7.5	5	5.0	6.0	20
20180256	M 3	1.25	5.0	1.5	1.25	7.5	5	5.0	6.0	18
20180263	M 3	1.50	5.0	1.5	1.50	7.5	5	5.0	6.0	16
20180270	M 3	2.00	5.0	1.5	2.00	7.5	5	5.0	6.0	14
20180287	M 3	2.50	5.0	1.5	2.50	7.5	5	5.0	6.0	12
20180294	M 3	3.00	5.0	1.5	3.00	7.5	5	5.0	6.0	10
20180300	M 3	4.00	5.0	1.5	4.00	7.5	5	5.0	6.0	8
20180317	M 3	5.00	5.0	1.5	5.00	7.5	5	5.0	6.0	6
20180324	M 3	6.00	5.0	1.5	6.00	7.5	5	5.0	6.0	4
20180331	M 4	0.70	6.8	2.0	0.70	10.0	7	6.8	8.2	22
20180348	M 4	0.90	6.8	2.0	0.90	10.0	7	6.8	8.2	20
20180355	M 4	1.25	6.8	2.0	1.25	10.0	7	6.8	8.2	18
20180362	M 4	1.50	6.8	2.0	1.50	10.0	7	6.8	8.2	16
20180379	M 4	2.00	6.8	2.0	2.00	10.0	7	6.8	8.2	14
20180386	M 4	2.50	6.8	2.0	2.50	10.0	7	6.8	8.2	12
20180393	M 4	3.00	6.8	2.0	3.00	10.0	7	6.8	8.2	10
20180409	M 4	4.00	6.8	2.0	4.00	10.0	7	6.8	8.2	8
20180416	M 4	5.00	6.8	2.0	5.00	10.0	7	6.8	8.2	6
20180423	M 4	6.00	6.8	2.0	6.00	10.0	7	6.8	8.2	4
20180430	M 5	0.70	8.0	2.5	0.70	12.5	8	8.0	9.6	22
20180447	M 5	0.90	8.0	2.5	0.90	12.5	8	8.0	9.6	20
20180454	M 5	1.25	8.0	2.5	1.25	12.5	8	8.0	9.6	18
20180461	M 5	1.50	8.0	2.5	1.50	12.5	8	8.0	9.6	16
20180478	M 5	2.00	8.0	2.5	2.00	12.5	8	8.0	9.6	14
20180485	M 5	2.50	8.0	2.5	2.50	12.5	8	8.0	9.6	12
20180492	M 5	3.00	8.0	2.5	3.00	12.5	8	8.0	9.6	10
20180508	M 5	4.00	8.0	2.5	4.00	12.5	8	8.0	9.6	8

Order No.	For thread d ₁	Panel t ₁ ±8%	d ₂	h ₁	l ₁	d ₃	Installation ball dia. d ₄	d ₅ tol. H9	d ₆	Sheet metal gauge
20180515	M 5	5.00	8.0	2.5	5.00	12.5	8	8.0	9.6	6
20180522	M 5	6.00	8.0	2.5	6.00	12.5	8	8.0	9.6	4
20180539	M 6	0.70	10.0	3.0	0.70	15.0	10	10.0	12.0	22
20180546	M 6	0.90	10.0	3.0	0.90	15.0	10	10.0	12.0	20
20180553	M 6	1.25	10.0	3.0	1.25	15.0	10	10.0	12.0	18
20180171	M 6	1.50	10.0	3.0	1.50	15.0	10	10.0	12.0	16
20180560	M 6	2.00	10.0	3.0	2.00	15.0	10	10.0	12.0	14
20180577	M 6	2.50	10.0	3.0	2.50	15.0	10	10.0	12.0	12
20180164	M 6	3.00	10.0	3.0	3.00	15.0	10	10.0	12.0	10
20180584	M 6	4.00	10.0	3.0	4.00	15.0	10	10.0	12.0	8
20180591	M 6	5.00	10.0	3.0	5.00	15.0	10	10.0	12.0	6
20180607	M 6	6.00	10.0	3.0	6.00	15.0	10	10.0	12.0	4
20180614	M 8	0.70	13.0	4.0	0.70	20.0	13	13.0	15.5	22
20198046	M 8	0.90	13.0	4.0	0.90	20.0	13	13.0	15.5	20
20180638	M 8	1.25	13.0	4.0	1.25	20.0	13	13.0	15.5	18
20180645	M 8	1.50	13.0	4.0	1.50	20.0	13	13.0	15.5	16
20180652	M 8	2.00	13.0	4.0	2.00	20.0	13	13.0	15.5	14
20180669	M 8	2.50	13.0	4.0	2.50	20.0	13	13.0	15.5	12
20180676	M 8	3.00	13.0	4.0	3.00	20.0	13	13.0	15.5	10
20180683	M 8	4.00	13.0	4.0	4.00	20.0	13	13.0	15.5	8
20180690	M 8	5.00	13.0	4.0	5.00	20.0	13	13.0	15.5	6
20180706	M 8	6.00	13.0	4.0	6.00	20.0	13	13.0	15.5	4

Captive Screw Retainer Flange

aluminium

Captive Screws



EP0169.AL

CAPTIVE SCREWS

Material

Aluminium.

Also available on request in steel (anodised, black oxide or zinc plated) stainless steel (A4, AISI 316), brass. For stainless (A2) retainer flanges please see part no. EP0169.A2.

Technical Notes

Select the retainer flange to suit thread of

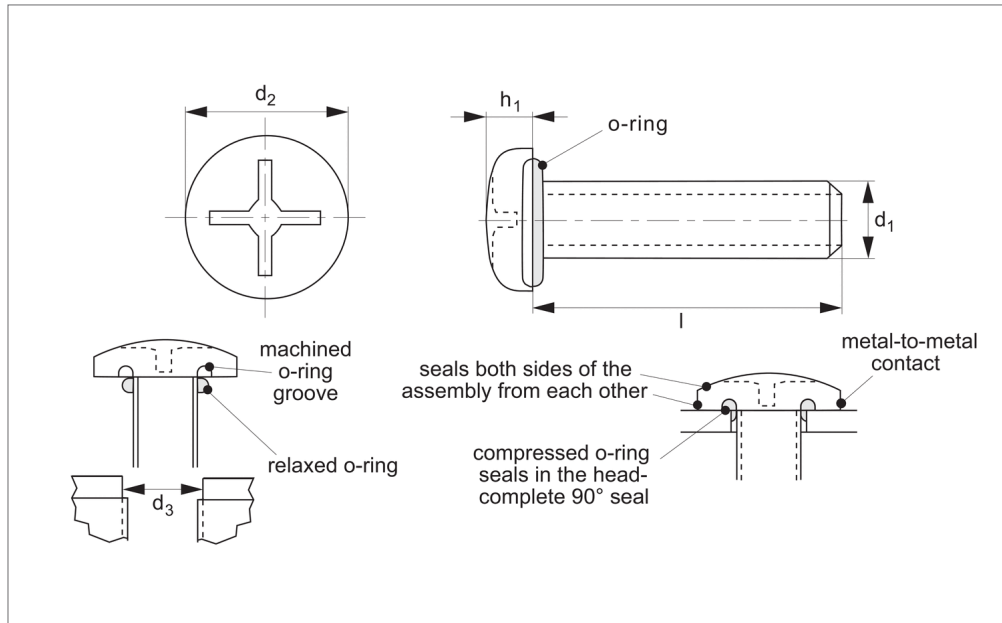
the captive screw and the thickness of the panel to be retained. Drill and countersink hole in the panel and use the ball bearing supplied to spread the flange into the countersunk hole. The captive screw is then screwed into the flange and the screw is retained to the panel.

Tips

Mounting hole diameter to H9 clearance. Countersunk d_6 to 90° .

Order No.	For thread d_1	Panel t_1 $\pm 8\%$	d_2	h_1	l_1	d_3	Installation ball dia. d_4	d_5 tol. H9	d_6	Sheet metal gauge
20252151	M3	0.7	5.0	1.5	0.7	7.5	5	5.0	6.0	22
20252168	M3	0.9	5.0	1.5	0.9	7.5	5	5.0	6.0	20
20252175	M3	1.25	5.0	1.5	1.25	7.5	5	5.0	6.0	18
20252182	M3	1.5	5.0	1.5	1.5	7.5	5	5.0	6.0	16
20252199	M3	2.0	5.0	1.5	2.0	7.5	5	5.0	6.0	14
20252205	M3	2.5	5.0	1.5	2.5	7.5	5	5.0	6.0	12
20252212	M3	3.0	5.0	1.5	3.0	7.5	5	5.0	6.0	10
20252229	M3	4.0	5.0	1.5	4.0	7.5	5	5.0	6.0	8
20252236	M3	5.0	5.0	1.5	5.0	7.5	5	5.0	6.0	6
20252243	M3	6.0	5.0	1.5	6.0	7.5	5	5.0	6.0	4
20252250	M4	0.7	6.8	2.0	0.7	10.0	7	6.8	8.2	22
20252267	M4	0.9	6.8	2.0	0.9	10.0	7	6.8	8.2	20
20252274	M4	1.25	6.8	2.0	1.25	10.0	7	6.8	8.2	18
20252281	M4	1.5	6.8	2.0	1.5	10.0	7	6.8	8.2	16
20252298	M4	2.0	6.8	2.0	2.0	10.0	7	6.8	8.2	14
20252304	M4	2.5	6.8	2.0	2.5	10.0	7	6.8	8.2	12
20252311	M4	3.0	6.8	2.0	3.0	10.0	7	6.8	8.2	10
20252328	M4	4.0	6.8	2.0	4.0	10.0	7	6.8	8.2	8
20252335	M4	5.0	6.8	2.0	5.0	10.0	7	6.8	8.2	6
20252342	M4	6.0	6.8	2.0	6.0	10.0	7	6.8	8.2	4
20252359	M5	0.7	8.0	2.5	0.7	12.5	8	8.0	9.6	22
20252366	M5	0.9	8.0	2.5	0.9	12.5	8	8.0	9.6	20
20252373	M5	1.25	8.0	2.5	1.25	12.5	8	8.0	9.6	18
20252380	M5	1.5	8.0	2.5	1.5	12.5	8	8.0	9.6	16
20252397	M5	2.0	8.0	2.5	2.0	12.5	8	8.0	9.6	14
20252403	M5	2.5	8.0	2.5	2.5	12.5	8	8.0	9.6	12
20252410	M5	3.0	8.0	2.5	3.0	12.5	8	8.0	9.6	10
20252427	M5	4.0	8.0	2.5	4.0	12.5	8	8.0	9.6	8

Order No.	For thread d ₁	Panel t ₁ ±8%	d ₂	h ₁	l ₁	d ₃	Installation ball dia. d ₄	d ₅ tol. H9	d ₆	Sheet metal gauge
20252434	M5	5.0	8.0	2.5	5.0	12.5	8	8.0	9.6	6
20252441	M5	6.0	8.0	2.5	6.0	12.5	8	8.0	9.6	4
20252458	M6	0.7	10.0	3.0	0.7	15.0	10	10.0	12.0	22
20252465	M6	0.9	10.0	3.0	0.9	15.0	10	10.0	12.0	20
20252472	M6	1.25	10.0	3.0	1.25	15.0	10	10.0	12.0	18
20252489	M6	1.5	10.0	3.0	1.5	15.0	10	10.0	12.0	16
20252496	M6	2.0	10.0	3.0	2.0	15.0	10	10.0	12.0	14
20252502	M6	2.5	10.0	3.0	2.5	15.0	10	10.0	12.0	12
20252519	M6	3.0	10.0	3.0	3.0	15.0	10	10.0	12.0	10
20252526	M6	4.0	10.0	3.0	4.0	15.0	10	10.0	12.0	8
20252533	M6	5.0	10.0	3.0	5.0	15.0	10	10.0	12.0	6
20252540	M6	6.0	10.0	3.0	6.0	15.0	10	10.0	12.0	4
20252557	M8	0.7	13.0	4.0	0.7	20.0	13	13.0	15.5	22
20252564	M8	0.9	13.0	4.0	0.9	20.0	13	13.0	15.5	20
20252571	M8	1.25	13.0	4.0	1.25	20.0	13	13.0	15.5	18
20252588	M8	1.5	13.0	4.0	1.5	20.0	13	13.0	15.5	16
20252595	M8	2.0	13.0	4.0	2.0	20.0	13	13.0	15.5	14
20252601	M8	2.5	13.0	4.0	2.5	20.0	13	13.0	15.5	12
20252618	M8	3.0	13.0	4.0	3.0	20.0	13	13.0	15.5	10
20252625	M8	4.0	13.0	4.0	4.0	20.0	13	13.0	15.5	8
20252632	M8	5.0	13.0	4.0	5.0	20.0	13	13.0	15.5	6
20252649	M8	6.0	13.0	4.0	6.0	20.0	13	13.0	15.5	4



EP0170

Material

Stainless steel (AISI 303 1.4305 tensile strength 550 N/mm²), with silicone „O“ ring as standard.

For other „O“ ring materials see technical data pages

(-FS = fluorosilicone, -EP = EPDM, -VI = viton, -NI = nitrile, -BN = Buna etc.).

Other thread lengths, and stainless steel

A4 (AISI 316) on request.

Technical Notes

Seals substances in and contaminants out, screws generally as DIN 7985 H, ISO 7045. Max temperature range: -100°C to +260°C, pressure range - up to 410 bar (6000 psi). Re-usable, also available (on request) with thread-locking.

Tips

Clearance holes recommended for maximum sealing performance (see dimensions below).

Clearance hole depth 2-3 x thread pitch, threads are metric coarse pitch.

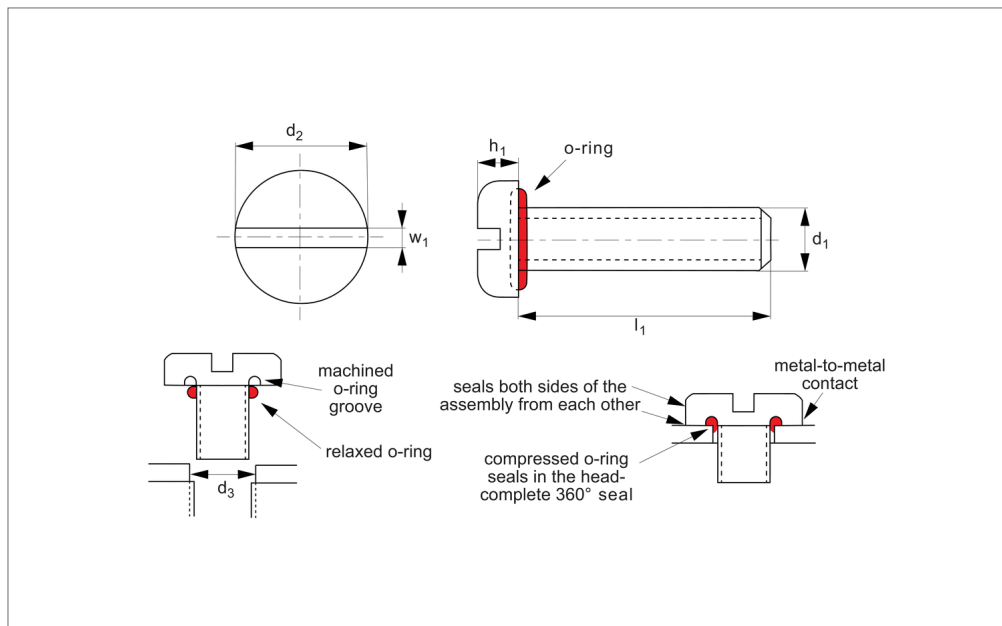
Order No.	d ₁	l ₁	h ₁ max.	d ₂ max.	d ₃ ±0.05	Drive
20227708	M 2	3	1.6	4.0	2.35	PH-1
20223601	M 2	4	1.6	4.0	2.35	PH-1
20223618	M 2	8	1.6	4.0	2.35	PH-1
20223625	M 2	10	1.6	4.0	2.35	PH-1
20223632	M 2	12	1.6	4.0	2.35	PH-1
20223649	M2,5	6	2.1	4.7	2.75	PH-1
20223656	M2,5	8	2.1	4.7	2.75	PH-1
20223663	M2,5	10	2.1	4.7	2.75	PH-1
20223670	M2,5	12	2.1	4.7	2.75	PH-1
20228705	M2,5	16	2.1	4.7	2.75	PH-1
20228712	M2,5	20	2.1	4.7	2.75	PH-1
20228729	M2,5	25	2.1	4.7	2.75	PH-1
20228736	M2,5	30	2.1	4.7	2.75	PH-1
20228743	M2,5	35	2.1	4.7	2.75	PH-1
20223687	M 3	6	2.4	6.0	3.6	PH-1
20223694	M 3	8	2.4	6.0	3.6	PH-1
20223700	M 3	10	2.4	6.0	3.6	PH-1
20223717	M 3	12	2.4	6.0	3.6	PH-1
20225780	M 3	16	2.4	6.0	3.6	PH-1
20223724	M 3	20	2.4	6.0	3.6	PH-1
20228750	M 3	30	2.4	6.0	3.6	PH-1
20228767	M 3	35	2.4	6.0	3.6	PH-1
20228774	M 3	40	2.4	6.0	3.6	PH-1
20223731	M 4	6	3.1	8.0	4.5	PH-2
20223748	M 4	8	3.1	8.0	4.5	PH-2
20223755	M 4	10	3.1	8.0	4.5	PH-2
20223762	M 4	12	3.1	8.0	4.5	PH-2
20225735	M 4	16	3.1	8.0	4.5	PH-2

Sealing Screws and Plugs

Pan Head Seal Screws phillips drive

SEALING SCREWS AND PLUGS

Order No.	d ₁	l ₁	h ₁ max.	d ₂ max.	d ₃ ±0.05	Drive
20223779	M 4	20	3.1	8.0	4.5	PH-2
20228781	M 4	30	3.1	8.0	4.5	PH-2
20228798	M 4	35	3.1	8.0	4.5	PH-2
20228804	M 4	40	3.1	8.0	4.5	PH-2
20223786	M 5	8	3.7	10.0	5.6	PH-2
20223793	M 5	10	3.7	10.0	5.6	PH-2
20223809	M 5	12	3.7	10.0	5.6	PH-2
20223816	M 5	16	3.7	10.0	5.6	PH-2
20223823	M 5	20	1.6	10.0	5.6	PH-2
20228811	M 5	30	1.6	10.0	5.6	PH-2
20228828	M 5	35	1.6	10.0	5.6	PH-2
20228835	M 5	40	1.6	10.0	5.6	PH-2
20223830	M 6	12	4.6	12.0	6.8	PH-3
20223847	M 6	16	4.6	12.0	6.8	PH-3
20223854	M 6	20	4.6	12.0	6.8	PH-3
20223861	M 6	25	4.6	12.0	6.8	PH-3
20223878	M 6	30	4.6	12.0	6.8	PH-3
20228842	M 6	35	4.6	12.0	6.8	PH-3
20228859	M 6	40	4.6	12.0	6.8	PH-3
20228866	M 6	45	4.6	12.0	6.8	PH-3
20228873	M 6	50	4.6	12.0	6.8	PH-3
20223885	M 8	12	6.0	16.0	8.5	PH-4
20223892	M 8	16	6.0	16.0	8.5	PH-4
20223908	M 8	20	6.0	16.0	8.5	PH-4
20223915	M 8	25	6.0	16.0	8.5	PH-4
20223922	M 8	30	6.0	16.0	8.5	PH-4
20228880	M 8	40	6.0	16.0	8.5	PH-4
20228897	M 8	50	6.0	16.0	8.5	PH-4
20228903	M 8	60	6.0	16.0	8.5	PH-4
20223939	M10	16	7.5	20.0	10.6	PH-4
20223946	M10	20	7.5	20.0	10.6	PH-4
20223953	M10	25	7.5	20.0	10.6	PH-4
20223960	M10	30	7.5	20.0	10.6	PH-4
20223977	M10	40	7.5	20.0	10.6	PH-4
20227661	M 4	8	3.1	8.0	4.5	PH-2
20244729	M 6	12	4.6	12.0	6.8	PH-3
20228514	M 8	20	6.0	16.0	8.5	PH-4
20229085	M10	40	7.5	20.0	10.6	PH-4



EP0171

Material

Stainless steel (AISI 303 1.4305 tensile strength 550 N/mm²), with silicone „O“ ring as standard.

For other „O“ ring materials see technical data pages

(-FS = fluorosilicone, -EP = EPDM, -VI = viton, -NI = nitrile, -BN = Buna etc.).

Other thread lengths, and stainless steel

A4 (AISI 316) on request.

Technical Notes

Screws generally as DIN 85 A, ISO 1580, seals substances in and contaminants out. Re-useable. Clearance holes recommended for maximum sealing.

Max temperature range: -100°C to +260°C, pressure range - up to 410 bar (6000 psi).

Also available (on request) with thread-locking.

Tips

Clearance holes recommended for maximum sealing performance (see dimensions below).

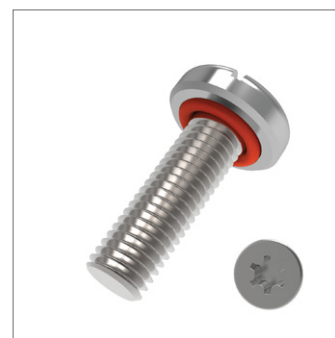
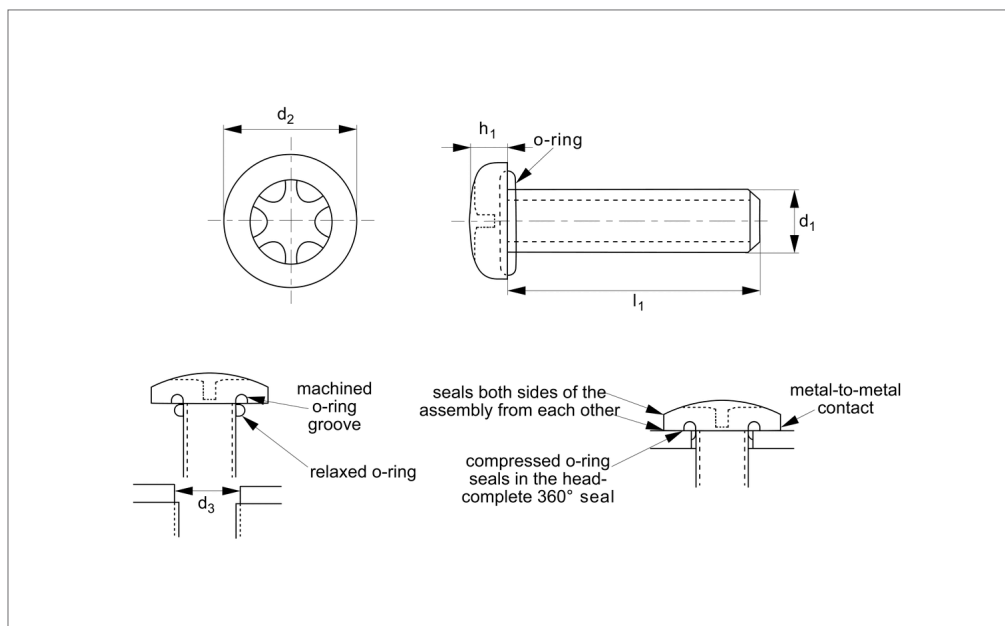
Clearance hole depth 2-3 x thread pitch, threads are metric coarse pitch.

Order No.	d ₁	l ₁	h ₁ max.	w ₁	d ₂ max.	d ₃ ±0.05
20223991	M 2	4	1.3	0.7	4.0	2.35
20224004	M 2	8	1.3	0.7	4.0	2.35
20224011	M 2	10	1.3	0.7	4.0	2.35
20224028	M 2	12	1.3	0.7	4.0	2.35
20224035	M2,5	6	1.5	0.8	5.0	2.75
20224042	M2,5	8	1.5	0.8	5.0	2.75
20224059	M2,5	10	1.5	0.8	5.0	2.75
20224066	M2,5	12	1.5	0.8	5.0	2.75
20224080	M 3	6	1.8	1.0	6.0	3.6
20224097	M 3	8	1.8	1.0	6.0	3.6
20224103	M 3	10	1.8	1.0	6.0	3.6
20224127	M 3	12	1.8	1.0	6.0	3.6
20224134	M 3	20	1.8	1.0	6.0	3.6
20224141	M 4	6	2.4	1.4	8.0	4.5
20224158	M 4	8	2.4	1.4	8.0	4.5
20224165	M 4	10	2.4	1.4	8.0	4.5
20224172	M 4	12	2.4	1.4	8.0	4.5
20225810	M 4	16	2.4	1.4	8.0	4.5
20224189	M 4	20	2.4	1.4	8.0	4.5
20224196	M 5	8	3.0	1.6	10.0	5.6
20224202	M 5	10	3.0	1.6	10.0	5.6
20224219	M 5	12	3.0	1.6	10.0	5.6
20224226	M 5	16	3.0	1.6	10.0	5.6
20224233	M 5	20	3.0	1.6	10.0	5.6
20224240	M 6	12	3.6	2.0	12.0	6.8
20224257	M 6	16	3.6	2.0	12.0	6.8
20224271	M 6	20	3.6	2.0	12.0	6.8
20224288	M 6	25	3.6	2.0	12.0	6.8

Sealing Screws and Plugs

Pan Head Seal Screws slotted

Order No.	d ₁	l ₁	h ₁ max.	w ₁	d ₂ max.	d ₃ ±0.05
20224295	M 6	30	3.6	2.0	12.0	6.8
20224301	M 8	12	4.8	2.5	16.0	8.5
20224318	M 8	16	4.8	2.5	16.0	8.5
20224325	M 8	20	4.8	2.5	16.0	8.5
20224332	M 8	25	4.8	2.5	16.0	8.5
20224349	M 8	30	4.8	2.5	16.0	8.5
20224356	M10	16	6.0	3.0	20.0	10.6
20224363	M10	20	6.0	3.0	20.0	10.6
20224370	M10	25	6.0	3.0	20.0	10.6
20224387	M10	30	6.0	3.0	20.0	10.6
20224394	M10	40	6.0	3.0	20.0	10.6
20222512	M 4	6	2.4	1.4	8.0	4.5
20225742	M 4	10	2.4	1.4	8.0	4.5



EP0172

Material

Stainless steel (AISI 303 1.4305 tensile strength 550 N/mm²), with silicone „O“ ring as standard.

For other „O“ ring materials see technical data pages (-FS = fluorosilicone, -EP = EPDM, -VI = viton, -NI = nitrile, -BN = Buna etc.).

Other thread lengths, and stainless steel

A4 (AISI 316) on request.

Technical Notes

Seals substances in and contaminants out. Screws generally as DIN 7985 H, ISO 7045. Re-useable.

Max temperature range: -100°C to +260°C.

Pressure range - up to 410 bar (6000 psi).

Also available (on request) with thread-

locking.

Tips

Clearance holes recommended for maximum sealing performance (see dimensions below).

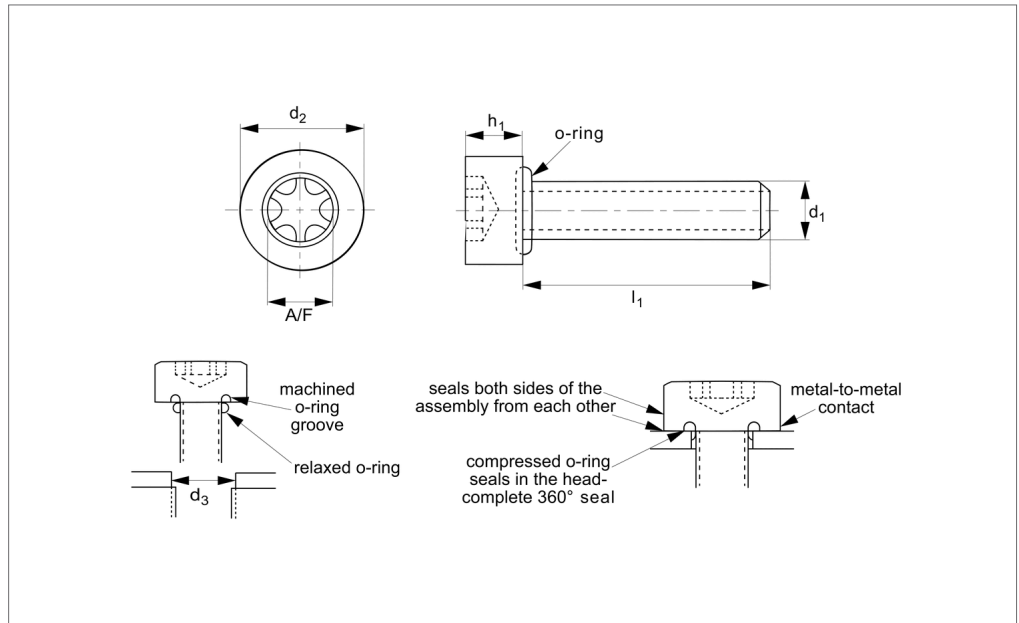
Clearance hole depth 2-3 x thread pitch.

Threads are metric coarse pitch.

Order No.	d ₁	l ₁	h ₁ max.	d ₂ max.	d ₃ ±0.05	Drive
20225452	M 3	6	2.4	6.0	3.6	TX-10
20225469	M 3	8	2.4	6.0	3.6	TX-10
20225476	M 3	10	2.4	6.0	3.6	TX-10
20225483	M 3	12	2.4	6.0	3.6	TX-10
20225490	M 3	20	2.4	6.0	3.6	TX-10
20225506	M 4	6	3.3	8.0	4.5	TX-20
20225513	M 4	8	3.3	8.0	4.5	TX-20
20225520	M 4	10	3.3	8.0	4.5	TX-20
20225537	M 4	12	3.3	8.0	4.5	TX-20
20225544	M 4	16	3.3	8.0	4.5	TX-20
20225551	M 4	20	3.3	8.0	4.5	TX-20
20225568	M 5	8	3.7	10.0	5.6	TX-25
20225575	M 5	10	3.7	10.0	5.6	TX-25
20225582	M 5	12	3.7	10.0	5.6	TX-25
20225599	M 5	16	3.7	10.0	5.6	TX-25
20225605	M 5	20	1.6	10.0	5.6	TX-25
20225612	M 6	12	4.6	12.0	6.8	TX-30
20225629	M 6	16	4.6	12.0	6.8	TX-30
20225636	M 6	20	4.6	12.0	6.8	TX-30
20225643	M 6	25	4.6	12.0	6.8	TX-30
20225650	M 6	30	4.6	12.0	6.8	TX-30
20225667	M 8	12	6.0	16.0	8.5	TX-40
20225674	M 8	16	6.0	16.0	8.5	TX-40
20225681	M 8	20	6.0	16.0	8.5	TX-40
20225698	M 8	25	6.0	16.0	8.5	TX-40
20225704	M 8	30	6.0	16.0	8.5	TX-40



EP0173.TX



Material

Stainless steel (AISI 303 1.4305 tensile strength 550 N/mm² or AISI 316 1.440 tensile strength 480 N/mm²), with silicone „O“ ring as standard.
 For other „O“ ring materials see technical data pages
 (-FS = fluorosilicone, -EP = EPDM, -VI = viton, -NI = nitrile, -BN = Buna etc.).

Other thread lengths on request.

Technical Notes

Screws generally as ISO 14759, seals substances in and contaminants out
 Re-useable, clearance holes recommended for maximum sealing.
 Max temperature range: -100°C to +260°C,
 pressure range - up to 410 bar (6000 psi).

Also available (on request) with thread-locking.

Tips

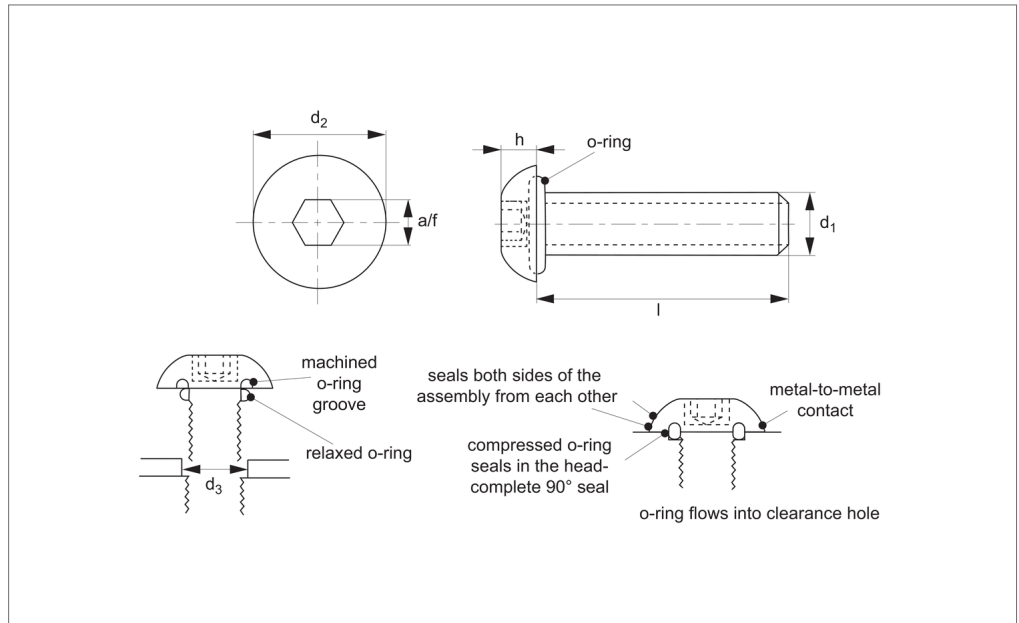
Clearance holes recommended for maximum sealing performance (see dimensions below).
 Clearance hole depth 2-3 x thread pitch,
 threads are metric coarse pitch.

Order No.	d ₁	l ₁	h ₁ max.	d ₂ max.	Drive	d ₃ ±0.05	Material
20227753	M 2	4	2.0	3.8	TX 6	2.35	A2 s/s
20227760	M 2	8	2.0	3.8	TX 6	2.35	A2 s/s
20227777	M 2	10	2.0	3.8	TX 6	2.35	A2 s/s
20227784	M 2	12	2.0	3.8	TX 6	2.35	A2 s/s
20227791	M2,5	6	2.5	4.5	TX 8	2.75	A2 s/s
20227807	M2,5	8	2.5	4.5	TX 8	2.75	A2 s/s
20227081	M2,5	10	2.5	4.5	TX 8	2.75	A2 s/s
20227814	M2,5	12	2.5	4.5	TX 8	2.75	A2 s/s
20227821	M 3	6	3.0	5.5	TX10	3.6	A2 s/s
20227838	M 3	8	3.0	5.5	TX10	3.6	A2 s/s
20227845	M 3	10	3.0	5.5	TX10	3.6	A2 s/s
20227852	M 3	12	3.0	5.5	TX10	3.6	A2 s/s
20227869	M 3	20	3.0	5.5	TX10	3.6	A2 s/s
20227876	M 4	6	4.0	7.0	TX20	4.5	A2 s/s
20227883	M 4	8	4.0	7.0	TX20	4.5	A2 s/s
20227890	M 4	10	4.0	7.0	TX20	4.5	A2 s/s
20227906	M 4	12	4.0	7.0	TX20	4.5	A2 s/s
20227913	M 4	16	4.0	7.0	TX20	4.5	A2 s/s
20227920	M 4	20	4.0	7.0	TX20	4.5	A2 s/s
20227937	M 5	8	5.0	8.5	TX25	5.6	A2 s/s
20227944	M 5	10	5.0	8.5	TX25	5.6	A2 s/s
20227951	M 5	12	5.0	8.5	TX25	5.6	A2 s/s
20227968	M 5	16	5.0	8.5	TX25	5.6	A2 s/s
20227975	M 5	20	5.0	8.5	TX25	5.6	A2 s/s
20227982	M 6	12	6.0	10.0	TX30	6.8	A2 s/s
20227999	M 6	16	6.0	10.0	TX30	6.8	A2 s/s
20228002	M 6	20	6.0	10.0	TX30	6.8	A2 s/s
20228019	M 6	25	6.0	10.0	TX30	6.8	A2 s/s

Order No.	d ₁	l ₁	h ₁ max.	d ₂ max.	Drive	d ₃ ±0.05	Material
20228026	M 6	30	6.0	10.0	TX30	6.8	A2 s/s
20228033	M 8	12	8.0	13.0	TX45	8.5	A2 s/s
20228040	M 8	16	8.0	13.0	TX45	8.5	A2 s/s
20228057	M 8	20	8.0	13.0	TX45	8.5	A2 s/s
20228064	M 8	25	8.0	13.0	TX45	8.5	A2 s/s
20228071	M 8	30	8.0	13.0	TX45	8.5	A2 s/s
20228088	M10	16	10.0	16.0	TX50	10.6	A2 s/s
20228095	M10	20	10.0	16.0	TX50	10.6	A2 s/s
20228101	M10	25	10.0	16.0	TX50	10.6	A2 s/s
20228118	M10	30	10.0	16.0	TX50	10.6	A2 s/s
20228125	M10	40	10.0	16.0	TX50	10.6	A2 s/s
20228132	M12	20	12.0	18.0	TX55	12.85	A2 s/s
20228149	M12	25	12.0	18.0	TX55	12.85	A2 s/s
20228156	M12	30	12.0	18.0	TX55	12.85	A2 s/s
20228163	M12	40	12.0	18.0	TX55	12.85	A2 s/s
20228170	M12	50	12.0	18.0	TX55	12.85	A2 s/s



EP0174



Material

Stainless steel (AISI 303 1.4305 tensile strength 550 N/mm² or AISI 316 1.440 tensile strength 480 N/mm²), with silicone „O” ring as standard.
 For other „O” ring materials see technical data pages
 (-FS = fluorosilicone, -EP = EPDM, -VI = viton, -NI = nitrile, -BN = Buna etc.).

Other thread lengths on request.

Technical Notes

Screws generally as ISO 7380, seals substances in and contaminants out.
 Re-useable. Clearance holes recommended for maximum sealing.
 Max temperature range: -100°C to +260°C, pressure range - up to 410 bar (6000 psi).

Also available (on request) with thread-locking.

Tips

Clearance holes recommended for maximum sealing performance (see dimensions below).
 Clearance hole depth 2-3 x thread pitch, threads are metric coarse pitch.

Order No.	d ₁	l ₁	h ₁ max.	d ₂ max.	A/F	d ₃ ±0.05	Material
20224400	M 3	6	1.7	5.7	2	3.6	A2 s/s
20224417	M 3	8	1.7	5.7	2	3.6	A2 s/s
20224424	M 3	10	1.7	5.7	2	3.6	A2 s/s
20224431	M 3	12	1.7	5.7	2	3.6	A2 s/s
20224448	M 3	20	1.7	5.7	2	3.6	A2 s/s
20224455	M 4	6	2.2	7.6	2.5	4.5	A2 s/s
20224462	M 4	8	2.2	7.6	2.5	4.5	A2 s/s
20224479	M 4	10	2.2	7.6	2.5	4.5	A2 s/s
20224486	M 4	12	2.2	7.6	2.5	4.5	A2 s/s
20224493	M 4	16	2.2	7.6	2.5	4.5	A2 s/s
20224509	M 4	20	2.2	7.6	2.5	4.5	A2 s/s
20224516	M 5	8	2.8	9.5	3	5.6	A2 s/s
20224523	M 5	10	2.8	9.5	3	5.6	A2 s/s
20224530	M 5	12	2.8	9.5	3	5.6	A2 s/s
20224547	M 5	16	2.8	9.5	3	5.6	A2 s/s
20224554	M 5	20	2.8	9.5	3	5.6	A2 s/s
20224561	M 6	12	3.3	10.5	4	6.8	A2 s/s
20224578	M 6	16	3.3	10.5	4	6.8	A2 s/s
20224585	M 6	20	3.3	10.5	4	6.8	A2 s/s
20224592	M 6	25	3.3	10.5	4	6.8	A2 s/s
20224608	M 6	30	3.3	10.5	4	6.8	A2 s/s
20224615	M 8	12	4.4	14.0	5	8.5	A2 s/s
20224622	M 8	16	4.4	14.0	5	8.5	A2 s/s
20224639	M 8	20	4.4	14.0	5	8.5	A2 s/s
20224646	M 8	25	4.4	14.0	5	8.5	A2 s/s
20224653	M 8	30	4.4	14.0	5	8.5	A2 s/s
20224660	M10	16	5.5	17.5	6	10.6	A2 s/s
20224677	M10	20	5.5	17.5	6	10.6	A2 s/s

Button Head Seal Screws

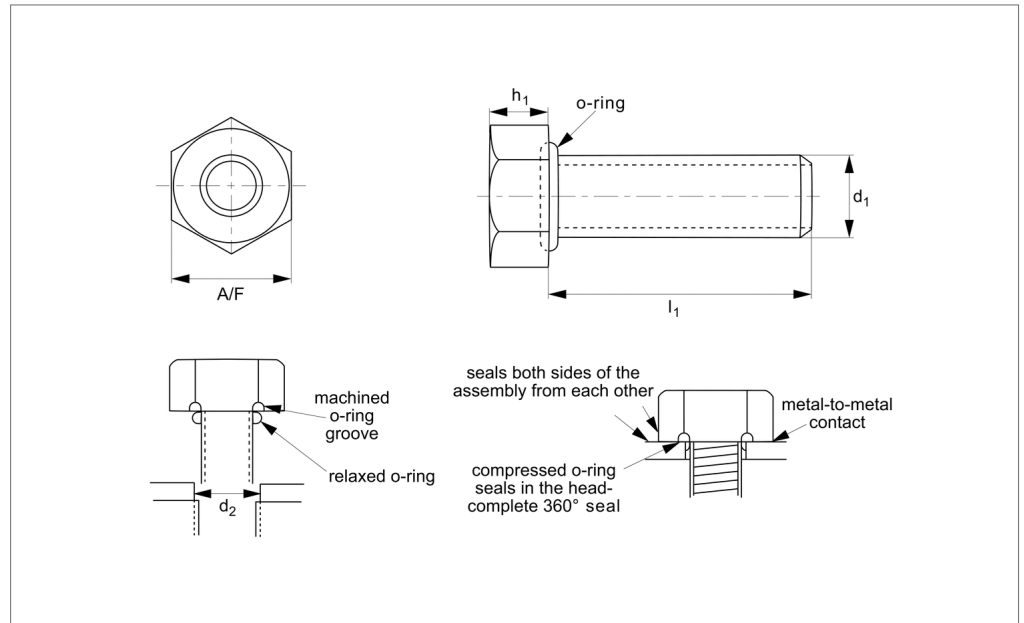
hex. socket

Sealing Screws and Plugs

Order No.	d ₁	l ₁	h ₁ max.	d ₂ max.	A/F	d ₃ ±0.05	Material
20224684	M10	25	5.5	17.5	6	10.6	A2 s/s
20224691	M10	30	5.5	17.5	6	10.6	A2 s/s
20224707	M10	40	5.5	17.5	6	10.6	A2 s/s
20224714	M12	20	6.6	21.0	8	12.9	A2 s/s
20224721	M12	25	6.6	21.0	8	12.9	A2 s/s
20224738	M12	30	6.6	21.0	8	12.9	A2 s/s
20224745	M12	40	6.6	21.0	8	12.9	A2 s/s
20224752	M12	50	6.6	21.0	8	12.9	A2 s/s
20225827	M 3	6	1.7	5.7	2	3.6	A4 s/s
20225834	M 3	8	1.7	5.7	2	3.6	A4 s/s
20225841	M 3	10	1.7	5.7	2	3.6	A4 s/s
20225858	M 3	12	1.7	5.7	2	3.6	A4 s/s
20225865	M 3	20	1.7	5.7	2	3.6	A4 s/s
20225872	M 4	6	2.2	7.6	2.5	4.5	A4 s/s
20225889	M 4	8	2.2	7.6	2.5	4.5	A4 s/s
20225896	M 4	10	2.2	7.6	2.5	4.5	A4 s/s
20225902	M 4	12	2.2	7.6	2.5	4.5	A4 s/s
20225919	M 4	16	2.2	7.6	2.5	4.5	A4 s/s
20225926	M 4	20	2.2	7.6	2.5	4.5	A4 s/s
20225933	M 5	8	2.8	9.5	3	5.6	A4 s/s
20225940	M 5	10	2.8	9.5	3	5.6	A4 s/s
20225957	M 5	12	2.8	9.5	3	5.6	A4 s/s
20225964	M 5	16	2.8	9.5	3	5.6	A4 s/s
20225971	M 5	20	2.8	9.5	3	5.6	A4 s/s
20225988	M 6	12	3.3	10.5	4	6.8	A4 s/s
20225995	M 6	16	3.3	10.5	4	6.8	A4 s/s
20226008	M 6	20	3.3	10.5	4	6.8	A4 s/s
20226015	M 6	25	3.3	10.5	4	6.8	A4 s/s
20226022	M 6	30	3.3	10.5	4	6.8	A4 s/s
20226039	M 8	12	4.4	14.0	5	8.5	A4 s/s
20226046	M 8	16	4.4	14.0	5	8.5	A4 s/s
20226053	M 8	20	4.4	14.0	5	8.5	A4 s/s
20226060	M 8	25	4.4	14.0	5	8.5	A4 s/s
20226077	M 8	30	4.4	14.0	5	8.5	A4 s/s
20226084	M10	16	5.5	17.5	6	10.6	A4 s/s
20226091	M10	20	5.5	17.5	6	10.6	A4 s/s
20226107	M10	25	5.5	17.5	6	10.6	A4 s/s
20226114	M10	30	5.5	17.5	6	10.6	A4 s/s
20226121	M10	40	5.5	17.5	6	10.6	A4 s/s
20226138	M12	20	6.6	21.0	8	12.9	A4 s/s
20226145	M12	25	6.6	21.0	8	12.9	A4 s/s
20226152	M12	30	6.6	21.0	8	12.9	A4 s/s
20226169	M12	40	6.6	21.0	8	12.9	A4 s/s
20226176	M12	50	6.6	21.0	8	12.9	A4 s/s
20229986	M 5	10	2.8	9.5	3	5.6	VI s/s
20250133	M 5	12	2.8	9.5	3	5.6	VI s/s
20228484	M 5	16	2.8	9.5	3	5.6	VI s/s



EP0176



Material

Stainless steel (AISI 303 1.4305 tensile strength 550 N/mm² or AISI 316 1.440 tensile strength 480 N/mm²), with silicone „O“ ring as standard.
 For other „O“ ring materials see technical data pages
 (-FS = fluorosilicone, -EP = EPDM, -VI = viton, -NI = nitrile, -BN = Buna etc.).

Other thread lengths on request.

Technical Notes

Clearance holes recommended for maximum sealing, seals substances in and contaminants out.
 Max temperature range: -100°C to +260°C,
 pressure range - up to 410 bar (6000 psi).
 Re-useable, also available (on request)

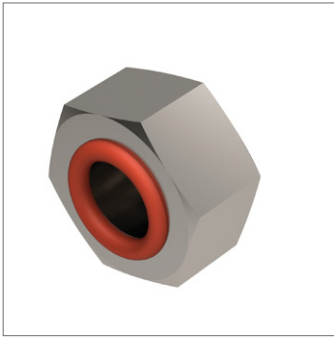
with thread-locking.

Tips

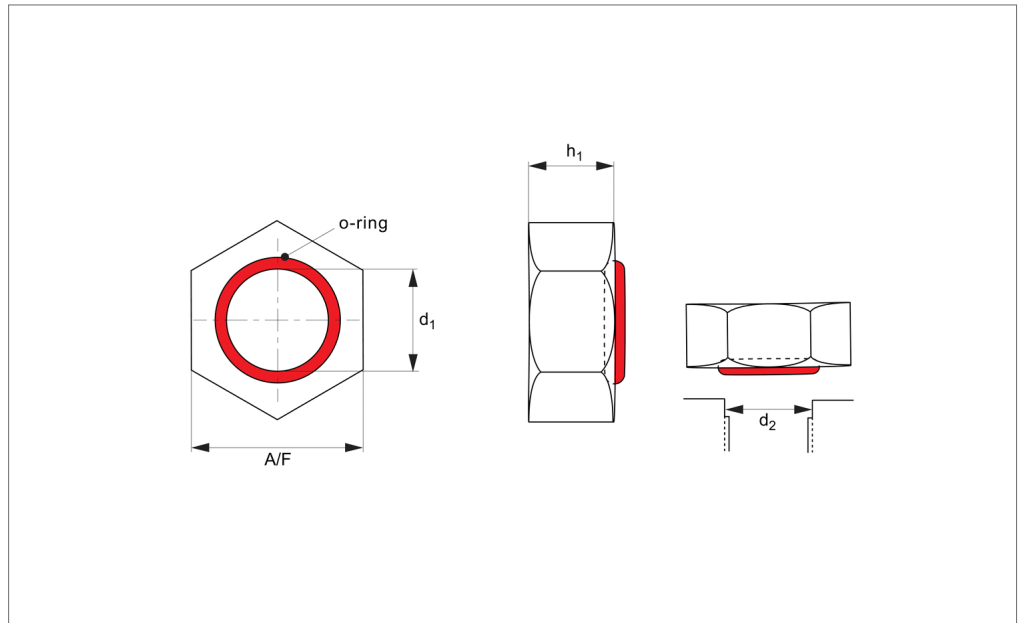
Clearance holes recommended for maximum sealing performance (see dimensions below).
 Clearance hole depth 2-3 x thread pitch,
 threads are metric coarse pitch.

Order No.	d ₁	l ₁	A/F	h ₁ max.	d ₂ ±0.05	Material
20257958	M 2	4	4.0	1.6	2.35	A2 s/s
20257965	M 2	8	4.0	1.6	2.35	A2 s/s
20257972	M 2	10	4.0	1.6	2.35	A2 s/s
20257989	M 2	12	4.0	1.6	2.35	A2 s/s
20257996	M 2	20	4.0	1.6	2.35	A2 s/s
20258023	M 3	8	5.5	2.2	3.6	A2 s/s
20258047	M 3	10	5.5	2.2	3.6	A2 s/s
20258061	M 3	12	5.5	2.2	3.6	A2 s/s
20258085	M 3	20	5.5	2.2	3.6	A2 s/s
20258108	M 4	6	7.0	3.0	4.5	A2 s/s
20258122	M 4	8	7.0	3.0	4.5	A2 s/s
20258146	M 4	10	7.0	3.0	4.5	A2 s/s
20258160	M 4	12	7.0	3.0	4.5	A2 s/s
20258726	M 4	16	7.0	3.0	4.5	A2 s/s
20258184	M 4	20	7.0	3.0	4.5	A2 s/s
20258207	M 5	8	8.0	3.7	5.6	A2 s/s
20258221	M 5	10	8.0	3.7	5.6	A2 s/s
20258245	M 5	12	8.0	3.7	5.6	A2 s/s
20258269	M 5	16	8.0	3.7	5.6	A2 s/s
20258283	M 5	20	8.0	3.7	5.6	A2 s/s
20258306	M 6	12	10.0	4.2	6.8	A2 s/s
20258320	M 6	16	10.0	4.2	6.8	A2 s/s
20258344	M 6	20	10.0	4.2	6.8	A2 s/s
20258368	M 6	25	10.0	4.2	6.8	A2 s/s
20258382	M 6	30	10.0	4.2	6.8	A2 s/s
20258405	M 8	12	13.0	5.5	8.5	A2 s/s
20258429	M 8	16	13.0	5.5	8.5	A2 s/s
20258443	M 8	20	13.0	5.5	8.5	A2 s/s

Order No.	d ₁	l ₁	A/F	h ₁ max.	d ₂ ±0.05	Material
20258467	M 8	25	13.0	5.5	8.5	A2 s/s
20258481	M 8	30	13.0	5.5	8.5	A2 s/s
20258016	M 8	40	13.0	5.5	8.5	A2 s/s
20258504	M10	16	16.0	6.6	10.6	A2 s/s
20258528	M10	20	16.0	6.6	10.6	A2 s/s
20258542	M10	25	16.0	6.6	10.6	A2 s/s
20258566	M10	30	16.0	6.6	10.6	A2 s/s
20258580	M10	40	16.0	6.6	10.6	A2 s/s
20258740	M10	50	16.0	6.6	10.6	A2 s/s
20258603	M12	20	18.0	7.7	12.85	A2 s/s
20258627	M12	25	18.0	7.7	12.85	A2 s/s
20258641	M12	30	18.0	7.7	12.85	A2 s/s
20258665	M12	40	18.0	7.7	12.85	A2 s/s
20258689	M12	50	18.0	7.7	12.85	A2 s/s
20262525	M 2	4	4.0	1.6	2.35	A4 s/s
20262495	M 3	6	5.5	2.2	3.6	A4 s/s
20258030	M 3	8	5.5	2.2	3.6	A4 s/s
20258054	M 3	10	5.5	2.2	3.6	A4 s/s
20258078	M 3	12	5.5	2.2	3.6	A4 s/s
20258092	M 3	20	5.5	2.2	3.6	A4 s/s
20258115	M 4	6	7.0	3.0	4.5	A4 s/s
20258139	M 4	8	7.0	3.0	4.5	A4 s/s
20258153	M 4	10	7.0	3.0	4.5	A4 s/s
20258177	M 4	12	7.0	3.0	4.5	A4 s/s
20258733	M 4	16	7.0	3.0	4.5	A4 s/s
20258191	M 4	20	7.0	3.0	4.5	A4 s/s
20258214	M 5	8	8.0	3.7	5.6	A4 s/s
20258238	M 5	10	8.0	3.7	5.6	A4 s/s
20258252	M 5	12	8.0	3.7	5.6	A4 s/s
20258276	M 5	16	8.0	3.7	5.6	A4 s/s
20258290	M 5	20	8.0	3.7	5.6	A4 s/s
20258313	M 6	12	10.0	4.2	6.8	A4 s/s
20258337	M 6	16	10.0	4.2	6.8	A4 s/s
20258351	M 6	20	10.0	4.2	6.8	A4 s/s
20258375	M 6	25	10.0	4.2	6.8	A4 s/s
20258399	M 6	30	10.0	4.2	6.8	A4 s/s
20258412	M 8	12	13.0	5.5	8.5	A4 s/s
20258436	M 8	16	13.0	5.5	8.5	A4 s/s
20258450	M 8	20	13.0	5.5	8.5	A4 s/s
20258474	M 8	25	13.0	5.5	8.5	A4 s/s
20258498	M 8	30	13.0	5.5	8.5	A4 s/s
20258764	M 8	40	13.0	5.5	8.5	A4 s/s
20258511	M10	16	16.0	6.6	10.6	A4 s/s
20258535	M10	20	16.0	6.6	10.6	A4 s/s
20258559	M10	25	16.0	6.6	10.6	A4 s/s
20258573	M10	30	16.0	6.6	10.6	A4 s/s
20258597	M10	40	16.0	6.6	10.6	A4 s/s
20258757	M10	50	16.0	6.6	10.6	A4 s/s
20258610	M12	20	18.0	7.7	12.85	A4 s/s
20258634	M12	25	18.0	7.7	12.85	A4 s/s
20258658	M12	30	18.0	7.7	12.85	A4 s/s
20258672	M12	40	18.0	7.7	12.85	A4 s/s
20258696	M12	50	18.0	7.7	12.85	A4 s/s



EP0178



Material

Stainless steel (AISI 303 1.4305 tensile strength 550 N/mm² or AISI 316 1.440 tensile strength 480 N/mm²), with silicone „O” ring as standard..
 For other „O” ring materials see technical data pages,
 (-FS = fluorosilicone, -EP = EPDM, -VI =

viton, -NI = nitrile, -BN = Buna etc.).

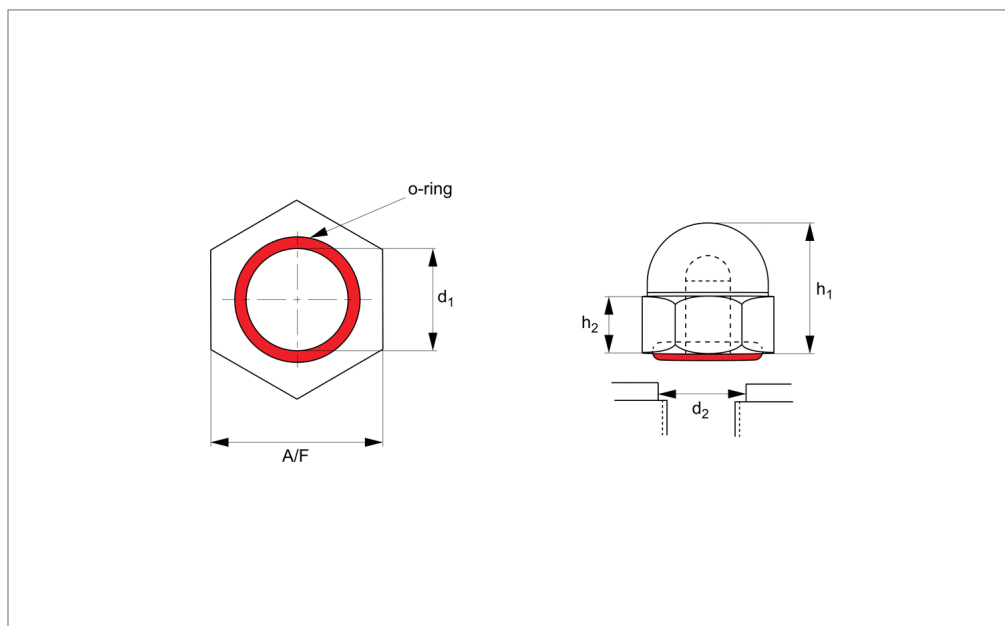
Technical Notes

Seals substances in and contaminants out, re-useable.
 Max temperature range: -100°C to +260°C,
 pressure range - up to 410 bar (6000 psi).

Tips

Clearance holes recommended for maximum sealing performance (see dimensions below).
 Clearance hole depth 2-3 x thread pitch, threads are metric coarse pitch.

Order No.	d ₁	A/F	d ₂ ±0.05	h ₁ max.	Material
20207861	M 2	4	2.35	1.6	A2 s/s
20207502	M2,5	5	2.75	2.0	A2 s/s
20207526	M 3	5.5	3.6	2.4	A2 s/s
20207540	M 4	7	4.5	3.2	A2 s/s
20207564	M 5	8	5.6	4.7	A2 s/s
20207588	M 6	10	6.8	5.2	A2 s/s
20207601	M 8	13	8.5	6.8	A2 s/s
20207625	M10	16	10.6	8.4	A2 s/s
20207649	M12	18	12.85	10.8	A2 s/s
20207663	M14	21	15.1	12.8	A2 s/s
20207687	M16	24	17.5	14.8	A2 s/s
20207878	M 2	4	2.35	1.6	A4 s/s
20207519	M2,5	5	2.75	2.0	A4 s/s
20207533	M 3	5.5	3.6	2.4	A4 s/s
20207557	M 4	7	4.5	3.2	A4 s/s
20207571	M 5	8	5.6	4.7	A4 s/s
20207595	M 6	10	6.8	5.2	A4 s/s
20207618	M 8	13	8.5	6.8	A4 s/s
20207632	M10	16	10.6	8.4	A4 s/s
20207656	M12	18	12.85	10.8	A4 s/s
20207670	M14	21	15.1	12.8	A4 s/s
20207694	M16	24	17.5	14.8	A4 s/s
20207892	M 3	5.5	3.6	2.4	A2 s/s
20207472	M 6	10	6.8	5.2	A4 s/s



EP0179

Material

Stainless steel (AISI 303 1.4305 tensile strength 550 N/mm²), with silicone „O“ ring as standard.

For other „O“ ring materials see technical data pages,

(-FS = fluorosilicone, -EP = EPDM, -VI =

viton, -NI = nitrile etc.).

Technical Notes

Seals substances in and contaminants out. Re-useable.

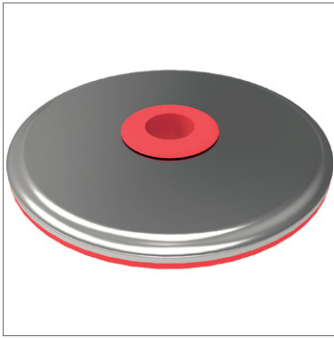
Max temperature range: -100°C to +260°C, pressure range - up to 410 bar (6000 psi).

Tips

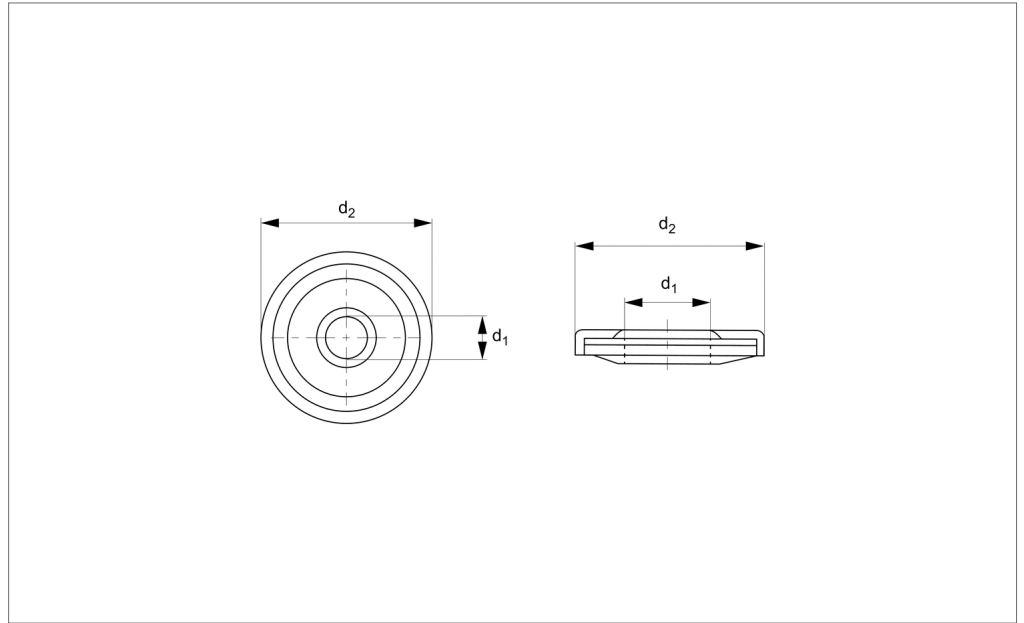
Clearance holes recommended for maximum sealing performance (see dimensions below).

Clearance hole depth 2-3 x thread pitch, threads are metric coarse pitch.

Order No.	d ₁	A/F	d ₂ ±0.05	h ₁	h ₂	Material
20207700	M 3	5.5	3.6	6	2.4	A2 s/s
20207724	M 4	7	4.5	8	3.2	A2 s/s
20207748	M 5	8	5.6	10	4.0	A2 s/s
20207762	M 6	10	6.8	12	5.0	A2 s/s
20207786	M 8	13	8.5	15	6.5	A2 s/s
20207809	M10	17	10.6	18	8.0	A2 s/s
20207823	M12	19	12.85	22	10.0	A2 s/s
20207847	M16	24	17.5	28	13.0	A2 s/s
20207717	M 3	5.5	3.6	6	2.4	A4 s/s
20207731	M 4	7	4.5	8	3.2	A4 s/s
20207755	M 5	8	5.6	10	4.0	A4 s/s
20207779	M 6	10	6.8	12	5.0	A4 s/s
20207793	M 8	13	8.5	15	6.5	A4 s/s
20207816	M10	17	10.6	18	8.0	A4 s/s
20207830	M12	19	12.85	22	10.0	A4 s/s
20207854	M16	24	17.5	28	13.0	A4 s/s
20207489	M 4	7	4.5	8	3.2	A2 s/s
20207885	M 5	8	5.6	10	4.0	A2 s/s
20207496	M 6	10	6.8	12	5.0	A2 s/s



EP0180



Material

Stainless steel (A4, AISI 316), with ribbed silicone rubber bonded sealing element.

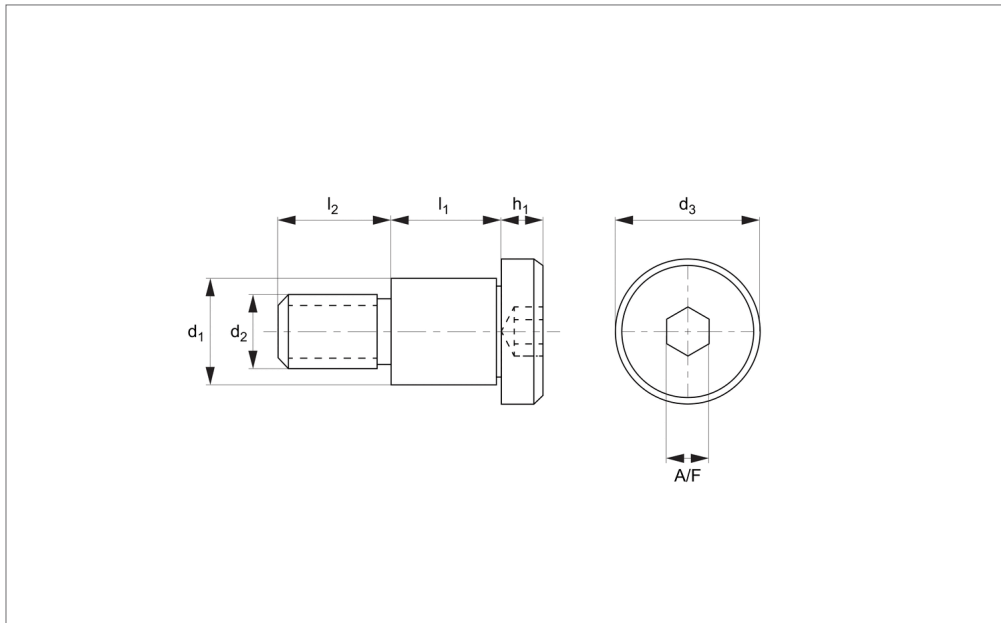
Technical Notes

Seals substances in and contaminants out.

The silicone contact surface has continuous ridge which forms a 360.C seal around periphery of the washer when compressed. The silicone also forms a seal under the head of its fastener making full contact

with the threads/ shank thereby are fully re-usable. Max. temperature range: -75°C to +205°C. IP 66/68 rated, pressure range: exceeds 100 psi internal and external.

Order No.	For thread d_1	d_2
20219673	M 3	14.5
20219680	M 3	25.5
20219703	M 4	25.5
20219765	M 5	14.5
20219710	M 5	25.5
20219727	M 6	25.5
20219734	M 8	25.5
20219741	M10	25.5
20219758	M12	25.5



EP0130.A2

SHOULDER SCREWS

Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm². Proof stress min. 190 N/mm², austenitic stainless steel.

resistance to corrosion. It is mildly magnetic.

For torx drive versions please see our Shoulder Screws - Cap Head range.

Technical Notes

303 series stainless steel provides good

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
20143824	3	2	M 2	5	4	2	1.5
20143831	3	3	M 2	5	4	2	1.5
20143190	3	4	M 2	5	4	2	1.5
20143251	3	5	M 2	5	4	2	1.5
20143268	3	6	M 2	5	4	2	1.5
20143848	3	7	M 2	5	4	2	1.5
20143275	3	8	M 2	5	4	2	1.5
20143282	3	10	M 2	5	4	2	1.5
20143855	3	12	M 2	5	4	2	1.5
20143862	3	14	M 2	5	4	2	1.5
20143800	3	16	M 2	5	4	2	1.5
20143879	3	18	M 2	5	4	2	1.5
20143886	3	20	M 2	5	4	2	1.5
20143893	3	25	M 2	5	4	2	1.5
20143909	4	2	M 3	6	4	3	2
20143916	4	3	M 3	6	4	3	2
20142032	4	4	M 3	6	4	3	2
20142148	4	5	M 3	6	4	3	2
20142254	4	6	M 3	6	4	3	2
20143923	4	7	M 3	6	4	3	2
20142360	4	8	M 3	6	4	3	2
20142438	4	10	M 3	6	4	3	2
20142971	4	12	M 3	6	4	3	2
20143930	4	14	M 3	6	4	3	2
20143947	4	16	M 3	6	4	3	2
20143954	4	18	M 3	6	4	3	2
20143961	4	20	M 3	6	4	3	2
20143817	4	25	M 3	6	4	3	2
20143978	4	30	M 3	6	4	3	2
20143985	4	35	M 3	6	4	3	2
20143992	4	40	M 3	6	4	3	2

Order No.	d ₁ +0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	A/F
20144005	4	45	M 3	6	4	3	2
20144012	4	50	M 3	6	4	3	2
20144029	5	2	M 4	8	5	4	2.5
20144036	5	3	M 4	8	5	4	2.5
20142445	5	4	M 4	8	5	4	2.5
20142452	5	5	M 4	8	5	4	2.5
20142469	5	6	M 4	8	5	4	2.5
20144043	5	7	M 4	8	5	4	2.5
20142476	5	8	M 4	8	5	4	2.5
20142049	5	10	M 4	8	5	4	2.5
20142056	5	12	M 4	8	5	4	2.5
20142063	5	14	M 4	8	5	4	2.5
20142070	5	16	M 4	8	5	4	2.5
20144050	5	18	M 4	8	5	4	2.5
20142087	5	20	M 4	8	5	4	2.5
20142094	5	25	M 4	8	5	4	2.5
20142100	5	30	M 4	8	5	4	2.5
20144067	5	35	M 4	8	5	4	2.5
20143176	5	40	M 4	8	5	4	2.5
20144074	5	45	M 4	8	5	4	2.5
20143183	5	50	M 4	8	5	4	2.5
20144081	6	2	M 5	10	6	5	3
20144098	6	3	M 5	10	6	5	3
20142117	6	4	M 5	10	6	5	3
20142124	6	5	M 5	10	6	5	3
20142131	6	6	M 5	10	6	5	3
20144104	6	7	M 5	10	6	5	3
20142155	6	8	M 5	10	6	5	3
20142162	6	10	M 5	10	6	5	3
20142179	6	12	M 5	10	6	5	3
20142186	6	14	M 5	10	6	5	3
20142193	6	16	M 5	10	6	5	3
20144111	6	18	M 5	10	6	5	3
20142209	6	20	M 5	10	6	5	3
20142216	6	25	M 5	10	6	5	3
20142223	6	30	M 5	10	6	5	3
20144128	6	35	M 5	10	6	5	3
20144135	6	40	M 5	10	6	5	3
20144142	6	45	M 5	10	6	5	3
20144159	6	50	M 5	10	6	5	3
20144166	6	55	M 5	10	6	5	3
20144173	6	60	M 5	10	6	5	3
20142513	6	70	M 5	10	6	5	3
20143213	6	80	M 5	10	6	5	3
20143220	6	90	M 5	10	6	5	3
20144500	6	100	M 5	10	6	5	3
20144180	8	4	M 6	12	11	6	4
20144197	8	5	M 6	12	11	6	4
20142230	8	6	M 6	12	11	6	4
20144203	8	7	M 6	12	11	6	4
20142247	8	8	M 6	12	11	6	4
20142261	8	10	M 6	12	11	6	4
20142278	8	12	M 6	12	11	6	4
20142490	8	14	M 6	12	11	6	4
20142285	8	16	M 6	12	11	6	4
20144210	8	18	M 6	12	11	6	4
20142292	8	20	M 6	12	11	6	4
20142872	8	25	M 6	12	11	6	4
20142506	8	30	M 6	12	11	6	4
20143152	8	35	M 6	12	11	6	4
20144227	8	40	M 6	12	11	6	4
20144234	8	45	M 6	12	11	6	4
20144241	8	50	M 6	12	11	6	4
20144517	8	55	M 6	12	11	6	4
20141882	8	60	M 6	12	11	6	4
20144524	8	65	M 6	12	11	6	4
20142483	8	70	M 6	12	11	6	4
20144531	8	75	M 6	12	11	6	4

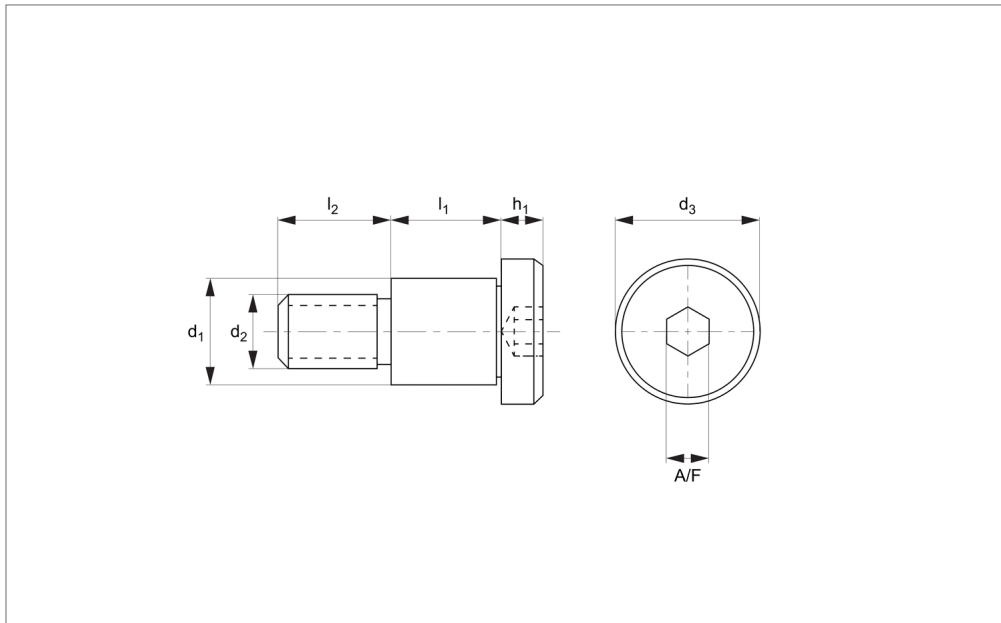
Shoulder Screws - Cap Head

hex drive - 303 stainless

Shoulder Screws

Order No.	d ₁ +0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	A/F
20143237	8	80	M 6	12	11	6	4
20143244	8	90	M 6	12	11	6	4
20143114	8	100	M 6	12	11	6	4
20142308	10	8	M 6	14	11	6	4
20142315	10	10	M 6	14	11	6	4
20142322	10	12	M 6	14	11	6	4
20142339	10	16	M 6	14	11	6	4
20142346	10	8	M 8	14	12	7	5
20142353	10	10	M 8	14	12	7	5
20142377	10	12	M 8	14	12	7	5
20144258	10	14	M 8	14	12	7	5
20142384	10	16	M 8	14	12	7	5
20144265	10	18	M 8	14	12	7	5
20142889	10	20	M 8	14	12	7	5
20142896	10	25	M 8	14	12	7	5
20142902	10	30	M 8	14	12	7	5
20144272	10	35	M 8	14	12	7	5
20144289	10	40	M 8	14	12	7	5
20144296	10	45	M 8	14	12	7	5
20144302	10	50	M 8	14	12	7	5
20144661	10	55	M 8	14	12	7	5
20144678	10	60	M 8	14	12	7	5
20144685	10	65	M 8	14	12	7	5
20144692	10	70	M 8	14	12	7	5
20144708	10	80	M 8	14	12	7	5
20144715	10	90	M 8	14	12	7	5
20144722	10	100	M 8	14	12	7	5
20144319	12	8	M10	20	16	8	6
20144326	12	10	M10	20	16	8	6
20142391	12	12	M10	20	16	8	6
20144333	12	14	M10	20	16	8	6
20142407	12	16	M10	20	16	8	6
20144340	12	18	M10	20	16	8	6
20142414	12	20	M10	20	16	8	6
20142421	12	25	M10	20	16	8	6
20142919	12	30	M10	20	16	8	6
20144357	12	35	M10	20	16	8	6
20144364	12	40	M10	20	16	8	6
20144371	12	45	M10	20	16	8	6
20144388	12	50	M10	20	16	8	6
20144548	12	55	M10	20	16	8	6
20141905	12	60	M10	20	16	8	6
20144654	12	65	M10	20	16	8	6
20141912	12	70	M10	20	16	8	6
20144555	12	75	M10	20	16	8	6
20141929	12	80	M10	20	16	8	6
20141936	12	90	M10	20	16	8	6
20141899	12	100	M10	20	16	8	6
20141950	16	25	M12	24	18	11	8
20141967	16	30	M12	24	18	11	8
20144562	16	35	M12	24	18	11	8
20141974	16	40	M12	24	18	11	8
20144494	16	45	M12	24	18	11	8
20141981	16	50	M12	24	18	11	8
20144579	16	55	M12	24	18	11	8
20141998	16	60	M12	24	18	11	8
20144586	16	65	M12	24	18	11	8
20142001	16	70	M12	24	18	11	8
20144593	16	75	M12	24	18	11	8
20142018	16	80	M12	24	18	11	8
20142025	16	90	M12	24	18	11	8
20141943	16	100	M12	24	18	11	8
20142520	20	30	M16	30	22	14	10
20144609	20	35	M16	30	22	14	10
20142537	20	40	M16	30	22	14	10
20144616	20	45	M16	30	22	14	10
20142544	20	50	M16	30	22	14	10
20144623	20	55	M16	30	22	14	10

Order No.	d_1 +0 -0.025	l_1 +0.05 -0.0	d_2	d_3	l_2	h_1	A/F
20142551	20	60	M16	30	22	14	10
20144647	20	65	M16	30	22	14	10
20142568	20	70	M16	30	22	14	10
20144630	20	75	M16	30	22	14	10
20142575	20	80	M16	30	22	14	10
20142582	20	90	M16	30	22	14	10
20142599	20	100	M16	30	22	14	10



EP0130.A4

SHOULDER SCREWS

Material

Stainless steel (AISI 316, 1.440).
Tensile strength 480 N/mm².
Proof stress min. 200 N/mm², 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 (EP0130 + EP0137).

Shim washers can be used to reduce shoulder length if required. It is non-

magnetic.

Can also be manufactured (for a batch size) in aluminium, monel & titanium.

Order No.	d_1 +0 -0.025	l_1 +0.05 -0.0	d_2	d_3	l_2	h_1	A/F
20228552	3	3	M 2	5	4	2.0	1.5
20222574	3	4	M 2	5	4	2.0	1.5
20222581	3	5	M 2	5	4	2.0	1.5
20222598	3	6	M 2	5	4	2.0	1.5
20244941	3	7	M 2	5	4	2.0	1.5
20235321	3	8	M 2	5	4	2.0	1.5
20222604	3	10	M 2	5	4	2.0	1.5
20222611	4	4	M 3	6	4	3.0	2
20222628	4	5	M 3	6	4	3.0	2
20222635	4	6	M 3	6	4	3.0	2
20244958	4	7	M 3	6	4	3.0	2
20222642	4	8	M 3	6	4	3.0	2
20222659	4	10	M 3	6	4	3.0	2
20228415	4	12	M 3	6	4	3.0	2
20244965	4	14	M 3	6	4	3.0	2
20228590	4	16	M 3	6	4	3.0	2
20244972	4	18	M 3	6	4	3.0	2
20228606	4	20	M 3	6	4	3.0	2
20228613	5	5	M 4	8	5	4.0	2.5
20228460	5	6	M 4	8	5	4.0	2.5
20244989	5	7	M 4	8	5	4.0	2.5
20228620	5	8	M 4	8	5	4.0	2.5
20222666	5	10	M 4	8	5	4.0	2.5
20222673	5	12	M 4	8	5	4.0	2.5
20244996	5	14	M 4	8	5	4.0	2.5
20222680	5	16	M 4	8	5	4.0	2.5
20245009	5	18	M 4	8	5	4.0	2.5
20222697	5	20	M 4	8	5	4.0	2.5
20222703	5	25	M 4	8	5	4.0	2.5
20222710	5	30	M 4	8	5	4.0	2.5

Order No.	d ₁ +0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	A/F
20226923	6	6	M 5	10	6	5.0	3
20245016	6	7	M 5	10	6	5.0	3
20228637	6	8	M 5	10	6	5.0	3
20222727	6	10	M 5	10	6	5.0	3
20222734	6	12	M 5	10	6	5.0	3
20245023	6	14	M 5	10	6	5.0	3
20222741	6	16	M 5	10	6	5.0	3
20245030	6	18	M 5	10	6	5.0	3
20222758	6	20	M 5	10	6	5.0	3
20222765	6	25	M 5	10	6	5.0	3
20222772	6	30	M 5	10	6	5.0	3
20245047	6	35	M 5	10	6	5.0	3
20222789	6	40	M 5	10	6	5.0	3
20245054	6	45	M 5	10	6	5.0	3
20222796	6	50	M 5	10	6	5.0	3
20228644	8	8	M 6	12	11	6.0	4
20228583	8	10	M 6	12	11	6.0	4
20222802	8	12	M 6	12	11	6.0	4
20245061	8	14	M 6	12	11	6.0	4
20222819	8	16	M 6	12	11	6.0	4
20245078	8	18	M 6	12	11	6.0	4
20222826	8	20	M 6	12	11	6.0	4
20222833	8	25	M 6	12	11	6.0	4
20222840	8	30	M 6	12	11	6.0	4
20245085	8	35	M 6	12	11	6.0	4
20222857	8	40	M 6	12	11	6.0	4
20245092	8	45	M 6	12	11	6.0	4
20222864	8	50	M 6	12	11	6.0	4
20244842	10	8	M 8	14	12	7.0	5
20244859	10	10	M 8	14	12	7.0	5
20244866	10	12	M 8	14	12	7.0	5
20245108	10	14	M 8	14	12	7.0	5
20222871	10	16	M 8	14	12	7.0	5
20222888	10	20	M 8	14	12	7.0	5
20222895	10	25	M 8	14	12	7.0	5
20222901	10	30	M 8	14	12	7.0	5
20245115	10	35	M 8	14	12	7.0	5
20222918	10	40	M 8	14	12	7.0	5
20245122	10	45	M 8	14	12	7.0	5
20222925	10	50	M 8	14	12	7.0	5
20245139	10	55	M 8	14	12	7.0	5
20222932	10	60	M 8	14	12	7.0	5
20245146	10	65	M 8	14	12	7.0	5
20222949	10	70	M 8	14	12	7.0	5
20245153	12	8	M10	20	16	8.0	6
20245160	12	10	M10	20	16	8.0	6
20245177	12	12	M10	20	16	8.0	6
20245184	12	14	M10	20	16	8.0	6
20222956	12	16	M10	20	16	8.0	6
20245191	12	18	M10	20	16	8.0	6
20222963	12	20	M10	20	16	8.0	6
20222970	12	25	M10	20	16	8.0	6
20222987	12	30	M10	20	16	8.0	6
20245207	12	35	M10	20	16	8.0	6
20222994	12	40	M10	20	16	8.0	6
20245214	12	45	M10	20	16	8.0	6
20223007	12	50	M10	20	16	8.0	6
20245221	12	55	M10	20	16	8.0	6
20223014	12	60	M10	20	16	8.0	6
20245238	12	65	M10	20	16	8.0	6
20223021	12	70	M10	20	16	8.0	6
20244873	16	25	M12	24	18	11.0	8
20223038	16	30	M12	24	18	11.0	8
20244880	16	35	M12	24	18	11.0	8
20223045	16	40	M12	24	18	11.0	8
20244897	16	45	M12	24	18	11.0	8
20245245	16	50	M12	24	18	11.0	8
20244903	16	55	M12	24	18	11.0	8

Shoulder Screws - Cap Head

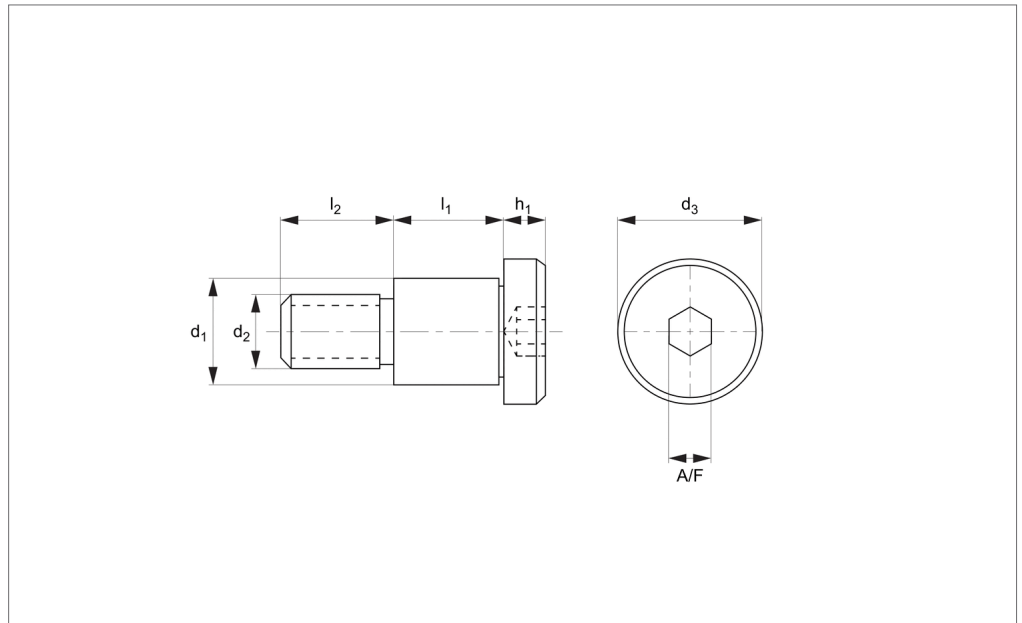
hex drive - 316 stainless

Shoulder Screws

Order No.	d_1 +0 -0.025	l_1 +0.05 -0.0	d_2	d_3	l_2	h_1	A/F
20223052	16	60	M12	24	18	11.0	8
20244910	16	65	M12	24	18	11.0	8
20223069	16	70	M12	24	18	11.0	8
20244927	16	75	M12	24	18	11.0	8
20223076	16	80	M12	24	18	11.0	8
20223083	16	90	M12	24	18	11.0	8
20244934	16	100	M12	24	18	11.0	8
20245252	20	30	M16	30	22	14.0	10
20245269	20	35	M16	30	22	14.0	10
20223090	20	40	M16	30	22	14.0	10
20245276	20	45	M16	30	22	14.0	10
20245283	20	50	M16	30	22	14.0	10



EP0130.B2

**Material**

Stainless steel (AISI 303, 1.4305), black oxide coating. Tensile strength 550 N/mm². Proof stress min. 190 N/mm², austenitic stainless steel

Technical Notes

303 series stainless steel provides good resistance to corrosion. It is mildly magnetic.

For torx drive versions please see EP0145.

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
20230173	3	2	M 2	5	4	2	1.5
20230180	3	3	M 2	5	4	2	1.5
20230197	3	4	M 2	5	4	2	1.5
20230203	3	5	M 2	5	4	2	1.5
20230210	3	6	M 2	5	4	2	1.5
20230227	3	7	M 2	5	4	2	1.5
20230234	3	8	M 2	5	4	2	1.5
20230241	3	10	M 2	5	4	2	1.5
20230258	3	12	M 2	5	4	2	1.5
20230265	3	14	M 2	5	4	2	1.5
20230272	3	16	M 2	5	4	2	1.5
20230289	3	18	M 2	5	4	2	1.5
20230296	3	20	M 2	5	4	2	1.5
20230302	3	25	M 2	5	4	2	1.5
20230319	4	2	M 3	6	4	3	2
20230326	4	3	M 3	6	4	3	2
20230333	4	4	M 3	6	4	3	2
20230340	4	5	M 3	6	4	3	2
20230357	4	6	M 3	6	4	3	2
20230364	4	7	M 3	6	4	3	2
20230371	4	8	M 3	6	4	3	2
20230388	4	10	M 3	6	4	3	2
20230395	4	12	M 3	6	4	3	2
20230401	4	14	M 3	6	4	3	2
20230418	4	16	M 3	6	4	3	2
20230425	4	18	M 3	6	4	3	2
20230432	4	20	M 3	6	4	3	2
20230449	4	25	M 3	6	4	3	2
20230456	4	30	M 3	6	4	3	2
20230463	4	35	M 3	6	4	3	2
20230470	4	40	M 3	6	4	3	2
20230487	4	45	M 3	6	4	3	2
20230494	4	50	M 3	6	4	3	2

Shoulder Screws - Cap Head

hex drive - 303 stainless, blackened

Shoulder Screws

Order No.	d ₁ +0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	A/F
20230500	5	2	M 4	8	5	4	2.5
20230517	5	3	M 4	8	5	4	2.5
20230524	5	4	M 4	8	5	4	2.5
20230531	5	5	M 4	8	5	4	2.5
20230548	5	6	M 4	8	5	4	2.5
20230555	5	7	M 4	8	5	4	2.5
20230562	5	8	M 4	8	5	4	2.5
20230579	5	10	M 4	8	5	4	2.5
20230586	5	12	M 4	8	5	4	2.5
20230593	5	14	M 4	8	5	4	2.5
20230609	5	16	M 4	8	5	4	2.5
20230616	5	18	M 4	8	5	4	2.5
20230623	5	20	M 4	8	5	4	2.5
20230630	5	25	M 4	8	5	4	2.5
20230647	5	30	M 4	8	5	4	2.5
20230654	5	35	M 4	8	5	4	2.5
20230661	5	40	M 4	8	5	4	2.5
20230678	5	45	M 4	8	5	4	2.5
20230685	5	50	M 4	8	5	4	2.5
20230692	6	2	M 5	10	6	5	3
20230708	6	3	M 5	10	6	5	3
20230715	6	4	M 5	10	6	5	3
20230722	6	5	M 5	10	6	5	3
20230739	6	6	M 5	10	6	5	3
20230746	6	7	M 5	10	6	5	3
20230753	6	8	M 5	10	6	5	3
20230760	6	10	M 5	10	6	5	3
20230777	6	12	M 5	10	6	5	3
20230784	6	14	M 5	10	6	5	3
20230791	6	16	M 5	10	6	5	3
20230807	6	18	M 5	10	6	5	3
20230814	6	20	M 5	10	6	5	3
20230821	6	25	M 5	10	6	5	3
20230838	6	30	M 5	10	6	5	3
20230845	6	35	M 5	10	6	5	3
20230852	6	40	M 5	10	6	5	3
20230869	6	45	M 5	10	6	5	3
20230876	6	50	M 5	10	6	5	3
20230883	6	55	M 5	10	6	5	3
20230890	6	60	M 5	10	6	5	3
20230906	6	70	M 5	10	6	5	3
20230913	6	80	M 5	10	6	5	3
20230920	6	90	M 5	10	6	5	3
20230937	6	100	M 5	10	6	5	3
20230944	8	4	M 6	12	11	6	4
20230951	8	5	M 6	12	11	6	4
20230968	8	6	M 6	12	11	6	4
20230975	8	7	M 6	12	11	6	4
20230982	8	8	M 6	12	11	6	4
20230999	8	10	M 6	12	11	6	4
20231002	8	12	M 6	12	11	6	4
20231019	8	14	M 6	12	11	6	4
20231026	8	16	M 6	12	11	6	4
20231033	8	18	M 6	12	11	6	4
20231040	8	20	M 6	12	11	6	4
20231057	8	25	M 6	12	11	6	4
20231064	8	30	M 6	12	11	6	4
20231071	8	35	M 6	12	11	6	4
20231088	8	40	M 6	12	11	6	4
20231095	8	45	M 6	12	11	6	4
20231101	8	50	M 6	12	11	6	4
20231118	8	55	M 6	12	11	6	4
20231125	8	60	M 6	12	11	6	4
20231132	8	65	M 6	12	11	6	4
20231149	8	70	M 6	12	11	6	4
20231156	8	75	M 6	12	11	6	4
20231163	8	80	M 6	12	11	6	4
20231170	8	90	M 6	12	11	6	4

Order No.	d ₁ +0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	A/F
20231187	8	100	M 6	12	11	6	4
20235741	10	8	M 6	14	11	6	4
20235758	10	10	M 6	14	11	6	4
20230111	10	12	M 6	14	11	6	4
20235765	10	16	M 6	14	11	6	4
20235772	10	8	M 8	14	12	7	5
20235789	10	10	M 8	14	12	7	5
20235796	10	12	M 8	14	12	7	5
20235802	10	14	M 8	14	12	7	5
20235819	10	16	M 8	14	12	7	5
20235826	10	18	M 8	14	12	7	5
20235833	10	20	M 8	14	12	7	5
20235840	10	25	M 8	14	12	7	5
20235857	10	30	M 8	14	12	7	5
20235864	10	35	M 8	14	12	7	5
20235871	10	40	M 8	14	12	7	5
20235888	10	45	M 8	14	12	7	5
20235895	10	50	M 8	14	12	7	5
20235901	10	55	M 8	14	12	7	5
20235918	10	60	M 8	14	12	7	5
20235925	10	65	M 8	14	12	7	5
20235932	10	70	M 8	14	12	7	5
20235949	10	80	M 8	14	12	7	5
20235956	10	90	M 8	14	12	7	5
20235963	10	100	M 8	14	12	7	5
20231194	12	8	M10	20	16	8	6
20231200	12	10	M10	20	16	8	6
20231217	12	12	M10	20	16	8	6
20231224	12	14	M10	20	16	8	6
20231231	12	16	M10	20	16	8	6
20231248	12	18	M10	20	16	8	6
20231255	12	20	M10	20	16	8	6
20231262	12	25	M10	20	16	8	6
20231279	12	30	M10	20	16	8	6
20231286	12	35	M10	20	16	8	6
20231293	12	40	M10	20	16	8	6
20231309	12	45	M10	20	16	8	6
20231316	12	50	M10	20	16	8	6
20231323	12	55	M10	20	16	8	6
20231330	12	60	M10	20	16	8	6
20231347	12	65	M10	20	16	8	6
20231354	12	70	M10	20	16	8	6
20231361	12	75	M10	20	16	8	6
20231378	12	80	M10	20	16	8	6
20231385	12	90	M10	20	16	8	6
20231392	12	100	M10	20	16	8	6
20231408	16	25	M12	24	18	11	8
20231415	16	30	M12	24	18	11	8
20231422	16	35	M12	24	18	11	8
20231439	16	40	M12	24	18	11	8
20231446	16	45	M12	24	18	11	8
20231453	16	50	M12	24	18	11	8
20231460	16	55	M12	24	18	11	8
20231477	16	60	M12	24	18	11	8
20231484	16	65	M12	24	18	11	8
20231491	16	70	M12	24	18	11	8
20231507	16	75	M12	24	18	11	8
20231514	16	80	M12	24	18	11	8
20231521	16	90	M12	24	18	11	8
20231538	16	100	M12	24	18	11	8
20231545	20	30	M16	30	22	14	10
20231552	20	35	M16	30	22	14	10
20231569	20	40	M16	30	22	14	10
20231576	20	45	M16	30	22	14	10
20231583	20	50	M16	30	22	14	10
20231590	20	55	M16	30	22	14	10
20231606	20	60	M16	30	22	14	10
20231613	20	65	M16	30	22	14	10

Shoulder Screws - Cap Head

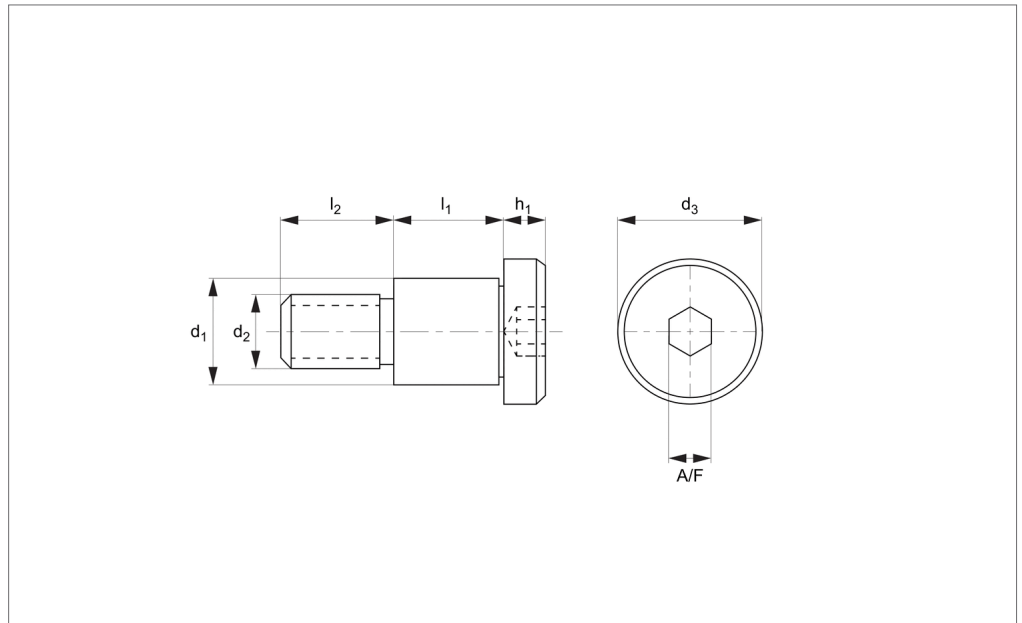
hex drive - 303 stainless, blackened

Shoulder Screws

Order No.	d_1 +0 -0.025	l_1 +0.05 -0.0	d_2	d_3	l_2	h_1	A/F
20231620	20	70	M16	30	22	14	10
20231637	20	75	M16	30	22	14	10
20231644	20	80	M16	30	22	14	10
20231651	20	90	M16	30	22	14	10
20231668	20	100	M16	30	22	14	10



EP0130.B4

**Material**

Stainless steel (AISI 316, 1.440) black oxide coating.

Tensile strength 480 N/mm².

Proof stress min. 200 N/mm², austenitic stainless steel.

Technical Notes

Highly resistant to corrosion (including

from salt water).

These 316 stainless steel shoulder bolts are considerably more expensive than our standard 303 grade stainless shoulder bolts (EP0130 + EP0137).

Shim washers can be used to reduce shoulder length if required. It is non-magnetic.

Can also be manufactured (for a batch size) in aluminium, monel & titanium.

Order No.	d ₁ +0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	A/F
20232948	3	3	M 2	5	4	2	1.5
20232955	3	4	M 2	5	4	2	1.5
20232962	3	5	M 2	5	4	2	1.5
20232979	3	6	M 2	5	4	2	1.5
20245290	3	7	M 2	5	4	2	1.5
20232986	3	8	M 2	5	4	2	1.5
20232993	3	10	M 2	5	4	2	1.5
20233006	4	4	M 3	6	4	3	2
20233013	4	5	M 3	6	4	3	2
20233020	4	6	M 3	6	4	3	2
20245306	4	7	M 3	6	4	3	2
20233037	4	8	M 3	6	4	3	2
20233044	4	10	M 3	6	4	3	2
20233051	4	12	M 3	6	4	3	2
20245313	4	14	M 3	6	4	3	2
20233068	4	16	M 3	6	4	3	2
20245320	4	18	M 3	6	4	3	2
20233075	4	20	M 3	6	4	3	2
20233082	5	5	M 4	8	5	4	2.5
20233099	5	6	M 4	8	5	4	2.5
20245337	5	7	M 4	8	5	4	2.5
20233105	5	8	M 4	8	5	4	2.5
20233112	5	10	M 4	8	5	4	2.5
20233129	5	12	M 4	8	5	4	2.5
20245344	5	14	M 4	8	5	4	2.5
20233136	5	16	M 4	8	5	4	2.5
20245351	5	18	M 4	8	5	4	2.5
20233143	5	20	M 4	8	5	4	2.5
20233150	5	25	M 4	8	5	4	2.5

Shoulder Screws - Cap Head

hex drive - 316 stainless, blackened

Shoulder Screws

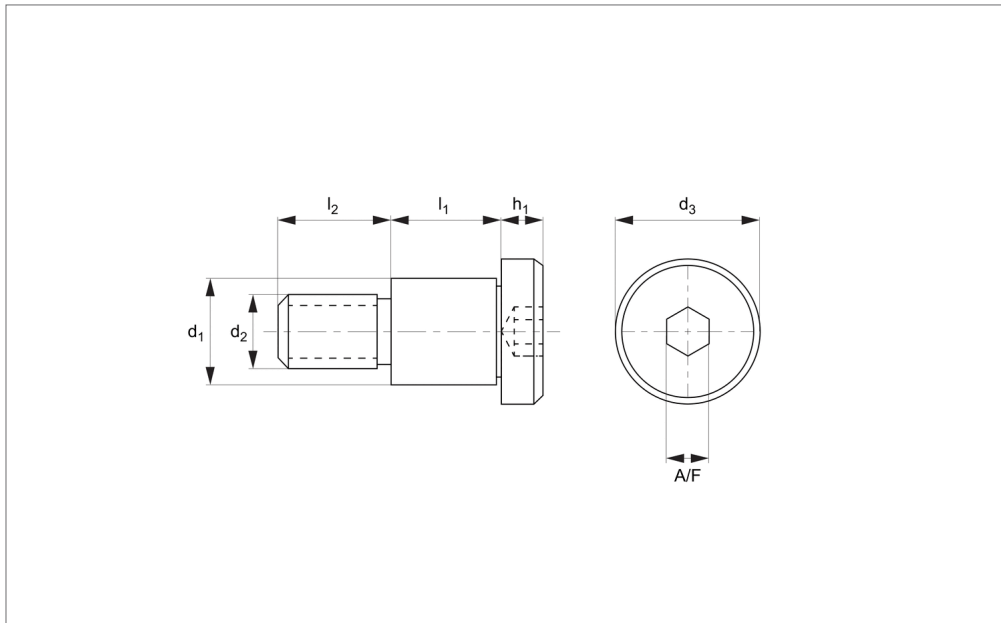
Order No.	d ₁ +0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	A/F
20233167	5	30	M 4	8	5	4	2.5
20233174	6	6	M 5	10	6	5	3
20245368	6	7	M 5	10	6	5	3
20233181	6	8	M 5	10	6	5	3
20230159	6	10	M 5	10	6	5	3
20233198	6	12	M 5	10	6	5	3
20245375	6	14	M 5	10	6	5	3
20233204	6	16	M 5	10	6	5	3
20245382	6	18	M 5	10	6	5	3
20233211	6	20	M 5	10	6	5	3
20233228	6	25	M 5	10	6	5	3
20233235	6	30	M 5	10	6	5	3
20245399	6	35	M 5	10	6	5	3
20233242	6	40	M 5	10	6	5	3
20245405	6	45	M 5	10	6	5	3
20233259	6	50	M 5	10	6	5	3
20233266	8	8	M 6	12	11	6	4
20233273	8	10	M 6	12	11	6	4
20233280	8	12	M 6	12	11	6	4
20245412	8	14	M 6	12	11	6	4
20233297	8	16	M 6	12	11	6	4
20245429	8	18	M 6	12	11	6	4
20233303	8	20	M 6	12	11	6	4
20233310	8	25	M 6	12	11	6	4
20233327	8	30	M 6	12	11	6	4
20245436	8	35	M 6	12	11	6	4
20233334	8	40	M 6	12	11	6	4
20245443	8	45	M 6	12	11	6	4
20233341	8	50	M 6	12	11	6	4
20233358	10	8	M 8	14	12	7	5
20233365	10	10	M 8	14	12	7	5
20233372	10	12	M 8	14	12	7	5
20245450	10	14	M 8	14	12	7	5
20233389	10	16	M 8	14	12	7	5
20233396	10	20	M 8	14	12	7	5
20233402	10	25	M 8	14	12	7	5
20233419	10	30	M 8	14	12	7	5
20245467	10	35	M 8	14	12	7	5
20233426	10	40	M 8	14	12	7	5
20245474	10	45	M 8	14	12	7	5
20233433	10	50	M 8	14	12	7	5
20245481	10	55	M 8	14	12	7	5
20233440	10	60	M 8	14	12	7	5
20245498	10	65	M 8	14	12	7	5
20233457	10	70	M 8	14	12	7	5
20245504	12	8	M10	20	16	8	6
20245511	12	10	M10	20	16	8	6
20245528	12	12	M10	20	16	8	6
20245535	12	14	M10	20	16	8	6
20233464	12	16	M10	20	16	8	6
20245542	12	18	M10	20	16	8	6
20233471	12	20	M10	20	16	8	6
20233488	12	25	M10	20	16	8	6
20233495	12	30	M10	20	16	8	6
20245559	12	35	M10	20	16	8	6
20233501	12	40	M10	20	16	8	6
20245566	12	45	M10	20	16	8	6
20233518	12	50	M10	20	16	8	6
20245573	12	55	M10	20	16	8	6
20233525	12	60	M10	20	16	8	6
20245580	12	65	M10	20	16	8	6
20233532	12	70	M10	20	16	8	6
20233549	16	25	M12	24	18	11	8
20233556	16	30	M12	24	18	11	8
20233563	16	35	M12	24	18	11	8
20233570	16	40	M12	24	18	11	8
20233587	16	45	M12	24	18	11	8
20233594	16	50	M12	24	18	11	8

Order No.	d_1 +0 -0.025	l_1 +0.05 -0.0	d_2	d_3	l_2	h_1	A/F
20233600	16	55	M12	24	18	11	8
20233617	16	60	M12	24	18	11	8
20233624	16	65	M12	24	18	11	8
20233631	16	70	M12	24	18	11	8
20233648	16	75	M12	24	18	11	8
20233655	16	80	M12	24	18	11	8
20233662	16	90	M12	24	18	11	8
20233679	16	100	M12	24	18	11	8
20245597	20	30	M16	30	22	14	10
20245603	20	35	M16	30	22	14	10
20245610	20	40	M16	30	22	14	10
20245627	20	45	M16	30	22	14	10
20245634	20	50	M16	30	22	14	10

Shoulder Screws - Cap Head

hex. drive - grade 2 titanium

Shoulder Screws



EP0130.T2

SHOULDER SCREWS

Material

Titanium (ASTM B348 grade 2, pure titanium). Tensile strength 345-450 N/mm², yield strength 270 N/mm², hardness 160HB/30Rc.

Technical Notes

Titanium has a lower density than stainless

steel and excellent corrosion resistance properties.

Titanium has a high strength:weight ratio - per unit weight, titanium is 45% stronger than stainless steel. Ideal for use in light-weight applications in the automobile, aerospace, medical and robotic industries.

T5 also available on request.

Replace -T2 with -T5 at the end of part number.

Tips

Special lengths and diameters produced to drawings.

Order No.	d_1 +0.000 -0.025	l_1 +0.05 -0.00	d_2	d_3	l_2	h_1	A/F
20241377	3	2	M 2	5	4	2	1.5
20241384	3	3	M 2	5	4	2	1.5
20241391	3	4	M 2	5	4	2	1.5
20241407	3	5	M 2	5	4	2	1.5
20241414	3	6	M 2	5	4	2	1.5
20241421	3	7	M 2	5	4	2	1.5
20241438	3	8	M 2	5	4	2	1.5
20241445	3	10	M 2	5	4	2	1.5
20241452	3	12	M 2	5	4	2	1.5
20241469	3	14	M 2	5	4	2	1.5
20241476	3	16	M 2	5	4	2	1.5
20241483	3	18	M 2	5	4	2	1.5
20241490	3	20	M 2	5	4	2	1.5
20241506	3	25	M 2	5	4	2	1.5
20241513	4	2	M 3	6	4	3	2
20241520	4	3	M 3	6	4	3	2
20241537	4	4	M 3	6	4	3	2
20241544	4	5	M 3	6	4	3	2
20241551	4	6	M 3	6	4	3	2
20241568	4	7	M 3	6	4	3	2
20241575	4	8	M 3	6	4	3	2
20241582	4	10	M 3	6	4	3	2
20241599	4	12	M 3	6	4	3	2
20241605	4	14	M 3	6	4	3	2
20241612	4	16	M 3	6	4	3	2
20241629	4	18	M 3	6	4	3	2
20241636	4	20	M 3	6	4	3	2
20241643	4	25	M 3	6	4	3	2
20241650	4	30	M 3	6	4	3	2
20241667	4	35	M 3	6	4	3	2

Order No.	d ₁ +0.000 -0.025	l ₁ +0.05 -0.00	d ₂	d ₃	l ₂	h ₁	A/F
20241674	4	40	M 3	6	4	3	2
20241681	4	45	M 3	6	4	3	2
20241698	4	50	M 3	6	4	3	2
20241704	5	2	M 4	8	5	4	2.5
20241711	5	3	M 4	8	5	4	2.5
20241728	5	4	M 4	8	5	4	2.5
20241735	5	5	M 4	8	5	4	2.5
20241742	5	6	M 4	8	5	4	2.5
20241759	5	7	M 4	8	5	4	2.5
20241766	5	8	M 4	8	5	4	2.5
20241773	5	10	M 4	8	5	4	2.5
20241780	5	12	M 4	8	5	4	2.5
20241797	5	14	M 4	8	5	4	2.5
20241803	5	16	M 4	8	5	4	2.5
20241810	5	18	M 4	8	5	4	2.5
20241827	5	20	M 4	8	5	4	2.5
20241834	5	25	M 4	8	5	4	2.5
20241841	5	30	M 4	8	5	4	2.5
20241858	5	35	M 4	8	5	4	2.5
20241865	5	40	M 4	8	5	4	2.5
20241872	5	45	M 4	8	5	4	2.5
20241889	5	50	M 4	8	5	4	2.5
20241896	6	2	M 5	10	6	5	3
20241902	6	3	M 5	10	6	5	3
20241919	6	4	M 5	10	6	5	3
20241926	6	5	M 5	10	6	5	3
20241933	6	6	M 5	10	6	5	3
20241940	6	7	M 5	10	6	5	3
20241957	6	8	M 5	10	6	5	3
20241964	6	10	M 5	10	6	5	3
20241971	6	12	M 5	10	6	5	3
20241988	6	14	M 5	10	6	5	3
20241995	6	16	M 5	10	6	5	3
20242008	6	18	M 5	10	6	5	3
20242015	6	20	M 5	10	6	5	3
20242022	6	25	M 5	10	6	5	3
20242039	6	30	M 5	10	6	5	3
20242046	6	35	M 5	10	6	5	3
20242053	6	40	M 5	10	6	5	3
20242060	6	45	M 5	10	6	5	3
20242077	6	50	M 5	10	6	5	3
20242084	6	55	M 5	10	6	5	3
20242091	6	60	M 5	10	6	5	3
20242107	6	70	M 5	10	6	5	3
20242114	6	80	M 5	10	6	5	3
20242121	6	90	M 5	10	6	5	3
20242138	6	100	M 5	10	6	5	3
20242145	8	4	M 6	12	11	6	4
20242152	8	5	M 6	12	11	6	4
20242169	8	6	M 6	12	11	6	4
20242176	8	7	M 6	12	11	6	4
20242183	8	8	M 6	12	11	6	4
20242190	8	10	M 6	12	11	6	4
20242206	8	12	M 6	12	11	6	4
20242213	8	14	M 6	12	11	6	4
20242220	8	16	M 6	12	11	6	4
20242237	8	18	M 6	12	11	6	4
20242244	8	20	M 6	12	11	6	4
20242251	8	25	M 6	12	11	6	4
20242268	8	30	M 6	12	11	6	4
20242275	8	35	M 6	12	11	6	4
20242282	8	40	M 6	12	11	6	4
20242299	8	45	M 6	12	11	6	4
20242305	8	50	M 6	12	11	6	4
20242312	8	55	M 6	12	11	6	4
20242329	8	60	M 6	12	11	6	4
20242336	8	65	M 6	12	11	6	4
20242343	8	70	M 6	12	11	6	4

Shoulder Screws - Cap Head

hex. drive - grade 2 titanium

Shoulder Screws

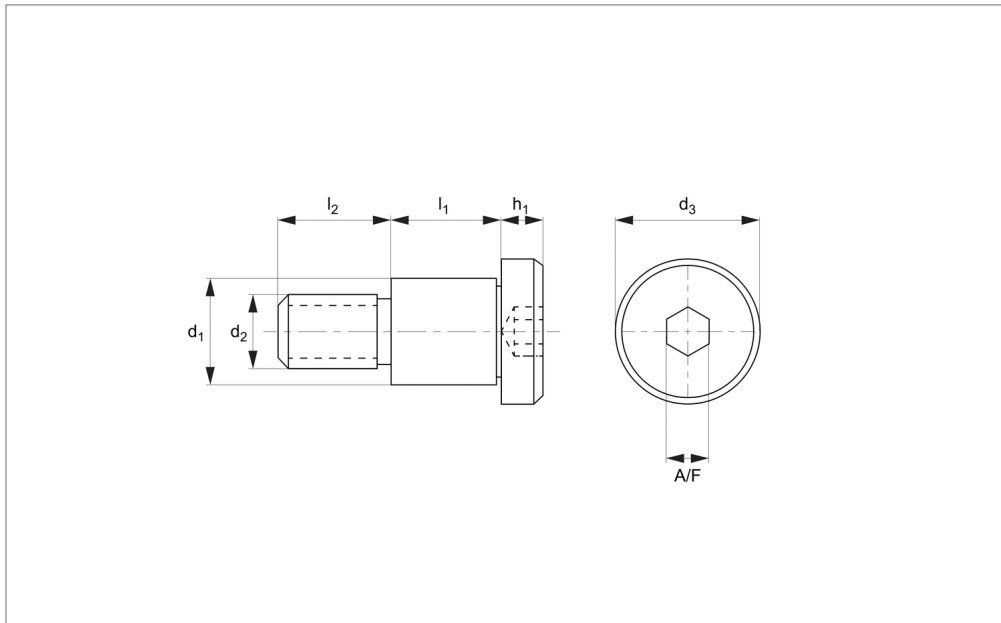
Order No.	d_1 +0.000 -0.025	l_1 +0.05 -0.00	d_2	d_3	l_2	h_1	A/F
20242350	8	75	M 6	12	11	6	4
20242367	8	80	M 6	12	11	6	4
20242374	8	90	M 6	12	11	6	4
20242381	8	100	M 6	12	11	6	4
20249731	10	8	M 8	14	12	7	5
20249748	10	10	M 8	14	12	7	5
20249755	10	12	M 8	14	12	7	5
20249762	10	14	M 8	14	12	7	5
20249779	10	16	M 8	14	12	7	5
20249786	10	18	M 8	14	12	7	5
20249793	10	20	M 8	14	12	7	5
20249809	10	25	M 8	14	12	7	5
20249816	10	30	M 8	14	12	7	5
20249823	10	35	M 8	14	12	7	5
20249830	10	40	M 8	14	12	7	5
20249847	10	45	M 8	14	12	7	5
20249854	10	50	M 8	14	12	7	5
20249861	10	55	M 8	14	12	7	5
20249878	10	60	M 8	14	12	7	5
20249885	10	65	M 8	14	12	7	5
20249892	10	70	M 8	14	12	7	5
20249908	10	80	M 8	14	12	7	5
20249915	10	90	M 8	14	12	7	5
20249922	10	100	M 8	14	12	7	5
20242398	12	8	M10	20	16	8	6
20242404	12	10	M10	20	16	8	6
20242411	12	12	M10	20	16	8	6
20242428	12	14	M10	20	16	8	6
20242435	12	16	M10	20	16	8	6
20242442	12	18	M10	20	16	8	6
20242459	12	20	M10	20	16	8	6
20242466	12	25	M10	20	16	8	6
20242473	12	30	M10	20	16	8	6
20242480	12	35	M10	20	16	8	6
20242497	12	40	M10	20	16	8	6
20242503	12	45	M10	20	16	8	6
20242510	12	50	M10	20	16	8	6
20242527	12	55	M10	20	16	8	6
20242534	12	60	M10	20	16	8	6
20242541	12	65	M10	20	16	8	6
20242558	12	70	M10	20	16	8	6
20242565	12	75	M10	20	16	8	6
20242572	12	80	M10	20	16	8	6
20242589	12	90	M10	20	16	8	6
20242596	12	100	M10	20	16	8	6
20242602	16	25	M12	24	18	11	8
20242619	16	30	M12	24	18	11	8
20242626	16	35	M12	24	18	11	8
20242633	16	40	M12	24	18	11	8
20242640	16	45	M12	24	18	11	8
20242657	16	50	M12	24	18	11	8
20242664	16	55	M12	24	18	11	8
20242671	16	60	M12	24	18	11	8
20242688	16	65	M12	24	18	11	8
20242695	16	70	M12	24	18	11	8
20242701	16	75	M12	24	18	11	8
20242718	16	80	M12	24	18	11	8
20242725	16	90	M12	24	18	11	8
20242732	16	100	M12	24	18	11	8
20242749	20	30	M16	30	22	14	10
20242756	20	35	M16	30	22	14	10
20242763	20	40	M16	30	22	14	10
20242770	20	45	M16	30	22	14	10
20242787	20	50	M16	30	22	14	10
20242794	20	55	M16	30	22	14	10
20242800	20	60	M16	30	22	14	10
20242817	20	65	M16	30	22	14	10
20242824	20	70	M16	30	22	14	10

Order No.	d_1 +0.000 -0.025	l_1 +0.05 -0.00	d_2	d_3	l_2	h_1	A/F
20242831	20	75	M16	30	22	14	10
20242848	20	80	M16	30	22	14	10
20242855	20	90	M16	30	22	14	10
20242862	20	100	M16	30	22	14	10

Shoulder Screws - Cap Head

hex. drive - grade 5 titanium

Shoulder Screws



EP0130.T5

SHOULDER SCREWS

Material

Titanium alloy (ATSM B348 grade 5; Ti6Al4V). Tensile strength 895-1100 N/mm², yield strength 820 N/mm², hardness 334HB/36Rc.

Technical Notes

Titanium has a lower density than stainless

steel and excellent corrosion resistance properties.

Titanium has a high strength:weight ratio - per unit weight titanium is 45% stronger than stainless steel. Ideal for use in light-weight applications in the automobile, aerospace, medical and robotic industries.

Grade 5 titanium alloy is stronger than grade 2 (pure) titanium. Withstands temperatures of up to 400°C.

Tips

Special lengths and diameters produced to drawings.

Order No.	d_1 +0.000 -0.025	l_1 +0.05 -0.00	d_2	d_3	l_2	h_1	A/F
20242879	3	2	M 2	5	4	2	1.5
20242886	3	3	M 2	5	4	2	1.5
20242893	3	4	M 2	5	4	2	1.5
20242909	3	5	M 2	5	4	2	1.5
20242916	3	6	M 2	5	4	2	1.5
20242923	3	7	M 2	5	4	2	1.5
20242930	3	8	M 2	5	4	2	1.5
20242947	3	10	M 2	5	4	2	1.5
20242954	3	12	M 2	5	4	2	1.5
20242961	3	14	M 2	5	4	2	1.5
20242978	3	16	M 2	5	4	2	1.5
20242985	3	18	M 2	5	4	2	1.5
20242992	3	20	M 2	5	4	2	1.5
20243005	3	25	M 2	5	4	2	1.5
20243012	4	2	M 3	6	4	3	2
20243029	4	3	M 3	6	4	3	2
20243036	4	4	M 3	6	4	3	2
20243043	4	5	M 3	6	4	3	2
20243050	4	6	M 3	6	4	3	2
20243067	4	7	M 3	6	4	3	2
20243074	4	8	M 3	6	4	3	2
20243081	4	10	M 3	6	4	3	2
20243098	4	12	M 3	6	4	3	2
20243104	4	14	M 3	6	4	3	2
20243111	4	16	M 3	6	4	3	2
20243128	4	18	M 3	6	4	3	2
20243135	4	20	M 3	6	4	3	2
20243142	4	25	M 3	6	4	3	2
20243159	4	30	M 3	6	4	3	2
20243166	4	35	M 3	6	4	3	2

Order No.	d ₁ +0.000 -0.025	l ₁ +0.05 -0.00	d ₂	d ₃	l ₂	h ₁	A/F
20243173	4	40	M 3	6	4	3	2
20243180	4	45	M 3	6	4	3	2
20243197	4	50	M 3	6	4	3	2
20243203	5	2	M 4	8	5	4	2.5
20243210	5	3	M 4	8	5	4	2.5
20243227	5	4	M 4	8	5	4	2.5
20243234	5	5	M 4	8	5	4	2.5
20243241	5	6	M 4	8	5	4	2.5
20243258	5	7	M 4	8	5	4	2.5
20243265	5	8	M 4	8	5	4	2.5
20243272	5	10	M 4	8	5	4	2.5
20243289	5	12	M 4	8	5	4	2.5
20243296	5	14	M 4	8	5	4	2.5
20243302	5	16	M 4	8	5	4	2.5
20243319	5	18	M 4	8	5	4	2.5
20243326	5	20	M 4	8	5	4	2.5
20243333	5	25	M 4	8	5	4	2.5
20243340	5	30	M 4	8	5	4	2.5
20243357	5	35	M 4	8	5	4	2.5
20243364	5	40	M 4	8	5	4	2.5
20243371	5	45	M 4	8	5	4	2.5
20243388	5	50	M 4	8	5	4	2.5
20243395	6	2	M 5	10	6	5	3
20243401	6	3	M 5	10	6	5	3
20243418	6	4	M 5	10	6	5	3
20243425	6	5	M 5	10	6	5	3
20243432	6	6	M 5	10	6	5	3
20243449	6	7	M 5	10	6	5	3
20243456	6	8	M 5	10	6	5	3
20243463	6	10	M 5	10	6	5	3
20243470	6	12	M 5	10	6	5	3
20243487	6	14	M 5	10	6	5	3
20243494	6	16	M 5	10	6	5	3
20243500	6	18	M 5	10	6	5	3
20243517	6	20	M 5	10	6	5	3
20243524	6	25	M 5	10	6	5	3
20243531	6	30	M 5	10	6	5	3
20243548	6	35	M 5	10	6	5	3
20243555	6	40	M 5	10	6	5	3
20243562	6	45	M 5	10	6	5	3
20243579	6	50	M 5	10	6	5	3
20243586	6	55	M 5	10	6	5	3
20243593	6	60	M 5	10	6	5	3
20243609	6	70	M 5	10	6	5	3
20243616	6	80	M 5	10	6	5	3
20243623	6	90	M 5	10	6	5	3
20243630	6	100	M 5	10	6	5	3
20243647	8	4	M 6	12	11	6	4
20243654	8	5	M 6	12	11	6	4
20243661	8	6	M 6	12	11	6	4
20243678	8	7	M 6	12	11	6	4
20243685	8	8	M 6	12	11	6	4
20243692	8	10	M 6	12	11	6	4
20243708	8	12	M 6	12	11	6	4
20243715	8	14	M 6	12	11	6	4
20243722	8	16	M 6	12	11	6	4
20243739	8	18	M 6	12	11	6	4
20243746	8	20	M 6	12	11	6	4
20243753	8	25	M 6	12	11	6	4
20243760	8	30	M 6	12	11	6	4
20243777	8	35	M 6	12	11	6	4
20243784	8	40	M 6	12	11	6	4
20243791	8	45	M 6	12	11	6	4
20243807	8	50	M 6	12	11	6	4
20243814	8	55	M 6	12	11	6	4
20243821	8	60	M 6	12	11	6	4
20243838	8	65	M 6	12	11	6	4
20243845	8	70	M 6	12	11	6	4

Shoulder Screws - Cap Head

hex. drive - grade 5 titanium

Shoulder Screws

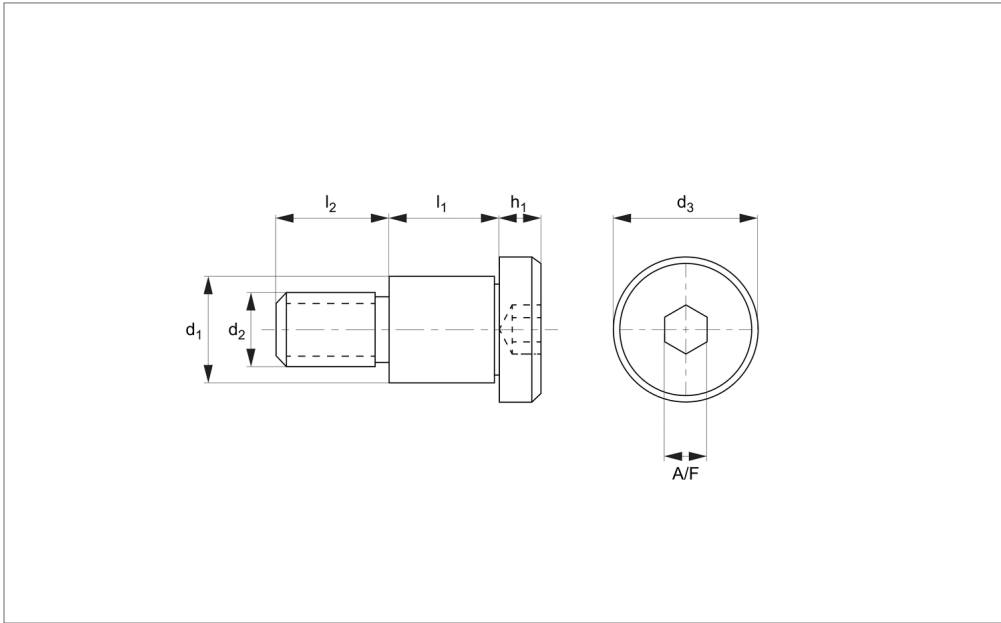
Order No.	d_1 +0.000 -0.025	l_1 +0.05 -0.00	d_2	d_3	l_2	h_1	A/F
20243852	8	75	M 6	12	11	6	4
20243869	8	80	M 6	12	11	6	4
20243876	8	90	M 6	12	11	6	4
20243883	8	100	M 6	12	11	6	4
20249939	10	8	M 8	14	12	7	5
20249946	10	10	M 8	14	12	7	5
20249953	10	12	M 8	14	12	7	5
20249960	10	14	M 8	14	12	7	5
20249977	10	16	M 8	14	12	7	5
20249984	10	18	M 8	14	12	7	5
20249991	10	20	M 8	14	12	7	5
20250003	10	25	M 8	14	12	7	5
20250010	10	30	M 8	14	12	7	5
20250027	10	35	M 8	14	12	7	5
20250034	10	40	M 8	14	12	7	5
20250041	10	45	M 8	14	12	7	5
20250058	10	50	M 8	14	12	7	5
20250065	10	55	M 8	14	12	7	5
20250072	10	60	M 8	14	12	7	5
20250089	10	65	M 8	14	12	7	5
20250096	10	70	M 8	14	12	7	5
20250102	10	80	M 8	14	12	7	5
20250119	10	90	M 8	14	12	7	5
20250126	10	100	M 8	14	12	7	5
20243890	12	8	M10	20	16	8	6
20243906	12	10	M10	20	16	8	6
20243913	12	12	M10	20	16	8	6
20243920	12	14	M10	20	16	8	6
20243937	12	16	M10	20	16	8	6
20243944	12	18	M10	20	16	8	6
20243951	12	20	M10	20	16	8	6
20243968	12	25	M10	20	16	8	6
20243975	12	30	M10	20	16	8	6
20243982	12	35	M10	20	16	8	6
20243999	12	40	M10	20	16	8	6
20244002	12	45	M10	20	16	8	6
20244019	12	50	M10	20	16	8	6
20244026	12	55	M10	20	16	8	6
20244033	12	60	M10	20	16	8	6
20244040	12	65	M10	20	16	8	6
20244057	12	70	M10	20	16	8	6
20244064	12	75	M10	20	16	8	6
20244071	12	80	M10	20	16	8	6
20244088	12	90	M10	20	16	8	6
20244095	12	100	M10	20	16	8	6
20244101	16	25	M12	24	18	11	8
20244118	16	30	M12	24	18	11	8
20244125	16	35	M12	24	18	11	8
20244132	16	40	M12	24	18	11	8
20244149	16	45	M12	24	18	11	8
20244156	16	50	M12	24	18	11	8
20244163	16	55	M12	24	18	11	8
20244170	16	60	M12	24	18	11	8
20244187	16	65	M12	24	18	11	8
20244194	16	70	M12	24	18	11	8
20244200	16	75	M12	24	18	11	8
20244217	16	80	M12	24	18	11	8
20244224	16	90	M12	24	18	11	8
20244231	16	100	M12	24	18	11	8
20244248	20	30	M16	30	22	14	10
20244255	20	35	M16	30	22	14	10
20244262	20	40	M16	30	22	14	10
20244279	20	45	M16	30	22	14	10
20244286	20	50	M16	30	22	14	10
20244293	20	55	M16	30	22	14	10
20244309	20	60	M16	30	22	14	10
20244316	20	65	M16	30	22	14	10
20244323	20	70	M16	30	22	14	10

Order No.	d_1 +0.000 -0.025	l_1 +0.05 -0.00	d_2	d_3	l_2	h_1	A/F
20244330	20	75	M16	30	22	14	10
20244347	20	80	M16	30	22	14	10
20244354	20	90	M16	30	22	14	10
20244361	20	100	M16	30	22	14	10

Shoulder Screws - Cap Head

hex drive - 416 stainless

Shoulder Screws



EP0131

SHOULDER SCREWS

Material

Stainless steel (AISI 416, 1.4005). Tensile strength 650 N/mm². Proof stress min. 450 N/mm², martensitic stainless steel.

stronger grade of stainless steel than the 303 stainless alternatives. They are magnetic and slightly less resistant to corrosion than the 303 alternative (see EP0130 or EP0132).

atmosphere, fresh water and mild alkalis and acids. Special lengths and diameters produced to drawings.

Technical Notes

Stainless steel 416 series is a harder,

For corrosion resistance it is suited to dry

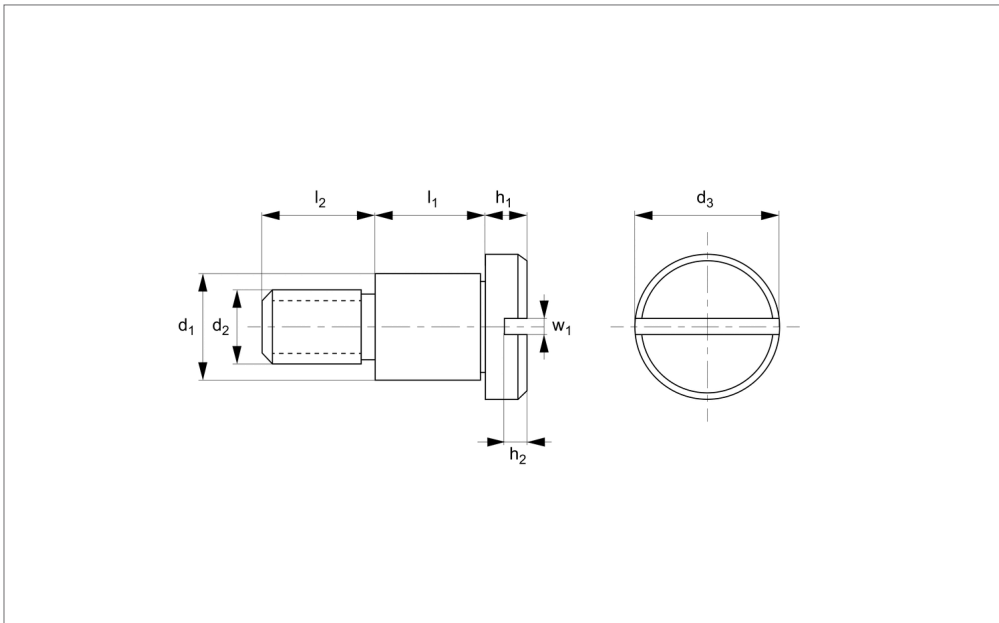
Order No.	d_1 +0 -0.025	l_1 +0.05 -0.0	d_2	d_3	l_2	h_1	A/F
20222000	4	4	M 3	6	4	3	2
20222116	4	5	M 3	6	4	3	2
20222222	4	6	M 3	6	4	3	2
20222338	4	8	M 3	6	4	3	2
20222406	4	10	M 3	6	4	3	2
20222413	5	4	M 4	8	5	4	2.5
20222420	5	5	M 4	8	5	4	2.5
20222437	5	6	M 4	8	5	4	2.5
20222444	5	8	M 4	8	5	4	2.5
20222017	5	10	M 4	8	5	4	2.5
20222024	5	12	M 4	8	5	4	2.5
20222031	5	14	M 4	8	5	4	2.5
20222048	5	16	M 4	8	5	4	2.5
20222055	5	20	M 4	8	5	4	2.5
20222062	5	25	M 4	8	5	4	2.5
20222079	5	30	M 4	8	5	4	2.5
20222086	6	4	M 5	10	6	5	3
20222093	6	5	M 5	10	6	5	3
20222109	6	6	M 5	10	6	5	3
20222123	6	8	M 5	10	6	5	3
20222130	6	10	M 5	10	6	5	3
20222147	6	12	M 5	10	6	5	3
20222154	6	14	M 5	10	6	5	3
20222161	6	16	M 5	10	6	5	3
20222178	6	20	M 5	10	6	5	3
20222185	6	25	M 5	10	6	5	3
20222192	6	30	M 5	10	6	5	3
20222208	8	6	M 6	12	11	6	4
20222215	8	8	M 6	12	11	6	4
20222239	8	10	M 6	12	11	6	4
20222246	8	12	M 6	12	11	6	4

Order No.	d_1 +0 -0.025	l_1 +0.05 -0.0	d_2	d_3	l_2	h_1	A/F
20222253	8	16	M 6	12	11	6	4
20222260	8	20	M 6	12	11	6	4
20225759	8	25	M 6	12	11	6	4
20225766	8	30	M 6	12	11	6	4
20222277	10	8	M 6	14	11	6	4
20222284	10	10	M 6	14	11	6	4
20222291	10	12	M 6	14	11	6	4
20222307	10	16	M 6	14	11	6	4
20222314	10	8	M 8	14	12	7	5
20222321	10	10	M 8	14	12	7	5
20245641	10	12	M 8	14	12	7	5
20222352	10	16	M 8	14	12	7	5
20222369	12	12	M10	20	16	8	6
20222376	12	16	M10	20	16	8	6
20222383	12	20	M10	20	16	8	6
20222390	12	25	M10	20	16	8	6
20225797	12	30	M10	20	16	8	6

Shoulder Screw - Cap Head

slot drive - 303 stainless

Shoulder Screws



EP0132.A2

SHOULDER SCREWS

Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm². Proof stress min. 190 N/mm², austenitic stainless steel.

resistance to corrosion. It is mildly magnetic. screws are less expensive than the 416 steel grade (see part no. EP0133), which are harder but less resistant to corrosion.

shoulder screws see part no. EP0137. Special lengths and diameters produced to drawings.

Technical Notes

303 series stainless steel provides good

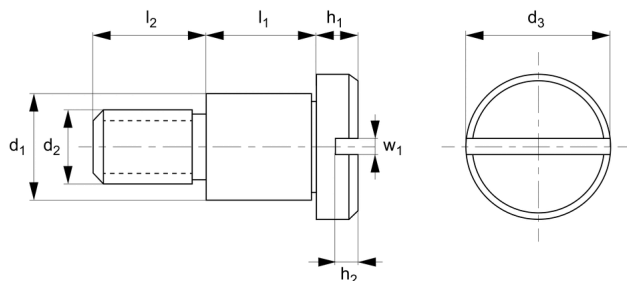
For $\varnothing 16$ (and above) stainless steel

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
20228224	2	1	M1,6	3	3.5	1	0.3	0.4
20228231	2	2	M1,6	3	3.5	1	0.3	0.4
20228248	2	3	M1,6	3	3.5	1	0.3	0.4
20228255	2	4	M1,6	3	3.5	1	0.3	0.4
20228262	2	5	M1,6	3	3.5	1	0.3	0.4
20228279	2	6	M1,6	3	3.5	1	0.3	0.4
20228286	2	8	M1,6	3	3.5	1	0.3	0.4
20228293	2	10	M1,6	3	3.5	1	0.3	0.4
20228309	2	12	M1,6	3	3.5	1	0.3	0.4
20231675	3	2	M 2	5	4	2	0.5	0.6
20235468	3	3	M 2	5	4	2	0.5	0.6
20235475	3	4	M 2	5	4	2	0.5	0.6
20235482	3	5	M 2	5	4	2	0.5	0.6
20235499	3	6	M 2	5	4	2	0.5	0.6
20235505	3	7	M 2	5	4	2	0.5	0.6
20235512	3	8	M 2	5	4	2	0.5	0.6
20235529	3	10	M 2	5	4	2	0.5	0.6
20235536	3	12	M 2	5	4	2	0.5	0.6
20235543	3	14	M 2	5	4	2	0.5	0.6
20235550	3	16	M 2	5	4	2	0.5	0.6
20235567	3	18	M 2	5	4	2	0.5	0.6
20235574	3	20	M 2	5	4	2	0.5	0.6
20235581	3	25	M 2	5	4	2	0.5	0.6
20221195	4	4	M 3	6	4	3	0.9	0.8
20221409	4	5	M 3	6	4	3	0.9	0.8
20221614	4	6	M 3	6	4	3	0.9	0.8
20221799	4	8	M 3	6	4	3	0.9	0.8
20221911	4	10	M 3	6	4	3	0.9	0.8
20228316	4	12	M 3	6	4	3	0.9	0.8
20228323	4	16	M 3	6	4	3	0.9	0.8
20228330	4	20	M 3	6	4	3	0.9	0.8

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
20221935	5	4	M 4	8	5	4	1.2	1.0
20221959	5	5	M 4	8	5	4	1.2	1.0
20221973	5	6	M 4	8	5	4	1.2	1.0
20221997	5	8	M 4	8	5	4	1.2	1.0
20221218	5	10	M 4	8	5	4	1.2	1.0
20221232	5	12	M 4	8	5	4	1.2	1.0
20221256	5	14	M 4	8	5	4	1.2	1.0
20221270	5	16	M 4	8	5	4	1.2	1.0
20221294	5	20	M 4	8	5	4	1.2	1.0
20225803	5	25	M 4	8	5	4	1.2	1.0
20221324	5	30	M 4	8	5	4	1.2	1.0
20221348	6	4	M 5	10	6	5	1.3	1.2
20221362	6	5	M 5	10	6	5	1.3	1.2
20221386	6	6	M 5	10	6	5	1.3	1.2
20221423	6	8	M 5	10	6	5	1.3	1.2
20221447	6	10	M 5	10	6	5	1.3	1.2
20222567	6	12	M 5	10	6	5	1.3	1.2
20221478	6	14	M 5	10	6	5	1.3	1.2
20221492	6	16	M 5	10	6	5	1.3	1.2
20221515	6	20	M 5	10	6	5	1.3	1.2
20221539	6	25	M 5	10	6	5	1.3	1.2
20221553	6	30	M 5	10	6	5	1.3	1.2
20221577	8	6	M 6	12	11	6	1.5	1.6
20221591	8	8	M 6	12	11	6	1.5	1.6
20221638	8	10	M 6	12	11	6	1.5	1.6
20221652	8	12	M 6	12	11	6	1.5	1.6
20221676	8	16	M 6	12	11	6	1.5	1.6
20221706	10	8	M 6	14	11	6	1.5	1.6
20221737	10	12	M 6	14	11	6	1.5	1.6
20221768	10	8	M 8	14	12	7	1.9	2.0
20228347	10	10	M 8	14	12	7	1.9	2.0
20221812	10	12	M 8	14	12	7	1.9	2.0
20221836	10	16	M 8	14	12	7	1.9	2.0
20228354	12	8	M10	20	16	8	2.4	2.5
20228361	12	10	M10	20	16	8	2.4	2.5
20221850	12	12	M10	20	16	8	2.4	2.5
20228378	12	16	M10	20	16	8	2.4	2.5
20228385	12	20	M10	20	16	8	2.4	2.5
20221898	12	25	M10	20	16	8	2.4	2.5

Shoulder Screw - Cap Head slot drive - 303 stainless, blackened

Shoulder Screws



EP0132.B2

SHOULDER SCREWS

Material

Stainless steel (AISI 303, 1.4305) black oxide coating. Tensile strength 550 N/mm². Proof stress min. 190 N/mm², austenitic stainless steel.

Technical Notes

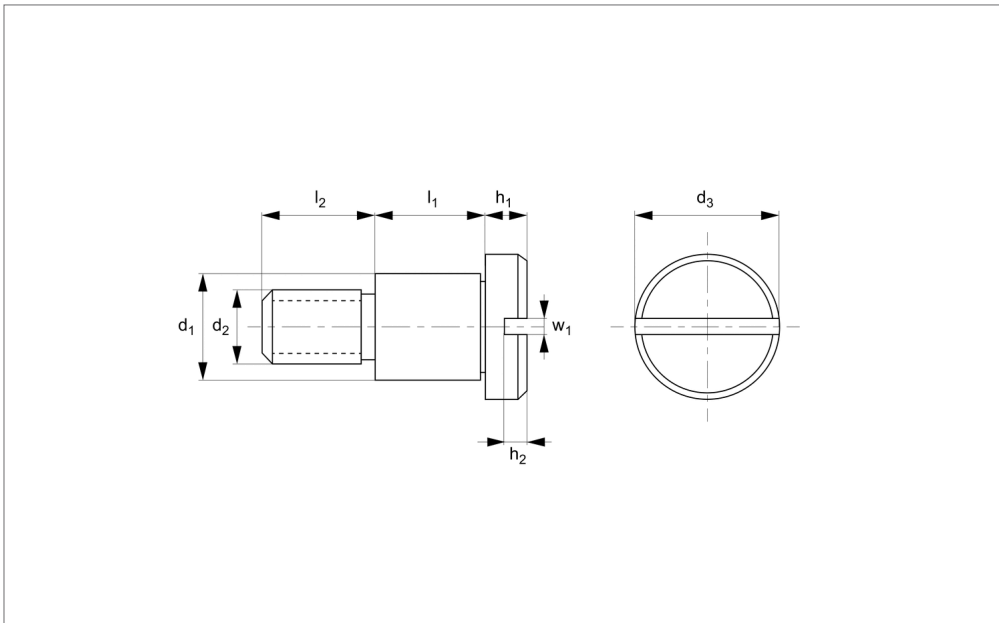
303 series stainless steel provides good

resistance to corrosion. It is mildly magnetic. These shoulder screws are less expensive than the 416 steel grade (see part no. EP0133), which are harder but less resistant to corrosion.

For Ø16 (and above) stainless steel shoulder screws see part no. EP0137. 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	w_1
20231682	2	1	M 1,6	3	2.5	1	0.3	0.4
20231699	2	2	M 1,6	3	2.5	1	0.3	0.4
20231705	2	3	M 1,6	3	2.5	1	0.3	0.4
20231712	2	4	M 1,6	3	2.5	1	0.3	0.4
20231729	2	5	M 1,6	3	2.5	1	0.3	0.4
20231736	2	6	M 1,6	3	2.5	1	0.3	0.4
20231743	2	8	M 1,6	3	2.5	1	0.3	0.4
20231750	2	10	M 1,6	3	2.5	1	0.3	0.4
20231767	2	12	M 1,6	3	2.5	1	0.3	0.4
20231774	3	2	M 2	5	4.0	2	1.5	0.6
20235598	3	3	M 2	5	4.0	2	1.5	0.6
20235604	3	4	M 2	5	4.0	2	1.5	0.6
20235611	3	5	M 2	5	4.0	2	1.5	0.6
20235628	3	6	M 2	5	4.0	2	1.5	0.6
20235635	3	7	M 2	5	4.0	2	1.5	0.6
20235642	3	8	M 2	5	4.0	2	1.5	0.6
20235659	3	10	M 2	5	4.0	2	1.5	0.6
20235666	3	12	M 2	5	4.0	2	1.5	0.6
20235673	3	14	M 2	5	4.0	2	1.5	0.6
20235680	3	16	M 2	5	4	2	1.5	0.6
20235697	3	18	M 2	5	4.0	2	1.5	0.6
20235703	3	20	M 2	5	4.0	2	1.5	0.6
20235710	3	25	M 2	5	4.0	2	1.5	0.6
20231781	4	4	M 3	6	4.0	3	0.9	0.8
20231798	4	5	M 3	6	4.0	3	0.9	0.8
20231804	4	6	M 3	6	4.0	3	0.9	0.8
20231811	4	8	M 3	6	4.0	3	0.9	0.8
20231828	4	10	M 3	6	4.0	3	0.9	0.8
20231835	4	12	M 3	6	4.0	3	0.9	0.8
20231842	4	16	M 3	6	4.0	3	0.9	0.8

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
20231859	4	20	M 3	6	4.0	3	0.9	0.8
20231866	5	4	M 4	8	5.0	4	1.2	1.0
20231873	5	5	M 4	8	5.0	4	1.2	1.0
20231880	5	6	M 4	8	5.0	4	1.2	1.0
20231897	5	8	M 4	8	5.0	4	1.2	1.0
20231903	5	10	M 4	8	5.0	4	1.2	1.0
20231910	5	12	M 4	8	5.0	4	1.2	1.0
20231927	5	14	M 4	8	5.0	4	1.2	1.0
20231934	5	16	M 4	8	5.0	4	1.2	1.0
20231941	5	20	M 4	8	5.0	4	1.2	1.0
20231958	5	25	M 4	8	5.0	4	1.2	1.0
20231965	5	30	M 4	8	5.0	4	1.2	1.0
20231972	6	4	M 5	10	6.0	5	1.3	1.2
20231989	6	5	M 5	10	6.0	5	1.3	1.2
20231996	6	6	M 5	10	6.0	5	1.3	1.2
20232009	6	8	M 5	10	6.0	5	1.3	1.2
20232016	6	10	M 5	10	6.0	5	1.3	1.2
20232023	6	12	M 5	10	6.0	5	1.3	1.2
20232030	6	14	M 5	10	6.0	5	1.3	1.2
20232047	6	16	M 5	10	6.0	5	1.3	1.2
20232054	6	20	M 5	10	6.0	5	1.3	1.2
20232061	6	25	M 5	10	6.0	5	1.3	1.2
20232078	6	30	M 5	10	6.0	5	1.3	1.2
20232085	8	6	M 6	12	11.0	6	1.5	1.6
20232092	8	8	M 6	12	11.0	6	1.5	1.6
20232108	8	10	M 6	12	11.0	6	1.5	1.6
20232115	8	12	M 6	12	11.0	6	1.5	1.6
20232122	8	16	M 6	12	11.0	6	1.5	1.6
20232139	8	20	M 6	12	11.0	6	1.5	1.6
20232146	10	8	M 6	14	11.0	6	1.5	1.6
20232153	10	12	M 6	14	11.0	6	1.5	1.6
20232160	10	8	M 8	14	12.0	7	1.9	2.0
20232177	10	10	M 8	14	12.0	7	1.9	2.0
20232184	10	12	M 8	14	12.0	7	1.9	2.0
20232191	10	16	M 8	14	12.0	7	1.9	2.0
20232207	12	8	M10	20	16.0	8	2.4	2.5
20232214	12	10	M10	20	16.0	8	2.4	2.5
20232221	12	12	M10	20	16.0	8	2.4	2.5
20232238	12	16	M10	20	16.0	8	2.4	2.5
20232245	12	20	M10	20	16.0	8	2.4	2.5
20232252	12	25	M10	20	16.0	8	2.4	2.5



EP0133

SHOULDER SCREWS

Material

Stainless steel (AISI 416, 1.4005). Tensile strength 650 N/mm². Proof stress min. 450 N/mm², 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 EP0130 or EP0132).

For corrosion resistance it is suited to dry

atmosphere, fresh water and mild alkalis and acids.

Special lengths and diameters produced to drawings.

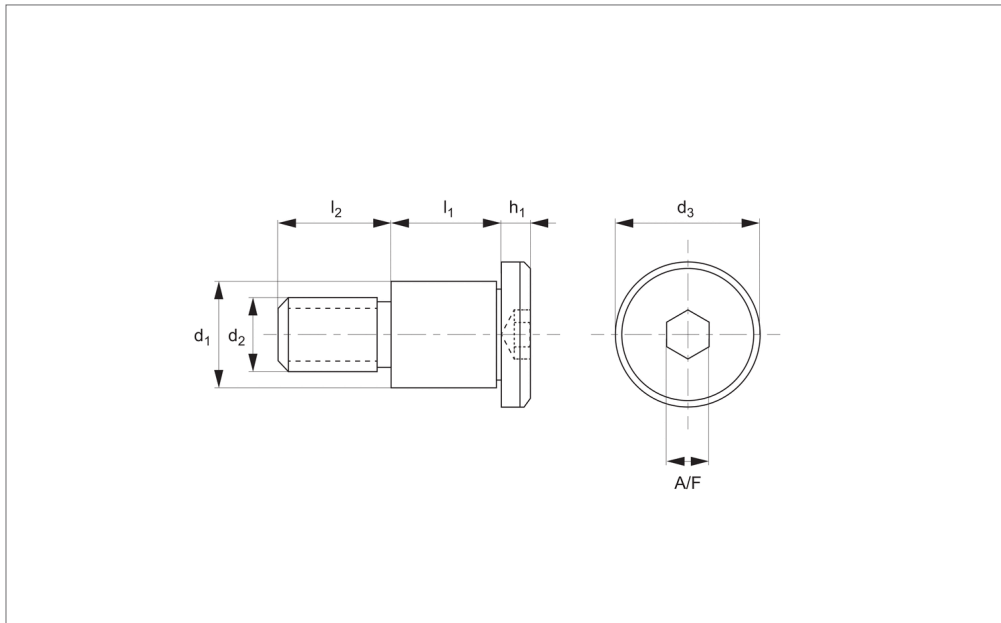
Order No.	d_1 +0 -0.025	l_1 +0.05 -0.0	d_2	d_3	l_2	h_1	h_2	w_1
20221188	4	4	M 3	6	4	3	0.3	0.4
20221393	4	5	M 3	6	4	3	0.3	0.4
20221607	4	6	M 3	6	4	3	0.3	0.4
20221782	4	8	M 3	6	4	3	0.3	0.4
20221904	4	10	M 3	6	4	3	0.3	0.4
20221928	5	4	M 4	8	5	4	0.9	0.8
20221942	5	5	M 4	8	5	4	0.9	0.8
20221966	5	6	M 4	8	5	4	0.9	0.8
20221980	5	8	M 4	8	5	4	0.9	0.8
20221201	5	10	M 4	8	5	4	0.9	0.8
20221225	5	12	M 4	8	5	4	0.9	0.8
20221249	5	14	M 4	8	5	4	0.9	0.8
20221263	5	16	M 4	8	5	4	0.9	0.8
20221287	5	20	M 4	8	5	4	0.9	0.8
20221317	5	30	M 4	8	5	4	0.9	0.8
20221331	6	4	M 5	10	6	5	1.2	1.0
20221355	6	5	M 5	10	6	5	1.2	1.0
20221379	6	6	M 5	10	6	5	1.2	1.0
20221416	6	8	M 5	10	6	5	1.2	1.0
20221430	6	10	M 5	10	6	5	1.2	1.0
20221461	6	14	M 5	10	6	5	1.2	1.0
20221485	6	16	M 5	10	6	5	1.2	1.0
20221508	6	20	M 5	10	6	5	1.2	1.0
20221522	6	25	M 5	10	6	5	1.2	1.0
20221546	6	30	M 5	10	6	5	1.2	1.0
20221560	8	6	M 6	12	11	6	1.3	1.2
20221584	8	8	M 6	12	11	6	1.3	1.2
20221621	8	10	M 6	12	11	6	1.3	1.2
20221645	8	12	M 6	12	11	6	1.3	1.2
20221669	8	16	M 6	12	11	6	1.3	1.2
20221690	10	8	M 6	12	11	6	1.5	1.6

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
20221720	10	12	M 6	12	11	6	1.5	1.6
20221744	10	16	M 6	12	11	6	1.5	1.6
20221843	12	12	M10	20	16	8	2.4	2.5
20221867	12	16	M10	20	16	8	2.4	2.5
20221881	12	26	M10	20	16	8	2.4	2.5

Ultra Low Head - Shoulder Screw

hex drive - 303 stainless

Shoulder Screws



EP0134.A2

SHOULDER SCREWS

Material

Stainless steel (AISI 303, 1.4305). Tensile strength 550 N/mm². Proof stress min. 190 N/mm², austenitic stainless steel.

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.

Technical Notes

These very low profile socket shoulder

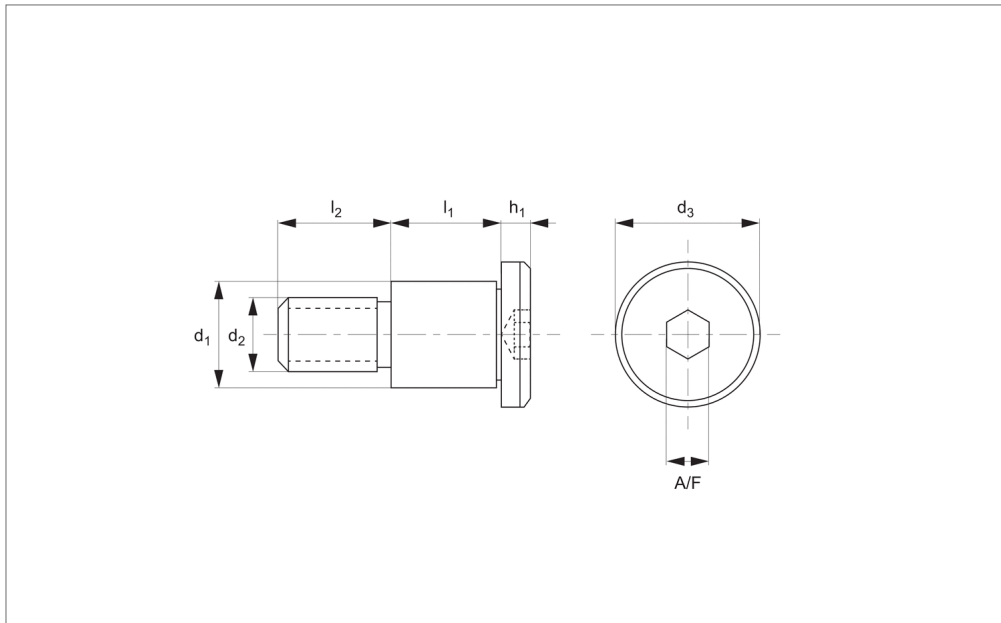
Order No.	d_1 +0 -0.025	l_1 +0.05 -0.0	d_2	d_3	l_2	h_1	A/F
20142612	4	4	M 3	6	4	1.3	2
20142629	4	5	M 3	6	4	1.3	2
20142636	4	6	M 3	6	4	1.3	2
20142643	4	8	M 3	6	4	1.3	2
20142650	4	10	M 3	6	4	1.3	2
20144746	4	12	M 3	6	4	1.3	2
20144739	4	16	M 3	6	4	1.3	2
20144753	4	20	M 3	6	4	1.3	2
20142667	5	4	M 4	9	5	1.3	2.5
20142674	5	5	M 4	9	5	1.3	2.5
20142681	5	6	M 4	9	5	1.3	2.5
20142698	5	8	M 4	9	5	1.3	2.5
20142704	5	10	M 4	9	5	1.3	2.5
20142711	5	12	M 4	9	5	1.3	2.5
20142728	5	16	M 4	9	5	1.3	2.5
20142735	5	20	M 4	9	5	1.3	2.5
20145453	5	25	M 4	9	5	1.3	2.5
20145460	5	30	M 4	9	5	1.3	2.5
20145477	5	40	M 4	9	5	1.3	2.5
20142742	6	4	M 5	10	6	1.7	3
20142759	6	5	M 5	10	6	1.7	3
20142766	6	6	M 5	10	6	1.7	3
20142773	6	8	M 5	10	6	1.7	3
20142780	6	10	M 5	10	6	1.7	3
20142797	6	12	M 5	10	6	1.7	3
20142803	6	16	M 5	10	6	1.7	3
20142810	6	20	M 5	10	6	1.7	3
20145484	6	25	M 5	10	6	1.7	3
20145491	6	30	M 5	10	6	1.7	3
20145507	6	40	M 5	10	6	1.7	3
20142827	8	6	M 6	13	11	2.0	4

Order No.	d ₁ +0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	A/F
20142834	8	8	M 6	13	11	2.0	4
20142841	8	10	M 6	13	11	2.0	4
20142605	8	12	M 6	13	11	2.0	4
20142858	8	16	M 6	13	11	2.0	4
20142865	8	20	M 6	13	11	2.0	4
20145514	8	25	M 6	13	11	2.0	4
20144777	8	30	M 6	13	11	2.0	4
20144784	8	40	M 6	13	11	2.0	4
20144791	10	8	M 8	14	12	2.7	5
20144807	10	10	M 8	14	12	2.7	5
20144814	10	12	M 8	14	12	2.7	5
20144821	10	16	M 8	14	12	2.7	5
20144838	10	20	M 8	14	12	2.7	5
20144845	10	25	M 8	14	12	2.7	5
20144852	10	30	M 8	14	12	2.7	5
20144869	10	40	M 8	14	12	2.7	5
20144876	10	50	M 8	14	12	2.7	5
20144883	12	10	M10	20	16	3.5	6
20144890	12	12	M10	20	16	3.5	6
20144906	12	16	M10	20	16	3.5	6
20144913	12	20	M10	20	16	3.5	6
20144920	12	25	M10	20	16	3.5	6
20144937	12	30	M10	20	16	3.5	6
20144944	12	40	M10	20	16	3.5	6
20144951	12	50	M10	20	16	3.5	6

Ultra Low Head - Shoulder Screw

hex drive - 316 stainless

Shoulder Screws



EP0134.A4

SHOULDER SCREWS

Material

Stainless steel (AISI 316, 1.440). Tensile strength 480 N/mm². Proof stress min. 200 N/mm², austenitic stainless steel.

screws have a head height approximately 1/3 that of normal shoulder screws (EP0130).

316 Series stainless is more expensive, more corrosion resistant. Stainless steel suitable for marine and other applications.

Technical Notes

These very low profile socket shoulder

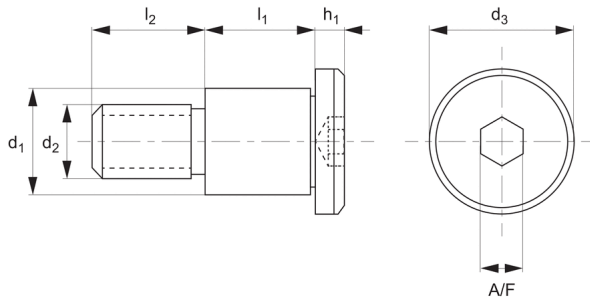
Order No.	d_1 +0 -0.025	l_1 +0.05 -0.0	d_2	d_3	l_2	h_1	A/F
20224769	4	4	M 3	6	4	1.3	2
20224776	4	5	M 3	6	4	1.3	2
20224783	4	6	M 3	6	4	1.3	2
20224790	4	8	M 3	6	4	1.3	2
20224806	4	10	M 3	6	4	1.3	2
20228989	4	12	M 3	6	4	1.3	2
20228996	4	16	M 3	6	4	1.3	2
20229009	4	20	M 3	6	4	1.3	2
20224813	5	4	M 4	9	5	1.3	2.5
20224820	5	5	M 4	9	5	1.3	2.5
20224837	5	6	M 4	9	5	1.3	2.5
20224844	5	8	M 4	9	5	1.3	2.5
20224851	5	10	M 4	9	5	1.3	2.5
20224868	5	12	M 4	9	5	1.3	2.5
20224875	5	16	M 4	9	5	1.3	2.5
20224882	5	20	M 4	9	5	1.3	2.5
20235338	5	25	M 4	9	5	1.3	2.5
20235345	5	30	M 4	9	5	1.3	2.5
20235352	5	40	M 4	9	5	1.3	2.5
20224899	6	4	M 5	10	6	1.7	3
20224905	6	5	M 5	10	6	1.7	3
20224912	6	6	M 5	10	6	1.7	3
20224929	6	8	M 5	10	6	1.7	3
20224936	6	10	M 5	10	6	1.7	3
20224943	6	12	M 5	10	6	1.7	3
20224950	6	16	M 5	10	6	1.7	3
20224967	6	20	M 5	10	6	1.7	3
20235369	6	25	M 5	10	6	1.7	3
20235376	6	30	M 5	10	6	1.7	3
20235383	6	40	M 5	10	6	1.7	3
20224974	8	6	M 6	13	11	2.0	4

Order No.	d ₁ +0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	A/F
20224981	8	8	M 6	13	11	2.0	4
20224998	8	10	M 6	13	11	2.0	4
20225001	8	12	M 6	13	11	2.0	4
20225018	8	16	M 6	13	11	2.0	4
20225025	8	20	M 6	13	11	2.0	4
20235390	8	25	M 6	13	11	2.0	4
20232269	8	30	M 6	13	11	2.0	4
20232276	8	40	M 6	13	11	2.0	4
20232283	10	8	M 8	14	12	2.7	5
20232290	10	10	M 8	14	12	2.7	5
20232306	10	12	M 8	14	12	2.7	5
20232313	10	16	M 8	14	12	2.7	5
20232320	10	20	M 8	14	12	2.7	5
20232337	10	25	M 8	14	12	2.7	5
20232344	10	30	M 8	14	12	2.7	5
20232351	10	40	M 8	14	12	2.7	5
20232368	10	50	2.7	14	12	5	5
20232375	12	10	M10	20	16	3.5	6
20232382	12	12	M10	20	16	3.5	6
20232399	12	16	M10	20	16	3.5	6
20232405	12	20	M10	20	16	3.5	6
20232412	12	25	M10	20	16	3.5	6
20232429	12	30	M10	20	16	3.5	6
20232436	12	40	M10	20	16	3.5	6
20232443	12	50	M10	20	16	3.5	6

Ultra Low Head - Shoulder Screw

hex drive - 303 stainless, blackened

Shoulder Screws



EP0134.B2

SHOULDER SCREWS

Material

Stainless steel (AISI 303, 1.4305), black oxide coating. Tensile strength 550 N/mm². Proof stress min. 190 N/mm², austenitic stainless steel.

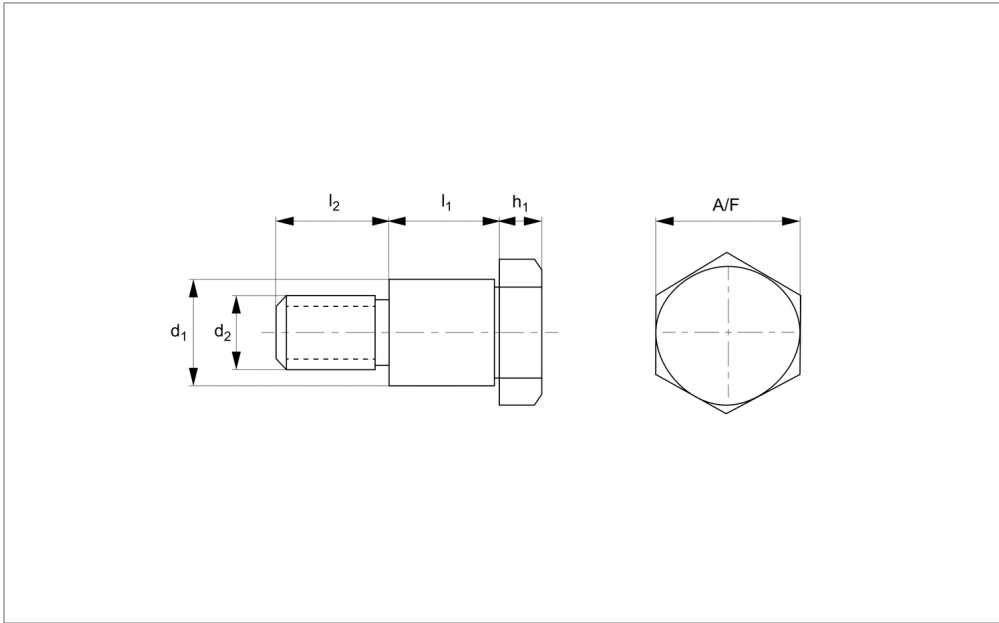
Technical Notes

These very low profile socket shoulder screws have a head height approximately 1/3 that of normal shoulder screws (EP0130).

303 Series stainless is suitable for pharmaceutical and other applications. Stainless steel suitable for marine and other applications.

Order No.	d_1 +0 -0.025	l_1 +0.05 -0.0	d_2	d_3	l_2	h_1	A/F
20144968	4	4	M 3	6	4	1.3	2
20144975	4	5	M 3	6	4	1.3	2
20144982	4	6	M 3	6	4	1.3	2
20144999	4	8	M 3	6	4	1.3	2
20145002	4	10	M 3	6	4	1.3	2
20145019	4	12	M 3	6	4	1.3	2
20145026	4	16	M 3	6	4	1.3	2
20145033	4	20	M 3	6	4	1.3	2
20145040	5	4	M 4	9	5	1.3	2.5
20145057	5	5	M 4	9	5	1.3	2.5
20145064	5	6	M 4	9	5	1.3	2.5
20145071	5	8	M 4	9	5	1.3	2.5
20145088	5	10	M 4	9	5	1.3	2.5
20145095	5	12	M 4	9	5	1.3	2.5
20145101	5	16	M 4	9	5	1.3	2.5
20145118	5	20	M 4	9	5	1.3	2.5
20145521	5	25	M 4	9	5	1.3	2.5
20145538	5	30	M 4	9	5	1.3	2.5
20145545	5	40	M 4	9	5	1.3	2.5
20145125	6	4	M 5	10	6	1.7	3
20145132	6	5	M 5	10	6	1.7	3
20145149	6	6	M 5	10	6	1.7	3
20145156	6	8	M 5	10	6	1.7	3
20145163	6	10	M 5	10	6	1.7	3
20145170	6	12	M 5	10	6	1.7	3
20145187	6	16	M 5	10	6	1.7	3
20145194	6	20	M 5	10	6	1.7	3
20145552	6	25	M 5	10	6	1.7	3
20145569	6	30	M 5	10	6	1.7	3
20141868	6	40	M 5	10	6	1.7	3
20145200	8	6	M 6	13	11	2.0	4
20145217	8	8	M 6	13	11	2.0	4
20145224	8	10	M 6	13	11	2.0	4

Order No.	d ₁ +0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	A/F
20145231	8	12	M 6	13	11	2.0	4
20145248	8	16	M 6	13	11	2.0	4
20145255	8	20	M 6	13	11	2.0	4
20145576	8	25	M 6	13	11	2.0	4
20145262	8	30	M 6	13	11	2.0	4
20145279	8	40	M 6	13	11	2.0	4
20145286	10	8	M 8	14	12	2.7	5
20145293	10	10	M 8	14	12	2.7	5
20145309	10	12	M 8	14	12	2.7	5
20145316	10	16	M 8	14	12	2.7	5
20145323	10	20	M 8	14	12	2.7	5
20145330	10	25	M 8	14	12	2.7	5
20145347	10	30	M 8	14	12	2.7	5
20145354	10	40	M 8	14	12	2.7	5
20145361	10	50	M 8	14	12	2.7	5
20145378	12	10	M10	20	16	3.5	6
20145385	12	12	M10	20	16	3.5	6
20145392	12	16	M10	20	16	3.5	6
20145408	12	20	M10	20	16	3.5	6
20145415	12	25	M10	20	16	3.5	6
20145422	12	30	M10	20	16	3.5	6
20145439	12	40	M10	20	16	3.5	6
20145446	12	50	M10	20	16	3.5	6



EP0135

Material

Stainless steel (A2, AISI 303). Tensile strength 550 N/mm².

Technical Notes

A2 stainless steel provides good resistance

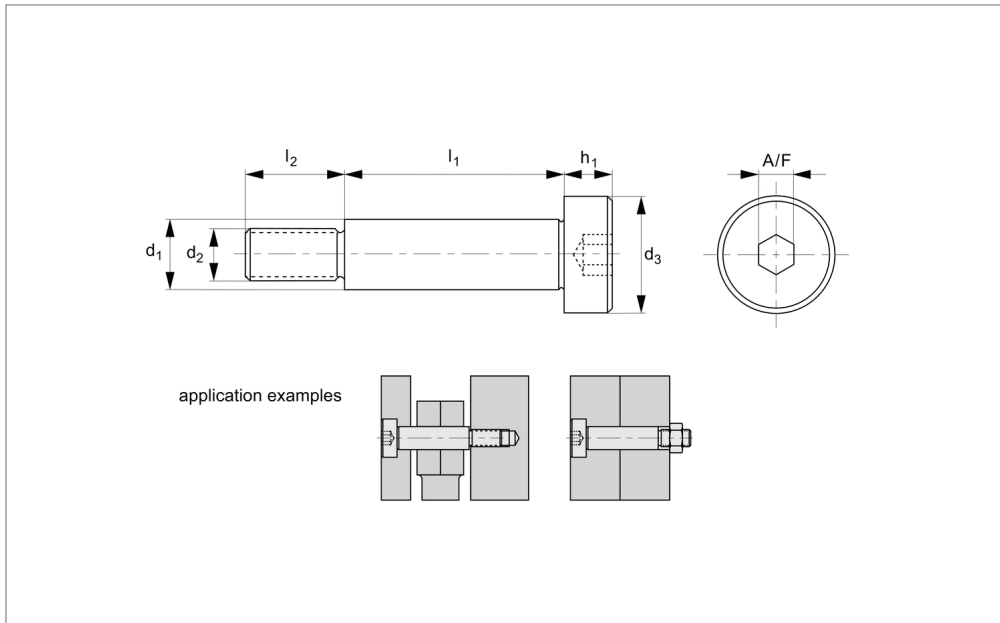
to corrosion, it is soft and non-magnetic. For $\varnothing 16$ (and above) stainless steel shoulder bolts see part no. EP0139 and EP0141.

Special lengths and diameters produced to

drawings.

Order No.	d_1 +0.0 -0.025	l_1 +0.0 -0.05	d_2	l_2	h_1	A/F
20257279	4	4	M 3	4	2.1	5.5
20257286	4	5	M 3	4	2.1	5.5
20257293	4	6	M 3	4	2.1	5.5
20257309	4	8	M 3	4	2.1	5.5
20257316	4	10	M 3	4	2.1	5.5
20257323	5	4	M 4	5	2.9	7
20257330	5	5	M 4	5	2.9	7
20257347	5	6	M 4	5	2.9	7
20257354	5	8	M 4	5	2.9	7
20257361	5	10	M 4	5	2.9	7
20257378	5	12	M 4	5	2.9	7
20257385	5	14	M 4	5	2.9	7
20257392	5	16	M 4	5	2.9	7
20257408	5	20	M 4	5	2.9	7
20257415	5	25	M 4	5	2.9	7
20257422	5	30	M 4	5	2.9	7
20257439	6	4	M 5	6	3.6	8
20257446	6	5	M 5	6	3.6	8
20257453	6	6	M 5	6	3.6	8
20257460	6	8	M 5	6	3.6	8
20257477	6	10	M 5	6	3.6	8
20257484	6	12	M 5	6	3.6	8
20257491	6	14	M 5	6	3.6	8
20257507	6	16	M 5	6	3.6	8
20257514	6	20	M 5	6	3.6	8
20257521	6	25	M 5	6	3.6	8
20257538	6	30	M 5	6	3.6	8
20257545	8	6	M 6	11	4.1	10
20257552	8	8	M 6	11	4.1	10
20257569	8	10	M 6	11	4.1	10
20257576	8	12	M 6	11	4.1	10
20257583	8	16	M 6	11	4.1	10

Order No.	d_1 +0.0 -0.025	l_1 +0.0 -0.05	d_2	l_2	h_1	A/F
20257590	8	20	M 6	11	4.1	10
20257606	10	8	M 6	11	5.4	13
20257613	10	10	M 6	11	5.4	13
20257620	10	12	M 6	11	5.4	13
20257637	10	16	M 6	11	5.4	13
20257644	10	8	M 8	12	5.4	13
20257651	10	10	M 8	12	5.4	13
20257668	10	12	M 8	12	5.4	13
20257675	10	16	M 8	12	5.4	13
20257682	12	12	M10	16	6.6	17
20257699	12	16	M10	16	6.6	17
20257705	12	20	M10	16	6.6	17
20257712	12	25	M10	16	6.6	17



EP0136

SHOULDER SCREWS

Material

Blackened alloy steel, high grade strength 012,9.

Hardness 38 HRC, tensile strength 1200 N/mm².

Technical Notes

To ISO 7379. Temperature range -50°C to

+300°C.

Tips

Torque to:

M5 = 7,5 Nm. M6 = 13 Nm. M8 = 33 Nm.
M10 = 60 Nm. M12 = 120 Nm. M16 = 270 Nm.

Order No.	d ₁ tol. f9	l ₁ +0.25	d ₂	d ₃	h ₁	l ₂	A/F
20220129	4	5	M 3	7	3	7	2
20220143	4	8	M 3	7	3	7	2
20220150	4	10	M 3	7	3	7	2
20220167	4	12	M 3	7	3	7	2
20220174	4	16	M 3	7	3	7	2
20220181	4	20	M 3	7	3	7	2
20223588	4	25	M 3	7	3	7	2
20226190	4	30	M 3	7	3	7	2
20220198	5	6	M 4	9	4	8	2.5
20220204	5	8	M 4	9	4	8	2.5
20220211	5	10	M 4	9	4	8	2.5
20220228	5	12	M 4	9	4	8	2.5
20220235	5	16	M 4	9	4	8	2.5
20220242	5	20	M 4	9	4	8	2.5
20226206	5	25	M 4	9	4	8	2.5
20226183	5	30	M 4	9	4	8	2.5
20220259	6	6	M 5	10	4.5	9.5	3
20220266	6	8	M 5	10	4.5	9.5	3
20220273	6	12	M 5	10	4.5	9.5	3
20220280	6	16	M 5	10	4.5	9.5	3
20220297	6	20	M 5	10	4.5	9.5	3
20220303	6	25	M 5	10	4.5	9.5	3
20220310	6	30	M 5	10	4.5	9.5	3
20223557	6	35	M 5	10	4.5	9.5	3
20220327	6	40	M 5	10	4.5	9.5	3
20225728	6	45	M 5	10	4.5	9.5	3
20222499	6	50	M 5	10	4.5	9.5	3
20226213	6	55	M 5	10	4.5	9.5	3
20226220	6	60	M 5	10	4.5	9.5	3
20226237	6	65	M 5	10	4.5	9.5	3

Order No.	d ₁ tol. f9	l ₁ +0.25	d ₂	d ₃	h ₁	l ₂	A/F
20226244	6	70	M 5	10	4.5	9.5	3
20226251	6	75	M 5	10	4.5	9.5	3
20226268	6	80	M 5	10	4.5	9.5	3
20226275	6	90	M 5	10	4.5	9.5	3
20226282	6	100	M 5	10	4.5	9.5	3
20220334	8	10	M 6	13	5.5	11	4
20220341	8	16	M 6	13	5.5	11	4
20220358	8	20	M 6	13	5.5	11	4
20220365	8	25	M 6	13	5.5	11	4
20220372	8	30	M 6	13	5.5	11	4
20226299	8	35	M 6	13	5.5	11	4
20220389	8	40	M 6	13	5.5	11	4
20226305	8	45	M 6	13	5.5	11	4
20220396	8	50	M 6	13	5.5	11	4
20226312	8	55	M 6	13	5.5	11	4
20226329	8	60	M 6	13	5.5	11	4
20226336	8	65	M 6	13	5.5	11	4
20225711	8	70	M 6	13	5.5	11	4
20226343	8	75	M 6	13	5.5	11	4
20226350	8	80	M 6	13	5.5	11	4
20226367	8	90	M 6	13	5.5	11	4
20226374	8	100	M 6	13	5.5	11	4
20220402	10	10	M 8	16	7	13	5
20220419	10	12	M 8	16	7	13	5
20220426	10	16	M 8	16	7	13	5
20220433	10	20	M 8	16	7	13	5
20220440	10	30	M 8	16	7	13	5
20225773	10	35	M 8	16	7	13	5
20220457	10	40	M 8	16	7	13	5
20226381	10	45	M 8	16	7	13	5
20220464	10	50	M 8	16	7	13	5
20226398	10	55	M 8	16	7	13	5
20220471	10	60	M 8	16	7	13	5
20223595	10	65	M 8	16	7	13	5
20220488	10	70	M 8	16	7	13	5
20226404	10	75	M 8	16	7	13	5
20220495	10	80	M 8	16	7	13	5
20226411	10	90	M 8	16	7	13	5
20223564	10	100	M 8	16	7	13	5
20226428	10	120	M 8	16	7	13	5
20220518	12	12	M10	18	9	16	6
20220525	12	16	M10	18	9	16	6
20220532	12	20	M10	18	9	16	6
20220549	12	25	M10	18	9	16	6
20220556	12	30	M10	18	9	16	6
20226435	12	35	M10	18	9	16	6
20220563	12	40	M10	18	9	16	6
20226442	12	45	M10	18	9	16	6
20220570	12	50	M10	18	9	16	6
20226459	12	55	M10	18	9	16	6
20220587	12	60	M10	18	9	16	6
20226466	12	65	M10	18	9	16	6
20220594	12	70	M10	18	9	16	6
20226473	12	75	M10	18	9	16	6
20220600	12	80	M10	18	9	16	6
20220617	12	90	M10	18	9	16	6
20220501	12	100	M10	18	9	16	6
20226664	12	110	M10	18	9	16	6
20220648	16	20	M12	24	11	18	8
20220655	16	25	M12	24	11	18	8
20220662	16	30	M12	24	11	18	8
20226480	16	35	M12	24	11	18	8
20220679	16	40	M12	24	11	18	8
20226497	16	45	M12	24	11	18	8
20220686	16	50	M12	24	11	18	8
20226503	16	55	M12	24	11	18	8
20220693	16	60	M12	24	11	18	8
20226510	16	65	M12	24	11	18	8

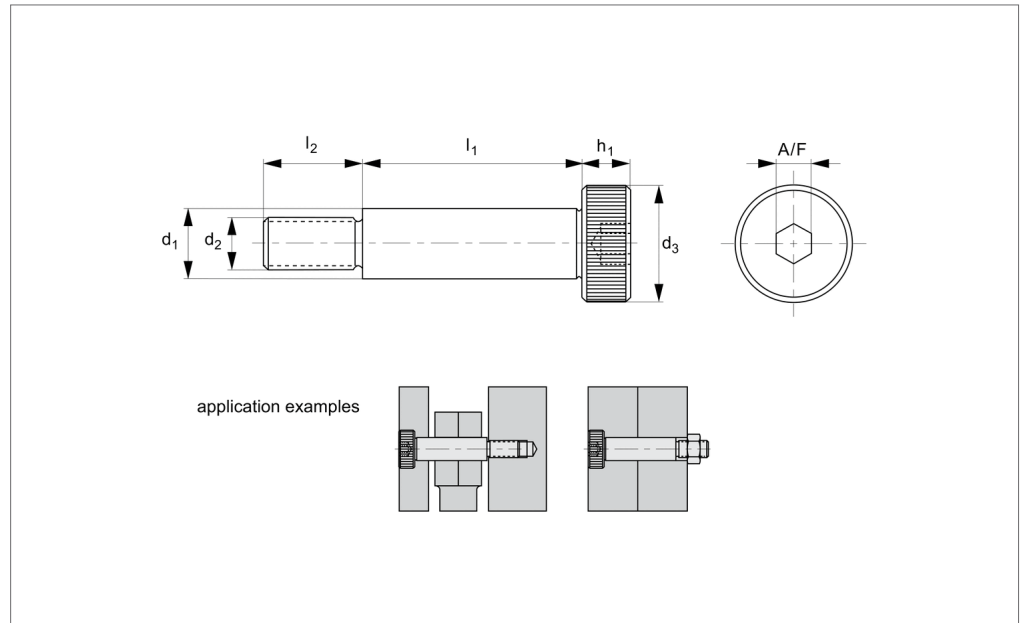
Shoulder Screws - Hex. Socket Head steel- blackened

Shoulder Screws

Order No.	d ₁ tol. f9	l ₁ +0.25	d ₂	d ₃	h ₁	l ₂	A/F
20220709	16	70	M12	24	11	18	8
20226527	16	75	M12	24	11	18	8
20220716	16	80	M12	24	11	18	8
20220723	16	90	M12	24	11	18	8
20220624	16	100	M12	24	11	18	8
20220631	16	120	M12	24	11	18	8
20220754	20	20	M16	30	14	22	10
20226534	20	25	M16	30	14	22	10
20220761	20	30	M16	30	14	22	10
20226541	20	35	M16	30	14	22	10
20220778	20	40	M16	30	14	22	10
20226558	20	45	M16	30	14	22	10
20220785	20	50	M16	30	14	22	10
20226565	20	55	M16	30	14	22	10
20220792	20	60	M16	30	14	22	10
20226572	20	65	M16	30	14	22	10
20220808	20	70	M16	30	14	22	10
20226589	20	75	M16	30	14	22	10
20220815	20	80	M16	30	14	22	10
20220822	20	90	M16	30	14	22	10
20220730	20	100	M16	30	14	22	10
20220747	20	120	M16	30	14	22	10
20220853	24	20	M20	36	16	27	12
20226596	24	25	M20	36	16	27	12
20220860	24	30	M20	36	16	27	12
20226602	24	35	M20	36	16	27	12
20220877	24	40	M20	36	16	27	12
20226619	24	45	M20	36	16	27	12
20220884	24	50	M20	36	16	27	12
20226626	24	55	M20	36	16	27	12
20220891	24	60	M20	36	16	27	12
20226633	24	65	M20	36	16	27	12
20220907	24	70	M20	36	16	27	12
20226640	24	75	M20	36	16	27	12
20220914	24	80	M20	36	16	27	12
20220921	24	90	M20	36	16	27	12
20220839	24	100	M20	36	16	27	12
20220846	24	120	M20	36	16	27	12



EP0137



Material

Stainless steel (A2, AISI 303).
Tensile strength 580 N/mm², yield strength 200 N/mm².

Technical Notes

To ISO 7379. These are generally larger sizes than the other stainless shoulder screws (EP0130 and EP0132). Straight

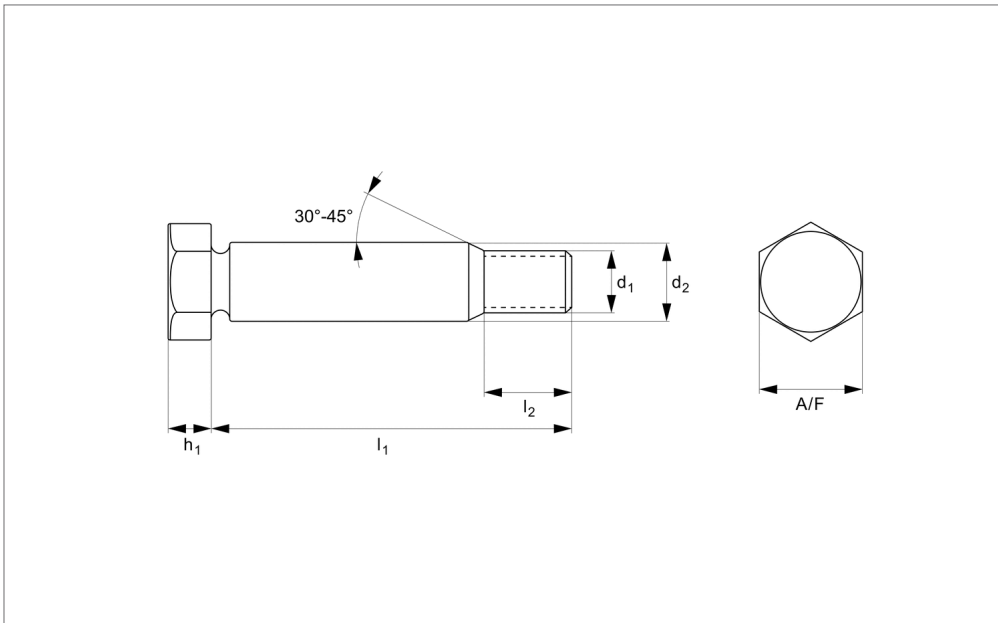
knurling on screw head.
Mildly magnetic.

Order No.	d_1 tol. ± 0.19	l_1 $+0.25$	d_2	d_3	l_2	h_1	A/F
20229054	16	25	M12	24	18	11	8

Stainless Shoulder Bolts - Hex. Head

Long thread A2 stainless

Shoulder Screws



EP0138.A2

SHOULDER SCREWS

Material

Stainless steel (A2, AISI 303).
Tensile strength 550 N/mm².

Technical Notes

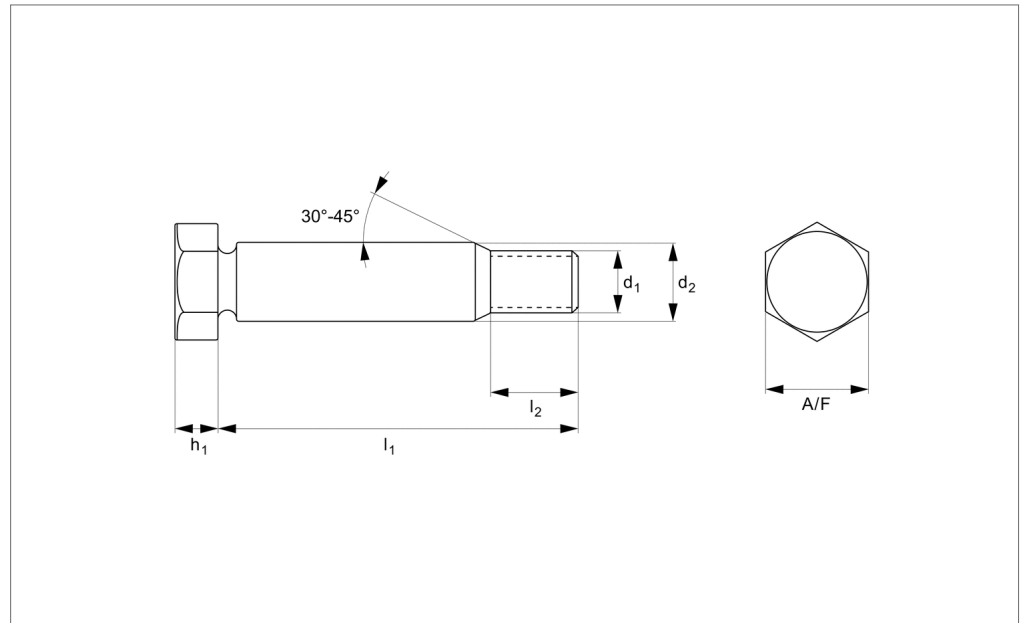
To DIN 609. Longer thread than EP0140
(DIN 610). Mildly magnetic.

Drill hole to H7 tolerance.

Order No.	d ₁	l ₁	d ₂ tol. k6	l ₂	h ₁	A/F
20256210	M 8	25	9	14.5	5.3	13
20256227	M 8	30	9	14.5	5.3	13
20256234	M 8	40	9	14.5	5.3	13
20256241	M 8	45	9	14.5	5.3	13
20256258	M 8	60	9	16.5	5.3	13
20256265	M 8	80	9	16.5	5.3	13
20256272	M10	30	11	17.5	6.4	17
20256289	M10	40	11	17.5	6.4	17
20256296	M10	45	11	17.5	6.4	17
20256302	M10	50	11	17.5	6.4	17
20256319	M10	60	11	19.5	6.4	17
20256326	M10	70	11	19.5	6.4	17
20256333	M10	80	11	19.5	6.4	17
20256340	M12	40	13	20.5	10.0	18
20256357	M12	45	13	20.5	10.0	18
20256364	M12	50	13	20.5	10.0	18
20256371	M12	55	13	22.5	10.0	18
20256388	M12	60	13	22.5	10.0	18
20256395	M12	65	13	22.5	10.0	18
20256401	M12	80	13	22.5	10.0	18
20256418	M16	40	17	25.0	11.5	24
20256425	M16	45	17	25.0	11.5	24
20256432	M16	50	17	25.0	11.5	24
20256449	M16	55	17	27.0	11.5	24
20256456	M16	60	17	27.0	11.5	24
20256463	M16	65	17	27.0	11.5	24
20256470	M16	70	17	27.0	11.5	24
20256487	M16	80	17	27.0	11.5	24
20256494	M16	95	17	27.0	11.5	24



EP0138.SC

**Material**

Black alloy steel, strength 8.8. Hardness 38 HRC, tensile strength 830 N/mm².

Technical Notes

To DIN 609. Longer thread than EP0140

(DIN 610).

For strength 10.9 see part EP0139.

Tips

Do not tighten to standard strength class 8,8 torque; as the tightening torque is

limited,

by the presence of the reduced diameter undercut under the head and at the shoulder/thread area.

Drill hole to H7 tolerance.

Order No.	d ₁	d ₂ tol. k6	l ₁	l ₂	h ₁	A/F
20255589	M 8	9	25	14.5	5.3	13
20255596	M 8	9	32	14.5	5.3	13
20255602	M 8	9	35	14.5	5.3	13
20258771	M 8	9	38	14.5	5.3	13
20255619	M 8	9	40	14.5	5.3	13
20258719	M 8	9	42	14.5	5.3	13
20255626	M 8	9	45	14.5	5.3	13
20258788	M 8	9	48	14.5	5.3	13
20255633	M 8	9	50	14.5	5.3	13
20256500	M 8	9	55	16.5	5.3	13
20256517	M 8	9	60	16.5	5.3	13
20256524	M 8	9	65	16.5	5.3	13
20256531	M 8	9	70	16.5	5.3	13
20256548	M 8	9	80	16.5	5.3	13
20255640	M10	11	30	17.5	6.4	17
20258795	M10	11	32	17.5	6.4	17
20255657	M10	11	35	17.5	6.4	17
20258801	M10	11	38	17.5	6.4	17
20255664	M10	11	40	17.5	6.4	17
20258818	M10	11	42	17.5	6.4	17
20255671	M10	11	45	17.5	6.4	17
20258825	M10	11	48	17.5	6.4	17
20255688	M10	11	50	17.5	6.4	17
20255695	M10	11	55	19.5	6.4	17
20255701	M10	11	60	19.5	6.4	17
20256555	M10	11	65	19.5	6.4	17
20256562	M10	11	70	19.5	6.4	17
20256579	M10	11	75	19.5	6.4	17
20256586	M10	11	80	19.5	6.4	17
20256593	M10	11	85	19.5	6.4	17
20256609	M10	11	90	19.5	6.4	17
20256616	M10	11	100	19.5	6.4	17

Steel Shoulder Bolts - Hex. Head

std thread, steel 8.8

Shoulder Screws

Order No.	d ₁	d ₂ tol. k6	l ₁	l ₂	h ₁	A/F
20258832	M12	13	30	20.5	7.5	19
20258849	M12	13	32	20.5	7.5	19
20255718	M12	13	35	20.5	7.5	19
20258856	M12	13	38	20.5	7.5	19
20255725	M12	13	40	20.5	7.5	19
20258863	M12	13	42	20.5	7.5	19
20255732	M12	13	45	20.5	7.5	19
20258870	M12	13	48	20.5	7.5	19
20255749	M12	13	50	20.5	7.5	19
20255756	M12	13	55	22.5	7.5	19
20255763	M12	13	60	22.5	7.5	19
20258887	M12	13	65	22.5	7.5	19
20255770	M12	13	70	22.5	7.5	19
20255787	M12	13	75	22.5	7.5	19
20256623	M12	13	80	22.5	7.5	19
20258894	M12	13	85	22.5	7.5	19
20256630	M12	13	90	22.5	7.5	19
20258900	M12	13	95	22.5	7.5	19
20256647	M12	13	100	22.5	7.5	19
20255794	M14	15	35	22.0	8.8	22
20255800	M14	15	40	22.0	8.8	22
20258917	M14	15	42	22.0	8.8	22
20255817	M14	15	45	22.0	8.8	22
20255824	M14	15	50	22.0	8.8	22
20255831	M14	15	55	24.0	8.8	22
20255848	M14	15	60	24.0	8.8	22
20258924	M14	15	65	24.0	8.8	22
20258931	M14	15	70	24.0	8.8	22
20258948	M14	15	75	24.0	8.8	22
20256654	M14	15	80	24.0	8.8	22
20258955	M14	15	90	24.0	8.8	22
20255886	M16	17	40	25.0	10	24
20258962	M16	17	42	25.0	10	24
20255893	M16	17	45	25.0	10	24
20258979	M16	17	48	25.0	10	24
20255909	M16	17	50	25.0	10	24
20257729	M16	17	55	27.0	10	24
20255916	M16	17	60	27.0	10	24
20258986	M16	17	65	27.0	10	24
20255923	M16	17	70	27.0	10	24
20258993	M16	17	75	27.0	10	24
20255930	M16	17	80	27.0	10	24
20259006	M16	17	85	27.0	10	24
20255947	M16	17	90	27.0	10	24
20255855	M16	17	100	27.0	10	24
20259013	M16	17	105	27.0	10	24
20255862	M16	17	110	27.0	10	24
20259020	M16	17	115	27.0	10	24
20255879	M16	17	120	27.0	10	24
20259037	M16	17	125	27.0	10	24
20256661	M16	17	130	27.0	10	24
20259044	M16	17	135	27.0	10	24
20259051	M16	17	140	27.0	10	24
20256678	M16	17	150	27.0	10	24
20256685	M16	17	160	27.0	10	24
20259068	M16	17	180	27.0	10	24
20256692	M16	17	200	27.0	10	24
20256708	M18	19	45	27.5	11.5	27
20256715	M18	19	50	27.5	11.5	27
20259075	M18	19	55	29.5	11.5	27
20256722	M18	19	60	29.5	11.5	27
20256739	M18	19	70	29.5	11.5	27
20256746	M18	19	75	29.5	11.5	27
20256753	M18	19	80	29.5	11.5	27
20259082	M18	19	85	29.5	11.5	27
20256760	M18	19	90	29.5	11.5	27
20256777	M18	19	100	29.5	11.5	27
20256784	M18	19	110	29.5	11.5	27

Order No.	d ₁	d ₂ tol. k6	l ₁	l ₂	h ₁	A/F
20256791	M18	19	120	29.5	11.5	27
20256012	M20	21	45	28.5	12.5	30
20256029	M20	21	50	28.5	12.5	30
20259099	M20	21	55	30.5	12.5	30
20256036	M20	21	60	30.5	12.5	30
20259105	M20	21	65	30.5	12.5	30
20256043	M20	21	70	30.5	12.5	30
20259112	M20	21	75	30.5	12.5	30
20256050	M20	21	80	30.5	12.5	30
20259129	M20	21	85	30.5	12.5	30
20256067	M20	21	90	30.5	12.5	30
20255954	M20	21	100	30.5	12.5	30
20259136	M20	21	105	30.5	12.5	30
20255961	M20	21	110	30.5	12.5	30
20259143	M20	21	115	30.5	12.5	30
20255978	M20	21	120	30.5	12.5	30
20259808	M20	21	125	30.5	12.5	30
20255985	M20	21	130	30.5	12.5	30
20259150	M20	21	135	30.5	12.5	30
20255992	M20	21	140	30.5	12.5	30
20259167	M20	21	145	30.5	12.5	30
20256005	M20	21	150	30.5	12.5	30
20256807	M20	21	160	35.5	12.5	30
20259174	M20	21	170	35.5	12.5	30
20256814	M20	21	180	35.5	12.5	30
20259181	M20	21	190	35.5	12.5	30
20256821	M20	21	200	35.5	12.5	30
20256838	M20	21	220	35.5	12.5	30
20256845	M20	21	240	35.5	12.5	30
20256852	M22	23	45	32.5	14.0	34
20256869	M22	23	50	32.5	14.0	34
20256876	M22	23	55	34.5	14.0	34
20256883	M22	23	60	34.5	14.0	34
20256890	M22	23	65	34.5	14.0	34
20256906	M22	23	70	34.5	14.0	34
20256913	M22	23	75	34.5	14.0	34
20256920	M22	23	80	34.5	14.0	34
20256937	M22	23	85	34.5	14.0	34
20256944	M22	23	90	34.5	14.0	34
20256951	M22	23	100	34.5	14.0	34
20259198	M22	23	105	34.5	14.0	34
20256968	M22	23	110	34.5	14.0	34
20256975	M22	23	120	34.5	14.0	34
20259204	M22	23	130	34.5	14.0	34
20256982	M22	23	140	34.5	14.0	34
20256999	M22	23	150	34.5	14.0	34
20259815	M24	25	55	36.5	15.0	36
20256135	M24	25	60	36.5	15.0	36
20259211	M24	25	65	36.5	15.0	36
20258009	M24	25	70	36.5	15.0	36
20259228	M24	25	75	36.5	15.0	36
20256142	M24	25	80	36.5	15.0	36
20259235	M24	25	85	36.5	15.0	36
20256159	M24	25	90	36.5	15.0	36
20256074	M24	25	100	36.5	15.0	36
20259242	M24	25	105	36.5	15.0	36
20256081	M24	25	110	36.5	15.0	36
20259259	M24	25	115	36.5	15.0	36
20256098	M24	25	120	36.5	15.0	36
20259266	M24	25	125	36.5	15.0	36
20256104	M24	25	130	36.5	15.0	36
20259273	M24	25	135	36.5	15.0	36
20256111	M24	25	140	36.5	15.0	36
20259280	M24	25	145	36.5	15.0	36
20256128	M24	25	150	36.5	15.0	36
20259297	M24	25	160	41.5	15.0	36
20257002	M24	25	170	41.5	15.0	36
20257019	M24	25	180	41.5	15.0	36

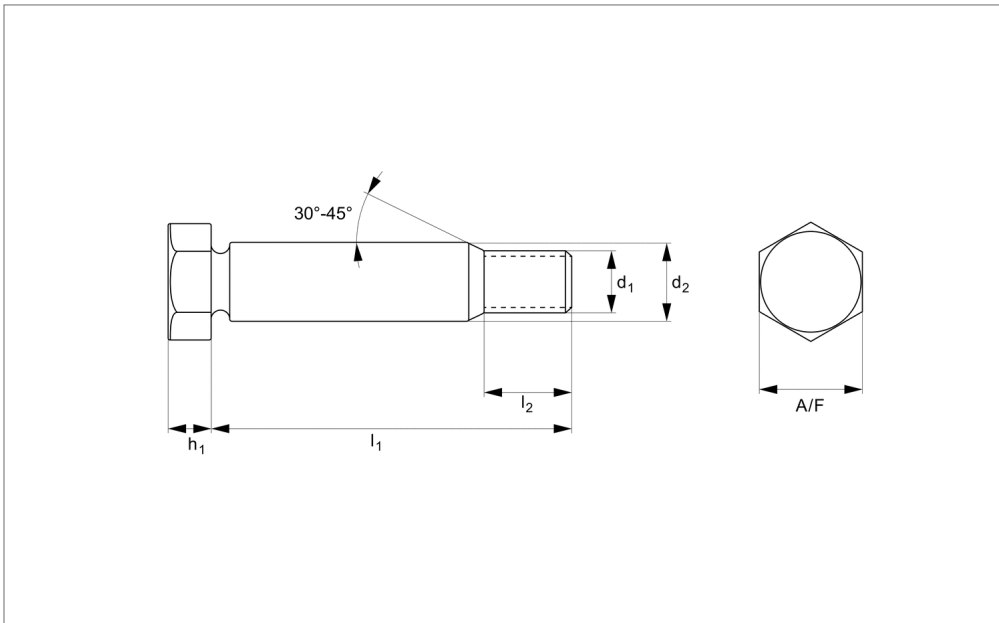
Steel Shoulder Bolts - Hex. Head

std thread, steel 8.8

Shoulder Screws

Order No.	d ₁	d ₂ tol. k6	l ₁	l ₂	h ₁	A/F
20259303	M24	25	190	41.5	15.0	36
20257026	M24	25	200	41.5	15.0	36
20257033	M24	25	220	41.5	15.0	36
20257040	M24	25	240	41.5	15.0	36
20257057	M27	28	60	39.5	17.0	41
20257064	M27	28	65	39.5	17.0	41
20257071	M27	28	70	39.5	17.0	41
20257088	M27	28	75	39.5	17.0	41
20257095	M27	28	80	39.5	17.0	41
20257101	M27	28	85	39.5	17.0	41
20257118	M27	28	90	39.5	17.0	41
20257125	M27	28	100	39.5	17.0	41
20257132	M27	28	105	39.5	17.0	41
20257149	M27	28	110	39.5	17.0	41
20257156	M27	28	115	39.5	17.0	41
20257163	M27	28	120	39.5	17.0	41
20257170	M27	28	125	39.5	17.0	41
20257187	M27	28	130	39.5	17.0	41
20257194	M27	28	135	39.5	17.0	41
20257200	M27	28	140	39.5	17.0	41
20257217	M27	28	145	39.5	17.0	41
20257224	M27	28	150	39.5	17.0	41
20257231	M27	28	160	44.5	17.0	41
20257248	M27	28	170	44.5	17.0	41
20257255	M27	28	180	44.5	17.0	41
20257262	M27	28	200	44.5	17.0	41
20259310	M30	32	65	43.0	19.0	46
20259327	M30	32	70	43.0	19.0	46
20259334	M30	32	75	43.0	19.0	46
20256197	M30	32	80	43.0	19.0	46
20259341	M30	32	85	43.0	19.0	46
20256203	M30	32	90	43.0	19.0	46
20256166	M30	32	100	43.0	19.0	46
20259358	M30	32	105	43.0	19.0	46
20256173	M30	32	110	43.0	19.0	46
20259365	M30	32	115	43.0	19.0	46
20256180	M30	32	120	43.0	19.0	46
20259372	M30	32	125	43.0	19.0	46
20259389	M30	32	130	43.0	19.0	46
20259396	M30	32	135	43.0	19.0	46
20259402	M30	32	140	43.0	19.0	46
20259419	M30	32	145	43.0	19.0	46
20259426	M30	32	150	43.0	19.0	46
20259433	M30	32	160	48.0	19.0	46
20259440	M30	32	170	48.0	19.0	46
20259457	M30	32	180	48.0	19.0	46
20259464	M30	32	190	48.0	19.0	46
20259471	M30	32	200	48.0	19.0	46
20259488	M36	38	70	49.0	22.0	55
20259495	M36	38	75	49.0	22.0	55
20259501	M36	38	80	49.0	22.0	55
20259518	M36	38	85	49.0	22.0	55
20259525	M36	38	90	49.0	22.0	55
20259532	M36	38	100	49.0	22.0	55
20259549	M36	38	105	49.0	22.0	55
20259556	M36	38	110	49.0	22.0	55
20259563	M36	38	115	49.0	22.0	55
20259570	M36	38	120	49.0	22.0	55
20259587	M36	38	125	49.0	22.0	55
20259594	M36	38	130	49.0	22.0	55
20259600	M36	38	135	49.0	22.0	55
20259617	M36	38	140	49.0	22.0	55
20259624	M36	38	145	49.0	22.0	55
20259631	M36	38	150	49.0	22.0	55
20259648	M36	38	160	54.0	22.0	55
20259655	M36	38	170	54.0	22.0	55
20259662	M36	38	180	54.0	22.0	55
20259679	M36	38	190	54.0	22.0	55

Order No.	d ₁	d ₂ tol. k6	l ₁	l ₂	h ₁	A/F
20259686	M36	38	200	54.0	22.0	55
20259693	M42	44	100	56.0	26.0	65
20259709	M42	44	110	56.0	26.0	65
20259716	M42	44	120	56.0	26.0	65
20259723	M42	44	130	56.0	26.0	65
20259730	M42	44	140	56.0	26.0	65
20259747	M42	44	150	56.0	26.0	65
20259754	M42	44	160	61.0	26.0	65
20259761	M42	44	170	61.0	26.0	65
20259778	M42	44	180	61.0	26.0	65
20259785	M42	44	190	61.0	26.0	65
20259792	M42	44	200	61.0	26.0	65



EP0139

Material

Black alloy steel, strength 10,9. Hardness 38 HRC, tensile strength 830 N/mm².

Technical Notes

To DIN 609.

For strength 8.8 see part EP0138.SC

Tips

Do not tighten to standard strength class 10,9 torque; as the tightening torque is limited,

by the presence of the reduced diameter undercut under the head and at the shoulder/thread area.
Drill hole to H7 tolerance.

Order No.	d ₁	d ₂ tol. k6	l ₁	l ₂	h ₁	A/F
20261382	M 8	9	25	14.5	5.3	13
20261399	M 8	9	28	14.5	5.3	13
20261405	M 8	9	35	14.5	5.3	13
20261412	M 8	9	38	14.5	5.3	13
20261429	M 8	9	40	14.5	5.3	13
20261436	M 8	9	48	14.5	5.3	13
20261375	M 8	9	60	16.5	5.3	13
20261443	M 8	9	80	16.5	5.3	13
20261450	M10	11	30	17.5	6.4	17
20261467	M10	11	32	17.5	6.4	17
20261474	M10	11	35	17.5	6.4	17
20261481	M10	11	38	17.5	6.4	17
20261498	M10	11	40	17.5	6.4	17
20261504	M10	11	42	17.5	6.4	17
20261511	M10	11	45	17.5	6.4	17
20261528	M10	11	48	17.5	6.4	17
20261535	M10	11	50	17.5	6.4	17
20261542	M10	11	55	19.5	6.4	17
20261559	M10	11	60	19.5	6.4	17
20261566	M10	11	65	19.5	6.4	17
20261573	M10	11	70	19.5	6.4	17
20261580	M10	11	75	19.5	6.4	17
20261597	M10	11	80	19.5	6.4	17
20261603	M12	13	30	20.5	7.5	19
20261610	M12	13	32	20.5	7.5	19
20259846	M12	13	35	20.5	7.5	19
20261627	M12	13	38	20.5	7.5	19
20261634	M12	13	40	20.5	7.5	19
20261641	M12	13	45	20.5	7.5	19
20261658	M12	13	48	20.5	7.5	19
20261665	M12	13	50	20.5	7.5	19
20261672	M12	13	55	22.5	7.5	19

Order No.	d ₁	d ₂ tol. k6	l ₁	l ₂	h ₁	A/F
20261689	M12	13	60	22.5	7.5	19
20261696	M12	13	65	22.5	7.5	19
20261702	M12	13	70	22.5	7.5	19
20261719	M12	13	75	22.5	7.5	19
20261726	M12	13	90	22.5	7.5	19
20261733	M12	13	110	22.5	7.5	19
20261740	M14	15	35	22.0	8.8	22
20261757	M14	15	40	22.0	8.8	22
20261764	M14	15	42	22.0	8.8	22
20261771	M14	15	45	22.0	8.8	22
20261788	M14	15	50	22.0	8.8	22
20261795	M14	15	55	24.0	8.8	22
20261801	M14	15	60	24.0	8.8	22
20261818	M14	15	80	24.0	8.8	22
20261825	M16	17	40	25.0	10	24
20261832	M16	17	42	25.0	10	24
20261849	M16	17	45	25.0	10	24
20261856	M16	17	48	25.0	10	24
20261863	M16	17	50	25.0	10	24
20261870	M16	17	55	27.0	10	24
20261887	M16	17	60	27.0	10	24
20261894	M16	17	65	27.0	10	24
20261900	M16	17	70	27.0	10	24
20261917	M16	17	75	27.0	10	24
20261924	M16	17	80	27.0	10	24
20261931	M16	17	85	27.0	10	24
20261948	M16	17	90	27.0	10	24
20261955	M16	17	100	27.0	10	24
20261979	M16	17	110	27.0	10	24
20261986	M16	17	120	27.0	10	24
20261993	M16	17	150	27.0	10	24
20262013	M20	21	45	28.5	12.5	30
20262020	M20	21	50	28.5	12.5	30
20262037	M20	21	55	30.5	12.5	30
20262044	M20	21	60	30.5	12.5	30
20262051	M20	21	65	30.5	12.5	30
20262068	M20	21	70	30.5	12.5	30
20262075	M20	21	75	30.5	12.5	30
20262082	M20	21	80	30.5	12.5	30
20262099	M20	21	85	30.5	12.5	30
20262105	M20	21	90	30.5	12.5	30
20262112	M20	21	100	30.5	12.5	30
20262129	M20	21	105	30.5	12.5	30
20262136	M20	21	110	30.5	12.5	30
20262143	M20	21	120	30.5	12.5	30
20262150	M20	21	130	30.5	12.5	30
20262167	M20	21	140	30.5	12.5	30
20262174	M20	21	150	30.5	12.5	30
20262181	M20	21	160	35.5	12.5	30
20262198	M24	25	55	36.5	15.0	36
20262204	M24	25	60	36.5	15.0	36
20262211	M24	25	65	36.5	15.0	36
20262228	M24	25	70	36.5	15.0	36
20262235	M24	25	75	36.5	15.0	36
20262242	M24	25	80	36.5	15.0	36
20262259	M24	25	85	36.5	15.0	36
20262266	M24	25	90	36.5	15.0	36
20262273	M24	25	100	36.5	15.0	36
20262280	M24	25	105	36.5	15.0	36
20262297	M24	25	110	36.5	15.0	36
20259877	M24	25	120	36.5	15.0	36
20262303	M24	25	125	36.5	15.0	36
20262310	M24	25	130	36.5	15.0	36
20262327	M24	25	140	36.5	15.0	36
20262334	M24	25	150	36.5	15.0	36
20262341	M24	25	160	41.5	15.0	36
20262358	M24	25	170	41.5	15.0	36
20262365	M24	25	180	41.5	15.0	36

Steel Shoulder Bolts - Hex. Head

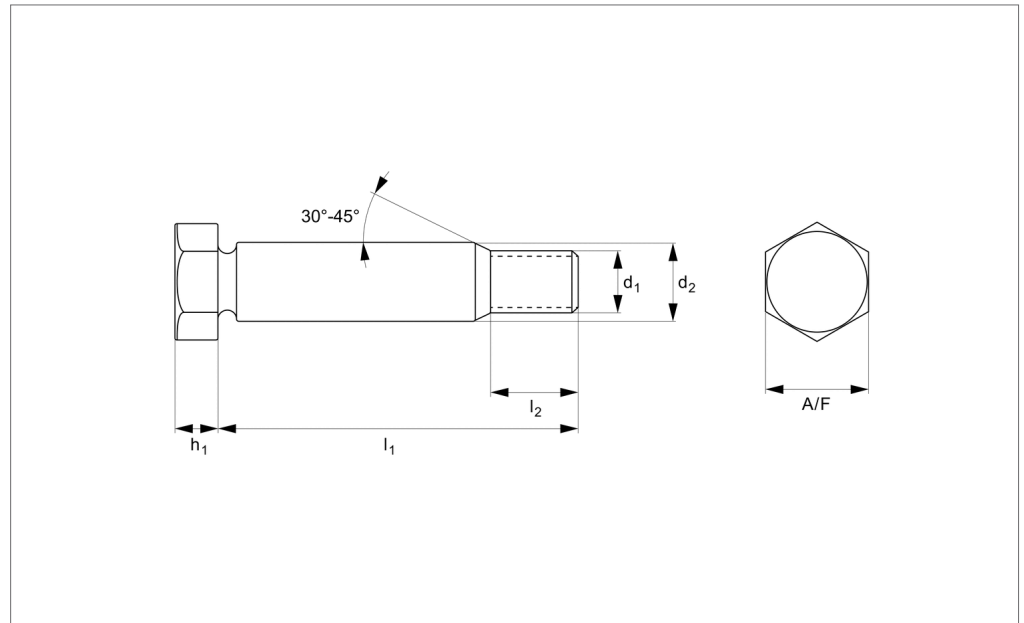
std thread, steel 10.9

Shoulder Screws

Order No.	d ₁	d ₂ tol. k6	l ₁	l ₂	h ₁	A/F
20262372	M30	32	80	43.0	19.0	46
20262389	M30	32	90	43.0	19.0	46
20262396	M30	32	100	43.0	19.0	46
20262402	M30	32	105	43.0	19.0	46
20262419	M30	32	110	43.0	19.0	46
20262426	M30	32	120	43.0	19.0	46
20262433	M30	32	130	43.0	19.0	46
20262440	M30	32	140	43.0	19.0	46
20262457	M36	38	120	49.0	22.0	55
20262464	M36	38	130	49.0	22.0	55
20262471	M36	38	200	54.0	22.0	55



EP0140.A2

**Material**

Stainless steel (A2, AISI 303).
Tensile strength 550 N/mm².

Technical Notes

To DIN 610. Shorter thread than EP0138

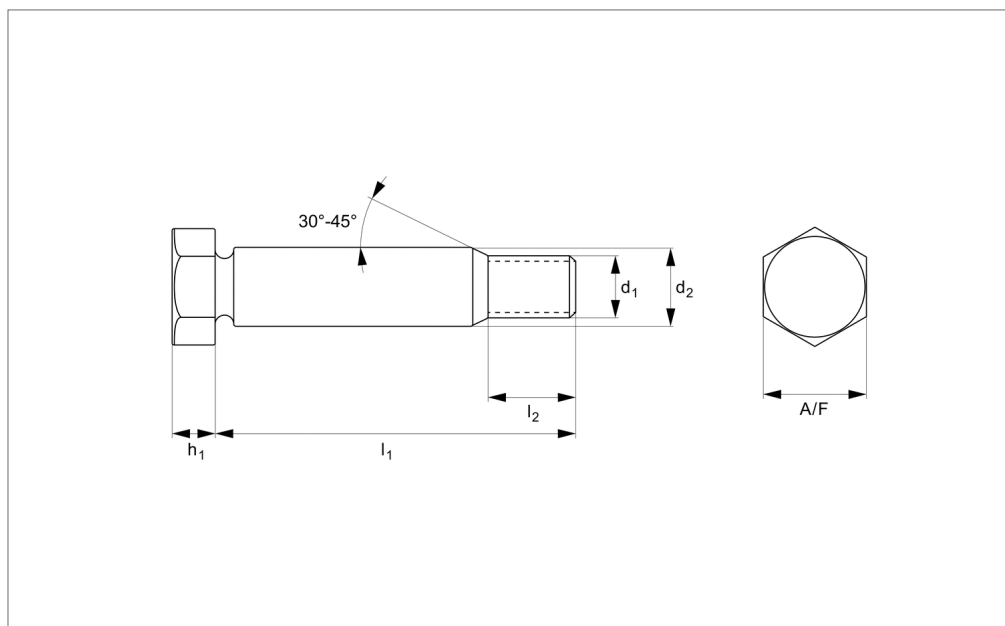
(DIN 609). Mildly magnetic.

Tips

Do not tighten to standard strength class 8,8 torque; as the tightening torque is limited,

by the presence of the reduced diameter undercut under the head and at the shoulder/thread area.
Drill hole to H7 tolerance.

Order No.	d ₁	l ₁	d ₂ tol. k6	l ₂	h ₁	A/F
20257736	M 8	25	9	11.5	5.3	13
20257743	M 8	30	9	11.5	5.3	13
20257750	M 8	40	9	11.5	5.3	13
20257767	M 8	45	9	11.5	5.3	13
20257774	M10	40	11	13.5	6.4	16
20257781	M10	45	11	13.5	6.4	16
20257798	M10	50	11	13.5	6.4	16
20257804	M10	60	11	15.5	6.4	16
20257811	M10	80	11	15.5	6.4	16
20257828	M10	100	11	15.5	6.4	16
20257835	M12	40	13	15.5	10.0	18
20257842	M12	45	13	15.5	10.0	18
20257859	M12	50	13	15.5	10.0	18
20257866	M12	80	13	17.5	10.0	18
20257873	M16	40	17	19.0	11.5	24
20257880	M16	45	17	19.0	11.5	24
20257897	M16	50	17	19.0	11.5	24
20257903	M16	55	17	21.0	11.5	24
20257910	M16	60	17	21.0	11.5	24
20257927	M16	65	17	21.0	11.5	24
20257934	M16	70	17	21.0	11.5	24
20257941	M16	80	17	21.0	11.5	24



EP0141.SC

SHOULDER SCREWS

Material

Black alloy steel, strength 10.9. Hardness 38 HRC, tensile strength 830 N/mm².

Technical Notes

To DIN 610.

For strength 8.8 see part EP0140.SC

Tips

Do not tighten to standard strength class 10.9 torque; as the tightening torque is limited,

by the presence of the reduced diameter undercut under the head and at the shoulder/thread area.
Drill hole to H7 tolerance.

Order No.	d ₁	d ₂ tol. k6	l ₁	l ₂	h ₁	A/F
20259860	M 8	9	25	11.5	5.3	13
20262488	M 8	9	24	11.5	5.3	13
20260286	M 8	9	35	11.5	5.3	13
20260293	M 8	9	38	11.5	5.3	13
20260309	M 8	9	40	11.5	5.3	13
20260316	M 8	9	48	11.5	5.3	13
20260323	M 8	9	60	13.5	5.3	13
20260330	M 8	9	80	13.5	5.3	13
20260347	M10	11	30	13.5	6.4	17
20260354	M10	11	32	13.5	6.4	17
20260361	M10	11	35	13.5	6.4	17
20260378	M10	11	38	13.5	6.4	17
20260385	M10	11	40	13.5	6.4	17
20260392	M10	11	42	13.5	6.4	17
20260408	M10	11	45	13.5	6.4	17
20260415	M10	11	48	13.5	6.4	17
20260422	M10	11	50	13.5	6.4	17
20260439	M10	11	55	15.5	6.4	17
20260446	M10	11	60	15.5	6.4	17
20260453	M10	11	65	15.5	6.4	17
20260460	M10	11	70	15.5	6.4	17
20260477	M10	11	75	15.5	6.4	17
20260484	M10	11	80	15.5	6.4	17
20260491	M12	13	30	15.5	7.5	19
20260507	M12	13	32	15.5	7.5	19
20260514	M12	13	35	15.5	7.5	19
20260521	M12	13	38	15.5	7.5	19
20260538	M12	13	40	15.5	7.5	19
20260545	M12	13	45	15.5	7.5	19
20260552	M12	13	48	15.5	7.5	19
20260569	M12	13	50	15.5	7.5	19
20260576	M12	13	55	17.5	7.5	19

Order No.	d ₁	d ₂ tol. k6	l ₁	l ₂	h ₁	A/F
20260583	M12	13	60	17.5	7.5	19
20260590	M12	13	65	17.5	7.5	19
20260606	M12	13	70	17.5	7.5	19
20260613	M12	13	75	17.5	7.5	19
20260620	M12	13	90	17.5	7.5	19
20260637	M12	13	110	17.5	7.5	19
20260644	M14	15	35	17.0	8.8	22
20260651	M14	15	40	17.0	8.8	22
20260668	M14	15	42	17.0	8.8	22
20260675	M14	15	45	17.0	8.8	22
20260682	M14	15	50	17.0	8.8	22
20260699	M14	15	55	19.0	8.8	22
20260705	M14	15	60	19.0	8.8	22
20260712	M14	15	80	19.0	8.8	22
20260729	M16	17	40	19.0	10	24
20260736	M16	17	42	19.0	10	24
20260743	M16	17	45	19.0	10	24
20260750	M16	17	48	19.0	10	24
20260767	M16	17	50	19.0	10	24
20260774	M16	17	55	21.0	10	24
20260781	M16	17	60	21.0	10	24
20260798	M16	17	65	21.0	10	24
20260804	M16	17	70	21.0	10	24
20260811	M16	17	75	21.0	10	24
20260828	M16	17	80	21.0	10	24
20260835	M16	17	85	21.0	10	24
20260842	M16	17	90	21.0	10	24
20260859	M16	17	100	21.0	10	24
20260866	M16	17	110	21.0	10	24
20260873	M16	17	120	21.0	10	24
20260880	M16	17	150	21.0	10	24
20260897	M20	21	45	22.5	12.5	30
20260903	M20	21	50	22.5	12.5	30
20260910	M20	21	55	24.5	12.5	30
20260927	M20	21	60	24.5	12.5	30
20260934	M20	21	65	24.5	12.5	30
20260941	M20	21	70	24.5	12.5	30
20260958	M20	21	75	24.5	12.5	30
20260965	M20	21	80	24.5	12.5	30
20260972	M20	21	85	24.5	12.5	30
20260989	M20	21	90	24.5	12.5	30
20260996	M20	21	100	24.5	12.5	30
20261009	M20	21	105	24.5	12.5	30
20261016	M20	21	110	24.5	12.5	30
20261023	M20	21	120	24.5	12.5	30
20261030	M20	21	130	24.5	12.5	30
20261047	M20	21	140	24.5	12.5	30
20261054	M20	21	150	24.5	12.5	30
20261061	M20	21	160	29.5	12.5	30
20261078	M24	25	55	28.5	15.0	36
20261085	M24	25	60	28.5	15.0	36
20261092	M24	25	65	28.5	15.0	36
20261108	M24	25	70	28.5	15.0	36
20261115	M24	25	75	28.5	15.0	36
20261122	M24	25	80	28.5	15.0	36
20261139	M24	25	85	28.5	15.0	36
20261146	M24	25	90	28.5	15.0	36
20261153	M24	25	100	28.5	15.0	36
20261160	M24	25	105	28.5	15.0	36
20261177	M24	25	110	28.5	15.0	36
20261184	M24	25	120	28.5	15.0	36
20261191	M24	25	125	28.5	15.0	36
20261207	M24	25	130	28.5	15.0	36
20261214	M24	25	140	28.5	15.0	36
20261221	M24	25	150	28.5	15.0	36
20261238	M24	25	160	33.5	15.0	36
20261245	M24	25	170	33.5	15.0	36
20261252	M24	25	180	33.5	15.0	36

Steel Shoulder Bolts - Hex. Head

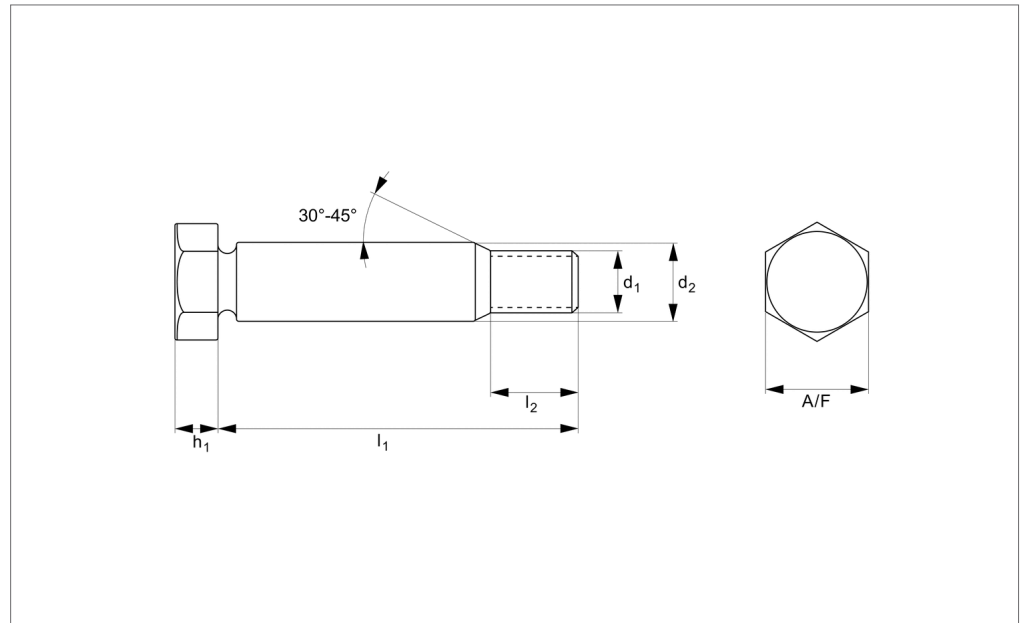
short thread, steel 10.9

Shoulder Screws

Order No.	d ₁	d ₂ tol. k6	l ₁	l ₂	h ₁	A/F
20261269	M30	32	80	34.0	19.0	46
20261276	M30	32	90	34.0	19.0	46
20261283	M30	32	100	34.0	19.0	46
20261290	M30	32	105	34.0	19.0	46
20261306	M30	32	110	34.0	19.0	46
20261313	M30	32	120	34.0	19.0	46
20261320	M30	32	130	34.0	19.0	46
20261337	M30	32	140	34.0	19.0	46
20261344	M36	38	120	40.0	22.0	55
20261351	M36	38	130	40.0	22.0	55
20261368	M36	38	200	45.0	22.0	55



EP0142.SC



Material

Black alloy steel, strength 8,8. Hardness 38 HRC, tensile strength 830 N/mm².

Technical Notes

To DIN 7968

Tips

Do not tighten to standard strength class 8,8 torque; as the tightening torque is limited, by the presence of the reduced diameter

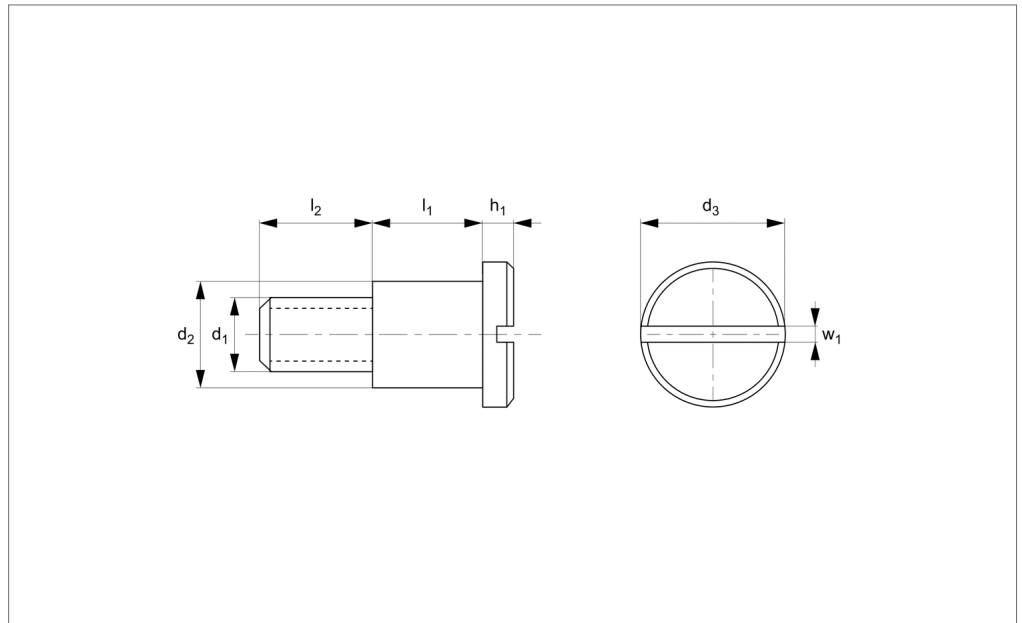
undercut under the head and at the shoulder/thread area.

Order No.	d ₁	d ₂ tol. h11	l ₁	l ₂	h ₁	A/F
20259839	M12	12.74	35	20.5	8	18
20259891	M12	12.74	40	20.5	8	18
20259907	M12	12.74	45	20.5	8	18
20259914	M12	12.74	50	20.5	8	18
20259921	M12	12.74	55	20.5	8	18
20259938	M12	12.74	60	20.5	8	18
20259945	M12	12.74	70	20.5	8	18
20259952	M12	12.74	75	20.5	8	18
20259969	M16	16.74	40	24.5	10	24
20259976	M16	16.74	45	24.5	10	24
20259983	M16	16.74	50	24.5	10	24
20259990	M16	16.74	55	24.5	10	24
20260002	M16	16.74	60	24.5	10	24
20260019	M16	16.74	65	24.5	10	24
20260026	M16	16.74	70	24.5	10	24
20260033	M16	16.74	80	24.5	10	24
20260040	M16	16.74	85	24.5	10	24
20260057	M20	20.71	50	28.5	13	30
20260064	M20	20.71	55	28.5	13	30
20260071	M20	20.71	60	28.5	13	30
20260088	M20	20.71	65	28.5	13	30
20260095	M20	20.71	70	28.5	13	30
20260101	M20	20.71	75	28.5	13	30
20260118	M20	20.71	80	28.5	13	30
20260125	M20	20.71	90	28.5	13	30
20260132	M20	20.71	100	28.5	13	30
20260149	M20	20.71	110	28.5	13	30
20260156	M24	24.71	60	33.0	15	36
20260163	M24	24.71	65	33.0	15	36
20259884	M24	24.71	70	33.0	15	36
20260170	M24	24.71	75	33.0	15	36
20260187	M24	24.71	80	33.0	15	36

Order No.	d ₁	d ₂ tol. h11	l ₁	l ₂	h ₁	A/F
20260194	M24	24.71	85	33.0	15	36
20260200	M24	24.71	90	33.0	15	36
20260217	M24	24.71	100	33.0	15	36
20260224	M24	24.71	120	33.0	15	36
20260231	M24	24.71	160	33.0	15	36
20260248	M24	24.71	195	33.0	15	36
20260255	M27	27.71	90	33.5	17	41
20260262	M27	27.71	100	33.5	17	41
20260279	M27	27.71	110	33.5	17	41



EP0144.A2

**Material**

Stainless steel (A2, AISI 303).

Technical Notes

DIN 923. Mildly magnetic, available on request in A4 stainless steel.

Order No.	d ₁	l ₁	d ₂ tol. h9	d ₃	l ₂	h ₁	w ₁
20223106	M3	3	4.0	7.0	4.5	1.8	0.8
20223113	M3	4	4.0	7.0	4.5	1.8	0.8
20223120	M3	5	4.0	7.0	4.5	1.8	0.8
20223137	M3	6	4.0	7.0	4.5	1.8	0.8
20223144	M3	8	4.0	7.0	4.5	1.8	0.8
20227197	M3	10	4.0	7.0	4.5	1.8	0.8
20227098	M3	12	4.0	7.0	4.5	1.8	0.8
20223151	M4	3	5.5	8.5	6.0	2.4	1.0
20223168	M4	4	5.5	8.5	6.0	2.4	1.0
20223175	M4	5	5.5	8.5	6.0	2.4	1.0
20223182	M4	6	5.5	8.5	6.0	2.4	1.0
20223199	M4	8	5.5	8.5	6.0	2.4	1.0
20223205	M4	10	5.5	8.5	6.0	2.4	1.0
20223212	M4	12	5.5	8.5	6.0	2.4	1.0
20223373	M4	16	5.5	8.5	6.0	2.4	1.0
20223380	M4	20	5.5	8.5	6.0	2.4	1.0
20223229	M5	3	7.0	11.0	7.0	2.7	1.2
20223236	M5	4	7.0	11.0	7.0	2.7	1.2
20223243	M5	5	7.0	11.0	7.0	2.7	1.2
20223250	M5	6	7.0	11.0	7.0	2.7	1.2
20223267	M5	8	7.0	11.0	7.0	2.7	1.2
20223274	M5	10	7.0	11.0	7.0	2.7	1.2
20223281	M5	12	7.0	11.0	7.0	2.7	1.2
20223298	M5	16	7.0	11.0	7.0	2.7	1.2
20223397	M5	20	7.0	11.0	7.0	2.7	1.2
20223304	M6	3	8.0	13.0	9.0	3.1	1.6
20223311	M6	4	8.0	13.0	9.0	3.1	1.6
20223328	M6	5	8.0	13.0	9.0	3.1	1.6
20223335	M6	6	8.0	13.0	9.0	3.1	1.6
20223342	M6	8	8.0	13.0	9.0	3.1	1.6
20223359	M6	10	8.0	13.0	9.0	3.1	1.6
20223366	M6	12	8.0	13.0	9.0	3.1	1.6
20223403	M6	16	8.0	13.0	9.0	3.1	1.6
20223410	M6	20	8.0	13.0	9.0	3.1	1.6

Pan Head Shoulder Screws

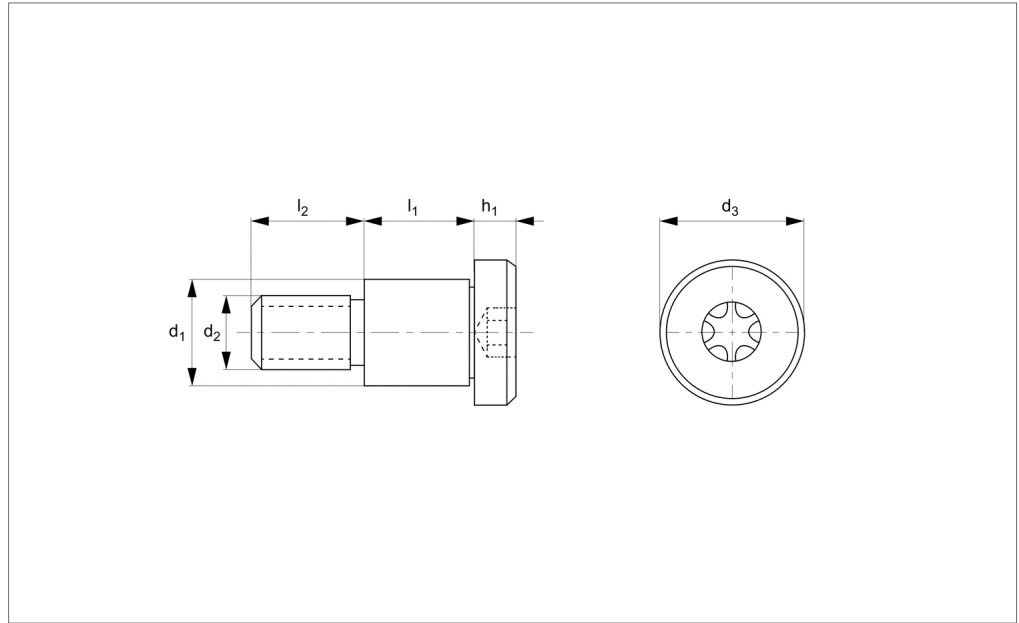
A2 stainless

Shoulder Screws

Order No.	d ₁	l ₁	d ₂ tol. h9	d ₃	l ₂	h ₁	w ₁
20223427	M8	6	10.0	16.0	11.0	3.8	2.0
20223434	M8	8	10.0	16.0	11.0	3.8	2.0
20223441	M8	10	10.0	16.0	11.0	3.8	2.0
20223458	M8	12	10.0	16.0	11.0	3.8	2.0
20223465	M8	16	10.0	16.0	11.0	3.8	2.0
20223472	M8	20	10.0	16.0	11.0	3.8	2.0



EP0145.A2

**Material**

Stainless steel (AISI 303, 1.4305).

Tensile strength 550 N/mm².

Proof stress min. 190 N/mm², austenitic

stainless steel.

Technical Notes

303 series stainless steel provides good

resistance to corrosion. It is mildly magnetic.

Order No.	d ₁ +0.0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	TX size
20245658	4	2	M 3	6	4	3	TX-10
20245665	4	3	M 3	6	4	3	TX-10
20225032	4	4	M 3	6	4	3	TX-10
20225049	4	5	M 3	6	4	3	TX-10
20225056	4	6	M 3	6	4	3	TX-10
20245672	4	7	M 3	6	4	3	TX-10
20225063	4	8	M 3	6	4	3	TX-10
20225070	4	10	M 3	6	4	3	TX-10
20245689	4	12	M 3	6	4	3	TX-10
20245696	4	14	M 3	6	4	3	TX-10
20245702	4	16	M 3	6	4	3	TX-10
20245719	4	18	M 3	6	4	3	TX-10
20245726	4	20	M 3	6	4	3	TX-10
20245733	4	25	M 3	6	4	3	TX-10
20245740	4	30	M 3	6	4	3	TX-10
20245757	4	35	M 3	6	4	3	TX-10
20245764	4	40	M 3	6	4	3	TX-10
20245771	4	45	M 3	6	4	3	TX-10
20245788	4	50	M 3	6	4	3	TX-10
20245795	5	2	M 4	8	5	4	TX-20
20245801	5	3	M 4	8	5	4	TX-20
20245818	5	4	M 4	8	5	4	TX-20
20245825	5	5	M 4	8	5	4	TX-20
20228491	5	6	M 4	8	5	4	TX-20
20245832	5	7	M 4	8	5	4	TX-20
20241315	5	8	M 4	8	5	4	TX-20
20225087	5	10	M 4	8	5	4	TX-20
20225094	5	12	M 4	8	5	4	TX-20
20245849	5	14	M 4	8	5	4	TX-20
20225100	5	16	M 4	8	5	4	TX-20
20245856	5	18	M 4	8	5	4	TX-20
20225117	5	20	M 4	8	5	4	TX-20
20225124	5	25	M 4	8	5	4	TX-20
20225131	5	30	M 4	8	5	4	TX-20

Shoulder Screws - Cap Head

TX drive - 303 stainless

Shoulder Screws

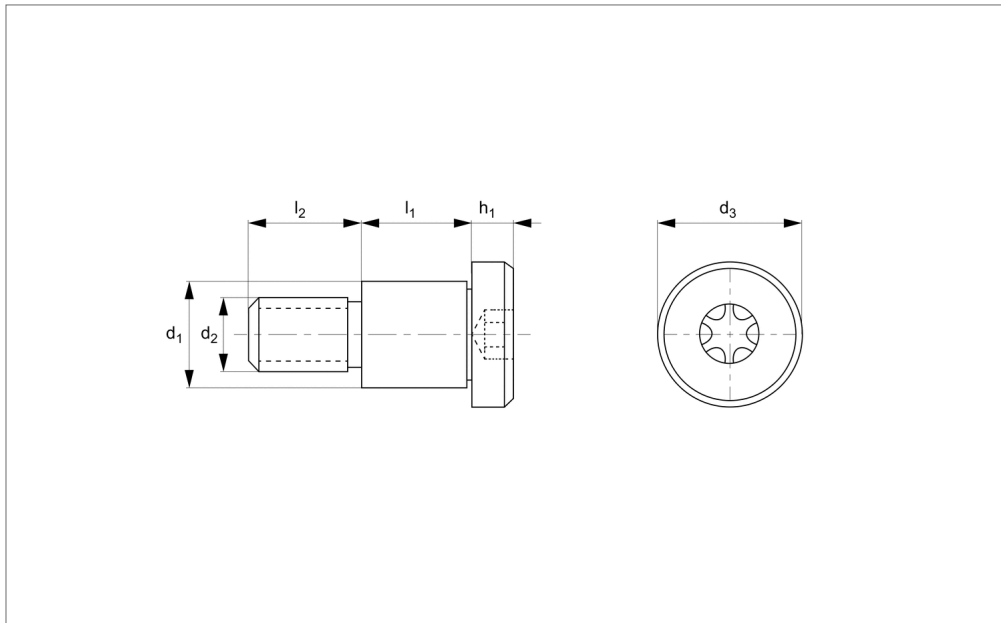
Order No.	d ₁ +0.0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	TX size
20245863	5	35	M 4	8	5	4	TX-20
20245870	5	40	M 4	8	5	4	TX-20
20245887	5	45	M 4	8	5	4	TX-20
20245894	5	50	M 4	8	5	4	TX-20
20245900	6	2	M 5	10	6	5	TX-25
20245917	6	3	M 5	10	6	5	TX-25
20245924	6	4	M 5	10	6	5	TX-25
20245931	6	5	M 5	10	6	5	TX-25
20230012	6	6	M 5	10	6	5	TX-25
20245948	6	7	M 5	10	6	5	TX-25
20230104	6	8	M 5	10	6	5	TX-25
20225148	6	10	M 5	10	6	5	TX-25
20225155	6	12	M 5	10	6	5	TX-25
20245955	6	14	M 5	10	6	5	TX-25
20225162	6	16	M 5	10	6	5	TX-25
20245962	6	18	M 5	10	6	5	TX-25
20225179	6	20	M 5	10	6	5	TX-25
20225186	6	25	M 5	10	6	5	TX-25
20225193	6	30	M 5	10	6	5	TX-25
20245979	6	35	M 5	10	6	5	TX-25
20225209	6	40	M 5	10	6	5	TX-25
20245986	6	45	M 5	10	6	5	TX-25
20225216	6	50	M 5	10	6	5	TX-25
20245993	6	55	M 5	10	6	5	TX-25
20246006	6	60	M 5	10	6	5	TX-25
20246013	6	70	M 5	10	6	5	TX-25
20246020	6	80	M 5	10	6	5	TX-25
20246037	6	90	M 5	10	6	5	TX-25
20246044	6	100	M 5	10	6	5	TX-25
20246051	8	4	M 6	12	11	6	TX-30
20246068	8	5	M 6	12	11	6	TX-30
20228569	8	6	M 6	12	11	6	TX-30
20246075	8	7	M 6	12	11	6	TX-30
20241322	8	8	M 6	12	11	6	TX-30
20228507	8	10	M 6	12	11	6	TX-30
20225223	8	12	M 6	12	11	6	TX-30
20246082	8	14	M 6	12	11	6	TX-30
20225230	8	16	M 6	12	11	6	TX-30
20246099	8	18	M 6	12	11	6	TX-30
20225247	8	20	M 6	12	11	6	TX-30
20225254	8	25	M 6	12	11	6	TX-30
20225261	8	30	M 6	12	11	6	TX-30
20246105	8	35	M 6	12	11	6	TX-30
20225278	8	40	M 6	12	11	6	TX-30
20246112	8	45	M 6	12	11	6	TX-30
20225285	8	50	M 6	12	11	6	TX-30
20246129	8	55	M 6	12	11	6	TX-30
20246136	8	60	M 6	12	11	6	TX-30
20246143	8	65	M 6	12	11	6	TX-30
20246150	8	70	M 6	12	11	6	TX-30
20246167	8	75	M 6	12	11	6	TX-30
20246174	8	80	M 6	12	11	6	TX-30
20246181	8	90	M 6	12	11	6	TX-30
20246198	8	100	M 6	12	11	6	TX-30
20229047	10	8	M 8	14	12	7	TX-45
20229900	10	10	M 8	14	12	7	TX-45
20241339	10	12	M 8	14	12	7	TX-45
20246204	10	14	M 8	14	12	7	TX-45
20225292	10	16	M 8	14	12	7	TX-45
20246211	10	18	M 8	14	12	7	TX-45
20225308	10	20	M 8	14	12	7	TX-45
20225315	10	25	M 8	14	12	7	TX-45
20225322	10	30	M 8	14	12	7	TX-45
20246228	10	35	M 8	14	12	7	TX-45
20225339	10	40	M 8	14	12	7	TX-45
20246235	10	45	M 8	14	12	7	TX-45
20225346	10	50	M 8	14	12	7	TX-45
20246242	10	55	M 8	14	12	7	TX-45

Order No.	d_1 +0.0 -0.025	l_1 +0.05 -0.0	d_2	d_3	l_2	h_1	TX size
20225353	10	60	M 8	14	12	7	TX-45
20246259	10	65	M 8	14	12	7	TX-45
20225360	10	70	M 8	14	12	7	TX-45
20246266	10	80	M 8	14	12	7	TX-45
20246273	10	90	M 8	14	12	7	TX-45
20246280	10	100	M 8	14	12	7	TX-45
20246297	12	8	M10	20	16	8	TX-50
20241346	12	10	M10	20	16	8	TX-50
20241353	12	12	M10	20	16	8	TX-50
20246303	12	14	M10	20	16	8	TX-50
20225377	12	16	M10	20	16	8	TX-50
20246310	12	18	M10	20	16	8	TX-50
20225384	12	20	M10	20	16	8	TX-50
20225391	12	25	M10	20	16	8	TX-50
20225407	12	30	M10	20	16	8	TX-50
20246327	12	35	M10	20	16	8	TX-50
20225414	12	40	M10	20	16	8	TX-50
20246334	12	45	M10	20	16	8	TX-50
20225421	12	50	M10	20	16	8	TX-50
20246341	12	55	M10	20	16	8	TX-50
20225438	12	60	M10	20	16	8	TX-50
20246358	12	65	M10	20	16	8	TX-50
20225445	12	70	M10	20	16	8	TX-50
20246365	12	75	M10	20	16	8	TX-50
20246372	12	80	M10	20	16	8	TX-50
20246389	12	90	M10	20	16	8	TX-50
20246396	12	100	M10	20	16	8	TX-50
20246402	16	25	M12	24	18	11	TX-60
20246419	16	30	M12	24	18	11	TX-60
20246426	16	35	M12	24	18	11	TX-60
20246433	16	40	M12	24	18	11	TX-60
20246440	16	45	M12	24	18	11	TX-60
20246457	16	50	M12	24	18	11	TX-60
20246464	16	55	M12	24	18	11	TX-60
20246471	16	60	M12	24	18	11	TX-60
20246488	16	65	M12	24	18	11	TX-60
20246495	16	70	M12	24	18	11	TX-60
20246501	16	75	M12	24	18	11	TX-60
20246518	16	80	M12	24	18	11	TX-60
20246525	16	90	M12	24	18	11	TX-60
20246532	16	100	M12	24	18	11	TX-60
20246549	20	30	M16	30	22	14	TX-70
20246556	20	35	M16	30	22	14	TX-70
20246563	20	40	M16	30	22	14	TX-70
20246570	20	45	M16	30	22	14	TX-70
20246587	20	50	M16	30	22	14	TX-70
20246594	20	55	M16	30	22	14	TX-70
20246600	20	60	M16	30	22	14	TX-70
20246617	20	65	M16	30	22	14	TX-70
20246624	20	70	M16	30	22	14	TX-70
20246631	20	75	M16	30	22	14	TX-70
20246648	20	80	M16	30	22	14	TX-70
20246655	20	90	M16	30	22	14	TX-70
20246662	20	100	M16	30	22	14	TX-70

Shoulder Screws - Cap Head

TX drive - 316 stainless

Shoulder Screws



EP0145.A4

SHOULDER SCREWS

Material

Stainless steel (AISI 316, 1.440).
316 series tensile strength 480 N/mm²,
proof stress min. 200 N/mm², austenitic

stainless steel.

Technical Notes

Highly resistant to corrosion (including

from salt water).

Shim washers can be used to reduce
shoulder length if required. It is non-
magnetic.

Order No.	d_1 +0 -0.025	l_1 +0.05 -0.0	d_2	d_3	l_2	h_1	TX size
20246679	4	2	M 3	6	4	3	TX-10
20246686	4	3	M 3	6	4	3	TX-10
20233686	4	4	M 3	6	4	3	TX-10
20233693	4	5	M 3	6	4	3	TX-10
20233709	4	6	M 3	6	4	3	TX-10
20246693	4	7	M 3	6	4	3	TX-10
20233716	4	8	M 3	6	4	3	TX-10
20233723	4	10	M 3	6	4	3	TX-10
20246709	4	12	M 3	6	4	3	TX-10
20246716	4	14	M 3	6	4	3	TX-10
20246723	4	16	M 3	6	4	3	TX-10
20246730	4	18	M 3	6	4	3	TX-10
20246747	4	20	M 3	6	4	3	TX-10
20246754	4	25	M 3	6	4	3	TX-10
20246761	4	30	M 3	6	4	3	TX-10
20246778	4	35	M 3	6	4	3	TX-10
20246785	4	40	M 3	6	4	3	TX-10
20246792	4	45	M 3	6	4	3	TX-10
20246808	4	50	M 3	6	4	3	TX-10
20246815	5	2	M 4	8	5	4	TX-20
20246822	5	3	M 4	8	5	4	TX-20
20246839	5	4	M 4	8	5	4	TX-20
20246846	5	5	M 4	8	5	4	TX-20
20233730	5	6	M 4	8	5	4	TX-20
20246853	5	7	M 4	8	5	4	TX-20
20233747	5	8	M 4	8	5	4	TX-20
20233754	5	10	M 4	8	5	4	TX-20
20233761	5	12	M 4	8	5	4	TX-20
20246860	5	14	M 4	8	5	4	TX-20
20233778	5	16	M 4	8	5	4	TX-20
20246877	5	18	M 4	8	5	4	TX-20
20233785	5	20	M 4	8	5	4	TX-20
20233792	5	25	M 4	8	5	4	TX-20
20233808	5	30	M 4	8	5	4	TX-20

Order No.	d ₁ +0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	TX size
20246884	5	35	M 4	8	5	4	TX-20
20246891	5	40	M 4	8	5	4	TX-20
20246907	5	45	M 4	8	5	4	TX-20
20246914	5	50	M 4	8	5	4	TX-20
20246921	6	2	M 5	10	6	5	TX-25
20246938	6	3	M 5	10	6	5	TX-25
20246945	6	4	M 5	10	6	5	TX-25
20246952	6	5	M 5	10	6	5	TX-25
20233815	6	6	M 5	10	6	5	TX-25
20246969	6	7	M 5	10	6	5	TX-25
20233822	6	8	M 5	10	6	5	TX-25
20233839	6	10	M 5	10	6	5	TX-25
20233846	6	12	M 5	10	6	5	TX-25
20246976	6	14	M 5	10	6	5	TX-25
20233853	6	16	M 5	10	6	5	TX-25
20246983	6	18	M 5	10	6	5	TX-25
20233860	6	20	M 5	10	6	5	TX-25
20233877	6	25	M 5	10	6	5	TX-25
20233884	6	30	M 5	10	6	5	TX-25
20246990	6	35	M 5	10	6	5	TX-25
20233891	6	40	M 5	10	6	5	TX-25
20247003	6	45	M 5	10	6	5	TX-25
20233907	6	50	M 5	10	6	5	TX-25
20247010	6	55	M 5	10	6	5	TX-25
20247027	6	60	M 5	10	6	5	TX-25
20247034	6	70	M 5	10	6	5	TX-25
20247041	6	80	M 5	10	6	5	TX-25
20247058	6	90	M 5	10	6	5	TX-25
20247065	6	100	M 5	10	6	5	TX-25
20247072	8	4	M 6	12	11	6	TX-30
20247089	8	5	M 6	12	11	6	TX-30
20233914	8	6	M 6	12	11	6	TX-30
20247096	8	7	M 6	12	11	6	TX-30
20233921	8	8	M 6	12	11	6	TX-30
20233938	8	10	M 6	12	11	6	TX-30
20233945	8	12	M 6	12	11	6	TX-30
20247102	8	14	M 6	12	11	6	TX-30
20233952	8	16	M 6	12	11	6	TX-30
20247119	8	18	M 6	12	11	6	TX-30
20233969	8	20	M 6	12	11	6	TX-30
20233976	8	25	M 6	12	11	6	TX-30
20233983	8	30	M 6	12	11	6	TX-30
20247126	8	35	M 6	12	11	6	TX-30
20233990	8	40	M 6	12	11	6	TX-30
20247133	8	45	M 6	12	11	6	TX-30
20234003	8	50	M 6	12	11	6	TX-30
20247140	8	55	M 6	12	11	6	TX-30
20247157	8	60	M 6	12	11	6	TX-30
20247164	8	65	M 6	12	11	6	TX-30
20247171	8	70	M 6	12	11	6	TX-30
20247188	8	75	M 6	12	11	6	TX-30
20247195	8	80	M 6	12	11	6	TX-30
20247201	8	90	M 6	12	11	6	TX-30
20247218	8	100	M 6	12	11	6	TX-30
20234010	10	8	M 8	14	12	7	TX-45
20234027	10	10	M 8	14	12	7	TX-45
20234034	10	12	M 8	14	12	7	TX-45
20247225	10	14	M 8	14	12	7	TX-45
20234041	10	16	M 8	14	12	7	TX-45
20247232	10	18	M 8	14	12	7	TX-45
20234058	10	20	M 8	14	12	7	TX-45
20234065	10	25	M 8	14	12	7	TX-45
20234072	10	30	M 8	14	12	7	TX-45
20247249	10	35	M 8	14	12	7	TX-45
20234089	10	40	M 8	14	12	7	TX-45
20247256	10	45	M 8	14	12	7	TX-45
20234096	10	50	M 8	14	12	7	TX-45
20247263	10	55	M 8	14	12	7	TX-45

Shoulder Screws - Cap Head

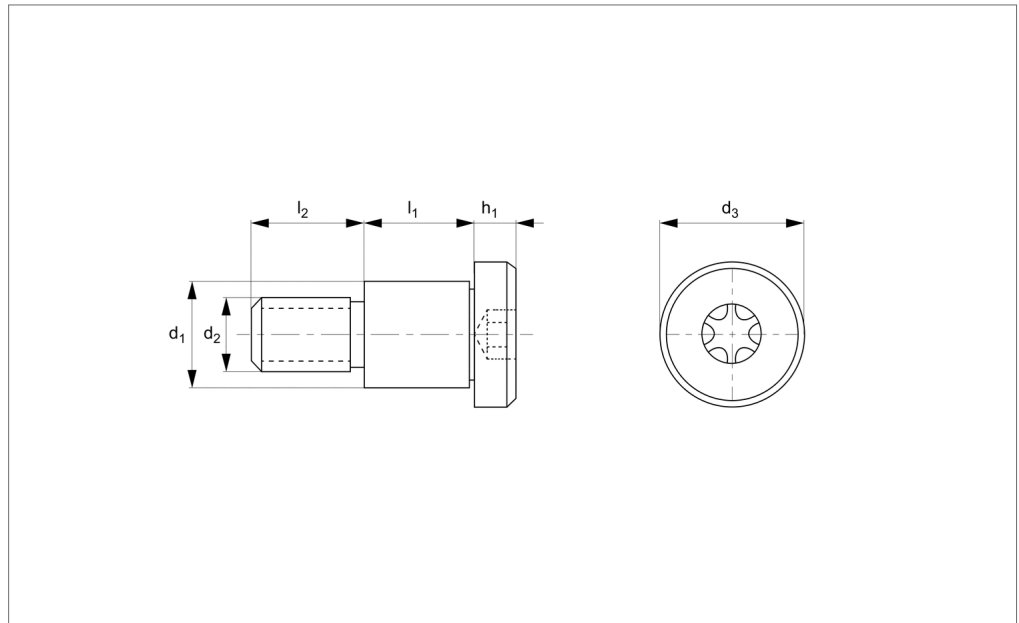
TX drive - 316 stainless

Shoulder Screws

Order No.	d ₁ +0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	TX size
20227630	10	60	M 8	14	12	7	TX-45
20247270	10	65	M 8	14	12	7	TX-45
20234102	10	70	M 8	14	12	7	TX-45
20247287	10	80	M 8	14	12	7	TX-45
20247294	10	90	M 8	14	12	7	TX-45
20247300	10	100	M 8	14	12	7	TX-45
20247317	12	8	M10	20	16	8	TX-50
20234119	12	10	M10	20	16	8	TX-50
20234126	12	12	M10	20	16	8	TX-50
20247324	12	14	M10	20	16	8	TX-50
20234133	12	16	M10	20	16	8	TX-50
20247331	12	18	M10	20	16	8	TX-50
20234140	12	20	M10	20	16	8	TX-50
20234157	12	25	M10	20	16	8	TX-50
20234164	12	30	M10	20	16	8	TX-50
20247348	12	35	M10	20	16	8	TX-50
20234171	12	40	M10	20	16	8	TX-50
20247355	12	45	M10	20	16	8	TX-50
20234188	12	50	M10	20	16	8	TX-50
20247362	12	55	M10	20	16	8	TX-50
20234195	12	60	M10	20	16	8	TX-50
20247379	12	65	M10	20	16	8	TX-50
20234201	12	70	M10	20	16	8	TX-50
20247386	12	75	M10	20	16	8	TX-50
20247393	12	80	M10	20	16	8	TX-50
20247409	12	90	M10	20	16	8	TX-50
20247416	12	100	M10	20	16	8	TX-50
20247423	16	25	M12	24	18	11	TX-60
20247430	16	30	M12	24	18	11	TX-60
20247447	16	35	M12	24	18	11	TX-60
20247454	16	40	M12	24	18	11	TX-60
20247461	16	45	M12	24	18	11	TX-60
20247478	16	50	M12	24	18	11	TX-60
20247485	16	55	M12	24	18	11	TX-60
20247492	16	60	M12	24	18	11	TX-60
20247508	16	65	M12	24	18	11	TX-60
20247515	16	70	M12	24	18	11	TX-60
20247522	16	75	M12	24	18	11	TX-60
20247539	16	80	M12	24	18	11	TX-60
20247546	16	90	M12	24	18	11	TX-60
20247553	16	100	M12	24	18	11	TX-60
20247560	20	30	M16	30	22	14	TX-70
20247577	20	35	M16	30	22	14	TX-70
20247584	20	40	M16	30	22	14	TX-70
20247591	20	45	M16	30	22	14	TX-70
20247607	20	50	M16	30	22	14	TX-70
20247614	20	55	M16	30	22	14	TX-70
20247621	20	60	M16	30	22	14	TX-70
20247638	20	65	M16	30	22	14	TX-70
20247645	20	70	M16	30	22	14	TX-70
20247652	20	75	M16	30	22	14	TX-70
20247669	20	80	M16	30	22	14	TX-70
20247676	20	90	M16	30	22	14	TX-70
20247683	20	100	M16	30	22	14	TX-70



EP0145.B2



Material

Stainless steel (AISI 303, 1.4305) black oxide coating.

Tensile strength 550 N/mm².

Proof stress min. 190 N/mm², austenitic stainless steel.

Technical Notes

303 series stainless steel provides good resistance to corrosion. It is mildly magnetic.

Order No.	d ₁ +0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	TX size
20247690	4	2	M 3	6	4	3	TX-10
20247706	4	3	M 3	6	4	3	TX-10
20234218	4	4	M 3	6	4	3	TX-10
20234225	4	5	M 3	6	4	3	TX-10
20234232	4	6	M 3	6	4	3	TX-10
20247713	4	7	M 3	6	4	3	TX-10
20234249	4	8	M 3	6	4	3	TX-10
20234256	4	10	M 3	6	4	3	TX-10
20247720	4	12	M 3	6	4	3	TX-10
20247737	4	14	M 3	6	4	3	TX-10
20247744	4	16	M 3	6	4	3	TX-10
20247751	4	18	M 3	6	4	3	TX-10
20247768	4	20	M 3	6	4	3	TX-10
20247775	4	25	M 3	6	4	3	TX-10
20247782	4	30	M 3	6	4	3	TX-10
20247799	4	35	M 3	6	4	3	TX-10
20247805	4	40	M 3	6	4	3	TX-10
20247812	4	45	M 3	6	4	3	TX-10
20247829	4	50	M 3	6	4	3	TX-10
20247836	5	2	M 4	8	5	4	TX-20
20247843	5	3	M 4	8	5	4	TX-20
20247850	5	4	M 4	8	5	4	TX-20
20247867	5	5	M 4	8	5	4	TX-20
20234263	5	6	M 4	8	5	4	TX-20
20247874	5	7	M 4	8	5	4	TX-20
20234270	5	8	M 4	8	5	4	TX-20
20234287	5	10	M 4	8	5	4	TX-20
20234294	5	12	M 4	8	5	4	TX-20
20247881	5	14	M 4	8	5	4	TX-20
20234300	5	16	M 4	8	5	4	TX-20
20247898	5	18	M 4	8	5	4	TX-20
20234317	5	20	M 4	8	5	4	TX-20
20234324	5	25	M 4	8	5	4	TX-20
20234331	5	30	M 4	8	5	4	TX-20

Shoulder Screws - Cap Head

TX drive - 303 stainless - blackened

Shoulder Screws

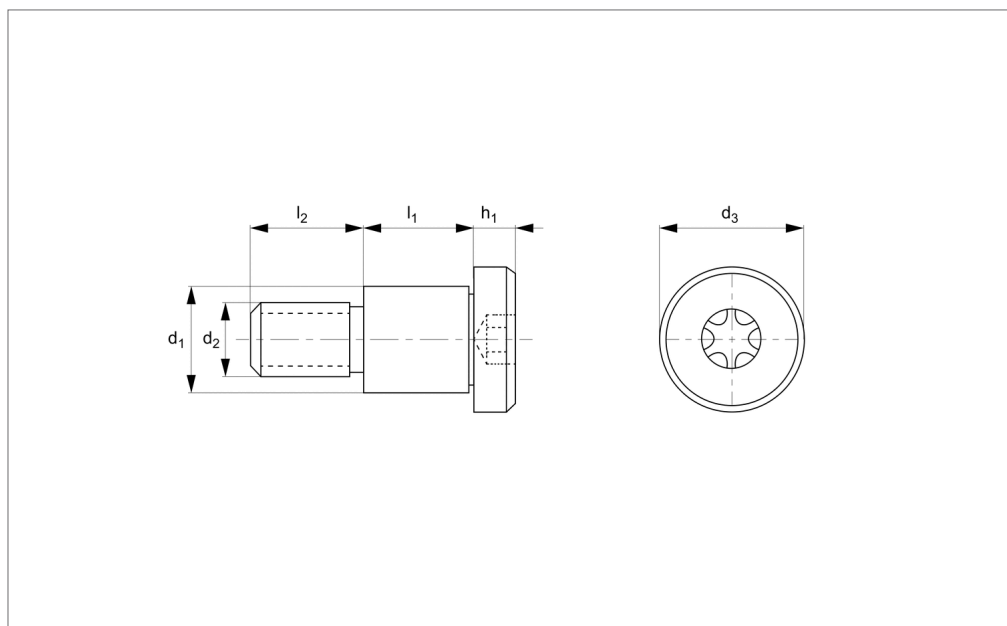
Order No.	d ₁ +0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	TX size
20247904	5	35	M 4	8	5	4	TX-20
20247911	5	40	M 4	8	5	4	TX-20
20247928	5	45	M 4	8	5	4	TX-20
20247935	5	50	M 4	8	5	4	TX-20
20247942	6	2	M 5	10	6	5	TX-25
20247959	6	3	M 5	10	6	5	TX-25
20247966	6	4	M 5	10	6	5	TX-25
20247973	6	5	M 5	10	6	5	TX-25
20234348	6	6	M 5	10	6	5	TX-25
20247980	6	7	M 5	10	6	5	TX-25
20234355	6	8	M 5	10	6	5	TX-25
20234362	6	10	M 5	10	6	5	TX-25
20234379	6	12	M 5	10	6	5	TX-25
20247997	6	14	M 5	10	6	5	TX-25
20234386	6	16	M 5	10	6	5	TX-25
20248000	6	18	M 5	10	6	5	TX-25
20234393	6	20	M 5	10	6	5	TX-25
20234409	6	25	M 5	10	6	5	TX-25
20234416	6	30	M 5	10	6	5	TX-25
20248017	6	35	M 5	10	6	5	TX-25
20234423	6	40	M 5	10	6	5	TX-25
20248024	6	45	M 5	10	6	5	TX-25
20234430	6	50	M 5	10	6	5	TX-25
20248031	6	55	M 5	10	6	5	TX-25
20248048	6	60	M 5	10	6	5	TX-25
20248055	6	70	M 5	10	6	5	TX-25
20248062	6	80	M 5	10	6	5	TX-25
20248079	6	90	M 5	10	6	5	TX-25
20248086	6	100	M 5	10	6	5	TX-25
20248093	8	4	M 6	12	11	6	TX-30
20248109	8	5	M 6	12	11	6	TX-30
20234447	8	6	M 6	12	11	6	TX-30
20248116	8	7	M 6	12	11	6	TX-30
20234454	8	8	M 6	12	11	6	TX-30
20234461	8	10	M 6	12	11	6	TX-30
20234478	8	12	M 6	12	11	6	TX-30
20248123	8	14	M 6	12	11	6	TX-30
20234485	8	16	M 6	12	11	6	TX-30
20248130	8	18	M 6	12	11	6	TX-30
20234492	8	20	M 6	12	11	6	TX-30
20234508	8	25	M 6	12	11	6	TX-30
20234515	8	30	M 6	12	11	6	TX-30
20248147	8	35	M 6	12	11	6	TX-30
20234522	8	40	M 6	12	11	6	TX-30
20248154	8	45	M 6	12	11	6	TX-30
20234539	8	50	M 6	12	11	6	TX-30
20248161	8	55	M 6	12	11	6	TX-30
20248178	8	60	M 6	12	11	6	TX-30
20248185	8	65	M 6	12	11	6	TX-30
20248192	8	70	M 6	12	11	6	TX-30
20248208	8	75	M 6	12	11	6	TX-30
20248215	8	80	M 6	12	11	6	TX-30
20248222	8	90	M 6	12	11	6	TX-30
20248239	8	100	M 6	12	11	6	TX-30
20234546	10	8	M 8	14	12	7	TX-45
20234553	10	10	M 8	14	12	7	TX-45
20234560	10	12	M 8	14	12	7	TX-45
20248246	10	14	M 8	14	12	7	TX-45
20234577	10	16	M 8	14	12	7	TX-45
20248253	10	18	M 8	14	12	7	TX-45
20234584	10	20	M 8	14	12	7	TX-45
20234591	10	25	M 8	14	12	7	TX-45
20234607	10	30	M 8	14	12	7	TX-45
20248260	10	35	M 8	14	12	7	TX-45
20234614	10	40	M 8	14	12	7	TX-45
20248277	10	45	M 8	14	12	7	TX-45
20234621	10	50	M 8	14	12	7	TX-45
20248284	10	55	M 8	14	12	7	TX-45

Order No.	d ₁ +0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	TX size
20234638	10	60	M 8	14	12	7	TX-45
20248291	10	65	M 8	14	12	7	TX-45
20234645	10	70	M 8	14	12	7	TX-45
20248307	10	80	M 8	14	12	7	TX-45
20248314	10	90	M 8	14	12	7	TX-45
20248321	10	100	M 8	14	12	7	TX-45
20248338	12	8	M10	20	16	8	TX-50
20234652	12	10	M10	20	16	8	TX-50
20234669	12	12	M10	20	16	8	TX-50
20248345	12	14	M10	20	16	8	TX-50
20234676	12	16	M10	20	16	8	TX-50
20248352	12	18	M10	20	16	8	TX-50
20234683	12	20	M10	20	16	8	TX-50
20234690	12	25	M10	20	16	8	TX-50
20234706	12	30	M10	20	16	8	TX-50
20248369	12	35	M10	20	16	8	TX-50
20234713	12	40	M10	20	16	8	TX-50
20248376	12	45	M10	20	16	8	TX-50
20234720	12	50	M10	20	16	8	TX-50
20248383	12	55	M10	20	16	8	TX-50
20234737	12	60	M10	20	16	8	TX-50
20248390	12	65	M10	20	16	8	TX-50
20234744	12	70	M10	20	16	8	TX-50
20248406	12	75	M10	20	16	8	TX-50
20248413	12	80	M10	20	16	8	TX-50
20248420	12	90	M10	20	16	8	TX-50
20248437	12	100	M10	20	16	8	TX-50
20248444	16	25	M12	24	18	11	TX-60
20248451	16	30	M12	24	18	11	TX-60
20248468	16	35	M12	24	18	11	TX-60
20248475	16	40	M12	24	18	11	TX-60
20248482	16	45	M12	24	18	11	TX-60
20248499	16	50	M12	24	18	11	TX-60
20248505	16	55	M12	24	18	11	TX-60
20248512	16	60	M12	24	18	11	TX-60
20248529	16	65	M12	24	18	11	TX-60
20248536	16	70	M12	24	18	11	TX-60
20248543	16	75	M12	24	18	11	TX-60
20248550	16	80	M12	24	18	11	TX-60
20248567	16	90	M12	24	18	11	TX-60
20248574	16	100	M12	24	18	11	TX-60
20248581	20	30	M16	30	22	14	TX-70
20248598	20	35	M16	30	22	14	TX-70
20248604	20	40	M16	30	22	14	TX-70
20248611	20	45	M16	30	22	14	TX-70
20248628	20	50	M16	30	22	14	TX-70
20248635	20	55	M16	30	22	14	TX-70
20248642	20	60	M16	30	22	14	TX-70
20248659	20	65	M16	30	22	14	TX-70
20248666	20	70	M16	30	22	14	TX-70
20248673	20	75	M16	30	22	14	TX-70
20248680	20	80	M16	30	22	14	TX-70
20248697	20	90	M16	30	22	14	TX-70
20248703	20	100	M16	30	22	14	TX-70

Shoulder Screws - Cap Head

TX drive - 316 stainless - blackened

Shoulder Screws



EP0145.B4

SHOULDER SCREWS

Material

Stainless steel (AISI 316, 1.440) black oxide coating.
316 series tensile strength 480 N/mm², proof stress min. 200 N/mm², austenitic

stainless steel.

Technical Notes

Highly resistant to corrosion (including from salt water).

Shim washers can be used to reduce shoulder length if required. It is non-magnetic.

Order No.	d_1 +0 -0.025	l_1 +0.05 -0.0	d_2	d_3	l_2	h_1	TX size
20248710	4	2	M 3	6	4	3	TX-10
20248727	4	3	M 3	6	4	3	TX-10
20234751	4	4	M 3	6	4	3	TX-10
20234768	4	5	M 3	6	4	3	TX-10
20234775	4	6	M 3	6	4	3	TX-10
20248734	4	7	M 3	6	4	3	TX-10
20234782	4	8	M 3	6	4	3	TX-10
20234799	4	10	M 3	6	4	3	TX-10
20248741	4	12	M 3	6	4	3	TX-10
20248758	4	14	M 3	6	4	3	TX-10
20248765	4	16	M 3	6	4	3	TX-10
20248772	4	18	M 3	6	4	3	TX-10
20248789	4	20	M 3	6	4	3	TX-10
20248796	4	25	M 3	6	4	3	TX-10
20248802	4	30	M 3	6	4	3	TX-10
20248819	4	35	M 3	6	4	3	TX-10
20248826	4	40	M 3	6	4	3	TX-10
20248833	4	45	M 3	6	4	3	TX-10
20248840	4	50	M 3	6	4	3	TX-10
20248857	5	2	M 4	8	5	4	TX-20
20248864	5	3	M 4	8	5	4	TX-20
20248871	5	4	M 4	8	5	4	TX-20
20248888	5	5	M 4	8	5	4	TX-20
20234805	5	6	M 4	8	5	4	TX-20
20248895	5	7	M 4	8	5	4	TX-20
20234812	5	8	M 4	8	5	4	TX-20
20234829	5	10	M 4	8	5	4	TX-20
20234836	5	12	M 4	8	5	4	TX-20
20248901	5	14	M 4	8	5	4	TX-20
20234843	5	16	M 4	8	5	4	TX-20
20248918	5	18	M 4	8	5	4	TX-20
20234850	5	20	M 4	8	5	4	TX-20
20234867	5	25	M 4	8	5	4	TX-20

Order No.	d ₁ +0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	TX size
20234874	5	30	M 4	8	5	4	TX-20
20248925	5	35	M 4	8	5	4	TX-20
20248932	5	40	M 4	8	5	4	TX-20
20248949	5	45	M 4	8	5	4	TX-20
20248956	5	50	M 4	8	5	4	TX-20
20248963	6	2	M 5	10	6	5	TX-25
20248970	6	3	M 5	10	6	5	TX-25
20248987	6	4	M 5	10	6	5	TX-25
20248994	6	5	M 5	10	6	5	TX-25
20234881	6	6	M 5	10	6	5	TX-25
20249007	6	7	M 5	10	6	5	TX-25
20234898	6	8	M 5	10	6	5	TX-25
20234904	6	10	M 5	10	6	5	TX-25
20234911	6	12	M 5	10	6	5	TX-25
20249014	6	14	M 5	10	6	5	TX-25
20234928	6	16	M 5	10	6	5	TX-25
20249021	6	18	M 5	10	6	5	TX-25
20234935	6	20	M 5	10	6	5	TX-25
20234942	6	25	M 5	10	6	5	TX-25
20234959	6	30	M 5	10	6	5	TX-25
20249038	6	35	M 5	10	6	5	TX-25
20234966	6	40	M 5	10	6	5	TX-25
20249045	6	45	M 5	10	6	5	TX-25
20234973	6	50	M 5	10	6	5	TX-25
20249052	6	55	M 5	10	6	5	TX-25
20249069	6	60	M 5	10	6	5	TX-25
20249076	6	70	M 5	10	6	5	TX-25
20249083	6	80	M 5	10	6	5	TX-25
20249090	6	90	M 5	10	6	5	TX-25
20249106	6	100	M 5	10	6	5	TX-25
20249113	8	4	M 6	12	11	6	TX-30
20249120	8	5	M 6	12	11	6	TX-30
20234980	8	6	M 6	12	11	6	TX-30
20249137	8	7	M 6	12	11	6	TX-30
20234997	8	8	M 6	12	11	6	TX-30
20235000	8	10	M 6	12	11	6	TX-30
20235017	8	12	M 6	12	11	6	TX-30
20249144	8	14	M 6	12	11	6	TX-30
20235024	8	16	M 6	12	11	6	TX-30
20249151	8	18	M 6	12	11	6	TX-30
20235031	8	20	M 6	12	11	6	TX-30
20235048	8	25	M 6	12	11	6	TX-30
20235055	8	30	M 6	12	11	6	TX-30
20249168	8	35	M 6	12	11	6	TX-30
20235062	8	40	M 6	12	11	6	TX-30
20249175	8	45	M 6	12	11	6	TX-30
20235079	8	50	M 6	12	11	6	TX-30
20249182	8	55	M 6	12	11	6	TX-30
20249199	8	60	M 6	12	11	6	TX-30
20249205	8	65	M 6	12	11	6	TX-30
20249212	8	70	M 6	12	11	6	TX-30
20249229	8	75	M 6	12	11	6	TX-30
20249236	8	80	M 6	12	11	6	TX-30
20249243	8	90	M 6	12	11	6	TX-30
20249250	8	100	M 6	12	11	6	TX-30
20235086	10	8	M 8	14	12	7	TX-45
20235093	10	10	M 8	14	12	7	TX-45
20235109	10	12	M 8	14	12	7	TX-45
20249267	10	14	M 8	14	12	7	TX-45
20235116	10	16	M 8	14	12	7	TX-45
20249274	10	18	M 8	14	12	7	TX-45
20235123	10	20	M 8	14	12	7	TX-45
20235130	10	25	M 8	14	12	7	TX-45
20235147	10	30	M 8	14	12	7	TX-45
20249281	10	35	M 8	14	12	7	TX-45
20235154	10	40	M 8	14	12	7	TX-45
20249298	10	45	M 8	14	12	7	TX-45
20235161	10	50	M 8	14	12	7	TX-45

Shoulder Screws - Cap Head

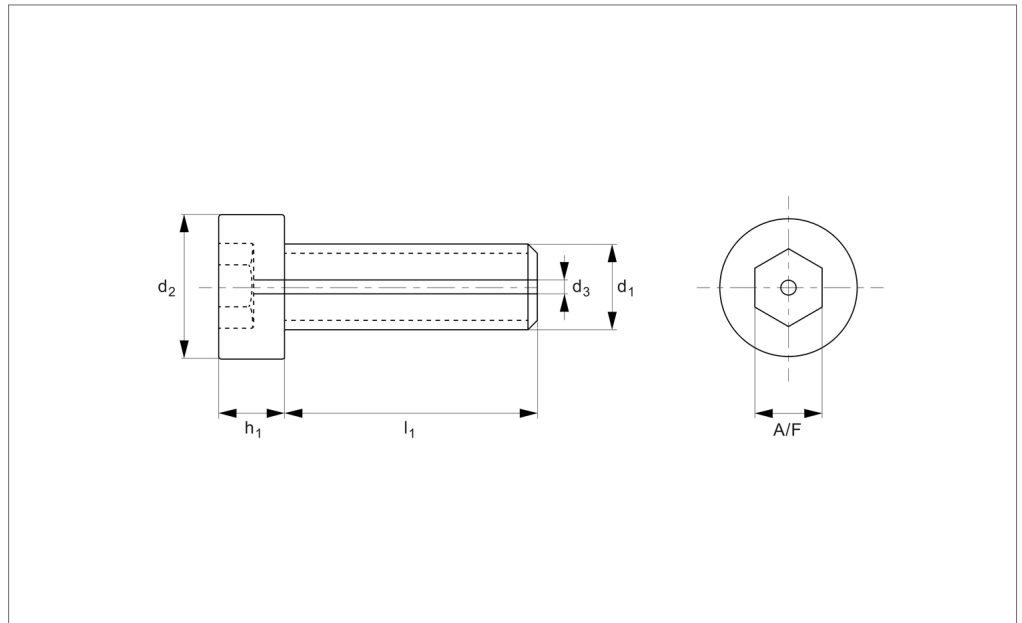
TX drive - 316 stainless - blackened

Shoulder Screws

Order No.	d ₁ +0 -0.025	l ₁ +0.05 -0.0	d ₂	d ₃	l ₂	h ₁	TX size
20249304	10	55	M 8	14	12	7	TX-45
20235178	10	60	M 8	14	12	7	TX-45
20249311	10	65	M 8	14	12	7	TX-45
20235185	10	70	M 8	14	12	7	TX-45
20249328	10	80	M 8	14	12	7	TX-45
20249335	10	90	M 8	14	12	7	TX-45
20249342	10	100	M 8	14	12	7	TX-45
20249359	12	8	M10	20	16	8	TX-50
20235192	12	10	M10	20	16	8	TX-50
20235208	12	12	M10	20	16	8	TX-50
20249366	12	14	M10	20	16	8	TX-50
20235215	12	16	M10	20	16	8	TX-50
20249373	12	18	M10	20	16	8	TX-50
20235222	12	20	M10	20	16	8	TX-50
20235239	12	25	M10	20	16	8	TX-50
20235246	12	30	M10	20	16	8	TX-50
20249380	12	35	M10	20	16	8	TX-50
20235253	12	40	M10	20	16	8	TX-50
20249397	12	45	M10	20	16	8	TX-50
20235260	12	50	M10	20	16	8	TX-50
20249403	12	55	M10	20	16	8	TX-50
20235277	12	60	M10	20	16	8	TX-50
20249410	12	65	M10	20	16	8	TX-50
20235284	12	70	M10	20	16	8	TX-50
20249427	12	75	M10	20	16	8	TX-50
20249434	12	80	M10	20	16	8	TX-50
20249441	12	90	M10	20	16	8	TX-50
20249458	12	100	M10	20	16	8	TX-50
20249465	16	25	M12	24	18	11	TX-60
20249472	16	30	M12	24	18	11	TX-60
20249489	16	35	M12	24	18	11	TX-60
20249496	16	40	M12	24	18	11	TX-60
20249502	16	45	M12	24	18	11	TX-60
20249519	16	50	M12	24	18	11	TX-60
20249526	16	55	M12	24	18	11	TX-60
20249533	16	60	M12	24	18	11	TX-60
20249540	16	65	M12	24	18	11	TX-60
20249557	16	70	M12	24	18	11	TX-60
20249564	16	75	M12	24	18	11	TX-60
20249571	16	80	M12	24	18	11	TX-60
20249588	16	90	M12	24	18	11	TX-60
20249595	16	100	M12	24	18	11	TX-60
20249601	20	30	M16	30	22	14	TX-70
20249618	20	35	M16	30	22	14	TX-70
20249625	20	40	M16	30	22	14	TX-70
20249632	20	45	M16	30	22	14	TX-70
20249649	20	50	M16	30	22	14	TX-70
20249656	20	55	M16	30	22	14	TX-70
20249663	20	60	M16	30	22	14	TX-70
20249670	20	65	M16	30	22	14	TX-70
20249687	20	70	M16	30	22	14	TX-70
20249694	20	75	M16	30	22	14	TX-70
20249700	20	80	M16	30	22	14	TX-70
20249717	20	90	M16	30	22	14	TX-70
20249724	20	100	M16	30	22	14	TX-70



EP0090.A2



Material

Stainless steel (AISI 304, 1.4301), strength class 70.
Ultrasonically cleaned.

Technical Notes

To DIN 912 (with central vent), precision

cleaned. Range of coatings available: silver, gold, nickel and others. Other sizes available on request.

Tips

These products help eliminate virtual leaks from high vacuum (HV and UHV) systems,

thereby improving pump-down times. Trapped gases at the bottom of a tapped hole are able to escape via the central vent in the middle of the screw.

Order No.	l_1	d_1	d_2	d_3	h_1	A/F
20143312	4	M 2	3.8	0.7	2.0	1.5
20144395	5	M 2	3.8	0.7	2.0	1.5
20143329	6	M 2	3.8	0.7	2.0	1.5
20143336	8	M 2	3.8	0.7	2.0	1.5
20144401	10	M 2	3.8	0.7	2.0	1.5
20144418	12	M 2	3.8	0.7	2.0	1.5
20144425	16	M 2	3.8	0.7	2.0	1.5
20144432	4	M 2,5	4.5	0.9	2.5	2.0
20142940	5	M 2,5	4.5	0.9	2.5	2.0
20144449	6	M 2,5	4.5	0.9	2.5	2.0
20142957	8	M 2,5	4.5	0.9	2.5	2.0
20144456	10	M 2,5	4.5	0.9	2.5	2.0
20144463	12	M 2,5	4.5	0.9	2.5	2.0
20144470	16	M 2,5	4.5	0.9	2.5	2.0
20144487	20	M 2,5	4.5	0.9	2.5	2.0
20143350	5	M 3	5.5	1.0	3.0	3.0
20143091	6	M 3	5.5	1.0	3.0	3.0
20142926	8	M 3	5.5	1.0	3.0	3.0
20142933	10	M 3	5.5	1.0	3.0	3.0
20143367	12	M 3	5.5	1.0	3.0	3.0
20143107	16	M 3	5.5	1.0	3.0	3.0
20143374	5	M 4	7.0	1.0	4.0	3.0
20143381	6	M 4	7.0	1.0	4.0	3.0
20143138	8	M 4	7.0	1.0	4.0	3.0
20143121	10	M 4	7.0	1.0	4.0	3.0
20142964	12	M 4	7.0	1.0	4.0	3.0
20143398	16	M 4	7.0	1.0	4.0	3.0
20143145	20	M 4	7.0	1.0	4.0	3.0
20143404	25	M 4	7.0	1.0	4.0	3.0
20143411	30	M 4	7.0	1.0	4.0	3.0
20143299	35	M 4	7.0	1.0	4.0	3.0
20143428	6	M 5	8.5	1.3	5.0	4.0

Vented Screws - Cap Head

hex. drive - 304 stainless

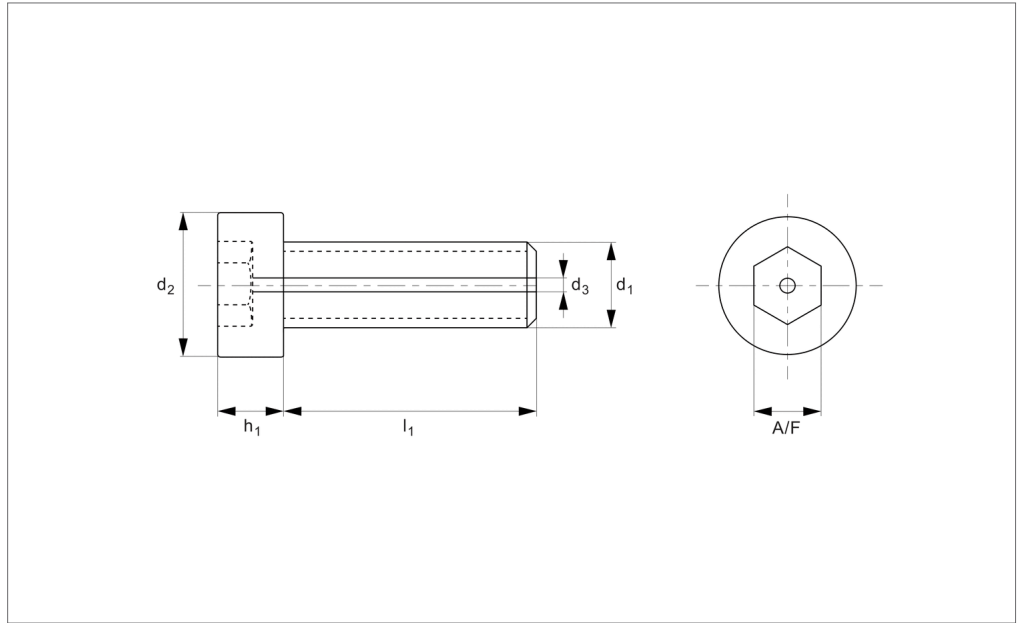
Vented Screws

Order No.	l ₁	d ₁	d ₂	d ₃	h ₁	A/F
20143206	8	M 5	8.5	1.3	5.0	4.0
20143343	10	M 5	8.5	1.3	5.0	4.0
20143008	12	M 5	8.5	1.3	5.0	4.0
20143015	16	M 5	8.5	1.3	5.0	4.0
20143022	20	M 5	8.5	1.3	5.0	4.0
20143435	25	M 5	8.5	1.3	5.0	4.0
20143442	30	M 5	8.5	1.3	5.0	4.0
20143459	35	M 5	8.5	1.3	5.0	4.0
20143466	40	M 5	8.5	1.3	5.0	4.0
20143473	8	M 6	10.0	1.6	6.0	5.0
20143480	10	M 6	10.0	1.6	6.0	5.0
20143039	12	M 6	10.0	1.6	6.0	5.0
20143497	16	M 6	10.0	1.6	6.0	5.0
20142988	20	M 6	10.0	1.6	6.0	5.0
20143053	25	M 6	10.0	1.6	6.0	5.0
20143060	30	M 6	10.0	1.6	6.0	5.0
20143169	35	M 6	10.0	1.6	6.0	5.0
20142995	40	M 6	10.0	1.6	6.0	5.0
20143503	45	M 6	10.0	1.6	6.0	5.0
20143510	50	M 6	10.0	1.6	6.0	5.0
20143527	12	M 8	13.0	1.8	8.0	6.0
20143534	16	M 8	13.0	1.8	8.0	6.0
20143541	20	M 8	13.0	1.8	8.0	6.0
20143046	25	M 8	13.0	1.8	8.0	6.0
20143077	30	M 8	13.0	1.8	8.0	6.0
20143305	35	M 8	13.0	1.8	8.0	6.0
20143558	40	M 8	13.0	1.8	8.0	6.0
20143565	45	M 8	13.0	1.8	8.0	6.0
20143572	50	M 8	13.0	1.8	8.0	6.0
20143589	60	M 8	13.0	1.8	8.0	6.0
20143596	16	M10	16.0	1.8	10.0	8.0
20143602	20	M10	16.0	1.8	10.0	8.0
20143619	25	M10	16.0	1.8	10.0	8.0
20143626	30	M10	16.0	1.8	10.0	8.0
20143084	35	M10	16.0	1.8	10.0	8.0
20143633	40	M10	16.0	1.8	10.0	8.0
20143640	45	M10	16.0	1.8	10.0	8.0
20143657	50	M10	16.0	1.8	10.0	8.0
20143664	60	M10	16.0	1.8	10.0	8.0
20145583	20	M12	18.0	1.8	12.0	10.0
20145590	25	M12	18.0	1.8	12.0	10.0
20143671	30	M12	18.0	1.8	12.0	10.0
20143688	35	M12	18.0	1.8	12.0	10.0
20143695	40	M12	18.0	1.8	12.0	10.0
20143701	45	M12	18.0	1.8	12.0	10.0
20143718	50	M12	18.0	1.8	12.0	10.0
20143725	60	M12	18.0	1.8	12.0	10.0
20143732	25	M16	24.0	1.8	16.0	14.0
20143749	30	M16	24.0	1.8	16.0	14.0
20143756	35	M16	24.0	1.8	16.0	14.0
20143763	40	M16	24.0	1.8	16.0	14.0
20143770	45	M16	24.0	1.8	16.0	14.0
20143787	50	M16	24.0	1.8	16.0	14.0
20143794	60	M16	24.0	1.8	16.0	14.0

VENTED SCREWS



EP0090.A4



Material

Stainless steel (AISI 316, 1.4401), strength class 80.
Ultrasonically cleaned.

Technical Notes

To DIN 912 (with central vent). Range of

coatings available: silver, gold, nickel and others. Other sizes can be produced to technical drawings.

Tips

These products help eliminate virtual leaks from high vacuum (HV and UHV) systems,

thereby improving pump-down times. Trapped gases at the bottom of a tapped hole are able to escape via the central vent down the middle of the screw.

Order No.	l_1	d_1	d_2	d_3	h_1	A/F
20244378	4	M 2	3.8	0.7	2.0	1.5
20244385	5	M 2	3.8	0.7	2.0	1.5
20219857	6	M 2	3.8	0.7	2.0	1.5
20244392	8	M 2	3.8	0.7	2.0	1.5
20244408	10	M 2	3.8	0.7	2.0	1.5
20244415	12	M 2	3.8	0.7	2.0	1.5
20244422	16	M 2	3.8	0.7	2.0	1.5
20244439	4	M 2,5	4.5	0.9	2.5	2.0
20244446	5	M 2,5	4.5	0.9	2.5	2.0
20244453	6	M 2,5	4.5	0.9	2.5	2.0
20244460	8	M 2,5	4.5	0.9	2.5	2.0
20219864	10	M 2,5	4.5	0.9	2.5	2.0
20244477	12	M 2,5	4.5	0.9	2.5	2.0
20219871	16	M 2,5	4.5	0.9	2.5	2.0
20244484	20	M 2,5	4.5	0.9	2.5	2.0
20235987	5	M 3	5.5	1.0	3.0	3.0
20226657	6	M 3	5.5	1.0	3.0	3.0
20235994	8	M 3	5.5	1.0	3.0	3.0
20236007	10	M 3	5.5	1.0	3.0	3.0
20236014	12	M 3	5.5	1.0	3.0	3.0
20236021	16	M 3	5.5	1.0	3.0	3.0
20236038	5	M 4	7.0	1.0	4.0	3.0
20236045	6	M 4	7.0	1.0	4.0	3.0
20236052	8	M 4	7.0	1.0	4.0	3.0
20226879	10	M 4	7.0	1.0	4.0	3.0
20236069	12	M 4	7.0	1.0	4.0	3.0
20226886	16	M 4	7.0	1.0	4.0	3.0
20236076	20	M 4	7.0	1.0	4.0	3.0
20236083	25	M 4	7.0	1.0	4.0	3.0
20236090	30	M 4	7.0	1.0	4.0	3.0
20236106	35	M 4	7.0	1.0	4.0	3.0
20236113	6	M 5	8.5	1.3	5.0	4.0

Vented Screws - Cap Head

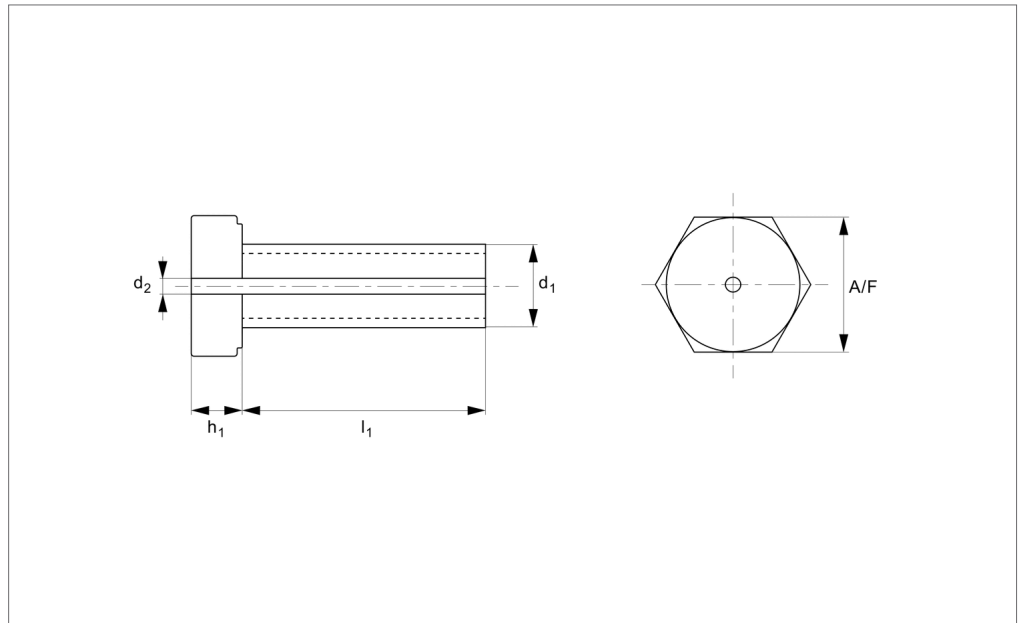
hex. drive - 316 stainless

Vented Screws

Order No.	l ₁	d ₁	d ₂	d ₃	h ₁	A/F
20236120	8	M 5	8.5	1.3	5.0	4.0
20226909	10	M 5	8.5	1.3	5.0	4.0
20226893	12	M 5	8.5	1.3	5.0	4.0
20236137	16	M 5	8.5	1.3	5.0	4.0
20229979	20	M 5	8.5	1.3	5.0	4.0
20236144	25	M 5	8.5	1.3	5.0	4.0
20236151	30	M 5	8.5	1.3	5.0	4.0
20236168	35	M 5	8.5	1.3	5.0	4.0
20236175	40	M 5	8.5	1.3	5.0	4.0
20236182	8	M 6	10.0	1.6	6.0	5.0
20236199	10	M 6	10.0	1.6	6.0	5.0
20236205	12	M 6	10.0	1.6	6.0	5.0
20226954	16	M 6	10.0	1.6	6.0	5.0
20236212	20	M 6	10.0	1.6	6.0	5.0
20236229	25	M 6	10.0	1.6	6.0	5.0
20236236	30	M 6	10.0	1.6	6.0	5.0
20236243	35	M 6	10.0	1.6	6.0	5.0
20236250	40	M 6	10.0	1.6	6.0	5.0
20236267	45	M 6	10.0	1.6	6.0	5.0
20236274	50	M 6	10.0	1.6	6.0	5.0
20236281	12	M 8	13.0	1.8	8.0	6.0
20236298	16	M 8	13.0	1.8	8.0	6.0
20236304	20	M 8	13.0	1.8	8.0	6.0
20236311	25	M 8	13.0	1.8	8.0	6.0
20236328	30	M 8	13.0	1.8	8.0	6.0
20236335	35	M 8	13.0	1.8	8.0	6.0
20236342	40	M 8	13.0	1.8	8.0	6.0
20236359	45	M 8	13.0	1.8	8.0	6.0
20236366	50	M 8	13.0	1.8	8.0	6.0
20236373	60	M 8	13.0	1.8	8.0	6.0
20236380	16	M10	16.0	1.8	10.0	8.0
20236397	20	M10	16.0	1.8	10.0	8.0
20236403	25	M10	16.0	1.8	10.0	8.0
20236410	30	M10	16.0	1.8	10.0	8.0
20236427	35	M10	16.0	1.8	10.0	8.0
20236434	40	M10	16.0	1.8	10.0	8.0
20236441	45	M10	16.0	1.8	10.0	8.0
20236458	50	M10	16.0	1.8	10.0	8.0
20236465	60	M10	16.0	1.8	10.0	8.0
20236472	20	M12	18.0	1.8	12.0	10.0
20236489	25	M12	18.0	1.8	12.0	10.0
20236496	30	M12	18.0	1.8	12.0	10.0
20236502	35	M12	18.0	1.8	12.0	10.0
20236519	40	M12	18.0	1.8	12.0	10.0
20236526	45	M12	18.0	1.8	12.0	10.0
20236533	50	M12	18.0	1.8	12.0	10.0
20236540	60	M12	18.0	1.8	12.0	10.0
20226930	25	M16	24.0	1.8	16.0	14.0
20236557	30	M16	24.0	1.8	16.0	14.0
20236564	35	M16	24.0	1.8	16.0	14.0
20236571	40	M16	24.0	1.8	16.0	14.0
20226947	45	M16	24.0	1.8	16.0	14.0
20236588	50	M16	24.0	1.8	16.0	14.0
20236595	60	M16	24.0	1.8	16.0	14.0



EP0091.A2



Material

Stainless steel (AISI 304, 1.4301), strength class 70.
Ultrasonically cleaned.

Technical Notes

To DIN 933 (with central vent). Coatings

available: silver, gold, nickel and others.
Other sizes available on request.

Tips

These products help eliminate virtual leaks from high vacuum (HV and UHV) systems, thereby improving pump-down times.

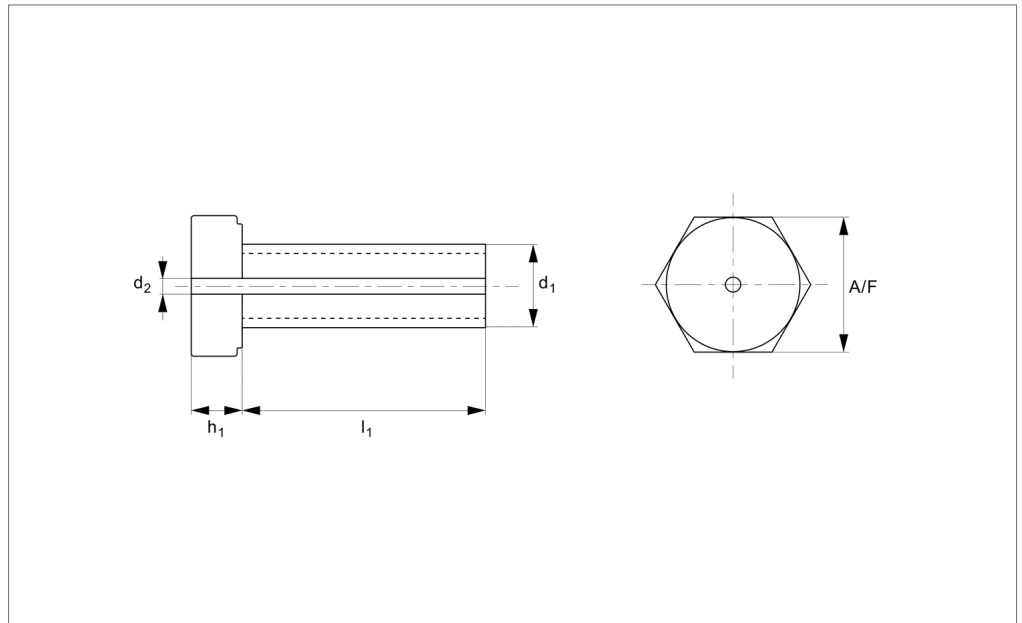
Trapped gases at the bottom of a tapped hole are able to escape via the central vent down the middle of the screw.

Order No.	l_1	d_1	d_2	h_1	A/F
20228446	5	M 3	1.0	2.0	6
20236601	6	M 3	1.0	2.0	6
20236618	8	M 3	1.0	2.0	6
20236625	10	M 3	1.0	2.0	6
20236632	12	M 3	1.0	2.0	6
20236649	16	M 3	1.0	2.0	6
20236656	5	M 4	1.0	2.8	7
20228927	6	M 4	1.0	2.8	7
20236663	8	M 4	1.0	2.8	7
20227234	10	M 4	1.0	2.8	7
20227241	12	M 4	1.0	2.8	7
20227258	16	M 4	1.0	2.8	7
20227265	20	M 4	1.0	2.8	7
20227272	25	M 4	1.0	2.8	7
20227289	30	M 4	1.0	2.8	7
20227296	35	M 4	1.0	2.8	7
20236670	6	M 5	1.3	3.5	8
20236687	8	M 5	1.3	3.5	8
20227302	10	M 5	1.3	3.5	8
20227319	12	M 5	1.3	3.5	8
20227203	16	M 5	1.3	3.5	8
20227326	20	M 5	1.3	3.5	8
20227333	25	M 5	1.3	3.5	8
20236694	30	M 5	1.3	3.5	8
20236700	35	M 5	1.3	3.5	8
20236717	40	M 5	1.3	3.5	8
20236724	8	M 6	1.6	4.0	10
20236731	10	M 6	1.6	4.0	10
20236748	12	M 6	1.6	4.0	10
20226961	16	M 6	1.6	4.0	10
20227340	20	M 6	1.6	4.0	10
20227357	25	M 6	1.6	4.0	10

Order No.	l ₁	d ₁	d ₂	h ₁	A/F
20236755	30	M 6	1.6	4.0	10
20236762	35	M 6	1.6	4.0	10
20236779	40	M 6	1.6	4.0	10
20236786	45	M 6	1.6	4.0	10
20236793	50	M 6	1.6	4.0	10
20236809	12	M 8	1.8	5.3	13
20227005	16	M 8	1.8	5.3	13
20227364	20	M 8	1.8	5.3	13
20227371	25	M 8	1.8	5.3	13
20227388	30	M 8	1.8	5.3	13
20236816	35	M 8	1.8	5.3	13
20236823	40	M 8	1.8	5.3	13
20236830	45	M 8	1.8	5.3	13
20236847	50	M 8	1.8	5.3	13
20236854	55	M 8	1.8	5.3	13
20236861	16	M10	1.8	6.4	17
20230029	20	M10	1.8	6.4	17
20236878	25	M10	1.8	6.4	17
20236885	30	M10	1.8	6.4	17
20229993	35	M10	1.8	6.4	17
20236892	40	M10	1.8	6.4	17
20236908	45	M10	1.8	6.4	17
20236915	50	M10	1.8	6.4	17
20236922	55	M10	1.8	6.4	17
20236939	60	M10	1.8	6.4	17
20236946	20	M12	1.8	7.5	19
20228217	25	M12	1.8	7.5	19
20229030	30	M12	1.8	7.5	19
20236953	35	M12	1.8	7.5	19
20236960	40	M12	1.8	7.5	19
20236977	45	M12	1.8	7.5	19
20236984	50	M12	1.8	7.5	19
20236991	60	M12	1.8	7.5	19
20237004	25	M16	1.8	10.0	24
20237011	30	M16	1.8	10.0	24
20237028	35	M16	1.8	10.0	24
20237035	40	M16	1.8	10.0	24
20237042	45	M16	1.8	10.0	24
20237059	50	M16	1.8	10.0	24
20237066	60	M16	1.8	10.0	24



EP0091.A4



Material

Stainless steel (AISI 316, 1.4401), strength class 80. Ultrasonically cleaned.

available: silver, gold, nickel and others. Other sizes available on request.

Trapped gases at the bottom of a tapped hole are able to escape via the central vent down the middle of the screw.

Tips

These products help eliminate virtual leaks from high vacuum (HV and UHV) systems, thereby improving pump-down times.

Technical Notes

To DIN 933 (with central vent). Coatings

Order No.	l_1	d_1	d_2	h_1	A/F
20237073	5	M 3	1.0	2.0	5
20237080	6	M 3	1.0	2.0	5
20237097	8	M 3	1.0	2.0	5
20237103	10	M 3	1.0	2.0	5
20237110	12	M 3	1.0	2.0	5
20237127	16	M 3	1.0	2.0	5
20237134	5	M 4	1.0	2.8	7
20237141	6	M 4	1.0	2.8	7
20237158	8	M 4	1.0	2.8	7
20237165	10	M 4	1.0	2.8	7
20237172	12	M 4	1.0	2.8	7
20237189	16	M 4	1.0	2.8	7
20237196	20	M 4	1.0	2.8	7
20237202	25	M 4	1.0	2.8	7
20237219	30	M 4	1.0	2.8	7
20237226	35	M 4	1.0	2.8	7
20237233	6	M 5	1.3	3.5	8
20237240	8	M 5	1.3	3.5	8
20237257	10	M 5	1.3	3.5	8
20237264	12	M 5	1.3	3.5	8
20237271	16	M 5	1.3	3.5	8
20237288	20	M 5	1.3	3.5	8
20237295	25	M 5	1.3	3.5	8
20237301	30	M 5	1.3	3.5	8
20237318	35	M 5	1.3	3.5	8
20237325	40	M 5	1.3	3.5	8
20237332	8	M 6	1.6	4.0	10
20237349	10	M 6	1.6	4.0	10
20237356	12	M 6	1.6	4.0	10
20237363	16	M 6	1.6	4.0	10
20237370	20	M 6	1.6	4.0	10
20237387	25	M 6	1.6	4.0	10

Vented Screws - Hex. Head

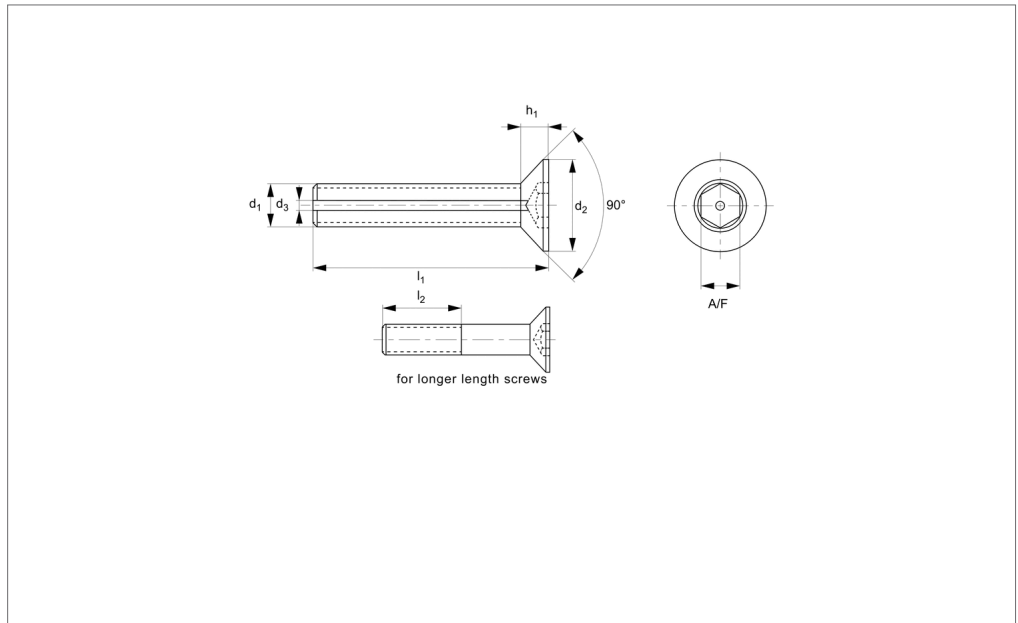
316 stainless

Vented Screws

Order No.	l ₁	d ₁	d ₂	h ₁	A/F
20237394	30	M 6	1.6	4.0	10
20237400	35	M 6	1.6	4.0	10
20237417	40	M 6	1.6	4.0	10
20237424	45	M 6	1.6	4.0	10
20237431	50	M 6	1.6	4.0	10
20237448	12	M 8	1.8	5.3	13
20237455	16	M 8	1.8	5.3	13
20237462	20	M 8	1.8	5.3	13
20226855	25	M 8	1.8	5.3	13
20237479	30	M 8	1.8	5.3	13
20237486	35	M 8	1.8	5.3	13
20237493	40	M 8	1.8	5.3	13
20237509	45	M 8	1.8	5.3	13
20237516	50	M 8	1.8	5.3	13
20237523	55	M 8	1.8	5.3	13
20237530	16	M10	1.8	6.4	17
20237547	20	M10	1.8	6.4	17
20237554	25	M10	1.8	6.4	17
20237561	30	M10	1.8	6.4	17
20237578	35	M10	1.8	6.4	17
20237585	40	M10	1.8	6.4	17
20237592	45	M10	1.8	6.4	17
20237608	50	M10	1.8	6.4	17
20237615	55	M10	1.8	6.4	17
20237622	60	M10	1.8	6.4	17
20237639	20	M12	1.8	7.5	19
20237646	25	M12	1.8	7.5	19
20237653	30	M12	1.8	7.5	19
20237660	35	M12	1.8	7.5	19
20237677	40	M12	1.8	7.5	19
20237684	45	M12	1.8	7.5	19
20237691	50	M12	1.8	7.5	19
20237707	60	M12	1.8	7.5	19
20237714	25	M16	1.8	10.0	24
20237721	30	M16	1.8	10.0	24
20237738	35	M16	1.8	10.0	24
20237745	40	M16	1.8	10.0	24
20237752	45	M16	1.8	10.0	24
20237769	50	M16	1.8	10.0	24
20237776	60	M16	1.8	10.0	24



EP0093.A2



Material

Stainless steel (AISI 304, 1.4301), strength class 70.

Technical Notes

Coatings available: silver, gold, nickel and

others. Other sizes available on request.

Tips

These products help eliminate virtual leaks from high vacuum (HV and UHV) systems, thereby improving pump-down times.

Trapped gases at the bottom of a tapped hole are able to escape via the central vent down the middle of the screw.

Order No.	l_1	d_1	d_2	d_3	h_1	l_2	A/F
20235970	4	M 2	3.8	0.8	1.3	-	1.3
20244491	5	M 2	3.8	0.8	1.3	-	1.3
20244507	6	M 2	3.8	0.8	1.3	-	1.3
20244514	8	M 2	3.8	0.8	1.3	-	1.3
20244521	10	M 2	3.8	0.8	1.3	-	1.3
20244538	12	M 2	3.8	0.8	1.3	-	1.3
20244545	4	M2,5	4.8	0.9	1.9	-	1.5
20244552	5	M2,5	4.8	0.9	1.9	-	1.5
20244569	6	M2,5	4.8	0.9	1.9	-	1.5
20244576	8	M2,5	4.8	0.9	1.9	-	1.5
20244583	10	M2,5	4.8	0.9	1.9	-	1.5
20244590	12	M2,5	4.8	0.9	1.9	-	1.5
20237783	5	M 3	6.0	1.0	1.7	-	2.0
20237790	6	M 3	6.0	1.0	1.7	-	2.0
20237806	8	M 3	6.0	1.0	1.7	-	2.0
20237813	10	M 3	6.0	1.0	1.7	-	2.0
20237820	12	M 3	6.0	1.0	1.7	-	2.0
20237837	16	M 3	6.0	1.0	1.7	12	2.0
20237844	5	M 4	8.0	1.0	2.3	-	2.5
20237851	6	M 4	8.0	1.0	2.3	-	2.5
20237868	8	M 4	8.0	1.0	2.3	-	2.5
20237875	10	M 4	8.0	1.0	2.3	-	2.5
20237882	12	M 4	8.0	1.0	2.3	-	2.5
20237899	16	M 4	8.0	1.0	2.3	14	2.5
20237905	20	M 4	8.0	1.0	2.3	14	2.5
20237912	25	M 4	8.0	1.0	2.3	14	2.5
20237929	30	M 4	8.0	1.0	2.3	14	2.5
20237936	35	M 4	8.0	1.0	2.3	14	2.5
20237943	6	M 5	10.0	1.3	2.8	-	3.0
20237950	8	M 5	10.0	1.3	2.8	-	3.0
20237967	10	M 5	10.0	1.3	2.8	-	3.0
20237974	12	M 5	10.0	1.3	2.8	-	3.0
20237981	16	M 5	10.0	1.3	2.8	-	3.0

Vented Countersunk Machine Screws

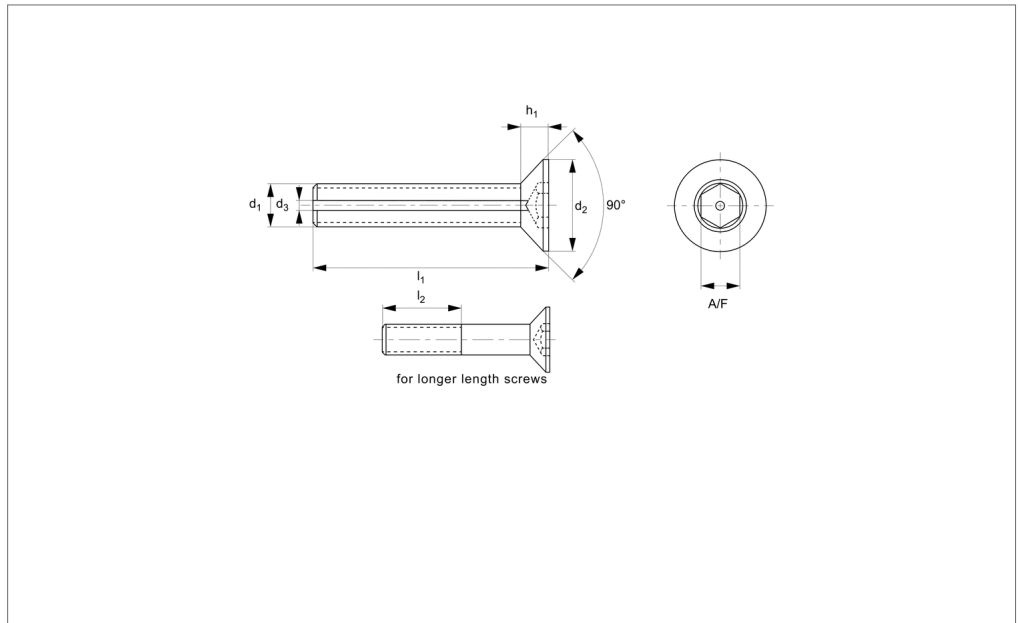
hex. drive - 304 stainless

Vented Screws

Order No.	l ₁	d ₁	d ₂	d ₃	h ₁	l ₂	A/F
20237998	20	M 5	10.0	1.3	2.8	16	3.0
20238001	25	M 5	10.0	1.3	2.8	16	3.0
20238018	30	M 5	10.0	1.3	2.8	16	3.0
20238025	35	M 5	10.0	1.3	2.8	16	3.0
20238032	40	M 5	10.0	1.3	2.8	16	3.0
20238049	8	M 6	12.0	1.6	3.3	-	4.0
20238056	10	M 6	12.0	1.6	3.3	-	4.0
20238063	12	M 6	12.0	1.6	3.3	-	4.0
20238070	16	M 6	12.0	1.6	3.3	-	4.0
20238087	20	M 6	12.0	1.6	3.3	18	4.0
20238094	25	M 6	12.0	1.6	3.3	18	4.0
20238100	30	M 6	12.0	1.6	3.3	18	4.0
20238117	35	M 6	12.0	1.6	3.3	18	4.0
20238124	40	M 6	12.0	1.6	3.3	18	4.0
20238131	45	M 6	12.0	1.6	3.3	18	4.0
20238148	50	M 6	12.0	1.6	3.3	18	4.0
20238155	12	M 8	16.0	1.8	4.4	-	5.0
20238162	16	M 8	16.0	1.8	4.4	-	5.0
20238179	20	M 8	16.0	1.8	4.4	-	5.0
20238186	25	M 8	16.0	1.8	4.4	22	5.0
20238193	30	M 8	16.0	1.8	4.4	22	5.0
20238209	35	M 8	16.0	1.8	4.4	22	5.0
20238216	40	M 8	16.0	1.8	4.4	22	5.0
20238223	45	M 8	16.0	1.8	4.4	22	5.0
20238230	50	M 8	16.0	1.8	4.4	22	5.0
20238247	55	M 8	16.0	1.8	4.4	22	5.0
20238254	16	M10	20.0	1.8	5.5	-	6.0
20238261	20	M10	20.0	1.8	5.5	-	6.0
20238278	25	M10	20.0	1.8	5.5	-	6.0
20238285	30	M10	20.0	1.8	5.5	26	6.0
20238292	35	M10	20.0	1.8	5.5	26	6.0
20238308	40	M10	20.0	1.8	5.5	26	6.0
20238315	45	M10	20.0	1.8	5.5	26	6.0
20238322	50	M10	20.0	1.8	5.5	26	6.0
20238339	55	M10	20.0	1.8	5.5	26	6.0
20238346	60	M10	20.0	1.8	5.5	26	6.0
20238353	20	M12	24.0	1.8	6.5	-	8.0
20238360	25	M12	24.0	1.8	6.5	-	8.0
20238377	30	M12	24.0	1.8	6.5	-	8.0
20238384	35	M12	24.0	1.8	6.5	30	8.0
20238391	40	M12	24.0	1.8	6.5	30	8.0
20238407	45	M12	24.0	1.8	6.5	30	8.0
20238414	50	M12	24.0	1.8	6.5	30	8.0
20238421	60	M12	24.0	1.8	6.5	30	8.0
20238438	25	M16	30.0	1.8	7.5	-	10.0
20238445	30	M16	30.0	1.8	7.5	-	10.0
20238452	35	M16	30.0	1.8	7.5	-	10.0
20238469	40	M16	30.0	1.8	7.5	38	10.0
20238476	45	M16	30.0	1.8	7.5	38	10.0
20238483	50	M16	30.0	1.8	7.5	38	10.0
20238490	60	M16	30.0	1.8	7.5	38	10.0



EP0093.A4



Material

Stainless steel (AISI 316, 1.4401), strength class 50.

Technical Notes

Passivation and/or ultrasonic cleaning

available on request. Coatings available: silver, gold, nickel and others. Other sizes can be produced to technical drawings.

Tips

These products help eliminate virtual leaks

from high vacuum (HV and UHV) systems, thereby improving pump-down times. Trapped gases at the bottom of a tapped hole are able to escape via the central vent down the middle of the screw.

Order No.	l_1	d_1	d_2	d_3	h_1	l_2	A/F
20244606	4	M 2	3.8	0.8	1.3	-	1.3
20244613	5	M 2	3.8	0.8	1.3	-	1.3
20244620	6	M 2	3.8	0.8	1.3	-	1.3
20244637	8	M 2	3.8	0.8	1.3	-	1.3
20244644	10	M 2	3.8	0.8	1.3	-	1.3
20219888	12	M 2	3.8	0.8	1.3	-	1.3
20244651	4	M2,5	4.8	0.9	1.9	-	1.5
20244668	5	M2,5	4.8	0.9	1.9	-	1.5
20244675	6	M2,5	4.8	0.9	1.9	-	1.5
20244682	8	M2,5	4.8	0.9	1.9	-	1.5
20244699	10	M2,5	4.8	0.9	1.9	-	1.5
20244705	12	M2,5	4.8	0.9	1.9	-	1.5
20238506	5	M 3	6.0	1.0	1.7	-	2.0
20238513	6	M 3	6.0	1.0	1.7	-	2.0
20238520	8	M 3	6.0	1.0	1.7	-	2.0
20238537	10	M 3	6.0	1.0	1.7	-	2.0
20238544	12	M 3	6.0	1.0	1.7	-	2.0
20238551	16	M 3	6.0	1.0	1.7	12	2.0
20238568	5	M 4	8.0	1.0	2.3	-	2.5
20238575	6	M 4	8.0	1.0	2.3	-	2.5
20238582	8	M 4	8.0	1.0	2.3	-	2.5
20238599	10	M 4	8.0	1.0	2.3	-	2.5
20238605	12	M 4	8.0	1.0	2.3	-	2.5
20238612	16	M 4	8.0	1.0	2.3	14	2.5
20238629	20	M 4	8.0	1.0	2.3	14	2.5
20238636	25	M 4	8.0	1.0	2.3	14	2.5
20238643	30	M 4	8.0	1.0	2.3	14	2.5
20238650	35	M 4	8.0	1.0	2.3	14	2.5
20238667	6	M 5	10.0	1.3	2.8	-	3.0
20238674	8	M 5	10.0	1.3	2.8	-	3.0
20238681	10	M 5	10.0	1.3	2.8	-	3.0
20238698	12	M 5	10.0	1.3	2.8	-	3.0
20238704	16	M 5	10.0	1.3	2.8	-	3.0

Vented Countersunk Machine Screws

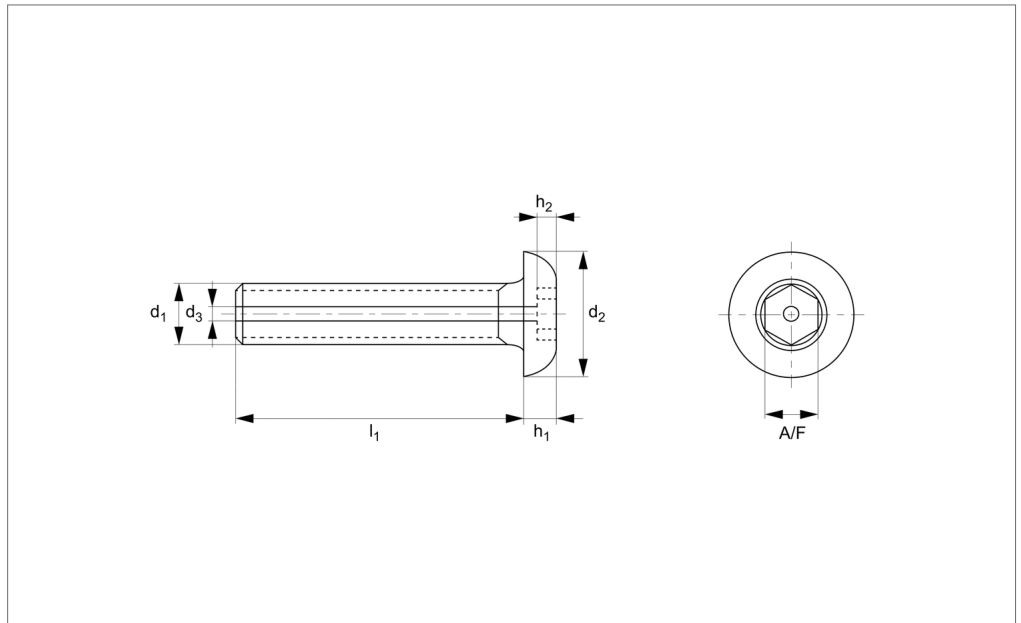
hex. drive - 316 stainless

Vented Screws

Order No.	l ₁	d ₁	d ₂	d ₃	h ₁	l ₂	A/F
20238711	20	M 5	10.0	1.3	2.8	16	3.0
20238728	25	M 5	10.0	1.3	2.8	16	3.0
20238735	30	M 5	10.0	1.3	2.8	16	3.0
20238742	35	M 5	10.0	1.3	2.8	16	3.0
20238759	40	M 5	10.0	1.3	2.8	16	3.0
20238766	8	M 6	12.0	1.6	3.3	-	4.0
20238773	10	M 6	12.0	1.6	3.3	-	4.0
20238780	12	M 6	12.0	1.6	3.3	-	4.0
20238797	16	M 6	12.0	1.6	3.3	-	4.0
20238803	20	M 6	12.0	1.6	3.3	18	4.0
20238810	25	M 6	12.0	1.6	3.3	18	4.0
20238827	30	M 6	12.0	1.6	3.3	18	4.0
20238834	35	M 6	12.0	1.6	3.3	18	4.0
20238841	40	M 6	12.0	1.6	3.3	18	4.0
20238858	45	M 6	12.0	1.6	3.3	18	4.0
20238865	50	M 6	12.0	1.6	3.3	18	4.0
20238872	12	M 8	16.0	1.8	4.4	-	5.0
20238889	16	M 8	16.0	1.8	4.4	-	5.0
20238896	20	M 8	16.0	1.8	4.4	-	5.0
20238902	25	M 8	16.0	1.8	4.4	22	5.0
20238919	30	M 8	16.0	1.8	4.4	22	5.0
20238926	35	M 8	16.0	1.8	4.4	22	5.0
20238933	40	M 8	16.0	1.8	4.4	22	5.0
20238940	45	M 8	16.0	1.8	4.4	22	5.0
20238957	50	M 8	16.0	1.8	4.4	22	5.0
20238964	55	M 8	16.0	1.8	4.4	22	5.0
20238971	16	M10	20.0	1.8	5.5	-	6.0
20238988	20	M10	20.0	1.8	5.5	-	6.0
20238995	25	M10	20.0	1.8	5.5	-	6.0
20239008	30	M10	20.0	1.8	5.5	26	6.0
20239015	35	M10	20.0	1.8	5.5	26	6.0
20239022	40	M10	20.0	1.8	5.5	26	6.0
20239039	45	M10	20.0	1.8	5.5	26	6.0
20239046	50	M10	20.0	1.8	5.5	26	6.0
20239053	55	M10	20.0	1.8	5.5	26	6.0
20239060	60	M10	20.0	1.8	5.5	26	6.0
20239077	20	M12	24.0	1.8	6.5	-	8.0
20239084	25	M12	24.0	1.8	6.5	-	8.0
20239091	30	M12	24.0	1.8	6.5	-	8.0
20239107	35	M12	24.0	1.8	6.5	30	8.0
20239114	40	M12	24.0	1.8	6.5	30	8.0
20239121	45	M12	24.0	1.8	6.5	30	8.0
20239138	50	M12	24.0	1.8	6.5	30	8.0
20239145	60	M12	24.0	1.8	6.5	30	8.0
20239152	25	M16	30.0	1.8	7.5	-	10.0
20239169	30	M16	30.0	1.8	7.5	-	10.0
20239176	35	M16	30.0	1.8	7.5	-	10.0
20239183	40	M16	30.0	1.8	7.5	38	10.0
20239190	45	M16	30.0	1.8	7.5	38	10.0
20239206	50	M16	30.0	1.8	7.5	38	10.0
20239213	60	M16	30.0	1.8	7.5	38	10.0



EP0094.A2



Material

Stainless steel (AISI 304, 1.4301), strength class 50.
Ultrasonically cleaned.

available: silver, gold, nickel and others.
Other sizes available on request.

Trapped gases at the bottom of a tapped hole are able to escape via the central vent down the middle of the screw.

Tips

These products help eliminate virtual leaks from high vacuum (HV and UHV) systems, thereby improving pump-down times.

Technical Notes

To ISO 7380 (with central vent). Coatings

Order No.	l_1	d_1	d_2	d_3	h_1	h_2	A/F
20227395	5	M 3	5.7	1.0	1.7	1.0	2
20227401	6	M 3	5.7	1.0	1.7	1.0	2
20222451	8	M 3	5.7	1.0	1.7	1.0	2
20227418	10	M 3	5.7	1.0	1.7	1.0	2
20227425	12	M 3	5.7	1.0	1.7	1.0	2
20230166	16	M 3	5.7	1.0	1.7	1.0	2
20239220	5	M 4	7.6	1.0	2.2	1.3	3
20227432	6	M 4	7.6	1.0	2.2	1.3	3
20227449	8	M 4	7.6	1.0	2.2	1.3	3
20227456	10	M 4	7.6	1.0	2.2	1.3	3
20227463	12	M 4	7.6	1.0	2.2	1.3	3
20227470	16	M 4	7.6	1.0	2.2	1.3	3
20239237	20	M 4	7.6	1.0	2.2	1.3	3
20239244	25	M 4	7.6	1.0	2.2	1.3	3
20239251	30	M 4	7.6	1.0	2.2	1.3	3
20239268	35	M 4	7.6	1.0	2.2	1.3	3
20227487	6	M 5	9.5	1.3	2.8	1.6	3
20227494	8	M 5	9.5	1.3	2.8	1.6	3
20227500	10	M 5	9.5	1.3	2.8	1.6	3
20227517	12	M 5	9.5	1.3	2.8	1.6	3
20227524	16	M 5	9.5	1.3	2.8	1.6	3
20227531	20	M 5	9.5	1.3	2.8	1.6	3
20227548	25	M 5	9.5	1.3	2.8	1.6	3
20239275	30	M 5	9.5	1.3	2.8	1.6	3
20239282	35	M 5	9.5	1.3	2.8	1.6	3
20239299	40	M 5	9.5	1.3	2.8	1.6	3
20227555	8	M 6	10.5	1.6	3.3	2.1	4
20227562	10	M 6	10.5	1.6	3.3	2.1	4
20227579	12	M 6	10.5	1.6	3.3	2.1	4
20227586	16	M 6	10.5	1.6	3.3	2.1	4
20227593	20	M 6	10.5	1.6	3.3	2.1	4
20227609	25	M 6	10.5	1.6	3.3	2.1	4

Vented Screws - Socket Button Head

hex. drive - 304 stainless

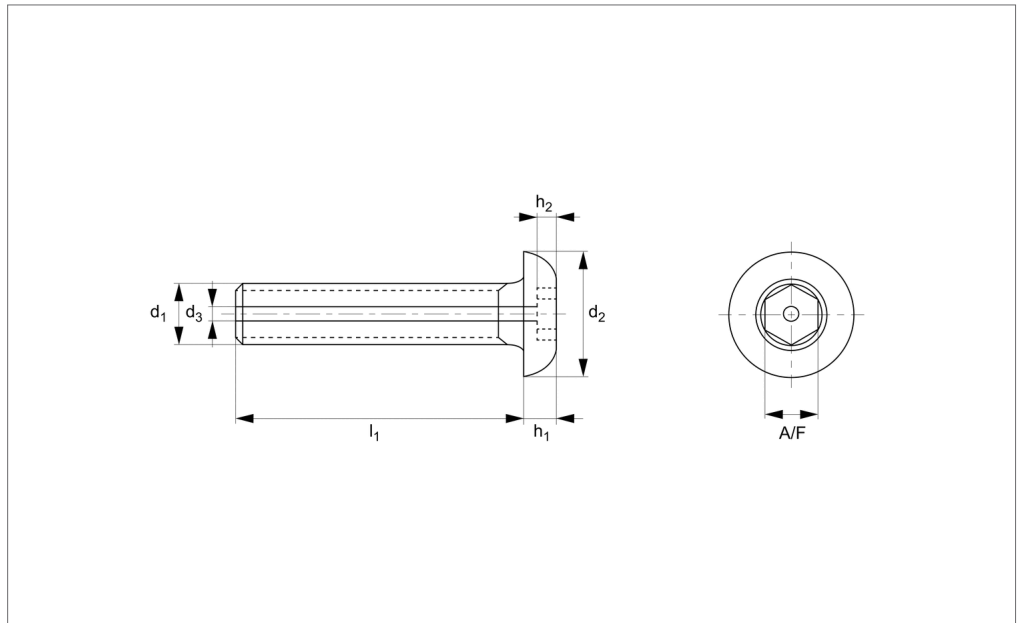
Vented Screws

Order No.	l ₁	d ₁	d ₂	d ₃	h ₁	h ₂	A/F
20239305	30	M 6	10.5	1.6	3.3	2.1	4
20239312	35	M 6	10.5	1.6	3.3	2.1	4
20239329	40	M 6	10.5	1.6	3.3	2.1	4
20239336	45	M 6	10.5	1.6	3.3	2.1	4
20239343	50	M 6	10.5	1.6	3.3	2.1	4
20239350	12	M 8	14.0	1.8	4.4	2.6	5
20229016	16	M 8	14.0	1.8	4.4	2.6	5
20239367	20	M 8	14.0	1.8	4.4	2.6	5
20239374	25	M 8	14.0	1.8	4.4	2.6	5
20239381	30	M 8	14.0	1.8	4.4	2.6	5
20239398	35	M 8	14.0	1.8	4.4	2.6	5
20239404	40	M 8	14.0	1.8	4.4	2.6	5
20239411	45	M 8	14.0	1.8	4.4	2.6	5
20239428	50	M 8	14.0	1.8	4.4	2.6	5
20239435	60	M 8	14.0	1.8	4.4	2.6	5
20239442	16	M10	17.5	1.8	5.5	3.1	6
20239459	20	M10	17.5	1.8	5.5	3.1	6
20239466	25	M10	17.5	1.8	5.5	3.1	6
20239473	30	M10	17.5	1.8	5.5	3.1	6
20239480	35	M10	17.5	1.8	5.5	3.1	6
20239497	40	M10	17.5	1.8	5.5	3.1	6
20239503	45	M10	17.5	1.8	5.5	3.1	6
20239510	50	M10	17.5	1.8	5.5	3.1	6
20239527	60	M10	17.5	1.8	5.5	3.1	6
20239534	20	M12	21.0	1.8	6.6	4.2	8
20239541	25	M12	21.0	1.8	6.6	4.2	8
20239558	30	M12	21.0	1.8	6.6	4.2	8
20239565	35	M12	21.0	1.8	6.6	4.2	8
20239572	40	M12	21.0	1.8	6.6	4.2	8
20239589	45	M12	21.0	1.8	6.6	4.2	8
20239596	50	M12	21.0	1.8	6.6	4.2	8
20239602	60	M12	21.0	1.8	6.6	4.2	8

VENTED SCREWS



EP0094.A4



Material

Stainless steel (AISI 316, 1.4401), strength class 50.
Ultrasonically cleaned.

available: silver, gold, nickel and others.
Other sizes available on request.

Trapped gases at the bottom of a tapped hole are able to escape via the central vent down the middle of the screw.

Tips

These products help eliminate virtual leaks from high vacuum (HV and UHV) systems, thereby improving pump-down times.

Technical Notes

To ISO 7380 (with central vent). Coatings

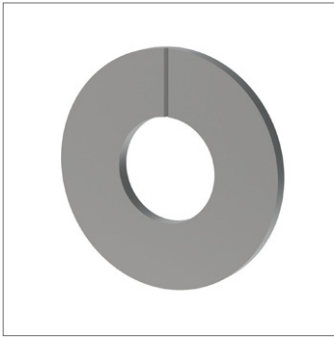
Order No.	l_1	d_1	d_2	d_3	h_1	h_2	A/F
20239619	5	M 3	5.7	1.0	1.7	1.0	2
20239626	6	M 3	5.7	1.0	1.7	1.0	2
20239633	8	M 3	5.7	1.0	1.7	1.0	2
20239640	10	M 3	5.7	1.0	1.7	1.0	2
20239657	12	M 3	5.7	1.0	1.7	1.0	2
20239664	16	M 3	5.7	1.0	1.7	1.0	2
20239671	5	M 4	7.6	1.0	2.2	1.3	3
20239688	6	M 4	7.6	1.0	2.2	1.3	3
20239695	8	M 4	7.6	1.0	2.2	1.3	3
20239701	10	M 4	7.6	1.0	2.2	1.3	3
20239718	12	M 4	7.6	1.0	2.2	1.3	3
20239725	16	M 4	7.6	1.0	2.2	1.3	3
20239732	20	M 4	7.6	1.0	2.2	1.3	3
20239749	25	M 4	7.6	1.0	2.2	1.3	3
20239756	30	M 4	7.6	1.0	2.2	1.3	3
20239763	35	M 4	7.6	1.0	2.2	1.3	3
20239770	6	M 5	9.5	1.3	2.8	1.6	3
20239787	8	M 5	9.5	1.3	2.8	1.6	3
20239794	10	M 5	9.5	1.3	2.8	1.6	3
20239800	12	M 5	9.5	1.3	2.8	1.6	3
20239817	16	M 5	9.5	1.3	2.8	1.6	3
20239824	20	M 5	9.5	1.3	2.8	1.6	3
20239831	25	M 5	9.5	1.3	2.8	1.6	3
20239848	30	M 5	9.5	1.3	2.8	1.6	3
20239855	35	M 5	9.5	1.3	2.8	1.6	3
20239862	40	M 5	9.5	1.3	2.8	1.6	3
20239879	8	M 6	10.5	1.6	3.3	2.1	4
20239886	10	M 6	10.5	1.6	3.3	2.1	4
20239893	12	M 6	10.5	1.6	3.3	2.1	4
20239909	16	M 6	10.5	1.6	3.3	2.1	4
20239916	20	M 6	10.5	1.6	3.3	2.1	4
20239923	25	M 6	10.5	1.6	3.3	2.1	4

Vented Screws - Socket Button Head

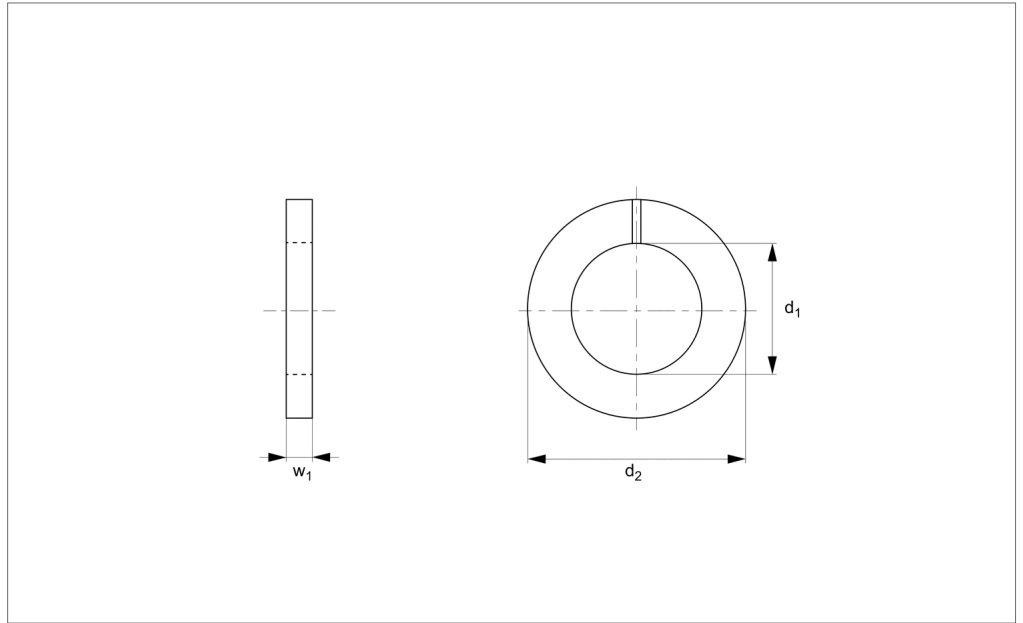
hex. drive - 316 stainless

Vented Screws

Order No.	l ₁	d ₁	d ₂	d ₃	h ₁	h ₂	A/F
20239930	30	M 6	10.5	1.6	3.3	2.1	4
20239947	35	M 6	10.5	1.6	3.3	2.1	4
20239954	40	M 6	10.5	1.6	3.3	2.1	4
20239961	45	M 6	10.5	1.6	3.3	2.1	4
20239978	50	M 6	10.5	1.6	3.3	2.1	4
20239985	12	M 8	14.0	1.8	4.4	2.6	5
20239992	16	M 8	14.0	1.8	4.4	2.6	5
20240004	20	M 8	14.0	1.8	4.4	2.6	5
20240011	25	M 8	14.0	1.8	4.4	2.6	5
20240028	30	M 8	14.0	1.8	4.4	2.6	5
20240035	35	M 8	14.0	1.8	4.4	2.6	5
20240042	40	M 8	14.0	1.8	4.4	2.6	5
20240059	45	M 8	14.0	1.8	4.4	2.6	5
20240066	50	M 8	14.0	1.8	4.4	2.6	5
20240073	60	M 8	14.0	1.8	4.4	2.6	5
20240080	16	M10	17.5	1.8	5.5	3.1	6
20240097	20	M10	17.5	1.8	5.5	3.1	6
20240103	25	M10	17.5	1.8	5.5	3.1	6
20240110	30	M10	17.5	1.8	5.5	3.1	6
20240127	35	M10	17.5	1.8	5.5	3.1	6
20240134	40	M10	17.5	1.8	5.5	3.1	6
20240141	45	M10	17.5	1.8	5.5	3.1	6
20240158	50	M10	17.5	1.8	5.5	3.1	6
20240165	60	M10	17.5	1.8	5.5	3.1	6
20240172	20	M12	21.0	1.8	6.6	4.2	8
20240189	25	M12	21.0	1.8	6.6	4.2	8
20240196	30	M12	21.0	1.8	6.6	4.2	8
20240202	35	M12	21.0	1.8	6.6	4.2	8
20240219	40	M12	21.0	1.8	6.6	4.2	8
20240226	45	M12	21.0	1.8	6.6	4.2	8
20240233	50	M12	21.0	1.8	6.6	4.2	8
20240240	60	M12	21.0	1.8	6.6	4.2	8



EP0097.A2



Material

Stainless steel (AISI 303, 1.4305).
Ultrasonically cleaned.

Technical Notes

To DIN 125A (with vent). Coatings

available: silver, gold, nickel and others.

Tips

Vented flat washers are key components in helping to eliminate virtual leaks from high vacuum (HV and UHV) systems. They

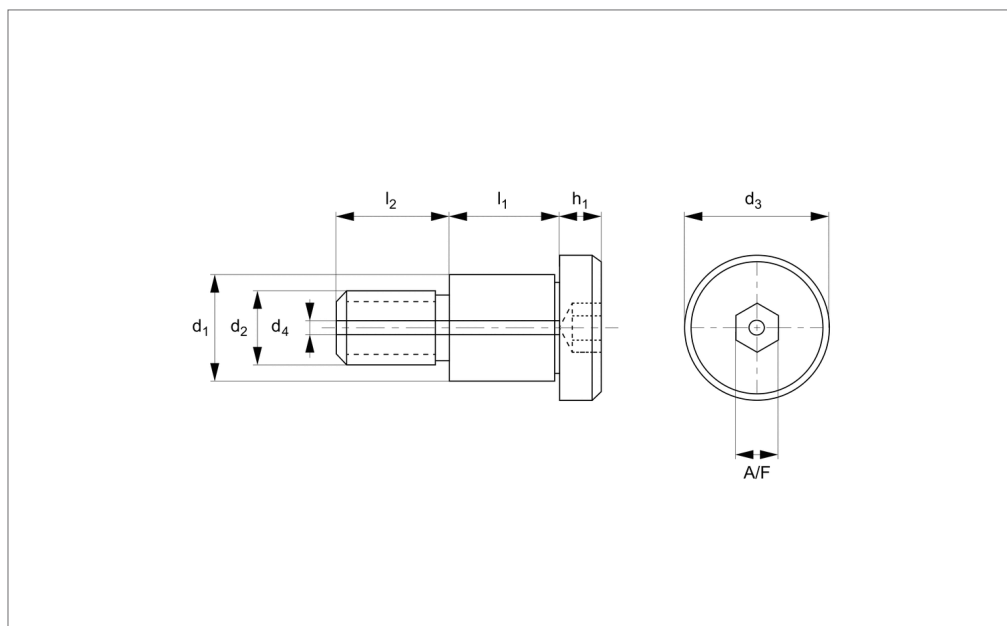
prevent gases being trapped beneath a fastener head along the screw shaft.

Order No.	For thread	d ₁	d ₂	w ₁
20219543	M 2,0	2.2	5.0	0.3
20219550	M 2,5	2.7	6.0	0.5
20219567	M 3,0	3.2	7.0	0.5
20219574	M 4,0	4.3	9.0	0.8
20219581	M 5,0	5.3	10.0	1.0
20219598	M 6,0	6.4	12.0	1.6
20219604	M 8,0	8.4	16.0	1.6
20219611	M10,0	10.5	20.0	2.0
20219628	M12,0	13.0	24.0	2.5
20219772	M16,0	17.0	30.0	3.0
20219789	M20,0	21.0	37.0	3.0

Vented Shoulder Screws - Cap Head

hex. drive - 303 stainless

Vented Screws



EP0098.A2

VENTED SCREWS

Material

Stainless steel (AISI 303, 1.4305), strength class 50.
Ultrasonically cleaned.

Technical Notes

Coatings available: silver, gold, nickel and

others. Other sizes available on request.

Tips

These products help eliminate virtual leaks from high vacuum (HV and UHV) systems, thereby improving pump-down times. Trapped gases at the bottom of a tapped

hole are able to escape via the central vent down the middle of the screw.

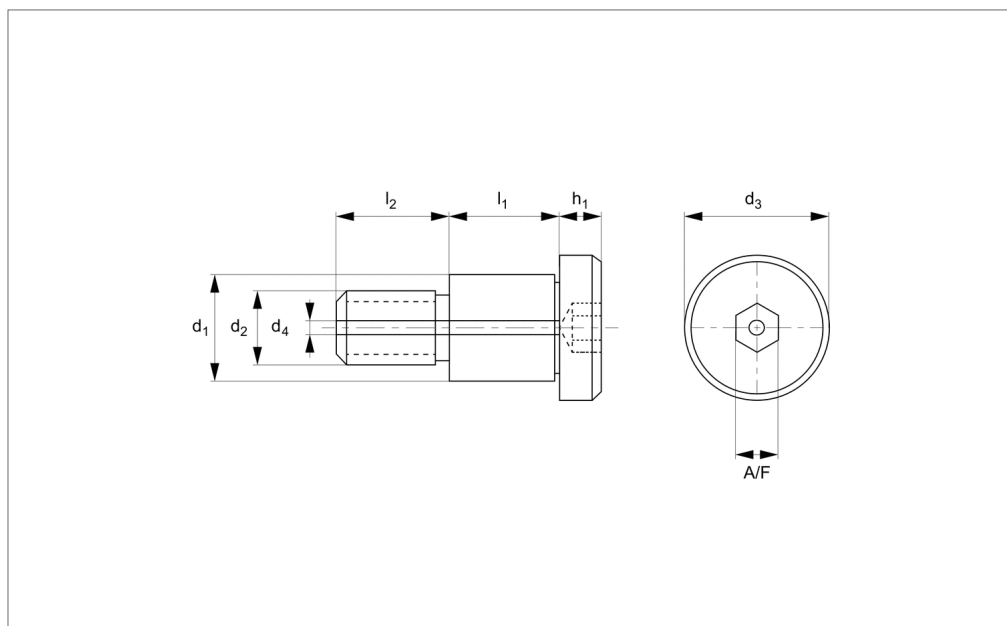
Order No.	l_1 +0.05 -0.0	d_1 +0 -0.025	d_2	d_3	d_4	h_1	l_2	A/F
20240257	10	3	M 2	5.0	0.7	2.0	4.0	2
20240264	16	3	M 2	5.0	0.7	2.0	4.0	2
20240271	20	3	M 2	5.0	0.7	2.0	4.0	2
20240288	4	4	M 3	6.0	1.0	3.0	4.0	2
20240295	5	4	M 3	6.0	1.0	3.0	4.0	2
20240301	6	4	M 3	6.0	1.0	3.0	4.0	2
20240318	8	4	M 3	6.0	1.0	3.0	4.0	2
20240325	10	4	M 3	6.0	1.0	3.0	4.0	2
20240332	12	4	M 3	6.0	1.0	3.0	4.0	2
20240349	16	4	M 3	6.0	1.0	3.0	4.0	2
20240356	20	4	M 3	6.0	1.0	3.0	4.0	2
20240363	35	4	M 3	6.0	1.0	3.0	4.0	2
20240370	4	5	M 4	8.0	1.0	4.0	5.0	3
20240387	5	5	M 4	8.0	1.0	4.0	5.0	3
20240394	6	5	M 4	8.0	1.0	4.0	5.0	3
20240400	7	5	M 4	8.0	1.0	4.0	5.0	3
20240417	8	5	M 4	8.0	1.0	4.0	5.0	3
20240424	10	5	M 4	8.0	1.0	4.0	5.0	3
20240431	12	5	M 4	8.0	1.0	4.0	5.0	3
20240448	14	5	M 4	8.0	1.0	4.0	5.0	3
20240455	16	5	M 4	8.0	1.0	4.0	5.0	3
20240462	20	5	M 4	8.0	1.0	4.0	5.0	3
20240479	25	5	M 4	8.0	1.0	4.0	5.0	3
20240486	30	5	M 4	8.0	1.0	4.0	5.0	3
20240493	4	6	M 5	10.0	1.3	5.0	6.0	3
20240509	5	6	M 5	10.0	1.3	5.0	6.0	3
20240516	6	6	M 5	10.0	1.3	5.0	6.0	3
20240523	8	6	M 5	10.0	1.3	5.0	6.0	3
20240530	10	6	M 5	10.0	1.3	5.0	6.0	3
20240547	12	6	M 5	10.0	1.3	5.0	6.0	3
20240554	14	6	M 5	10.0	1.3	5.0	6.0	3

Order No.	l_1 +0.05 -0.0	d_1 +0 -0.025	d_2	d_3	d_4	h_1	l_2	A/F
20240561	20	6	M 5	10.0	1.3	5.0	6.0	3
20240578	25	6	M 5	10.0	1.3	5.0	6.0	3
20240585	30	6	M 5	10.0	1.3	5.0	6.0	3
20240592	5	8	M 6	12.0	1.6	6.0	11.0	4
20240608	6	8	M 6	12.0	1.6	6.0	11.0	4
20240615	8	8	M 6	12.0	1.6	6.0	11.0	4
20240622	10	8	M 6	12.0	1.6	6.0	11.0	4
20240639	12	8	M 6	12.0	1.6	6.0	11.0	4
20240646	14	8	M 6	12.0	1.6	6.0	11.0	4
20240653	16	8	M 6	12.0	1.6	6.0	11.0	4
20240660	20	8	M 6	12.0	1.6	6.0	11.0	4
20240677	25	8	M 6	12.0	1.6	6.0	11.0	4
20240684	45	8	M 6	12.0	1.6	6.0	11.0	4
20240691	8	10	M 8	14.0	1.8	7.0	12.0	5
20240707	10	10	M 8	14.0	1.8	7.0	12.0	5
20240714	12	10	M 8	14.0	1.8	7.0	12.0	5
20240721	16	10	M 8	14.0	1.8	7.0	12.0	5
20240738	20	10	M 8	14.0	1.8	7.0	12.0	5
20240745	30	10	M 8	14.0	1.8	7.0	12.0	5
20240752	12	12	M10	20.0	1.8	8.0	16.0	6
20240769	25	12	M10	20.0	1.8	8.0	16.0	6
20240776	100	16	M12	24.0	1.8	11.0	18.0	8

Vented Shoulder Screws - Cap Head

hex. drive - 316 stainless

Vented Screws



EP0098.A4

VENTED SCREWS

Material

Stainless steel (AISI 316, 1.4401), strength class 50.
Ultrasonically cleaned.

available on request. Coatings available: silver, gold, nickel and others. Other sizes available on request.

thereby improving pump-down times. Trapped gases at the bottom of a tapped hole are able to escape via the central vent down the middle of the screw.

Technical Notes

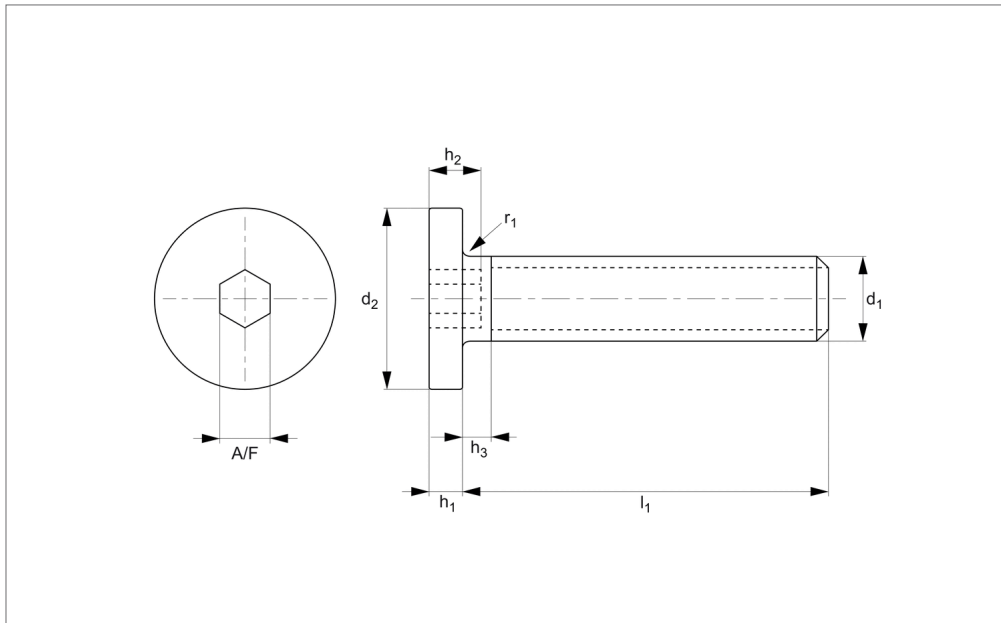
Passivation and/or ultrasonic cleaning

Tips

These products help eliminate virtual leaks from high vacuum (HV and UHV) systems,

Order No.	l_1 +0.05 -0.0	d_1 +0 -0.025	d_2	d_3	d_4	h_1	l_2	A/F
20240783	10	3	M 2	5.0	0.7	2.0	4.0	2
20240790	16	3	M 2	5.0	0.7	2.0	4.0	2
20240806	20	3	M 2	5.0	0.7	2.0	4.0	2
20240813	4	4	M 3	6.0	1.0	3.0	4.0	2
20240820	5	4	M 3	6.0	1.0	3.0	4.0	2
20240837	6	4	M 3	6.0	1.0	3.0	4.0	2
20240844	8	4	M 3	6.0	1.0	3.0	4.0	2
20240851	10	4	M 3	6.0	1.0	3.0	4.0	2
20240868	12	4	M 3	6.0	1.0	3.0	4.0	2
20240875	16	4	M 3	6.0	1.0	3.0	4.0	2
20240882	20	4	M 3	6.0	1.0	3.0	4.0	2
20240899	35	4	M 3	6.0	1.0	3.0	4.0	2
20240905	4	5	M 4	8.0	1.0	4.0	5.0	3
20240912	5	5	M 4	8.0	1.0	4.0	5.0	3
20240929	6	5	M 4	8.0	1.0	4.0	5.0	3
20240936	7	5	M 4	8.0	1.0	4.0	5.0	3
20240943	8	5	M 4	8.0	1.0	4.0	5.0	3
20240950	10	5	M 4	8.0	1.0	4.0	5.0	3
20240967	12	5	M 4	8.0	1.0	4.0	5.0	3
20240974	14	5	M 4	8.0	1.0	4.0	5.0	3
20240981	16	5	M 4	8.0	1.0	4.0	5.0	3
20240998	20	5	M 4	8.0	1.0	4.0	5.0	3
20241001	25	5	M 4	8.0	1.0	4.0	5.0	3
20241018	30	5	M 4	8.0	1.0	4.0	5.0	3
20241025	4	6	M 5	10.0	1.3	5.0	6.0	3
20241032	5	6	M 5	10.0	1.3	5.0	6.0	3
20241049	6	6	M 5	10.0	1.3	5.0	6.0	3
20241056	8	6	M 5	10.0	1.3	5.0	6.0	3
20241063	10	6	M 5	10.0	1.3	5.0	6.0	3
20241070	12	6	M 5	10.0	1.3	5.0	6.0	3
20241087	14	6	M 5	10.0	1.3	5.0	6.0	3

Order No.	l_1 +0.05 -0.0	d_1 +0 -0.025	d_2	d_3	d_4	h_1	l_2	A/F
20241094	20	6	M 5	10.0	1.3	5.0	6.0	3
20241100	25	6	M 5	10.0	1.3	5.0	6.0	3
20235727	30	6	M 5	10.0	1.3	5.0	6.0	3
20241117	5	8	M 6	12.0	1.6	6.0	11.0	4
20241124	6	8	M 6	12.0	1.6	6.0	11.0	4
20241131	8	8	M 6	12.0	1.6	6.0	11.0	4
20241148	10	8	M 6	12.0	1.6	6.0	11.0	4
20241155	12	8	M 6	12.0	1.6	6.0	11.0	4
20241162	14	8	M 6	12.0	1.6	6.0	11.0	4
20241179	16	8	M 6	12.0	1.6	6.0	11.0	4
20241186	20	8	M 6	12.0	1.6	6.0	11.0	4
20241193	25	8	M 6	12.0	1.6	6.0	11.0	4
20241209	45	8	M 6	12.0	1.6	6.0	11.0	4
20241216	8	10	M 8	14.0	1.8	7.0	12.0	5
20241223	10	10	M 8	14.0	1.8	7.0	12.0	5
20241230	12	10	M 8	14.0	1.8	7.0	12.0	5
20241247	16	10	M 8	14.0	1.8	7.0	12.0	5
20241254	20	10	M 8	14.0	1.8	7.0	12.0	5
20241261	30	10	M 8	14.0	1.8	7.0	12.0	5
20241278	12	12	M10	20.0	1.8	8.0	12.0	6
20241285	25	12	M10	20.0	1.8	8.0	12.0	6
20241292	100	16	M12	24.0	1.8	11.0	12.0	8



EP0207.A2

STANDARD SCREWS

Material

Stainless steel (AISI 303, 1.4305).
Tensile strength ~ 400N/mm²

(except for M2 ~ 220N/mm²).

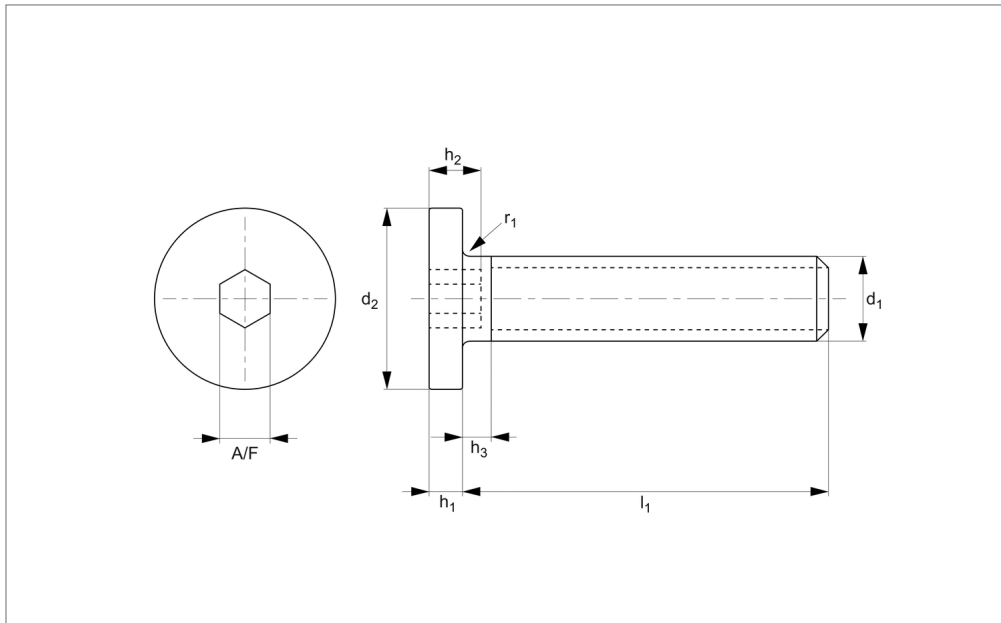
Technical Notes

Extra low head cap screws reduce the screw

head height space. They require no countersinking unlike flat head screws.

Order No.	d ₁	d ₂	h ₁	h ₂ max.	h ₃ max.	l ₁	r ₁	A/F	Torque to Nm max.
20140786	M 2	4	1.5	1.2	1.2	3	0.10	1.3	0.16
20140793	M 2	4	1.5	1.2	1.2	4	0.10	1.3	0.16
20140809	M 2	4	1.5	1.2	1.2	5	0.10	1.3	0.16
20140816	M 2	4	1.5	1.2	1.2	6	0.10	1.3	0.16
20140823	M 2	4	1.5	1.2	1.2	8	0.10	1.3	0.16
20140830	M 2	4	1.5	1.2	1.2	10	0.10	1.3	0.16
20140847	M 2	4	1.5	1.2	1.2	12	0.10	1.3	0.16
20140854	M 2,5	5	1.5	1.5	1.5	3	0.10	1.3	0.35
20140861	M 2,5	5	1.5	1.5	1.5	4	0.10	1.3	0.35
20140878	M 2,5	5	1.5	1.5	1.5	5	0.10	1.3	0.35
20140885	M 2,5	5	1.5	1.5	1.5	6	0.10	1.3	0.35
20140892	M 2,5	5	1.5	1.5	1.5	8	0.10	1.3	0.35
20140908	M 2,5	5	1.5	1.5	1.5	10	0.10	1.3	0.35
20140915	M 2,5	5	1.5	1.5	1.5	12	0.10	1.3	0.35
20140922	M 3	6	1.5	2.0	1.6	4	0.10	1.5	0.60
20140939	M 3	6	1.5	2.0	1.6	5	0.10	1.5	0.60
20140946	M 3	6	1.5	2.0	1.6	6	0.10	1.5	0.60
20140953	M 3	6	1.5	2.0	1.6	8	0.10	1.5	0.60
20140960	M 3	6	1.5	2.0	1.6	10	0.10	1.5	0.60
20140977	M 3	6	1.5	2.0	1.6	12	0.10	1.5	0.60
20140984	M 3	6	1.5	2.0	1.6	14	0.10	1.5	0.60
20140991	M 3	6	1.5	2.0	1.6	16	0.10	1.5	0.60
20141004	M 4	8	1.5	2.5	1.6	5	0.20	2.0	1.10
20141011	M 4	8	1.5	2.5	1.6	6	0.20	2.0	1.10
20141028	M 4	8	1.5	2.5	1.6	8	0.20	2.0	1.10
20141035	M 4	8	1.5	2.5	1.6	10	0.20	2.0	1.10
20141042	M 4	8	1.5	2.5	1.6	12	0.20	2.0	1.10
20141059	M 4	8	1.5	2.5	1.6	14	0.20	2.0	1.10
20141066	M 4	8	1.5	2.5	1.6	16	0.20	2.0	1.10
20141073	M 4	8	1.5	2.5	1.6	18	0.20	2.0	1.10
20141080	M 4	8	1.5	2.5	1.6	20	0.20	2.0	1.10
20141097	M 5	9	1.5	3.0	2.0	6	0.20	3.0	2.20
20141103	M 5	9	1.5	3.0	2.0	8	0.20	3.0	2.20
20141110	M 5	9	1.5	3.0	2.0	10	0.20	3.0	2.20

Order No.	d ₁	d ₂	h ₁	h ₂ max.	h ₃ max.	l ₁	r ₁	A/F	Torque to Nm max.
20141127	M 5	9	1.5	3.0	2.0	12	0.20	3.0	2.20
20141134	M 5	9	1.5	3.0	2.0	14	0.20	3.0	2.20
20141141	M 5	9	1.5	3.0	2.0	16	0.20	3.0	2.20
20141158	M 5	9	1.5	3.0	2.0	18	0.20	3.0	2.20
20141165	M 5	9	1.5	3.0	2.0	20	0.20	3.0	2.20
20141172	M 5	9	1.5	3.0	2.0	25	0.20	3.0	2.20
20141189	M 6	10	1.5	4.0	2.5	6	0.25	3.0	5.00
20141196	M 6	10	1.5	4.0	2.5	8	0.25	3.0	5.00
20141202	M 6	10	1.5	4.0	2.5	10	0.25	3.0	5.00
20141219	M 6	10	1.5	4.0	2.5	12	0.25	3.0	5.00
20141226	M 6	10	1.5	4.0	2.5	14	0.25	3.0	5.00
20141233	M 6	10	1.5	4.0	2.5	16	0.25	3.0	5.00
20141240	M 6	10	1.5	4.0	2.5	18	0.25	3.0	5.00
20141257	M 6	10	1.5	4.0	2.5	20	0.25	3.0	5.00
20141264	M 6	10	1.5	4.0	2.5	25	0.25	3.0	5.00
20141271	M 6	10	1.5	4.0	2.5	30	0.25	3.0	5.00
20141288	M 8	13	1.5	5.0	3.0	6	0.40	4.0	10.1
20141295	M 8	13	1.5	5.0	3.0	8	0.40	4.0	10.1
20141301	M 8	13	1.5	5.0	3.0	10	0.40	4.0	10.1
20141318	M 8	13	1.5	5.0	3.0	12	0.40	4.0	10.1
20141325	M 8	13	1.5	5.0	3.0	14	0.40	4.0	10.1
20141332	M 8	13	1.5	5.0	3.0	16	0.40	4.0	10.1
20141349	M 8	13	1.5	5.0	3.0	18	0.40	4.0	10.1
20141356	M 8	13	1.5	5.0	3.0	20	0.40	4.0	10.1
20141363	M 8	13	1.5	5.0	3.0	25	0.40	4.0	10.1
20141370	M 8	13	1.5	5.0	3.0	30	0.40	4.0	10.1
20141387	M10	16	1.5	6.0	3.5	10	0.40	5.0	17.5
20141394	M10	16	1.5	6.0	3.5	12	0.40	5.0	17.5
20141400	M10	16	1.5	6.0	3.5	14	0.40	5.0	17.5
20141417	M10	16	1.5	6.0	3.5	16	0.40	5.0	17.5
20141424	M10	16	1.5	6.0	3.5	18	0.40	5.0	17.5
20141431	M10	16	1.5	6.0	3.5	20	0.40	5.0	17.5
20141448	M10	16	1.5	6.0	3.5	25	0.40	5.0	17.5
20141455	M10	16	1.5	6.0	3.5	30	0.40	5.0	17.5



EP0207.A4

STANDARD SCREWS

Material

Stainless steel (AISI 316, 1.4401). This grade has a higher resistance to corrosion than 303 series stainless and is suitable for

outdoor use and marine environments.
Tensile strength ~500N/mm² minimum.

Technical Notes

Extra low head cap screws reduce the screw head height space. They require no countersinking unlike flat head screws.

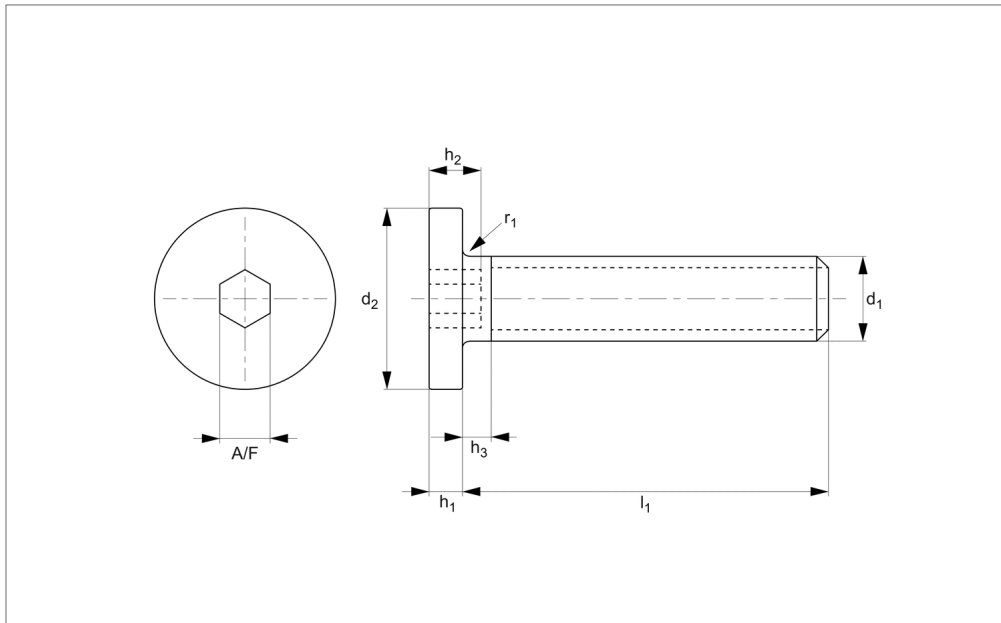
Order No.	d ₁	d ₂	h ₁	h ₂ max.	h ₃ max.	l ₁	r ₁	A/F	Torque to Nm max.
20203009	M 2	4	1.5	1.2	1.2	3	0.10	1.3	0.16
20203016	M 2	4	1.5	1.2	1.2	4	0.10	1.3	0.16
20203023	M 2	4	1.5	1.2	1.2	5	0.10	1.3	0.16
20203030	M 2	4	1.5	1.2	1.2	6	0.10	1.3	0.16
20203047	M 2	4	1.5	1.2	1.2	8	0.10	1.3	0.16
20203054	M 2	4	1.5	1.2	1.2	10	0.10	1.3	0.16
20203061	M 2	4	1.5	1.2	1.2	12	0.10	1.3	0.16
20203078	M 2,5	5	1.5	1.5	1.5	3	0.10	1.3	0.35
20203085	M 2,5	5	1.5	1.5	1.5	4	0.10	1.3	0.35
20203092	M 2,5	5	1.5	1.5	1.5	5	0.10	1.3	0.35
20203108	M 2,5	5	1.5	1.5	1.5	6	0.10	1.3	0.35
20203115	M 2,5	5	1.5	1.5	1.5	8	0.10	1.3	0.35
20203122	M 2,5	5	1.5	1.5	1.5	10	0.10	1.3	0.35
20203139	M 2,5	5	1.5	1.5	1.5	12	0.10	1.3	0.35
20203146	M 3	6	1.5	2.0	1.6	4	0.10	1.5	0.60
20203153	M 3	6	1.5	2.0	1.6	5	0.10	1.5	0.60
20203160	M 3	6	1.5	2.0	1.6	6	0.10	1.5	0.60
20203177	M 3	6	1.5	2.0	1.6	8	0.10	1.5	0.60
20203184	M 3	6	1.5	2.0	1.6	10	0.10	1.5	0.60
20203191	M 3	6	1.5	2.0	1.6	12	0.10	1.5	0.60
20203207	M 3	6	1.5	2.0	1.6	14	0.10	1.5	0.60
20203214	M 3	6	1.5	2.0	1.6	16	0.10	1.5	0.60
20203221	M 4	8	1.5	2.5	1.6	5	0.20	2.0	1.10
20203238	M 4	8	1.5	2.5	1.6	6	0.20	2.0	1.10
20203245	M 4	8	1.5	2.5	1.6	8	0.20	2.0	1.10
20203252	M 4	8	1.5	2.5	1.6	10	0.20	2.0	1.10
20203269	M 4	8	1.5	2.5	1.6	12	0.20	2.0	1.10
20203276	M 4	8	1.5	2.5	1.6	14	0.20	2.0	1.10
20203283	M 4	8	1.5	2.5	1.6	16	0.20	2.0	1.10
20203290	M 4	8	1.5	2.5	1.6	18	0.20	2.0	1.10
20203306	M 4	8	1.5	2.5	1.6	20	0.20	2.0	1.10
20203313	M 5	9	1.5	3.0	2.0	6	0.20	3.0	2.20
20203320	M 5	9	1.5	3.0	2.0	8	0.20	3.0	2.20

Order No.	d ₁	d ₂	h ₁	h ₂ max.	h ₃ max.	l ₁	r ₁	A/F	Torque to Nm max.
20203337	M 5	9	1.5	3.0	2.0	10	0.20	3.0	2.20
20203344	M 5	9	1.5	3.0	2.0	12	0.20	3.0	2.20
20203351	M 5	9	1.5	3.0	2.0	14	0.20	3.0	2.20
20203368	M 5	9	1.5	3.0	2.0	16	0.20	3.0	2.20
20203375	M 5	9	1.5	3.0	2.0	18	0.20	3.0	2.20
20203382	M 5	9	1.5	3.0	2.0	20	0.20	3.0	2.20
20203399	M 5	9	1.5	3.0	2.0	25	0.20	3.0	2.20
20203405	M 6	10	1.5	4.0	2.5	6	0.25	3.0	5.00
20203412	M 6	10	1.5	4.0	2.5	8	0.25	3.0	5.00
20203429	M 6	10	1.5	4.0	2.5	10	0.25	3.0	5.00
20203436	M 6	10	1.5	4.0	2.5	12	0.25	3.0	5.00
20203443	M 6	10	1.5	4.0	2.5	14	0.25	3.0	5.00
20203450	M 6	10	1.5	4.0	2.5	16	0.25	3.0	5.00
20203467	M 6	10	1.5	4.0	2.5	18	0.25	3.0	5.00
20203474	M 6	10	1.5	4.0	2.5	20	0.25	3.0	5.00
20203481	M 6	10	1.5	4.0	2.5	25	0.25	3.0	5.00
20203498	M 6	10	1.5	4.0	2.5	30	0.25	3.0	5.00
20203504	M 8	13	1.5	5.0	3.0	6	0.40	4.0	10.1
20203511	M 8	13	1.5	5.0	3.0	8	0.40	4.0	10.1
20203528	M 8	13	1.5	5.0	3.0	10	0.40	4.0	10.1
20203535	M 8	13	1.5	5.0	3.0	12	0.40	4.0	10.1
20203542	M 8	13	1.5	5.0	3.0	14	0.40	4.0	10.1
20203559	M 8	13	1.5	5.0	3.0	16	0.40	4.0	10.1
20203566	M 8	13	1.5	5.0	3.0	18	0.40	4.0	10.1
20203573	M 8	13	1.5	5.0	3.0	20	0.40	4.0	10.1
20203580	M 8	13	1.5	5.0	3.0	25	0.40	4.0	10.1
20203597	M 8	13	1.5	5.0	3.0	30	0.40	4.0	10.1
20203603	M10	16	1.5	6.0	3.5	10	0.40	5.0	17.5
20203610	M10	16	1.5	6.0	3.5	12	0.40	5.0	17.5
20203627	M10	16	1.5	6.0	3.5	14	0.40	5.0	17.5
20203634	M10	16	1.5	6.0	3.5	16	0.40	5.0	17.5
20203641	M10	16	1.5	6.0	3.5	18	0.40	5.0	17.5
20203658	M10	16	1.5	6.0	3.5	20	0.40	5.0	17.5
20203665	M10	16	1.5	6.0	3.5	25	0.40	5.0	17.5
20203672	M10	16	1.5	6.0	3.5	30	0.40	5.0	17.5

Extra Low Head Cap Screws

hex. drive - 303 series stainless - blackened

Standard Screws



EP0207.B2

STANDARD SCREWS

Material

Stainless steel (AISI 303, 1.4305) with black oxide coating.
Tensile strength ~400N/mm²

(except for M2 ~220N/mm²).

Technical Notes

Extra low head cap screws reduce the screw

head height space. They require no countersinking unlike flat head screws.

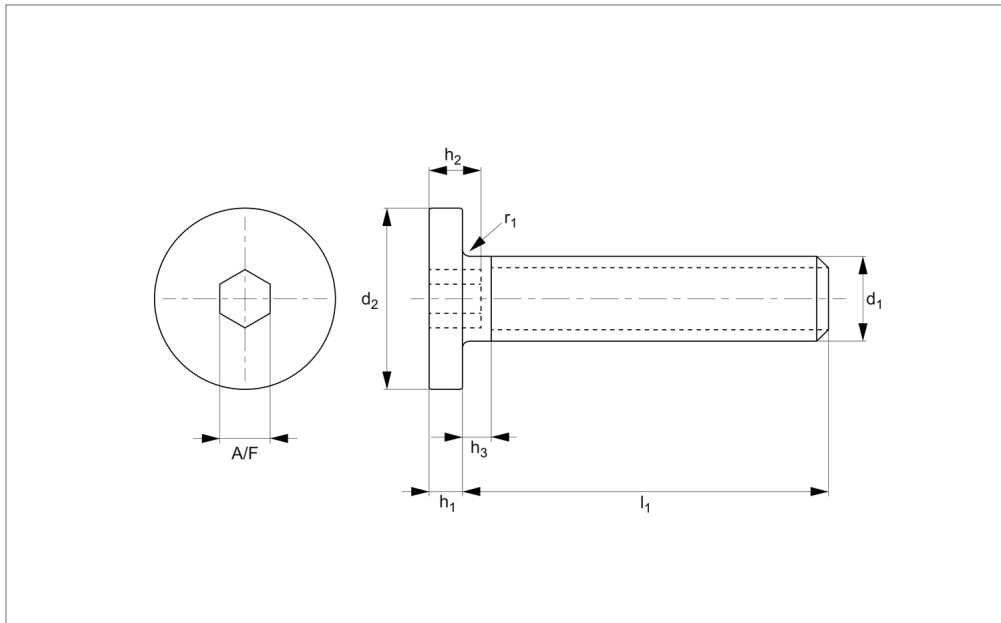
Order No.	d ₁	d ₂	h ₁	h ₂ max.	h ₃ max.	l ₁	r ₁	A/F	Torque to Nm max.
20203689	M 2	4	1.5	1.2	1.2	3	0.10	1.3	0.16
20203696	M 2	4	1.5	1.2	1.2	4	0.10	1.3	0.16
20203702	M 2	4	1.5	1.2	1.2	5	0.10	1.3	0.16
20203719	M 2	4	1.5	1.2	1.2	6	0.10	1.3	0.16
20203726	M 2	4	1.5	1.2	1.2	8	0.10	1.3	0.16
20203733	M 2	4	1.5	1.2	1.2	10	0.10	1.3	0.16
20203740	M 2	4	1.5	1.2	1.2	12	0.10	1.3	0.16
20203757	M 2,5	5	1.5	1.5	1.5	3	0.10	1.3	0.35
20203764	M 2,5	5	1.5	1.5	1.5	4	0.10	1.3	0.35
20203771	M 2,5	5	1.5	1.5	1.5	5	0.10	1.3	0.35
20203788	M 2,5	5	1.5	1.5	1.5	6	0.10	1.3	0.35
20203795	M 2,5	5	1.5	1.5	1.5	8	0.10	1.3	0.35
20203801	M 2,5	5	1.5	1.5	1.5	10	0.10	1.3	0.35
20203818	M 2,5	5	1.5	1.5	1.5	12	0.10	1.3	0.35
20203825	M 3	6	1.5	2.0	1.6	4	0.10	1.5	0.60
20203832	M 3	6	1.5	2.0	1.6	5	0.10	1.5	0.60
20203849	M 3	6	1.5	2.0	1.6	6	0.10	1.5	0.60
20203856	M 3	6	1.5	2.0	1.6	8	0.10	1.5	0.60
20203863	M 3	6	1.5	2.0	1.6	10	0.10	1.5	0.60
20203870	M 3	6	1.5	2.0	1.6	12	0.10	1.5	0.60
20203887	M 3	6	1.5	2.0	1.6	14	0.10	1.5	0.60
20203894	M 3	6	1.5	2.0	1.6	16	0.10	1.5	0.60
20203900	M 4	8	1.5	2.5	1.6	5	0.20	2.0	1.10
20203917	M 4	8	1.5	2.5	1.6	6	0.20	2.0	1.10
20203924	M 4	8	1.5	2.5	1.6	8	0.20	2.0	1.10
20203931	M 4	8	1.5	2.5	1.6	10	0.20	2.0	1.10
20203948	M 4	8	1.5	2.5	1.6	12	0.20	2.0	1.10
20203955	M 4	8	1.5	2.5	1.6	14	0.20	2.0	1.10
20203962	M 4	8	1.5	2.5	1.6	16	0.20	2.0	1.10
20203979	M 4	8	1.5	2.5	1.6	18	0.20	2.0	1.10
20203986	M 4	8	1.5	2.5	1.6	20	0.20	2.0	1.10
20203993	M 5	9	1.5	3.0	2.0	6	0.20	3.0	2.20
20204006	M 5	9	1.5	3.0	2.0	8	0.20	3.0	2.20

Order No.	d ₁	d ₂	h ₁	h ₂ max.	h ₃ max.	l ₁	r ₁	A/F	Torque to Nm max.
20204013	M 5	9	1.5	3.0	2.0	10	0.20	3.0	2.20
20204020	M 5	9	1.5	3.0	2.0	12	0.20	3.0	2.20
20204037	M 5	9	1.5	3.0	2.0	14	0.20	3.0	2.20
20204044	M 5	9	1.5	3.0	2.0	16	0.20	3.0	2.20
20204051	M 5	9	1.5	3.0	2.0	18	0.20	3.0	2.20
20204068	M 5	9	1.5	3.0	2.0	20	0.20	3.0	2.20
20204075	M 5	9	1.5	3.0	2.0	25	0.20	3.0	2.20
20204082	M 6	10	1.5	4.0	2.5	6	0.25	3.0	5.00
20204099	M 6	10	1.5	4.0	2.5	8	0.25	3.0	5.00
20204105	M 6	10	1.5	4.0	2.5	10	0.25	3.0	5.00
20204112	M 6	10	1.5	4.0	2.5	12	0.25	3.0	5.00
20204129	M 6	10	1.5	4.0	2.5	14	0.25	3.0	5.00
20204136	M 6	10	1.5	4.0	2.5	16	0.25	3.0	5.00
20204143	M 6	10	1.5	4.0	2.5	18	0.25	3.0	5.00
20204150	M 6	10	1.5	4.0	2.5	20	0.25	3.0	5.00
20204167	M 6	10	1.5	4.0	2.5	25	0.25	3.0	5.00
20204174	M 6	10	1.5	4.0	2.5	30	0.25	3.0	5.00
20204181	M 8	13	1.5	5.0	3.0	6	0.40	4.0	10.1
20204198	M 8	13	1.5	5.0	3.0	8	0.40	4.0	10.1
20204204	M 8	13	1.5	5.0	3.0	10	0.40	4.0	10.1
20204211	M 8	13	1.5	5.0	3.0	12	0.40	4.0	10.1
20204228	M 8	13	1.5	5.0	3.0	14	0.40	4.0	10.1
20204235	M 8	13	1.5	5.0	3.0	16	0.40	4.0	10.1
20204242	M 8	13	1.5	5.0	3.0	18	0.40	4.0	10.1
20204259	M 8	13	1.5	5.0	3.0	20	0.40	4.0	10.1
20204266	M 8	13	1.5	5.0	3.0	25	0.40	4.0	10.1
20204273	M 8	13	1.5	5.0	3.0	30	0.40	4.0	10.1
20204280	M10	16	1.5	6.0	3.5	10	0.40	5.0	17.5
20204297	M10	16	1.5	6.0	3.5	12	0.40	5.0	17.5
20204303	M10	16	1.5	6.0	3.5	14	0.40	5.0	17.5
20204310	M10	16	1.5	6.0	3.5	16	0.40	5.0	17.5
20204327	M10	16	1.5	6.0	3.5	18	0.40	5.0	17.5
20204334	M10	16	1.5	6.0	3.5	20	0.40	5.0	17.5
20204341	M10	16	1.5	6.0	3.5	25	0.40	5.0	17.5
20204358	M10	16	1.5	6.0	3.5	30	0.40	5.0	17.5

Extra Low Head Cap Screws

hex. drive - 316 series stainless - blackened

Standard Screws



EP0207.B4

STANDARD SCREWS

Material

Stainless steel (AISI 316, 1.4401), blackened. This grade has a higher resistance to corrosion than 303 series stainless and is suitable for outdoor use and

marine environments.
Tensile strength ~500N/mm² minimum.

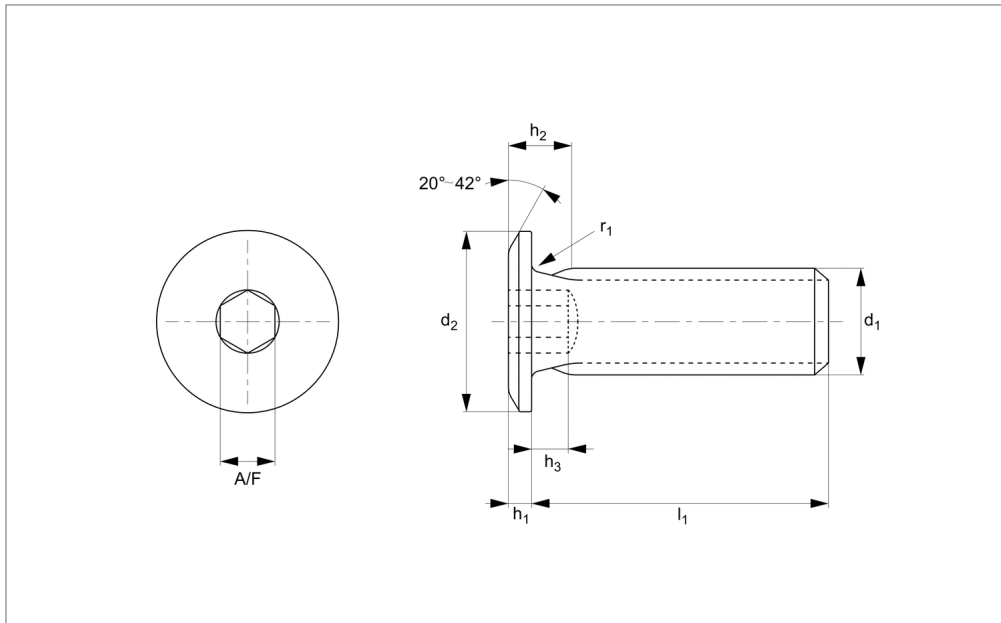
Technical Notes

Extra low head cap screws reduce the screw

head height space. They require no countersinking unlike flat head screws.

Order No.	d ₁	d ₂	h ₁	h ₂ max.	h ₃ max.	l ₁	r ₁	A/F	Torque to Nm max.
20204365	M 2	4	1.5	1.2	1.2	3	0.10	1.3	0.16
20204372	M 2	4	1.5	1.2	1.2	4	0.10	1.3	0.16
20204389	M 2	4	1.5	1.2	1.2	5	0.10	1.3	0.16
20204396	M 2	4	1.5	1.2	1.2	6	0.10	1.3	0.16
20204402	M 2	4	1.5	1.2	1.2	8	0.10	1.3	0.16
20204419	M 2	4	1.5	1.2	1.2	10	0.10	1.3	0.16
20204426	M 2	4	1.5	1.2	1.2	12	0.10	1.3	0.16
20204433	M 2,5	5	1.5	1.5	1.5	3	0.10	1.3	0.35
20204440	M 2,5	5	1.5	1.5	1.5	4	0.10	1.3	0.35
20204457	M 2,5	5	1.5	1.5	1.5	5	0.10	1.3	0.35
20204464	M 2,5	5	1.5	1.5	1.5	6	0.10	1.3	0.35
20204471	M 2,5	5	1.5	1.5	1.5	8	0.10	1.3	0.35
20204488	M 2,5	5	1.5	1.5	1.5	10	0.10	1.3	0.35
20204495	M 2,5	5	1.5	1.5	1.5	12	0.10	1.3	0.35
20204501	M 3	6	1.5	2.0	1.6	4	0.10	1.5	0.60
20204518	M 3	6	1.5	2.0	1.6	5	0.10	1.5	0.60
20204525	M 3	6	1.5	2.0	1.6	6	0.10	1.5	0.60
20204532	M 3	6	1.5	2.0	1.6	8	0.10	1.5	0.60
20204549	M 3	6	1.5	2.0	1.6	10	0.10	1.5	0.60
20204556	M 3	6	1.5	2.0	1.6	12	0.10	1.5	0.60
20204563	M 3	6	1.5	2.0	1.6	14	0.10	1.5	0.60
20204570	M 3	6	1.5	2.0	1.6	16	0.10	1.5	0.60
20204587	M 4	8	1.5	2.5	1.6	5	0.20	2.0	1.10
20204594	M 4	8	1.5	2.5	1.6	6	0.20	2.0	1.10
20204600	M 4	8	1.5	2.5	1.6	8	0.20	2.0	1.10
20204617	M 4	8	1.5	2.5	1.6	10	0.20	2.0	1.10
20204624	M 4	8	1.5	2.5	1.6	12	0.20	2.0	1.10
20204631	M 4	8	1.5	2.5	1.6	14	0.20	2.0	1.10
20204648	M 4	8	1.5	2.5	1.6	16	0.20	2.0	1.10
20204655	M 4	8	1.5	2.5	1.6	18	0.20	2.0	1.10
20204662	M 4	8	1.5	2.5	1.6	20	0.20	2.0	1.10
20204679	M 5	9	1.5	3.0	2.0	6	0.20	3.0	2.20

Order No.	d ₁	d ₂	h ₁	h ₂ max.	h ₃ max.	l ₁	r ₁	A/F	Torque to Nm max.
20204686	M 5	9	1.5	3.0	2.0	8	0.20	3.0	2.20
20204693	M 5	9	1.5	3.0	2.0	10	0.20	3.0	2.20
20204709	M 5	9	1.5	3.0	2.0	12	0.20	3.0	2.20
20204716	M 5	9	1.5	3.0	2.0	14	0.20	3.0	2.20
20204723	M 5	9	1.5	3.0	2.0	16	0.20	3.0	2.20
20204730	M 5	9	1.5	3.0	2.0	18	0.20	3.0	2.20
20204747	M 5	9	1.5	3.0	2.0	20	0.20	3.0	2.20
20204754	M 5	9	1.5	3.0	2.0	25	0.20	3.0	2.20
20204761	M 6	10	1.5	4.0	2.5	6	0.25	3.0	5.0
20204778	M 6	10	1.5	4.0	2.5	8	0.25	3.0	5.0
20204785	M 6	10	1.5	4.0	2.5	10	0.25	3.0	5.0
20204792	M 6	10	1.5	4.0	2.5	12	0.25	3.0	5.0
20204808	M 6	10	1.5	4.0	2.5	14	0.25	3.0	5.0
20204815	M 6	10	1.5	4.0	2.5	16	0.25	3.0	5.0
20204822	M 6	10	1.5	4.0	2.5	18	0.25	3.0	5.0
20204839	M 6	10	1.5	4.0	2.5	20	0.25	3.0	5.0
20204846	M 6	10	1.5	4.0	2.5	25	0.25	3.0	5.0
20204853	M 6	10	1.5	4.0	2.5	30	0.25	3.0	5.0
20204860	M 8	13	1.5	5.0	3.0	6	0.40	4.0	10.1
20204877	M 8	13	1.5	5.0	3.0	8	0.40	4.0	10.1
20204884	M 8	13	1.5	5.0	3.0	10	0.40	4.0	10.1
20204891	M 8	13	1.5	5.0	3.0	12	0.40	4.0	10.1
20204907	M 8	13	1.5	5.0	3.0	14	0.40	4.0	10.1
20204914	M 8	13	1.5	5.0	3.0	16	0.40	4.0	10.1
20204921	M 8	13	1.5	5.0	3.0	18	0.40	4.0	10.1
20204938	M 8	13	1.5	5.0	3.0	20	0.40	4.0	10.1
20204945	M 8	13	1.5	5.0	3.0	25	0.40	4.0	10.1
20204952	M 8	13	1.5	5.0	3.0	30	0.40	4.0	10.1
20204969	M10	16	1.5	6.0	3.5	10	0.40	5.0	17.5
20204976	M10	16	1.5	6.0	3.5	12	0.40	5.0	17.5
20204983	M10	16	1.5	6.0	3.5	14	0.40	5.0	17.5
20204990	M10	16	1.5	6.0	3.5	16	0.40	5.0	17.5
20205003	M10	16	1.5	6.0	3.5	18	0.40	5.0	17.5
20205010	M10	16	1.5	6.0	3.5	20	0.40	5.0	17.5
20205027	M10	16	1.5	6.0	3.5	25	0.40	5.0	17.5
20205034	M10	16	1.5	6.0	3.5	30	0.40	5.0	17.5



EP0208.A2

STANDARD SCREWS

Material

Stainless steel (AISI 303, 1.4305).
Tensile strength ~350N/mm²
(except for M2 ~200N/mm²).

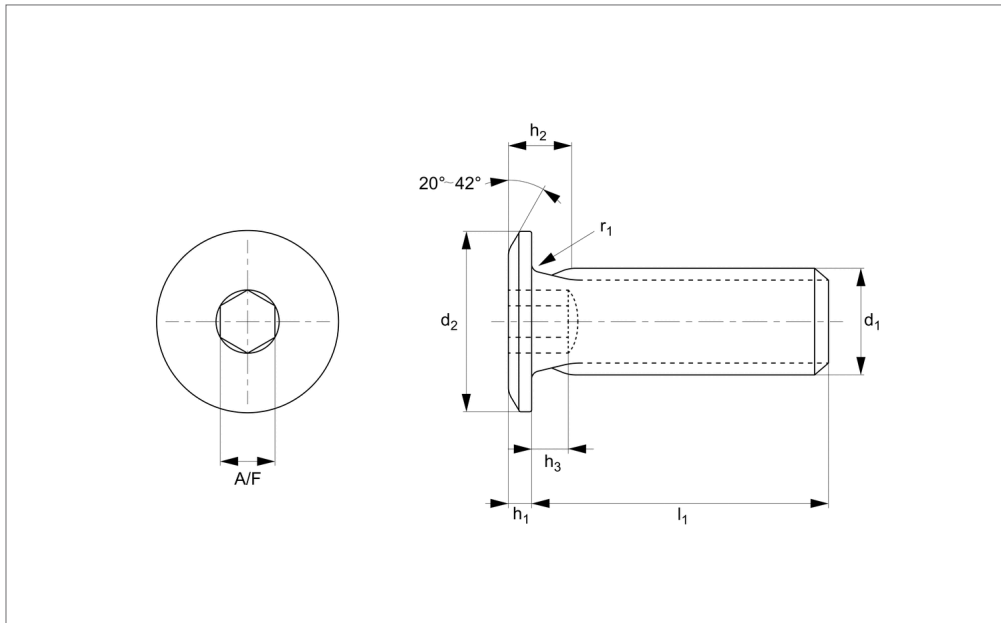
Technical Notes

The ultra low head is extremely low profile.
These screws do not require a countersunk
location hole. Most suitable for machine

and equipment applications with minimal
clearance.

Order No.	d ₁	d ₂	h ₁	h ₂ max.	h ₃ max.	l ₁	r ₁ min.	A/F	Torque to Nm max.
20141462	M 2	4	0.5	1.2	1.2	3	0.10	1.3	0.16
20141479	M 2	4	0.5	1.2	1.2	4	0.10	1.3	0.16
20141486	M 2	4	0.5	1.2	1.2	5	0.10	1.3	0.16
20141493	M 2	4	0.5	1.2	1.2	6	0.10	1.3	0.16
20141509	M 2	4	0.5	1.2	1.2	8	0.10	1.3	0.16
20141516	M 2	4	0.5	1.2	1.2	10	0.10	1.3	0.16
20141523	M 2,5	5	0.6	1.5	1.2	3	0.10	1.3	0.35
20141530	M 2,5	5	0.6	1.5	1.2	4	0.10	1.3	0.35
20141547	M 2,5	5	0.6	1.5	1.2	5	0.10	1.3	0.35
20141554	M 2,5	5	0.6	1.5	1.2	6	0.10	1.3	0.35
20141561	M 3	6	0.8	2.0	1.4	5	0.10	1.5	0.60
20141578	M 3	6	0.8	2.0	1.4	6	0.10	1.5	0.60
20141585	M 3	6	0.8	2.0	1.4	8	0.10	1.5	0.60
20141592	M 3	6	0.8	2.0	1.4	10	0.10	1.5	0.60
20141608	M 3	6	0.8	2.0	1.4	12	0.10	1.5	0.60
20141615	M 3	6	0.8	2.0	1.4	16	0.10	1.5	0.60
20141622	M 4	8	0.9	2.5	1.5	5	0.20	2.0	1.10
20141639	M 4	8	0.9	2.5	1.5	6	0.20	2.0	1.10
20141646	M 4	8	0.9	2.5	1.5	8	0.20	2.0	1.10
20141653	M 4	8	0.9	2.5	1.5	10	0.20	2.0	1.10
20141660	M 4	8	0.9	2.5	1.5	12	0.20	2.0	1.10
20141677	M 4	8	0.9	2.5	1.5	16	0.20	2.0	1.10
20141684	M 4	8	0.9	2.5	1.5	20	0.20	2.0	1.10
20141691	M 4	8	0.9	2.5	1.5	25	0.20	2.0	1.10
20141707	M 5	9	1.0	3.0	1.8	6	0.20	2.5	2.20
20141714	M 5	9	1.0	3.0	1.8	8	0.20	2.5	2.20
20141721	M 5	9	1.0	3.0	1.8	10	0.20	2.5	2.20
20141738	M 5	9	1.0	3.0	1.8	12	0.20	2.5	2.20
20141745	M 5	9	1.0	3.0	1.8	16	0.20	2.5	2.20
20141752	M 5	9	1.0	3.0	1.8	20	0.20	2.5	2.20
20141769	M 5	9	1.0	3.0	1.8	25	0.20	2.5	2.20
20141776	M 6	10	1.2	4.0	2.2	8	0.25	3.0	5.00
20141783	M 6	10	1.2	4.0	2.2	10	0.25	3.0	5.00

Order No.	d ₁	d ₂	h ₁	h ₂ max.	h ₃ max.	l ₁	r ₁ min.	A/F	Torque to Nm max.
20141790	M 6	10	1.2	4.0	2.2	12	0.25	3.0	5.00
20141806	M 6	10	1.2	4.0	2.2	16	0.25	3.0	5.00
20141813	M 6	10	1.2	4.0	2.2	20	0.25	3.0	5.00
20141820	M 6	10	1.2	4.0	2.2	25	0.25	3.0	5.00



EP0208.A4

STANDARD SCREWS

Material

Stainless steel (AISI 316, 1.4401). This grade has a higher resistance to corrosion than 303 series stainless and is suitable for outdoor use and marine environments.

Tensile strength ~500N/mm² minimum.

Technical Notes

The ultra low head is extremely low profile. These screws do not require a countersunk

location hole. Most suitable for machine and equipment applications with minimal clearance.

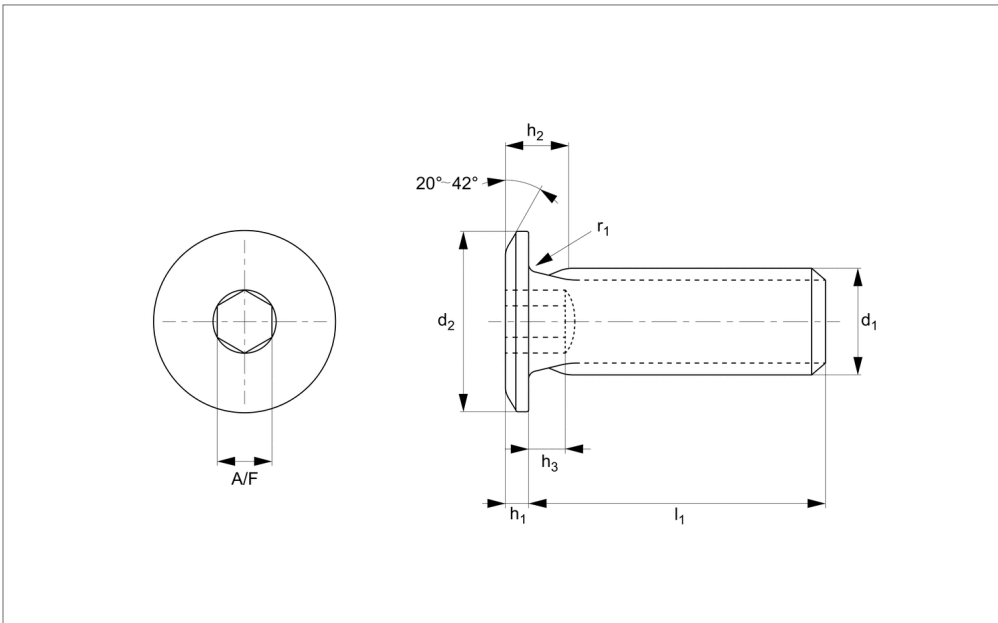
Order No.	d ₁	d ₂	h ₁	h ₂ max.	h ₃ max.	l ₁	r ₁ min.	A/F	Torque to Nm max.
20205041	M 2	4	0.5	1.2	1.2	3	0.10	1.3	0.16
20205058	M 2	4	0.5	1.2	1.2	4	0.10	1.3	0.16
20205065	M 2	4	0.5	1.2	1.2	5	0.10	1.3	0.16
20205072	M 2	4	0.5	1.2	1.2	6	0.10	1.3	0.16
20205089	M 2	4	0.5	1.2	1.2	8	0.10	1.3	0.16
20205096	M 2	4	0.5	1.2	1.2	10	0.10	1.3	0.16
20205102	M 2,5	5	0.6	1.5	1.2	3	0.10	1.3	0.35
20205119	M 2,5	5	0.6	1.5	1.2	4	0.10	1.3	0.35
20205126	M 2,5	5	0.6	1.5	1.2	5	0.10	1.3	0.35
20205133	M 2,5	5	0.6	1.5	1.2	6	0.10	1.3	0.35
20205140	M 3	6	0.8	2.0	1.4	5	0.10	1.5	0.60
20205157	M 3	6	0.8	2.0	1.4	6	0.10	1.5	0.60
20205164	M 3	6	0.8	2.0	1.4	8	0.10	1.5	0.60
20205171	M 3	6	0.8	2.0	1.4	10	0.10	1.5	0.60
20205188	M 3	6	0.8	2.0	1.4	12	0.10	1.5	0.60
20205195	M 3	6	0.8	2.0	1.4	16	0.10	1.5	0.60
20205201	M 4	8	0.9	2.5	1.5	5	0.20	2.0	1.10
20205218	M 4	8	0.9	2.5	1.5	6	0.20	2.0	1.10
20205225	M 4	8	0.9	2.5	1.5	8	0.20	2.0	1.10
20205232	M 4	8	0.9	2.5	1.5	10	0.20	2.0	1.10
20205249	M 4	8	0.9	2.5	1.5	12	0.20	2.0	1.10
20205256	M 4	8	0.9	2.5	1.5	16	0.20	2.0	1.10
20205263	M 4	8	0.9	2.5	1.5	20	0.20	2.0	1.10
20205270	M 4	8	0.9	2.5	1.5	25	0.20	2.0	1.10
20205287	M 5	9	1.0	3.0	1.8	6	0.20	2.5	2.20
20205294	M 5	9	1.0	3.0	1.8	8	0.20	2.5	2.20
20205300	M 5	9	1.0	3.0	1.8	10	0.20	2.5	2.20
20205317	M 5	9	1.0	3.0	1.8	12	0.20	2.5	2.20
20205324	M 5	9	1.0	3.0	1.8	16	0.20	2.5	2.20
20205331	M 5	9	1.0	3.0	1.8	20	0.20	2.5	2.20
20205348	M 5	9	1.0	3.0	1.8	25	0.20	2.5	2.20
20205355	M 6	10	1.2	4.0	2.2	8	0.25	3.0	5.00

Order No.	d ₁	d ₂	h ₁	h ₂ max.	h ₃ max.	l ₁	r ₁ min.	A/F	Torque to Nm max.
20205362	M 6	10	1.2	4.0	2.2	10	0.25	3.0	5.00
20205379	M 6	10	1.2	4.0	2.2	12	0.25	3.0	5.00
20205386	M 6	10	1.2	4.0	2.2	16	0.25	3.0	5.00
20205393	M 6	10	1.2	4.0	2.2	20	0.25	3.0	5.00
20205409	M 6	10	1.2	4.0	2.2	25	0.25	3.0	5.00

Ultra Low Head Cap Screws

hex. drive - 303 stainless - blackened

Standard Screws



EP0208.B2

STANDARD SCREWS

Material

Stainless steel (AISI 303, 1.4305), with black oxide coating.
Tensile strength ~350N/mm²

(except for M2 ~200N/mm²).

Technical Notes

The ultra low head is extremely low profile.

These screws do not require a countersunk location hole. Most suitable for machine and equipment applications with minimal clearance.

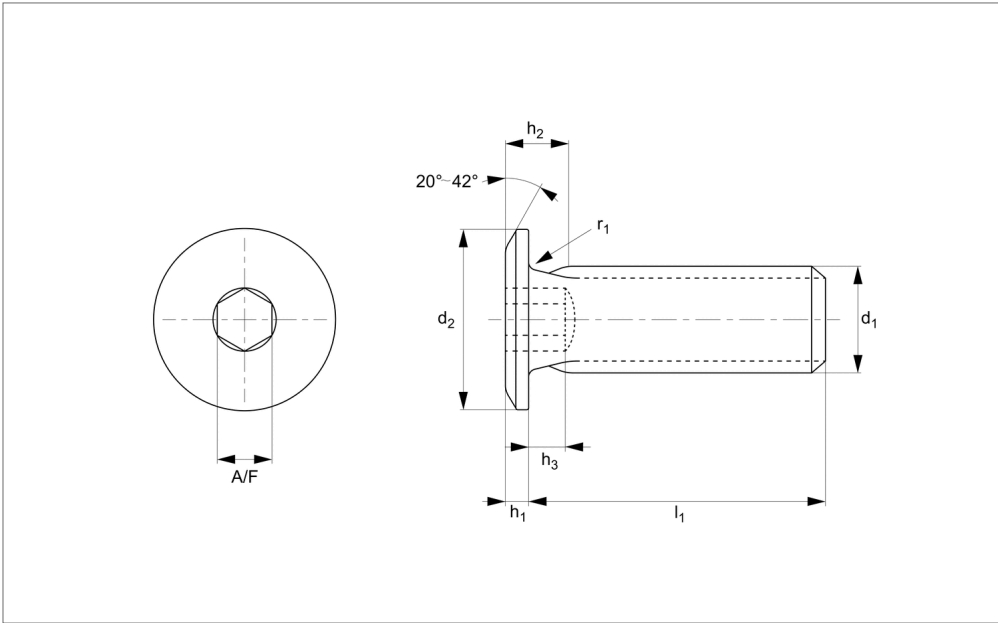
Order No.	d ₁	d ₂	h ₁	h ₂ max.	h ₃ max.	l ₁	r ₁ min.	A/F	Torque to Nm max.
20205416	M 2	4	0.5	1.2	1.2	3	0.10	1.3	0.16
20205423	M 2	4	0.5	1.2	1.2	4	0.10	1.3	0.16
20205430	M 2	4	0.5	1.2	1.2	5	0.10	1.3	0.16
20205447	M 2	4	0.5	1.2	1.2	6	0.10	1.3	0.16
20205454	M 2	4	0.5	1.2	1.2	8	0.10	1.3	0.16
20205461	M 2	4	0.5	1.2	1.2	10	0.10	1.3	0.16
20205478	M 2,5	5	0.6	1.5	1.2	3	0.10	1.3	0.35
20205485	M 2,5	5	0.6	1.5	1.2	4	0.10	1.3	0.35
20205492	M 2,5	5	0.6	1.5	1.2	5	0.10	1.3	0.35
20205508	M 2,5	5	0.6	1.5	1.2	6	0.10	1.3	0.35
20205515	M 3	6	0.8	2.0	1.4	5	0.10	1.5	0.60
20205522	M 3	6	0.8	2.0	1.4	6	0.10	1.5	0.60
20205539	M 3	6	0.8	2.0	1.4	8	0.10	1.5	0.60
20205546	M 3	6	0.8	2.0	1.4	10	0.10	1.5	0.60
20205553	M 3	6	0.8	2.0	1.4	12	0.10	1.5	0.60
20205560	M 3	6	0.8	2.0	1.4	16	0.10	1.5	0.60
20205577	M 4	8	0.9	2.5	1.5	5	0.20	2.0	1.10
20205584	M 4	8	0.9	2.5	1.5	6	0.20	2.0	1.10
20205591	M 4	8	0.9	2.5	1.5	8	0.20	2.0	1.10
20205607	M 4	8	0.9	2.5	1.5	10	0.20	2.0	1.10
20205614	M 4	8	0.9	2.5	1.5	12	0.20	2.0	1.10
20205621	M 4	8	0.9	2.5	1.5	16	0.20	2.0	1.10
20205638	M 4	8	0.9	2.5	1.5	20	0.20	2.0	1.10
20205645	M 4	8	0.9	2.5	1.5	25	0.20	2.0	1.10
20205652	M 5	9	1.0	3.0	1.8	6	0.20	2.5	2.20
20205669	M 5	9	1.0	3.0	1.8	8	0.20	2.5	2.20
20205676	M 5	9	1.0	3.0	1.8	10	0.20	2.5	2.20
20205683	M 5	9	1.0	3.0	1.8	12	0.20	2.5	2.20
20205690	M 5	9	1.0	3.0	1.8	16	0.20	2.5	2.20
20205706	M 5	9	1.0	3.0	1.8	20	0.20	2.5	2.20
20205713	M 5	9	1.0	3.0	1.8	25	0.20	2.5	2.20
20205720	M 6	10	1.2	4.0	2.2	8	0.25	3.0	5.00
20205737	M 6	10	1.2	4.0	2.2	10	0.25	3.0	5.00

Order No.	d ₁	d ₂	h ₁	h ₂ max.	h ₃ max.	l ₁	r ₁ min.	A/F	Torque to Nm max.
20205744	M 6	10	1.2	4.0	2.2	12	0.25	3.0	5.00
20205751	M 6	10	1.2	4.0	2.2	16	0.25	3.0	5.00
20205768	M 6	10	1.2	4.0	2.2	20	0.25	3.0	5.00
20205775	M 6	10	1.2	4.0	2.2	25	0.25	3.0	5.00

Ultra Low Head Cap Screws

hex. drive - 316 series stainless - blackened

Standard Screws



EP0208.B4

MADE IN BRITAIN

STANDARD SCREWS

Material

Stainless steel (AISI 316, 1.4401), with black oxide coating. This grade has a higher resistance to corrosion than 303 series stainless and is suitable for outdoor

use and marine environments.
Tensile strength ~500N/mm² minimum.

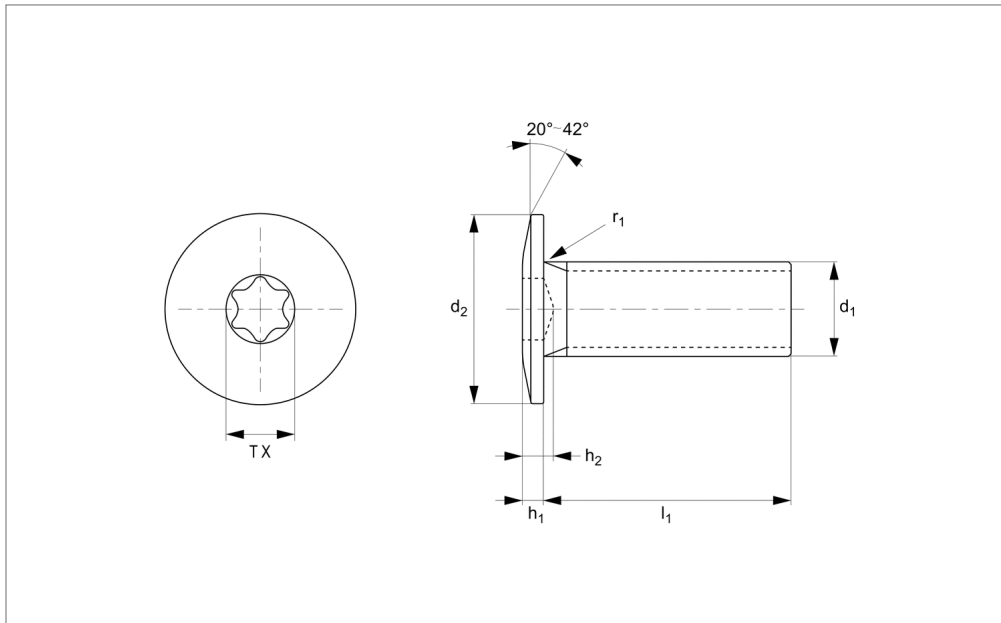
Technical Notes

The ultra low head is extremely low profile.

These screws do not require a countersunk location hole. Most suitable for machine and equipment applications with minimal clearance.

Order No.	d ₁	d ₂	h ₁	h ₂ max.	h ₃ max.	l ₁	r ₁ min.	A/F	Torque to Nm max.
20205782	M 2	4	0.5	1.2	1.2	3	0.10	1.3	0.16
20205799	M 2	4	0.5	1.2	1.2	4	0.10	1.3	0.16
20205805	M 2	4	0.5	1.2	1.2	5	0.10	1.3	0.16
20205812	M 2	4	0.5	1.2	1.2	6	0.10	1.3	0.16
20205829	M 2	4	0.5	1.2	1.2	8	0.10	1.3	0.16
20205836	M 2	4	0.5	1.2	1.2	10	0.10	1.3	0.16
20205843	M 2,5	5	0.6	1.5	1.2	3	0.10	1.3	0.35
20205850	M 2,5	5	0.6	1.5	1.2	4	0.10	1.3	0.35
20205867	M 2,5	5	0.6	1.5	1.2	5	0.10	1.3	0.35
20205874	M 2,5	5	0.6	1.5	1.2	6	0.10	1.3	0.35
20205881	M 3	6	0.8	2.0	1.4	5	0.10	1.5	0.60
20205898	M 3	6	0.8	2.0	1.4	6	0.10	1.5	0.60
20205904	M 3	6	0.8	2.0	1.4	8	0.10	1.5	0.60
20205911	M 3	6	0.8	2.0	1.4	10	0.10	1.5	0.60
20205928	M 3	6	0.8	2.0	1.4	12	0.10	1.5	0.60
20205935	M 3	6	0.8	2.0	1.4	16	0.10	1.5	0.60
20205942	M 4	8	0.9	2.5	1.5	5	0.20	2.0	1.10
20205959	M 4	8	0.9	2.5	1.5	6	0.20	2.0	1.10
20205966	M 4	8	0.9	2.5	1.5	8	0.20	2.0	1.10
20205973	M 4	8	0.9	2.5	1.5	10	0.20	2.0	1.10
20205980	M 4	8	0.9	2.5	1.5	12	0.20	2.0	1.10
20205997	M 4	8	0.9	2.5	1.5	16	0.20	2.0	1.10
20206000	M 4	8	0.9	2.5	1.5	20	0.20	2.0	1.10
20206017	M 4	8	0.9	2.5	1.5	25	0.20	2.0	1.10
20206024	M 5	9	1.0	3.0	1.8	6	0.20	2.5	2.20
20206031	M 5	9	1.0	3.0	1.8	8	0.20	2.5	2.20
20206048	M 5	9	1.0	3.0	1.8	10	0.20	2.5	2.20
20206055	M 5	9	1.0	3.0	1.8	12	0.20	2.5	2.20
20206062	M 5	9	1.0	3.0	1.8	16	0.20	2.5	2.20
20206079	M 5	9	1.0	3.0	1.8	20	0.20	2.5	2.20
20206086	M 5	9	1.0	3.0	1.8	25	0.20	2.5	2.20
20206093	M 6	10	1.2	4.0	2.2	8	0.25	3.0	5.00

Order No.	d ₁	d ₂	h ₁	h ₂ max.	h ₃ max.	l ₁	r ₁ min.	A/F	Torque to Nm max.
20206109	M 6	10	1.2	4.0	2.2	10	0.25	3.0	5.00
20206116	M 6	10	1.2	4.0	2.2	12	0.25	3.0	5.00
20206123	M 6	10	1.2	4.0	2.2	16	0.25	3.0	5.00
20206130	M 6	10	1.2	4.0	2.2	20	0.25	3.0	5.00
20206147	M 6	10	1.2	4.0	2.2	25	0.25	3.0	5.00



EP0209.A2

STANDARD SCREWS

Material

Stainless steel (AISI 303, 1.4305).
Tensile strength ~ 350N/mm²
(except for M2 ~ 200Nmm²).

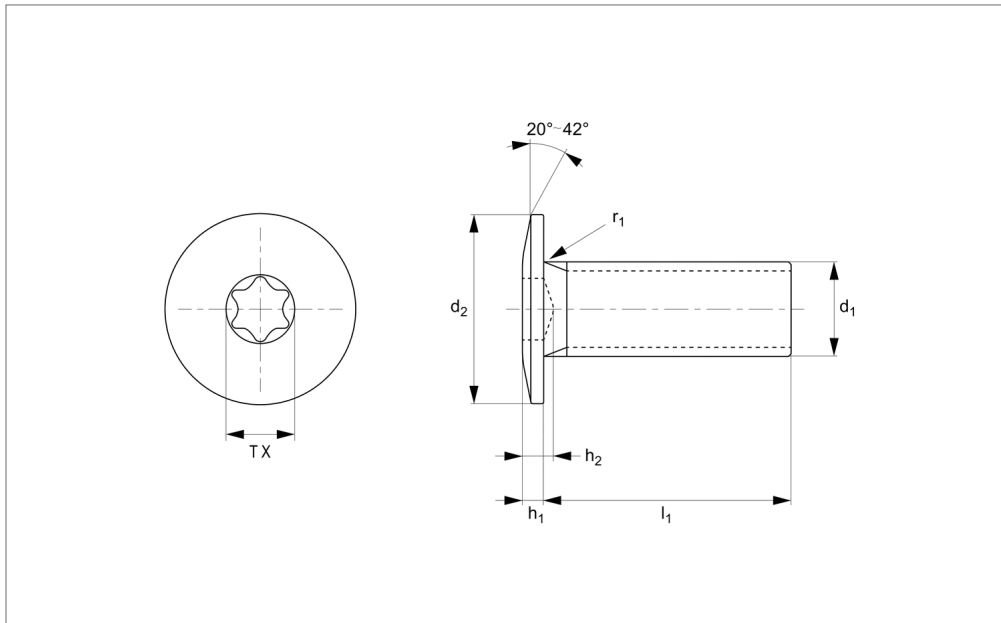
Technical Notes

Ultra low head is extremely low profile.
They do not require a countersunk location
hole.

Most suitable for machine and equipment
applications with minimal clearance.

Order No.	d ₁	d ₂	h ₁	h ₂ max.	l ₁	r ₁ max.	TX size	Torque Nm max.
20202569	M 2	4	0.5	1.5	3	0.3	TX-4	0.18
20202576	M 2	4	0.5	1.5	4	0.3	TX-4	0.18
20202583	M 2	4	0.5	1.5	5	0.3	TX-4	0.18
20202590	M 2	4	0.5	1.5	6	0.3	TX-4	0.18
20202606	M 2	4	0.5	1.5	8	0.3	TX-4	0.18
20202613	M 2	4	0.5	1.5	10	0.3	TX-4	0.18
20202620	M 2	4	0.5	1.5	12	0.3	TX-4	0.18
20202637	M 2,5	6	0.6	1.6	3	0.3	TX-5	0.36
20202644	M 2,5	6	0.6	1.6	4	0.3	TX-5	0.36
20202651	M 2,5	6	0.6	1.6	5	0.3	TX-5	0.36
20202668	M 2,5	6	0.6	1.6	6	0.3	TX-5	0.36
20202675	M 2,5	6	0.6	1.6	8	0.3	TX-5	0.36
20202682	M 2,5	6	0.6	1.6	10	0.3	TX-5	0.36
20202699	M 2,5	6	0.6	1.6	12	0.3	TX-5	0.36
20202705	M 3	7	0.8	2.0	5	0.4	TX-6	0.63
20202712	M 3	7	0.8	2.0	6	0.4	TX-6	0.63
20202729	M 3	7	0.8	2.0	8	0.4	TX-6	0.63
20202736	M 3	7	0.8	2.0	10	0.4	TX-6	0.63
20202743	M 3	7	0.8	2.0	12	0.4	TX-6	0.63
20202750	M 3	7	0.8	2.0	16	0.4	TX-6	0.63
20202767	M 4	8	0.9	2.5	6	0.5	TX-8	1.50
20202774	M 4	8	0.9	2.5	8	0.5	TX-8	1.50
20202781	M 4	8	0.9	2.5	10	0.5	TX-8	1.50
20202798	M 4	8	0.9	2.5	12	0.5	TX-8	1.50
20202804	M 4	8	0.9	2.5	16	0.5	TX-8	1.50
20202811	M 4	8	0.9	2.5	20	0.5	TX-8	1.50
20202828	M 4	8	0.9	2.5	25	0.5	TX-8	1.50
20202835	M 5	9	1.0	3.0	8	0.6	TX-10	3.00
20202842	M 5	9	1.0	3.0	10	0.6	TX-10	3.00
20202859	M 5	9	1.0	3.0	12	0.6	TX-10	3.00
20202866	M 5	9	1.0	3.0	16	0.6	TX-10	3.00
20202873	M 5	9	1.0	3.0	20	0.6	TX-10	3.00
20202880	M 5	9	1.0	3.0	25	0.6	TX-10	3.00

Order No.	d ₁	d ₂	h ₁	h ₂ max.	l ₁	r ₁ max.	TX size	Torque Nm max.
20202897	M 5	9	1.0	3.0	30	0.6	TX-10	3.00
20202996	M 5	9	1.0	3.0	35	0.6	TX-10	3.00
20202903	M 6	12	1.2	3.5	8	0.7	TX-20	5.20
20202910	M 6	12	1.2	3.5	10	0.7	TX-20	5.20
20202927	M 6	12	1.2	3.5	12	0.7	TX-20	5.20
20202934	M 6	12	1.2	3.5	16	0.7	TX-20	5.20
20202941	M 6	12	1.2	3.5	20	0.7	TX-20	5.20
20202958	M 6	12	1.2	3.5	25	0.7	TX-20	5.20
20202965	M 6	12	1.2	3.5	30	0.7	TX-20	5.20
20202972	M 6	12	1.2	3.5	35	0.7	TX-20	5.20
20202989	M 6	12	1.2	3.5	40	0.7	TX-20	5.20



EP0209.A4

STANDARD SCREWS

Material

Stainless steel (AISI 303, 1.4305).
Tensile strength ~ 350N/mm²
(except for M2 ~ 200Nmm²).

Technical Notes

Ultra low head is extremely low profile.
They do not require a countersunk location
hole.

Most suitable for machine and equipment
applications with minimal clearance.

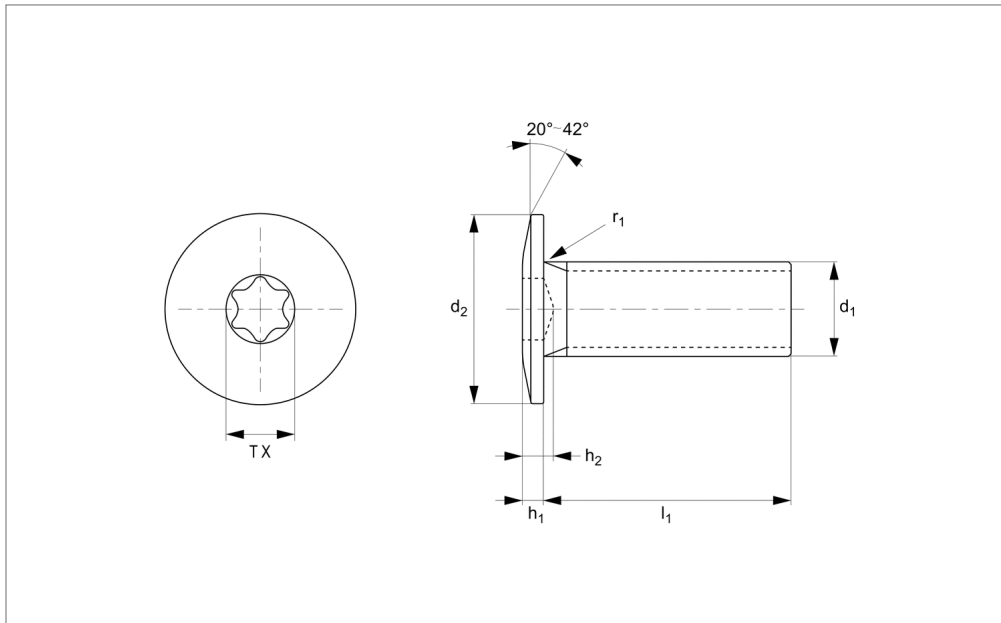
Order No.	d ₁	d ₂	h ₁	h ₂ max.	l ₁	r ₁ max.	TX size	Torque to Nm max.
20206154	M 2	4	0.5	1.5	3	0.3	TX-4	0.18
20206161	M 2	4	0.5	1.5	4	0.3	TX-4	0.18
20206178	M 2	4	0.5	1.5	5	0.3	TX-4	0.18
20206185	M 2	4	0.5	1.5	6	0.3	TX-4	0.18
20206192	M 2	4	0.5	1.5	8	0.3	TX-4	0.18
20206208	M 2	4	0.5	1.5	10	0.3	TX-4	0.18
20206215	M 2	4	0.5	1.5	12	0.3	TX-4	0.18
20206222	M 2,5	6	0.6	1.6	3	0.3	TX-5	0.36
20206239	M 2,5	6	0.6	1.6	4	0.3	TX-5	0.36
20206246	M 2,5	6	0.6	1.6	5	0.3	TX-5	0.36
20206253	M 2,5	6	0.6	1.6	6	0.3	TX-5	0.36
20206260	M 2,5	6	0.6	1.6	8	0.3	TX-5	0.36
20206277	M 2,5	6	0.6	1.6	10	0.3	TX-5	0.36
20206284	M 2,5	6	0.6	1.6	12	0.3	TX-5	0.36
20206291	M 3	7	0.8	2.0	5	0.4	TX-6	0.63
20206307	M 3	7	0.8	2.0	6	0.4	TX-6	0.63
20206314	M 3	7	0.8	2.0	8	0.4	TX-6	0.63
20206321	M 3	7	0.8	2.0	10	0.4	TX-6	0.63
20206338	M 3	7	0.8	2.0	12	0.4	TX-6	0.63
20206345	M 3	7	0.8	2.0	16	0.4	TX-6	0.63
20206352	M 4	8	0.9	2.5	6	0.5	TX-8	1.50
20206369	M 4	8	0.9	2.5	8	0.5	TX-8	1.50
20206376	M 4	8	0.9	2.5	10	0.5	TX-8	1.50
20206383	M 4	8	0.9	2.5	12	0.5	TX-8	1.50
20206390	M 4	8	0.9	2.5	16	0.5	TX-8	1.50
20206406	M 4	8	0.9	2.5	20	0.5	TX-8	1.50
20206413	M 4	8	0.9	2.5	25	0.5	TX-8	1.50
20206420	M 5	9	1.0	3.0	8	0.6	TX-10	3.00
20206437	M 5	9	1.0	3.0	10	0.6	TX-10	3.00
20206444	M 5	9	1.0	3.0	12	0.6	TX-10	3.00
20206451	M 5	9	1.0	3.0	16	0.6	TX-10	3.00
20206468	M 5	9	1.0	3.0	20	0.6	TX-10	3.00
20206475	M 5	9	1.0	3.0	25	0.6	TX-10	3.00

Order No.	d ₁	d ₂	h ₁	h ₂ max.	l ₁	r ₁ max.	TX size	Torque to Nm max.
20206482	M 5	9	1.0	3.0	30	0.6	TX-10	3.00
20206499	M 5	9	1.0	3.0	35	0.6	TX-10	3.00
20206505	M 6	12	1.2	3.5	8	0.7	TX-20	5.20
20206512	M 6	12	1.2	3.5	10	0.7	TX-20	5.20
20206529	M 6	12	1.2	3.5	12	0.7	TX-20	5.20
20206536	M 6	12	1.2	3.5	16	0.7	TX-20	5.20
20206543	M 6	12	1.2	3.5	20	0.7	TX-20	5.20
20206550	M 6	12	1.2	3.5	25	0.7	TX-20	5.20
20206567	M 6	12	1.2	3.5	30	0.7	TX-20	5.20
20206574	M 6	12	1.2	3.5	35	0.7	TX-20	5.20
20206581	M 6	12	1.2	3.5	40	0.7	TX-20	5.20

Ultra Low Head Cap Screws

TX drive - 303 stainless - blackened

Standard Screws



EP0209.B2

STANDARD SCREWS

Material

Stainless steel (AISI 303, 1.4305), with black oxide coating. Tensile strength ~ 350N/mm²

(except for M2 ~ 200Nmm²).

Technical Notes

Ultra low head is extremely low profile.

They do not require a countersunk location hole.

Most suitable for machine and equipment applications with minimal clearance.

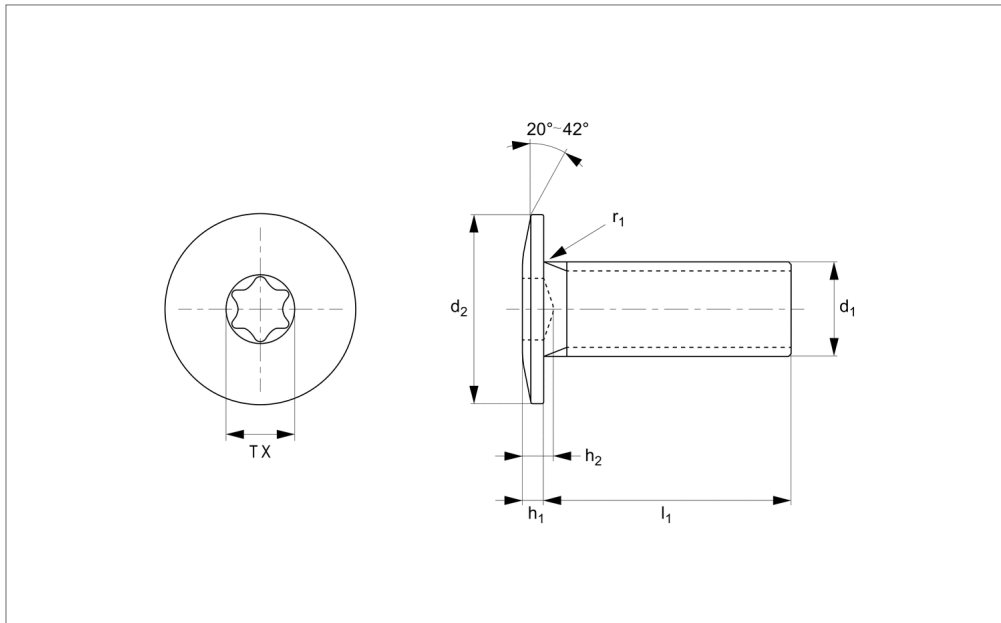
Order No.	d ₁	d ₂	h ₁	h ₂ max.	l ₁	r ₁ max.	TX size	Torque to Nm max.
20206598	M 2	4	0.5	1.5	3	0.3	TX-4	0.18
20206604	M 2	4	0.5	1.5	4	0.3	TX-4	0.18
20206611	M 2	4	0.5	1.5	5	0.3	TX-4	0.18
20206628	M 2	4	0.5	1.5	6	0.3	TX-4	0.18
20206635	M 2	4	0.5	1.5	8	0.3	TX-4	0.18
20206642	M 2	4	0.5	1.5	10	0.3	TX-4	0.18
20206659	M 2	4	0.5	1.5	12	0.3	TX-4	0.18
20206666	M 2,5	6	0.6	1.6	3	0.3	TX-5	0.36
20206673	M 2,5	6	0.6	1.6	4	0.3	TX-5	0.36
20206680	M 2,5	6	0.6	1.6	5	0.3	TX-5	0.36
20206697	M 2,5	6	0.6	1.6	6	0.3	TX-5	0.36
20206703	M 2,5	6	0.6	1.6	8	0.3	TX-5	0.36
20206710	M 2,5	6	0.6	1.6	10	0.3	TX-5	0.36
20206727	M 2,5	6	0.6	1.6	12	0.3	TX-5	0.36
20206734	M 3	7	0.8	2.0	5	0.4	TX-6	0.63
20206741	M 3	7	0.8	2.0	6	0.4	TX-6	0.63
20206758	M 3	7	0.8	2.0	8	0.4	TX-6	0.63
20206765	M 3	7	0.8	2.0	10	0.4	TX-6	0.63
20206772	M 3	7	0.8	2.0	12	0.4	TX-6	0.63
20206789	M 3	7	0.8	2.0	16	0.4	TX-6	0.63
20206796	M 4	8	0.9	2.5	6	0.5	TX-8	1.50
20206802	M 4	8	0.9	2.5	8	0.5	TX-8	1.50
20206819	M 4	8	0.9	2.5	10	0.5	TX-8	1.50
20206826	M 4	8	0.9	2.5	12	0.5	TX-8	1.50
20206833	M 4	8	0.9	2.5	16	0.5	TX-8	1.50
20206840	M 4	8	0.9	2.5	20	0.5	TX-8	1.50
20206857	M 4	8	0.9	2.5	25	0.5	TX-8	1.50
20206864	M 5	9	1.0	3.0	8	0.6	TX-10	3.00
20206871	M 5	9	1.0	3.0	10	0.6	TX-10	3.00
20206888	M 5	9	1.0	3.0	12	0.6	TX-10	3.00
20206895	M 5	9	1.0	3.0	16	0.6	TX-10	3.00
20206901	M 5	9	1.0	3.0	20	0.6	TX-10	3.00
20206918	M 5	9	1.0	3.0	25	0.6	TX-10	3.00

Order No.	d ₁	d ₂	h ₁	h ₂ max.	l ₁	r ₁ max.	TX size	Torque to Nm max.
20206925	M 5	9	1.0	3.0	30	0.6	TX-10	3.00
20206932	M 5	9	1.0	3.0	35	0.6	TX-10	3.00
20206949	M 6	12	1.2	3.5	8	0.7	TX-20	5.20
20206956	M 6	12	1.2	3.5	10	0.7	TX-20	5.20
20206963	M 6	12	1.2	3.5	12	0.7	TX-20	5.20
20206970	M 6	12	1.2	3.5	16	0.7	TX-20	5.20
20206987	M 6	12	1.2	3.5	20	0.7	TX-20	5.20
20206994	M 6	12	1.2	3.5	25	0.7	TX-20	5.20
20207007	M 6	12	1.2	3.5	30	0.7	TX-20	5.20
20207014	M 6	12	1.2	3.5	35	0.7	TX-20	5.20
20207021	M 6	12	1.2	3.5	40	0.7	TX-20	5.20

Ultra Low Head Cap Screws

TX head - 316 stainless - blackened

Standard Screws



EP0209.B4

STANDARD SCREWS

Material

Stainless steel (AISI 316, 1.440), with black oxide coating. Tensile strength ~ 350N/mm²

(except for M2 ~ 200Nmm²).

Technical Notes

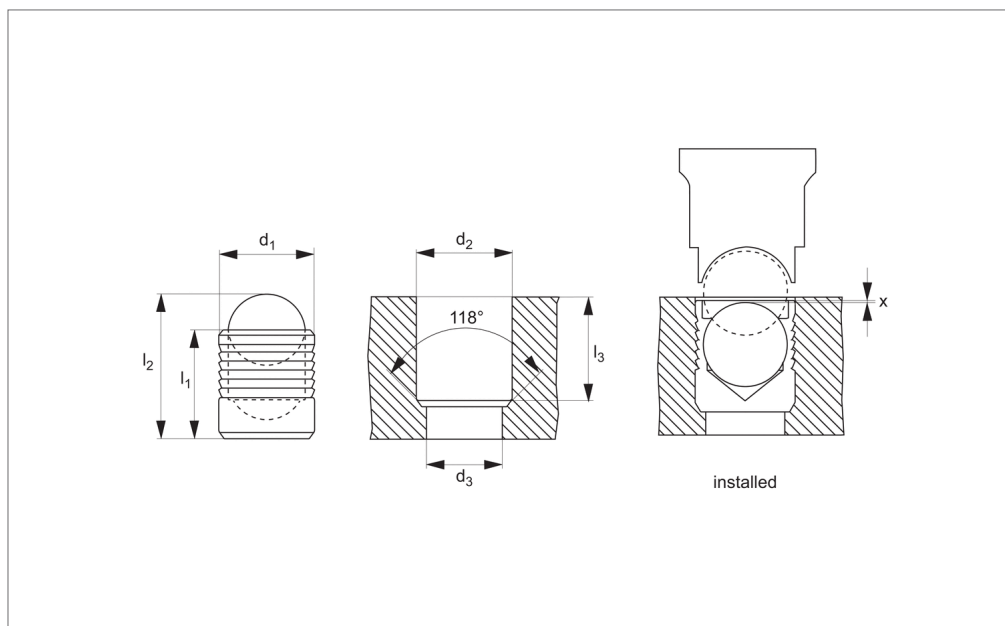
Ultra low head is extremely low profile.

They do not require a countersunk location hole.

Most suitable for machine and equipment applications with minimal clearance.

Order No.	d_1	d_2	h_1	h_2 max.	l_1	r_1 max.	TX size	Torque to Nm max.
20207038	M 2	4	0.5	1.5	3	0.3	TX-4	0.18
20207045	M 2	4	0.5	1.5	4	0.3	TX-4	0.18
20207052	M 2	4	0.5	1.5	5	0.3	TX-4	0.18
20207069	M 2	4	0.5	1.5	6	0.3	TX-4	0.18
20207076	M 2	4	0.5	1.5	8	0.3	TX-4	0.18
20207083	M 2	4	0.5	1.5	10	0.3	TX-4	0.18
20207090	M 2	4	0.5	1.5	12	0.3	TX-4	0.18
20207106	M 2,5	6	0.6	1.6	3	0.3	TX-5	0.36
20207113	M 2,5	6	0.6	1.6	4	0.3	TX-5	0.36
20207120	M 2,5	6	0.6	1.6	5	0.3	TX-5	0.36
20207137	M 2,5	6	0.6	1.6	6	0.3	TX-5	0.36
20207144	M 2,5	6	0.6	1.6	8	0.3	TX-5	0.36
20207151	M 2,5	6	0.6	1.6	10	0.3	TX-5	0.36
20207168	M 2,5	6	0.6	1.6	12	0.3	TX-5	0.36
20207175	M 3	7	0.8	2.0	5	0.4	TX-6	0.63
20207182	M 3	7	0.8	2.0	6	0.4	TX-6	0.63
20207199	M 3	7	0.8	2.0	8	0.4	TX-6	0.63
20207205	M 3	7	0.8	2.0	10	0.4	TX-6	0.63
20207212	M 3	7	0.8	2.0	12	0.4	TX-6	0.63
20207229	M 3	7	0.8	2.0	16	0.4	TX-6	0.63
20207236	M 4	8	0.9	2.5	6	0.5	TX-8	1.50
20207243	M 4	8	0.9	2.5	8	0.5	TX-8	1.50
20207250	M 4	8	0.9	2.5	10	0.5	TX-8	1.50
20207267	M 4	8	0.9	2.5	12	0.5	TX-8	1.50
20207274	M 4	8	0.9	2.5	16	0.5	TX-8	1.50
20207281	M 4	8	0.9	2.5	20	0.5	TX-8	1.50
20207298	M 4	8	0.9	2.5	25	0.5	TX-8	1.50
20207304	M 5	9	1.0	3.0	8	0.6	TX-10	3.00
20207311	M 5	9	1.0	3.0	10	0.6	TX-10	3.00
20207328	M 5	9	1.0	3.0	12	0.6	TX-10	3.00
20207335	M 5	9	1.0	3.0	16	0.6	TX-10	3.00
20207342	M 5	9	1.0	3.0	20	0.6	TX-10	3.00
20207359	M 5	9	1.0	3.0	25	0.6	TX-10	3.00

Order No.	d ₁	d ₂	h ₁	h ₂ max.	l ₁	r ₁ max.	TX size	Torque to Nm max.
20207366	M 5	9	1.0	3.0	30	0.6	TX-10	3.00
20207373	M 5	9	1.0	3.0	35	0.6	TX-10	3.00
20207380	M 6	12	1.2	3.5	8	0.7	TX-20	5.20
20207397	M 6	12	1.2	3.5	10	0.7	TX-20	5.20
20207403	M 6	12	1.2	3.5	12	0.7	TX-20	5.20
20207410	M 6	12	1.2	3.5	16	0.7	TX-20	5.20
20207427	M 6	12	1.2	3.5	20	0.7	TX-20	5.20
20207434	M 6	12	1.2	3.5	25	0.7	TX-20	5.20
20207441	M 6	12	1.2	3.5	30	0.7	TX-20	5.20
20207458	M 6	12	1.2	3.5	35	0.7	TX-20	5.20
20207465	M 6	12	1.2	3.5	40	0.7	TX-20	5.20



EP0190

Material

Plug body: case hardened steel (zinc-plated), stainless steel (A2, AISI 303 & A4 AISI 316) or aluminium (2024-T4).

Ball: heat-treated bearing steel or stainless steel (A2, AISI 303 & A4 AISI 316).

Technical Notes

These high pressure sealing plugs are used to blank off externally drilled holes for air

and gas.

No need for tapping, reaming, machining of O-ring grooves or the use of tapes or sealants.

Ensure the ball is fully seated before applying pressure.

Tips

Working pressure up to 450 bar (dependent on body material and material into which

installed).

Please consult technical pages for installation instructions and performance data.

Important Notes

Please refer to technical pages for product installation details.

Order No.	d ₁	l ₁	l ₂	d ₂ +0.1 -0.0	d ₃ max.	l ₃ min.	x ±0.2	Body	Ball
20250287	3.0	3.6	4.6	3.0	2.2	3.4	0.4	Steel ZP	Steel
20250317	4.0	4.0	5.2	4.0	3.3	3.8	0.2	Steel ZP	Steel
20250362	5.0	5.5	7.1	5.0	4.3	5.3	0.4	Steel ZP	Steel
20250416	6.0	6.5	8.7	6.0	5.3	6.3	0.4	Steel ZP	Steel
20250461	7.0	7.5	10.2	7.0	6.4	7.3	0.4	Steel ZP	Steel
20250515	8.0	8.5	11.6	8.0	7.4	8.3	0.3	Steel ZP	Steel
20250560	9.0	10.0	13.6	9.0	8.4	9.8	0.4	Steel ZP	Steel
20250614	10.0	11.0	15.2	10.0	9.4	10.8	0.4	Steel ZP	Steel
20250669	12.0	13.0	17.9	12.0	10.6	12.8	0.4	Steel ZP	Steel
20250713	14.0	15.0	20.6	14.0	12.7	14.5	0.4	Steel ZP	Steel
20250768	16.0	17.0	23.4	16.0	14.7	16.5	0.6	Steel ZP	Steel
20250812	18.0	19.0	26.4	18.0	16.7	18.5	0.6	Steel ZP	Steel
20250867	20.0	22.0	30.1	20.0	18.7	21.5	0.8	Steel ZP	Steel
20250911	22.0	25.0	34.0	22.0	20.7	24.5	0.8	Steel ZP	Steel
20250263	3.0	3.6	4.6	3.0	2.2	3.4	0.4	A2 s/s	Steel
20250294	4.0	4.0	5.2	4.0	3.3	3.8	0.2	A2 s/s	Steel
20250331	5.0	5.5	7.1	5.0	4.3	5.3	0.4	A2 s/s	Steel
20250386	6.0	6.5	8.7	6.0	5.3	6.3	0.4	A2 s/s	Steel
20250430	7.0	7.5	10.2	7.0	6.4	7.3	0.4	A2 s/s	Steel
20250485	8.0	8.5	11.6	8.0	7.4	8.3	0.3	A2 s/s	Steel
20250539	9.0	10.0	13.6	9.0	8.4	9.8	0.4	A2 s/s	Steel
20250584	10.0	11.0	15.2	10.0	9.4	10.8	0.4	A2 s/s	Steel
20250638	12.0	13.0	17.9	12.0	10.6	12.8	0.4	A2 s/s	Steel
20250683	14.0	15.0	20.6	14.0	12.7	14.5	0.4	A2 s/s	Steel
20250737	16.0	17.0	23.4	16.0	14.7	16.5	0.6	A2 s/s	Steel
20250782	18.0	19.0	26.4	18.0	16.7	18.5	0.6	A2 s/s	Steel
20250836	20.0	22.0	30.1	20.0	18.7	21.5	0.8	A2 s/s	Steel
20250881	22.0	25.0	34.0	22.0	20.7	24.5	0.8	A2 s/s	Steel

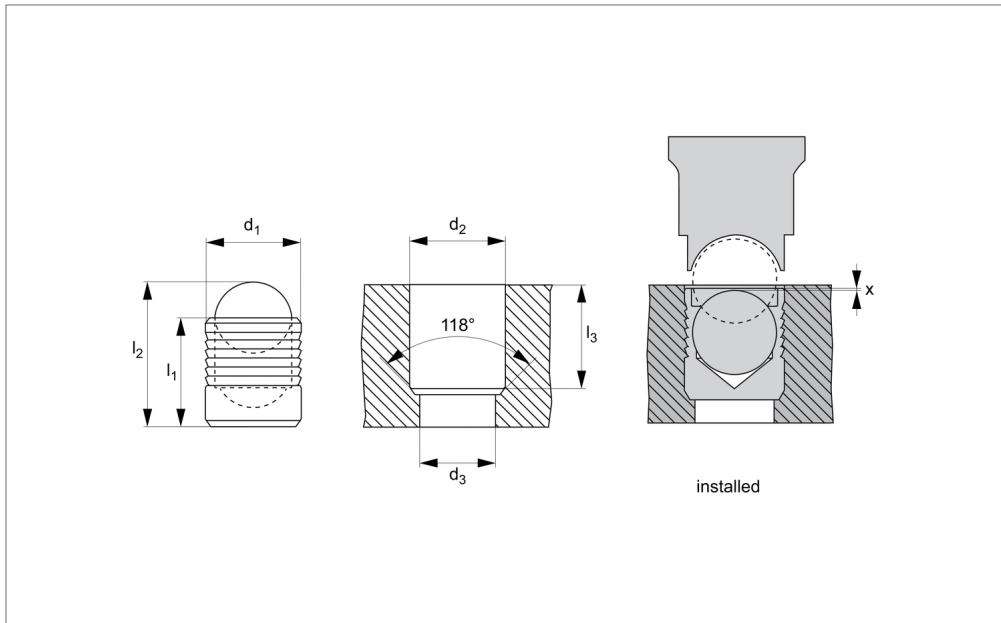
Expansion Sealing Plugs

Expansion Sealing Plugs

Metric - standard

EXPANSION SEALING PLUGS

Order No.	d ₁	l ₁	l ₂	d ₂ +0.1 -0.0	d ₃ max.	l ₃ min.	x ±0.2	Body	Ball
20250232	3.0	3.6	4.6	3.0	2.2	3.4	0.4	A4 s/s	A4 s/s
20250256	4.0	4.0	5.2	4.0	3.3	3.8	0.2	A4 s/s	A4 s/s
20250348	5.0	5.5	7.1	5.0	4.3	5.3	0.4	A4 s/s	A4 s/s
20250393	6.0	6.5	8.7	6.0	5.3	6.3	0.4	A4 s/s	A4 s/s
20250447	7.0	7.5	10.2	7.0	6.4	7.3	0.4	A4 s/s	A4 s/s
20250492	8.0	8.5	11.6	8.0	7.4	8.3	0.3	A4 s/s	A4 s/s
20250546	9.0	10.0	13.6	9.0	8.4	9.8	0.4	A4 s/s	A4 s/s
20250591	10.0	11.0	15.2	10.0	9.4	10.8	0.4	A4 s/s	A4 s/s
20250645	12.0	13.0	17.9	12.0	10.6	12.8	0.4	A4 s/s	A4 s/s
20250690	14.0	15.0	20.6	14.0	12.7	14.5	0.4	A4 s/s	A4 s/s
20250744	16.0	17.0	23.4	16.0	14.7	16.5	0.6	A4 s/s	A4 s/s
20250799	18.0	19.0	26.4	18.0	16.7	18.5	0.6	A4 s/s	A4 s/s
20250843	20.0	22.0	30.1	20.0	18.7	21.5	0.8	A4 s/s	A4 s/s
20250898	22.0	25.0	34.0	22.0	20.7	24.5	0.8	A4 s/s	A4 s/s
20250270	3.0	3.6	4.6	3.0	2.2	3.4	0.4	Aluminium	A2 s/s
20250300	4.0	4.0	5.2	4.0	3.3	3.8	0.2	Aluminium	A2 s/s
20250355	5.0	5.5	7.1	5.0	4.3	5.3	0.4	Aluminium	A2 s/s
20250409	6.0	6.5	8.7	6.0	5.3	6.3	0.4	Aluminium	A2 s/s
20250454	7.0	7.5	10.2	7.0	6.4	7.3	0.4	Aluminium	A2 s/s
20250508	8.0	8.5	11.6	8.0	7.4	8.3	0.3	Aluminium	A2 s/s
20250553	9.0	10.0	13.6	9.0	8.4	9.8	0.4	Aluminium	A2 s/s
20250607	10.0	11.0	15.2	10.0	9.4	10.8	0.4	Aluminium	A2 s/s
20250652	12.0	13.0	17.9	12.0	10.6	12.8	0.4	Aluminium	A2 s/s
20250706	14.0	15.0	20.6	14.0	12.7	14.5	0.4	Aluminium	A2 s/s
20250751	16.0	17.0	23.4	16.0	14.7	16.5	0.6	Aluminium	A2 s/s
20250805	18.0	19.0	26.4	18.0	16.7	18.5	0.6	Aluminium	A2 s/s
20250850	20.0	22.0	30.1	20.0	18.7	21.5	0.8	Aluminium	A2 s/s
20250904	22.0	25.0	34.0	22.0	20.7	24.5	0.8	Aluminium	A2 s/s
20250225	3.0	3.6	4.6	3.0	2.2	3.4	0.4	A2 s/s	A2 s/s
20250249	4.0	4.0	5.2	4.0	3.3	3.8	0.2	A2 s/s	A2 s/s
20250324	5.0	5.5	7.1	5.0	4.3	5.3	0.4	A2 s/s	A2 s/s
20250379	6.0	6.5	8.7	6.0	5.3	6.3	0.4	A2 s/s	A2 s/s
20250423	7.0	7.5	10.2	7.0	6.4	7.3	0.4	A2 s/s	A2 s/s
20250478	8.0	8.5	11.6	8.0	7.4	8.3	0.3	A2 s/s	A2 s/s
20250522	9.0	10.0	13.6	9.0	8.4	9.8	0.4	A2 s/s	A2 s/s
20250577	10.0	11.0	15.2	10.0	9.4	10.8	0.4	A2 s/s	A2 s/s
20250621	12.0	13.0	17.9	12.0	10.6	12.8	0.4	A2 s/s	A2 s/s
20250676	14.0	15.0	20.6	14.0	12.7	14.5	0.4	A2 s/s	A2 s/s
20250720	16.0	17.0	23.4	16.0	14.7	16.5	0.6	A2 s/s	A2 s/s
20250775	18.0	19.0	26.4	18.0	16.7	18.5	0.6	A2 s/s	A2 s/s
20250829	20.0	22.0	30.1	20.0	18.7	21.5	0.8	A2 s/s	A2 s/s
20250874	22.0	25.0	34.0	22.0	20.7	24.5	0.8	A2 s/s	A2 s/s



EP0191

Material

Plug body: case hardened steel (zinc-plated), stainless steel (A2, AISI 303 & A4 AISI 316) or aluminium (2024-T4).

Ball: heat-treated bearing steel or stainless steel (A2, AISI 303 & A4 AISI 316).

Technical Notes

These high pressure sealing plugs are used to blank off externally drilled holes for air

and gas.

No need for tapping, reaming, machining of O-ring grooves or the use of tapes or sealants.

Ensure the ball is fully seated before applying pressure.

Dimensions in inches.

Tips

Working pressure up to 450 bar (dependent

on body material and material into which installed).

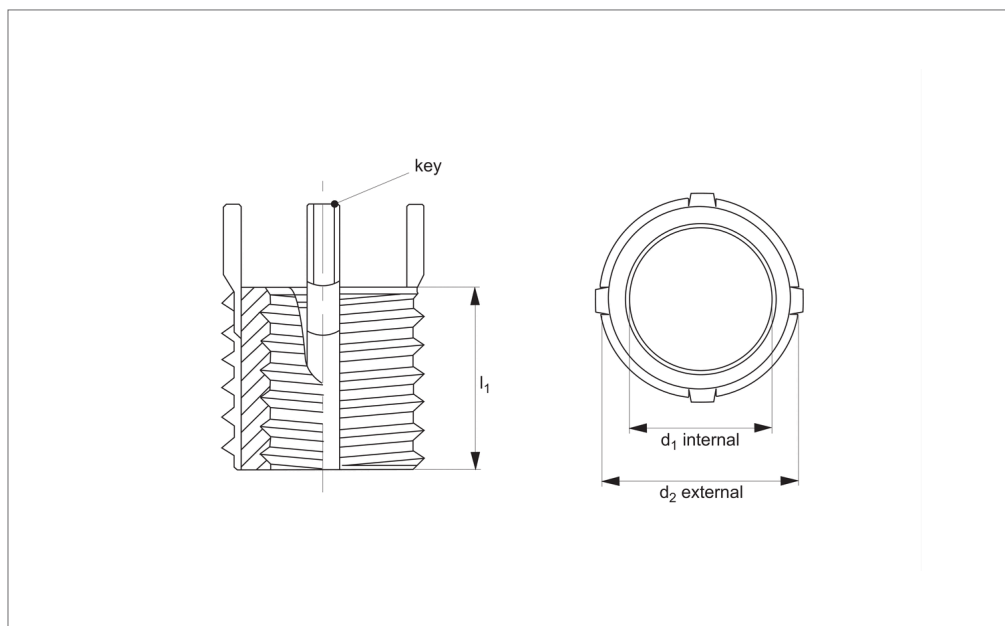
Please consult technical pages for installation instructions and performance data.

Important Notes

Please refer to technical pages for product installation details.

Order No.	d ₁	l ₁	l ₂	d ₂ +0.004 -0.000	d ₃ max.	l ₃ min.	x +0.0 -0.010	Body	Ball
20207960	0.0937	0.098	0.12	0.0937	0.070	0.081	0.010	Steel ZP	Steel
20208004	0.1250	0.125	0.16	0.1250	0.100	0.113	0.010	Steel ZP	Steel
20208059	0.1562	0.125	0.17	0.1562	0.130	0.113	0.010	Steel ZP	Steel
20208103	0.1875	0.187	0.24	0.1875	0.160	0.170	0.010	Steel ZP	Steel
20208158	0.2187	0.187	0.25	0.2187	0.190	0.170	0.010	Steel ZP	Steel
20208202	0.2500	0.225	0.30	0.2500	0.220	0.196	0.010	Steel ZP	Steel
20208257	0.2812	0.225	0.35	0.2812	0.250	0.233	0.010	Steel ZP	Steel
20208301	0.3125	0.280	0.39	0.3125	0.281	0.255	0.010	Steel ZP	Steel
20208356	0.3437	0.307	0.43	0.3437	0.312	0.275	0.010	Steel ZP	Steel
20208400	0.4062	0.365	0.52	0.4062	0.375	0.308	0.010	Steel ZP	Steel
20207946	0.0937	0.098	0.12	0.0937	0.070	0.081	0.010	A2 s/s	Steel
20207984	0.1250	0.125	0.16	0.1250	0.100	0.113	0.010	A2 s/s	Steel
20208028	0.1562	0.125	0.17	0.1562	0.130	0.113	0.010	A2 s/s	Steel
20208073	0.1875	0.187	0.24	0.1875	0.160	0.170	0.010	A2 s/s	Steel
20208127	0.2187	0.187	0.25	0.2187	0.190	0.170	0.010	A2 s/s	Steel
20208172	0.2500	0.225	0.30	0.2500	0.220	0.196	0.010	A2 s/s	Steel
20208226	0.2812	0.225	0.35	0.2812	0.250	0.233	0.010	A2 s/s	Steel
20208271	0.3125	0.280	0.39	0.3125	0.281	0.255	0.010	A2 s/s	Steel
20208325	0.3437	0.307	0.43	0.3437	0.312	0.275	0.010	A2 s/s	Steel
20208370	0.4062	0.365	0.52	0.4062	0.375	0.308	0.010	A2 s/s	Steel
20207939	0.0937	0.098	0.12	0.0937	0.070	0.081	0.010	A2 s/s	A2 s/s
20207977	0.1250	0.125	0.16	0.1250	0.100	0.113	0.010	A2 s/s	A2 s/s
20208011	0.1562	0.125	0.17	0.1562	0.130	0.113	0.010	A2 s/s	A2 s/s
20208066	0.1875	0.187	0.24	0.1875	0.160	0.170	0.010	A2 s/s	A2 s/s
20208110	0.2187	0.187	0.25	0.2187	0.190	0.170	0.010	A2 s/s	A2 s/s
20208165	0.2500	0.225	0.30	0.2500	0.220	0.196	0.010	A2 s/s	A2 s/s
20208219	0.2812	0.225	0.35	0.2812	0.250	0.233	0.010	A2 s/s	A2 s/s
20208264	0.3125	0.280	0.39	0.3125	0.281	0.255	0.010	A2 s/s	A2 s/s

Order No.	d ₁	l ₁	l ₂	d ₂ +0.004 -0.000	d ₃ max.	l ₃ min.	x +0.0 -0.010	Body	Ball
20208318	0.3437	0.307	0.43	0.3437	0.312	0.275	0.010	A2 s/s	A2 s/s
20208363	0.4062	0.365	0.52	0.4062	0.375	0.308	0.010	A2 s/s	A2 s/s
20207915	0.0937	0.098	0.12	0.0937	0.070	0.081	0.010	A4 s/s	A4 s/s
20207922	0.1250	0.125	0.16	0.1250	0.100	0.113	0.010	A4 s/s	A4 s/s
20208035	0.1562	0.125	0.17	0.1562	0.130	0.113	0.010	A4 s/s	A4 s/s
20208080	0.1875	0.187	0.24	0.1875	0.160	0.170	0.010	A4 s/s	A4 s/s
20208134	0.2187	0.187	0.25	0.2187	0.190	0.170	0.010	A4 s/s	A4 s/s
20208189	0.2500	0.225	0.30	0.2500	0.220	0.196	0.010	A4 s/s	A4 s/s
20208233	0.2812	0.225	0.35	0.2812	0.250	0.233	0.010	A4 s/s	A4 s/s
20208288	0.3125	0.280	0.39	0.3125	0.281	0.255	0.010	A4 s/s	A4 s/s
20208332	0.3437	0.307	0.43	0.3437	0.312	0.275	0.010	A4 s/s	A4 s/s
20208387	0.4062	0.365	0.52	0.4062	0.375	0.308	0.010	A4 s/s	A4 s/s
20207953	0.0937	0.098	0.12	0.0937	0.070	0.081	0.010	Aluminium	A2 s/s
20207991	0.1250	0.125	0.16	0.1250	0.100	0.113	0.010	Aluminium	A2 s/s
20208042	0.1562	0.125	0.17	0.1562	0.130	0.113	0.010	Aluminium	A2 s/s
20208097	0.1875	0.187	0.24	0.1875	0.160	0.170	0.010	Aluminium	A2 s/s
20208141	0.2187	0.187	0.25	0.2187	0.190	0.170	0.010	Aluminium	A2 s/s
20208196	0.2500	0.225	0.30	0.2500	0.220	0.196	0.010	Aluminium	A2 s/s
20208240	0.2812	0.225	0.35	0.2812	0.250	0.233	0.010	Aluminium	A2 s/s
20208295	0.3125	0.280	0.39	0.3125	0.281	0.255	0.010	Aluminium	A2 s/s
20208349	0.3437	0.307	0.43	0.3437	0.312	0.275	0.010	Aluminium	A2 s/s
20208394	0.4062	0.365	0.52	0.4062	0.375	0.308	0.010	Aluminium	A2 s/s



E22000

THREADED INSERTS STAINLESS

Material

Inserts: stainless steel (AISI 303) or equivalent. Passivated.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

$\pm 0,25$, unless specified.

Tap drill hole tolerances:

6,9 to 10,8 = $+0,10/-0,025$.

12,8 and over = $+0,13/-0,025$.

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads M 8 and over. Two locking keys on internal threads smaller than M 8.

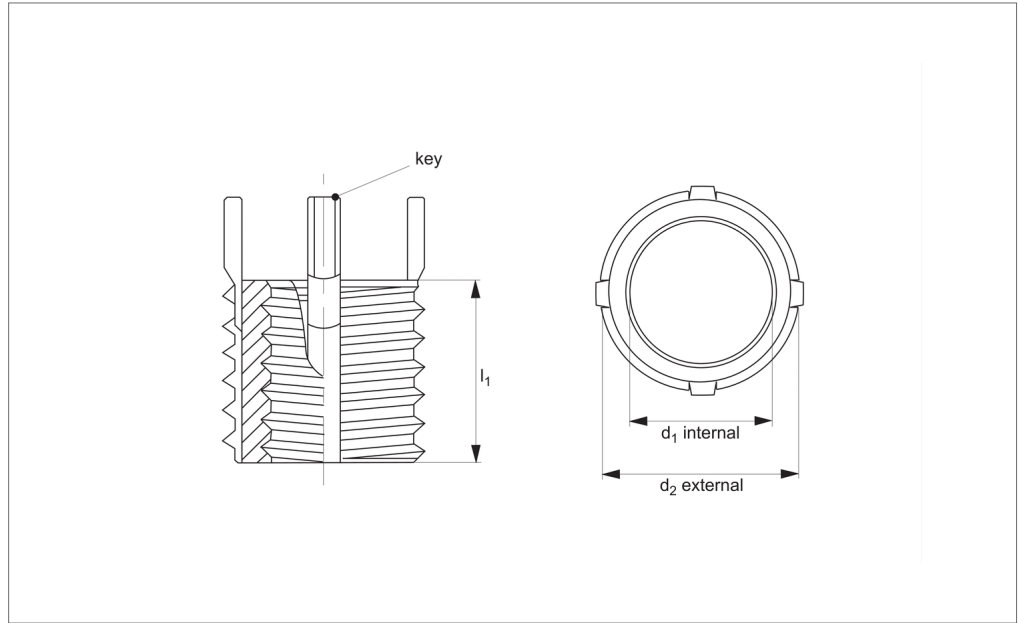
Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

Removal drill size and drill depth as speci-

Order No.	Int. d_1 tol. 6H	Int. thread type d_1	Ext. d_2 tol. 6g	Ext. thread type d_2	l_1	Inst. tap drill size	Inst. tool ref. 22060	Inst. c'sink dia. $\pm 0,25 \pm$ 0.000	Inst. thread tap tol. 6H	Inst. thread depth min.	Removal drill size	Removal drill depth
20217815	M 5x0,80	Coarse	M 8x1,25	Coarse	8	6,9	.W0510	8,3	M 8x1,25	9,5	5,5	4,0
20217822	M 6x1,00	Coarse	M10x1,25	Fine	10	8,8	.W0520	10,3	M10x1,25	11,5	7,5	4,8
20217839	M 8x1,25	Coarse	M12x1,25	Fine	12	10,8	.W0530	12,3	M12x1,25	13,5	9,5	4,8
20217860	M 8x1,00	Fine	M12x1,25	Fine	12	10,8	.W0530	12,3	M12x1,25	13,5	9,5	4,8
20217846	M10x1,50	Coarse	M14x1,50	Fine	14	12,8	.W0550	14,3	M14x1,50	15,5	11,5	4,8
20217877	M10x1,25	Fine	M14x1,50	Fine	14	12,8	.W0550	14,3	M14x1,50	15,5	11,5	4,8
20217853	M12x1,75	Coarse	M16x1,50	Fine	16	14,2	.W0560	14,3	M16x1,50	17,5	13,5	4,8
20217884	M12x1,25	Fine	M16x1,50	Fine	16	14,8	.W0560	16,3	M16x1,50	17,5	13,5	4,8



E22002



Material

Inserts: stainless steel (AISI 303) or equivalent. Passivated.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

±0,25, unless specified.

Tap drill hole tolerances:

6,9 to 10,8 = +0,10/-0,025.

12,8 and over = +0,13/-0,025.

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

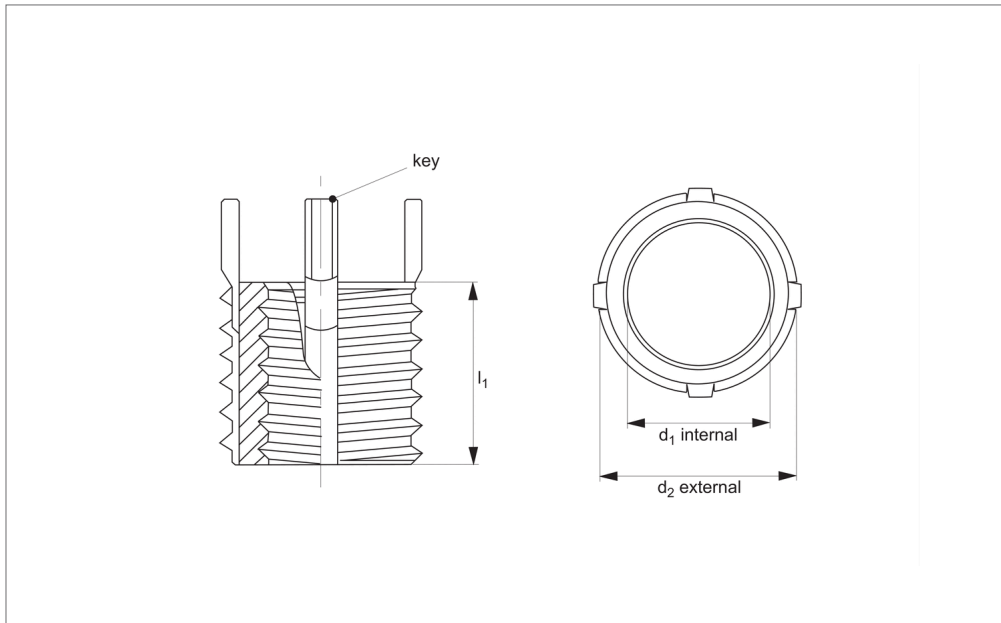
Important Notes

Four locking keys on internal threads M 8 and over. Two locking keys on internal threads smaller than M 8.

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

Removal drill size and drill depth as speci-

Order No.	Int. d ₁ tol. 6H	Int. thread type d ₁	Ext. d ₂ tol. 6g	Ext. thread type d ₂	l ₁	Inst. tool ref. 22062	Inst. tap drill size	Inst. c'sink dia. ±0.25 ± 0.000	Inst. thread tap tol. 6H	Inst. thread depth min.	Removal drill size	Removal drill depth
20217587	M 4x0,70	Coarse	M 8x1,25	Coarse	8	.W0630	6,9	8,3	M 8x1,25	9,5	5,5	4,0
20217594	M 5x0,80	Coarse	M10x1,25	Fine	10	.W0640	8,8	10,3	M10x1,25	12,5	7,5	4,8
20217600	M 6x1,00	Coarse	M12x1,25	Fine	12	.W0650	10,8	12,3	M12x1,25	14,5	9,5	4,8
20217617	M 8x1,25	Coarse	M14x1,50	Fine	14	.W0660	12,8	14,3	M14x1,50	16,5	11,5	4,8
20217624	M 8x1,00	Fine	M14x1,50	Fine	14	.W0660	12,8	14,3	M14x1,50	16,5	11,5	4,8
20217631	M10x1,50	Coarse	M16x1,50	Fine	16	.W0670	14,8	16,3	M16x1,50	18,5	13,5	4,8
20217648	M10x1,25	Fine	M16x1,50	Fine	16	.W0670	14,8	16,3	M16x1,50	18,5	13,5	4,8
20217945	M12x1,75	Coarse	M18x1,50	Fine	18	.W0690	16,8	18,3	M18x1,50	20,5	15,5	4,8
20217655	M12x1,25	Fine	M18x1,50	Fine	18	.W0690	16,8	18,3	M18x1,50	20,5	15,5	4,8
20217662	M14x2,00	Coarse	M20x1,50	Fine	20	.W0700	18,8	20,3	M20x1,50	22,5	17,5	4,8
20217679	M14x1,50	Fine	M20x1,50	Fine	20	.W0700	18,8	20,3	M20x1,50	22,5	17,5	4,8
20217686	M16x2,00	Coarse	M22x1,50	Fine	22	.W0710	20,5	22,3	M22x1,50	24,5	17,8	6,4
20217693	M16x1,50	Fine	M22x1,50	Fine	22	.W0710	20,5	22,3	M22x1,50	24,5	17,8	6,4
20217709	M18x1,50	Fine	M24x1,50	Fine	24	.W0720	22,5	24,3	M24x1,50	26,5	19,8	6,4
20217716	M20x2,50	Coarse	M30x2,00	Non-Std	30	.W0730	28,0	30,3	M30x2,00	34,5	25,8	6,4
20217723	M20x1,50	Fine	M30x2,00	Non-Std	30	.W0730	28,0	30,3	M30x2,00	34,5	25,8	6,4
20217730	M22x1,50	Fine	M32x2,00	Non-Std	32	.W0740	30,0	32,3	M32x2,00	36,5	27,8	6,4
20217747	M24x3,00	Coarse	M33x2,00	Non-Std	33	.W0750	31,0	33,3	M33x2,00	37,5	28,8	6,4
20217754	M24x2,00	Fine	M33x2,00	Non-Std	33	.W0750	31,0	33,3	M33x2,00	37,5	28,8	6,4



E22012

THREADED INSERTS STAINLESS

Material

Inserts: stainless steel (AISI 303) or equivalent. Passivated.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

$\pm 0,010$ " unless specified.

Tap drill hole tolerances:

0,234 to 0,500 = $+0,004/-0,001$ ".

0,500 and over = $+0,005/-0,001$ ".

Tips

Order installation tool separately, as identified by „Inst. Tool ref.“ in table.

Important Notes

Four locking keys on internal threads M8 and over. Two locking keys on internal

threads smaller than M8.

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

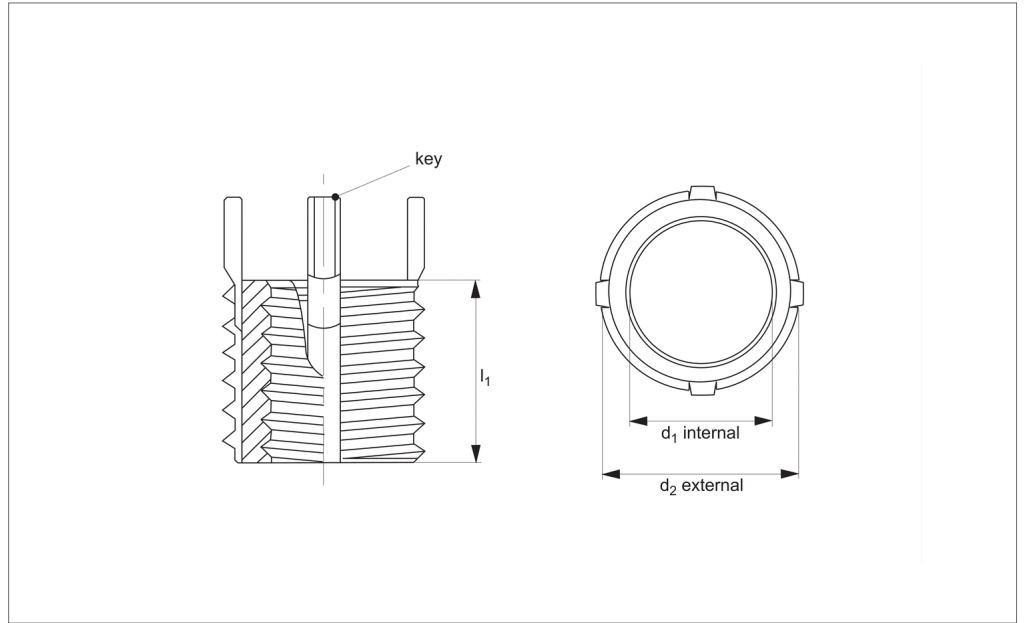
Removal drill size and drill depth as specified in table.

Internal thread in metric. External thread in inches.

Order No.	Int. d_1 tol. 6H	Int. thread type d_1	Ext. d_2 tol. 2A	Ext. thread type d_2	l_1	Inst. tool ref. 22064	Inst. tap drill size	Inst. c'sink dia. $+0.010 -0.000$	Inst. thread tap tol. 2B	Inst. thread depth min.	Removal drill size	Removal drill depth
20218003	M 6x1,00	Coarse	3/8"-16	UNC	0,3	.W0430	21/64"	0,38	3/8"-16	0,37	9/32"	1/8"
20218010	M 8x1,25	Coarse	1/2"-13	UNC	0,4	.W0440	29/64"	0,51	1/2"-13	0,50	13/32"	3/16"
20218027	M10x1,50	Coarse	5/8"-11	UNC	0,5	.W0450	37/64"	0,63	5/8"-11	0,56	17/32"	3/16"
20218034	M12x1,75	Coarse	3/4"-16	UNF	0,6	.W0470	45/64"	0,76	3/4"-16	0,68	21/32"	3/16"
20218041	M14x2,00	Coarse	7/8"-14	UNF	0,8	.W0480	53/64"	0,88	7/8"-14	0,94	25/32"	5/16"
20218058	M16x2,00	Coarse	1"-12	UNF	0,9	.W0490	15/16"	1,02	1"-12	1,00	27/32"	5/16"



E22020



Material

Inserts: stainless steel (AISI 303) or equivalent. Passivated.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

All dimensions in inches.

General tolerances:

± 0,010" unless specified.

Tap drill hole tolerances:

0,234 to 0,500 = +0,004/-0,001".

0,500 and over = +0,005/-0,001".

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads 5/

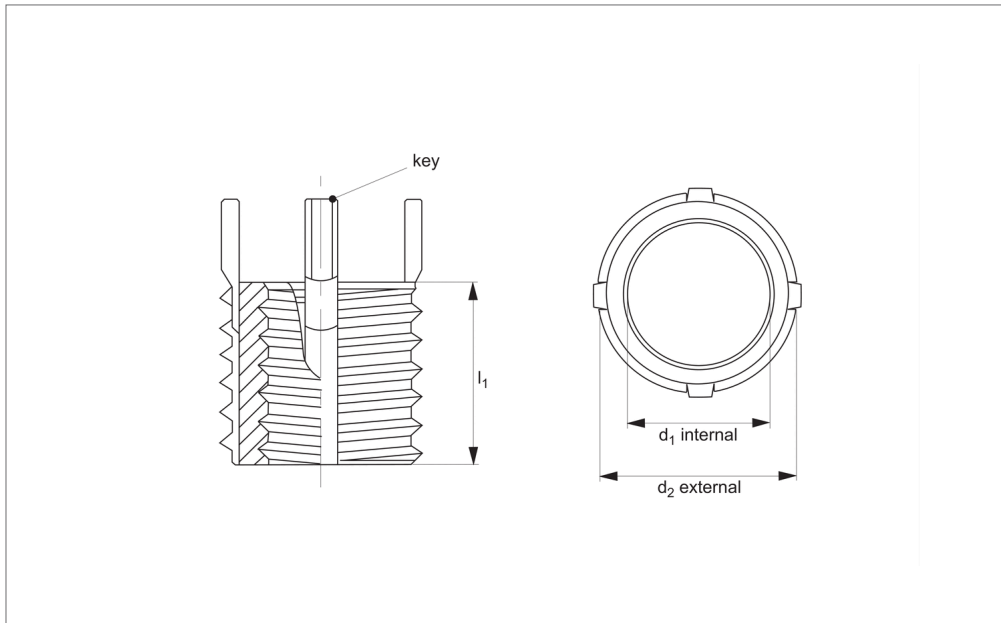
16" and over. Two locking keys on internal threads smaller than 5/16".

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

Removal drill size and drill depth as specified in table.

All dimensions in inches.

Order No.	Int. d ₁ tol. 2B	Int. thread type d ₁	Ext. d ₂ tol. 2A	Ext. thread type d ₂	l ₁	Inst. tap drill size	Inst. tool ref. 22054	Inst. c'sink dia. +0.010 - 0.000	Inst. thread tap tol. 2B	Inst. thread depth min.	Removal drill size	Removal drill depth
20218126	10-24	UNC	5/16"-18	UNC	0,31	17/64"	.W0210	0,32	5/16"-18	0,37	7/32"	1/8"
20218164	10-32	UNF	5/16"-18	UNC	0,31	17/64"	.W0210	0,32	5/16"-18	0,37	7/32"	1/8"
20217938	1/4"-20	UNC	3/8"-16	UNC	0,37	21/64"	.W0220	0,38	3/8"-16	0,43	9/32"	3/16"
20218171	1/4"-28	UNF	3/8"-16	UNC	0,37	21/64"	.W0220	0,38	3/8"-16	0,43	9/32"	3/16"
20218133	5/16"-18	UNC	7/16"-14	UNC	0,43	25/64"	.W0230	0,44	7/16"-14	0,50	11/32"	3/16"
20218188	5/16"-24	UNF	7/16"-14	UNC	0,43	25/64"	.W0230	0,44	7/16"-14	0,50	11/32"	3/16"
20217990	3/8"-16	UNC	1/2"-13	UNC	0,50	29/64"	.W0240	0,51	1/2"-13	0,56	13/32"	3/16"
20218195	3/8"-16	UNF	1/2"-13	UNC	0,50	29/64"	.W0240	0,51	1/2"-13	0,56	13/32"	3/16"
20218140	7/16"-14	UNC	9/16"-12	UNC	0,56	33/64"	.W0250	0,57	9/16"-12	0,62	15/32"	3/16"
20218201	7/16"-20	UNF	9/16"-12	UNC	0,56	33/64"	.W0250	0,57	9/16"-12	0,62	15/32"	3/16"
20218157	1/2"-13	UNC	5/8"-11	UNC	0,62	37/64"	.W0260	0,63	5/8"-11	0,68	17/32"	3/16"
20218218	1/2"-20	UNF	5/8"-11	UNC	0,62	37/64"	.W0260	0,63	5/8"-11	0,68	17/32"	3/16"



E22022

THREADED INSERTS STAINLESS

Material

Inserts: stainless steel (AISI 303) or equivalent. Passivated.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

± 0,010" unless specified.

Tap drill hole tolerances:

0,234 to 0,500 = +0,004/-0,001".

0,500 and over = +0,005/-0,001".

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads 5/16" and over. Two locking keys on internal

threads smaller than 5/16".

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

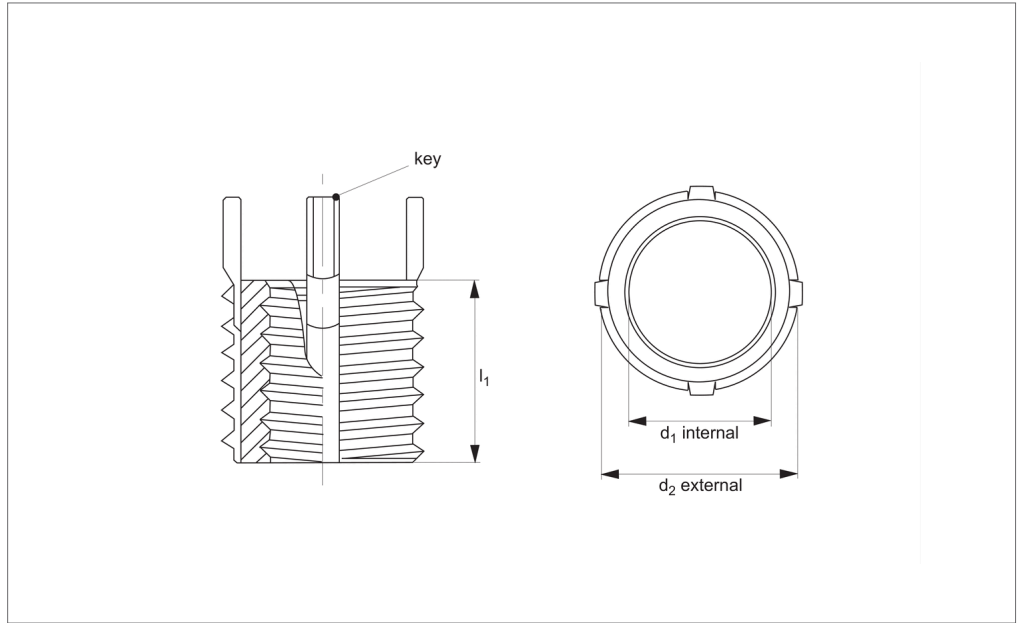
Removal drill size and drill depth as specified in table.

All dimensions in inches.

Order No.	Int. d ₁ tol. 2B	Int. thread type d ₁	Ext. d ₂ tol. 2A	Ext. thread type d ₂	l ₁	Inst. tool ref. 22056	Inst. tap drill size	Inst. c'sink dia. +0.010 - 0.000	Inst. thread tap tol. 2B	Inst. thread depth min.	Removal drill size	Removal drill depth
20218225	8-32	UNC	5/16"-18	UNC	0,31	.W0000	17/64"	0,32	5/16"-18	0,37	7/32"	1/8"
20218232	10-24	UNC	3/8"-16	UNC	0,31	.W0010	21/64"	0,38	3/8"-16	0,37	9/32"	1/8"
20218331	10-32	UNF	3/8"-16	UNC	0,31	.W0010	21/64"	0,38	3/8"-16	0,37	9/32"	1/8"
20218249	1/4"-20	UNC	7/16"-14	UNC	0,37	.W0020	25/64"	0,44	7/16"-14	0,43	11/32"	3/16"
20218348	1/4"-28	UNF	7/16"-14	UNC	0,37	.W0020	25/64"	0,44	7/16"-14	0,43	11/32"	3/16"
20218256	5/16"-18	UNC	1/2"-13	UNC	0,43	.W0030	29/64"	0,51	1/2"-13	0,50	13/32"	3/16"
20218355	5/16"-24	UNF	1/2"-13	UNC	0,43	.W0030	29/64"	0,51	1/2"-13	0,50	13/32"	3/16"
20218263	3/8"-16	UNC	9/16"-12	UNC	0,50	.W0040	33/64"	0,57	9/16"-12	0,56	15/32"	3/16"
20218362	3/8"-24	UNF	9/16"-12	UNC	0,50	.W0040	33/64"	0,57	9/16"-12	0,56	15/32"	3/16"
20218270	7/16"-14	UNC	5/8"-11	UNC	0,62	.W0050	37/64"	0,63	5/8"-11	0,68	17/32"	3/16"
20218379	7/16"-20	UNF	5/8"-11	UNC	0,62	.W0050	37/64"	0,63	5/8"-11	0,68	17/32"	3/16"
20217907	1/2"-13	UNC	3/4"-16	UNF	0,62	.W0060	45/64"	0,76	3/4"-16	0,68	21/32"	3/16"
20218386	1/2"-20	UNF	3/4"-16	UNF	0,62	.W0060	45/64"	0,76	3/4"-16	0,68	21/32"	3/16"
20218287	9/16"-12	UNC	3/4"-16	UNF	0,81	.W0070	45-64"	0,76	3/4"-16	0,94	21/32"	3/16"
20218393	9/16"-18	UNF	3/4"-16	UNF	0,81	.W0070	45-64"	0,76	3/4"-16	0,94	21/32"	3/16"
20218294	5/8"-11	UNC	7/8"-14	UNF	0,87	.W0080	53/64"	0,88	7/8"-14	1,00	25/32"	5/16"
20218409	5/8"-18	UNF	7/8"-14	UNF	0,87	.W0080	53/64"	0,88	7/8"-14	1,00	25/32"	5/16"
20218300	3/4"-10	UNC	1-1/8"-12	UNF	1,12	.W0090	1-1/16"	1,14	1-1/8"-12	1,31	31/32"	5/16"
20218416	3/4"-16	UNF	1-1/8"-12	UNF	1,12	.W0090	1-1/16"	1,14	1-1/8"-12	1,31	31/32"	5/16"
20218317	7/8"-9	UNC	1-1/4"-12	UNF	1,25	.W0100	1-3/16"	1,27	1-1/4"-12	1,44	1-3/32"	5/16"
20218423	7/8"-14	UNF	1-1/4"-12	UNF	1,25	.W0100	1-3/16"	1,27	1-1/4"-12	1,44	1-3/32"	5/16"
20218324	1"-8	UNC	1-3/8"-12	UNF	1,37	.W0110	1-5/16"	1,39	1-3/8"-12	1,56	1-7/32"	5/16"
20218430	1"-12	UNF	1-3/8"-12	UNF	1,37	.W0110	1-5/16"	1,39	1-3/8"-12	1,56	1-7/32"	5/16"



E22024



Material

Inserts: stainless steel (AISI 303) or equivalent. Passivated.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

± 0,010" unless specified.

Tap drill hole tolerances:

0,234 to 0,500 = +0,004/-0,001"
0,500 and over = +0,005/-0,001"

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads 5/16" and over. Two locking keys on internal

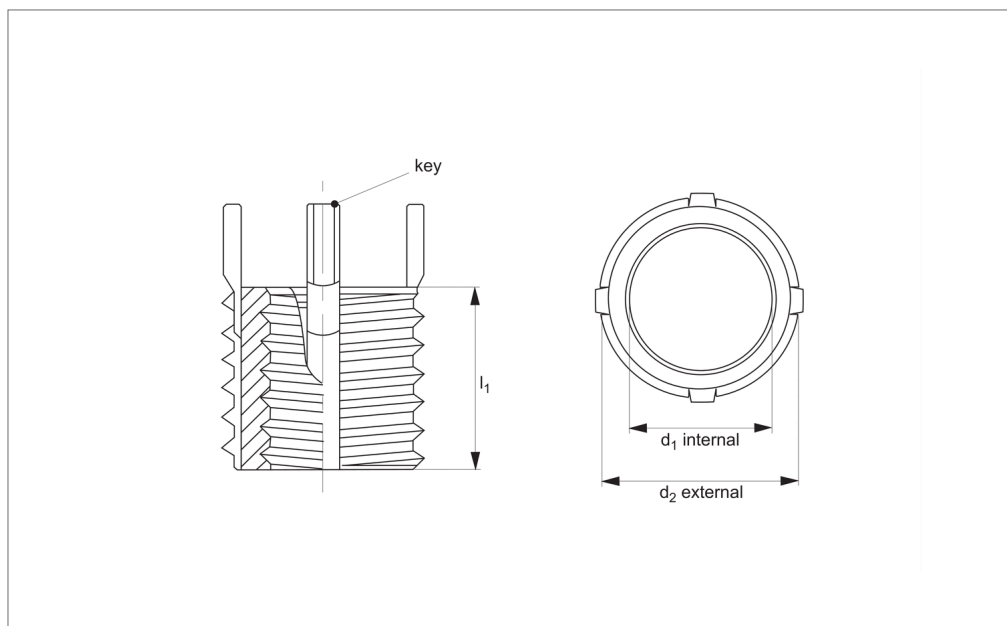
threads smaller than 5/16".

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

Removal drill size and drill depth as specified in table.

All dimensions in inches.

Order No.	Int. d ₁ tol. 2B	Int. thread type d ₁	Ext. d ₂ (mod.) class 2A	Ext. thread type d ₂	l ₁	Inst. c'sink dia. +0.010 - 0.000	Inst. tap drill size	Inst. thread depth min.	Inst. thread tap tol. 2B	Inst. tool ref. 22058	Removal drill size	Removal drill depth
20218447	6 - 32	UNC	5/16" - 18	UNC	0,31	0,32	17/64"	0,37	5/16"-18	.W0310	7/32"	1/8"
20218454	8 - 32	UNC	3/8" - 16	UNC	0,31	0,38	21/64"	0,37	3/8"-16	.W0320	9/32"	1/8"
20218461	10 - 24	UNC	7/16" - 14	UNC	0,31	0,44	25/64"	0,37	7/16"-14	.W0330	11/32"	3/16"
20218577	10 - 32	UNF	7/16" - 14	UNC	0,31	0,44	25/64"	0,37	7/16"-14	.W0330	11/32"	3/16"
20218478	1/4" - 20	UNC	1/2" - 13	UNC	0,37	0,51	29/64"	0,43	1/2"-13	.W0340	13/32"	3/16"
20218584	1/4" - 28	UNF	1/2" - 13	UNC	0,37	0,51	29/64"	0,43	1/2"-13	.W0340	13/32"	3/16"
20218485	5/16" -	UNC	9/16" - 12	UNC	0,43	0,57	33/64"	0,50	9/16"-12	.W0350	15/32"	3/16"
20218591	5/16" -	UNF	9/16" - 12	UNC	0,43	0,57	33/64"	0,50	9/16"-12	.W0350	15/32"	3/16"
20218492	3/8" - 16	UNC	5/8" - 11	UNC	0,50	0,63	37/64"	0,56	5/8"-11	.W0360	17/32"	3/16"
20218607	3/8" - 24	UNF	5/8" - 11	UNC	0,50	0,63	37/64"	0,56	5/8"-11	.W0360	17/32"	3/16"
20218508	7/16" -	UNC	3/4" - 16	UNF	0,62	0,76	45/64"	0,68	3/4"-16	.W0370	21/32"	3/16"
20218614	7/16" -	UNF	3/4" - 16	UNF	0,62	0,76	45/64"	0,68	3/4"-16	.W0370	21/32"	3/16"
20218515	1/2" - 13	UNC	7/8" - 14	UNF	0,68	0,88	53/64"	0,75	7/8"-14	.W0380	25/32"	5/16"
20218621	1/2" - 20	UNF	7/8" - 14	UNF	0,68	0,88	53/64"	0,75	7/8"-14	.W0380	25/32"	5/16"
20218522	9/16" -	UNC	7/8" - 14	UNF	0,81	0,88	53/64"	0,94	7/8"-14	.W0390	25/32"	5/16"
20218638	9/16" -	UNF	7/8" - 14	UNF	0,81	0,88	53/64"	0,94	7/8"-14	.W0390	25/32"	5/16"
20218539	5/8" - 11	UNC	1" - 12	UNF	0,87	1,02	15/16"	1,00	1"-12	.W0400	27/32"	5/16"
20218645	5/8" - 18	UNF	1" - 12	UNF	0,87	1,02	15/16"	1,00	1"-12	.W0400	27/32"	5/16"
20218546	3/4" - 10	UNC	1 - 1/4" - 12	UNF	1,12	1,27	1-3/16"	1,31	1-1/4"-12	.W0410	1-3/32"	5/16"
20218652	3/4" - 16	UNF	1 - 1/4" - 12	UNF	1,12	1,27	1-3/16"	1,31	1-1/4"-12	.W0410	1-3/32"	5/16"
20218553	7/8" - 9	UNC	1 - 3/8" - 12	UNF	1,25	1,39	1-5/16"	1,44	1-3/8"-12	.W0420	1-7/32"	5/16"
20218669	7/8" - 14	UNF	1 - 3/8" - 12	UNF	1,25	1,39	1-5/16"	1,44	1-3/8"-12	.W0420	1-7/32"	5/16"
20218560	1" - 8	UNC	1 - 1/2" - 12	UNF	1,37	1,52	1-7/16"	1,56	1-1/2"-12	.W0430	1-11/32"	5/16"
20218676	1" - 12	UNF	1 - 1/2" - 12	UNF	1,37	1,52	1-7/16"	1,56	1-1/2"-12	.W0430	1-11/32"	5/16"



E22004

THREADED INSERTS STEEL

Material

Inserts: carbon steel (C1215) or equivalent. Zinc phosphate.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

±0,25, unless specified.

Tap drill hole tolerances:

6,9 to 10,8 = +0,10/-0,025.

12,8 and over = +0,13/-0,025.

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads M 8 and over. Two locking keys on internal threads smaller than M 8.

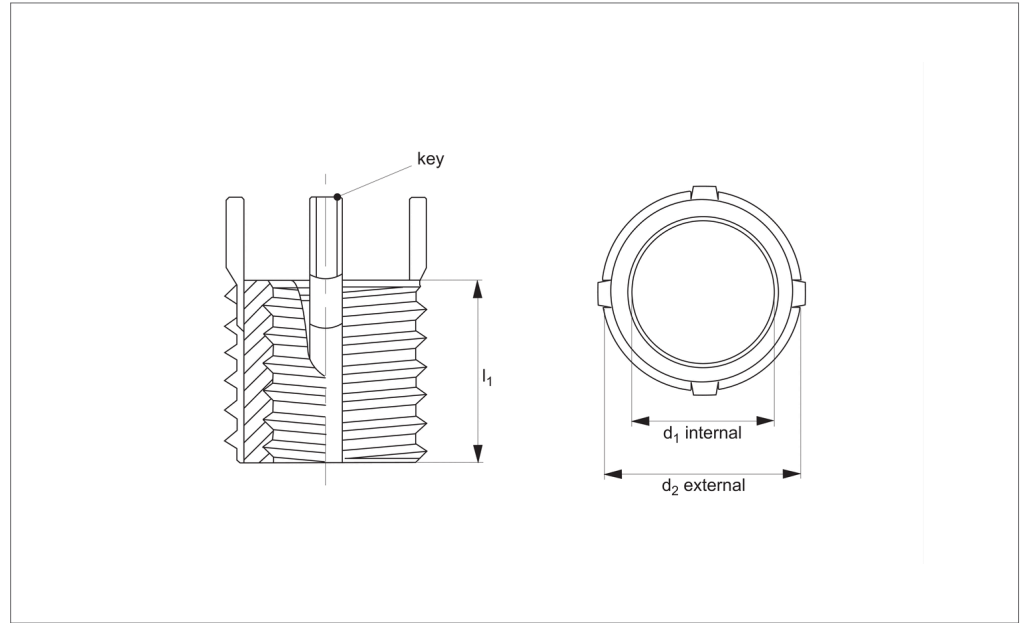
Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

Removal drill size and drill depth as speci-

Order No.	Int. d ₁ tol. 6H	Int. thread type d ₁	Ext. d ₂ tol. 6g	Ext. thread type d ₂	l ₁	Inst. tap drill size	Inst. tool ref. 22060	Inst. c'sink dia. ±0.25 ±0	Inst. thread tap tol. 6H	Inst. thread depth min.	Removal drill size	Removal drill depth
20217761	M 5x0,80	Coarse	M 8x1,25	Coarse	8	6,9	.W0510	8,3	M 8x1,25	9,5	5,5	4,0
20217778	M 6x1,00	Coarse	M10x1,25	Fine	10	8,8	.W0520	10,3	M10x1,25	11,5	7,5	4,8
20217785	M 8x1,25	Coarse	M12x1,25	Fine	12	10,8	.W0530	12,3	M12x1,25	13,5	9,5	4,8
20217976	M 8x1,00	Fine	M12x1,25	Fine	12	10,8	.W0530	12,3	M12x1,25	13,5	9,5	4,8
20217792	M10x1,50	Coarse	M14x1,50	Fine	14	12,8	.W0550	14,3	M14x1,50	15,5	11,5	4,8
20217983	M10x1,25	Fine	M14x1,50	Fine	14	12,8	.W0550	14,3	M14x1,50	15,5	11,5	4,8
20217808	M12x1,75	Coarse	M16x1,50	Fine	16	14,8	.W0560	16,3	M16x1,50	17,5	13,5	4,8
20217921	M12x1,25	Fine	M16x1,50	Fine	16	14,8	.W0560	16,3	M16x1,50	17,5	13,5	4,8



E22006



Material

Inserts: carbon steel (C1215) or equivalent. Zinc phosphate.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

±0,25, unless specified.

Tap drill hole tolerances:

6,9 to 10,8 = +0,10/-0,025.

12,8 and over = +0,13/-0,025.

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads M 8 and over. Two locking keys on internal threads smaller than M 8.

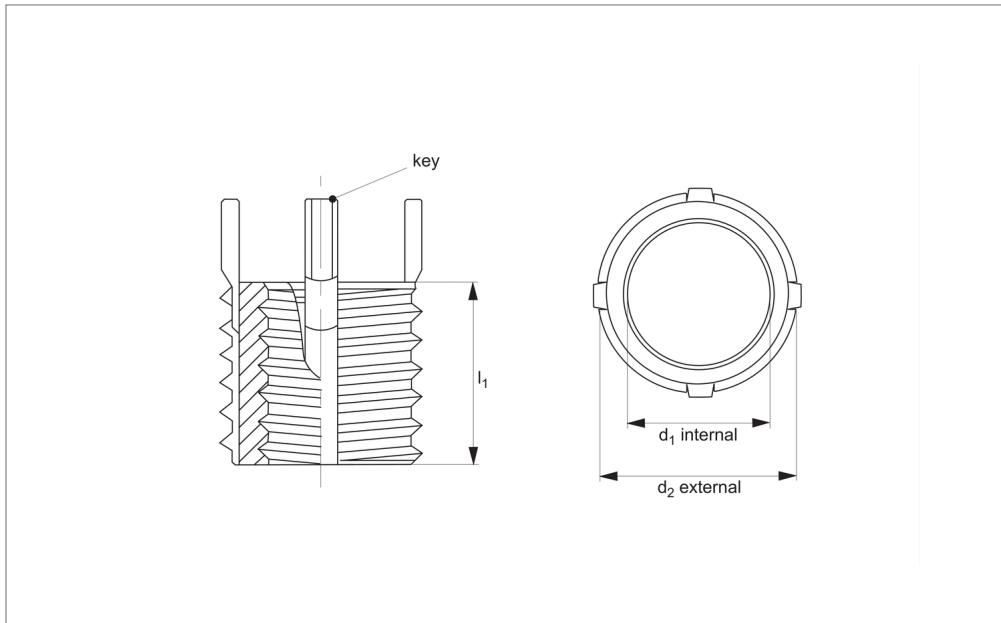
Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

Removal drill size and drill depth as speci-

Order No.	Int. d ₁ tol. 6H	Int. thread type d ₁	Ext. d ₂ tol. 6g	Ext. thread type d ₂	l ₁	Inst. tool ref. 22062	Inst. tap drill size	Inst. c'sink dia. ±0.25 ± 0.000	Inst. thread tap tol. 6H	Inst. thread depth min.	Removal drill size	Removal drill depth
20217433	M 4x0,70	Coarse	M 8x1,25	Coarse	8	.W0630	6,9	8,3	M 8x1,25	9,5	5,5	4,0
20217914	M 5x0,80	Coarse	M10x1,25	Fine	10	.W0640	8,8	10,3	M10x1,25	12,5	7,5	4,8
20217440	M 6x1,00	Coarse	M12x1,25	Fine	12	.W0650	10,8	12,3	M12x1,25	14,5	9,5	4,8
20217457	M 8x1,25	Coarse	M14x1,50	Fine	14	.W0660	12,8	14,3	M14x1,50	16,5	11,5	4,8
20217518	M 8x1,00	Fine	M14x1,50	Fine	14	.W0660	12,8	14,3	M14x1,50	16,5	11,5	4,8
20217464	M10x1,50	Coarse	M16x1,50	Fine	16	.W0670	14,8	16,3	M16x1,50	18,5	13,5	4,8
20217525	M10x1,25	Fine	M16x1,50	Fine	16	.W0670	14,8	16,3	M16x1,50	18,5	13,5	4,8
20217471	M12x1,75	Coarse	M18x1,50	Fine	18	.W0690	16,8	18,3	M18x1,50	20,5	15,5	4,8
20217532	M12x1,25	Fine	M18x1,50	Fine	18	.W0690	16,8	18,3	M18x1,50	20,5	15,5	4,8
20217488	M14x2,00	Coarse	M20x1,50	Fine	20	.W0700	18,8	20,3	M20x1,50	22,5	17,5	4,8
20217952	M14x1,50	Fine	M20x1,50	Fine	20	.W0700	18,8	20,3	M20x1,50	22,5	17,5	4,8
20217495	M16x2,00	Coarse	M22x1,50	Fine	22	.W0710	20,5	22,3	M22x1,50	24,5	17,8	6,4
20217549	M16x1,50	Fine	M22x1,50	Fine	22	.W0710	20,5	22,3	M22x1,50	24,5	17,8	6,4
20217556	M18x1,50	Fine	M24x1,50	Fine	24	.W0720	22,5	24,3	M24x1,50	26,5	19,8	6,4
20217501	M20x2,50	Coarse	M30x2,00	Non-Std	30	.W0730	28,0	30,3	M30x2,00	34,5	25,8	6,4
20217563	M20x1,50	Fine	M30x2,00	Non-Std	30	.W0730	28,0	30,3	M30x2,00	34,5	25,8	6,4
20217570	M22x1,50	Fine	M32x2,00	Non-Std	32	.W0740	30,0	32,3	M32x2,00	36,5	27,8	6,4
20217891	M24x3,00	Coarse	M33x2,00	Non-Std	33	.W0750	31,0	33,3	M33x2,00	37,5	28,8	6,4
20217969	M24x2,00	Fine	M33x2,00	Non-Std	33	.W0750	31,0	33,3	M33x2,00	37,5	28,8	6,4

Threaded Insert - Metric - Inch heavy duty - carbon steel

Threaded Inserts Steel



E22010

THREADED INSERTS STEEL

Material

Inserts: carbon steel (C1215) or equivalent. Zinc phosphate.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

$\pm 0,010''$ unless specified.

Tap drill hole tolerances:

0,234 to 0,500 = $+0,004/-0,001''$.

0,500 and over = $+0,005/-0,001''$.

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads M8 and over. Two locking keys on internal

threads smaller than M8.

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

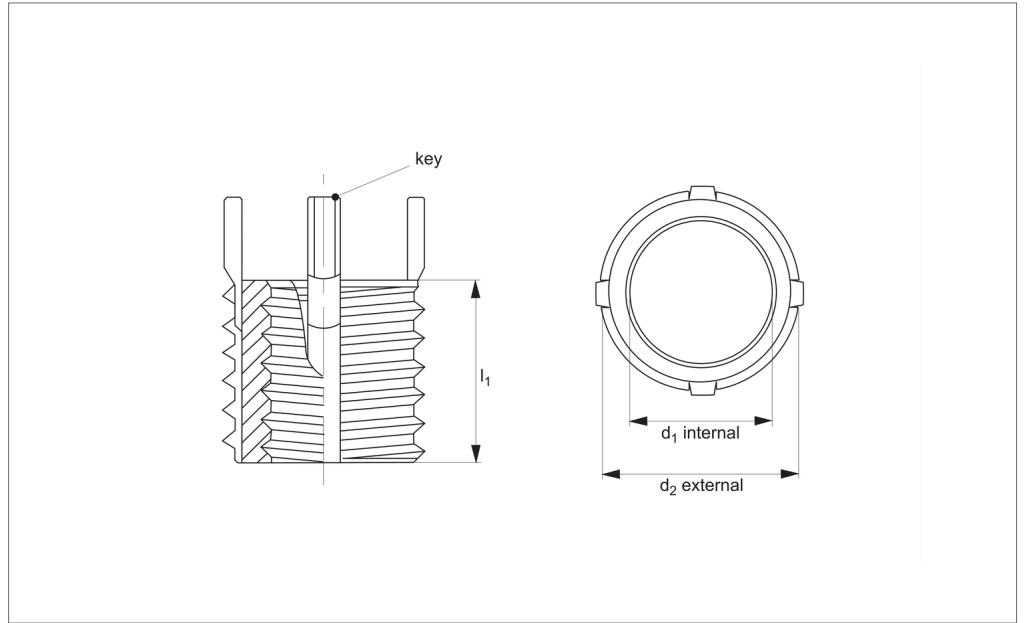
Removal drill size and drill depth as specified in table.

Internal thread in metric. External thread in inches.

Order No.	Int. d_1 tol. 6H	Int. thread type d_1	Ext. d_2 tol. 2A	Ext. thread type d_2	l_1	Inst. tool ref. 22064	Inst. tap drill size	Inst. c'sink dia. $+0.010 -0.000$	Inst. thread tap tol. 2B	Inst. thread depth min.	Removal drill size	Removal drill depth
20218065	M 6x1,00	Coarse	3/8"-16	UNC	0,31	.W0430	21/64"	0,38	3/8"-16	0,37	9/32"	1/8"
20218072	M 8x1,25	Coarse	1/2"-13	UNC	0,43	.W0440	29/64"	0,51	1/2"-13	0,50	13/32"	3/16"
20218089	M10x1,50	Coarse	5/8"-11	UNC	0,50	.W0450	37/64"	0,63	5/8"-11	0,56	17/32"	3/16"
20218096	M12x1,75	Coarse	3/4"-16	UNF	0,62	.W0470	45/64"	0,76	3/4"-16	0,68	21/32"	3/16"
20218102	M14x2,00	Coarse	7/8"-14	UNF	0,81	.W0480	53/64"	0,88	7/8"-14	0,94	25/32"	5/16"
20218119	M16x2,00	Coarse	1"-12	UNF	0,87	.W0490	15/16"	1,02	1"-12	1,00	27/32"	5/16"



E22030



Material

Inserts: carbon steel (C1215) or equivalent. Zinc phosphate.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

± 0,010" unless specified.

Tap drill hole tolerances:

0,234 to 0,500 = +0,004/-0,001".

0,500 and over = +0,005/-0,001".

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads 5/16" and over. Two locking keys on internal

threads smaller than 5/16".

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

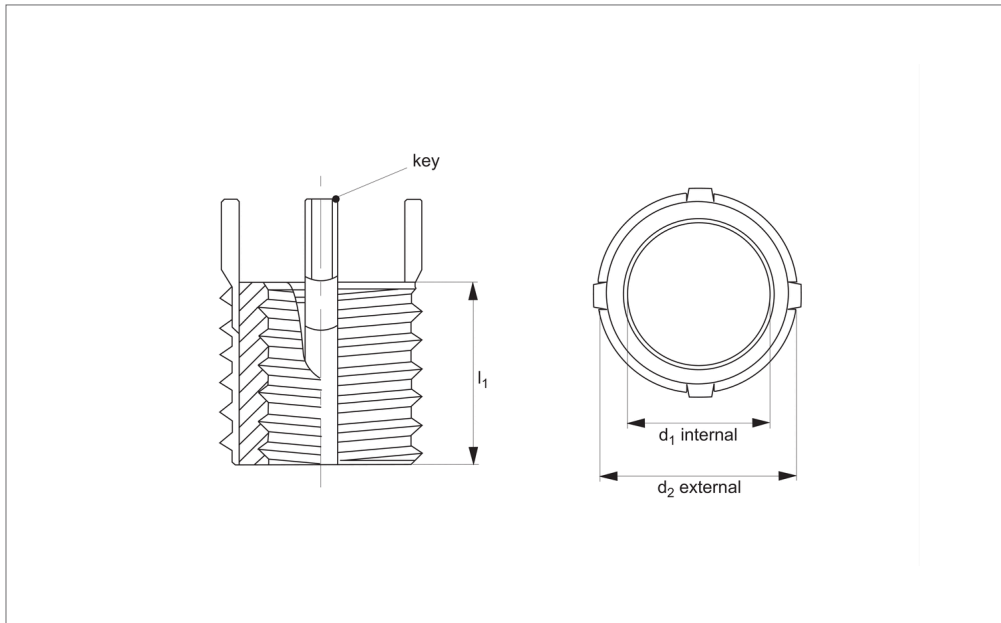
Removal drill size and drill depth as specified in table.

All dimensions in inches.

Order No.	Int. d ₁ tol. 2B	Int. thread type d ₁	Ext. d ₂ tol. 2A	Ext. thread type d ₂	l ₁	Inst. tap drill size	Inst. tool ref. 22054	Inst. c'sink dia. +0.010 - 0.000	Inst. thread tap tol. 2B	Inst. thread depth min.	Removal drill size	Removal drill depth
20218683	10-24	UNC	5/16"-18	UNC	0,31	17/64"	.W0210	0,32	5/16"-18	0,37	7/32"	1/8"
20218744	10-32	UNF	5/16"-18	UNC	0,31	17/64"	.W0210	0,32	5/16"-18	0,37	7/32"	1/8"
20218690	1/4"-20	UNC	3/8"-16	UNC	0,37	21/64"	.W0220	0,38	3/8"-16	0,43	9/32"	3/16"
20218751	1/4"-28	UNF	3/8"-16	UNC	0,37	21/64"	.W0220	0,38	3/8"-16	0,43	9/32"	3/16"
20218706	5/16"-18	UNC	7/16"-14	UNC	0,43	25/64"	.W0230	0,44	7/16"-14	0,50	11/32"	3/16"
20218768	5/16"-24	UNF	7/16"-14	UNC	0,43	25/64"	.W0230	0,44	7/16"-14	0,50	11/32"	3/16"
20218713	3/8"-16	UNC	1/2"-13	UNC	0,50	29/64"	.W0240	0,51	1/2"-13	0,56	13/32"	3/16"
20218775	3/8"-24	UNF	1/2"-13	UNC	0,50	29/64"	.W0240	0,51	1/2"-13	0,56	13/32"	3/16"
20218720	7/16"-14	UNC	9/16"-12	UNC	0,56	33/64"	.W0250	0,57	9/16"-12	0,62	15/32"	3/16"
20218782	7/16"-20	UNF	9/16"-12	UNC	0,56	33/64"	.W0250	0,57	9/16"-12	0,62	15/32"	3/16"
20218737	1/2"-13	UNC	5/8"-11	UNC	0,62	37/64"	.W0260	0,63	5/8"-11	0,68	17/32"	3/16"
20218799	1/2"-20	UNF	5/8"-11	UNC	0,62	37/64"	.W0260	0,63	5/8"-11	0,68	17/32"	3/16"

Threaded Insert - Inch heavy duty - carbon steel

Threaded Inserts Steel



E22032

THREADED INSERTS STEEL

Material

Inserts: carbon steel (C1215) or equivalent. Zinc phosphate.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

± 0,010" unless specified.

Tap drill hole tolerances:

0,234 to 0,500 = +0,004/-0,001".

0,500 and over = +0,005/-0,001".

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads 5/16" and over. Two locking keys on internal

threads smaller than 5/16".

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

Removal drill size and drill depth as specified in table.

All dimensions in inches.

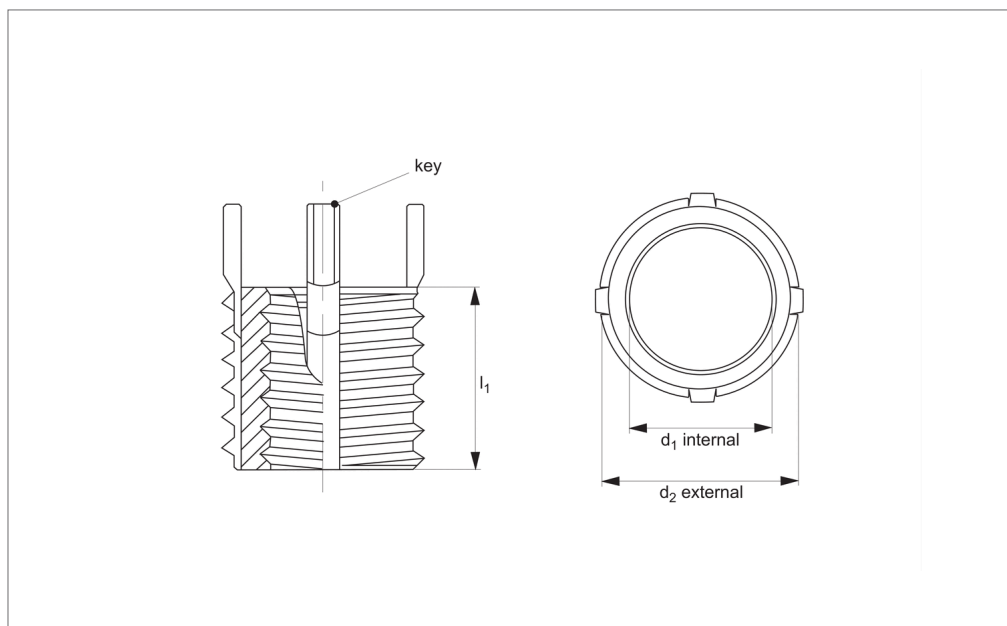
Order No.	Int. d ₁ tol. 2B	Int. thread type d ₁	Ext. d ₂ tol. 2A	Ext. thread type d ₂	l ₁	Inst. tool ref. 22056	Inst. tap drill size	Inst. c'sink dia. +0.010 - 0.000	Inst. thread tap tol. 2B	Inst. thread depth min.	Removal drill size	Removal drill depth
20218805	8-32	UNC	5/16"-18	UNC	0,31	.W0000	17/64"	0,32	5/16"-18	0,37	7/32"	1/8"
20218812	10-24	UNC	3/8"-16	UNC	0,31	.W0010	21/64"	0,38	3/8"-16	0,37	9/32"	1/8"
20218959	10-32	UNF	3/8"-16	UNC	0,31	.W0010	21/64"	0,38	3/8"-16	0,37	9/32"	1/8"
20218829	1/4"-20	UNC	7/16"-14	UNC	0,37	.W0020	25/64"	0,44	7/16"-14	0,43	11/32"	3/16"
20218966	1/4"-28	UNF	7/16"-14	UNC	0,37	.W0020	25/64"	0,44	7/16"-14	0,43	11/32"	3/16"
20218836	5/16"-18	UNC	1/2"-13	UNC	0,43	.W0030	29/64"	0,51	1/2"-13	0,50	13/32"	3/16"
20218973	5/16"-24	UNF	1/2"-13	UNC	0,43	.W0030	29/64"	0,51	1/2"-13	0,50	13/32"	3/16"
20218843	3/8"-16	UNC	9/16"-12	UNC	0,50	.W0040	33/64"	0,57	9/16"-12	0,56	15/32"	3/16"
20218980	3/8"-24	UNF	9/16"-12	UNC	0,50	.W0040	33/64"	0,57	9/16"-12	0,56	15/32"	3/16"
20218850	7/16"-14	UNC	5/8"-11	UNC	0,62	.W0050	37/64"	0,63	5/8"-11	0,68	17/32"	3/16"
20218997	7/16"-20	UNF	5/8"-11	UNC	0,62	.W0050	37/64"	0,63	5/8"-11	0,68	17/32"	3/16"
20218867	1/2"-13	UNC	3/4"-16	UNF	0,62	.W0060	45/64"	0,76	3/4"-16	0,68	21/32"	3/16"
20219000	1/2"-20	UNF	3/4"-16	UNF	0,62	.W0060	45/64"	0,76	3/4"-16	0,68	21/32"	3/16"
20218874	9/16"-12	UNC	3/4"-16	UNF	0,81	.W0070	45-64"	0,76	3/4"-16	0,94	21/32"	3/16"
20219017	9/16"-18	UNF	3/4"-16	UNF	0,81	.W0070	45-64"	0,76	3/4"-16	0,94	21/32"	3/16"
20218881	5/8"-11	UNC	7/8"-14	UNF	0,87	.W0080	53/64"	0,88	7/8"-14	1,00	25/32"	5/16"
20219024	5/8"-18	UNF	7/8"-14	UNF	0,87	.W0080	53/64"	0,88	7/8"-14	1,00	25/32"	5/16"
20218898	3/4"-10	UNC	1-1/8"-12	UNF	1,12	.W0090	1-1/16"	1,14	1-1/8"-12	1,31	31/32"	5/16"
20219031	3/4"-16	UNF	1-1/8"-12	UNF	1,12	.W0090	1-1/16"	1,14	1-1/8"-12	1,31	31/32"	5/16"
20218904	7/8"-9	UNC	1-1/4"-12	UNF	1,25	.W0100	1-3/16"	1,27	1-1/4"-12	1,44	1-3/32"	5/16"
20219048	7/8"-14	UNF	1-1/4"-12	UNF	1,25	.W0100	1-3/16"	1,27	1-1/4"-12	1,44	1-3/32"	5/16"
20218911	1"-8	UNC	1-3/8"-12	UNF	1,37	.W0110	1-5/16"	1,39	1-3/8"-12	1,56	1-7/32"	5/16"
20219055	1"-12	UNF	1-3/8"-12	UNF	1,37	.W0110	1-5/16"	1,39	1-3/8"-12	1,56	1-7/32"	5/16"
20219062	1"-14	UNF	1-3/8"-12	UNF	1,37	.W0110	1-5/16"	1,39	1-3/8"-12	1,56	1-7/32"	5/16"
20218928	1-1/8"-7	UNC	1-1/2"-12	UNF	1,62	.W0130	1-7/16"	1,52	1-1/2"-12	1,84	1-11/32"	5/16"
20219079	1-1/8"-12	UNF	1-1/2"-12	UNF	1,62	.W0130	1-7/16"	1,52	1-1/2"-12	1,84	1-11/32"	5/16"

Order No.	Int. d ₁ tol. 2B	Int. thread type d ₁	Ext. d ₂ tol. 2A	Ext. thread type d ₂	l ₁	Inst. tool ref. 22056	Inst. tap drill size	Inst. c'sink dia. +0.010 - 0.000	Inst. thread tap tol. 2B	Inst. thread depth min.	Removal drill size	Removal drill depth
20218935	1-1/4"-7	UNC	1-5/8"-12	UNF	1,81	.W0140	1-9/16"	1,64	1-5/8"-12	2,06	1-15/32"	5/16"
20219086	1-1/4"-12	UNF	1-5/8"-12	UNF	1,81	.W0140	1-9/16"	1,64	1-5/8"-12	2,06	1-15/32"	5/16"
20218942	1-1/2"-6	UNC	1-7/8"-12	UNF	2,00	.W0160	1-13/16"	1,89	1-7/8"-12	2,28	1-23/32"	5/16"
20219093	1-1/2"-12	UNF	1-7/8"-12	UNF	2,00	.W0160	1-13/16"	1,89	1-7/8"-12	2,28	1-23/32"	5/16"

Threaded Insert - Inch

extra heavy duty - carbon steel

Threaded Inserts Steel



E22034

THREADED INSERTS STEEL

Material

Inserts: carbon steel (C1215) or equivalent. Zinc phosphate.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

± 0,010" unless specified.

Tap drill hole tolerances:

0,234 to 0,500 = +0,004/-0,001".

0,500 and over = +0,005/-0,001".

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads 5/16" and over. Two locking keys on internal

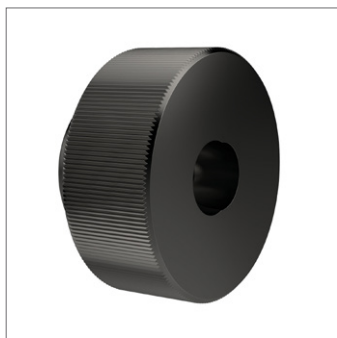
threads smaller than 5/16".

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

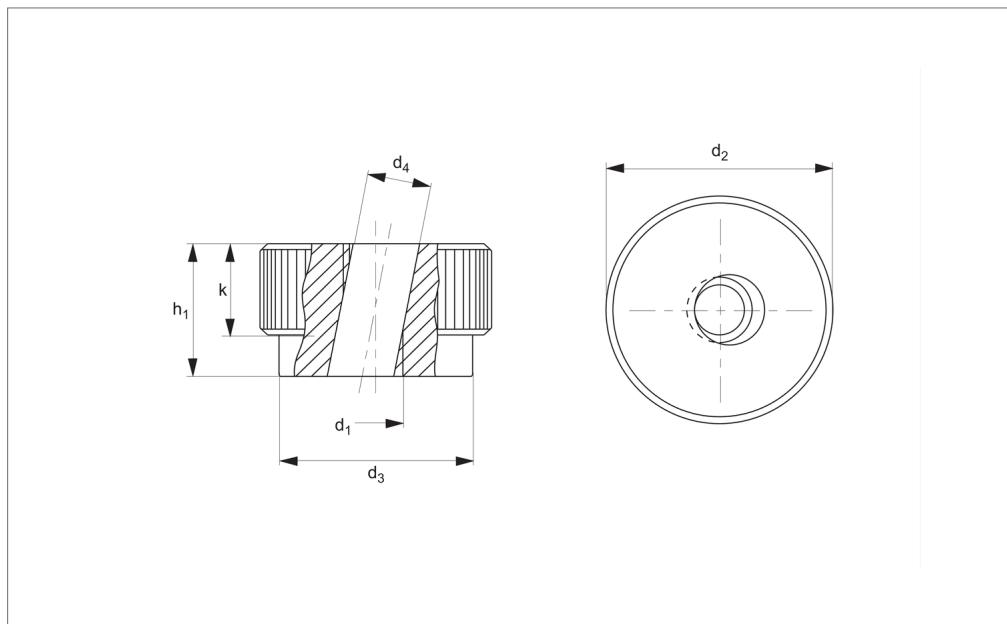
Removal drill size and drill depth as specified in table.

All dimensions in inches.

Order No.	Int. d ₁ tol. 2B	Int. thread type d ₁	Ext. d ₂ (mod.) class 2A	Ext. thread type d ₂	l ₁	Inst. c'sink dia. +0.010 - 0.000	Inst. tap drill size	Inst. thread depth min.	Inst. thread tap tol. 2B	Inst. tool ref. 22058	Removal drill size	Removal drill depth
20219109	6 - 32	UNC	5/16" - 18	UNC	0,31	0,32		0,37	5/16"-18	.W0310	7/32"	1/8"
20219116	8 - 32	UNC	3/8" - 16	UNC	0,31	0,38		0,37	3/8"-16	.W0320	9/32"	1/8"
20219123	10 - 24	UNC	7/16" - 14	UNC	0,31	0,44		0,37	7/16"-14	.W0330	11/32"	3/16"
20219239	10 - 32	UNF	7/16" - 14	UNC	0,31	0,44		0,37	7/16"-14	.W0330	11/32"	3/16"
20219130	1/4" - 20	UNC	1/2" - 13	UNC	0,37	0,51	29/64"	0,43	1/2"-13	.W0340	13/32"	3/16"
20219246	1/4" - 28	UNF	1/2" - 13	UNC	0,37	0,51	29/64"	0,43	1/2"-13	.W0340	13/32"	3/16"
20219147	5/16" - 18	UNC	9/16" - 12	UNC	0,43	0,57	33/64"	0,50	9/16"-12	.W0350	15/32"	3/16"
20219253	5/16" - 24	UNF	9/16" - 12	UNC	0,43	0,57	33/64"	0,50	9/16"-12	.W0350	15/32"	3/16"
20219154	3/8" - 16	UNC	5/8" - 11	UNC	0,50	0,63	37/64"	0,56	5/8"-11	.W0360	17/32"	3/16"
20219260	3/8" - 24	UNF	5/8" - 11	UNC	0,50	0,63	37/64"	0,56	5/8"-11	.W0360	17/32"	3/16"
20219161	7/6" - 14	UNC	3/4" - 16	UNF	0,62	0,76	45/64"	0,68	3/4"-16	.W0370	21/32"	3/16"
20219277	7/6" - 20	UNF	3/4" - 16	UNF	0,62	0,76	45/64"	0,68	3/4"-16	.W0370	21/32"	3/16"
20219178	1/2" - 13	UNC	7/8" - 14	UNF	0,68	0,88	53/64"	0,75	7/8"-14	.W0380	25/32"	5/16"
20219284	1/2" - 13	UNF	7/8" - 14	UNF	0,68	0,88	53/64"	0,75	7/8"-14	.W0380	25/32"	5/16"
20219185	9/16" - 12	UNC	7/8" - 14	UNF	0,81	0,88	53/64"	0,94	7/8"-14	.W0390	25/32"	5/16"
20219291	9/16" - 18	UNF	7/8" - 14	UNF	0,81	0,88	53/64"	0,94	7/8"-14	.W0390	25/32"	5/16"
20219192	5/8" - 11	UNC	1" - 12	UNF	0,87	1,02	15/16"	1,00	1"-12	.W0400	27/32"	5/16"
20219307	5/8" - 18	UNF	1" - 12	UNF	0,87	1,02	15/16"	1,00	1"-12	.W0400	27/32"	5/16"
20219208	3/4" - 10	UNC	1 - 1/4" - 12	UNF	1,12	1,27	1-3/16"	1,31	1-1/4"-12	.W0410	1-3/32"	5/16"
20219314	3/4" - 16	UNF	1 - 1/4" - 12	UNF	1,12	1,27	1-3/16"	1,31	1-1/4"-12	.W0410	1-3/32"	5/16"
20219215	7/8" - 9	UNC	1 - 3/8" - 12	UNF	1,25	1,39	1-5/16"	1,44	1-3/8"-12	.W0420	1-7/32"	5/16"
20219321	7/8" - 14	UNF	1 - 3/8" - 12	UNF	1,25	1,39	1-5/16"	1,44	1-3/8"-12	.W0420	1-7/32"	5/16"
20219222	1" - 8	UNC	1 - 1/2" - 12	UNF	1,37	1,52	1-7/16"	1,56	1-1/2"-12	.W0430	1-11/32"	5/16"
20219338	1" - 12	UNF	1 - 1/2" - 12	UNF	1,37	1,52	1-7/16"	1,56	1-1/2"-12	.W0430	1-11/32"	5/16"



E37360



Material

Turned and burnished steel, blackened.
Tensile strength class 5.

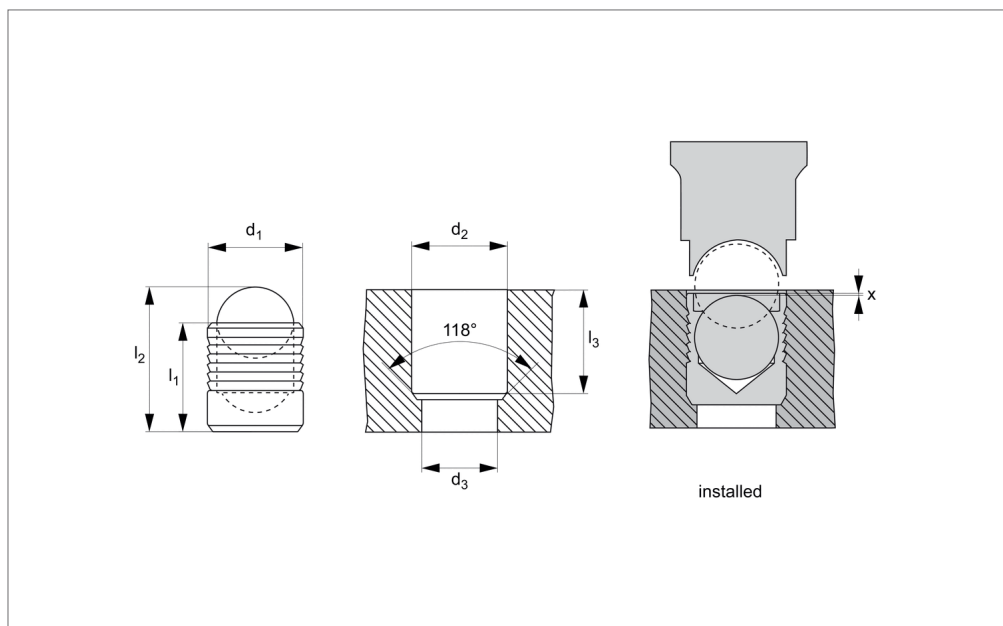
Technical Notes

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.

Order No.	d ₁	d ₂	d ₃	d ₄	h ₁	k	Weight g
20179816	M_6	24	16	6.7	14	10	35
20179823	M_8	30	20	8.7	17	12	70
20179830	M10	36	28	11.0	20	14	120
20179724	M12	40	32	13	24	16	145



EP0192

BLANKING PLUGS

Material

Plug body: case hardened steel (zinc-plated), stainless steel (A2 or A4) or aluminium (2024-T4).

Ball: heat-treated bearing steel or stainless steel (A2 or A4).

Technical Notes

These high pressure sealing plugs are used

to blank off externally drilled holes for air and gas.

No need for tapping, reaming, machining of O-ring grooves or the use of tapes or sealants.

Ensure the ball is fully seated before applying pressure.

Dimensions in inches.

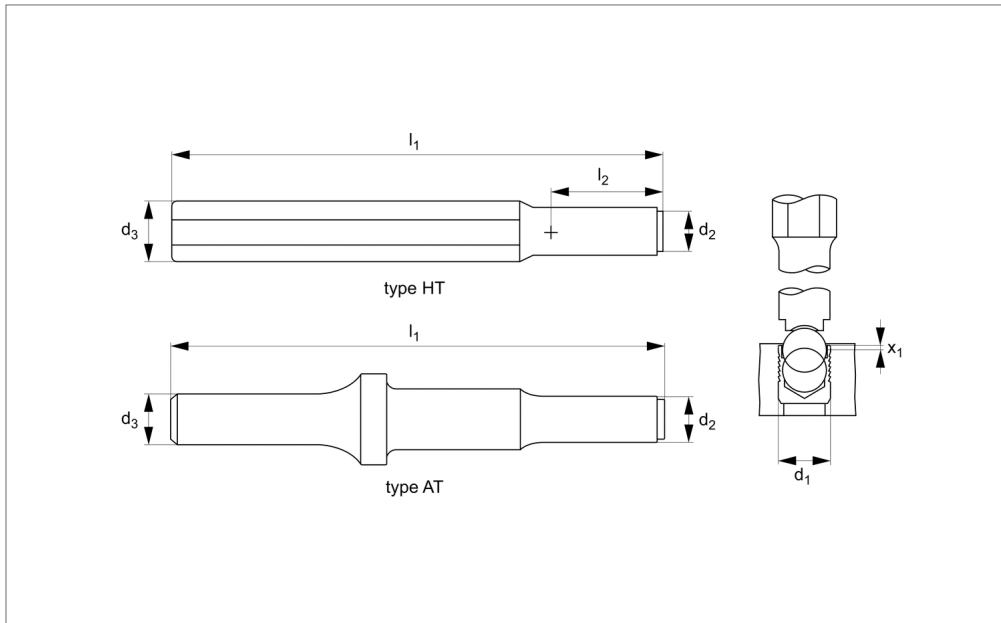
Tips

Working pressure up to 450 bar (dependent on body material and material into which installed).

Please refer to technical pages for product installation details and performance data.

Order No.	d ₁	l ₁	l ₂	d ₂ +0.004 -0.000	d ₃ max.	l ₃ min.	x +0.0 -0.010	Body	Ball
20208424	0.1562	0.157	0.21	0.1562	0.130	0.150	0.010	Steel ZP	Steel
20208479	0.1875	0.216	0.28	0.1875	0.160	0.209	0.010	Steel ZP	Steel
20208523	0.2187	0.220	0.28	0.2187	0.190	0.208	0.010	Steel ZP	Steel
20208578	0.2500	0.256	0.34	0.2500	0.220	0.248	0.010	Steel ZP	Steel
20208622	0.2812	0.295	0.40	0.2812	0.250	0.287	0.010	Steel ZP	Steel
20208677	0.3125	0.334	0.46	0.3125	0.281	0.327	0.010	Steel ZP	Steel
20208721	0.3437	0.394	0.53	0.3437	0.312	0.385	0.010	Steel ZP	Steel
20208769	0.3750	0.433	0.60	0.3750	0.343	0.425	0.010	Steel ZP	Steel
20208813	0.4062	0.437	0.59	0.4062	0.375	0.425	0.010	Steel ZP	Steel
20208868	0.4375	0.515	0.68	0.4375	0.406	0.503	0.010	Steel ZP	Steel
20208912	0.4687	0.512	0.71	0.4687	0.437	0.504	0.010	Steel ZP	Steel
20208417	0.1562	0.157	0.21	0.1562	0.130	0.150	0.010	A2 s/s	Steel
20208448	0.1875	0.216	0.28	0.1875	0.160	0.209	0.010	A2 s/s	Steel
20208493	0.2187	0.220	0.28	0.2187	0.190	0.208	0.010	A2 s/s	Steel
20208547	0.2500	0.256	0.34	0.2500	0.220	0.248	0.010	A2 s/s	Steel
20208592	0.2812	0.295	0.40	0.2812	0.250	0.287	0.010	A2 s/s	Steel
20208646	0.3125	0.334	0.46	0.3125	0.281	0.327	0.010	A2 s/s	Steel
20208691	0.3437	0.394	0.53	0.3437	0.312	0.385	0.010	A2 s/s	Steel
20208745	0.3750	0.433	0.60	0.3750	0.343	0.425	0.010	A2 s/s	Steel
20208783	0.4062	0.437	0.59	0.4062	0.375	0.425	0.010	A2 s/s	Steel
20208837	0.4375	0.515	0.68	0.4375	0.406	0.503	0.010	A2 s/s	Steel
20208882	0.4687	0.512	0.71	0.4687	0.437	0.504	0.010	A2 s/s	Steel
20208431	0.1875	0.216	0.28	0.1875	0.160	0.209	0.010	A2 s/s	A2 s/s
20208486	0.2187	0.220	0.28	0.2187	0.190	0.208	0.010	A2 s/s	A2 s/s
20208530	0.2500	0.256	0.34	0.2500	0.220	0.248	0.010	A2 s/s	A2 s/s
20208585	0.2812	0.295	0.40	0.2812	0.250	0.287	0.010	A2 s/s	A2 s/s
20208639	0.3125	0.334	0.46	0.3125	0.281	0.327	0.010	A2 s/s	A2 s/s
20208684	0.3437	0.394	0.53	0.3437	0.312	0.385	0.010	A2 s/s	A2 s/s
20208738	0.3750	0.433	0.60	0.3750	0.343	0.425	0.010	A2 s/s	A2 s/s

Order No.	d ₁	l ₁	l ₂	d ₂ +0.004 -0.000	d ₃ max.	l ₃ min.	x +0.0 -0.010	Body	Ball
20208776	0.4062	0.437	0.59	0.4062	0.375	0.425	0.010	A2 s/s	A2 s/s
20208820	0.4375	0.515	0.68	0.4375	0.406	0.503	0.010	A2 s/s	A2 s/s
20208875	0.4687	0.512	0.71	0.4687	0.437	0.504	0.010	A2 s/s	A2 s/s
20208455	0.1875	0.216	0.28	0.1875	0.160	0.209	0.010	A4 s/s	A4 s/s
20208509	0.2187	0.220	0.28	0.2187	0.190	0.208	0.010	A4 s/s	A4 s/s
20208554	0.2500	0.256	0.34	0.2500	0.220	0.248	0.010	A4 s/s	A4 s/s
20208608	0.2812	0.295	0.40	0.2812	0.250	0.287	0.010	A4 s/s	A4 s/s
20208653	0.3125	0.334	0.46	0.3125	0.281	0.327	0.010	A4 s/s	A4 s/s
20208707	0.3437	0.394	0.53	0.3437	0.312	0.385	0.010	A4 s/s	A4 s/s
20208790	0.4062	0.437	0.59	0.4062	0.375	0.425	0.010	A4 s/s	A4 s/s
20208844	0.4375	0.515	0.68	0.4375	0.406	0.503	0.010	A4 s/s	A4 s/s
20208899	0.4687	0.512	0.71	0.4687	0.437	0.504	0.010	A4 s/s	A4 s/s
20208462	0.1875	0.216	0.28	0.1875	0.160	0.209	0.010	Aluminium	A2 s/s
20208516	0.2187	0.220	0.28	0.2187	0.190	0.208	0.010	Aluminium	A2 s/s
20208561	0.2500	0.256	0.34	0.2500	0.220	0.248	0.010	Aluminium	A2 s/s
20208615	0.2812	0.295	0.40	0.2812	0.250	0.287	0.010	Aluminium	A2 s/s
20208660	0.3125	0.334	0.46	0.3125	0.281	0.327	0.010	Aluminium	A2 s/s
20208714	0.3437	0.394	0.53	0.3437	0.312	0.385	0.010	Aluminium	A2 s/s
20208752	0.3750	0.433	0.60	0.3750	0.343	0.425	0.010	Aluminium	A2 s/s
20208806	0.4062	0.437	0.59	0.4062	0.375	0.425	0.010	Aluminium	A2 s/s
20208851	0.4375	0.515	0.68	0.4375	0.406	0.503	0.010	Aluminium	A2 s/s
20208905	0.4687	0.512	0.71	0.4687	0.437	0.504	0.010	Aluminium	A2 s/s



EP0193

Material

Tool steel, heat-treated.

Technical Notes

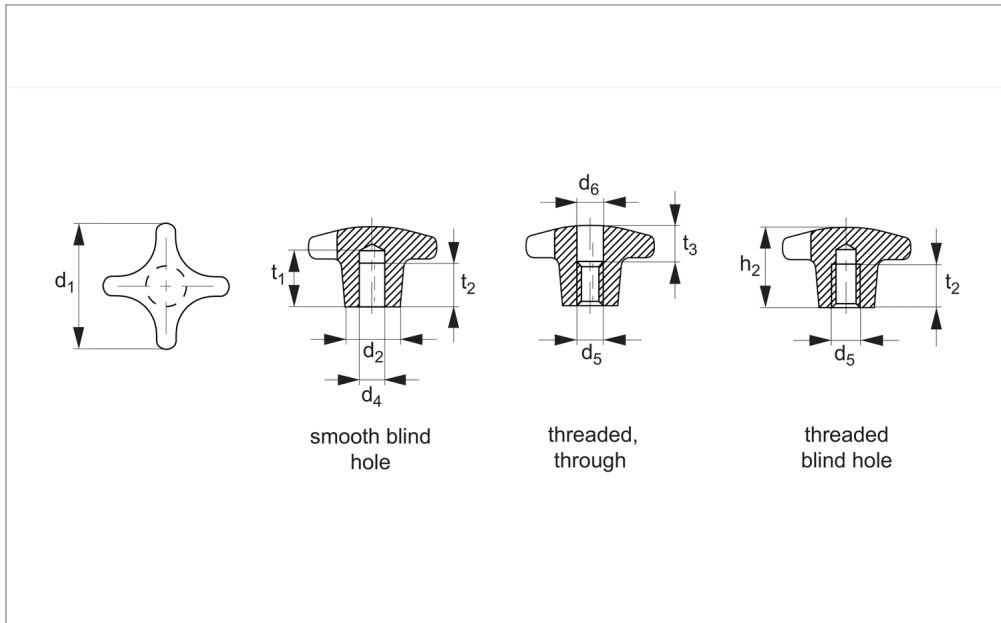
Please consult technical pages for installa-

tion instructions and performance data.

Ensure the ball is fully seated before applying pressure.

Order No.	d ₁	d ₂	d ₃	l ₁	l ₂	x ±0.2	Type
20250935	3.0	2.8	9.53	127	10	0.4	Hand
20250959	4.0	3.8	9.53	127	10	0.2	Hand
20250973	5.0	4.7	9.53	127	12	0.4	Hand
20250997	6.0	5.8	9.53	127	15	0.4	Hand
20251017	7.0	6.8	9.53	127	18	0.4	Hand
20251031	8.0	7.8	9.53	127	20	0.3	Hand
20251055	9.0	8.7	15.88	127	22	0.4	Hand
20251086	10.0	9.8	15.88	127	25	0.4	Hand
20251109	12.0	11.7	15.88	127	30	0.4	Hand
20251130	14.0	13.7	19.05	127	35	0.4	Hand
20251161	16.0	15.7	19.05	127	40	0.6	Hand
20251185	18.0	17.7	19.05	127	45	0.6	Hand
20251215	20.0	19.7	25.40	127	50	0.8	Hand
20251246	22.0	21.7	25.40	127	55	0.8	Hand
20251062	0,093"	0,082"	0,394"	3,94"	0,137"	0,010"	Hand
20251116	0,125"	0,117"	0,394"	3,94"	0,137"	0,010"	Hand
20251147	0,156"	0,148"	0,394"	3,94"	0,137"	0,010"	Hand
20251192	0,187"	0,180"	0,394"	3,94"	0,137"	0,010"	Hand
20251222	0,218"	0,211"	0,394"	3,94"	0,400"	0,010"	Hand
20251253	0,250"	0,242"	0,394"	3,94"	0,400"	0,010"	Hand
20251260	0,281"	0,273"	0,394"	3,94"	0,400"	0,010"	Hand
20250928	3.0	2.8	10.19	100	0.4	0.4	Air
20250942	4.0	3.8	10.19	100	0.2	0.2	Air
20250966	5.0	4.7	10.19	100	0.4	0.4	Air
20250980	6.0	5.8	10.19	100	0.4	0.4	Air
20251000	7.0	6.8	10.19	100	0.4	0.4	Air
20251024	8.0	7.8	10.19	100	0.3	0.3	Air
20251048	9.0	8.7	10.19	100	0.4	0.4	Air
20251079	10.0	9.8	10.19	100	0.4	0.4	Air
20251093	12.0	11.7	10.19	100	0.4	0.4	Air
20251123	14.0	13.7	10.19	100	0.4	0.4	Air
20251154	16.0	15.7	10.19	100	0.6	0.6	Air
20251178	18.0	17.7	10.19	100	0.6	0.6	Air
20251208	20.0	19.7	10.19	100	0.8	0.8	Air

Order No.	d ₁	d ₂	d ₃	l ₁	l ₂	x ±0.2	Type
20251239	22.0	21.7	10.19	100	0.8	0.8	Air



E70040

GRIPS

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).

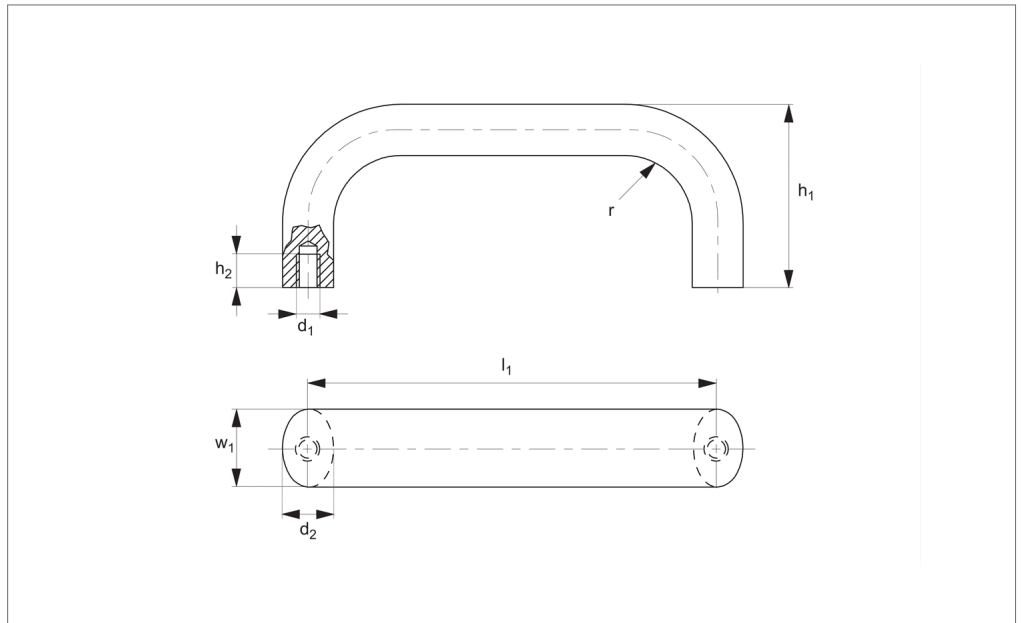
Technical Notes

Produced to DIN 6335.

Order No.	Finish	Type	d ₁	d ₂	d ₄ tol. H7	d ₅	d ₆	h ₂	t ₁	t ₂	t ₃	Weight g
20202408	Unpolished	Smooth, Blind	40	14	8	-	-	25	18	15	-	25
20202415	Unpolished	Smooth, Blind	50	18	10	-	-	32	21	18	-	45
20202422	Unpolished	Smooth, Blind	63	20	12	-	-	40	25	22	-	84
20202439	Unpolished	Smooth, Blind	80	25	16	-	-	50	32	28	-	141
20202446	Unpolished	Threaded, Blind	40	14	-	M 8	-	25	-	15	-	22
20202453	Unpolished	Threaded, Blind	50	18	-	M10	-	32	-	18	-	46
20202460	Unpolished	Threaded, Blind	63	20	-	M12	-	40	-	22	-	86
20202477	Unpolished	Threaded, Blind	80	25	-	M16	-	50	-	28	-	143
20202484	Polished	Smooth, Blind	40	14	8	-	-	25	18	15	-	25
20202491	Polished	Smooth, Blind	50	18	10	-	-	32	21	18	-	45
20202507	Polished	Smooth, Blind	63	20	12	-	-	40	25	22	-	84
20202514	Polished	Smooth, Blind	80	25	16	-	-	50	32	28	-	141
20202521	Polished	Threaded, Blind	40	14	-	M 8	-	25	-	15	-	22
20202538	Polished	Threaded, Blind	50	18	-	M10	-	32	-	18	-	46
20202545	Polished	Threaded, Blind	63	20	-	M12	-	40	-	22	-	86
20202552	Polished	Threaded, Blind	80	25	-	M16	-	50	-	28	-	143
20202323	-	Threaded, Through	40	14	-	M 8	8.4	25	-	-	12	23
20202330	-	Threaded, Through	50	18	-	M10	10.5	32	-	-	16	44
20202347	-	Threaded, Through	63	20	-	M12	13.0	40	-	-	20	70
20202354	-	Threaded, Through	80	25	-	M16	17.0	50	-	-	30	129
20202361	-	Threaded, Through	40	14	-	M 8	8.4	25	-	-	12	23
20202378	-	Threaded, Through	50	18	-	M10	10.5	32	-	-	16	44
20202385	-	Threaded, Through	63	20	-	M12	13.0	40	-	-	20	70
20202392	-	Threaded, Through	80	25	-	M16	17.0	50	-	-	30	129



E78000



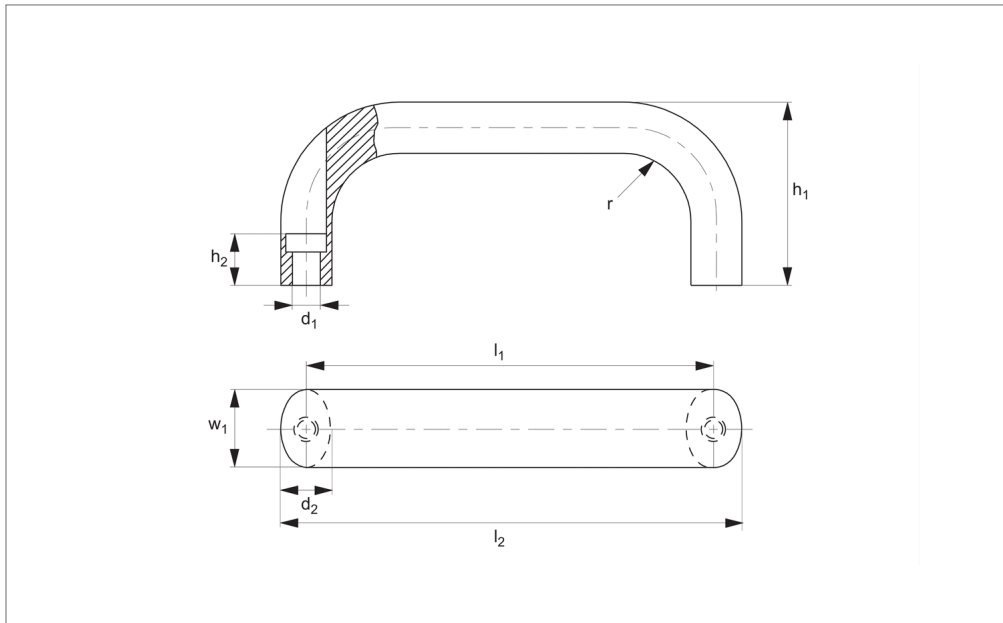
Material

Aluminium: plastic coated, black RAL905
Natural silver anodised, bright.

Technical Notes

Ergonomic design offering high stability and smooth surfaces.

Order No.	Colour	l_1	w_1	h_1	d_1	d_2	h_2	R	Weight g
20251772	Black	100	20	47	M 6	13	10	13	92
20251789	Black	112	20	49	M 6	13	10	13	97
20251796	Black	128	20	51	M 6	13	10	13	110
20251550	Black	117	20	49	M 6	13	10	13	100
20251543	Black	120	20	49	M 6	13	10	13	97
20251802	Black	160	20	51	M 6	13	10	13	126
20251819	Black	112	26	53	M 8	17	12	17	165
20251826	Black	128	26	55	M 8	17	12	17	181
20251567	Black	117	26	55	M 8	17	12	17	166
20251574	Black	120	26	55	M 8	17	12	17	200
20251581	Black	125	26	55	M 8	17	12	17	180
20251833	Black	160	26	57	M 8	17	12	17	219
20251598	Black	179	26	57	M 8	17	12	17	234
20251840	Black	192	26	57	M 8	17	12	17	250
20251857	Black	300	26	57	M 8	17	12	17	347
20251864	Black	400	26	57	M 8	17	12	17	445
20251604	Black	500	26	57	M 8	17	12	17	538
20251871	Natural	100	20	47	M 6	13	10	13	92
20251888	Natural	112	20	49	M 6	13	10	13	97
20251895	Natural	128	20	51	M 6	13	10	13	110
20251703	Natural	117	20	49	M 6	13	10	13	100
20251697	Natural	120	20	49	M 6	13	10	13	97
20251901	Natural	160	20	51	M 6	13	10	13	126
20251918	Natural	112	26	53	M 8	17	12	17	165
20251925	Natural	128	26	55	M 8	17	12	17	181
20251710	Natural	117	26	55	M 8	17	12	17	166
20251727	Natural	120	26	55	M 8	17	12	17	200
20251734	Natural	125	26	55	M 8	17	12	17	180
20251932	Natural	160	26	57	M 8	17	12	17	219
20251741	Natural	179	26	57	M 8	17	12	17	234
20251949	Natural	192	26	57	M 8	17	12	17	250
20251956	Natural	300	26	57	M 8	17	12	17	347
20251963	Natural	400	26	57	M 8	17	12	17	445
20251758	Natural	500	26	57	M 8	17	12	17	538



E78010

Material

Aluminium: plastic coated, black RAL 9005
Natural silver, bright.

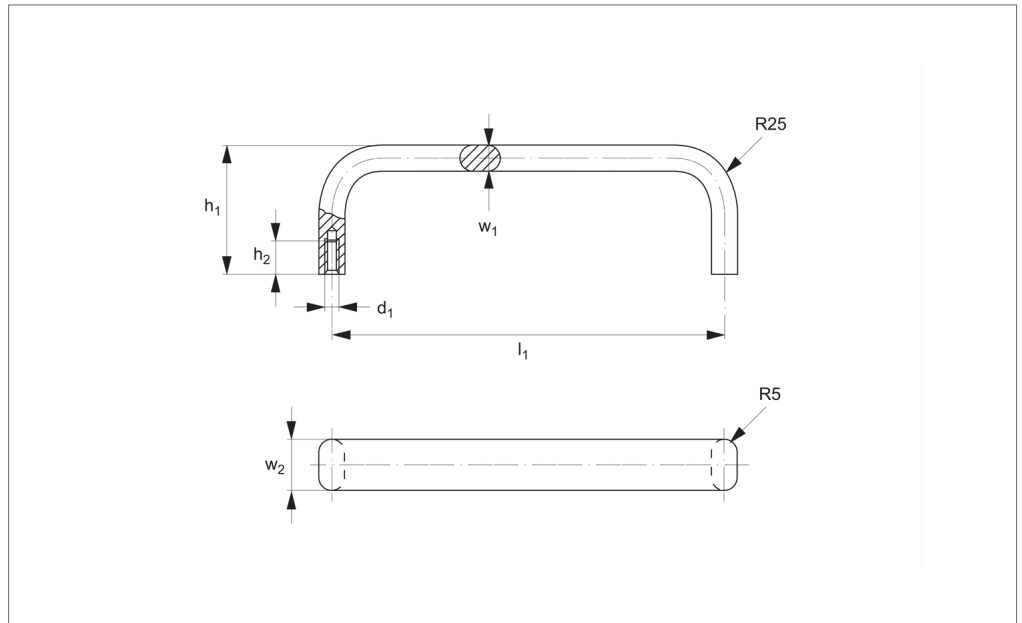
Technical Notes

Ergonomic design offering high stability and smooth surfaces.

Order No.	Colour	l_1	w_1	h_1	d_1	d_2	l_2	h_2	For cylinder screw	R	Weight g
20251611	Black	100	20	49	5.4	13	112	19	M 5	13	80
20251628	Black	112	20	49	5.4	13	124	19	M 5	13	82
20251635	Black	128	20	51	5.4	13	140	19	M 5	13	100
20251642	Black	160	20	51	5.4	13	172	19	M 5	13	100
20251970	Black	116	26	55	6.4	17	130	17	M 6	17	146
20251987	Black	132	26	55	6.4	17	146	17	M 6	17	164
20251994	Black	164	26	57	6.4	17	178	17	M 6	17	206
20252007	Black	196	26	57	6.4	17	210	17	M 6	17	232
20251659	Natural	100	20	49	5.4	13	112	19	M 5	13	80
20251666	Natural	112	20	49	5.4	13	124	19	M 5	13	82
20251673	Natural	128	20	51	5.4	13	140	19	M 5	13	100
20251680	Natural	160	20	51	5.4	13	172	19	M 5	13	100
20252014	Natural	116	26	55	6.4	17	130	17	M 6	17	146
20252021	Natural	132	26	55	6.4	17	146	17	M 6	17	164
20252038	Natural	164	26	57	6.4	17	178	17	M 6	17	206
20252045	Natural	196	26	57	6.4	17	210	17	M 6	17	232
20251765	Stainless	160	20	51	5.4	13	172	19	M5	13	345



E78030



Material

Flat-oval profiled aluminium AlMgSi 0.5.
Finish: ground and anodized with a matte

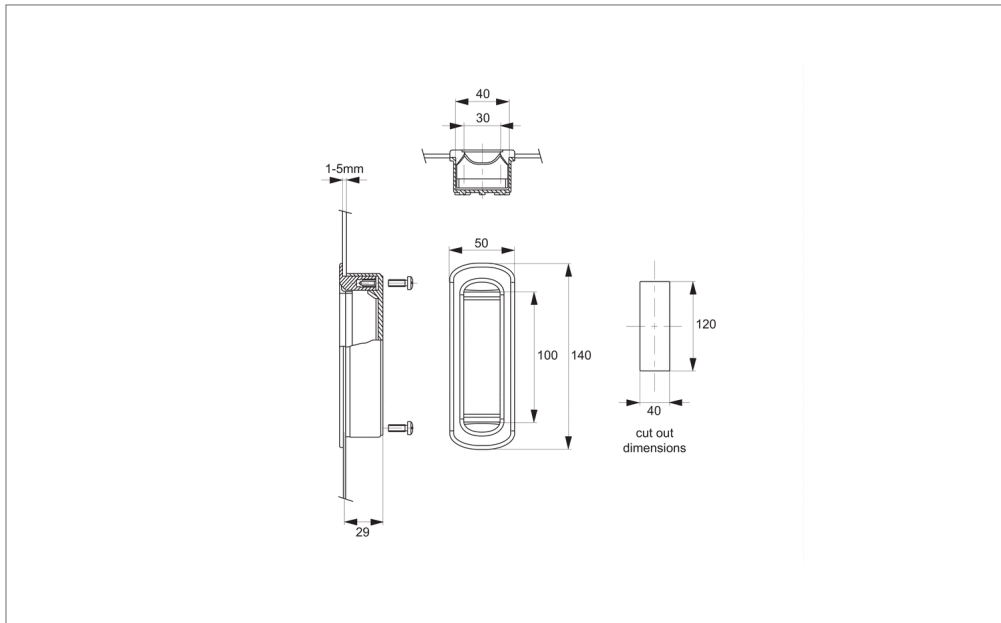
finish in natural or black colour.

Technical Notes

Minimum stress resistance 500N. Suitable

for engineering, instrument and apparatus building.

Order No.	Colour	l_1	w_1	h_1	d_1	h_2	w_2
20252052	Natural	120	10	45	5	10	20
20252069	Black	120	10	45	5	10	20
20252076	Natural	140	10	45	5	10	20
20252083	Black	140	10	45	5	10	20
20252090	Natural	180	10	45	5	10	20
20252106	Black	180	10	45	5	10	20
20252113	Natural	200	10	45	5	10	20
20252120	Black	200	10	45	5	10	20
20252137	Natural	350	10	45	6	12	20
20252144	Black	350	10	45	6	12	20



E79530

PULL HANDLES

Material

Thermoplast (PA 6), glass bead reinforced. Threaded brass insert. Supplied with four oval-head screws to DIN 7985.

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).

1 to 5mm thick.

Technical Notes

Mounting: the front section is first set into

Tips

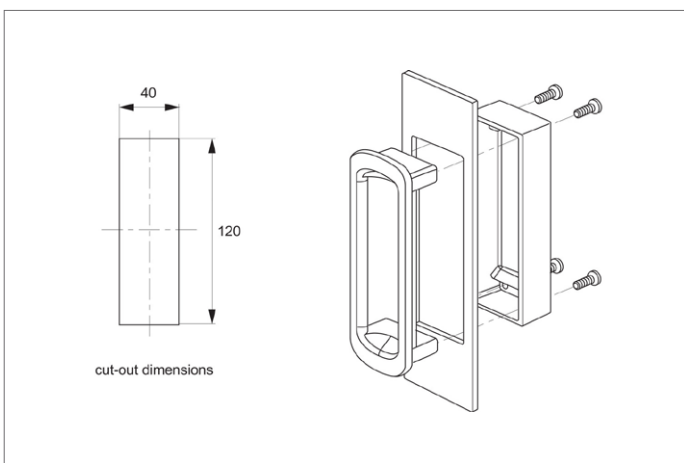
Simple and stable design for use on panels

Order No.

20254797
20254803
20254810
20254827

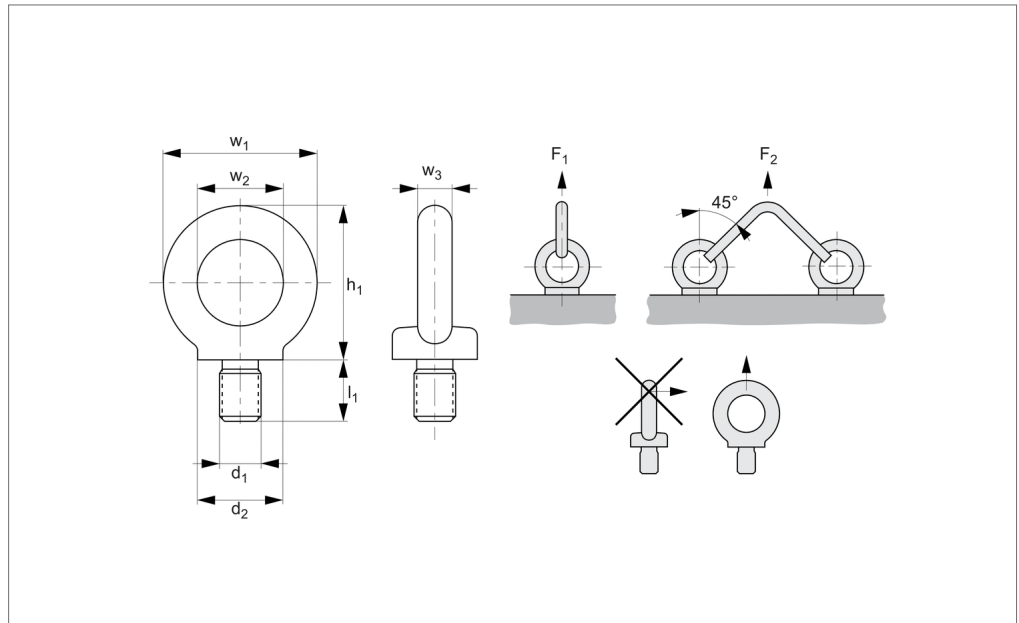
Finish

Stone Grey
Light Grey
Greyish White
Black





EP4040



Material

Forged steel (C15E) annealed and zinc plated. Contact face machined. CE marked.

Technical Notes

To DIN 580.
When using lifting eye bolts it is critical to ensure that the face is in firm contact with the mating surface.
These lifting bolts are generally installed and remain on a piece of equipment for the

purpose of transporting them. They are not for repeated lifting use - if this is required our swivelling lifting bolt range should be used.

Tips

Maximum load values are only applicable when the thread is fully screwed in, and the material it is being used in is as least as strong as the that of the bolt.
Temperature range -20°C to +200°C.
F₁ and F₂ values given are for steel and cast

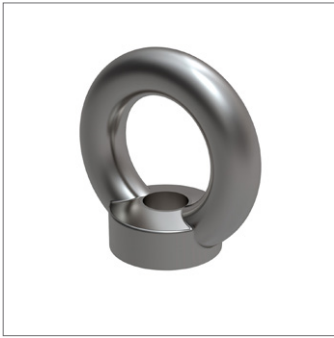
iron components.

Important Notes

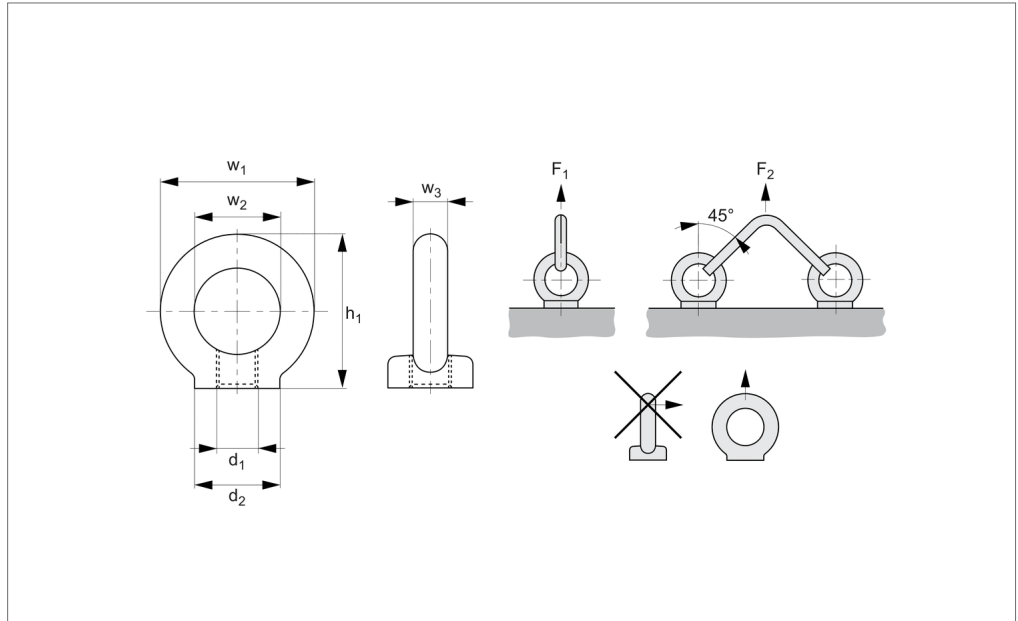
Not to be used at lift angles of greater than 45° or with swivelling loads.
Please refer to the safety documentation before using this part..
Supplied with certificate and operating instructions.

Order No.	Thread	d ₁	d ₂	w ₁	l ₁	h ₁	w ₂	w ₃	F ₁ kg max.	F ₂ kg max.	Weight kg
20198497	Coarse	M 6	20	36	13.0	36	20	8	70	50	0.05
20198503	Coarse	M 8	20	36	13.0	36	20	8	140	95	0.06
20198510	Coarse	M10	25	45	17.0	45	25	10	230	170	0.11
20198527	Coarse	M12	30	54	20.5	53	30	12	340	240	0.18
20199333	Coarse	M14	35	63	27.0	62	35	14	340	240	0.18
20198541	Coarse	M16	35	63	27.0	62	35	14	700	500	0.28
20199364	Coarse	M18	40	72	30.0	71	40	14	700	500	0.43
20198565	Coarse	M20	40	72	30.0	71	40	16	1200	830	0.45
20199371	Coarse	M22	40	72	30.0	71	40	16	1200	830	0.45
20198589	Coarse	M24	50	90	36.0	90	50	20	1800	1270	0.74
20199388	Coarse	M27	65	108	45.0	109	60	24	1800	1270	0.93
20198602	Coarse	M30	65	108	45.0	109	60	24	3200	2300	1.66
20199395	Coarse	M33	75	126	54.0	128	70	28	3600	3600	2.60
20198626	Coarse	M36	75	126	54.0	128	70	28	4600	3300	2.65
20199401	Coarse	M39	85	144	63.0	147	80	32	5100	3700	3.87
20198640	Coarse	M42	85	144	63.0	147	80	32	6300	4500	4.03
20199418	Coarse	M45	100	166	68.0	168	90	38	7000	5000	6.15
20198664	Coarse	M48	100	166	68.0	168	90	38	8600	6100	6.38
20198688	Coarse	M56	110	184	78.0	187	100	42	11500	8200	8.80
20198701	Coarse	M64	120	206	90.0	208	110	48	16000	11000	12.4
20198718	Coarse	M72 x 6	150	260	100.0	260	140	60	20000	14000	23.3
20198725	Coarse	M80 x 6	170	296	112.0	298	160	68	28000	20000	34.2
20198473	Coarse	M100 x 6	190	330	130.0	330	180	75	40000	29000	49.1
20198534	Fine	M12 x 1,5	30	54	20.5	53	30	12	340	240	0.18

Order No.	Thread	d ₁	d ₂	w ₁	l ₁	h ₁	w ₂	w ₃	F ₁ kg max.	F ₂ kg max.	Weight kg
20198558	Fine	M16 x 1,5	35	63	27.0	62	35	14	700	500	0.28
20198572	Fine	M20 x 2,0	40	72	30.0	71	40	16	1200	830	0.45
20198596	Fine	M24 x 2,0	50	90	36.0	90	50	20	1800	1270	0.74
20198619	Fine	M30 x 2,0	65	108	45.0	109	60	24	3600	2600	1.66
20198633	Fine	M36 x 3,0	75	126	54.0	128	70	28	5100	3700	2.58
20198657	Fine	M42 x 3,0	85	144	63.0	147	80	32	7000	5000	3.95
20198671	Fine	M48 x 3,0	100	166	68.0	168	90	38	8600	6100	6.38
20198695	Fine	M56 x 4,0	110	184	78.0	187	100	42	11500	8300	8.48



EP4041



Material

Forged steel (C15E) annealed and zinc plated. Contact face machined. CE marked.

Hot dipped galvanised versions (for more demanding applications and limited outside use) also available on request, suffix changes to -GV.

Technical Notes

To DIN 582.

When using lifting eye bolts it is critical to ensure that the face is in firm contact with

the mating surface.

These lifting bolts are generally installed and remain on a piece of equipment for the purpose of transporting them. They are not for repeated lifting use - if this is required our swivelling lifting bolt range should be used.

Tips

Maximum load values are only applicable when the thread and the material, it is being used in is as least as strong as the

that of the bolt.

Temperature range -20°C to $+200^{\circ}\text{C}$.

F_1 and F_2 values given are for steel and cast iron components.

Important Notes

Not to be used at lift angles of greater than 45° or with swivelling loads.

Please refer to the safety documentation before using this part.

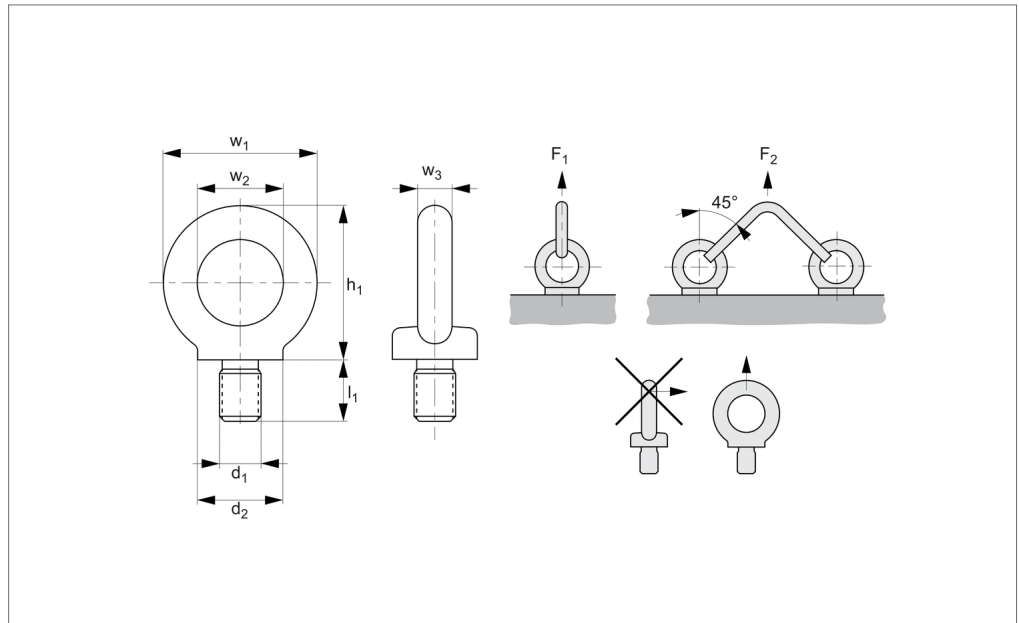
Supplied with certificate and operating instructions.

Order No.	Thread	d_1	d_2	w_1	h_1	w_2	w_3	F_1 kg max.	F_2 kg max.	Weight kg
20198732	Coarse	M 6	20	36	36	20	8	70	50	0.05
20198480	Coarse	M 8	20	36	36	20	8	140	95	0.05
20198749	Coarse	M10	25	45	45	25	10	230	170	0.09
20198756	Coarse	M12	30	54	53	30	12	340	240	0.16
20199340	Coarse	M14	35	63	62	35	14	340	240	0.24
20198763	Coarse	M16	35	63	62	35	14	700	500	0.24
20199425	Coarse	M18	40	72	71	40	16	700	700	0.35
20198787	Coarse	M20	40	72	71	40	16	1200	830	0.36
20198800	Coarse	M24	50	90	90	50	20	1800	1270	0.72
20199432	Coarse	M27	50	90	90	50	20	1800	1270	0.72
20198824	Coarse	M30	65	108	109	60	24	3200	2300	1.32
20199357	Coarse	M33	65	108	109	60	24	3600	2600	1.30
20198848	Coarse	M36	75	126	128	70	28	5100	3700	2.08
20199449	Coarse	M39	75	126	128	70	28	5100	3700	2.08
20198862	Coarse	M42	85	144	147	80	32	7000	4500	3.11
20198886	Coarse	M48	100	166	168	90	38	8600	6100	5.02
20198909	Coarse	M56	110	184	187	100	42	11500	8200	6.70
20198923	Coarse	M64	120	206	208	110	48	16000	11000	9.30
20198930	Coarse	M72x6	150	260	260	140	60	20000	14000	18.5
20198947	Coarse	M80x6	170	296	298	160	68	28000	20000	27.3
20198954	Coarse	M100x6	190	330	330	180	75	40000	29000	26.4
20198770	Fine	M16 x 1,5	35	63	62	35	14	700	500	0.24
20198794	Fine	M20 x 2,0	40	72	71	40	16	1200	830	0.36

Order No.	Thread	d ₁	d ₂	w ₁	h ₁	w ₂	w ₃	F ₁ kg max.	F ₂ kg max.	Weight kg
20198817	Fine	M24 x 2,0	50	90	90	50	20	1800	1270	0.72
20198831	Fine	M30 x 2,0	65	108	109	60	24	3600	2600	1.32
20198855	Fine	M36 x 3,0	75	126	128	70	28	5100	3700	2.08
20198879	Fine	M42 x 3,0	85	144	147	80	32	7000	5000	3.11
20198893	Fine	M48 x 3,0	100	166	168	90	38	8600	6100	5.02
20198916	Fine	M56 x 4,0	110	184	187	100	42	11500	8300	6.69



EP4043



Material

Stainless steel (A4, AISI 316).
CE marked.

Technical Notes

To DIN 580.

When using lifting eye bolts it is critical to ensure that the face is in firm contact with the mating surface.

These lifting bolts are generally installed and remain on a piece of equipment for the

purpose of transporting them. They are not for repeated lifting use - if this is required our swivelling lifting bolt range should be used.

Tips

Maximum load values are only applicable when the thread and the material, it is being used in is as least as strong as the that of the bolt.

F_1 and F_2 values given are for steel and cast

iron components.

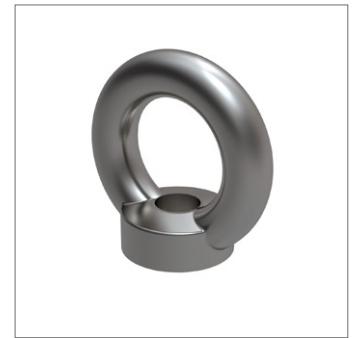
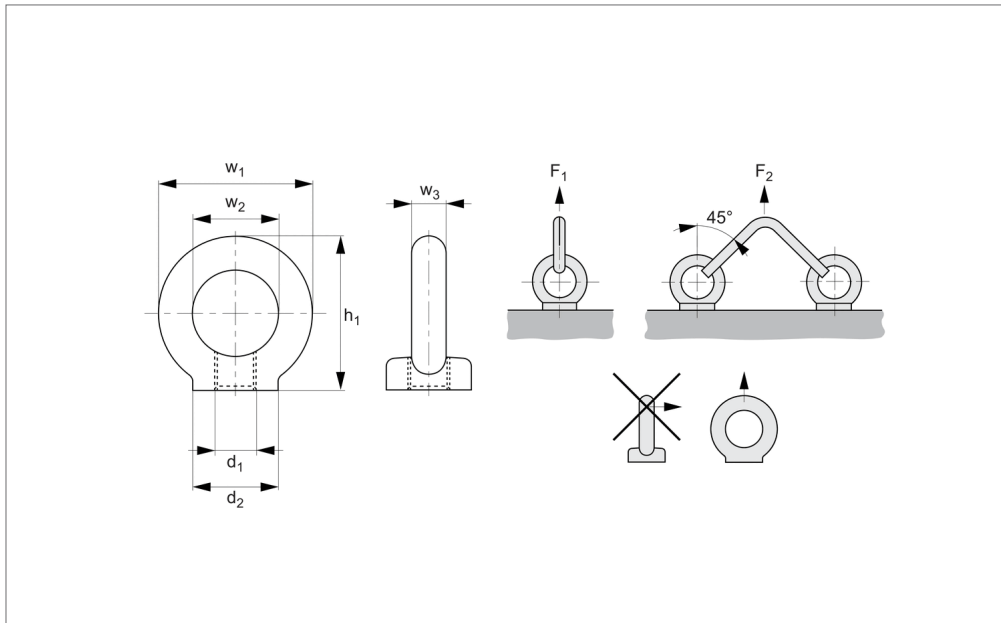
Important Notes

Not to be used at lift angles of greater than 45° or with swivelling loads.

Please refer to the safety documentation before using this part.

Supplied with certificate and operating instructions.

Order No.	Material	d ₁	d ₂	w ₁	l ₁	h ₁	w ₂	w ₃	F ₁ kg max.	F ₂ kg max.	Weight kg
20198961	A4 s/s	M 6	20	36	13.0	36	20	8	70	50	0.05
20198978	A4 s/s	M 8	20	36	13.0	36	20	8	140	95	0.06
20198985	A4 s/s	M10	25	45	17.0	45	25	10	230	170	0.11
20198992	A4 s/s	M12	30	54	20.5	53	30	12	340	240	0.18
20199005	A4 s/s	M16	35	63	27.0	62	35	14	700	500	0.28
20199012	A4 s/s	M20	40	72	30.0	71	40	16	1200	860	0.45
20199029	A4 s/s	M24	50	90	36.0	90	50	20	1800	1270	0.74
20199036	A4 s/s	M30	65	108	45.0	109	60	24	3200	2300	1.66
20199043	A4 s/s	M36	75	126	54.0	128	70	28	4600	3300	2.65
20199050	A4 s/s	M42	85	144	63.0	147	80	32	6300	4500	4.03
20199067	A4 s/s	M48	100	166	68.0	168	90	38	8600	6100	6.38
20199180	A2 s/s	M 6	20	36	11.0	31	16	8	70	50	0.05
20199197	A2 s/s	M 8	20	36	13.0	36	20	8	140	95	0.06
20199203	A2 s/s	M10	25	45	17.0	45	25	10	230	170	0.11
20199210	A2 s/s	M12	30	54	20.5	53	30	12	340	240	0.18
20199227	A2 s/s	M16	35	63	27.0	62	35	14	700	500	0.28
20199234	A2 s/s	M20	40	72	30.0	71	40	16	1200	860	0.45
20199302	A2 s/s	M24	50	90	36.0	90	50	20	1800	1290	0.74
20199319	A2 s/s	M30	65	108	45.0	109	60	24	3200	3200	1.66



EP4044

Material

Stainless steel (A4, AISI 316).
CE marked.

Technical Notes

To DIN 582.

When using lifting eye bolts it is critical to ensure that the face is in firm contact with the mating surface.

These lifting bolts are generally installed and remain on a piece of equipment for the

purpose of transporting them. They are not for repeated lifting use - if this is required our swivelling lifting bolt range should be used.

Tips

Maximum load values are only applicable when the thread and the material, it is being used in is as least as strong as the that of the bolt.

F_1 and F_2 values given are for steel and cast

iron components.

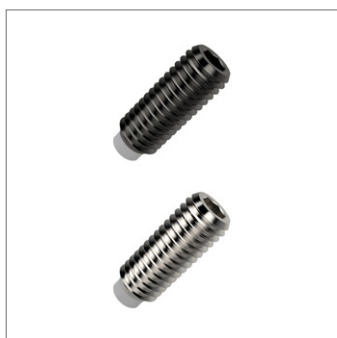
Important Notes

Not to be used at lift angles of greater than 45° or with swivelling loads.

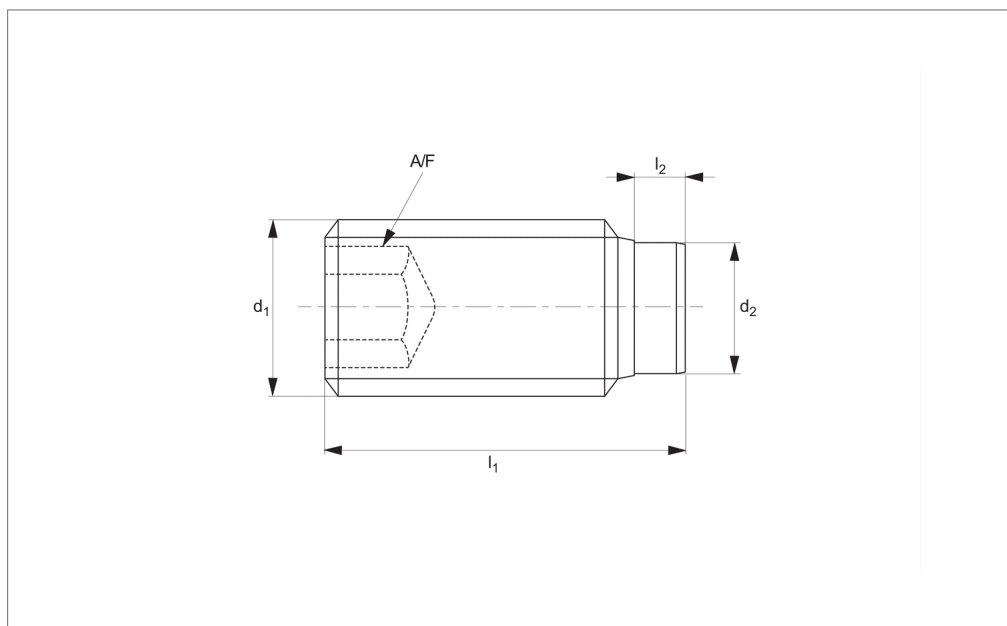
Please refer to the safety documentation before using this part.

Supplied with certificate and operating instructions.

Order No.	Material	d ₁	d ₂	w ₁	h ₁	w ₂	w ₃	F ₁ kg max.	F ₂ kg max.	Weight kg
20199074	A4 s/s	M 6	20	36	36	20	8	70	50	0.05
20199081	A4 s/s	M 8	20	36	36	20	8	140	95	0.05
20199098	A4 s/s	M10	25	45	45	25	10	230	170	0.09
20199104	A4 s/s	M12	30	54	53	30	12	340	240	0.16
20199111	A4 s/s	M16	35	63	62	35	14	700	500	0.24
20199128	A4 s/s	M20	40	72	71	40	16	1200	860	0.36
20199135	A4 s/s	M24	50	90	90	50	20	1800	1270	0.72
20199142	A4 s/s	M30	65	108	109	60	24@	3200	2300	1.32
20199159	A4 s/s	M36	75	126	128	70	28	4600	3300	2.08
20199166	A4 s/s	M42	85	144	147	80	32	6300	4500	3.11
20199173	A4 s/s	M48	100	166	168	90	38	8600	6100	5.02
20199241	A2 s/s	M 6	20	36	31	16	8,5@	70	50	0.03
20199258	A2 s/s	M 8	20	36	36	20	8.5	140	95	0.05
20199265	A2 s/s	M10	25	45	45	25	10	230	170	0.09
20199272	A2 s/s	M12	30	54	53	30	11	340	240	0.16
20199289	A2 s/s	M16	35	63	62	35	13	700	500	0.24
20199296	A2 s/s	M20	40	72	71	40	16	1200	860	0.36
20199326	A2 s/s	M24	50	90	90	50	20	1800	1270	0.72



E34160.1



Material

Screw: heat treated steel, 1200 +/-100 N/mm².

Pad: thermoplastic POM, white.

Technical Notes

Thermoplastic bolt pressed in.

For gentle clamping or pressing of thread spindles, axles, shafts and surface treated

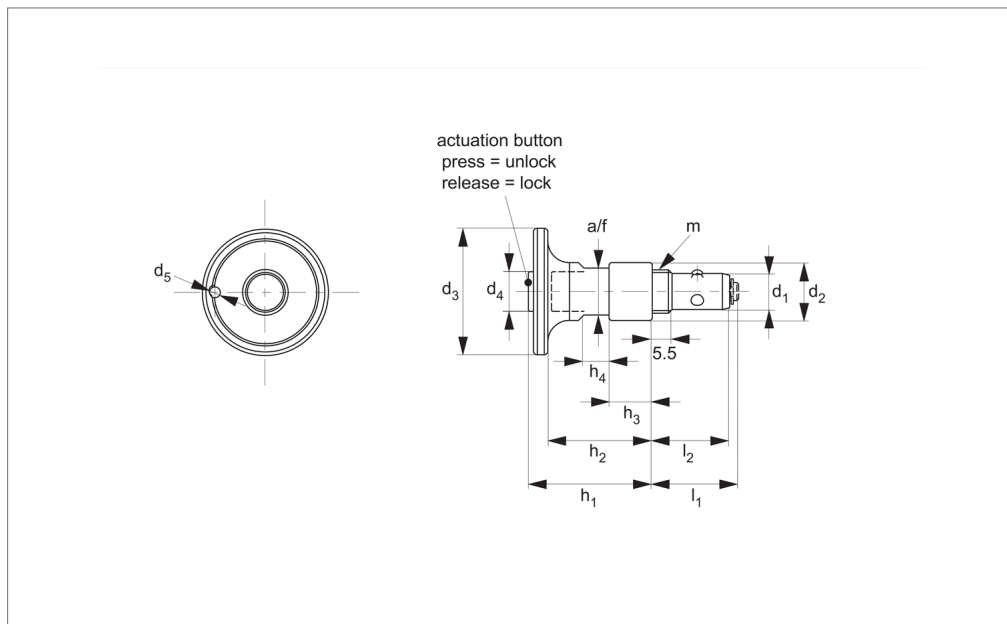
parts.

Order No.	Material	Type	d ₁	l ₁	l ₂	d ₂	A/F	Weight g
20255381	Steel	Thermo Pad	M 4	7.0	1.0	2.0	2.0	0.3
20255398	Steel	Thermo Pad	M 4	9.0	1.0	2.0	2.0	0.4
20255404	Steel	Thermo Pad	M 4	11.0	1.0	2.0	2.0	0.6
20255411	Steel	Thermo Pad	M 4	13.0	1.0	2.0	2.0	0.7
20255428	Steel	Thermo Pad	M 4	17.0	1.0	2.0	2.0	1.0
20255435	Steel	Thermo Pad	M 4	21.0	1.0	2.0	2.0	1.3
20255442	Steel	Thermo Pad	M 5	9.0	1.0	3.0	2.5	0.7
20255459	Steel	Thermo Pad	M 5	11.0	1.0	3.0	2.5	0.8
20255466	Steel	Thermo Pad	M 5	13.0	1.0	3.0	2.5	1.0
20255473	Steel	Thermo Pad	M 5	17.0	1.0	3.0	2.5	1.2
20255374	Steel	Thermo Pad	M 5	21.0	1.0	3.0	2.5	2.0
20255480	Steel	Thermo Pad	M 5	26.0	1.0	3.0	2.5	2.6
20255060	Steel	Thermo Pad	M 6	11.3	1.3	3.5	3.0	1.2
20255091	Steel	Thermo Pad	M 6	13.3	1.3	3.5	3.0	1.5
20255107	Steel	Thermo Pad	M 6	17.3	1.3	3.5	3.0	2.2
20255114	Steel	Thermo Pad	M 6	21.3	1.3	3.5	3.0	2.8
20255121	Steel	Thermo Pad	M 6	26.3	1.3	3.5	3.0	3.8
20255138	Steel	Thermo Pad	M 6	33.3	1.3	3.5	3.0	4.9
20255145	Steel	Thermo Pad	M 6	41.3	1.3	3.5	3.0	6.3
20255152	Steel	Thermo Pad	M 6	51.3	1.3	3.5	3.0	7.9
20255169	Steel	Thermo Pad	M 8	13.6	1.6	5.0	4.0	2.6
20255176	Steel	Thermo Pad	M 8	17.6	1.6	5.0	4.0	3.6
20255084	Steel	Thermo Pad	M 8	21.6	1.6	5.0	4.0	5.0
20254902	Steel	Thermo Pad	M 8	26.6	1.6	5.0	4.0	6.4
20255183	Steel	Thermo Pad	M 8	33.6	1.6	5.0	4.0	8.5
20255190	Steel	Thermo Pad	M 8	41.6	1.6	5.0	4.0	11.0
20255206	Steel	Thermo Pad	M 8	51.6	1.6	5.0	4.0	14.0
20255213	Steel	Thermo Pad	M 8	64.6	1.6	5.0	4.0	18.0
20255220	Steel	Thermo Pad	M10	17.9	1.9	6.5	5.0	5.2
20255237	Steel	Thermo Pad	M10	21.9	1.9	6.5	5.0	7.1
20255244	Steel	Thermo Pad	M10	26.9	1.9	6.5	5.0	9.9
20255251	Steel	Thermo Pad	M10	33.9	1.9	6.5	5.0	13.0
20255268	Steel	Thermo Pad	M10	41.9	1.9	6.5	5.0	17.0
20255275	Steel	Thermo Pad	M10	51.9	1.9	6.5	5.0	22.0

Order No.	Material	Type	d ₁	l ₁	l ₂	d ₂	A/F	Weight g
20255282	Steel	Thermo Pad	M10	64.9	1.9	6.5	5.0	28.0
20255299	Steel	Thermo Pad	M10	81.9	1.9	6.5	5.0	36.0
20255077	Steel	Thermo Pad	M12	22.1	2.1	8.0	6.0	9.0
20255305	Steel	Thermo Pad	M12	27.1	2.1	8.0	6.0	10.0
20255312	Steel	Thermo Pad	M12	34.1	2.1	8.0	6.0	19.0
20255329	Steel	Thermo Pad	M12	42.1	2.1	8.0	6.0	24.0
20255336	Steel	Thermo Pad	M12	52.1	2.1	8.0	6.0	31.0
20255343	Steel	Thermo Pad	M12	65.1	2.1	8.0	6.0	40.0
20255350	Steel	Thermo Pad	M12	82.1	2.1	8.0	6.0	51.0
20255558	Steel	Thermo Pad	M12	102.1	2.1	8.0	6.0	66.0



E33910



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 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.

Tips

Secure one-touch fasteners to your assembly with lanyards and retaining cables, see part no. E33250.

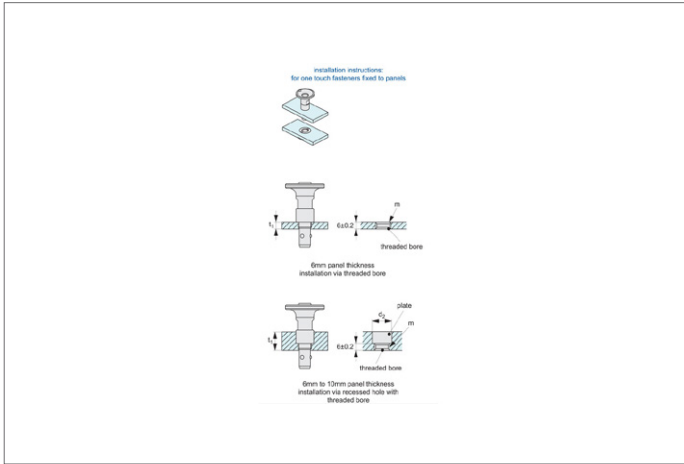
Important Notes

Suitable for panels/enclosures of 6 to 10mm thickness. For locating bushes see part no. E33920. 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.

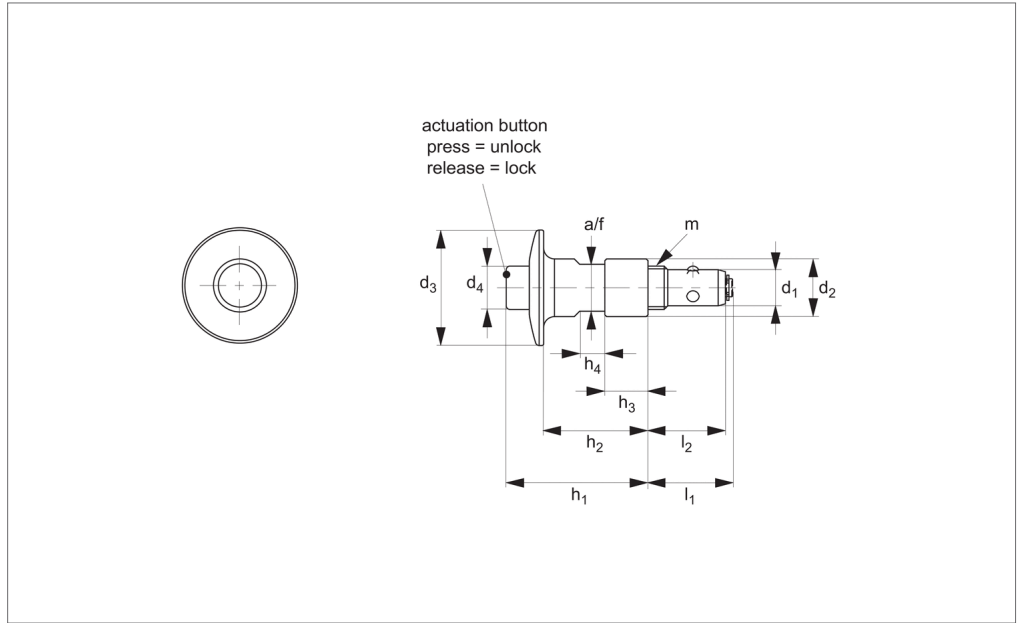
Order No.	For single panel thickness	d_1 -0.05 -0.10	d_2	d_3	d_4	d_5	h_1	h_2	Weight g
20190170	6-10	6	12	25	8	-	22.0	18	30
20190187	6-16	10	16	35	11	3	34.5	29	30

Order No.	h_3	h_4	l_1	l_2	m	A/F	Clamping force N	Shear strength N	Tensile strength N
20190170	6	5.5	21.0	19.0	M 8x1,25	10	30	3000	500
20190187	12	7.0	23.5	21.5	M12x1,50	13	50	9000	1500





E33912



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

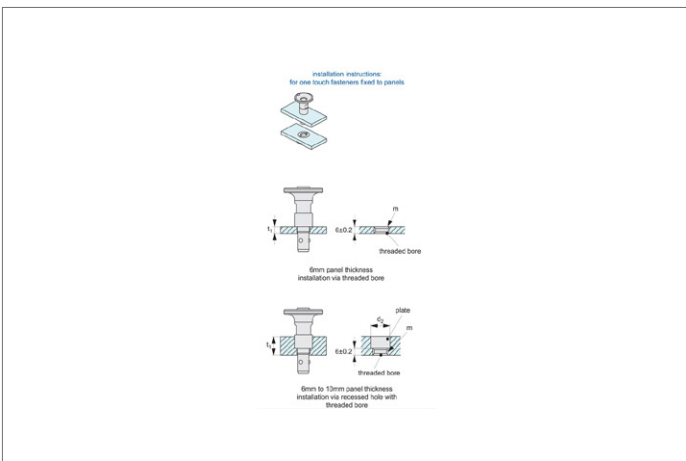
in applications as diverse as bottling processes, machine covers, changing of cogs and drive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time waste in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.
 Temperature resistant to 180°C.

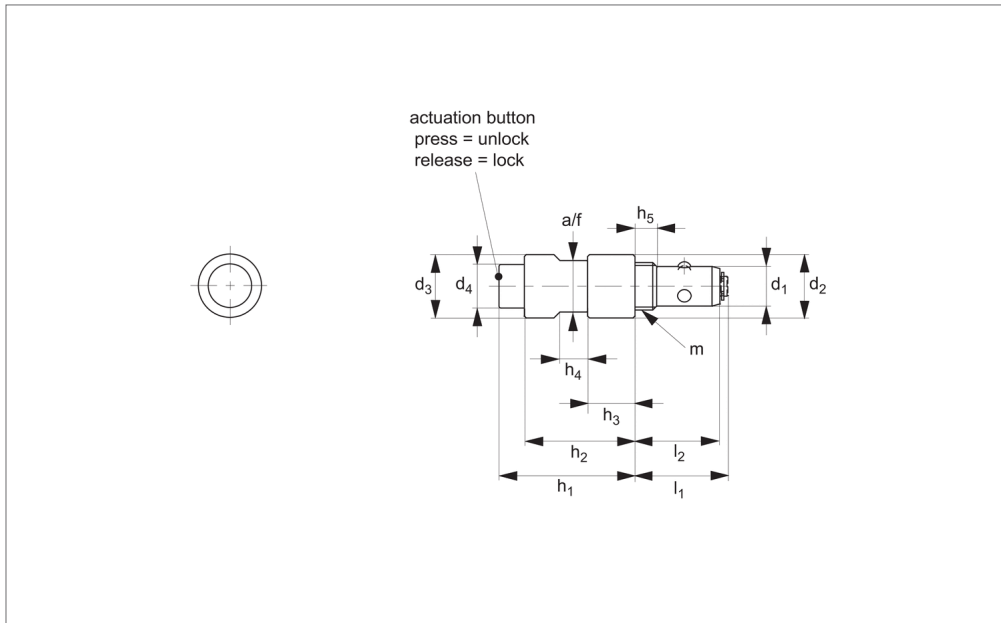
Important Notes

Suitable for panels/enclosures of 6 to 10mm thickness.
 For locating bushes see part no. E33920.
 Actuation:
 push button: unlock (to pass pin through panels)
 release button: lock to securely fasten.

Order No.	For single panel thickness	d_1 -0.05 -0.10	d_2	d_3	d_4	h_1	h_2	Weight g
20190194	6-10	6	12	23	8	26.0	18	30
20190200	6-16	10	16	32	12	39.4	29	75

Order No.	h_3	h_4	l_1	l_2	m	A/F	Clamping force N	Shear strength N	Tensile strength N
20190194	6	5.5	21.0	19.0	M 8x1,25	10	30	3000	500
20190200	12	7.0	23.5	21.5	M12x1,50	13	50	9000	1500





E33914

ONE TOUCH FASTENERS

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. E33920.

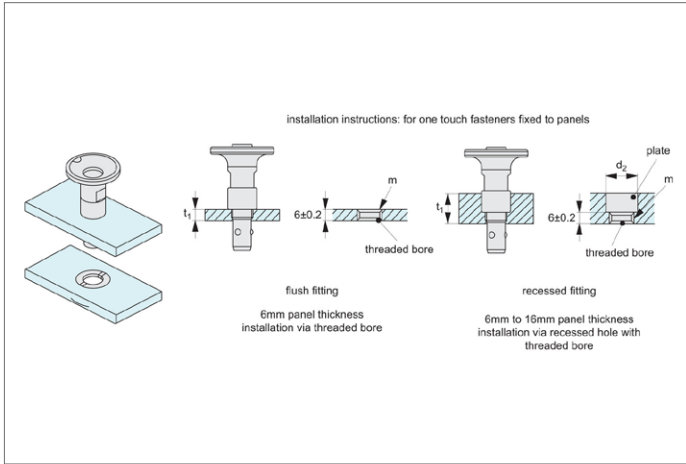
Actuation:

push button: unlock (to pass pin through panels)
release button: lock to securely fasten.

Note: One-touch fastener E33914 is not suitable for installation unattached from panel.

Order No.	For single panel thickness	d_1 -0.05 -0.10	d_2	d_3	d_4	h_1	h_2	h_3	Weight g
20190606	6-10	6	12	12	8	22.0	17.5	6	30
20190217	6-16	10	16	16	11	34.4	28.0	12	50

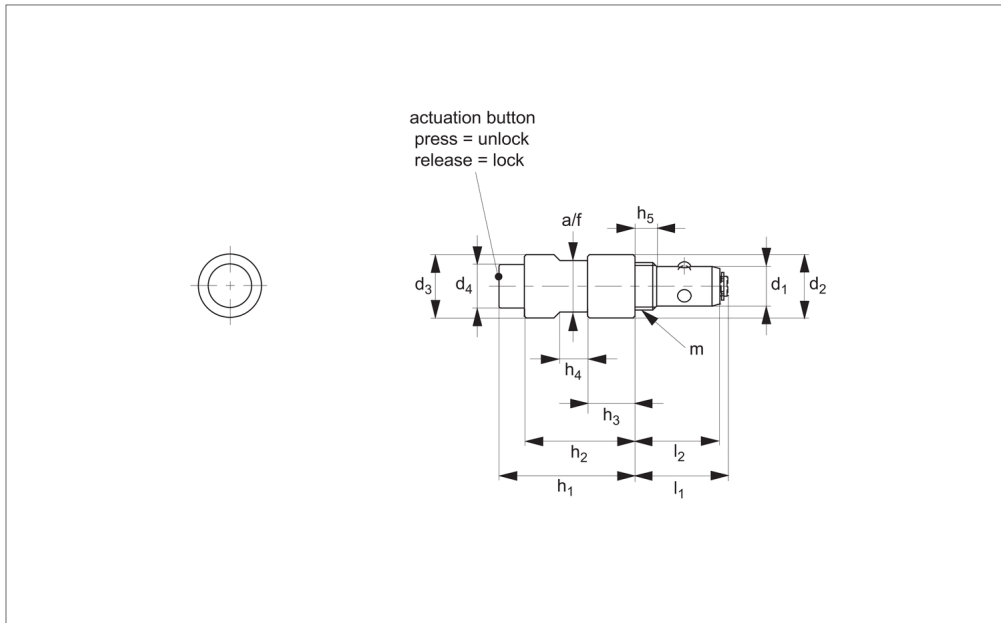
Order No.	h_4	h_5	l_1	l_2	m	A/F	Clamping force N	Shear strength N	Tensile strength N
20190606	5.5	5.5	21.0	19.0	M8x1,25	10	30	3000	500
20190217	7.0	5.5	23.5	21.5	M12x1,5	13	50	9000	1500



One-Touch Fastener - Ball Locking

push button lock - straight - stainless steel

One Touch Fasteners



E33915

ONE TOUCH FASTENERS

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. E33920.

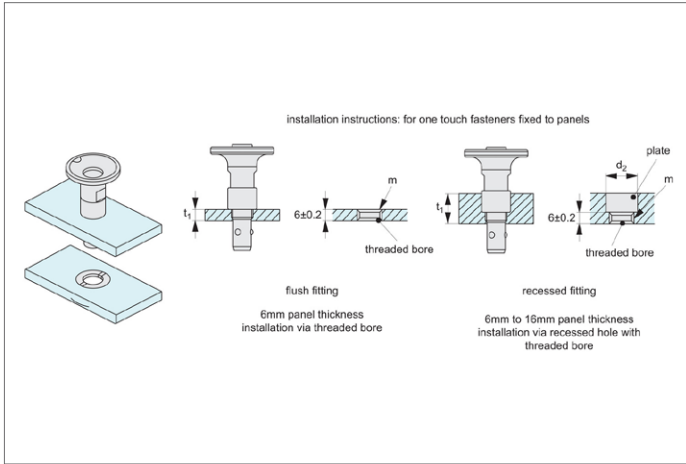
Actuation:

push button: unlock (to pass pin through panels)
release button: lock to securely fasten.

Note: One-touch fastener E33915 is not suitable for installation unattached from panel.

Order No.	For single panel thickness	d_1 -0.05 -0.10	d_2	d_3	d_4	h_1	h_2	h_3	Weight g
20190620	6-10	6	12	25	8	22.0	17.5	6	30
20191931	6-16	10	16	35	11	34.4	28.0	12	50

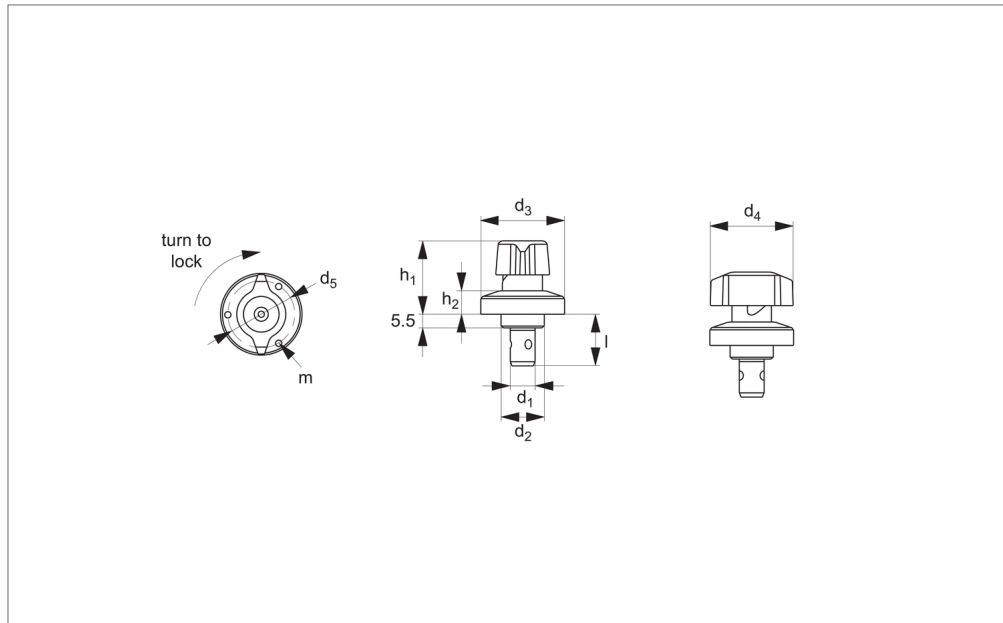
Order No.	h_4	h_5	l_1	l_2	m	A/F	Clamping force N	Shear strength N	Tensile strength N
20190620	5.5	5.5	21.0	19.0	M 8x1,25	10	30	3000	500
20191931	7.0	5.5	23.5	21.5	M12x1,5	13	50	9000	1500



One-Touch Fastener - Ball Locking

quarter turn lock - t-handle grip - plastic

One Touch Fasteners



E33916

ONE TOUCH FASTENERS

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

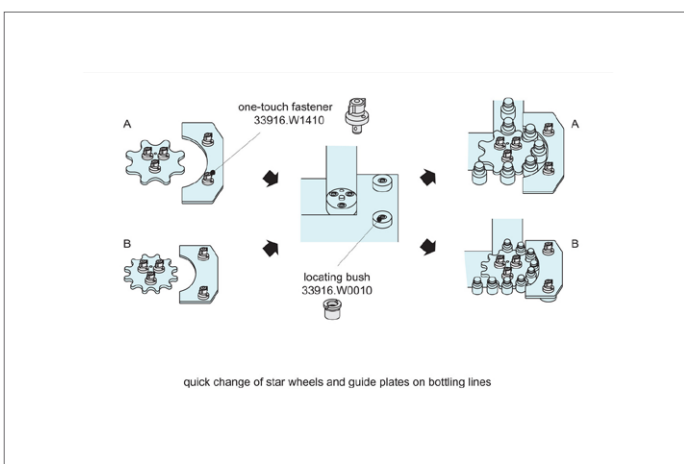
Suitable for panels/enclosures of 6 to 20mm thickness.
For locating bushes see part no. E33920.
Quarter turn handle, easy-to-read on/off position of the one-touch fastener for

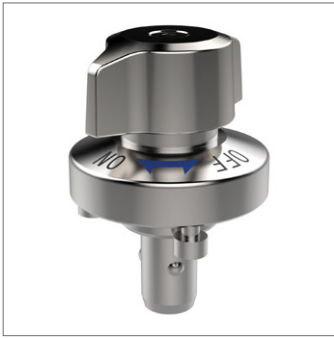
increased security.
Temperature resistant to 180°C.

Actuation:

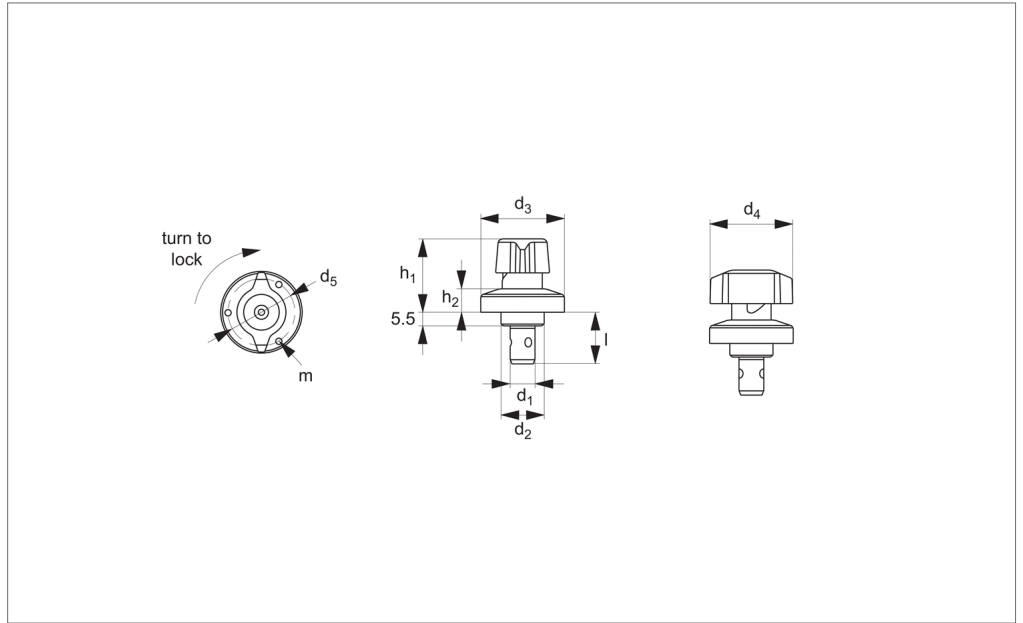
- Turn handle to off position: locking balls retract and are held in retracted position via notched catch.
- Pass fastener through panel.
- Turn handle 45° to on position: locking balls engage with locating bush, panels are securely fastened.

Order No.	For single panel thickness	d_1 -0.05 -0.10	d_2 tol. h9	d_3	d_4	d_5	h_1	h_2	l	m	Clamping force N	Weight g
20190293	6-10	6	14	25	25	21	24.5	6.5	19.5	M 2x0,4	30	40
20190309	6-14	10	18	34	34	28	31.0	10.0	21.5	M 3x0,5	50	95
20190316	12-20	10	18	34	34	28	31.0	10.0	27.5	M 3x0,5	50	100





E33917



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

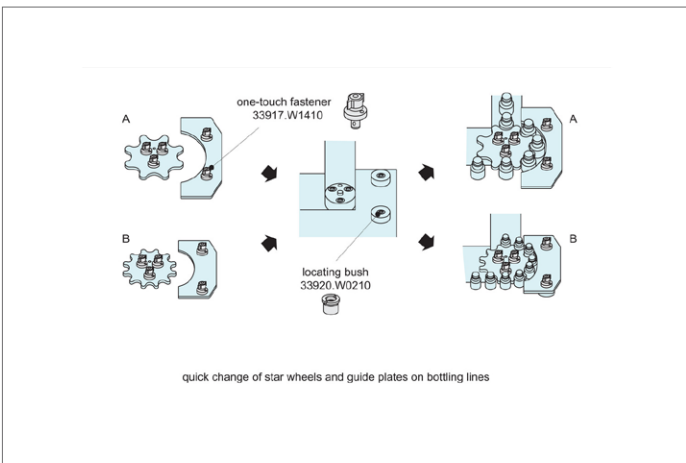
Suitable for panels/enclosures of 6 to 20mm thickness.
 For locating bushes see part no. E33920.
 Quarter turn handle, easy-to-read on/off position of the one-touch fastener for

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 45° to on position: locking balls engage with locating bush, panels are securely fastened.

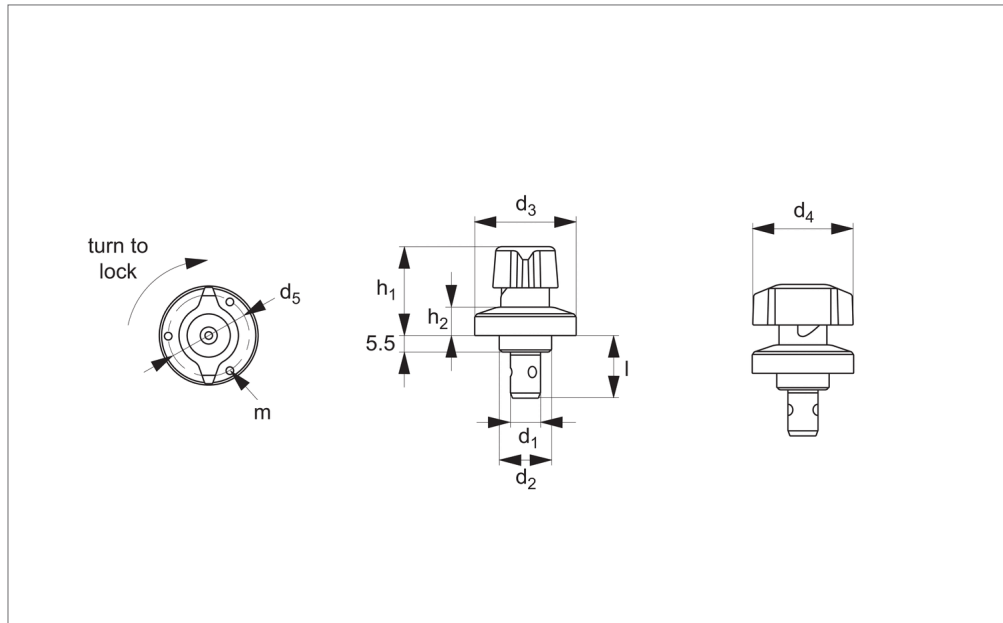
Order No.	For single panel thickness	d_1 -0.05 -0.10	d_2 tol. h9	d_3	d_4	d_5	h_1	h_2	l	m	Clamping force N	Weight g
20190637	6-10	6	14	25	25	21	24.5	6.5	19.5	M 2x0,4	30	40
20190644	6-14	10	18	34	34	28	31.0	10.0	21.5	M 3x0,5	50	95
20190651	12-20	10	18	34	34	28	31.0	10.0	27.5	M 3x0,5	50	100



One-Touch Fastener - Ball Locking

quarter turn lock - t-handle grip - stainless steel

One Touch Fasteners



E33918

ONE TOUCH FASTENERS

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

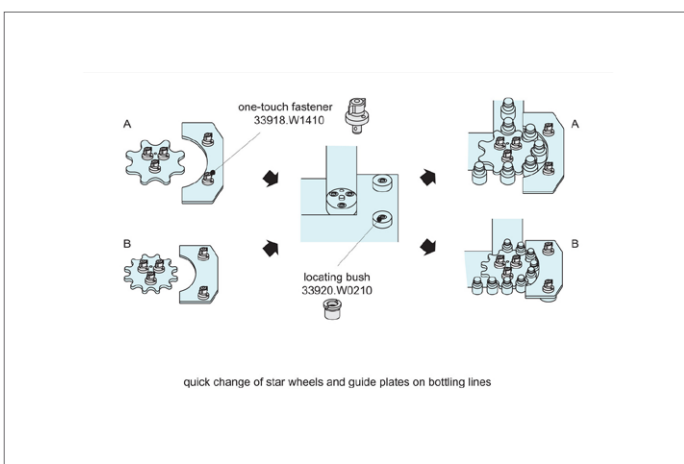
Suitable for panels/enclosures of 6 to 20mm thickness.
For locating bushes see part no. E33920.
Quarter turn handle, easy-to-read on/off position of the one-touch fastener for

increased security.
Temperature resistant to 180°C.

Actuation:

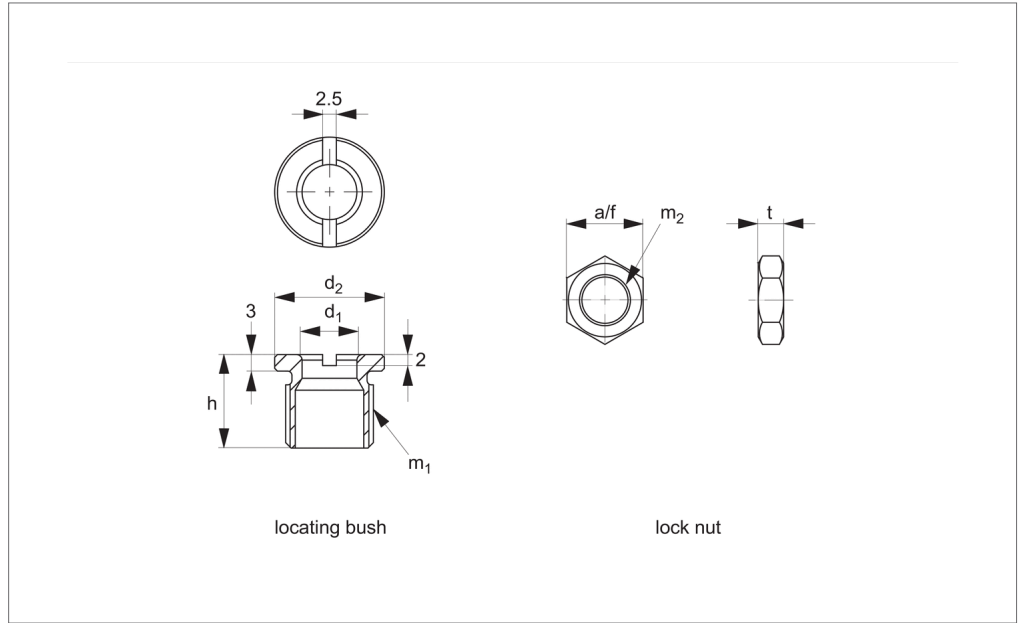
- Turn handle to off position: locking balls retract and are held in retracted position via notched catch.
- Pass fastener through panel.
- Turn handle 45° to on position: locking balls engage with locating bush, panels are securely fastened.

Order No.	For single panel thickness	d_1 -0.05 -0.10	d_2 tol. h9	d_3	d_4	d_5	h_1	h_2	l	m	Clamping force N	Weight g
20190668	6-10	6	14	25	25	21	24.5	6.5	19.5	M 2x0,4	30	40
20190675	6-14	10	18	34	34	28	31.0	10.0	21.5	M 3x0,5	50	95
20190682	12-20	10	18	34	34	28	31.0	10.0	27.5	M 3x0,5	50	100





E33920



Material

Body: steel or stainless steel SUS303.
Nut: stainless steel SUS303.

Technical Notes

Used in conjunction with one-touch fasteners E33910 to E33918, locating bushes E33920 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-

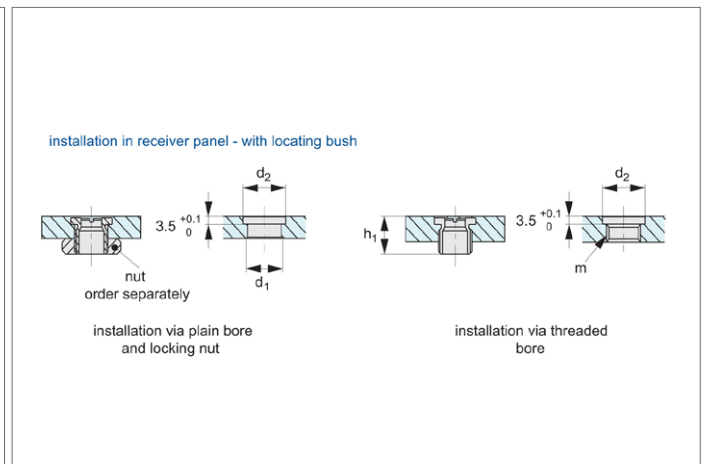
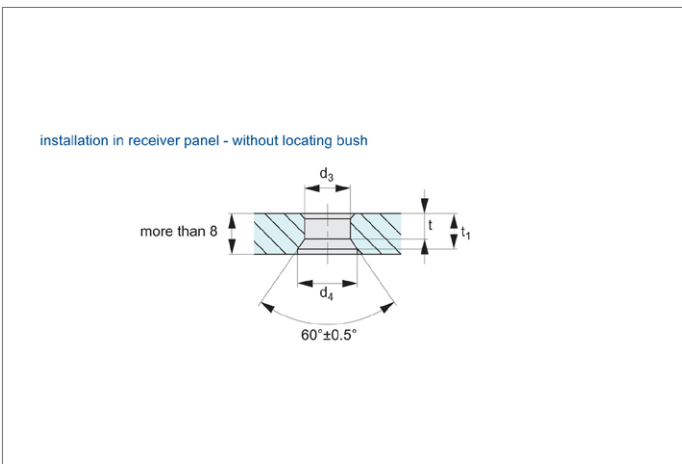
touch fasteners without them, see specifications opposite.

Important Notes

Suitable for panels/enclosures of 6 to 20mm thickness.

For one-touch fasteners see part no. E33910 to E33918. For installation instructions see technical page. Temperature resistant to 180°C.

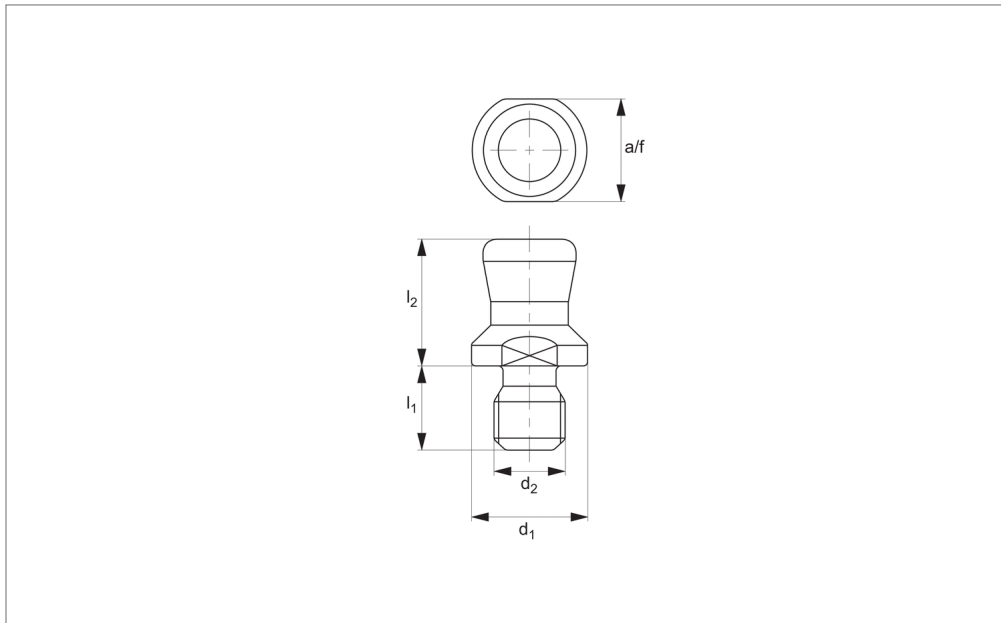
Order No.	Type	Material	d_1 $+0.4 \mid +0.2$	d_2 tol. h9	h	m_1	For panel thickness	Weight g
20190224	Bush	Steel	6	16	15	M12x1,5	>6	9
20190231	Bush	Steel	10	20	17	M16x1,5	>6	13
20190248	Bush	S/S	6	16	15	M12x1,5	>6	9
20190255	Bush	S/S	10	20	17	M16x1,5	>6	13



One-Touch Fastener - Ball Clamping

pin - for one touch fasteners 33924 to 33929

One Touch Fasteners



E33923

ONE TOUCH FASTENERS

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 E33923 for use in conjunction with

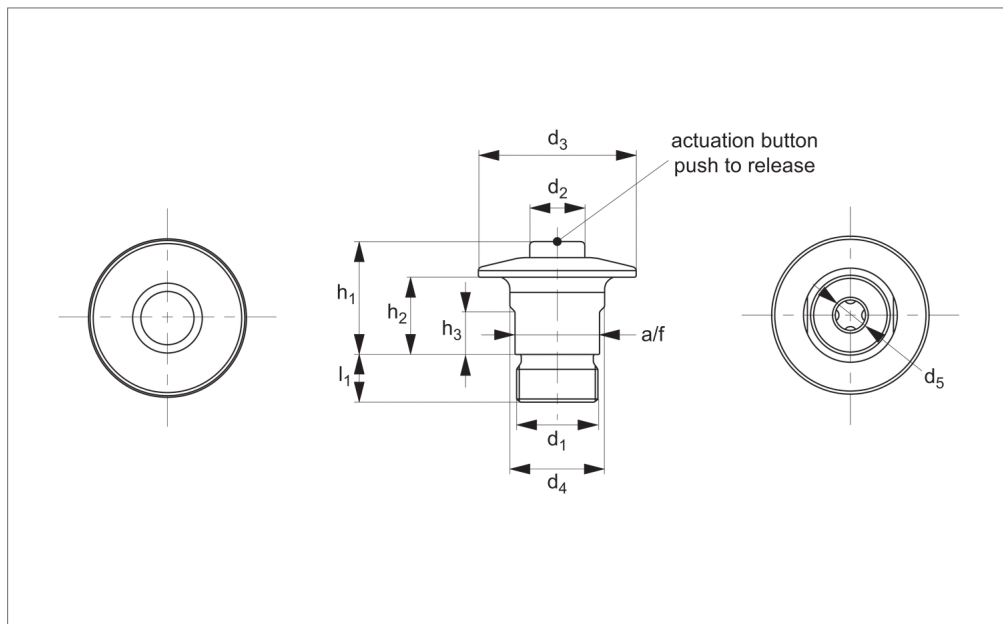
one-touch fasteners, ball clamping; E33924 through E33929. Pins for installation in material to minimum depth 6,0mm or greater.

Recess of 0,5mm +0,1 is recommended to ensure full surface contact and achieve maximum strength of pin.

Order No.	d_1 -0.05 ^{-0.10}	d_2	l_1	l_2	A/F	Weight g
20190545	6	M 4x0,7	5.8	7.6	5	2
20190774	8	M 5x0,8	5.8	8.7	7	3



E33924



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 E33923. For highly accurate locating, use locating pins E36340 & E36341

Important Notes

Suitable for panel/enclosures of 3 to 10mm thickness.

Used in conjunction with pin E33923. Tensile strength stated is for locked position/state of fastener.

Actuation:

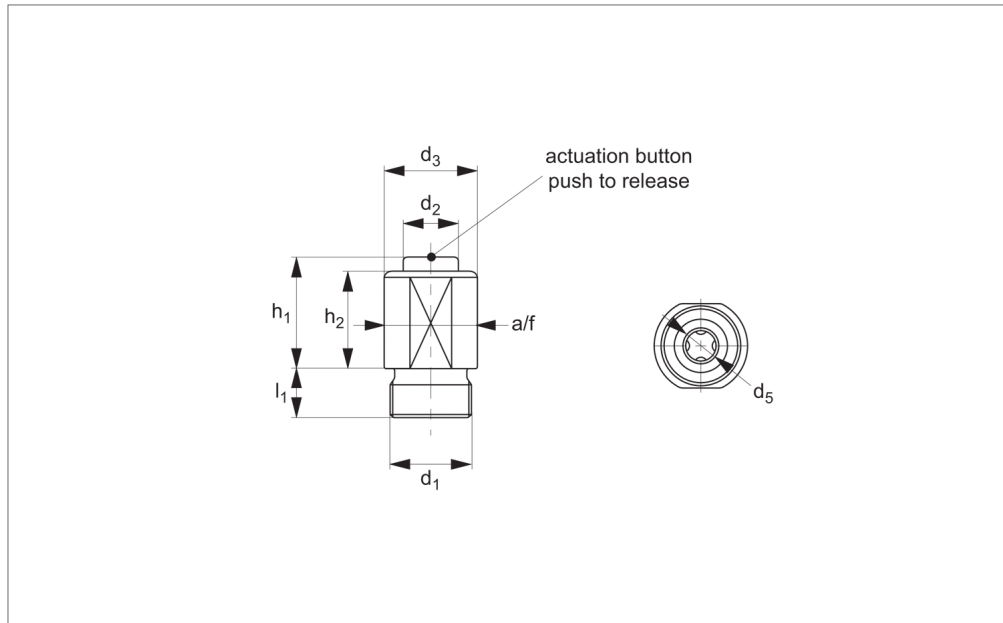
- Engage clamp over pin, no need to push button, a positive „click“ is heard.
- Securing balls are locked and panel fastened.
- To release; while pushing down on release button, lift panel from pin- panel is released.

Order No.	For single panel thickness	For pin dia.	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	Weight g
20190699	3-10	6	M16x1,0	11	32	19	6	23	15,5	8,5	9,5	17	6	1100	250	65

One-Touch Fastener - Ball Clamping

push button lock - straight body - stainless

One Touch Fasteners



E33925

ONE TOUCH FASTENERS

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 E33923.

Important Notes

Suitable for pannel/enclosures of 3 to 27mm thickness. Used in conjunction

with pin E33923. Tensile strength stated is for locked position/state of fastener.

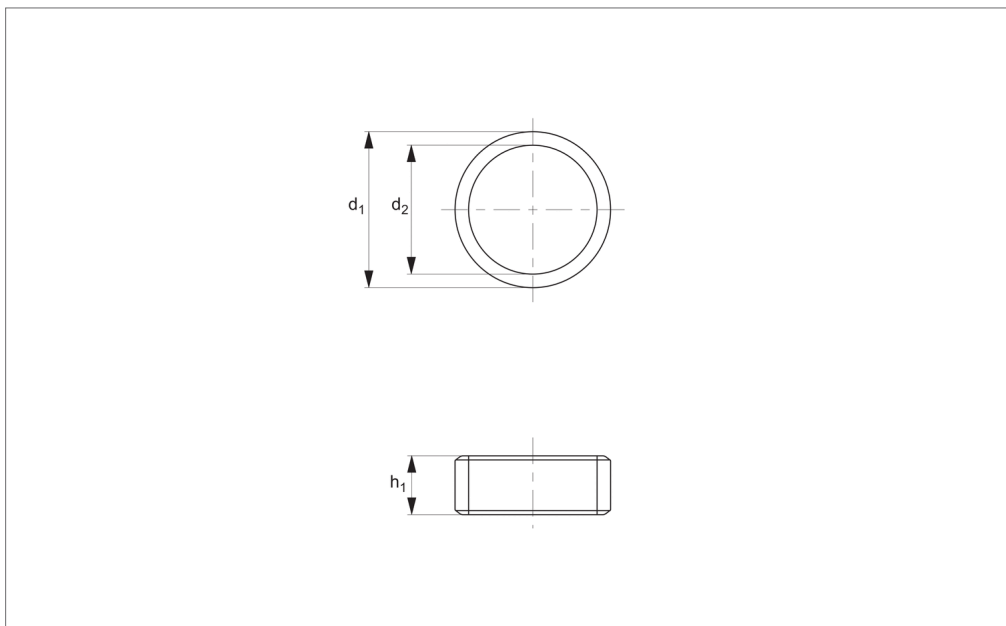
Actuation:

- 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 dia.	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	Weight g
20190569	3-27	6	M16x1,0	11	19	6	23	19.5	9.5	17	6	1100	250	50



E33926



Material

Stainless steel SUS303

Technical Notes

For use with one-touch fasteners E33924

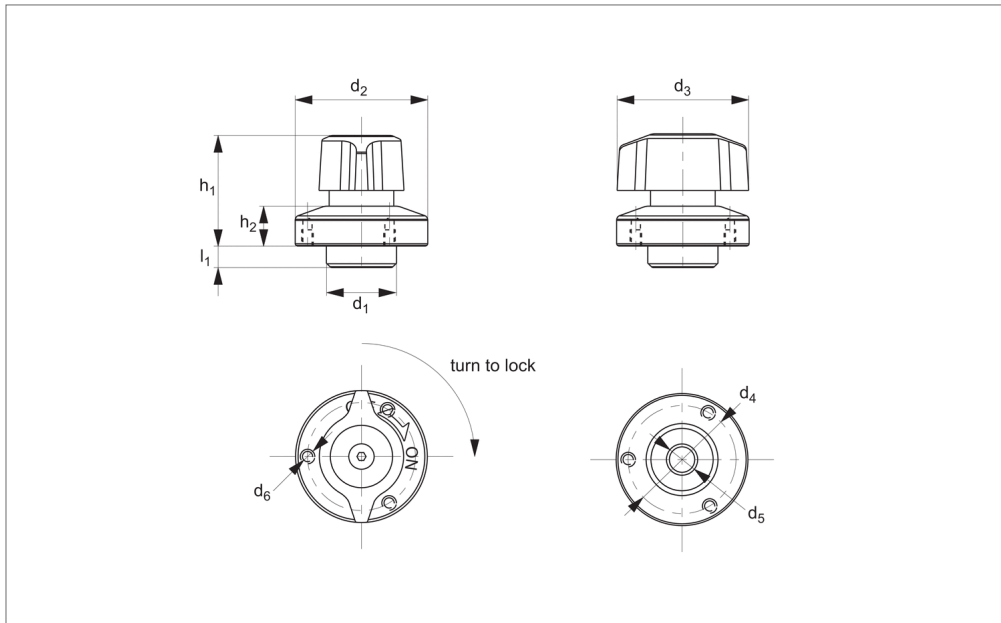
and E33925. Spacer adapts thread length of one-touch fastener to different thread reaches on mounting panels of different thickness.

Order No.	For panel thickness	d_1	d_2 +0.2 +0.01	h_1 +0.05	Weight g
20190705	6	19	16	4	2.5
20190552	5	19	16	5	3.0
20190712	4	19	16	6	3.5
20190729	3	19	16	7	4.0

One-Touch Fastener - Ball Clamping

quarter turn lock - t-handle grip - steel

One Touch Fasteners



E33927

ONE TOUCH FASTENERS

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

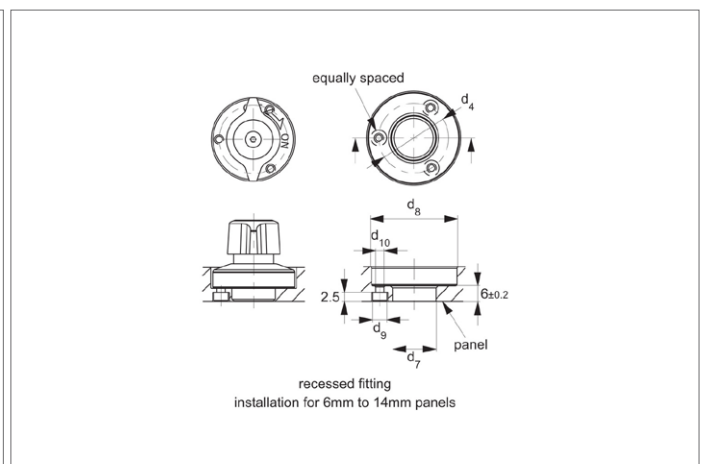
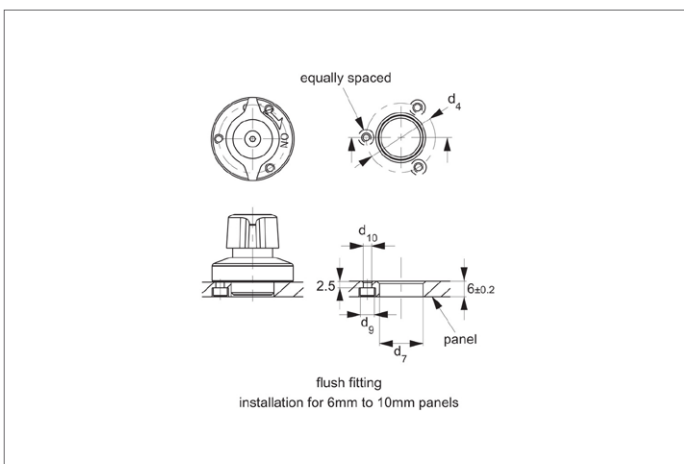
Used in conjunction with pin E33923.

For highly accurate locating, use locating pins E36340 & E36341.

Actuation

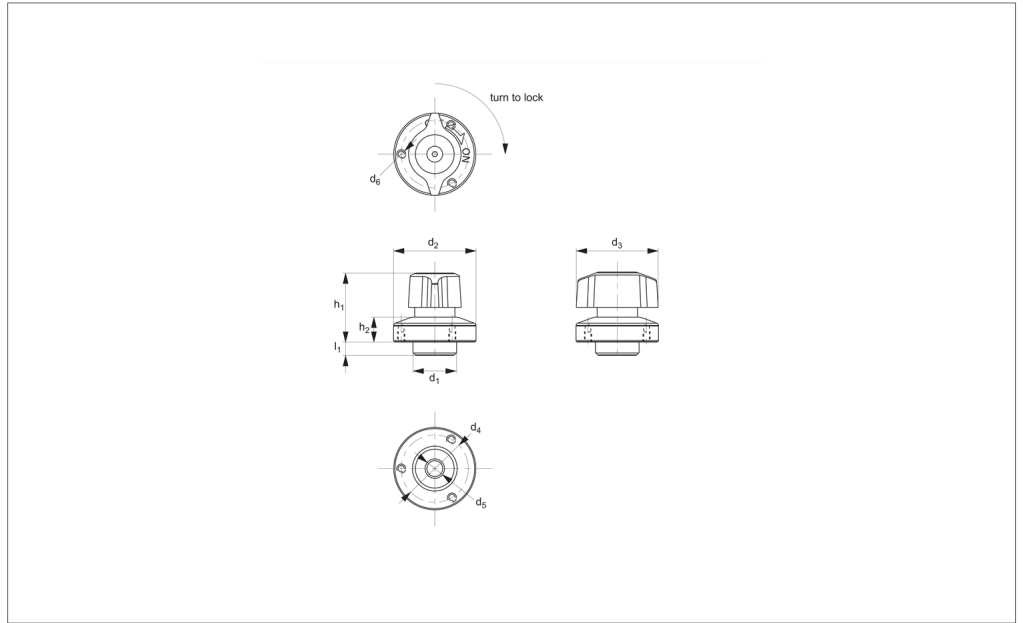
- Turn handle to off position, clamping balls are retracted. Engage panel and clamp over clamping pin. Turn handle on to position to clamp.
- To unclamp, reverse steps above.

Order No.	For single panel thickness	For pin dia.	d ₁ tol. 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	Weight g
20190576	6-10	6	14	25	25	21	6	M2x0,4	23	6,5	5,5	7	1100	250	35
20191979	6-14	8	18	34	34	28	8	M3x0,5	28	10,0	5,5	9	1800	400	85





E33928



Material

Body & shank: steel, nickel plated.
 Knob: tainless 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 E33923.

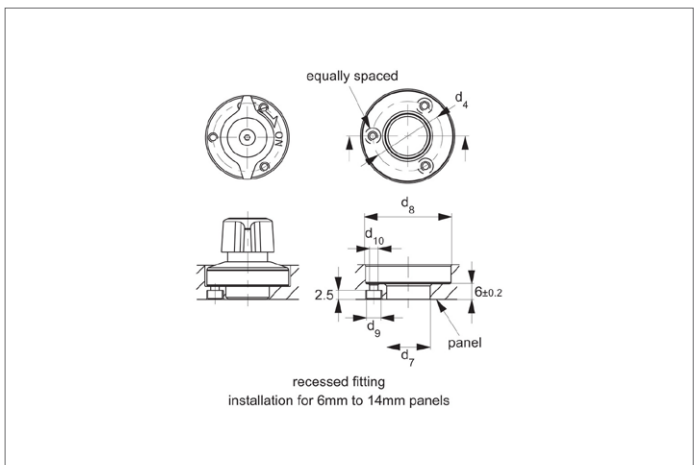
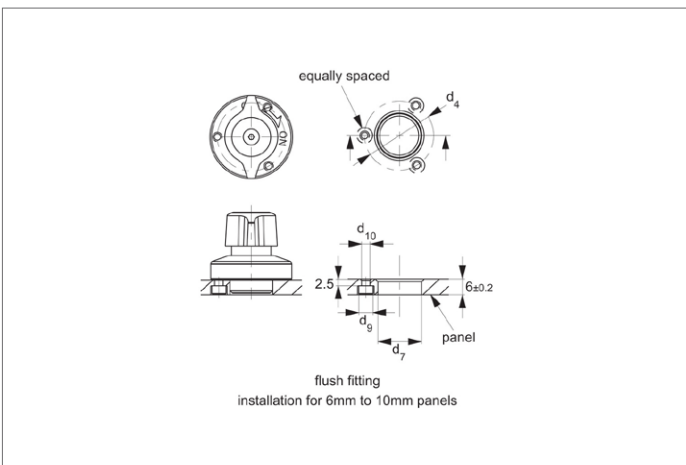
For highly accurate locating, use locating pins E36340 & E36341.

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.

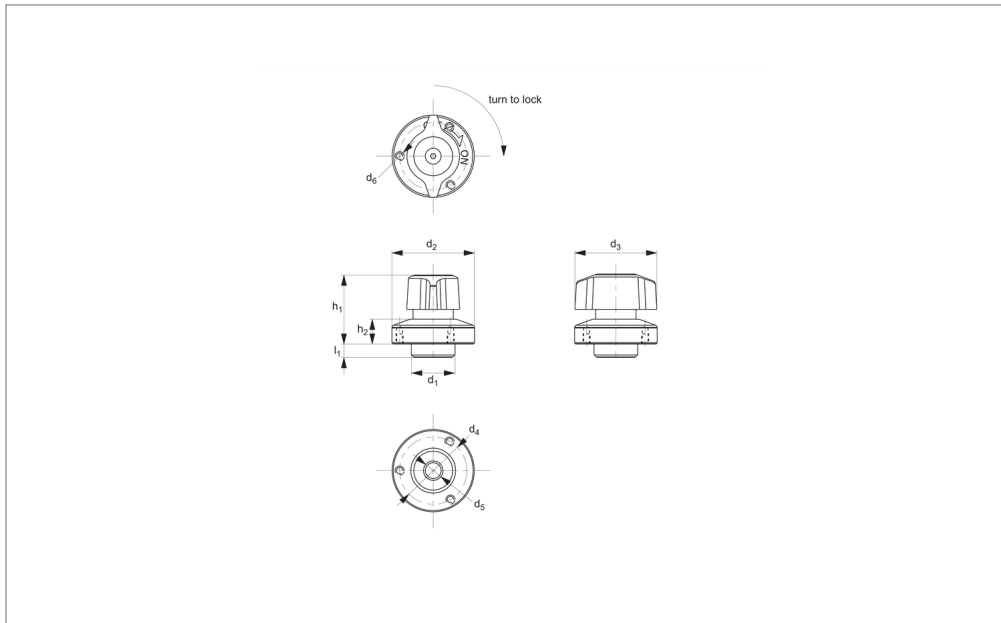
Order No.	For single panel thickness	For pin dia.	d ₁ tol. h9	d ₂	d ₃	d ₄	d ₅ +0.4 +0.2	d ₆	h ₁	h ₂	l ₁	Clamping force N	Shear strength N	Tensile strength N	Weight g
20190736	6-10	6	14	25	25	21	6	M2x0,4	23	6,5	5,5	7	1100	250	35
20190767	6-14	8	18	34	34	28	8	M3x0,5	28	10,0	5,5	9	1800	400	85



One-Touch Fastener - Ball Clamping

quarter turn lock - t-handle - stainless steel

One Touch Fasteners



E33929

ONE TOUCH FASTENERS

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 E33923.

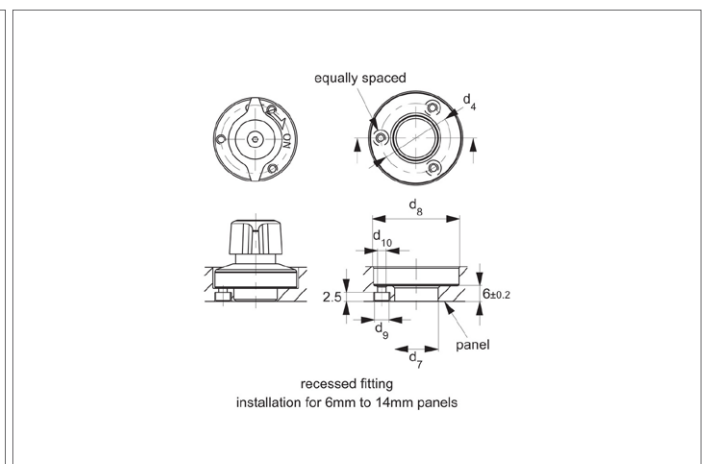
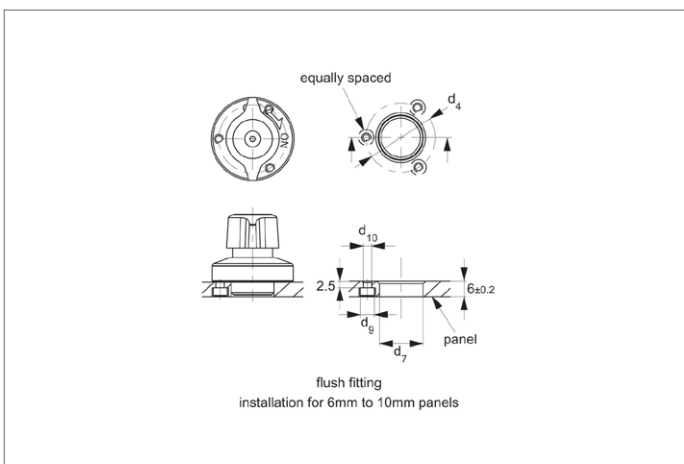
For highly accurate locating, use locating pins E36340 & E36341.

Actuation

-Turn handle to off position, clamping balls are retracted. Engage panel and clamp over clamping pin. Turn handle on to position to clamp.

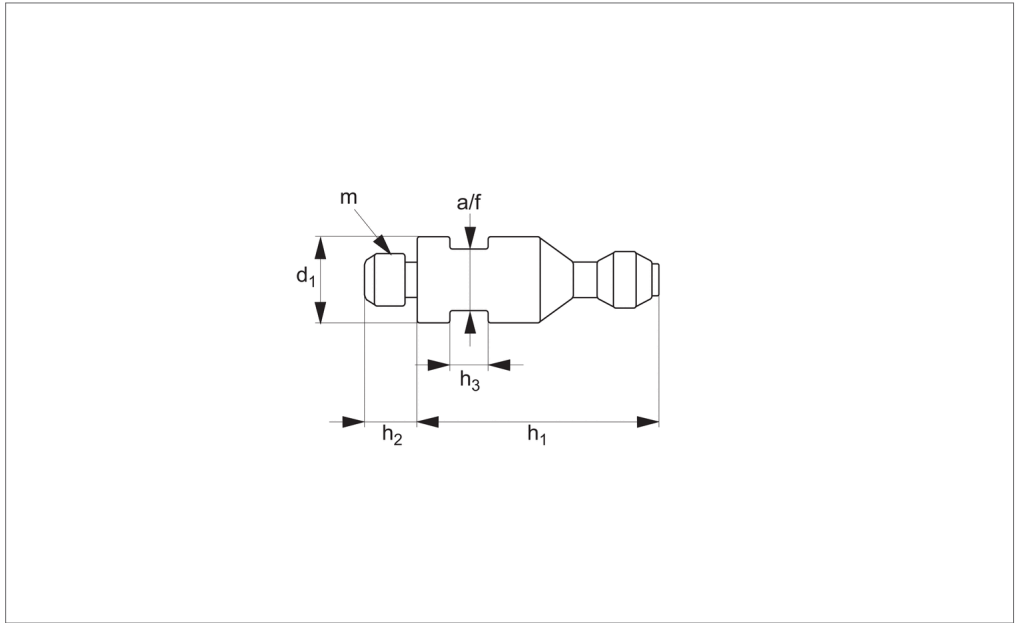
-To unclamp, reverse steps above.

Order No.	For single panel thickness	For pin dia.	d ₁ tol. 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	Weight g
20190743	6-10	6	14	25	25	21	6	M2x0,4	23	6,5	5,5	7	1100	250	35
20190750	6-14	8	18	34	34	28	8	M3x0,5	28	10,0	5,5	9	1800	400	85





E33930



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

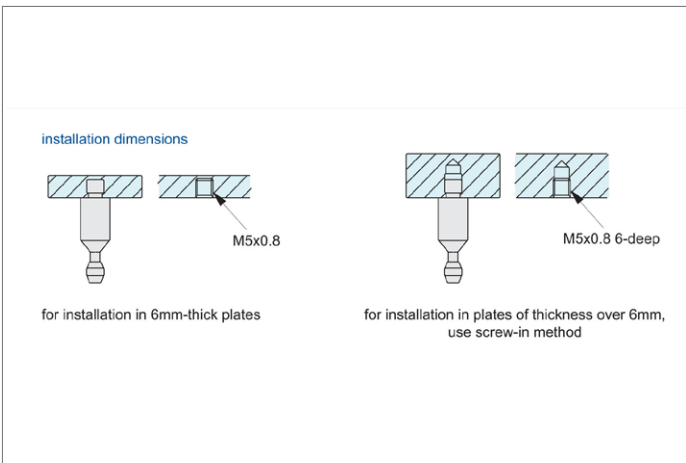
cogs and dive belts. One-touch fasteners provide a quick, simple and secure change over solution - no time waste in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.

Important Notes

Pin E33930 is for use inconjunction with

one-touch fasteners, ball clamping; E33934 and E33936. Suitable for panels/enclosures of 6 to 20 mm thickness. Requires an M 6 thread, 6mm deep for installation into blind hole. See technical pages for further information.

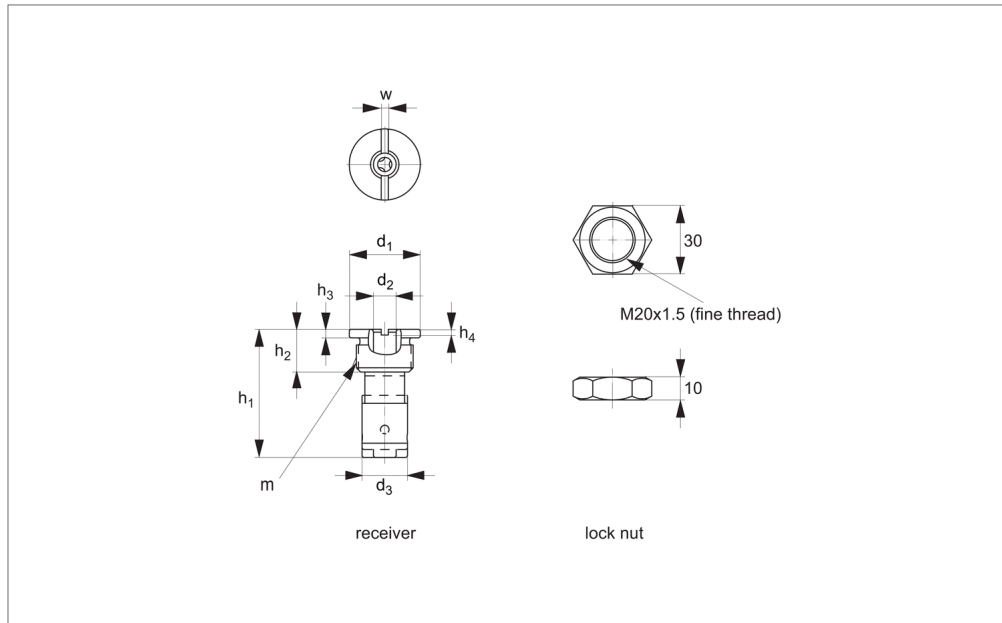
Order No.	d_1 -0.2 -0.4	h_1	h_2	h_3	m	A/F	Weight g
20190323	Ø8	23	5	4	M 5x0,8	6	7



One-Touch Fastener - Ball Clamping

locating bush and receiver - safety release

One Touch Fasteners



E33934

ONE TOUCH FASTENERS

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

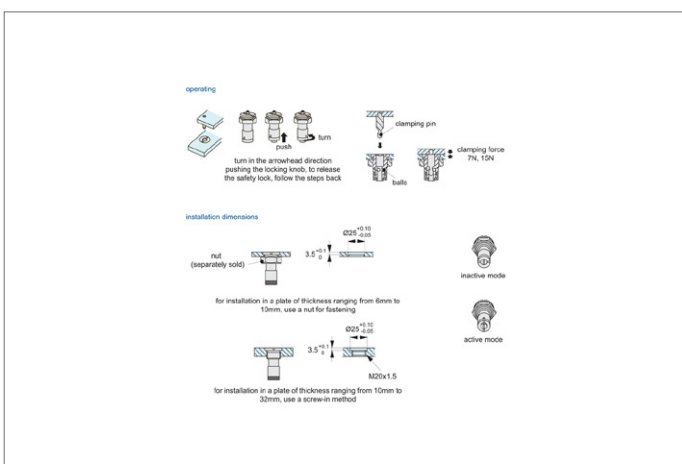
Suitable for panels/enclosures of 6 to 32 mm thickness. Used in conjunction with pin E33930. Offers a safety release feature to prevent accidental release in of pin/assembly.

* Tensile strength stated is for locked position/state of the fastener.

Actuation:

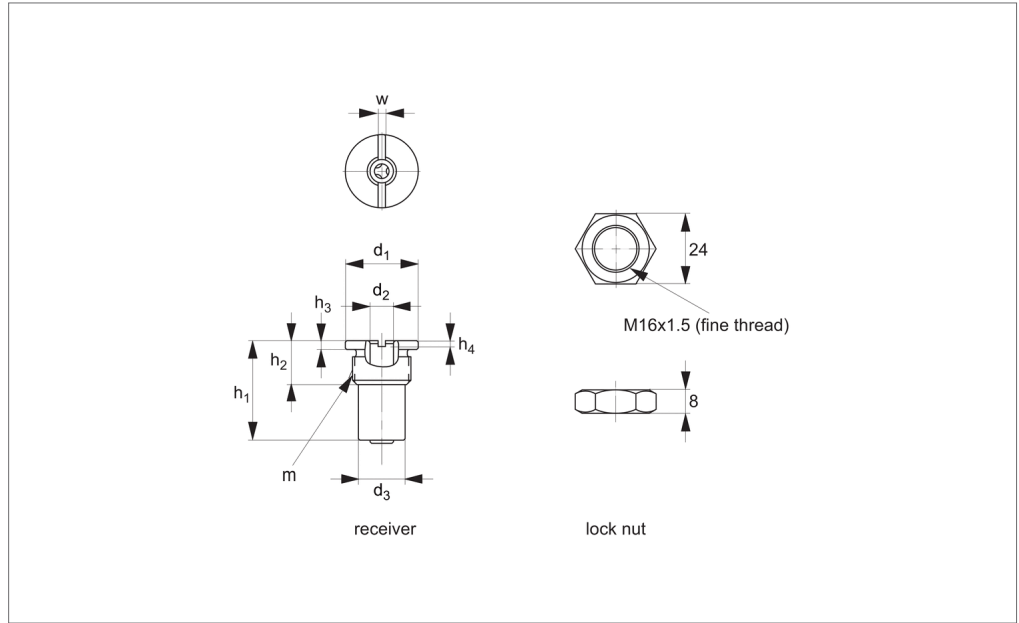
Engage pin into receiver, a positive „click“ is heard, securing balls are engaged. Panels are securely fastened. To release, pull safety release housing on under side of receiver, balls are retracted and panel is released.

Order No.	Type	d ₁ tol. 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	Weight g
20190330	Receiver	Ø26	Ø8	Ø16	45	15	3	2	M20x1,5	2,5	7	1800	1800	65
20190347	Receiver	Ø26	Ø8	Ø16	45	15	3	2	M20x1,5	2,5	17	1800	1800	65





E33936



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 E33930. Mechanical release only (no safety release).

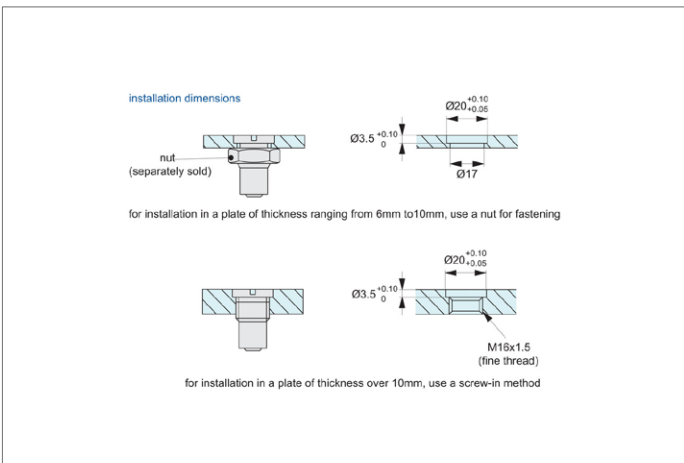
* Tensile strength stated is for locked posi-

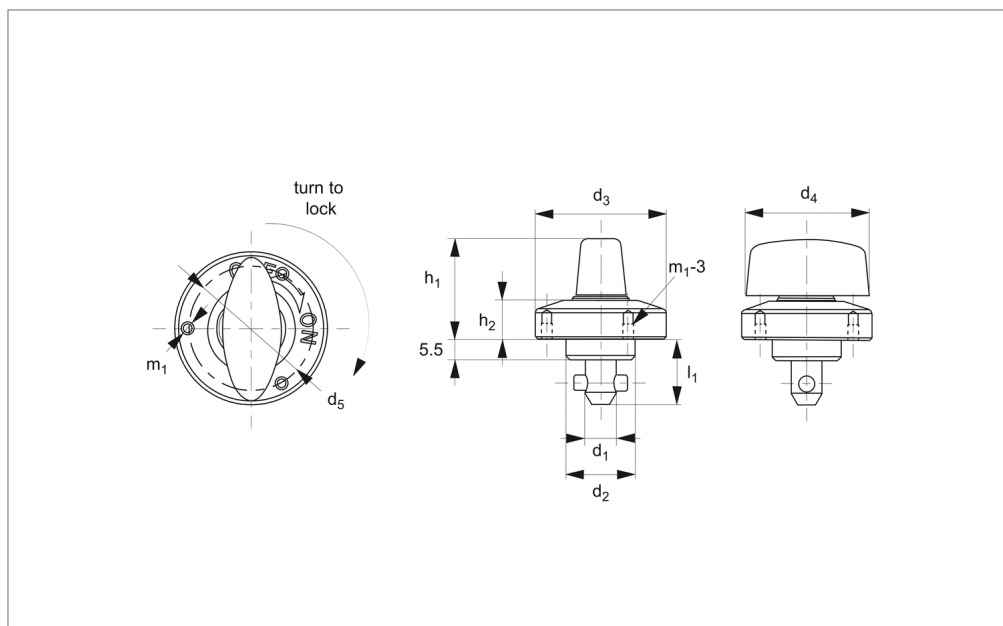
tion/state of the fastener.

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.

Order No.	Type	d ₁ tol. 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	Weight g
20190354	Receiver	Ø20	Ø8	Ø14	29	15	3	M16x1,5	2,5	7	1800	1800	30
20190361	Receiver	Ø20	Ø8	Ø14	29	15	3	M16x1,5	2,5	15	1800	1800	30





E33940

ONE TOUCH FASTENERS

Material

Body: stainless steel SUS303.
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 wasted in unfastening screws or other permanent fixings, and no opportunity for lost fixings in your machinery.
Temperature resistant to 130°C.

Important Notes

Suitable for panels/enclosures of 6 to 20

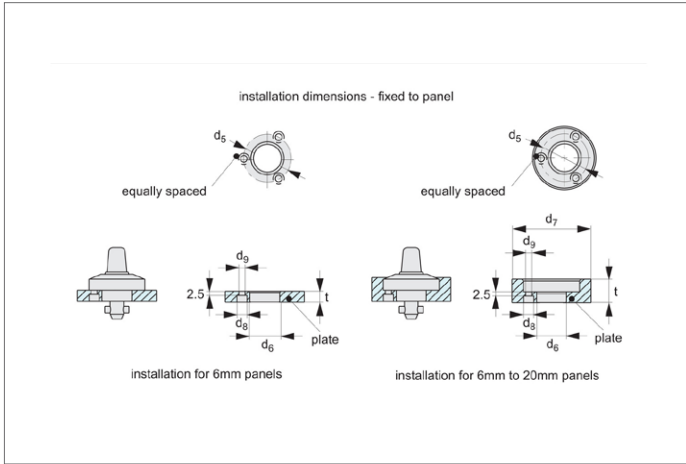
mm thickness. For locating bushes see part no. E33948 and E33949.

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	Clamping force N	d ₁ -0.04 -0.08	d ₂ tol. h9	d ₃	d ₄	d ₅	d ₆ +0.10 +0.05	d ₇	Weight g
20190378	06-10	60	5	14	25	20	21	14	26	35
20190385	6-14	90	8	18	34	32	28	18	35	105
20190392	12-20	90	8	18	34	32	28	18	35	110

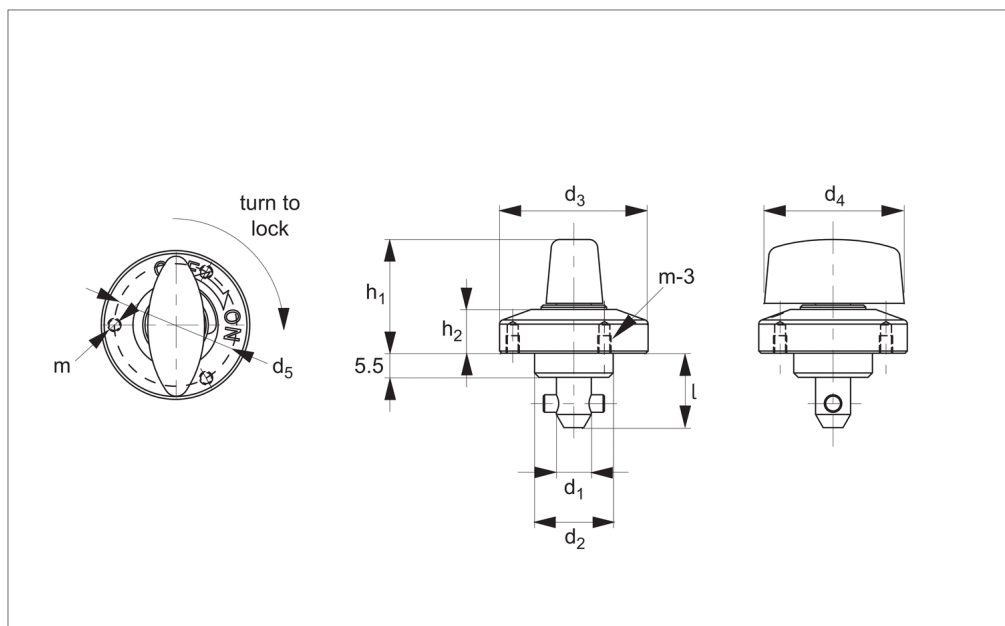
Order No.	d ₈	d ₉	l ₁	m	Shear strength N	Tensile strength N
20190378	4.4	2.4	15.5	M 2x0,4	1800	1200
20190385	4.4	2.4	17.0	M 3x0,5	3200	2600
20190392	6.5	3.4	23.0	M 3x0,5	3200	2600



One-Touch Fastener - Cam Locking

quarter turn - t-handle grip - steel

One Touch Fasteners



E33942

ONE TOUCH FASTENERS

Material

Body, Pin and Knob: SUS303 stainless steel.

Shank: S45C steel nickel plated.

Spring: SWOSC-V 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 200°C.

Important Notes

Suitable for panels/enclosures of 6 to 20

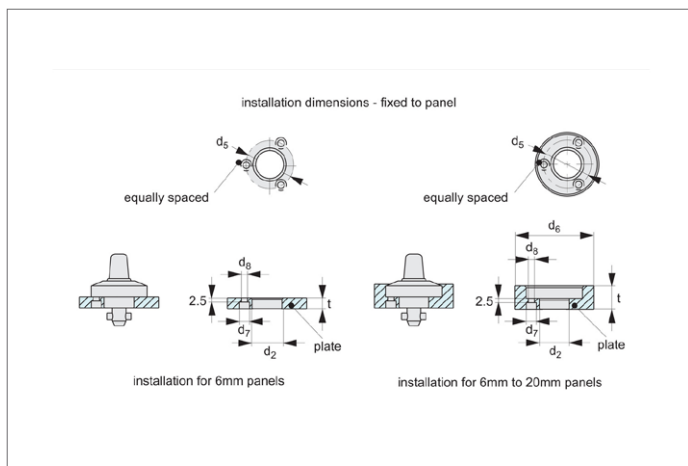
mm thickness. For locating bushes see part no. E33948 and E33949.

Actuation:

-Turn handle to off position: present cover panel to frame and align to locating bush.

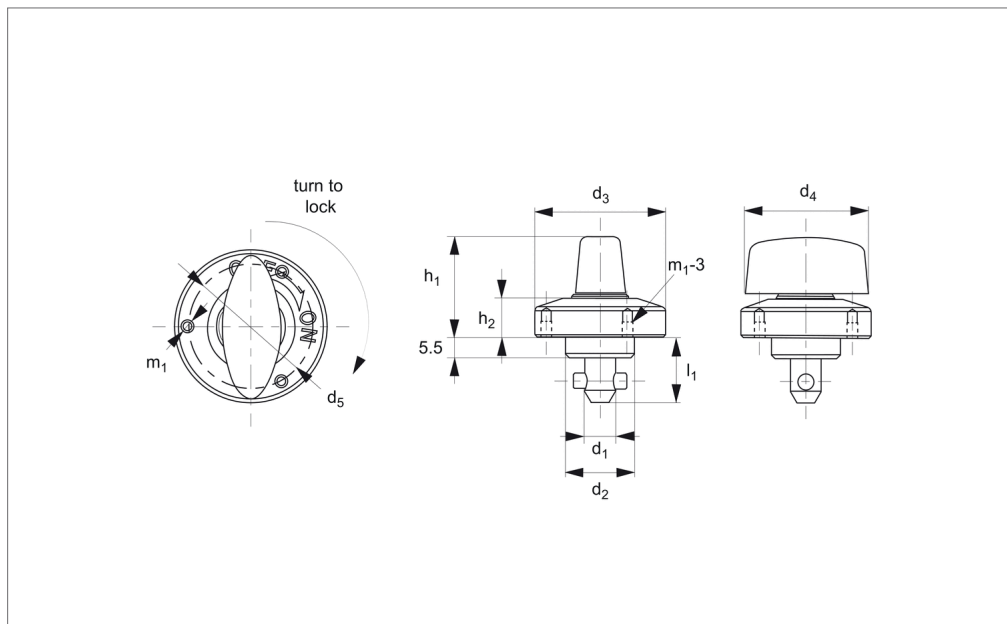
-Turn handle 45° to on position: locking pin follows cam, tightening fastener and securely fastening panel.

Order No.	For single panel thickness	Clamping force N	d_1 -0.04 - 0.08	d_2 tol. h9	d_3	d_4	d_5	h_1	h_2	l	m	Shear strength N	Tensile strength N	Weight g
20190408	6-10	60	5	14	25	20	21	19,0	6,5	15,5	M 2x0,4	1800	1200	40
20190415	6-14	90	8	18	34	32	28	25,5	10,0	17,0	M 3x0,5	3200	2600	130
20190422	12-20	90	8	18	34	32	28	25,5	10,0	23,0	M 3x0,5	3200	2600	135





E33943



Material

Body and Shank: stainless steel SUS303.
Pin, Knob and 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 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. E33948 and E33949.

Actuation:

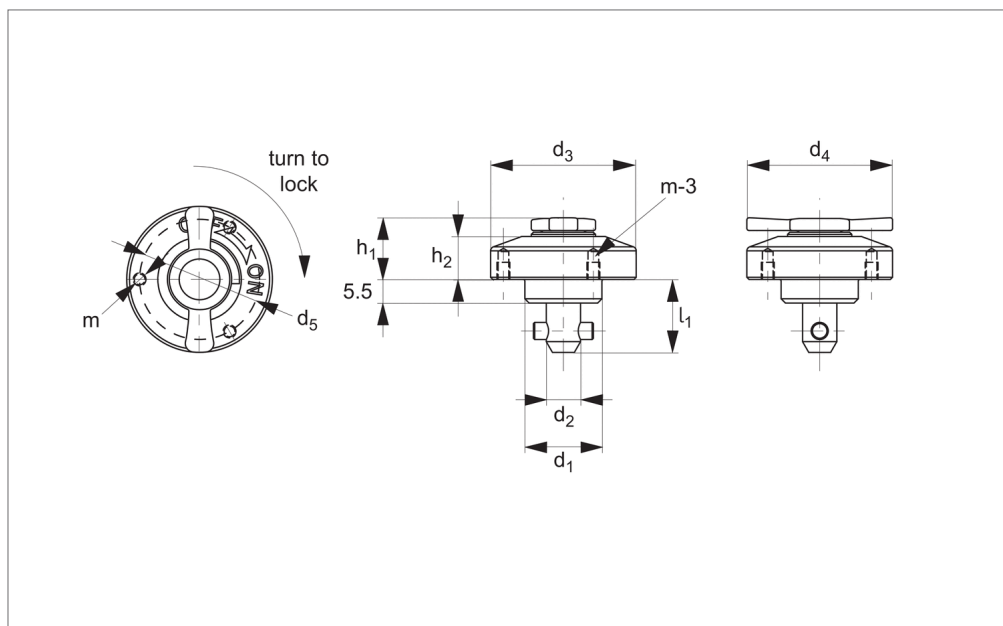
- Turn handle to off position: present cover panel to frame and align to locating bush.
- Turn handle 45° to on position: locking pin follows cam, tightening fastener and securely fastening panel.

Order No.	For single panel thickness	Clamping force N	d ₁ -0.04 - tol. h9 0.08	d ₂	d ₃	d ₄	d ₅	l ₁	h ₁	h ₂	m ₁	Shear strength N	Tensile strength N	Weight g
20190804	6-10	60	5	14	25	20	21	15,5	19	6,5	M 2x0,4	1800	1200	35
20190811	6-14	90	8	18	34	32	28	17,0	26	10,0	M 3x0,5	3200	2600	105
20190828	12-20	90	8	18	34	32	28	23,0	26	10,0	M 3x0,5	3200	2600	110

One-Touch Fastener - Cam Locking

quarter turn - low height - t-handle grip - steel

One Touch Fasteners



E33944

ONE TOUCH FASTENERS

Material

Body and Shank: stainless steel SUS303
Pin, Knob, 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 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 200°C.

Important Notes

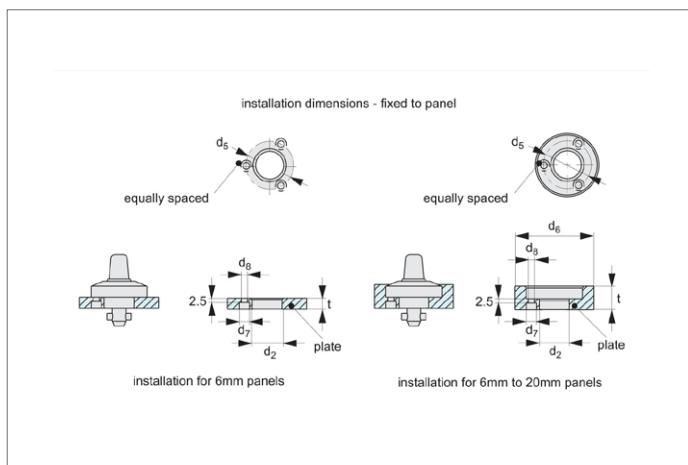
Suitable for panels/enclosures of 6 to 20

mm thickness. For locating bushes see part no. E33948 and E33949.

Actuation:

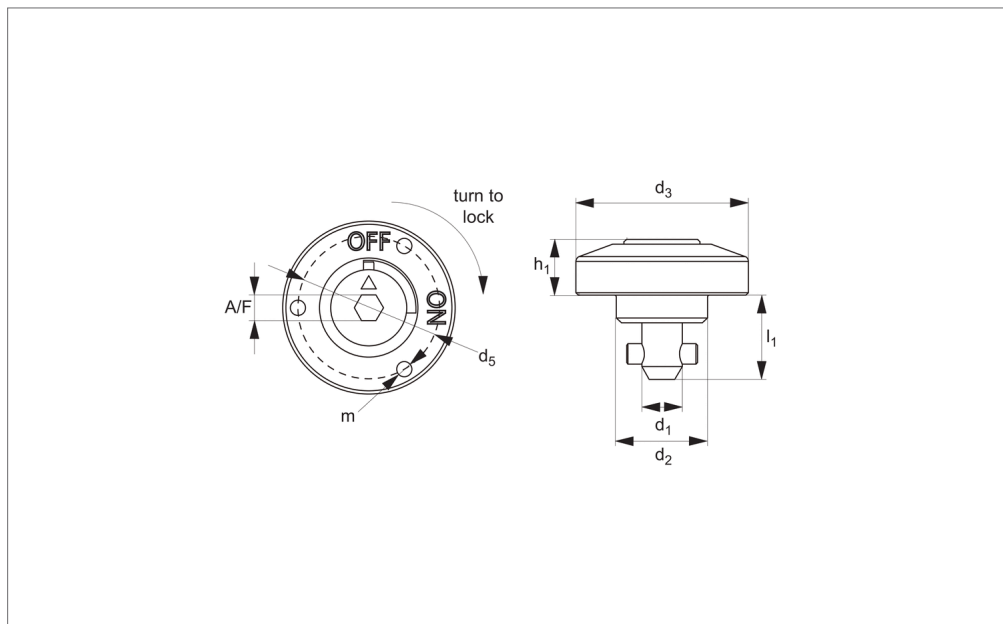
- Turn handle to off position: present cover panel to frame and align to locating bush.
- Turn handle 45° to on position: locking pin follows cam, tightening fastener and securely fastening panel.

Order No.	For single panel thickness	Clamping force N	d ₁ -0.04 - tol. h9 0.08	d ₂	d ₃	d ₄	d ₅	l ₁	h ₁	h ₂	m	Shear strength N	Tensile strength N	Weight g
20190439	6-10	60	5	14	25	25	21	15,5	11,5	6,5	M 2x0,4	1800	1200	35
20190446	6-14	90	8	18	34	34	28	17,0	14,0	10,0	M 3x0,5	3200	2600	80
20190453	12-20	90	8	18	34	34	28	23,0	14,0	10,0	M 3x0,5	3200	2600	85





E33945



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 thickness. For locating bushes see part

no. E33948 and E33949.

Actuation:

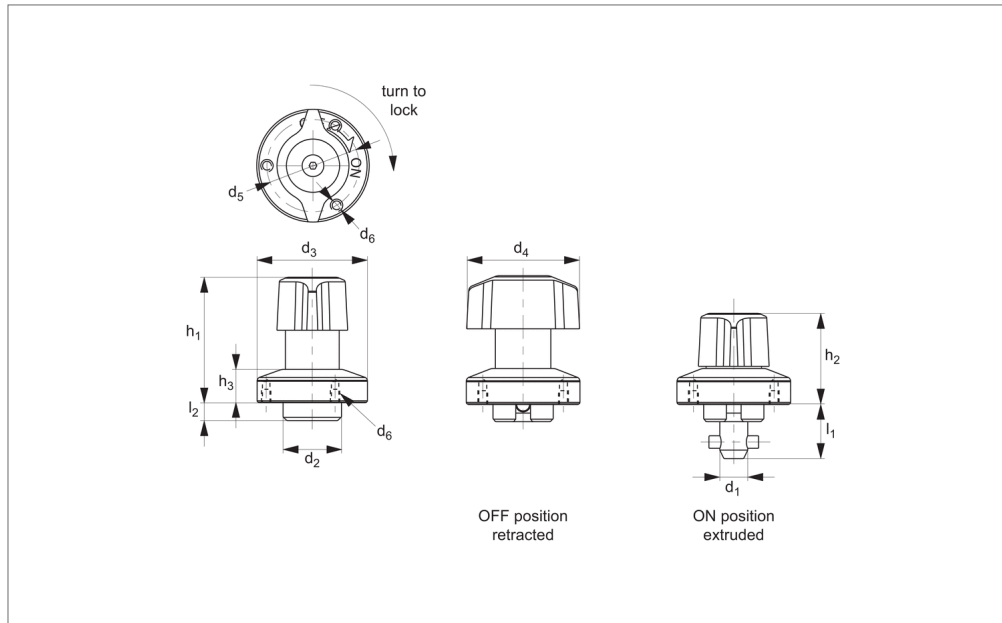
- Use suitable hex key to turn lock to off position. Present cover panel to frame and align to locking bush.
- With the hex key, now turn the lock back 45° to the on position; locking pin follows, tightening fastener and fastening panel.

Order No.	For single panel thickness	Clamping force N	d ₁ -0.04, - tol. h9 0.08	d ₂	d ₃	l ₁	h ₁	m	Shear strength N	Tensile strength N	A/F	Weight g
20190613	6 - 10	60	5	14	25	15,5	8	M 2x0,4	1800	1200	4	30
20190835	6 - 14	90	8	18	34	17,0	11	M 3x0,5	3200	2600	5	105
20190842	12 - 20	90	8	18	34	23,0	11	M 3x0,5	3200	2600	5	110

One-Touch Fastener- Cam Locking

retract - quarter turn - t-handle grip - plastic

One Touch Fasteners



E33946

ONE TOUCH FASTENERS

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.

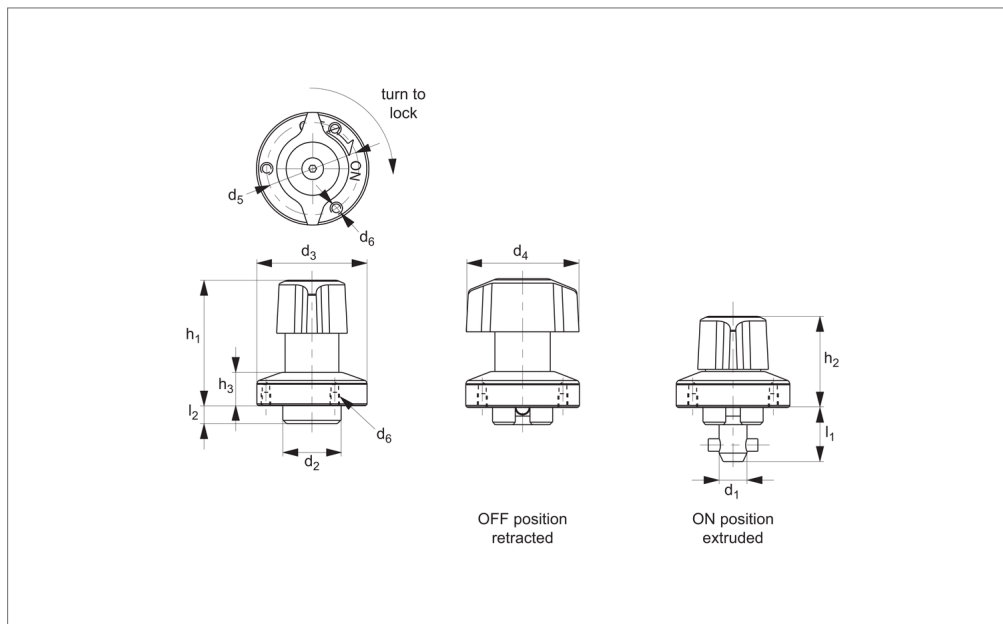
Actuation:

- 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.

Order No.	Single panel thickness	Clamping force N	d ₁	d ₂	d ₃	d ₄	d ₅	d ₆	l ₁	l ₂	h ₁	h ₂	h ₃	Shear strength N	Tensile strength N	Weight g
20190583	6-10	60	5	14	25	25	21	M 2x0,4	15,5	5,5	30	20,0	6,5	1800	1200	40
20190590	6-14	90	8	18	34	34	28	M 3x0,5	17,0	5,5	38	36,5	10,0	3200	400	100



E33947



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:

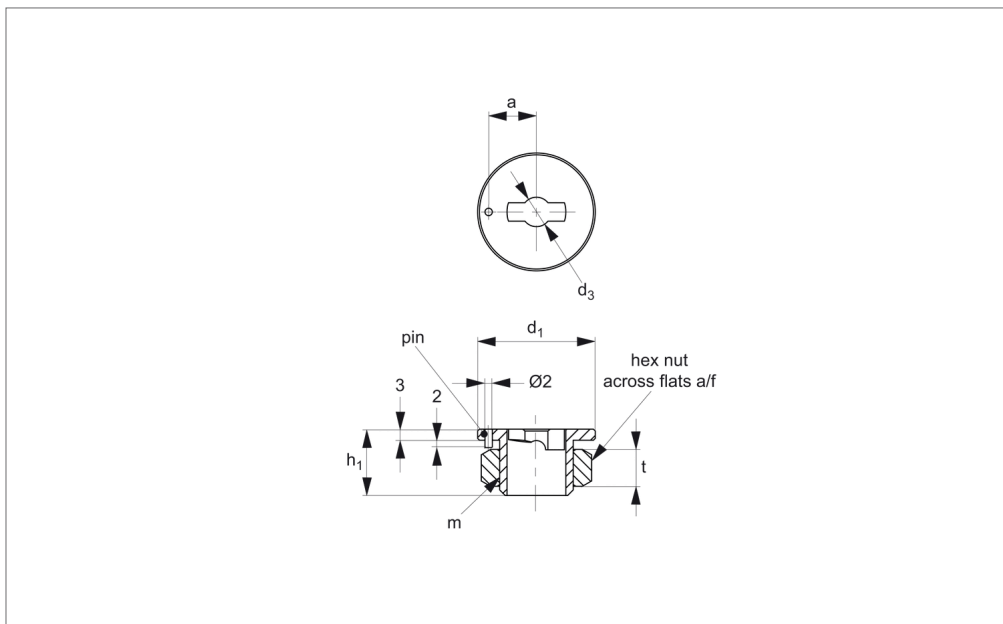
- Turn handle to off position, and ensure the shank is fully retracted.
- Place or slide the over in place and position over the locating bush.
- Turn handle to on position for clamping, an audible click is heard when fully clamped.
- To release, turn handle back to off position, the shank is fully retracted into clamp body assisted by the return spring.

Order No.	Single panel thickness	Clamping force N	d ₁	d ₂	d ₃	d ₄	d ₅	d ₆	l ₁	l ₂	h ₁	h ₂	h ₃	Shear strength N	Tensile strength N	Weight g
20190781	6-10	60	5	14	25	25	21	M2x0,4	15,5	5,5	30	20,0	6,5	1800	1200	40
20190798	6-14	90	8	18	34	34	28	M3x0,5	17,0	5,5	38	26,5	10,0	3200	400	100

One-Touch Fastener - Cam Locking

thin plate locating bush for quarter turn

One Touch Fasteners



E33948

ONE TOUCH FASTENERS

Material

Body: steel, nickel plated or stainless steel.

Nut: stainless steel.

Technical Notes

Used in conjunction with one-touch fasteners E33940 to E33946, locating bushes E33948 provide secure fastening of panels

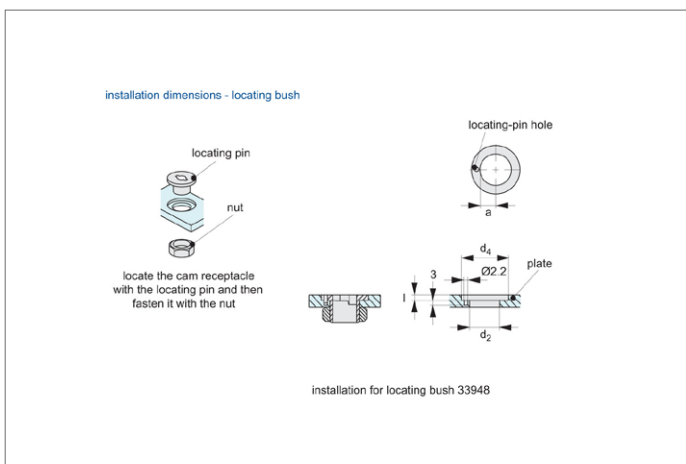
and covers. Locating bushes are of particular use in soft metals, such as aluminium where receiving surfaces may wear. One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of

cogs and drive belts. Temperature resistant to 200°C.

Important Notes

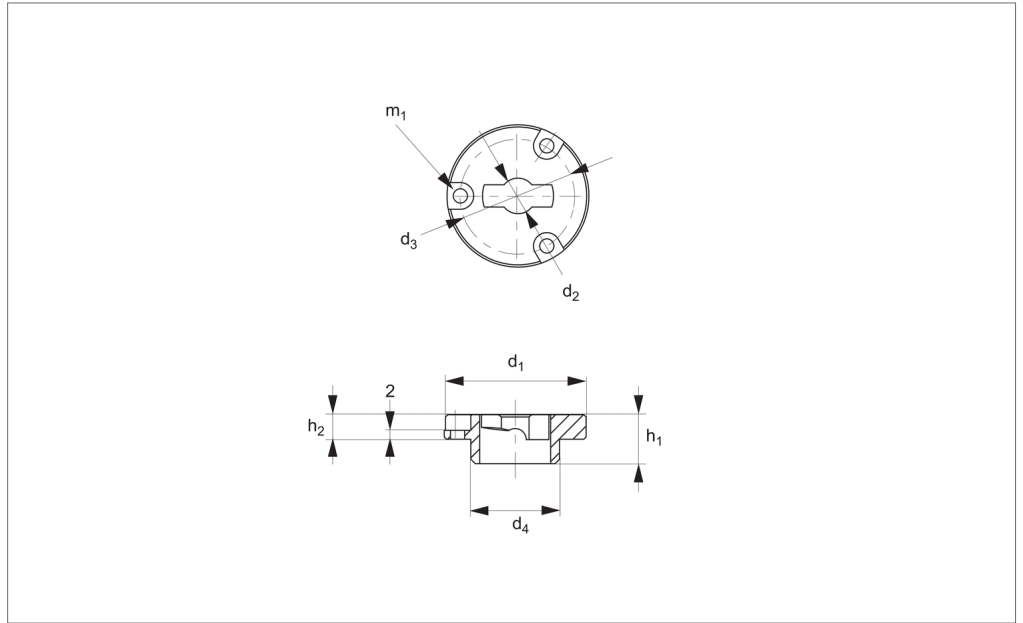
Suitable for panels/enclosures of 6 to 12 mm thickness. For one-touch fasteners see part nos. E33940 to E33946. For installation instructions see technical page.

Order No.	For single panel thickness	Material	d_1 -0.04 - 0.08	d_2	d_3 +0.08 +0.04	d_4 +0.10 +0.05	a ±0.1	l_1	h_1	m	t	A/F	Weight g
20190460	6-10	Steel	25	15	5	25	10,5	3,5	16	M14x1,5	8	22	40
20190477	6-12	Steel	32	21	8	32	13,0	3,5	18	M20x1,5	10	30	55
20191986	6-10	Stainless Steel	25	15	5	25	10,5	3,5	16	M14x1,5	8	22	40
20191993	6-12	Stainless Steel	32	21	8	32	13,0	3,5	18	M20x1,5	10	30	55





E33949



Material

Body: steel, nickel plated or stainless steel.

Technical Notes

Used in conjunction with one-touch fasteners E33940 to E33946, locating bushes E33948 provide secure fastening of panels and covers. Locating bushes are of parti-

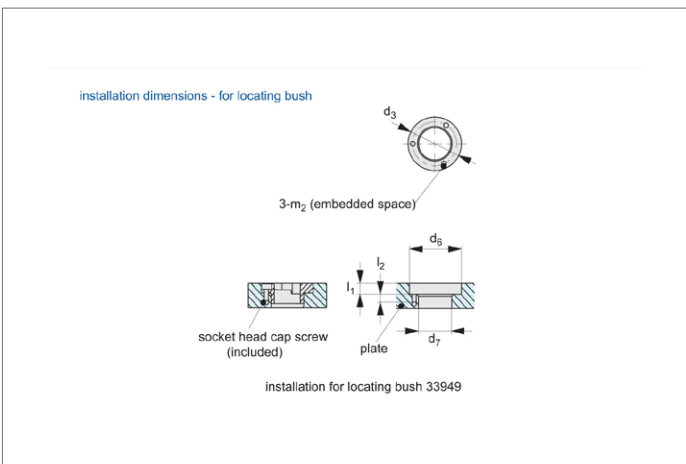
cular use in soft metals, such as aluminium where receiving surfaces may wear. One-touch fasteners are the ideal solution for applications requiring rapid and recurring change over of tooling or set ups. Use in applications as diverse as bottling processes, machine covers, changing of cogs and dive belts.

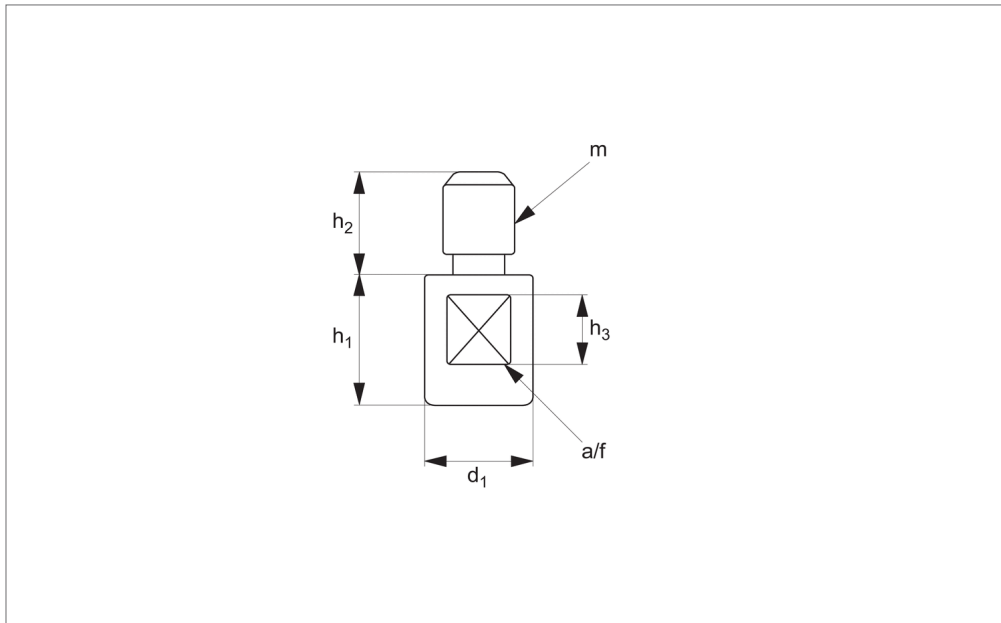
Temperature resistant to 200°C.

Important Notes

Suitable for panels/enclosures of 6 to 12 mm thickness. For one-touch fasteners see part nos. E33940 to E33946. For installation instructions see technical page.

Order No.	For single panel thickness	Material	d ₁	d ₂	d ₃	d ₄ -0.04 -0.08	d ₆	d ₇	l ₁	l ₂	h ₂	m ₁	m ₂	Weight g
20190484	>10	Steel	25	5	21	14	26	14	5	4	4,5	M 2	M 2x0,4	20
20190491	>12	Steel	32	8	26	20	33	20	6	5	5,5	M 3	M 3x0,5	35
20191948	>10	Stainless Steel	25	5	21	14	26	14	5	4	4,5	M 2	M 2x0,4	20
20191955	>12	Stainless Steel	32	8	26	20	33	20	6	5	5,5	M 3	M 3x0,5	35





E33950

ONE TOUCH FASTENERS

Material

Body: steel, nickel plated.

Technical Notes

Used in conjunction with magnetic one-touch fasteners E33956, provides secure fastening of panels and covers. One-touch fasteners are the ideal solution for applica-

tions 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. E33956,

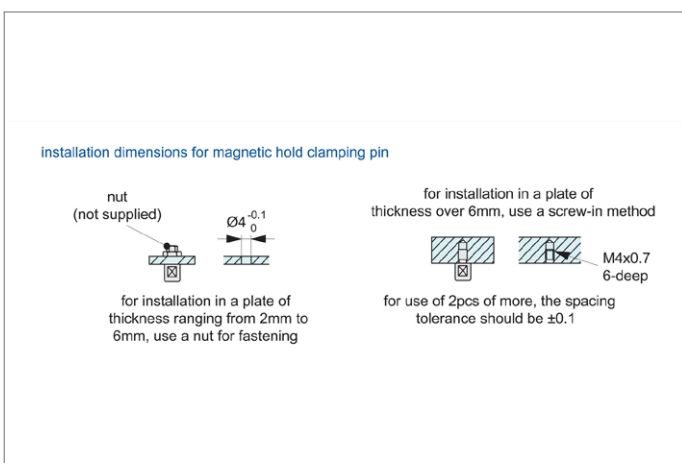
which contains magnet.

Important Notes

Suitable for panels/enclosures of 2 to 6 20 mm thickness.

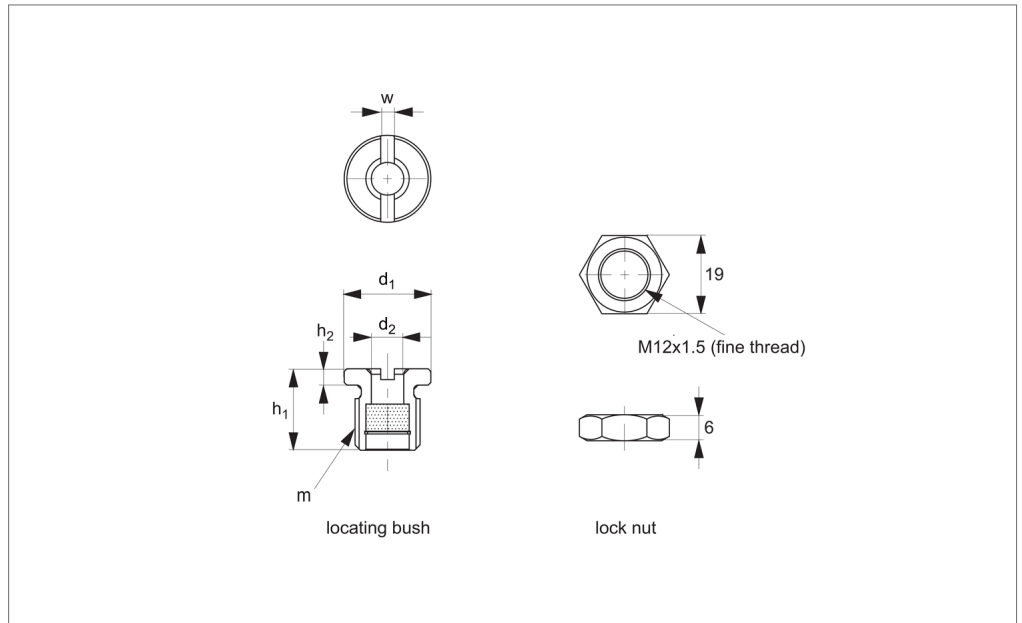
For installation instructions see technical page.

Order No.	For single panel thickness	d_1 -0.02 -0.04	h_1	h_2	h_3	m	A/F	Shear strength N	Weight g
20190507	2 to 6	Ø6	7	5.8	4	M 4x0,7	5	900	2





E33956



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

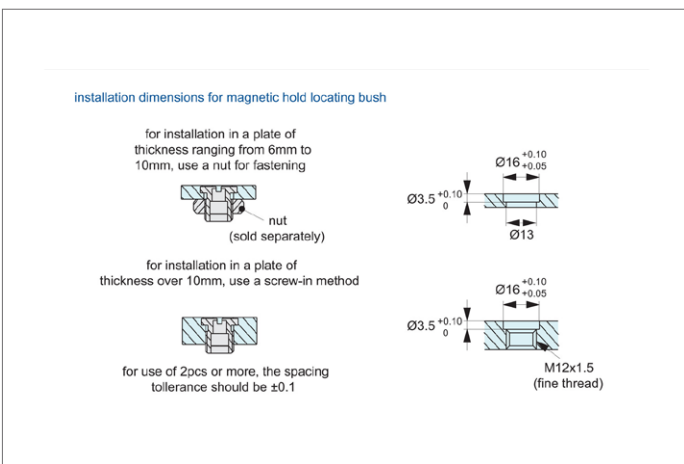
Suitable for panels/enclosures of 2 to 6 mm thickness. For pin see part no. E33950. Part contains Neodymium magnets which in conjunction with one-touch pin no.

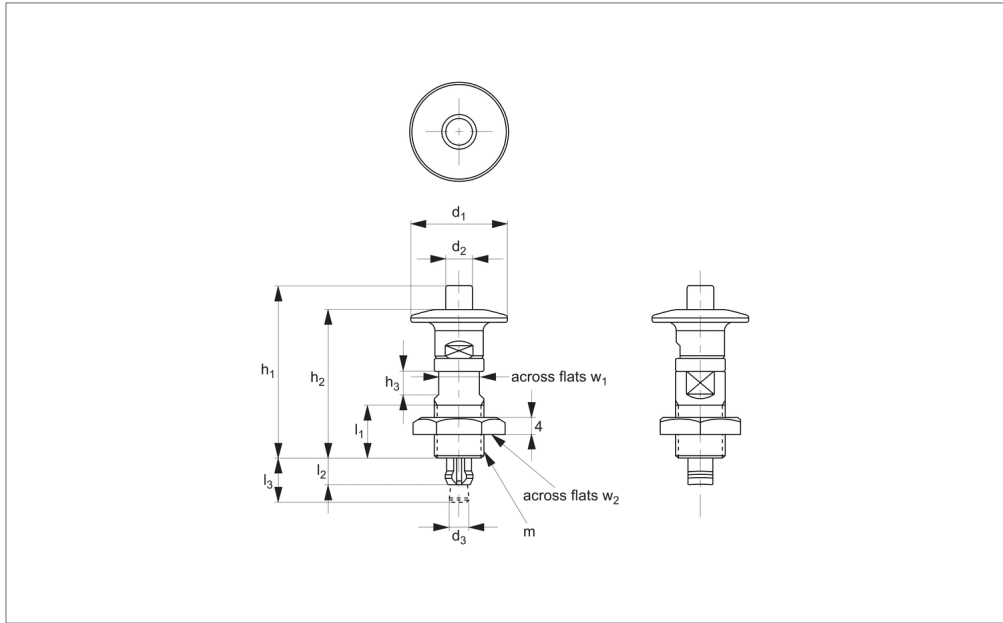
E33950 creates a magnetic clamping force of 7 N.

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.

Order No.	For single panel thickness	Type	d ₁ tol. h9	d ₂ +0.10 +0.05	h ₁	h ₂	m	w	Clamping force N	Weight g
20190514	2 to 6mm	Bush	Ø16	Ø6	15	3	M12x1,5	2.5	7	12





E33960

ONE TOUCH FASTENERS

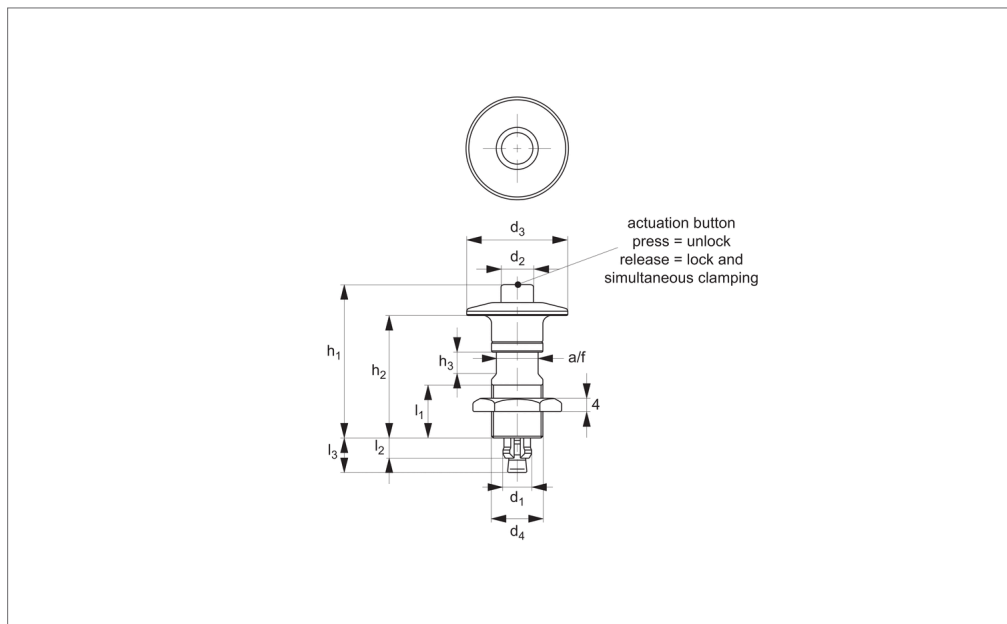
Material

Stainless steel.

Order No.	d	d ₁	d ₂	h	h ₁	h ₂	l	l ₁	l ₂	m	w	w ₁	Clamping force N	Shear strength	Tensile strength	Proper base plate thickness	Proper plate thickness	Weight g
20192006	6,5	23	6,5	40	32	5,5	12,5	6,5	10,5	M12x1 (Fine thread)	10	19	3	200	150	3	3~8	41
20192013	6,5	23	6,5	37	29	5,5	12,5	6,5	13,5	M12x1 (Fine thread)	10	19	3	200	150	6	3~8	40
20192020	8,5	32	10	51	41,5	7	16,5	6,5	11	M16x1 (Fine thread)	14	24	6	400	300	3	3~12	88
20192037	8,5	32	10	48	38,5	7	16,5	9,5	14	M16x1 (Fine thread)	14	24	6	400	300	6	3~12	88



E33964



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 unfaste-

ning screws or other permanent fixings, and no opportunity for lost fixings in your machinery.

Tips

For highly accurate locating, use locating pins E36340 and E36341.

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.

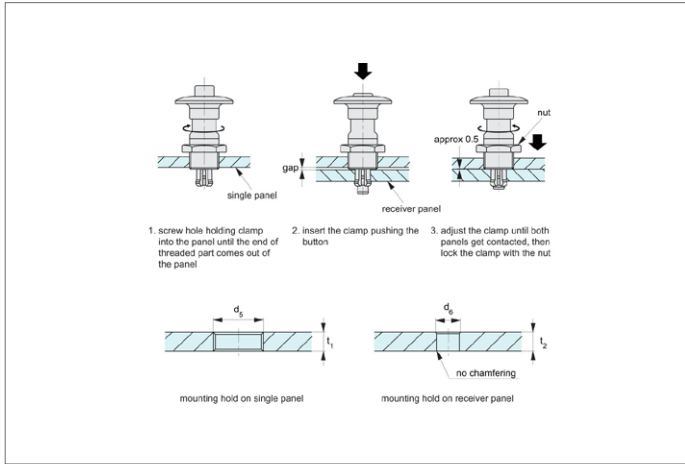
Order No.	Single panel thickness mm	Receiver panel thickness	d ₁	d ₂	d ₃	d ₄	A/F	h ₁	Weight g
20190859	3-8	3	6.5	6.5	23	M12x1	10	40	41
20190873	3-8	6	6.5	6.5	23	M12x1	10	37	40
20190866	3-12	3	8.5	10.0	32	M16x1	14	51	88
20190880	3-12	6	8.5	10.0	32	M16x1	14	48	86

Order No.	h ₂	h ₃	l ₁	l ₂	l ₃	Clamping force N	Shear strength N	Tensile strength N
20190859	32.0	5.5	12.5	6.5	10.5	3	200	150
20190873	29.0	5.5	12.5	9.5	13.5	3	200	150
20190866	41.5	7.0	16.5	6.5	11.0	6	400	300
20190880	38.5	7.0	16.5	9.5	14.0	6	400	300

One-Touch Fastener - Pull Clamping

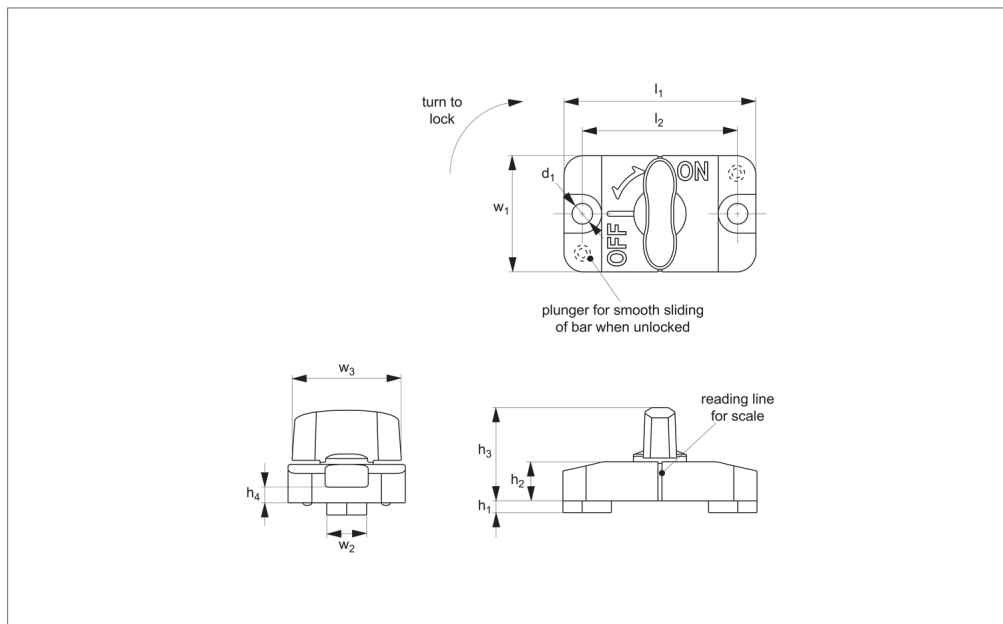
push button lock - button handle - stainless steel

One Touch Fasteners





E33970



Material

Body: die-cast zinc, chrome plated.
 Grip: polyamide plastic (black or orange), or stainless steel SUS304.
 Clamping shaft/wedge: stainless steel.
 Ball plunger: polyacetal.

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. E33975, E33976 and E33977), 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. E33971.

Temperature resistance up to 90°C.
 Max. static load up to 500N - 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.

Order No.	For slot width	Handle	Slot depth min.	d ₁	h ₁	h ₂	h ₃	h ₄	Weight g
20190897	10	Plastic, Orange	3	5.5	3	10	24	4.5	80
20190927	10	Plastic, Orange	6	5.5	6	10	24	4.5	80
20190903	10	Plastic, Black	3	5.5	3	10	24	4.5	80
20190934	10	Plastic, Black	6	5.5	6	10	24	4.5	80
20190910	10	Stainless	3	5.5	3	10	24	4.5	95
20190941	10	Stainless	6	5.5	6	10	24	4.5	95

Order No.	l ₁	l ₂	w ₁	w ₂ 0 -0.05	w ₃	Static load N max.
20190897	50	40	30	10	28	500
20190927	50	40	30	10	28	500
20190903	50	40	30	10	28	500
20190934	50	40	30	10	28	500

Sliding Clamps - for Slotted Hole

quarter turn lock - t-handle grip - zinc

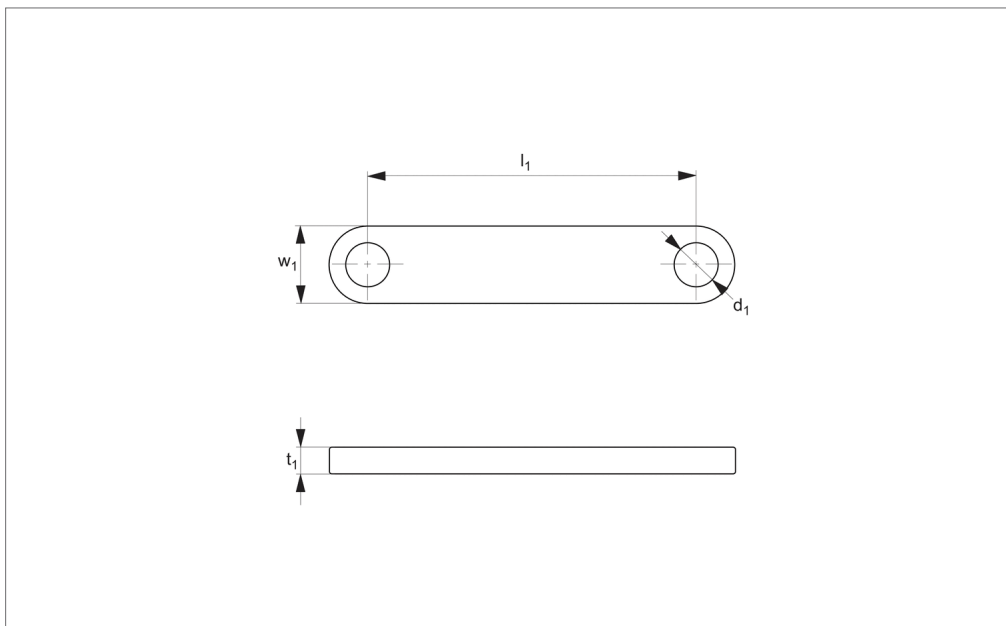
One Touch Fasteners

Order No.	l_1	l_2	w_1	w_2 0 -0.05	w_3	Static load N max.
20190910	50	40	30	10	28	500
20190941	50	40	30	10	28	500

ONE TOUCH FASTENERS



E33971



Material

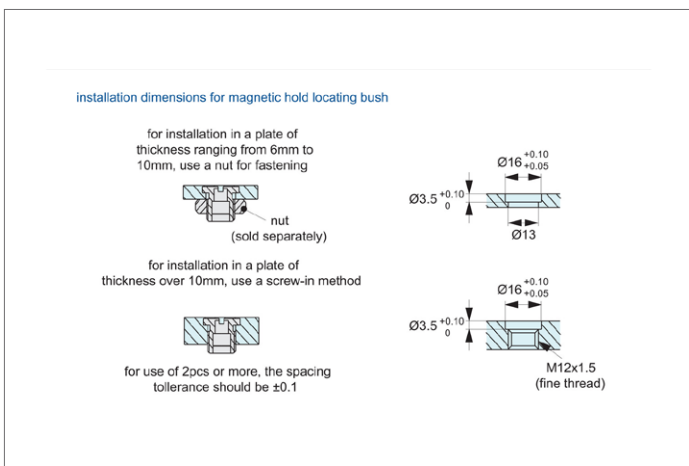
Body: 304 stainless steel.

tion of riser plate to clamp enables clamps use for sliding bars of varying thickness.

Technical Notes

For use with sliding clamp E33970, addi-

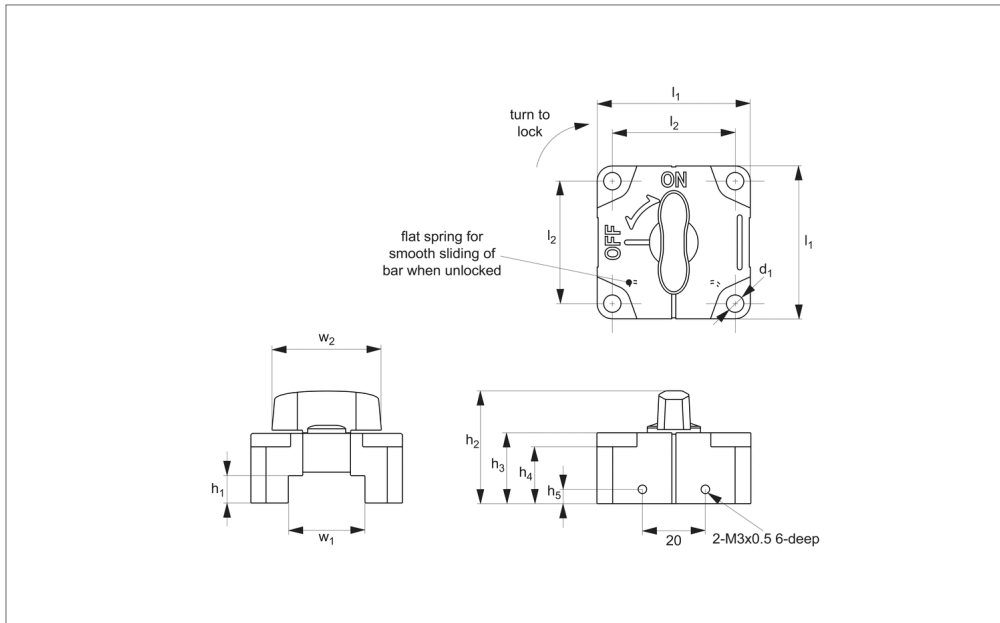
Order No.	d_1	l_1	w_1	t_1	Weight g
20190958	5.5	40	9.5	2	6
20190965	5.5	40	9.5	3	10



Sliding Clamps - for Solid Sliding Bar

quarter turn lock - t-handle grip - zinc

One Touch Fasteners



E33972

ONE TOUCH FASTENERS

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. E33975, E33976 and E33977), 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. E33974.

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.

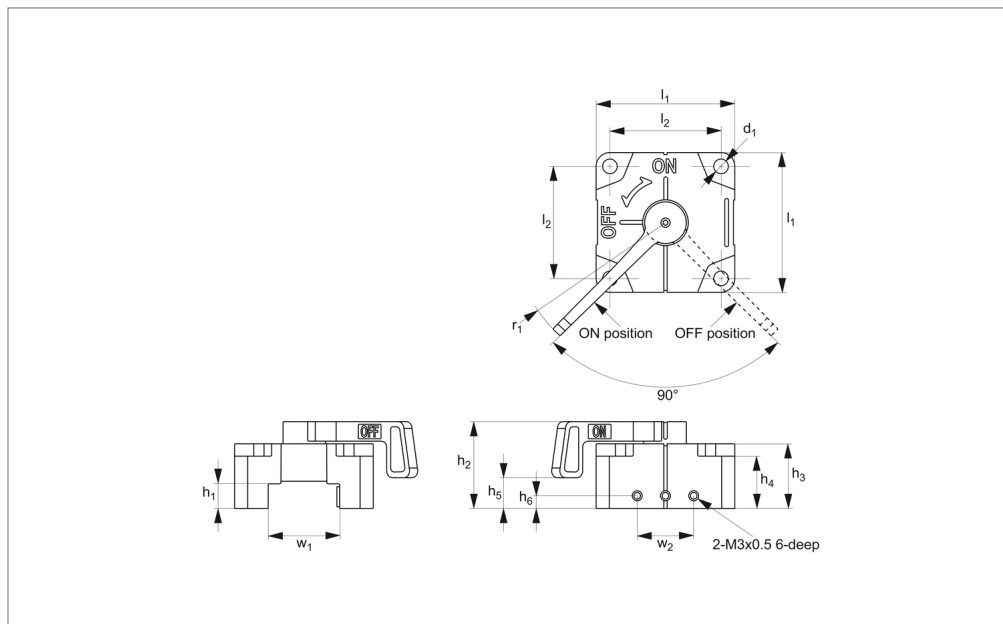
Order No.	For bar width x height	Handle	d ₁	h ₁ +0.02	h ₂	h ₃	h ₄	h ₅	l ₁	l ₂	w ₁ +0.05 -0.0	w ₂	Weight g
20190972	12x12	Plastic, orange	4.5	12	36	22	18.5	6.0	40	32	12	28	130
20190989	16x16	Plastic, orange	4.5	16	40	26	22.5	8.0	40	32	16	28	150
20190996	25x 9	Plastic, orange	5.5	9	37	23	18.5	4.5	50	40	25	35	220
20191009	25x12	Plastic, orange	5.5	12	40	26	21.5	6.0	50	40	25	35	240
20191016	32x12	Plastic, orange	5.5	12	40	26	21.5	6.0	50	40	32	35	220
20191023	32x16	Plastic, orange	5.5	16	44	30	25.5	8.0	50	40	32	35	240
20191030	12x12	Plastic, black	4.5	12	36	22	18.5	6.0	40	32	12	28	130
20191047	16x16	Plastic, black	4.5	16	40	26	22.5	8.0	40	32	16	28	150
20191054	25x 9	Plastic, black	5.5	9	37	23	18.5	4.5	50	40	25	35	220
20191061	25x12	Plastic, black	5.5	12	40	26	21.5	6.0	50	40	25	35	240
20191078	32x12	Plastic, black	5.5	12	40	26	21.5	6.0	50	40	32	35	220
20191085	32x16	Plastic, black	5.5	16	44	30	25.5	8.0	50	40	32	35	240
20191092	12x12	Stainless	4.5	12	36	22	18.5	6.0	40	32	12	28	145
20191108	16x16	Stainless	4.5	16	40	26	22.5	8.0	40	32	16	28	165
20191115	25x 9	Stainless	5.5	9	37	23	18.5	4.5	50	40	25	35	245

Order No.	For bar width x height	Handle	d ₁	h ₁ +0.02	h ₂	h ₃	h ₄	h ₅	l ₁	l ₂	w ₁ +0.05 -0.0	w ₂	Weight g
20191122	25x12	Stainless	5.5	12	40	26	21.5	6.0	50	40	25	35	265
20191139	32x12	Stainless	5.5	12	40	26	21.5	6.0	50	40	32	35	245
20191146	32x16	Stainless	5.5	16	44	30	25.5	8.0	50	40	32	35	265

Sliding Clamps - for Solid Sliding Bar

quarter turn lock - lever handle grip - zinc

One Touch
Fasteners



E33973

ONE TOUCH FASTENERS

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. E33975, E33976 and E33977), 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. E33974.

Temperature resistance upto 90Å°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.

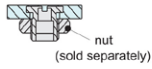
Displacement will also increase with adhesion or immersion of oil or other foreign substances.

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.

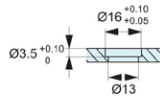
Order No.	For bar width x height	Handle	d ₁	h ₁ +0.02	h ₂	h ₃	h ₄	h ₅	h ₆	l ₁	l ₂	w ₁ +0.05 - 0.0	w ₂	r ₁	Static load N max.	Weight g
20191153	12x12	Stainless	4,5	12	29	22	18,5	11	6,0	40	32	12	20	46,0	500	150
20191160	16x16	Stainless	4,5	16	33	26	22,5	15	8,0	40	32	16	20	46,0	500	160
20191177	25x 9	Stainless	5,5	9	31	23	18,5	11	4,5	50	40	25	20	55,5	800	250
20191184	25x12	Stainless	5,5	12	34	26	21,5	14	6,0	50	40	25	20	55,5	800	250
20191191	32x12	Stainless	5,5	12	34	26	21,5	14	6,0	50	40	32	20	55,5	800	320
20191207	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



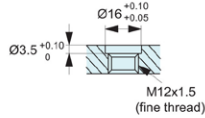
nut
(sold separately)

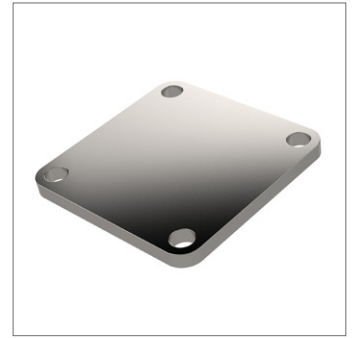
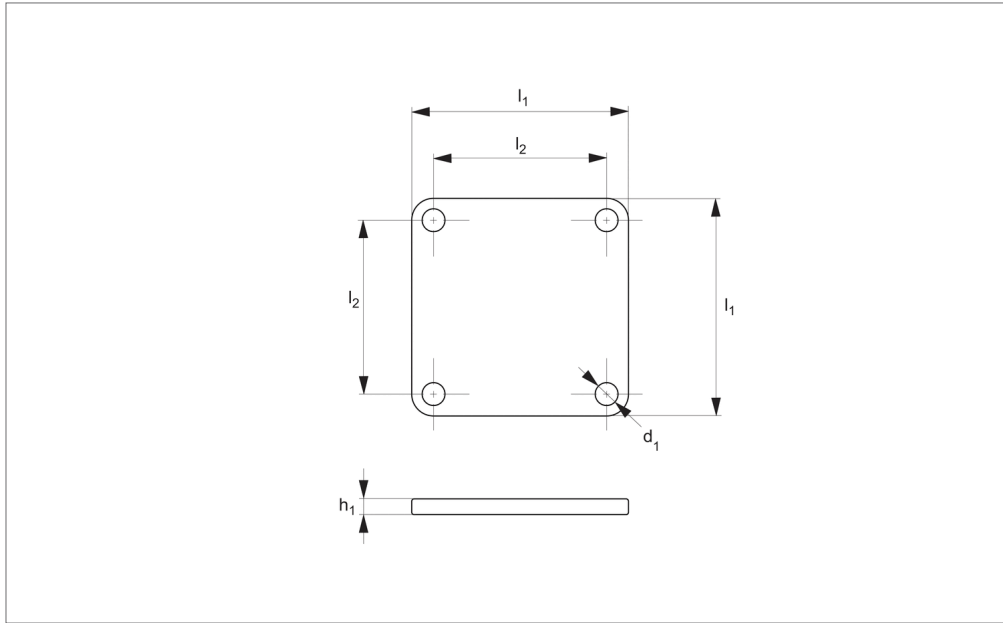


for installation in a plate of thickness over 10mm, use a screw-in method



for use of 2pcs or more, the spacing tolerance should be ± 0.1





E33974

ONE TOUCH FASTENERS

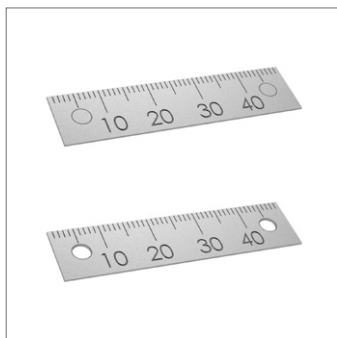
Material

Body: stainless steel, SUS 304

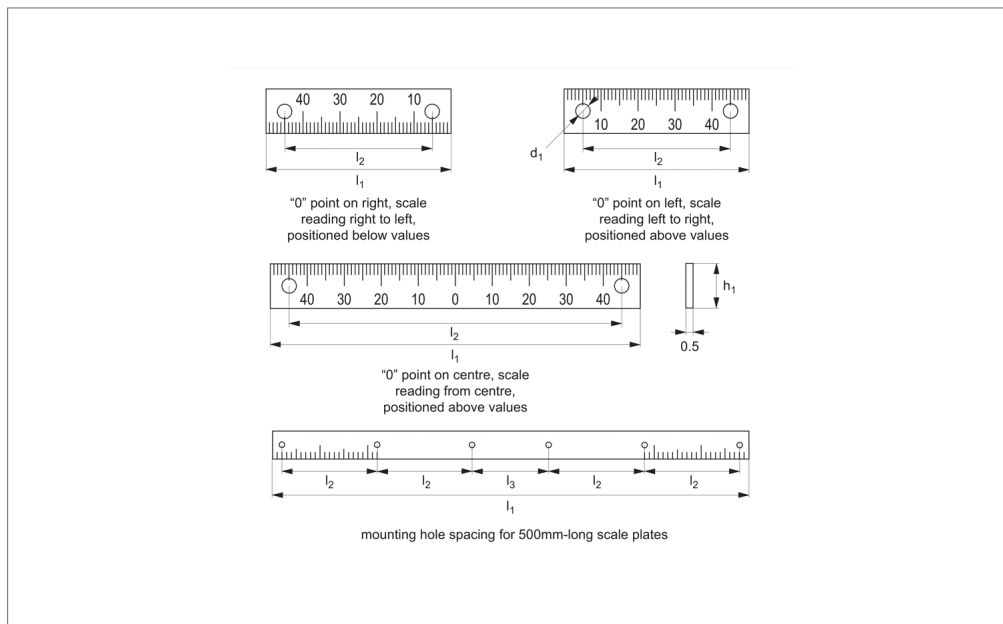
Technical Notes

To be used with sliding clamps part no. E33972 and E33973

Order No.	d_1	h_1	l_1	l_2	Weight g
20191214	4.5	3	40	32	35
20191221	5.5	3	50	40	55



E33975



Material

Aluminium, with etched graduation/markings.

Technical Notes

For use with sliding clamps E33970, E33972 and E33973. 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	Direction of measurement	Scale position	d ₁ (marked) drilled	h ₁	l ₁	l ₂	l ₃	Weight g
20191313	Adhesive	2	Left	Top	(3,5)	12	50	40		0,8
20191320	Adhesive	2	Left	Top	(3,5)	12	100	90		1,6
20192167	Adhesive	3	Left	Top	(3,5)	12	150	70		2,4
20192181	Adhesive	3	Left	Top	(3,5)	12	200	95		3,2
20191337	Adhesive	2	Right	Top	(3,5)	12	50	40		0,8
20191344	Adhesive	2	Right	Top	(3,5)	12	100	90		1,6
20192174	Adhesive	3	Right	Top	(3,5)	12	150	70		2,4
20192198	Adhesive	3	Right	Top	(3,5)	12	200	95		3,2
20191351	Adhesive	2	Centre	Top	(3,5)	12	100	90		1,6
20191368	Adhesive	3	Centre	Top	(3,5)	12	200	95		3,2
20191375	Adhesive	2	Left	Bottom	(3,5)	12	50	40		0,8
20191382	Adhesive	2	Left	Bottom	(3,5)	12	100	90		1,6
20191399	Adhesive	3	Left	Bottom	(3,5)	12	150	70		2,4
20191405	Adhesive	3	Left	Bottom	(3,5)	12	200	95		3,2
20191412	Adhesive	2	Right	Bottom	(3,5)	12	50	40		0,8
20191429	Adhesive	2	Right	Bottom	(3,5)	12	100	90		1,6
20191436	Adhesive	3	Right	Bottom	(3,5)	12	150	70		2,4
20191443	Adhesive	3	Right	Bottom	(3,5)	12	200	95		3,2
20191450	Adhesive	2	Centre	Bottom	(3,5)	12	100	90		1,6
20191467	Adhesive	3	Centre	Bottom	(3,5)	12	200	95		3,2
20191474	Screw Mount	2	Left	Top	3,5	12	50	40		0,8
20191481	Screw Mount	2	Left	Top	3,5	12	100	90		1,6
20191498	Screw Mount	3	Left	Top	3,5	12	150	70		2,4
20191504	Screw Mount	3	Left	Top	3,5	12	200	95		3,2
20191511	Screw Mount	6	Left	Top	3,5	12	500	100	90	8,0
20191528	Screw Mount	2	Right	Top	3,5	12	50	40		0,8
20191535	Screw Mount	2	Right	Top	3,5	12	100	90		1,6
20191542	Screw Mount	3	Right	Top	3,5	12	150	70		2,4
20191559	Screw Mount	3	Right	Top	3,5	12	200	95		3,2
20191566	Screw Mount	6	Right	Top	3,5	12	500	100	90	8,0

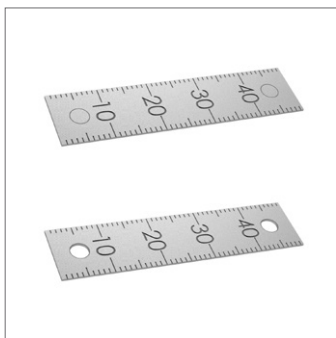
Scale Plates - Single Scale

for sliding clamps 33970, 33972, 33973

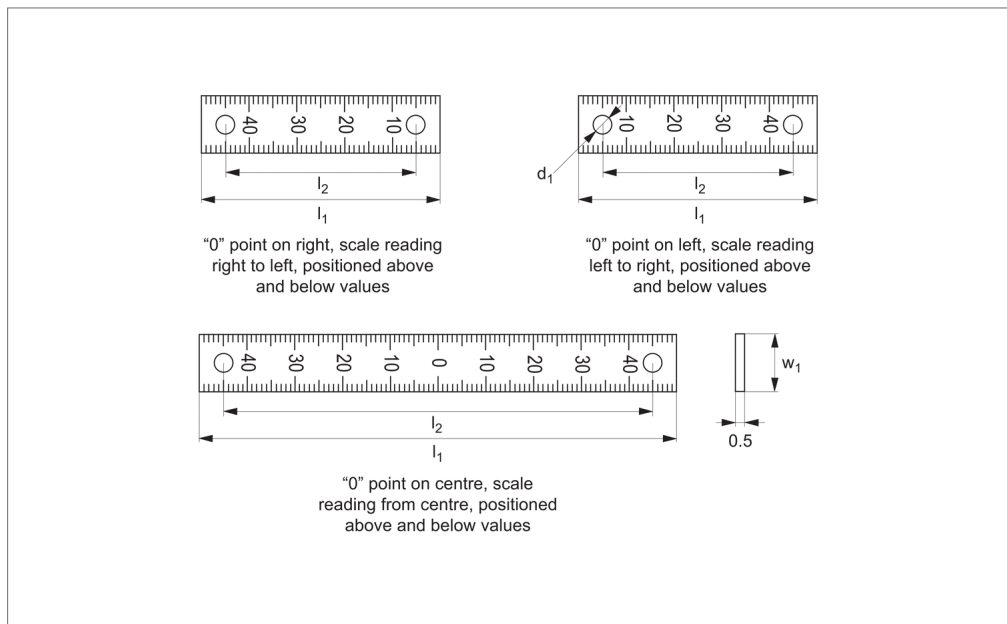
One Touch Fasteners

Order No.	Mounting type	Number of mounting holes	Direction of measurement	Scale position	d ₁ (marked) drilled	h ₁	l ₁	l ₂	l ₃	Weight g
20191573	Screw Mount	2	Centre	Top	3,5	12	100	90		1,6
20191580	Screw Mount	3	Centre	Top	3,5	12	200	95		3,2
20191597	Screw Mount	6	Centre	Top	3,5	12	500	100	90	8,0
20191603	Screw Mount	2	Left	Bottom	3,5	12	50	40		0,8
20191610	Screw Mount	2	Left	Bottom	3,5	12	100	90		1,6
20191627	Screw Mount	3	Left	Bottom	3,5	12	150	70		2,4
20191634	Screw Mount	3	Left	Bottom	3,5	12	200	95		3,2
20191641	Screw Mount	6	Left	Bottom	3,5	12	500	100	90	8,0
20191658	Screw Mount	2	Right	Bottom	3,5	12	50	40		0,8
20191665	Screw Mount	2	Right	Bottom	3,5	12	100	90		1,6
20191672	Screw Mount	3	Right	Bottom	3,5	12	150	70		2,4
20191689	Screw Mount	3	Right	Bottom	3,5	12	200	95		3,2
20191696	Screw Mount	6	Right	Bottom	3,5	12	500	100	90	8,0
20191702	Screw Mount	2	Centre	Bottom	3,5	12	100	90		1,6
20191719	Screw Mount	3	Centre	Bottom	3,5	12	200	95		3,2
20191726	Screw Mount	6	Centre	Bottom	3,5	12	500	100	90	8,0

ONE TOUCH FASTENERS



E33976



Material

Aluminium, with etched graduation/ markings.

Technical Notes

For use with sliding clamps E33970, E33972 and E33973. Markings are for indicative purposes, and are not intended for

precise measurement.

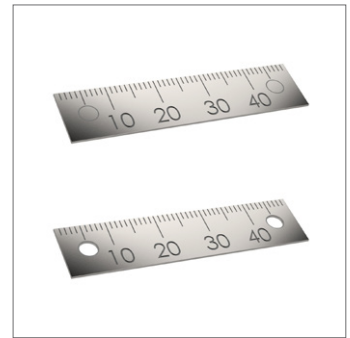
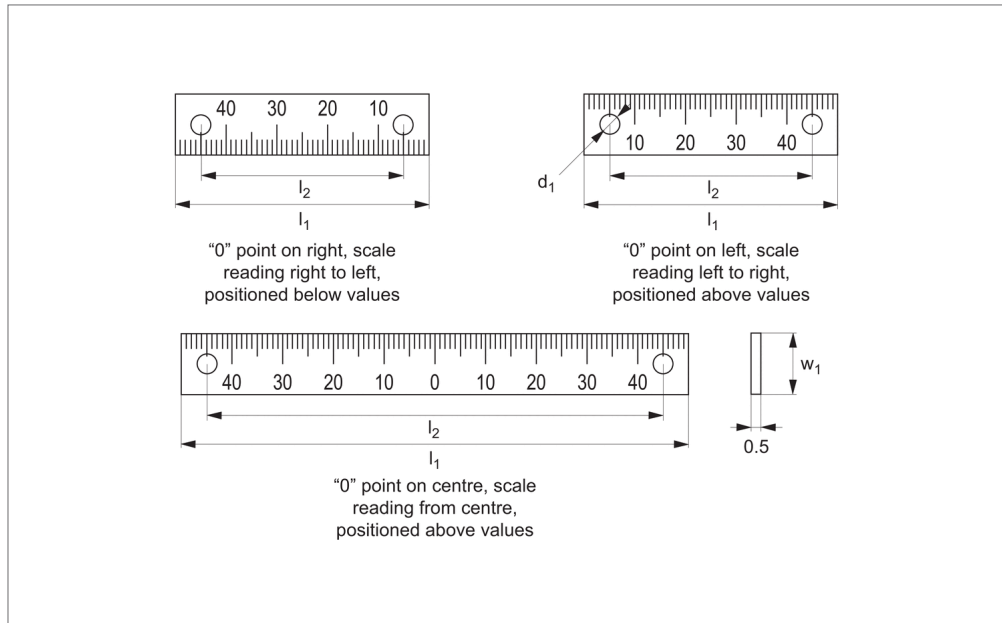
Adhesive mounting type: ensure receiving surface is clean and dirt free (features outline of screw hole location, not drilled).

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	Weight g
20191733	Adhesive	2	Left	-	50	40	15	1
20191740	Adhesive	2	Left	-	100	90	15	2
20191757	Adhesive	2	Right	-	50	40	15	1
20191764	Adhesive	2	Right	-	100	90	15	2
20191771	Adhesive	2	Centre	-	100	90	15	2
20191788	Screw Mount	2	Left	3.5	50	40	15	1
20191795	Screw Mount	2	Left	3.5	100	90	15	2
20191801	Screw Mount	2	Right	3.5	50	40	15	1
20191818	Screw Mount	2	Right	3.5	100	90	15	2
20191825	Screw Mount	2	Centre	3.5	100	90	15	2



E33977

ONE TOUCH FASTENERS

Material

Stainless steel, with etched graduation/ markings.

Technical Notes

For use with sliding clamps E33970, E33972 and E33973. 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.

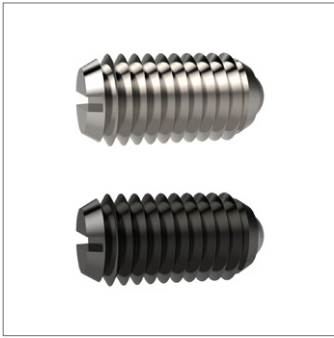
When selecting scale plate consider;
 - direction scale reads (left to right, right to left or from centre).
 - position of scale relative to number valves (above, below or both).

Order No.	Mounting type	Markings location	Number of mounting holes	Location of „0“ point	d ₁	l ₁	l ₂	w ₁	Weight g
20191832	Adhesive	-	2	Top	50	40	12	2.4	Left
20191849	Adhesive	-	2	Top	100	90	12	4.7	Left
20191856	Adhesive	-	2	Top	50	40	12	2.4	Right
20191863	Adhesive	-	2	Top	100	90	12	4.7	Right
20191870	Adhesive	-	2	Top	100	90	12	4.7	Centre
20191887	Screw-Mount	3.5	2	Top	50	40	12	2.4	Left
20191894	Screw-Mount	3.5	2	Top	100	90	12	4.7	Left
20191900	Screw-Mount	3.5	2	Top	50	40	12	2.4	Right
20191917	Screw-Mount	3.5	2	Top	100	90	12	4.7	Right
20191924	Screw-Mount	3.5	2	Top	100	90	12	4.7	Centre

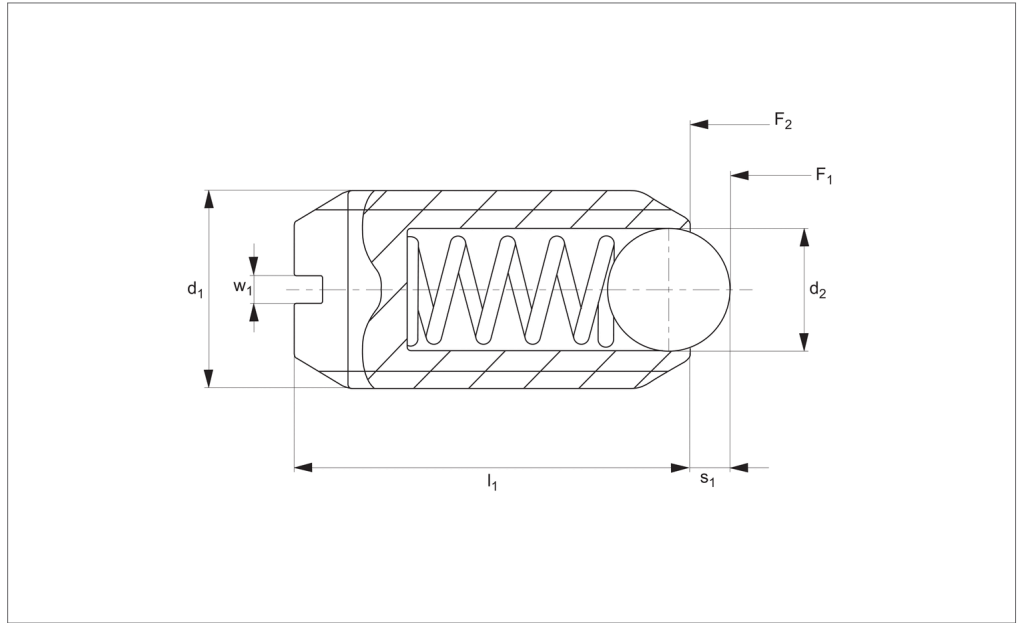
Spring Plunger & Detent Pins

Spring Plungers with ball & slot - stainless steel

SPRING PLUNGER & DETENT PINS



E32100



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

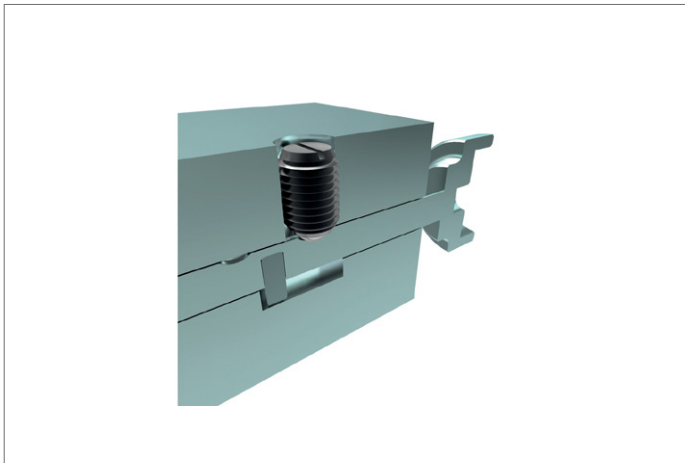
Order No.	Material	Spring load	d ₁	d ₂	l ₁	Spring load F ₁ N ≈	Spring load F ₂ N ≈	Stroke s ₁	A/F	Weight g
20253196	Steel	Normal	M 3	1.5	7	3.0	4.5	0.4	0.40	0.2
20253202	Steel	Normal	M 4	2.5	9	8.5	14.0	0.8	0.60	0.4
20253219	Steel	Normal	M 5	3.0	12	8.0	14.0	0.9	0.80	1.0
20253226	Steel	Normal	M 6	3.5	14	11.0	18.0	1.0	1.00	1.7
20253233	Steel	Normal	M 8	4.5	16	18.0	31.0	1.5	1.20	3.5
20253240	Steel	Normal	M10	6.0	19	24.0	45.0	2.0	1.50	6.6
20253257	Steel	Normal	M12	8.0	22	26.0	49.0	2.5	2.00	11.0
20253264	Steel	Normal	M16	10.0	24	41.0	86.0	3.5	2.00	23.0
20253271	Steel	Normal	M20	12.0	30	56.0	111.0	4.5	2.50	45.0
20253288	Steel	Normal	M24	15.0	34	81.0	151.0	5.5	3.00	72.0
20253295	Steel	Increased	M 5	3.0	12	15.0	22.0	0.9	0.80	1.0
20253301	Steel	Increased	M 6	3.5	14	19.0	28.0	1.0	1.00	1.7
20253318	Steel	Increased	M 8	4.5	16	36.0	62.0	1.5	1.20	3.6
20253325	Steel	Increased	M10	6.0	19	57.0	104.0	2.0	1.50	6.6
20253332	Steel	Increased	M12	8.0	22	61.0	110.0	2.5	2.00	11.0
20253349	Steel	Increased	M16	10.0	24	68.0	142.0	3.5	2.00	23.0
20253356	Steel	Increased	M20	12.0	30	84.0	166.0	4.5	2.50	43.0
20253363	Steel	Increased	M24	15.0	34	127.0	237.0	5.5	3.00	72.0
20254759	Stainless	Normal	M 2	1.0	4	0.8	1.5	0.3	0.25	0.1
20253370	Stainless	Normal	M 3	1.5	7	3.0	4.5	0.4	0.40	0.2
20253387	Stainless	Normal	M 4	2.5	9	8.5	14.0	0.8	0.60	0.4
20253394	Stainless	Normal	M 5	3.0	12	8.0	14.0	0.9	0.80	1.0

Spring Plungers

with ball & slot - stainless steel

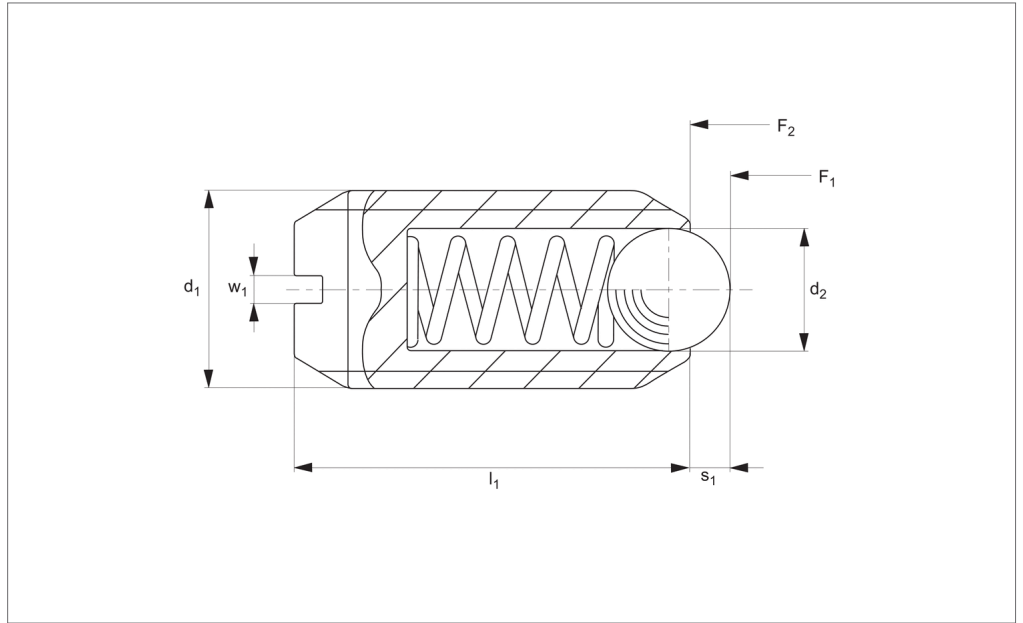
Spring Plunger & Detent Pins

Order No.	Material	Spring load	d ₁	d ₂	l ₁	Spring load F ₁ N ≈	Spring load F ₂ N ≈	Stroke s ₁	A/F	Weight g
20253400	Stainless	Normal	M 6	3.5	14	11.0	18.0	1.0	1.00	1.7
20253417	Stainless	Normal	M 8	4.5	16	18.0	31.0	1.5	1.20	3.5
20253424	Stainless	Normal	M10	6.0	19	24.0	45.0	2.0	1.50	6.6
20253431	Stainless	Normal	M12	8.0	22	26.0	49.0	2.5	2.00	11.0
20253448	Stainless	Normal	M16	10.0	24	41.0	86.0	3.5	2.00	23.0
20253455	Stainless	Normal	M20	12.0	30	56.0	111.0	4.5	2.50	45.0
20253462	Stainless	Normal	M24	15.0	34	81.0	151.0	5.5	3.00	72.0
20253479	Stainless	Increased	M 5	3.0	12	15.0	22.0	0.9	0.80	1.0
20253486	Stainless	Increased	M 6	3.5	14	19.0	28.0	1.0	1.00	1.7
20253493	Stainless	Increased	M 8	4.5	16	36.0	62.0	1.5	1.20	3.6
20253509	Stainless	Increased	M10	6.0	19	57.0	104.0	2.0	1.50	6.6
20253516	Stainless	Increased	M12	8.0	22	61.0	110.0	2.5	2.00	11.0
20253523	Stainless	Increased	M16	10.0	24	68.0	142.0	3.5	2.00	23.0
20253530	Stainless	Increased	M20	12.0	30	84.0	166.0	4.5	2.50	43.0
20253547	Stainless	Increased	M24	15.0	34	127.0	237.0	5.5	3.00	72.0





E32102



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, electrically 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

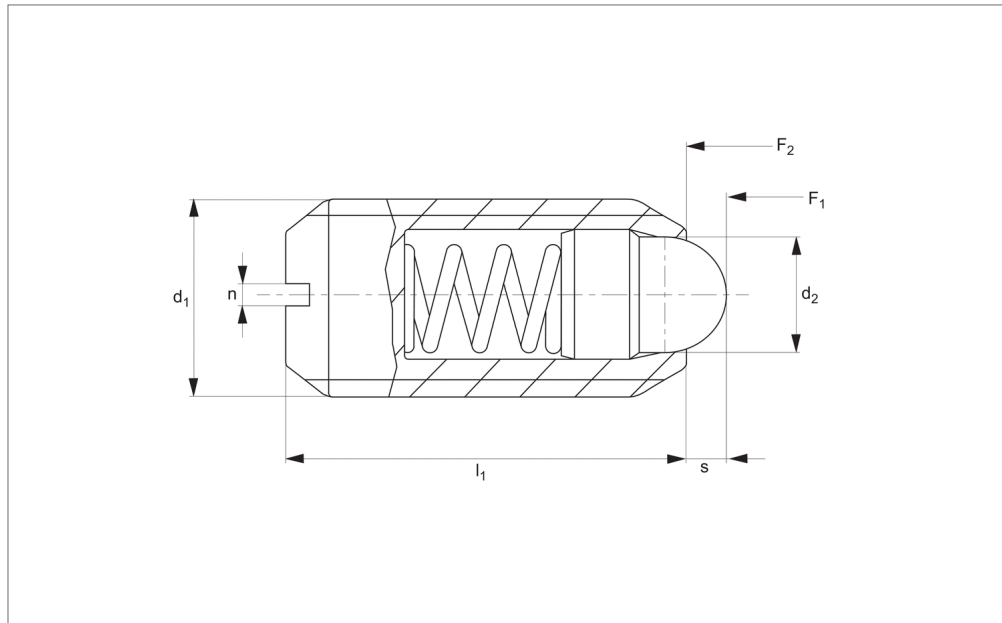
Spring load identifier:
Normal spring load - no marking.
Increased spring load - body marked with two lines.
Special types available on request.

Order No.	Spring load	d ₁	d ₂	l ₁	s ₁	Spring load F ₁ N ≈	Spring load F ₂ N ≈	w ₁	Weight g
20272715	Normal	M 4	2.5	9	0.8	8.5	14	0.6	0.4
20272685	Normal	M 5	3.0	12	0.9	8.0	14	0.8	0.9
20272692	Normal	M 6	3.5	14	1.0	11.0	18	1.0	1.6
20272661	Normal	M 8	4.5	16	1.5	18.0	31	1.2	3.5
20272722	Normal	M10	6.0	19	2.0	24.0	45	1.5	6.2
20272739	Normal	M12	8.0	22	2.5	26.0	49	2.0	9.8
20272746	Normal	M16	10.0	24	3.5	41.0	86	2.0	19.8
20272753	Increased	M 5	3.0	12	0.9	15.0	22	0.8	1.1
20272760	Increased	M 6	3.5	14	1.0	19.0	28	1.0	1.8
20272678	Increased	M 8	4.5	16	1.5	36.0	62	1.2	3.4
20272777	Increased	M10	6.0	19	2.0	57.0	104	1.5	6.1
20272784	Increased	M12	8.0	22	2.5	61.0	110	2.0	9.8
20272708	Increased	M16	10.0	24	3.5	68.0	142	2.0	19.8

Spring Plungers

with round-ended pin & slot - stainless steel or steel

Spring Plunger & Detent Pins



E32150

SPRING PLUNGER & DETENT PINS

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

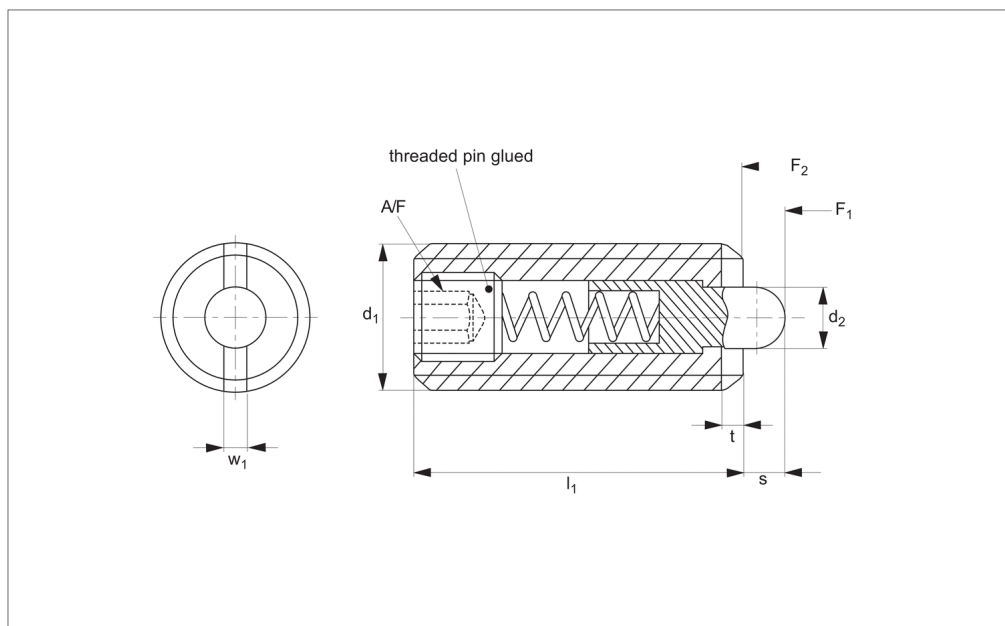
Order No.	Material	Spring load	d ₁	d ₂	l ₁	n ₁	s ₁	Spring load F ₁ N ≈	Spring load F ₂ N ≈	Weight g
20253554	Steel	Normal	M 4	1.8	9	0.6	1.5	4.5	12.5	0.4
20253561	Steel	Normal	M 5	2.4	12	0.8	2.0	5.0	13.0	1.1
20253578	Steel	Normal	M 6	2.7	14	1.0	2.0	6.0	17.0	1.8
20253585	Steel	Normal	M 8	3.8	16	1.2	2.0	16.0	33.0	3.7
20253592	Steel	Normal	M10	4.5	19	1.5	2.5	19.0	42.0	7.1
20253608	Steel	Normal	M12	6.2	22	2.0	3.5	22.0	57.0	11.0
20253615	Steel	Normal	M16	8.5	24	2.0	4.5	38.0	78.0	23.0
20253622	Steel	Normal	M20	10.0	30	2.5	6.5	39.0	81.0	46.0
20253639	Steel	Normal	M24	13.0	34	3.0	8.0	72.0	155.0	73.0
20253646	Steel	Increased	M 6	2.7	14	1.0	2.0	11.0	25.0	1.8
20253653	Steel	Increased	M 8	3.8	16	1.2	2.0	23.0	59.0	3.8
20253660	Steel	Increased	M10	4.5	19	1.5	2.5	20.0	54.0	7.0
20253677	Steel	Increased	M12	6.2	22	2.0	3.5	38.0	96.0	11.0
20253691	Steel	Increased	M20	10.0	30	2.5	6.5	52.0	133.0	46.0
20253707	Steel	Increased	M24	13.0	34	3.0	8.0	91.0	223.0	74.0
20253714	Stainless	Normal	M 4	1.8	9	0.6	1.5	4.5	12.5	0.4
20253721	Stainless	Normal	M 5	2.4	12	0.8	2.0	5.0	13.0	1.1
20253738	Stainless	Normal	M 6	2.7	14	1.0	2.0	6.0	17.0	1.8
20253745	Stainless	Normal	M 8	3.8	16	1.2	2.0	16.0	33.0	3.7
20253752	Stainless	Normal	M10	4.5	19	1.5	2.5	19.0	42.0	7.1
20253769	Stainless	Normal	M12	6.2	22	2.0	3.5	22.0	57.0	11.0
20253776	Stainless	Normal	M16	8.5	24	2.0	4.5	38.0	78.0	23.0
20253783	Stainless	Normal	M20	10.0	30	2.5	6.5	39.0	81.0	46.0
20253790	Stainless	Normal	M24	13.0	34	3.0	8.0	72.0	155.0	73.0
20253806	Stainless	Increased	M 6	2.7	14	1.0	2.0	11.0	25.0	1.8
20253813	Stainless	Increased	M 8	3.8	16	1.2	2.0	23.0	59.0	3.8

Order No.	Material	Spring load	d_1	d_2	l_1	n_1	s_1	Spring load F_1 N \approx	Spring load F_2 N \approx	Weight g
20253820	Stainless	Increased	M10	4.5	19	1.5	2.5	20.0	54.0	7.0
20253837	Stainless	Increased	M12	6.2	22	2.0	3.5	38.0	96.0	11.0
20253851	Stainless	Increased	M20	10.0	30	2.5	6.5	52.0	133.0	46.0
20253868	Stainless	Increased	M24	13.0	34	3.0	8.0	91.0	223.0	74.0

Spring Plungers

with pin end & hex. socket - stainless steel

Spring Plunger & Detent Pins



E32200

SPRING PLUNGER & DETENT PINS

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 250°C.

Steel or stainless with thermoplastic pin, -30°C to +50°C.

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 20254278 to 20254360.

Special types available on request.

Important Notes

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

Order No.	Spring load	Finish	d ₁	d ₂	l ₁	s	Spring load F ₁ N ≈	Spring load F ₂ N ≈	t	w ₁	A/F	Weight g
20253875	Normal	All Steel	M 3	1.0	12	1.0	2.0	4	0.5	0.4	0.7	0.40
20253882	Normal	All Steel	M 4	1.5	15	1.5	4.5	16	0.6	0.6	1.3	0.93
20253899	Normal	All Steel	M 5	2.4	18	2.3	6.0	19	0.8	1.2	1.5	1.70
20253905	Normal	All Steel	M 6	2.7	20	2.5	6.0	19	0.9	1.3	2.0	2.80
20253912	Normal	All Steel	M 8	3.5	22	3.0	10.0	39	1.4	1.5	2.5	5.80
20253929	Normal	All Steel	M10	4.0	22	3.0	10.0	39	1.4	1.5	3.0	9.20
20253936	Normal	All Steel	M12	6.0	28	4.0	12.0	53	2.0	2.7	4.0	16.00
20253943	Normal	All Steel	M16	7.5	32	5.0	45.0	100	2.5	3.2	5.0	35.00
20253950	Normal	All Steel	M20	10.0	40	7.0	52.0	125	3.0	3.7	6.0	68.00
20253967	Normal	All Steel	M24	12.0	52	10.0	70.0	170	3.0	3.7	8.0	131.00
20253974	Increased	All Steel	M 5	2.4	18	2.3	11.0	40	0.8	1.2	1.5	1.60
20253981	Increased	All Steel	M 6	2.7	20	2.5	15.0	43	0.9	1.3	2.0	2.80
20253998	Increased	All Steel	M 8	3.5	22	3.0	20.0	75	1.4	1.5	2.5	5.80
20254001	Increased	All Steel	M10	4.0	22	3.0	20.0	75	1.4	1.5	3.0	9.30
20254018	Increased	All Steel	M12	6.0	28	4.0	45.0	120	2.0	2.7	4.0	16.00
20254025	Increased	All Steel	M16	7.5	32	5.0	64.0	160	2.5	3.2	5.0	33.00
20254032	Increased	All Steel	M20	10.0	40	7.0	75.0	195	3.0	3.7	6.0	67.00
20254049	Increased	All Steel	M24	12.0	52	10.0	75.0	245	3.0	3.7	8.0	129.00
20254056	Normal	Steel, Thermo Pin	M 4	1.5	15	1.5	4.5	16	0.6	0.6	1.3	0.86
20254063	Normal	Steel, Thermo Pin	M 5	2.4	18	2.3	6.0	19	0.8	1.2	1.5	1.50
20254070	Normal	Steel, Thermo Pin	M 6	2.7	20	2.5	6.0	19	0.9	1.3	2.0	2.30
20254087	Normal	Steel, Thermo Pin	M 8	3.5	22	3.0	10.0	39	1.4	1.5	2.5	5.10

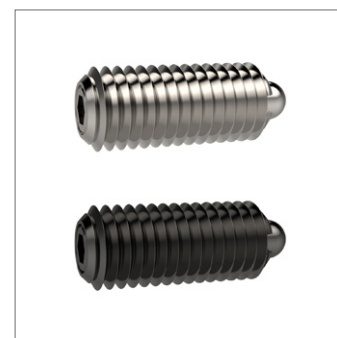
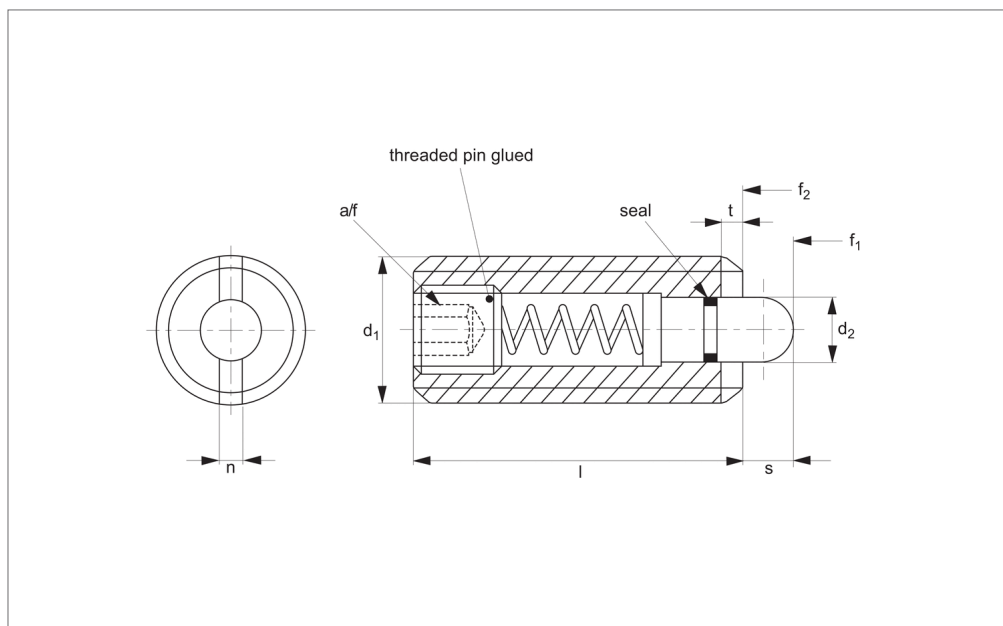
Order No.	Spring load	Finish	d ₁	d ₂	l ₁	s	Spring load F ₁ N ≈	Spring load F ₂ N ≈	t	w ₁	A/F	Weight g
20254094	Normal	Steel, Thermo Pin	M10	4.0	22	3.0	10.0	39	1.4	1.5	3.0	8.10
20254100	Normal	Steel, Thermo Pin	M12	6.0	28	4.0	12.0	53	2.0	2.7	4.0	14.00
20254117	Normal	Steel, Thermo Pin	M16	7.5	32	5.0	45.0	100	2.5	3.2	5.0	31.00
20254124	Normal	All Stainless	M 4	1.5	15	1.5	4.5	16	0.6	0.6	1.3	1.10
20254131	Normal	All Stainless	M 5	2.4	18	2.3	6.0	19	0.8	1.2	1.5	1.70
20254148	Normal	All Stainless	M 6	2.7	20	2.5	6.0	19	0.9	1.3	2.0	2.80
20254155	Normal	All Stainless	M 8	3.5	22	3.0	10.0	39	1.4	1.5	2.5	5.90
20254162	Normal	All Stainless	M10	4.0	22	3.0	10.0	39	1.4	1.5	3.0	9.50
20254179	Normal	All Stainless	M12	6.0	28	4.0	12.0	53	2.0	2.7	4.0	17.00
20254186	Normal	All Stainless	M16	7.5	32	5.0	45.0	100	2.5	3.2	5.0	35.00
20254193	Normal	All Stainless	M20	10.0	40	7.0	52.0	125	3.0	3.7	6.0	68.00
20254209	Normal	S/S, Thermo Pin	M 4	1.5	15	1.5	4.5	16	0.6	0.6	1.3	0.93
20254216	Normal	S/S, Thermo Pin	M 5	2.4	18	2.3	6.0	19	0.8	1.2	1.5	1.60
20254223	Normal	S/S, Thermo Pin	M 6	2.7	20	2.5	6.0	19	0.9	1.3	2.0	2.50
20254230	Normal	S/S, Thermo Pin	M 8	3.5	22	3.0	10.0	39	1.4	1.5	2.5	5.10
20254247	Normal	S/S, Thermo Pin	M10	4.0	22	3.0	10.0	39	1.4	1.5	3.0	8.50
20254254	Normal	S/S, Thermo Pin	M12	6.0	28	4.0	12.0	53	2.0	2.7	4.0	14.00
20254261	Normal	S/S, Thermo Pin	M16	7.5	32	5.0	45.0	100	2.5	3.2	5.0	32.00
20254278	Head ø2,5	Screwdriver	M 3	-	-	-	-	-	-	-	-	13.00
20254285	Head ø4,0	Screwdriver	M 4	-	-	-	-	-	-	-	-	29.00
20254292	Head ø5,0	Screwdriver	M 5	-	-	-	-	-	-	-	-	61.00
20254308	Head ø5,5	Screwdriver	M 6	-	-	-	-	-	-	-	-	65.00
20254315	Head ø7,0	Screwdriver	M 8	-	-	-	-	-	-	-	-	108.00
20254322	Head ø8,0	Screwdriver	M10	-	-	-	-	-	-	-	-	124.00
20254339	Head ø11,0	Screwdriver	M12	-	-	-	-	-	-	-	-	112.00
20254346	Head ø14,0	Screwdriver	M16	-	-	-	-	-	-	-	-	173.00
20254353	Head ø18,0	Screwdriver	M20	-	-	-	-	-	-	-	-	226.00
20254360	Head ø19,9	Screwdriver	M24	-	-	-	-	-	-	-	-	258.00



Spring Plungers

with pin end & hex socket and seal - stainless steel

Spring Plunger & Detent Pins



E32220

SPRING PLUNGER & DETENT PINS

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 E32200.

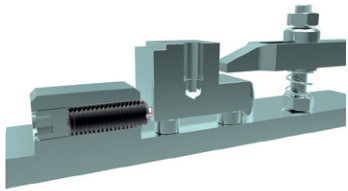
Spring plungers can be assembled by use of a hexagon key at the rear, or from the front with special slotted screwdrivers, see 20254315 to 20254346.

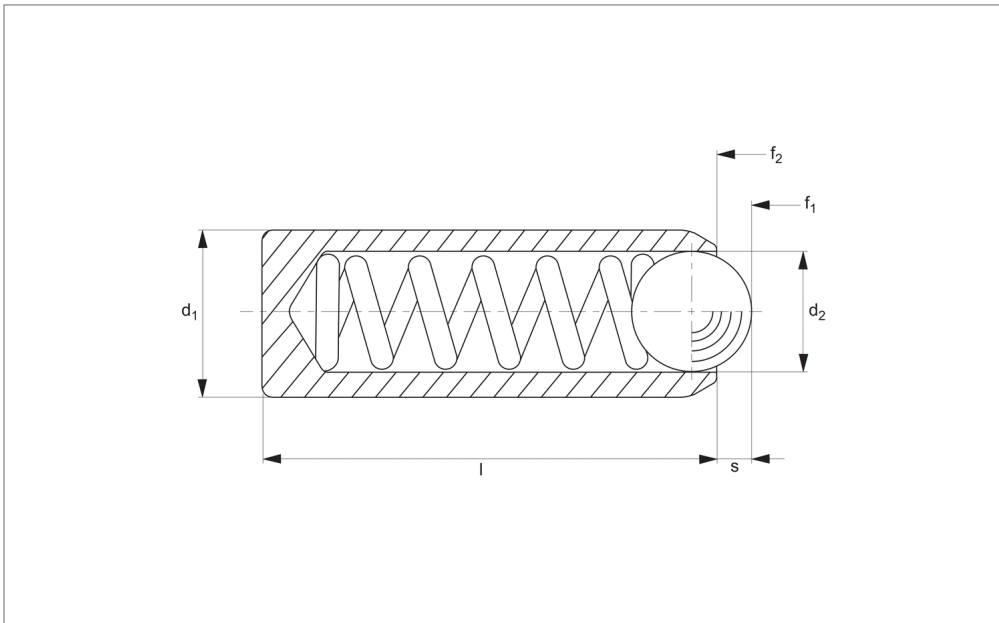
Special types available on request.

Important Notes

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

Order No.	Spring load	Finish	d ₁	d ₂	l	n	s	Spring load F ₁ N ≈	Spring load F ₂ N ≈	t	A/F	Weight g
20254377	Normal	All Steel	M 8	3.8	26	1.5	3.0	9	24	1.4	2.5	6.9
20254384	Normal	All Steel	M10	4.0	28	1.5	3.5	15	30	1.4	3.0	11.0
20254391	Normal	All Steel	M12	6.0	35	2.7	4.0	24	50	2.0	4.0	20.0
20254407	Normal	All Steel	M16	7.5	40	3.2	5.0	36	58	2.5	5.0	43.0
20254414	Increased	All Steel	M 8	3.8	26	1.5	3.0	17	39	1.4	2.5	6.6
20254421	Increased	All Steel	M10	4.0	28	1.5	3.5	22	43	1.4	3.0	12.0
20254438	Increased	All Steel	M12	6.0	35	2.7	4.0	40	80	2.0	4.0	20.0
20254445	Increased	All Steel	M16	7.5	40	3.2	5.0	44	113	2.5	5.0	45.0
20254452	Normal	All Stainless	M 8	3.8	26	1.5	3.0	9	24	1.4	2.5	7.2
20254469	Normal	All Stainless	M10	4.0	28	1.5	3.5	15	30	1.4	3.0	12.0
20254476	Normal	All Stainless	M12	6.0	35	2.7	4.0	24	50	2.0	4.0	20.0
20254483	Normal	All Stainless	M16	7.5	40	3.2	5.0	36	58	2.5	5.0	44.0





E32280

SPRING PLUNGER & DETENT PINS

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 +250°C. Spring load * = statistical average value.

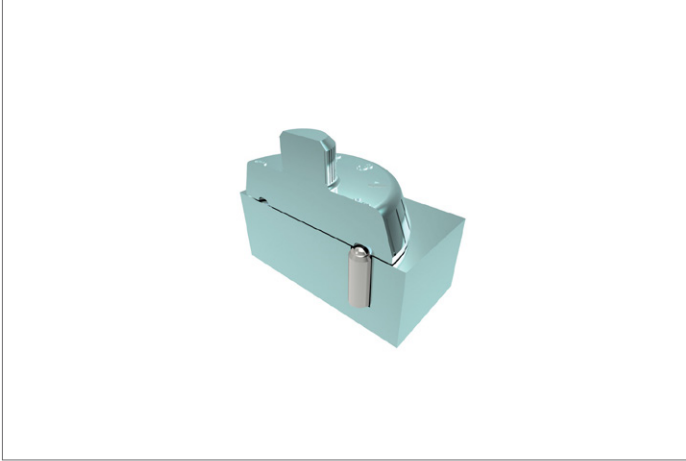
Tips

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.

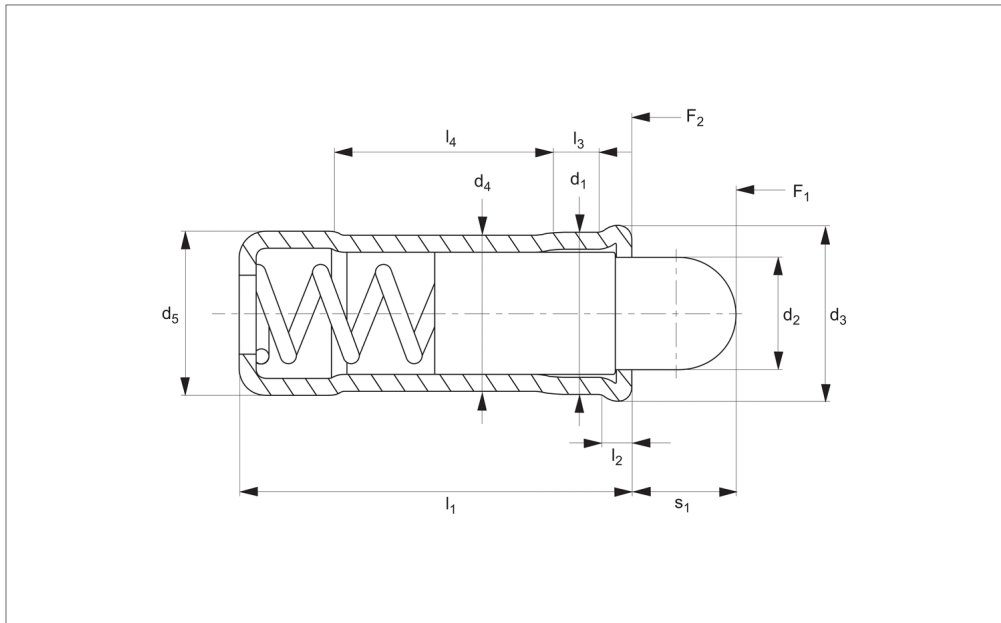
Order No.	Pressure	d ₁ ±0.04	d ₂	l ₁	s ₁	Spring load F ₁ N ≈	Spring load F ₂ N ≈	Weight g
20252755	Standard pressure	2.0	1.0	3.5	0.3	0.8	1.5	0.1
20252816	Standard pressure	2.5	1.5	5.0	0.40	2.8	4.7	0.2
20254490	Standard pressure	3.0	2.0	7.0	0.7	4.5	7.5	0.4
20254506	Standard pressure	3.5	2.5	9.0	0.8	6.0	14.5	0.6
20254513	Standard pressure	4.0	3.0	11.0	0.9	8.0	14.0	0.8
20254520	Standard pressure	4.5	3.2	12.0	1.0	9.5	16.5	1.1
20254537	Standard pressure	5.0	3.5	13.0	1.0	11.0	18.0	1.5
20254544	Standard pressure	5.5	4.0	14.0	1.2	15.5	25.0	1.9
20254551	Standard pressure	6.0	4.5	15.0	1.5	18.0	31.0	2.3
20252885	Standard pressure	8.0	6.0	18.0	2.0	24.0	45.0	5.0
20252892	Standard pressure	10.0	8.0	20.0	2.5	26.0	49.0	8.3
20252908	Standard pressure	12.0	10.0	22.0	3.5	41.0	86.0	12
20253035	High pressure	2.0	1.0	3.5	0.3	1.3	2.2	0.1
20253059	High pressure	2.5	1.5	5.0	2.5	4.7	7.1	0.2
20253066	High pressure	3.0	2.0	7.0	0.7	7.8	11.6	0.3
20253073	High pressure	3.5	2.5	9.0	0.8	12.0	18.0	0.5
20253080	High pressure	4.0	3.0	11.0	0.9	15.0	22.0	0.7
20253097	High pressure	4.5	3.2	12.0	1.0	18.7	25.1	1.0
20253103	High pressure	5.0	3.5	13.0	1.0	19.3	26.6	1.4
20253110	High pressure	5.5	4.0	14.0	1.2	25.1	39.2	1.8
20253042	High pressure	6.0	4.5	15.0	1.5	36.0	60.5	2.3
20253127	High pressure	8.0	6.0	18.0	2.0	57.0	103.5	5.2
20253134	High pressure	10.0	8.0	20.0	2.5	61.0	110.0	8.5
20253141	High pressure	12.0	10.0	22.0	3.5	68.0	143.0	13



Spring Plunger - Pin End - Smooth

stainless steel - with collar

Spring Plunger & Detent Pins



E32282

SPRING PLUNGER & DETENT PINS

Material

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

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 .

Technical Notes

Used for locating, applying pressure or

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	Spring load F_1 N ≈	Spring load F_2 N ≈	Temperature °C max.	Weight g
20208981	Stainless	4	2,8	4,6	3,85	4	10,7	0,9	1,8	5,6	2,7	3,0	8,2	+250	0,7
20208998	Stainless	5	3,8	5,6	4,85	5	12,0	0,9	2,1	6,0	4,0	3,3	9,0	+250	1,2
20208974	Stainless	6	4,8	6,5	5,85	6	15,0	1,0	2,3	8,2	5,5	6,1	12,0	+250	2,2
20209001	Stainless	8	6,2	8,5	7,55	8	18,0	1,1	2,9	9,5	6,5	9,0	20,1	+250	4,2
20209018	Stainless	10	8,1	11,0	9,55	10	26,0	1,5	4,2	14,3	8,0	16,2	29,0	+250	9,0
20209025	Plastic	4	2,8	4,6	3,85	4	10,7	0,9	1,8	5,6	2,7	3,0	8,2	-30/+50	0,5
20209032	Plastic	5	3,8	5,6	4,85	5	12,0	0,9	2,1	6,0	4,0	3,3	9,0	-30/+50	0,8
20209049	Plastic	6	4,8	6,5	5,85	6	15,0	1,0	2,3	8,2	5,5	6,1	12,0	-30/+50	1,3
20209056	Plastic	8	6,2	8,5	7,55	8	18,0	1,1	2,9	9,5	6,5	9,0	20,1	-30/+50	2,5
20209063	Plastic	10	8,1	11,0	9,55	10	26,0	1,5	4,2	15,0	8,0	16,2	29,0	-30/+50	5,0

Spring Plunger & Detent Pins

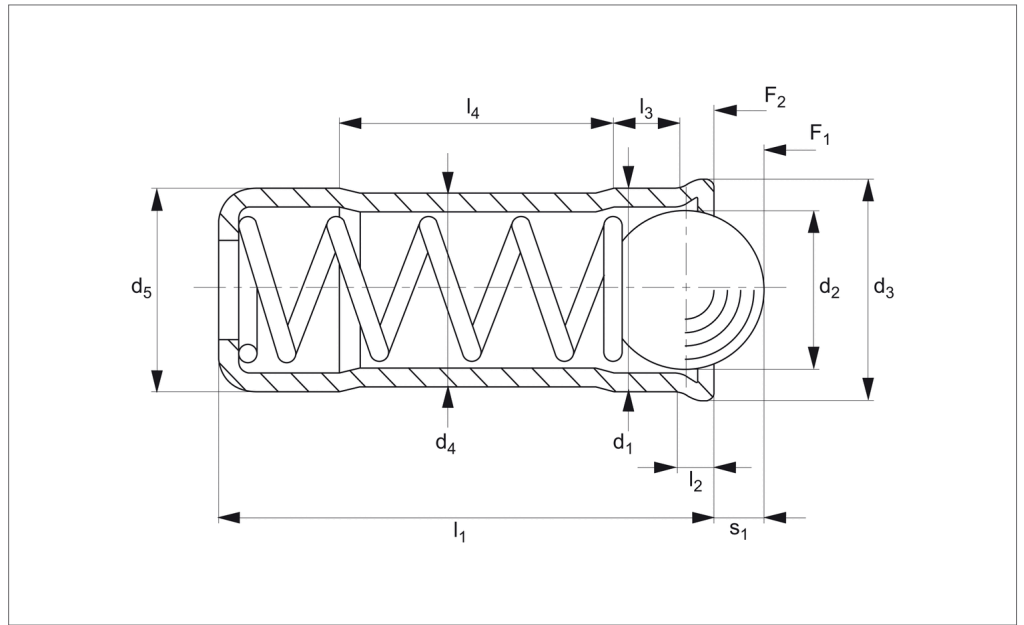
Spring Plunger - Ball End - Smooth

stainless steel - with collar

SPRING PLUNGER & DETENT PINS



E32284



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

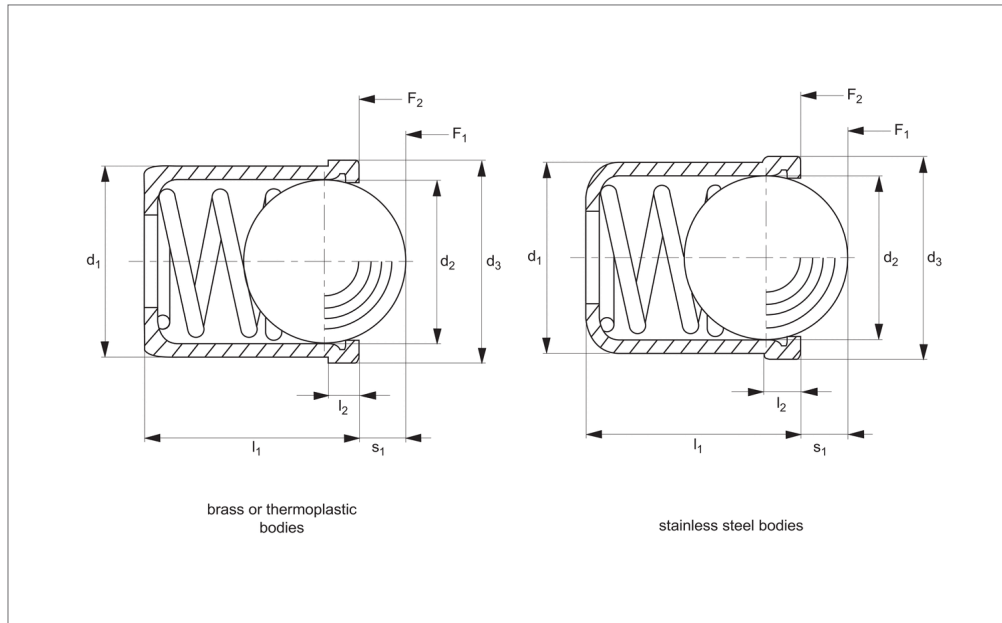
locating hole of d₁.

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 ≈	Spring load F ₁ N ≈	Spring load F ₂ N ≈	Stroke s ₁	Weight g
20208929	4	3.0	4.6	3.85	4	10.7	0.9	1.8	5.6	12.9	19.0	0.9	0.6
20208936	5	4.0	5.6	4.85	5	12.0	0.9	2.1	6.0	19.3	29.2	1.3	1.0
20208943	6	5.0	6.5	5.85	6	15.0	1.0	2.3	8.2	28.0	47.5	1.7	2.0
20208950	8	6.5	8.5	7.55	8	18.0	1.1	2.9	9.5	40.0	67.3	2.3	4.0
20208967	10	8.5	11.0	9.55	10	26.0	1.5	4.2	14.3	66.0	105.0	3.1	8.0

Spring Plungers

smooth model, with collar and ball- stainless steel

Spring Plunger & Detent Pins



E32300

SPRING PLUNGER & DETENT PINS

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.

Order No.	Spring load	Finish	d ₁ -0 +0.1	d ₂	d ₃	l ₁	l ₂ ≈	s ₁	Spring load	Spring load	Temperature °C max.	Weight g
									F ₁ N ≈	F ₂ N ≈		
20252915	Light	Body & Ball Stainless	4	3,00	4,6	5,0	0,90	1,00	0,4	1,0	250	0,30
20252922	Light	Body & Ball Stainless	5	4,00	5,6	6,0	0,90	1,40	0,5	4,7	250	0,60
20252939	Light	Body & Ball Stainless	6	5,00	6,5	7,0	1,00	1,80	2,3	6,5	250	1,00
20252946	Light	Body & Ball Stainless	8	6,50	8,5	9,0	1,10	2,40	4,0	9,0	250	2,10
20252953	Light	Body & Ball Stainless	10	8,50	11,0	13,0	1,50	3,30	3,9	10,0	250	4,40
20252960	Light	Body & Ball Stainless	12	10,00	13,0	16,0	2,30	4,00	6,2	14,6	250	7,30
20254766	Standard	Body & Ball Stainless	3	2,38	3,5	4,0	0,60	0,70	1,8	3,5	+250	0,20
20253165	Standard	Body & Ball Stainless	4	3,00	4,6	5,0	0,90	1,00	2,5	6,0	+250	0,30
20254568	Standard	Body & Ball Stainless	5	4,00	5,6	6,0	0,90	1,40	3,0	6,5	+250	0,60
20253172	Standard	Body & Ball Stainless	6	5,00	6,5	7,0	1,00	1,80	5,5	11,5	+250	1,00
20254575	Standard	Body & Ball Stainless	8	6,50	8,5	9,0	1,10	2,40	7,0	12,5	+250	2,10
20254582	Standard	Body & Ball Stainless	10	8,50	11,0	13,0	1,50	3,30	8,5	18,5	+250	4,40
20254599	Standard	Body & Ball Stainless	12	10,00	13,0	16,0	2,30	4,00	12,0	26,5	+250	7,30
20254773	Standard	Body Brass, Ball Stainless	3	2,38	3,6	4,0	0,60	0,60	1,8	3,5	+250	0,20
20254605	Standard	Body Brass, Ball Stainless	4	3,00	4,5	5,0	1,00	0,80	3,0	6,0	+250	0,50
20254612	Standard	Body Brass, Ball Stainless	5	4,00	5,5	6,0	1,00	1,00	4,0	6,5	+250	0,80
20254629	Standard	Body Brass, Ball Stainless	6	5,00	6,5	7,0	1,00	1,60	6,0	11,5	+250	1,30
20254636	Standard	Body Brass, Ball Stainless	8	6,50	8,5	9,0	1,00	1,90	8,0	12,5	+250	2,80
20254780	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
20254643	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
20254650	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
20254667	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
20254674	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
20254681	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
20254698	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
20253189	Standard	Body & Ball Thermoplast	4	3,00	4,6	5,0	1,00	0,80	3,0	6,5	-30/+50	0,10

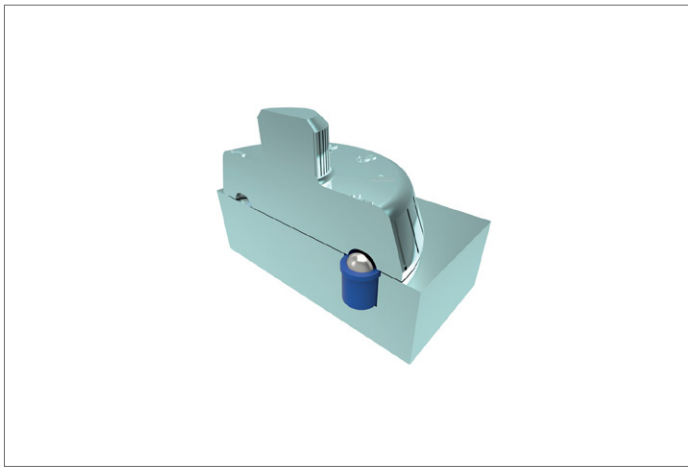
Spring Plunger & Detent Pins

Spring Plungers

smooth model, with collar and ball- stainless steel

SPRING PLUNGER & DETENT PINS

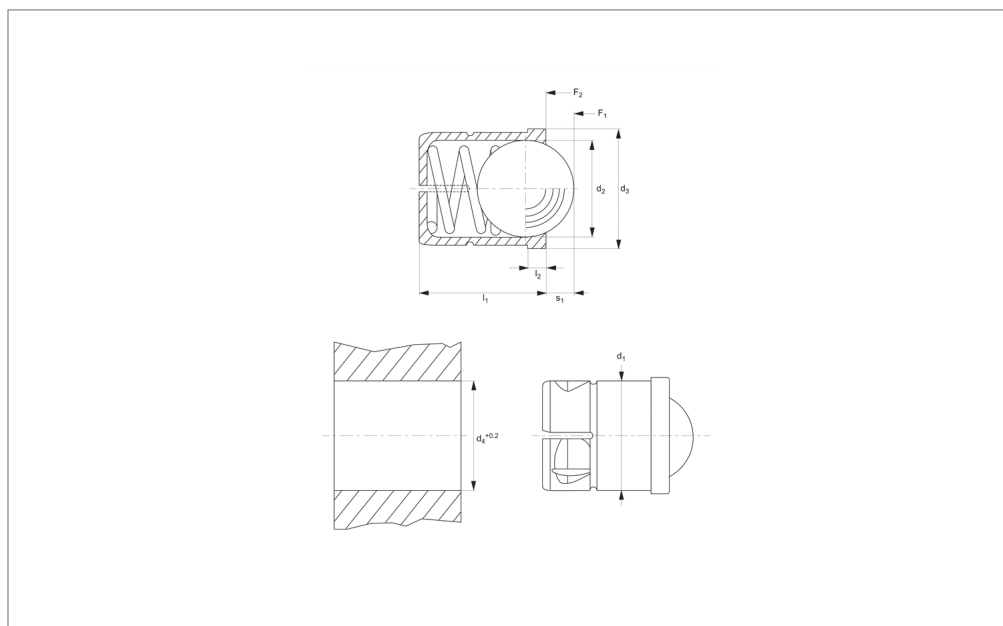
Order No.	Spring load	Finish	d ₁ -0 +0.1	d ₂	d ₃	l ₁	l ₂ ≈	s ₁	Spring load		Temperature °C max.	Weight g
									F ₁ N ≈	F ₂ N ≈		
20254704	Standard	Body & Ball Thermoplast	5	4,00	5,6	6,0	1,00	1,00	6,0	9,4	-30/+50	0,20
20254711	Standard	Body & Ball Thermoplast	6	5,00	6,5	7,0	1,00	1,60	6,2	12,6	-30/+50	0,30
20254728	Standard	Body & Ball Thermoplast	8	6,50	8,5	9,0	1,00	1,90	10,0	20,4	-30/+50	0,60
20254735	Standard	Body & Ball Thermoplast	10	8,00	11,0	13,5	1,50	2,40	11,9	22,3	-30/+50	1,50
20254742	Standard	Body & Ball Thermoplast	12	10,00	13,0	16,0	1,50	3,30	14,0	25,0	-30/+50	2,50
20252977	Heavy	Body & Ball Stainless	4	3,00	4,6	5,0	0,90	1,00	5,0	10,4	+250	0,30
20252984	Heavy	Body & Ball Stainless	5	4,00	5,6	6,0	0,90	1,40	6,0	12,0	+250	0,60
20252991	Heavy	Body & Ball Stainless	6	5,00	6,5	7,0	1,00	1,80	7,3	19,0	+250	1,00
20253004	Heavy	Body & Ball Stainless	8	6,50	8,5	9,0	1,10	2,40	11,0	25,0	+250	2,10
20253011	Heavy	Body & Ball Stainless	10	8,50	11,0	13,0	1,50	3,30	17,0	37,0	+250	4,40
20253028	Heavy	Body & Ball Stainless	12	10,00	13,0	16,0	2,30	4,00	30,0	54,0	+250	7,30



Expander Fit Spring Plunger

smooth body - thermoplastic

Spring Plunger & Detent Pins



E32302

SPRING PLUNGER & DETENT PINS

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

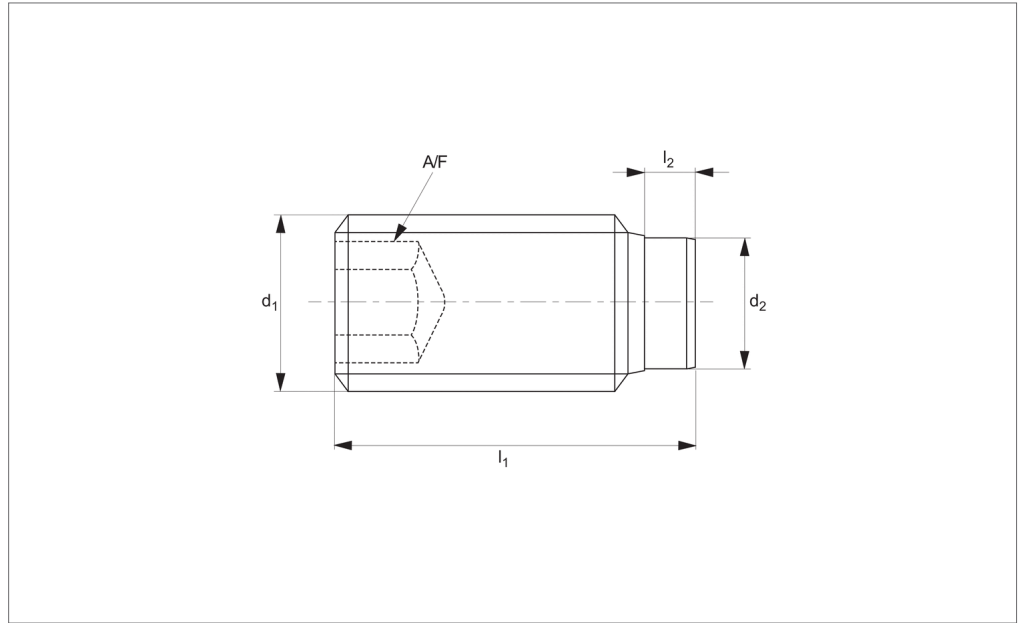
Spring load* - statistical average value. Temperature range -30°C to +50°C

See code E32305 - for 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 ≈	Temperature °C max.	Weight g
20252823	Body Thermo & Ball Stainless	4	3,0	4,6	4	5,0	1,0	0,8	3,0	6,5	-30/+50	0,12
20252830	Body Thermo & Ball Stainless	5	4,0	5,6	5	6,0	1,0	1,0	6,0	9,4	-30/+50	0,34
20252779	Body Thermo & Ball Stainless	6	5,0	6,5	6	7,0	1,0	1,6	6,2	12,6	-30/+50	0,63
20252793	Body Thermo & Ball Stainless	8	6,5	8,5	8	9,0	1,0	1,9	10,0	20,4	-30/+50	1,40
20252762	Body Thermo & Ball Stainless	10	8,0	11,0	10	13,5	1,5	2,4	11,9	22,3	-30/+50	2,90
20252847	Body & Ball Thermo	4	3,0	4,6	4	5,0	1,0	0,8	3,0	6,5	-30/+50	0,06
20252854	Body & Ball Thermo	5	4,0	5,6	5	6,0	1,0	1,0	6,0	9,4	-30/+50	0,17
20252861	Body & Ball Thermo	6	5,0	6,5	6	7,0	1,0	1,6	6,2	12,6	-30/+50	0,23
20252809	Body & Ball Thermo	8	6,5	8,5	8	9,0	1,0	1,9	10,0	20,4	-30/+50	0,57
20252786	Body & Ball Thermo	10	8,0	11,0	10	13,5	1,5	2,4	11,9	22,3	-30/+50	1,21



E34140.2



Material

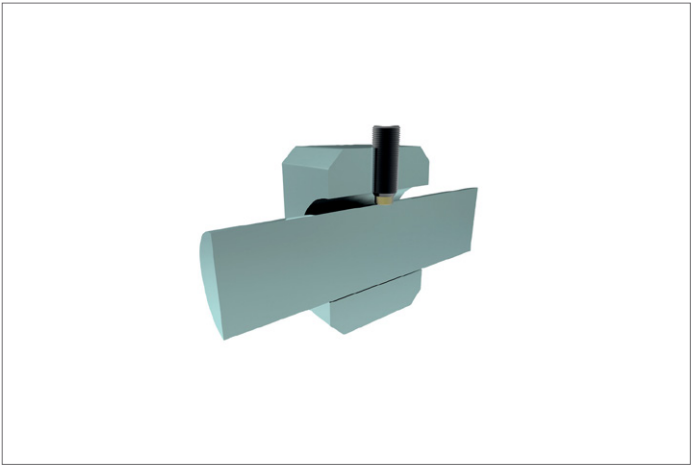
Screw: stainless steel 1.4305 (AISI 303).
Pad: brass.

Technical Notes

Brass pad pressed in. These thrust screws can be used for gentle clamping or pres-

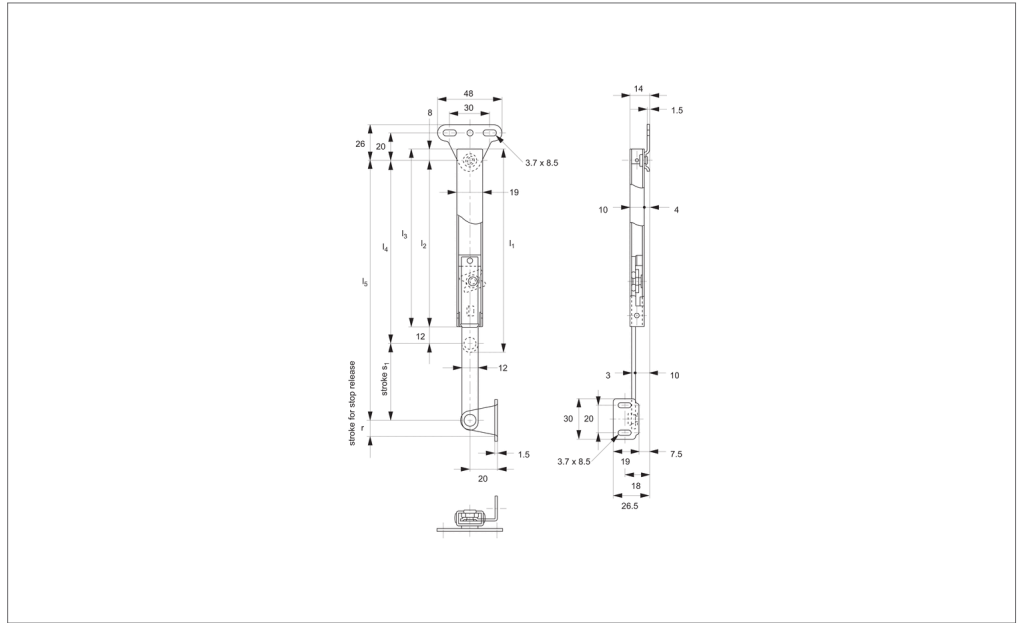
sing of threaded spindles, axles, shafts or surface treated parts.

Order No.	Material	Type	d ₁	l ₁	l ₂	d ₂	A/F	Weight g
20255503	Stainless	Brass Pad	M 3	5.0	1.0	1.5	1.5	0.2
20254865	Stainless	Brass Pad	M 3	7.5	1.0	1.5	1.5	0.3
20254834	Stainless	Brass Pad	M 3	10.0	1.0	1.5	1.5	0.5
20254872	Stainless	Brass Pad	M 4	6.5	1.2	2.5	2.0	0.3
20254889	Stainless	Brass Pad	M 4	10.5	1.2	2.5	2.0	0.8
20254919	Stainless	Brass Pad	M 4	16.5	1.2	2.5	2.0	1.2
20254926	Stainless	Brass Pad	M 5	8.5	1.3	3.0	2.5	0.9
20254933	Stainless	Brass Pad	M 5	12.5	1.3	3.0	2.5	1.4
20254940	Stainless	Brass Pad	M 5	20.5	1.3	3.0	2.5	2.1
20255497	Stainless	Brass Pad	M 6	11.5	1.9	4.0	3.0	1.7
20255367	Stainless	Brass Pad	M 6	17.5	1.9	4.0	3.0	2.7
20254957	Stainless	Brass Pad	M 6	26.5	1.9	4.0	3.0	4.2
20254964	Stainless	Brass Pad	M 8	12.0	2.5	5.5	4.0	3.0
20254971	Stainless	Brass Pad	M 8	22.0	2.5	5.5	4.0	5.8
20254988	Stainless	Brass Pad	M 8	32.0	2.5	5.5	4.0	8.9
20254995	Stainless	Brass Pad	M10	14.0	2.7	7.0	5.0	5.6
20255008	Stainless	Brass Pad	M10	18.0	2.7	7.0	5.0	6.7
20255015	Stainless	Brass Pad	M10	27.0	2.7	7.0	5.0	11.0
20255022	Stainless	Brass Pad	M10	37.0	2.7	7.0	5.0	16.0
20255039	Stainless	Brass Pad	M12	18.5	3.4	8.5	6.0	10.0
20255046	Stainless	Brass Pad	M12	22.5	3.4	8.5	6.0	12.0
20254896	Stainless	Brass Pad	M12	32.5	3.4	8.5	6.0	20.0
20255053	Stainless	Brass Pad	M12	42.5	3.4	8.5	6.0	29.0





EN0500



Material

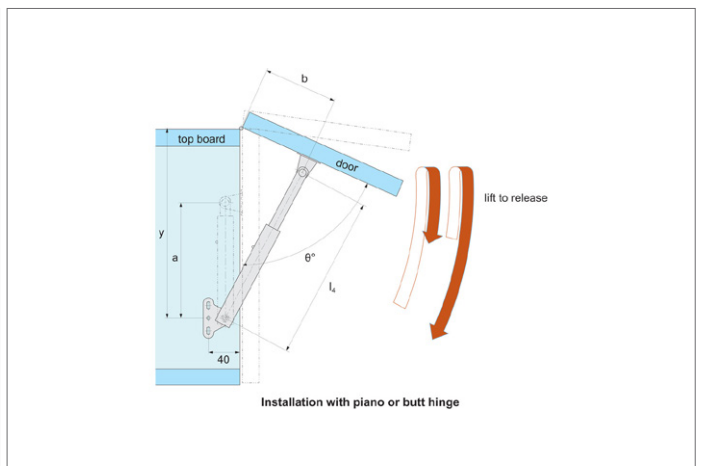
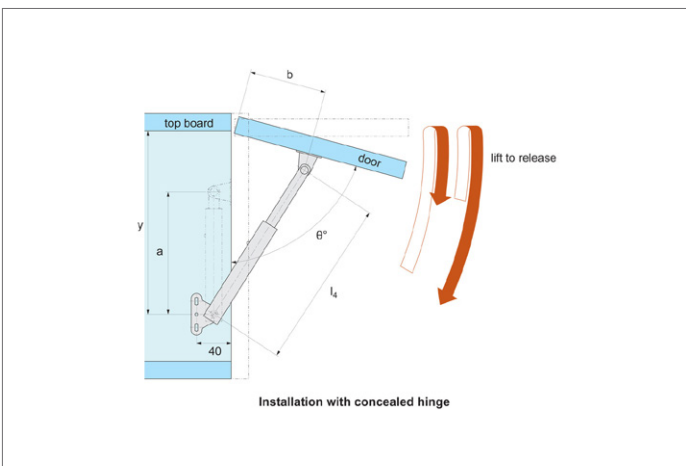
Stainless steel, AISI 304, satin finish.

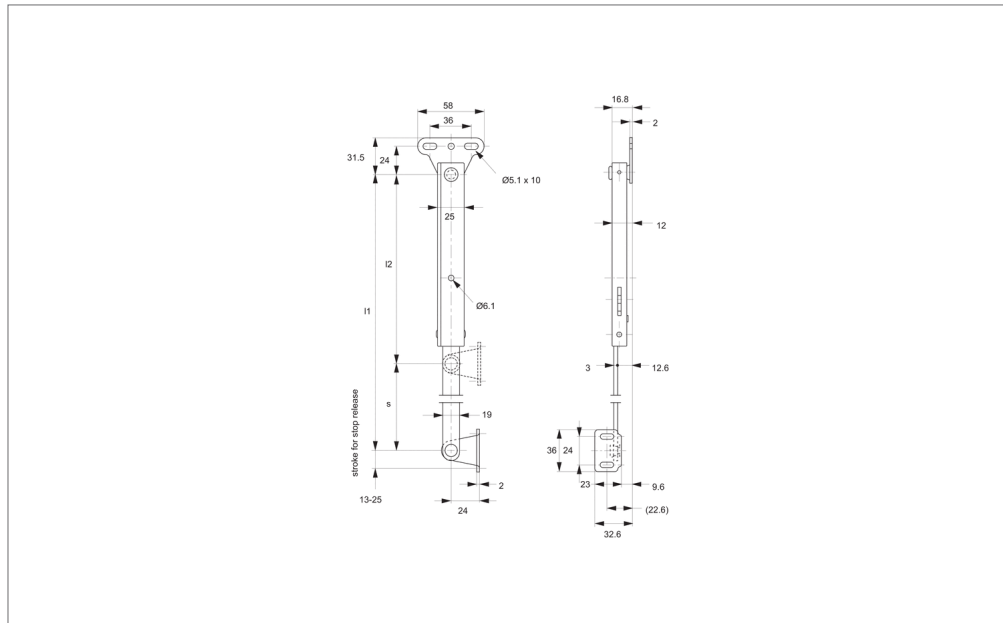
Technical Notes

Universal left or right hand application.

Max. load Kg is per stay. Only one stay required per lid. Stay has positive stop to hold lid in fully open position. For use with piano or butt hinge.

Order No.	Opening angle max.	Stop release stroke r	l_1	l_2	l_3	a	b	c	Load kg max.	Lid height mm	Weight g
20219406	75°	14.5	148	121	129	133	62	195	15	250 - 350	125
20219420	90°	14.5	185	158	166	170	100	270	15	320 - 500	150
20219413	90°	22.0	168	141	149	153	62	215	15	260 - 350	140
20219437	120°	22.0	205	178	186	190	100	290	15	340 - 500	160





EN0550

LID & DOOR STAYS

Material

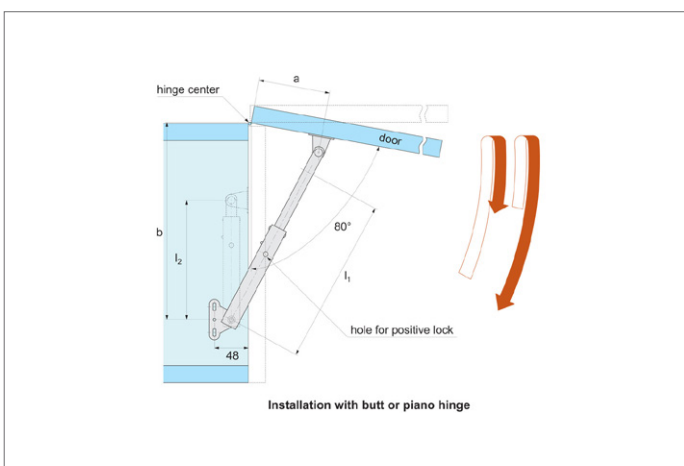
Stainless steel, AISI 304, satin finish.

Max. load is per stay, only one required per lid. Stay has a positive stop to hold lid in fully open position. For use with piano or butt hinge.

Technical Notes

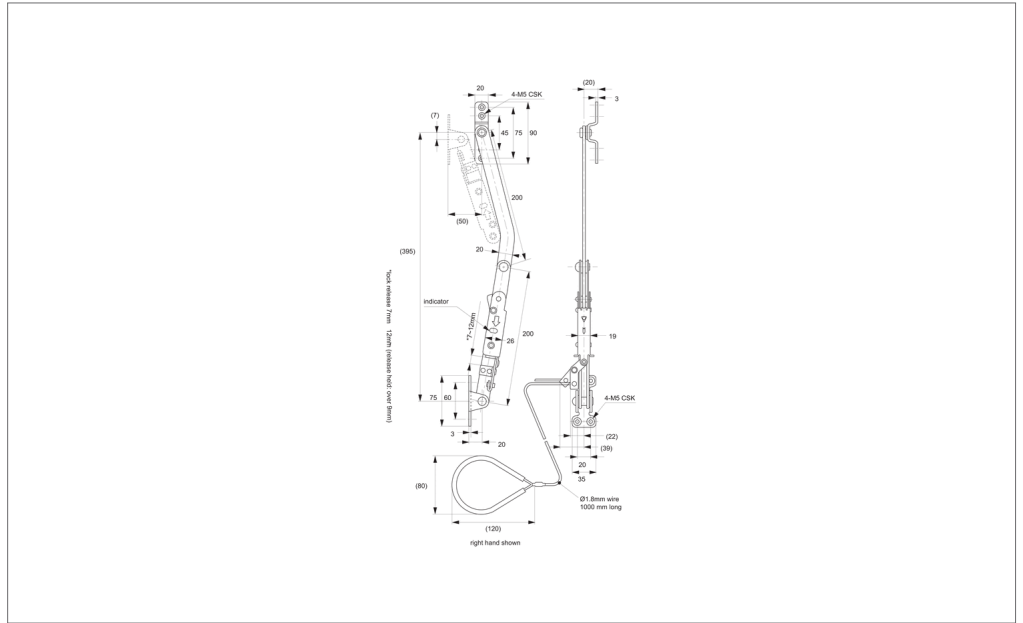
Universal left or right hand application.

Order No.	Opening angle	Stop release stroke r	l_1	l_2	a	b	s	Load N max.
20219451	80° max.	13 - 25	200	163	56	219	45	30
20219444	80°	13 - 25	350	230	128	364	120	25
20219468	80°	13 - 25	500	305	195	510	195	20





EN2200



Material

All parts from stainless steel, AISI 304.

Technical Notes

Suitable for heavy duty horizontal door applications. Right and left versions

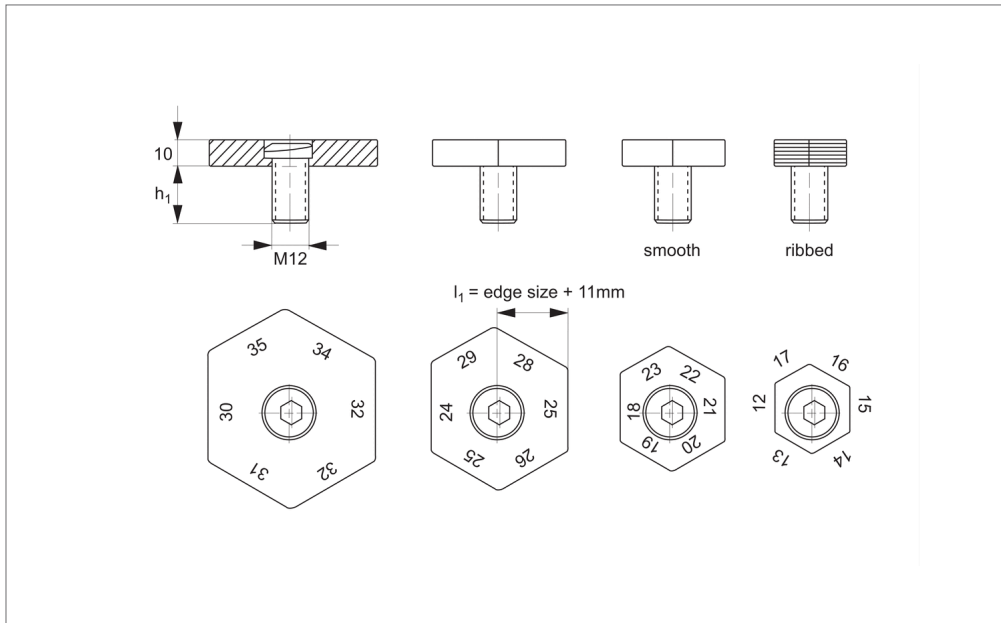
available, with or without lock release wire.

Tips

Locks automatically in open position, can be released via lock release or optional

release wire. Easy to install.

Order No.	Type	Finish	Comp. force kg max.	Tensile force kg max.
20219369	Right	With Release Wire	60	150
20219376	Right	Without Release Wire	60	150
20219383	Left	With Release Wire	60	150
20219390	Left	Without Release Wire	60	150



E1204

Material

Body: steel, hardened and blackened.
Screw: steel, eccentric, heat treated (10,9) and blackened.

Technical Notes

Hexagon clamps actuated by means of an

eccentric screw (provided). Available with either smooth or ribbed faces.

Tips

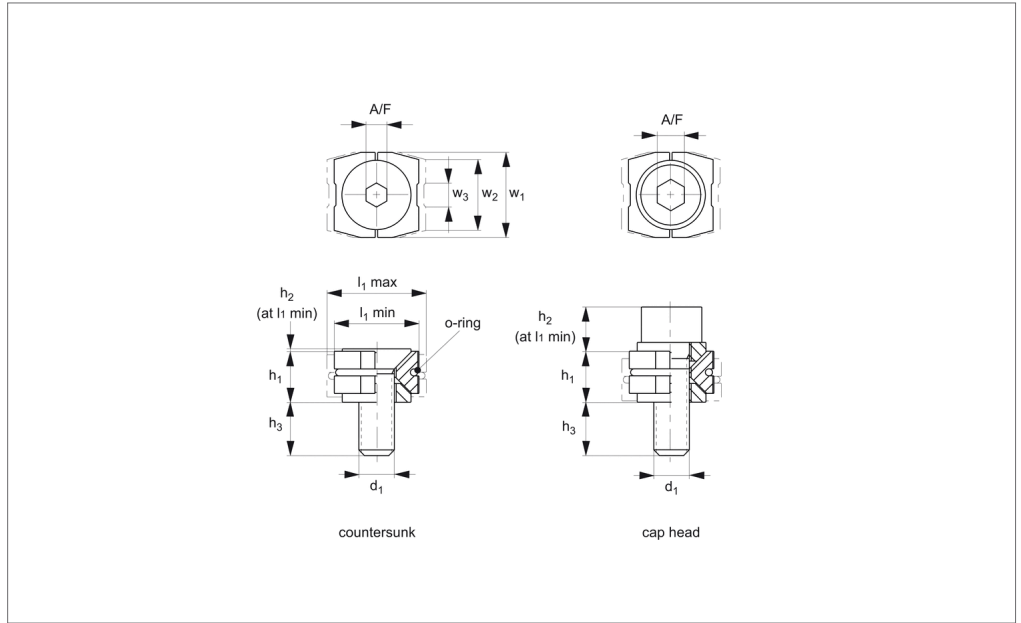
Max. clamping section is 25mm. Each of the clamp's faces increases the distance from the centre line by 1mm, thus work-

pieces of varying sizes can be held using just one clamp and is actuated by a simple rotation of the clamp face.
Reorder screw 20267018.

Order No.	Finish	h_1	l_1	Clamp stroke	Clamping force kN max.	Weight g
20266738	Clamp, smooth	22	12 - 17	2	18	100
20266745	Clamp, smooth	22	18 - 23	2	18	132
20266752	Clamp, smooth	22	24 - 29	2	18	204
20266769	Clamp, smooth	22	30 - 35	2	18	299
20266776	Clamp, ribbed	22	12 - 17	2	18	77
20266783	Clamp, ribbed	22	18 - 23	2	18	132
20266790	Clamp, ribbed	22	24 - 29	2	18	204
20266806	Clamp, ribbed	22	30 - 35	2	18	299



E12454



Material

Jaw: alloy steel, black oxide finish, hardness HRC 33-39.

Washer: alloy steel, black oxide finish.

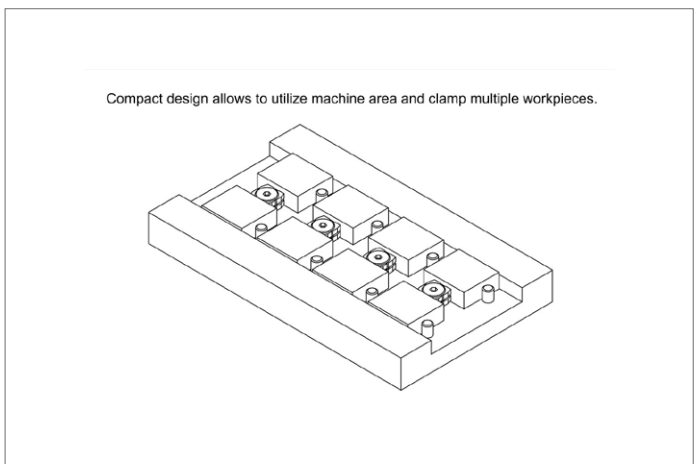
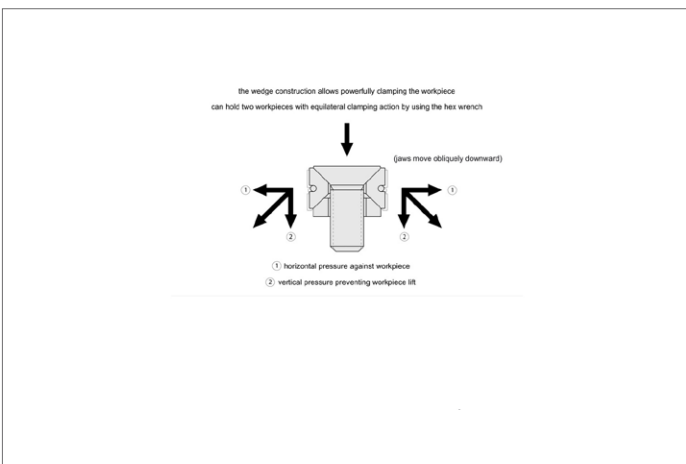
O-ring: fluoro rubber.

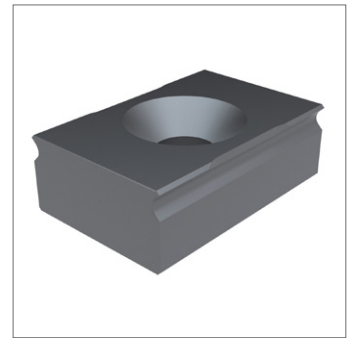
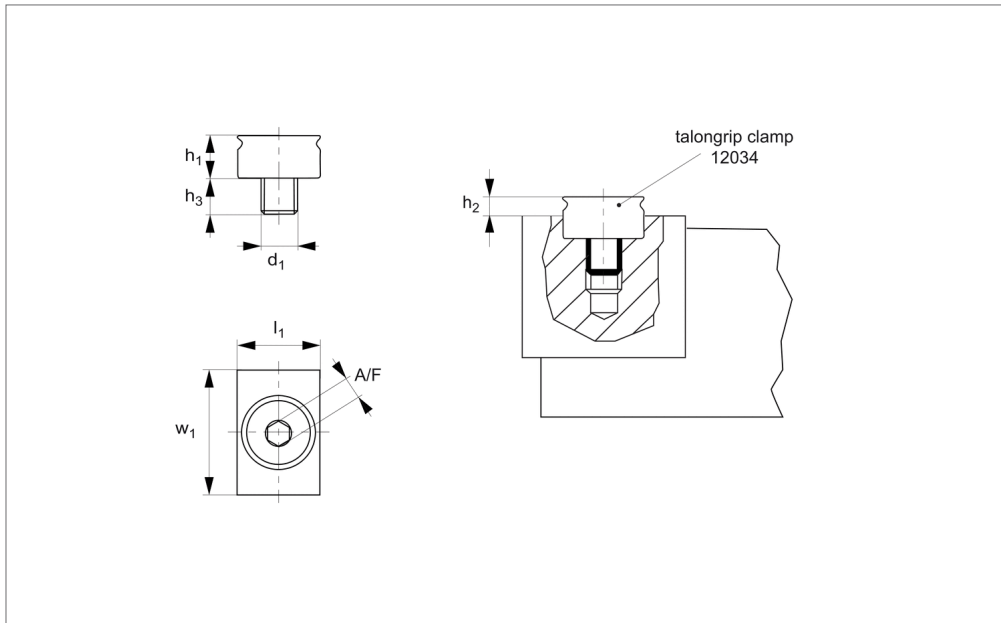
Technical Notes

Compact design for clamping of multiple workpieces. Wedge construction results in powerful clamping and holding of two workpieces with equal clamping force.

Provides both downward and side clamping force.

Order No.	Type	l_1 min.	l_1 max.	h_1 min.	h_1 max.	h_2	h_3	w_1	w_2	w_3	d_1	A/F	Clamping force kN max.	Tightening force Nm max.	Weight g
20265830	Countersunk	12,0	14,0	6,2	7,2	0,3	9,5	12,0	10	3,3	M 5x15	3	2,0	4,3	8
20265847	Countersunk	15,0	17,0	7,5	8,5	0,2	9,3	14,8	12	4,0	M 6x16	4	3,5	7,3	13
20265854	Countersunk	18,5	21,5	9,9	11,4	0,4	11,3	18,4	16	5,3	M 8x20	5	5,0	18,0	27
20265861	Cap Head	12,0	14,0	6,2	7,2	6,2	9,6	12,0	10	3,3	M 5x15	4	3,0	5,4	9
20265878	Cap Head	15,0	17,0	7,5	8,5	7,3	10,2	14,8	12	4,0	M 6x16	5	4,5	9,1	17
20265885	Cap Head	18,5	21,5	9,9	11,4	9,8	14,9	18,4	16	5,3	M 8x20	6	9,0	22,0	30





E12034

Material

Steel, hardened (HRC 52-54).

Technical Notes

Typically used in conjunction with pitbull

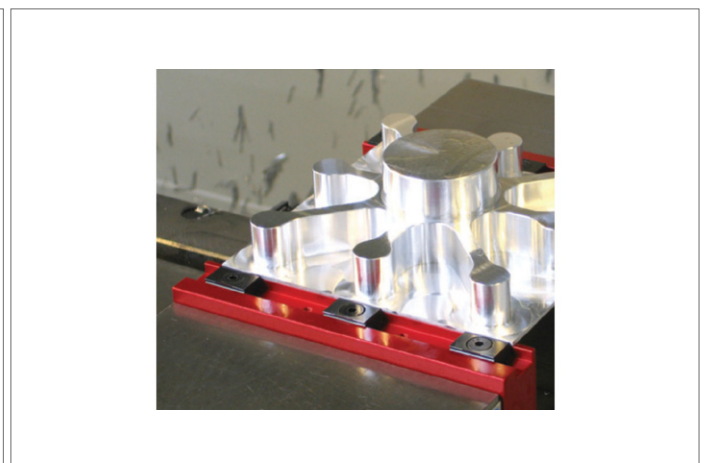
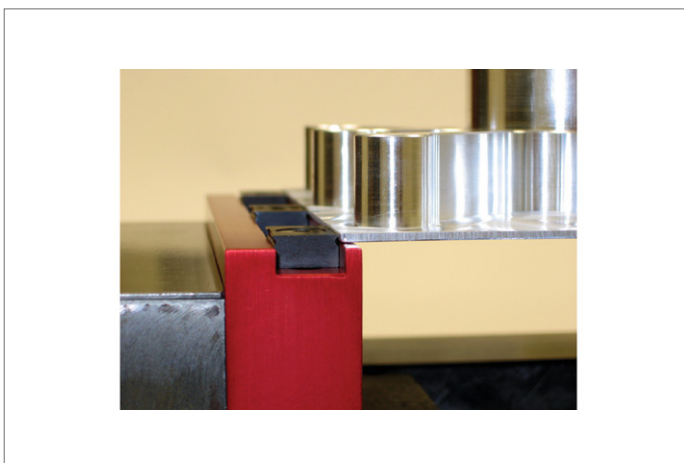
(part no. E12301) or Dynaforce (part no. E12010) clamps.

Allows aggressive clamping on as little as 1,5mm of material.

Tips

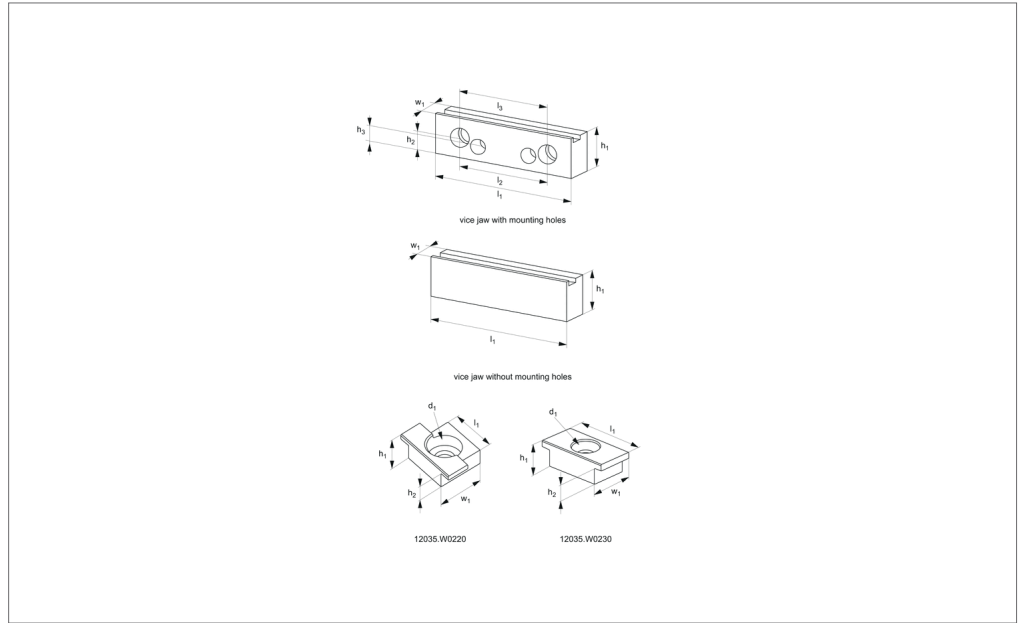
A further option includes an adaptor to suit 100mm and 150mm vices - see part no. E12035.

Order No.	d ₁	Grip height h ₂	h ₁	h ₃	l ₁	w ₁	A/F	Qty/pack	Weight g
20266141	M 5	1,5 to 1,9	6.4	6.0	12.7	19.1	3	2	12
20267438	M 5	1,5 to 3,0	7.9	8.1	19.1	19.1	3	2	22
20267445	M 5	1,5 to 3,0	7.9	8.1	25.4	19.1	3	2	30
20267452	M 8	1,5 to 5,6	12.7	6.0	25.4	25.4	5	1	37





E12035



Material

Steel, heat-treated.

Technical Notes

The vice jaws for the Talongrip clamps increase the functionality of your 100 and 150mm vices (4" or 6").

This is a simple bolt-on system that allows

you to perform aggressive machining operations whilst clamping on as little as 1,5mm.

Ideal for small batch sizes or when building a fixture is not economical.

Tips

Supplied with one jawstop (either part no.

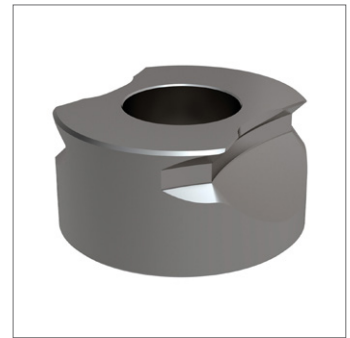
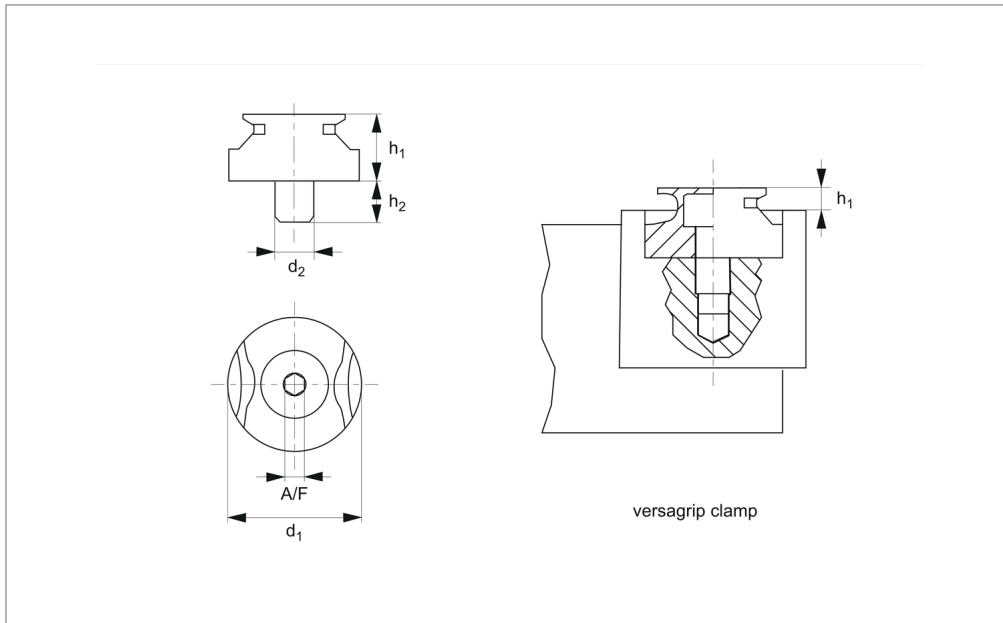
20267520 or 20267537 - see table) and for individual Talongrips (either part no. 20266141 or 20267438).

Important Notes

Set includes a pair of vice jaws, four talongrip clamps and one stop (part no.20267520).

Order No.	For vice size	Type	Jaw type	Vice jaw	Vice jaw Stop	Talongrip clamps	Weight g
20267469	4"	Vice jaw set	With holes	2 Off	1 pc 12035.W0220	4 pc 12034.W0050	1370
20267476	4"/6"	Vice jaw set	With holes	2 Off	1 pc 12035.W0220	4 pc 12034.W0050	2290
20267483	6"	Vice jaw set	With holes	2 Off	1 pc 12035.W0220	4 pc 12034.W0050	3220
20265403	6"/8"	Vice jaw set	With holes	2 Off	1 pc 12035.W0230	4 pc 12034.W0075	5570
20267490	-	Vice jaw set	W/o holes	2 Off	1 pc 12035.W0220	4 pc 12034.W0050	1490
20267506	-	Vice jaw set	W/o holes	2 Off	1 pc 12035.W0220	4 pc 12034.W0050	2570
20267513	-	Vice jaw set	W/o holes	2 Off	1 pc 12035.W0230	4 pc 12034.W0050	3420
20267520	-	Jaw stop small	-	-	-	-	6
20267537	-	Jaw stop large	-	-	-	-	10

Order No.	d ₁	h ₁	h ₂	h ₃	l ₁	l ₂	l ₃	w ₁
20267469	-	37.6	-	17.5	100	-	63.5	25.4
20267476	-	43.9	23.9	17.5	150	98.6	63.5	25.4
20267483	-	43.9	-	23.9	200	-	98.6	25.4
20265403	-	62.2	30.9	23.9	200	120.7	98.3	31.8
20267490	-	37.6	-	-	100	-	-	25.4
20267506	-	43.9	-	-	150	-	-	25.4
20267513	-	43.9	-	-	200	-	-	25.4
20267520	M 5	6.4	5.0	-	19	-	-	12.7
20267537	M 5	7.9	5.7	-	19	-	-	12.7



E12036.1

VICE CLAMPING

Material

Steel, hardened (HRC 52-54).

Technical Notes

The hardened grip has penetrating teeth designed to bite into the workpiece

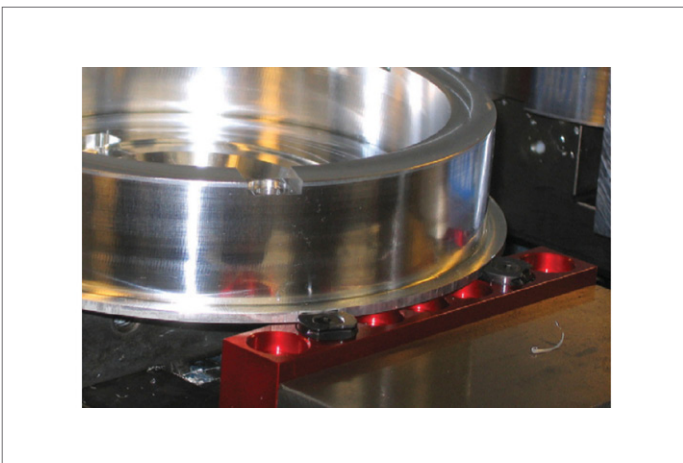
preventing lateral and its horizontal movement.

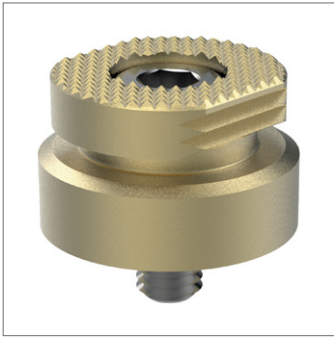
These grips will even hold flame cut parts and parts with negative drafts.

Tips

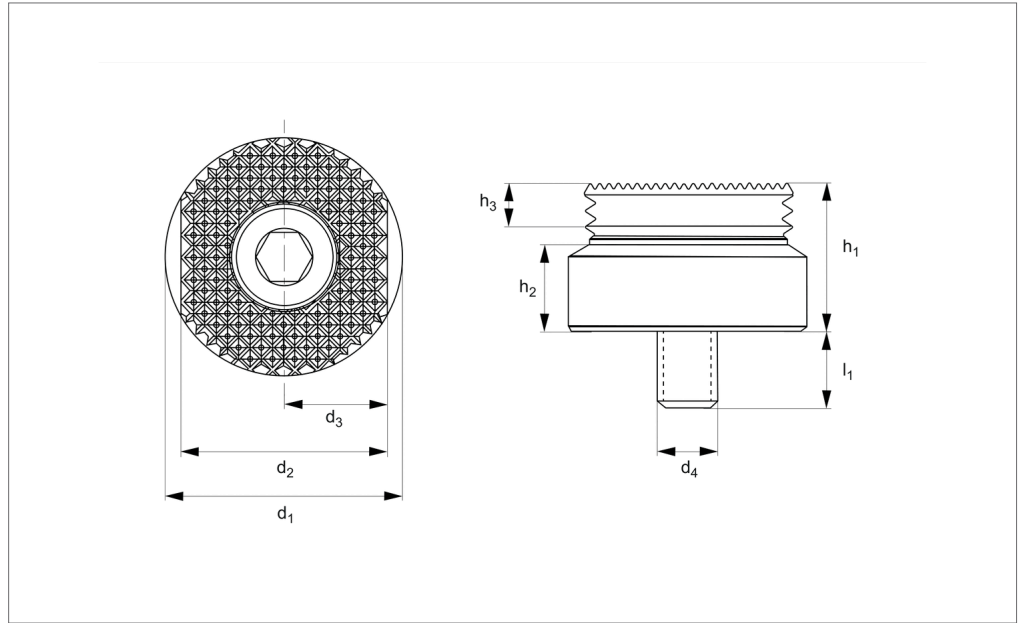
A further option includes an adaptor to suit 100mm and 150mm vices - see part no. E12037.

Order No.	h_1	h_2	d_1	d_2	Grip height h_1	A/F	Qty/pack	Weight g
20267551	9.5	5.9	19.1	M5	1,5 to 3,0	4	2	18





E12036.2



Material

Technical Notes

Designed for those aggressive operations on harder materials while providing the versatility to hold just about any shape.

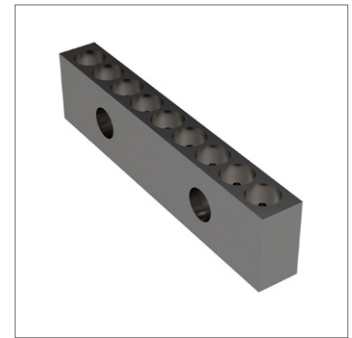
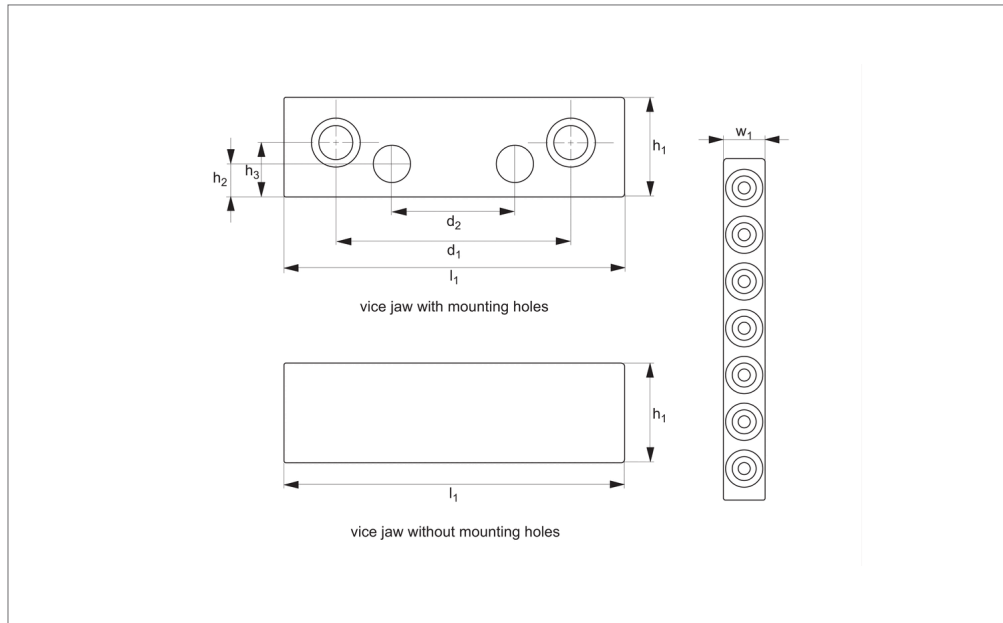
Standard gripping height (.200") or elevated workpiece for cutter clearance around jaws by resting part on the original Versagrip gripper or custom made pucks in the Versa pockets. Rotatable, flat, serrated

top face for additional holding force in horizontal pockets in jaws or hard stops.

Tips

Max. vice torque per pair of grips - 6" vice: 35-40 Lb/Fts (47,5-54,2 Nm.).

Order No.	h_1	h_2	h_3	d_1	d_2	d_3	d_4	l_1	Qty/pack	Weight g
20266257	11.94	6.73	5.21	19,00-19,05	16.61	8.31	M 5	6.05	2	18



E12037

VICE CLAMPING

Material

Steel, hardened (52-54 HRC).

Technical Notes

The Versagrip jaws increase the functionality of your 100 and 150mm vices. This is a simple bolt-on system that allows you to perform aggressive machining operations

whilst clamping on as little as 1,5mm for irregular shaped parts.

Ideal for small batch sizes or when building a fixture is not economical.

Tips

Has penetrating teeth designed to bite into your workpiece to prevent lateral and hori-

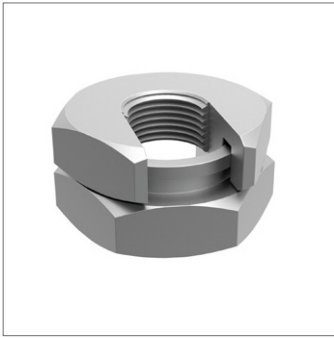
zontal movement. They will hold flame cut parts, castings and even parts with negative draft.

Important Notes

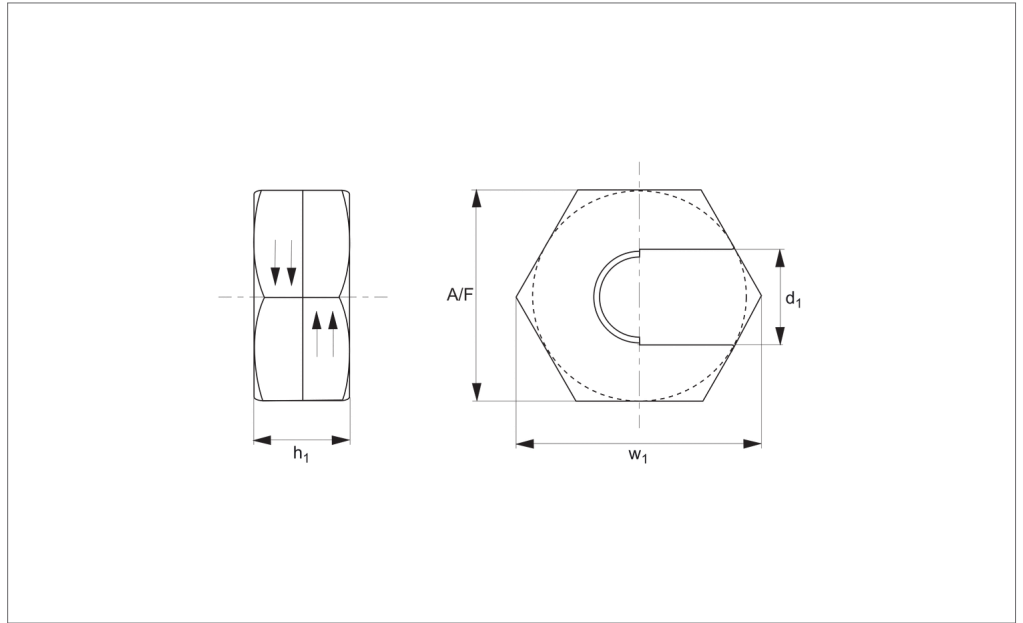
Set includes a pair of vice jaws, and four Versagrip clamps, part no. 20267551.

Order No.	For vice size	Type	Jaw type	Vice jaw	Versagrip clamps	d ₁	d ₂	h ₁	h ₂	h ₃	l ₁	w ₁	Number of holes	Weight g
20267568	4"/6"	Vice jaw set	With holes	2 off	4 pc 12036. W0175	98,55	63,5	47,75	23,87	17,47	150	25,4	7	2460
20267575	6"	Vice jaw set	With holes	2 off	4 pc 12036. W0175	98,55		47,75	23,87		200	25,4	9	3470
20267582		Vice jaw set	W/o holes	2 off	4 pc 12036. W0175			47,75			150	25,4	7	2780
20267599		Vice jaw set	W/o holes	2 off	4 pc 12036. W0175			47,75			200	25,4	9	3640





E24520



Material

Steel, strength class 6, hardened and zinc plated.
Coarse thread.

Technical Notes

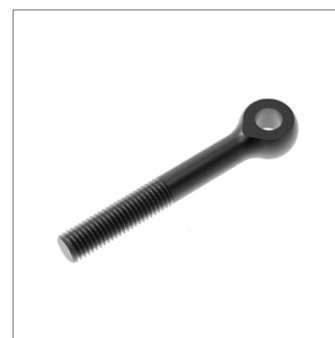
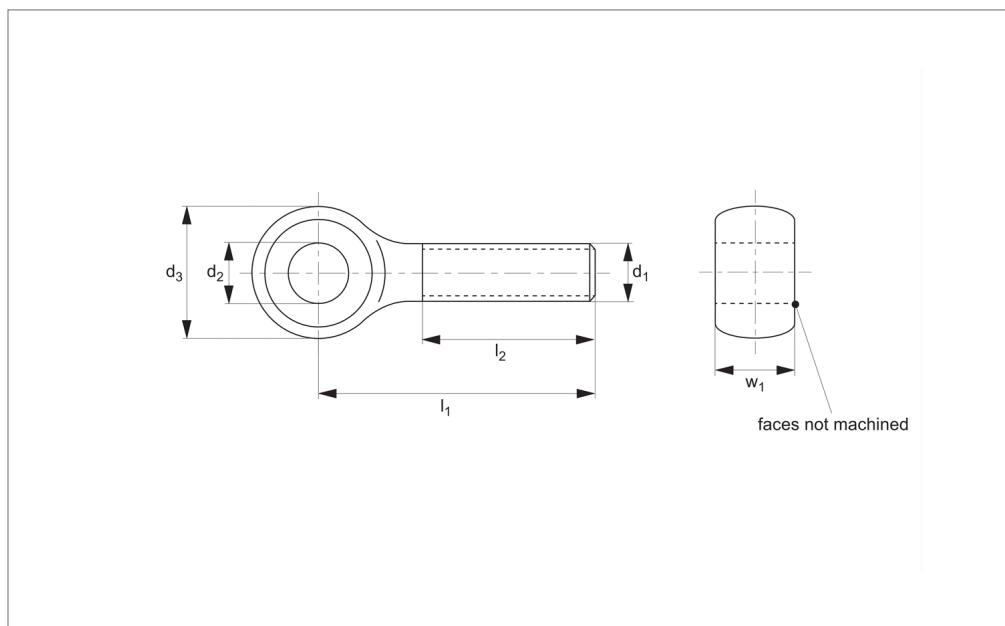
Avoid time consuming winding & unwin-

ding on long threads and overcome issues of damaging threads. The slip-on lock nut is easy to position at any point on a thread. Just open the lock nut, position where required, twist the lock nut closed and tighten with a spanner. Still with high load

forces. Safety factor of 2.5 times in load recommendations. Tested from 5 to 2000 Hz over a 10 minute period with no evidence of loosening.

Order No.	d_1	w_1	h_1	A/F	Load kN max.	Torque to Nm max.	Weight g
20252694	M 6	18.2	9.5	16	2.9	8-11	9
20252700	M 8	22.0	9.5	19	-	18-25	15
20252717	M10	25.7	12.4	22	8.9	26-34	25
20252724	M12	31.1	15.9	27	17.8	68-81	45
20252656	M14	31.1	15.9	27	17.8	68-81	45
20252731	M16	38.5	16.5	33	22.2	136-271	71
20252663	M18	38.5	16.5	33	22.2	136-271	71
20252748	M20	47.7	20.3	41	35.6	244-271	141
20252670	M22	58.6	25.4	51	-	-	259
20252687	M24	58.6	25.4	51	-	-	249





E18822

Material

Steel, heat-treated and tempered, quality 8.8, black.

Technical Notes

DIN 444.

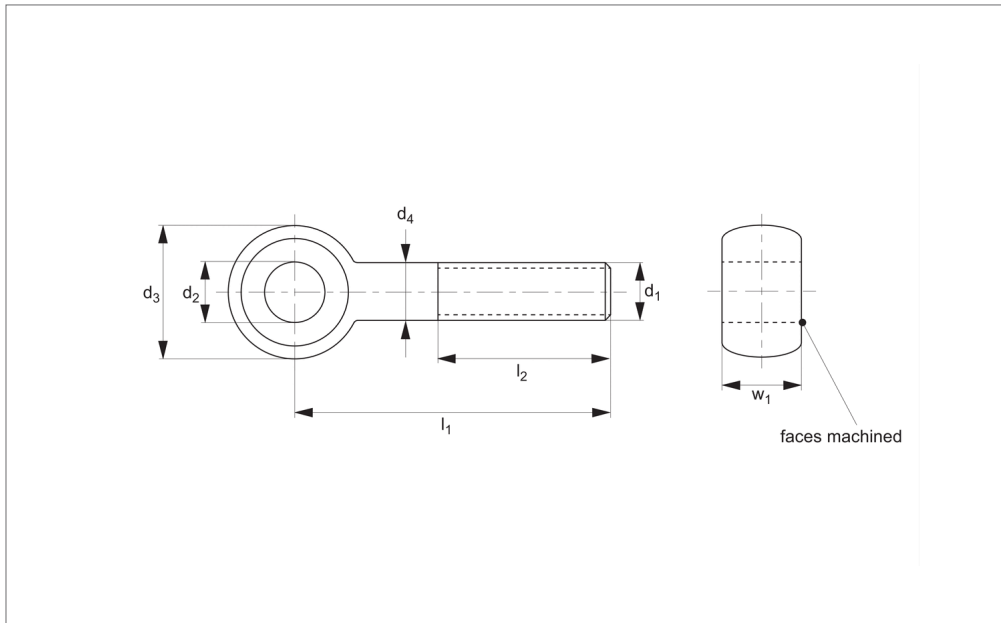
Important Notes

These parts have a bore d_2 standard tolerance H9 (faces are not machined).

For similar parts to DIN 444 with high tolerance see our part E18820.

Order No.	d_1	l_1	d_2 tol. h9	d_3	l_2	w_1	Weight g
20198053	M 5	25	5	12	16	6	5.6
20198060	M 5	30	5	12	16	6	6.4
20198077	M 5	35	5	12	16	6	7.1
20198084	M 5	40	5	12	16	6	7.9
20198091	M 6	30	6	14	18	7	9.5
20198107	M 6	40	6	14	18	7	12.0
20198114	M 6	50	6	14	18	7	14.0
20198121	M 6	60	6	14	18	7	16.0
20198138	M 6	80	6	14	18	7	20.0
20198145	M 8	40	8	18	22	9	22.0
20198152	M 8	50	8	18	22	9	25.0
20198169	M 8	60	8	18	22	9	29.0
20198176	M 8	80	8	18	22	9	37.0
20198183	M 8	100	8	18	22	9	44.0
20198435	M10	50	10	20	26	12	37.0
20198190	M10	60	10	20	26	12	43.0
20198206	M10	75	10	20	26	12	52.0
20198213	M10	100	10	20	26	12	67.0
20198220	M10	120	10	20	26	12	72.0
20198237	M12	50	12	25	30	14	59.0
20198244	M12	60	12	25	30	14	68.0
20198251	M12	80	12	25	30	14	85.0
20198268	M12	100	12	25	30	14	102.0
20198275	M12	120	12	25	30	14	119.0
20198282	M16	60	16	32	38	17	128.0
20198299	M16	80	16	32	38	17	158.0
20198305	M16	100	16	32	38	17	190.0
20198312	M16	120	16	32	38	17	220.0
20198329	M16	150	16	32	44	17	265.0
20198336	M20	100	18	40	46	22	329.0
20198343	M20	120	18	40	46	22	371.0
20198350	M20	160	18	40	52	22	466.0

Order No.	d ₁	l ₁	d ₂ tol. h9	d ₃	l ₂	w ₁	Weight g
20198367	M20	200	18	40	52	22	562.0
20198374	M24	100	22	45	54	25	442.0
20198381	M24	120	22	45	54	25	512.0
20198398	M24	160	22	45	60	25	649.0
20198404	M24	200	22	45	60	25	787.0



E18830

SWING BOLTS

Material

Turned, thread rolled. Matt shot blasted.

Technical Notes

Produced to DIN 444.

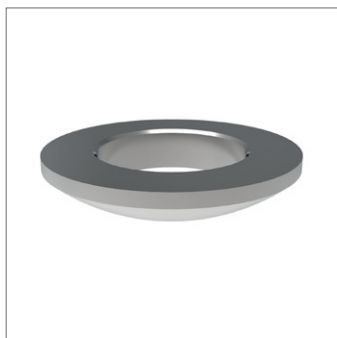
Stainless steel 1.4305 (AISI 304).

Important Notes

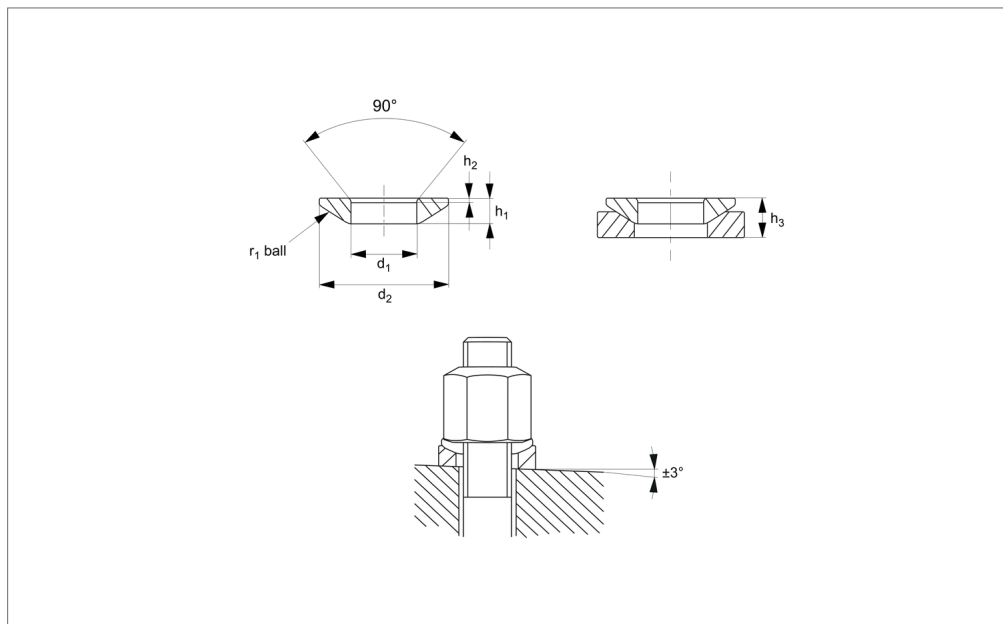
These parts offer a high precision bore d_2 to tolerance H7, with faces w_1 machined flat.

For similar DIN 444 swing bolts to a standard tolerance see our part E18832.

Order No.	d_1	l_1	d_2 tol. H7	d_3	l_2	d_4	w_1 -0.15	Weight g
20198411	M 5	50	5	12	32	5	6	10
20198428	M 5	75	5	12	32	5	6	20
20199463	M 6	50	6	14	32	6	7	14
20199470	M 6	75	6	14	32	6	7	19
20199487	M 8	50	8	18	32	8	9	26
20199494	M 8	75	8	18	32	8	9	36
20199500	M10	50	10	20	40	10	12	38
20199517	M10	75	10	20	40	10	12	53
20199524	M10	100	10	20	40	10	12	60
20199531	M12	75	12	25	40	12	14	83
20199548	M12	100	12	25	40	12	14	105
20199555	M12	130	12	25	40	12	14	132
20199562	M16	75	16	32	50	16	17	146
20199579	M16	100	16	32	50	16	17	183
20199586	M16	130	16	32	50	16	17	220



E25100



Material

Steel, case-hardened.

Technical Notes

Produced to DIN 6319C.

Used with dished washers no. E25400 (type

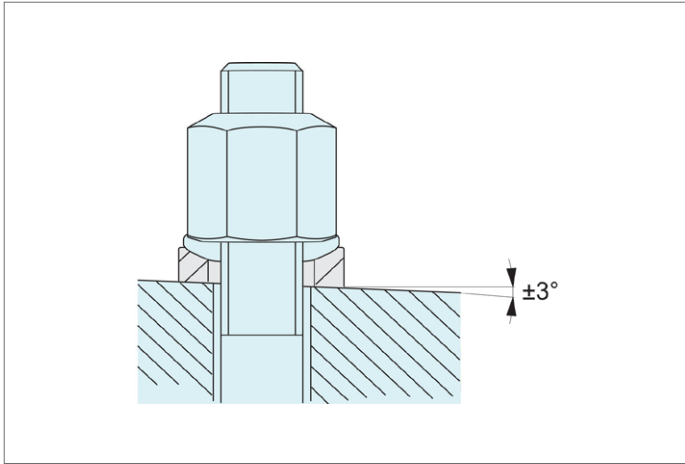
D) and no. E25700 (type G). Dimensions marked * not available in DIN standard.

Tips

When clamping over holes or slots which do not provide full surface contact to the

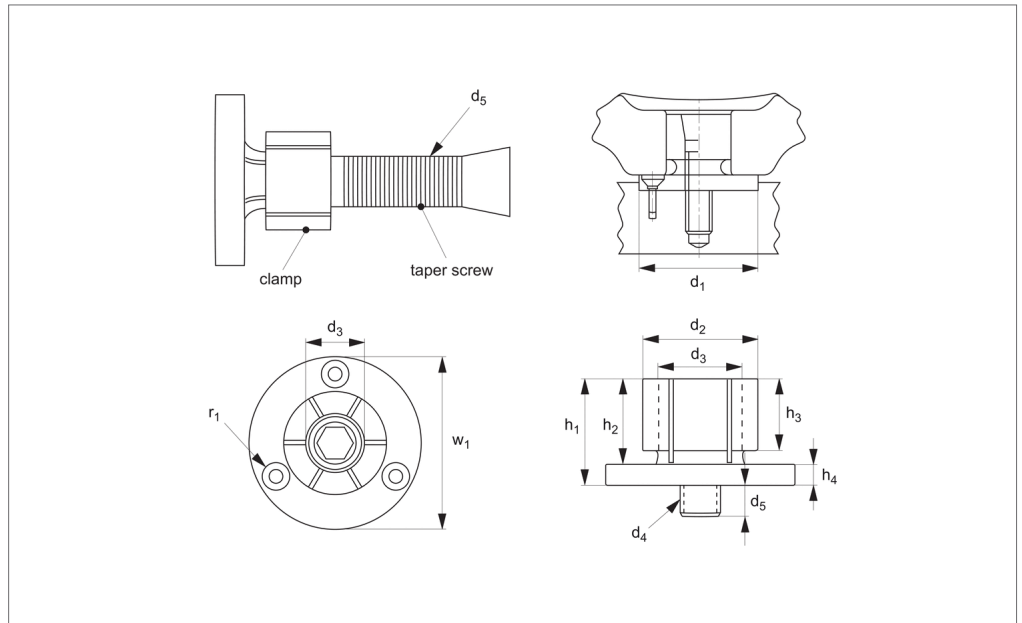
washer, only use no. E25100 in combination with washer no. E25700 (type G). Do not use in combination with no. E25400 (type D) in such situations.

Order No.	For thread	For thread inch	d ₁ tol. H13	d ₂	h ₁	h ₂	r ₁	Load capacity for static load kN max.	With 25400 h ₃	With 25700 h ₃	Weight g
20267216	M 6	1/4"	6,4	12	2,3	0,7	9,0	9	4,2	5,4	1
20267223	M 8	5/16"	8,4	17	3,2	0,6	12,0	17	5,6	7,1	3
20267230	M10	3/8"	10,5	21	4,0	0,8	15,0	26	6,5	7,3	5
20267247	M12	1/2"	13,0	24	4,6	1,1	17,0	38	8,0	9,0	8
20267254	M14		15,0	28	5,0	1,4	22,0	53	8,5	9,5	12
20267261	M16	5/8"	17,0	30	5,3	1,3	22,0	73	9,6	10,4	13
20267278	M20	3/4"	21,0	36	6,3	2,0	27,0	117	11,7	12,2	23
20266011	M22	7/8"	23,0*	40	7,6	2,5	29,5	146	13,5		34
20267285	M24	7/8"	25,0	44	8,2	2,4	32,0	168	15,2	15,7	45
20265755	M27	1 1/16"	28,0*	50	10,2	3,3	36,0	221	17,0		74
20267292	M30	1-1/8", 1-3/16"	31,0	56	11,2	3,6	41,0	269	19,2	19,7	101
20266028	M33		34,0*	62	13,0	4,4	45,0	326	21,8		150
20267308	M36	1-1/4", 1-3/8"	37,0	68	14,0	4,6	50,0	394	23,5		190
20266035	M39		40,0*	75	16,0	5,6	54,0	460	26,8		218
20267315	M42	1-1/2"	43,0	78	17,0	6,5	58,0	542	29,0		310
20267322	M48	1-3/4"	50,0	92	21,0	8,0	67,0	714	35,5		540
20266042	M52		54,0*	96	22,0	9,3	72,0	832	38,3		620
20267339	M56	2"	58,0*	103	23,0	9,8	79,0	960	39,3		760
20266059	M60		62,0*	112	25,0	11,0	86,0	1122	43,6		990
20267346	M64	2-1/4"	66,0*	120	27,0	12,0	93,0	1269	46,6		1220





E12051



Material

Body: mild steel.

Tapered screw: steel, heat-treated (coated to prevent seizing).

20267636: aluminium (7075-T6) .

Technical Notes

For holding parts on an inside diameter, for high density machining on vertical or horizontal mills.

Diameter can range from 4,1mm to a maximum of 250mm!

This product can also be used as an expanding mandrel on a lathe.

Tighten with hex key or hydraulic pull cylinders.

The flange diameter of the base is held to a close tolerance for precision location in a machined pocket.

Tips

d_3 is the minimum diameter the „ d_2 “ dimension can be machined or turned down to.

Mounting screws included.

Important Notes

Installation for clamps 20267605 to 20266875.

1. Expand clamp 0,1mm over the relaxed diameter and machine to fit workpiece bore (on lathe or mill).

If using the clamp on a lathe then use the nut provided to tighten the taper screw. This nut is only used to machine the clamp.

2. Machine a pocket in the fixture for the close tolerance „ d_1 “ dimension, and drill and tap mounting holes „ d_4 “.

3. Drill and tap a hole „ d_5 “ in the centre of

the pocket for the tapered screw.

4. A recessed dowel pin can be installed into the flange for extra rigidity if required.

5. Range of expansion 0,13 - 0,64mm depending on clamp size.

Installation for clamps 20266882 to 20267636.

1. Insert machining locking ring (provided), tighten taper screw and machine clamp to required bore size.

2. Release taper screw and remove locking ring prior to any machining of workpieces. Note: 20267629 and 20267636 have four mounting holes on PCD as dimension „ d_4 “.

Order No.	h_1	h_2	h_3	d_1 +0.000 -0.050	Weight g
20267605	10.7	7.6	6.1	20.0	23
20266813	21.8	16.0	15.0	29.7	59
20266820	24.9	19.0	15.0	31.5	109
20266837	24.9	19.0	15.0	37.5	204
20266844	28.6	22.2	17.5	50.0	213
20266851	31.8	25.4	20.6	56.0	317
20266868	39.6	31.8	27.0	69.5	593
20266875	39.6	31.8	27.0	75.5	775
20266882	45.5	37.6	32.3	107.5	1826
20267612	45.5	37.6	32.3	132.9	2954
20267629	45.5	37.6	32.3	132.9	6795
20267636	45.5	37.6	32.3	152.4	5436

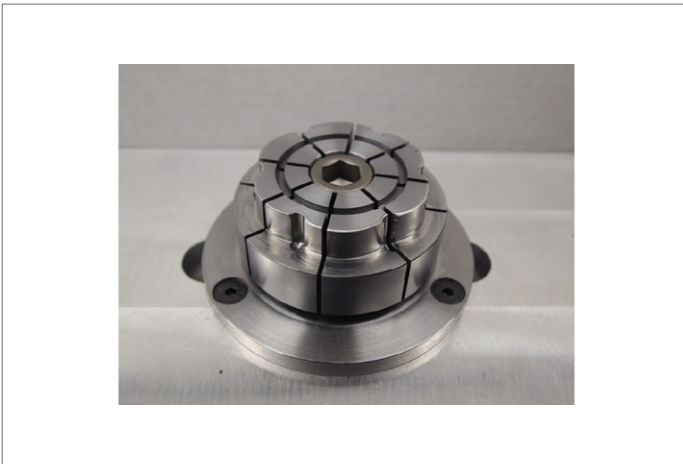
Order No.	d_3 min.	d_4	d_5	Stock d_2	h_4	r_1 on PCD	Torque to Nm max.	Holding force kN	Expansion from relaxed dia. max.
20267605	4.1	M 2	4.1	7.4	3.0	M 2 at 13,7	0.7	1.1	0.1

ID Xpansion Clamps - Machinable

for clamping internal bores

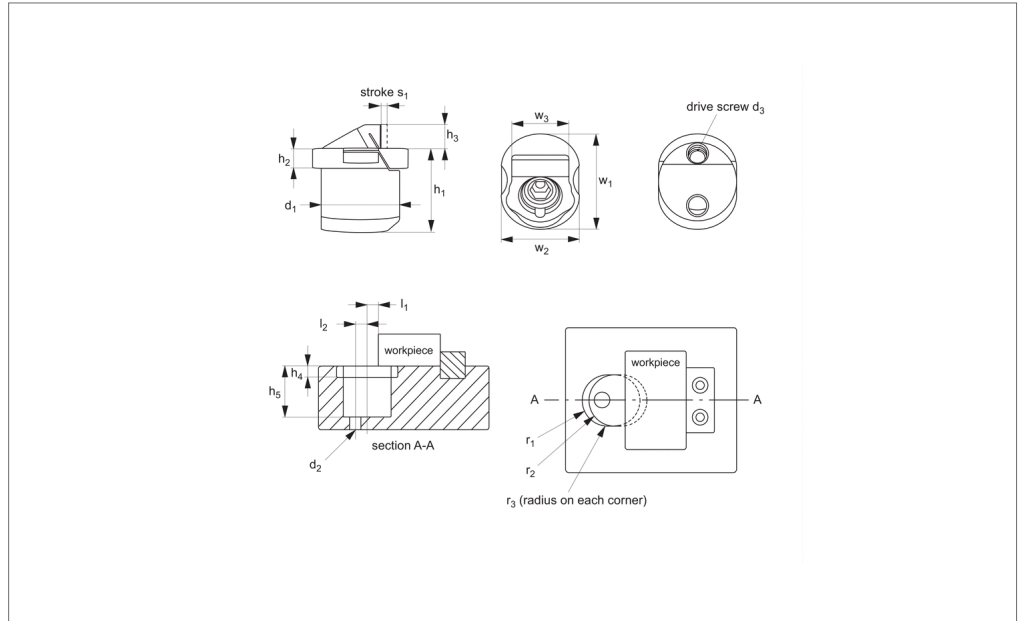
Bore Clamping

Order No.	d ₃ min.	d ₄	d ₅	Stock d ₂	h ₄	r ₁ on PCD	Torque to Nm max.	Holding force kN	Expansion from relaxed dia. max.
20266813	7.1	M 4	7.2	12.4	5.9	M 3 at 21,0	5.0	4.2	0.3
20266820	12.2	M 6	11.2	14.2	5.9	M 3 at 23,1	17.0	8.4	0.3
20266837	13.5	M 8	13.2	20.0	5.9	M 3 at 29,0	34.0	11.1	0.4
20266844	18.0	M10	16.3	27.0	6.4	M 4 at 39,4	60.0	20.0	0.4
20266851	23.0	M12	20.3	35.3	6.4	M 4 at 45,5	150.0	26.2	0.4
20266868	29.3	M16	21.4	42.0	7.9	M 5 at 55,9	280.0	44.5	0.4
20266875	29.3	M16	21.4	51.5	7.9	M 5 at 63,9	280.0	44.5	0.4
20266882	29.3	M16	19.3	77.7	7.9	M 6 at 92,6	280.0	44.5	0.4
20267612	29.3	M16	19.3	103.0	7.9	M 6 at 118,1	280.0	44.5	0.4
20267629	29.3	M16	19.3	175.0	7.9	M 6 at 118,1	280.0	44.5	0.5
20267636	29.3	M16	19.3	250.2	7.9	M 6 at 133,4	170.0	26.0	1.0





E12010



Material

Stainless steel (17-4 PH, AISI 630).
Smooth faced jaws (34 HRC), serrated jaws (44 HRC).

Technical Notes

Very low profile, compact design, strong clamping. With smooth or serrated faces. The clamp jaw slides on an angle for positive downhold force - the down force is approx. 25% of the holding force.

The support surface of the clamp is wire-cut to ensure accurate positioning.

Tips

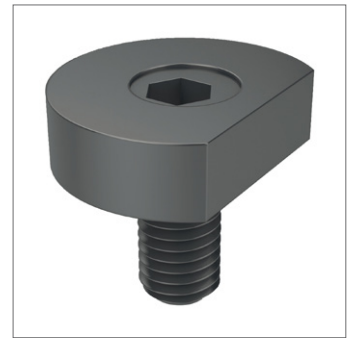
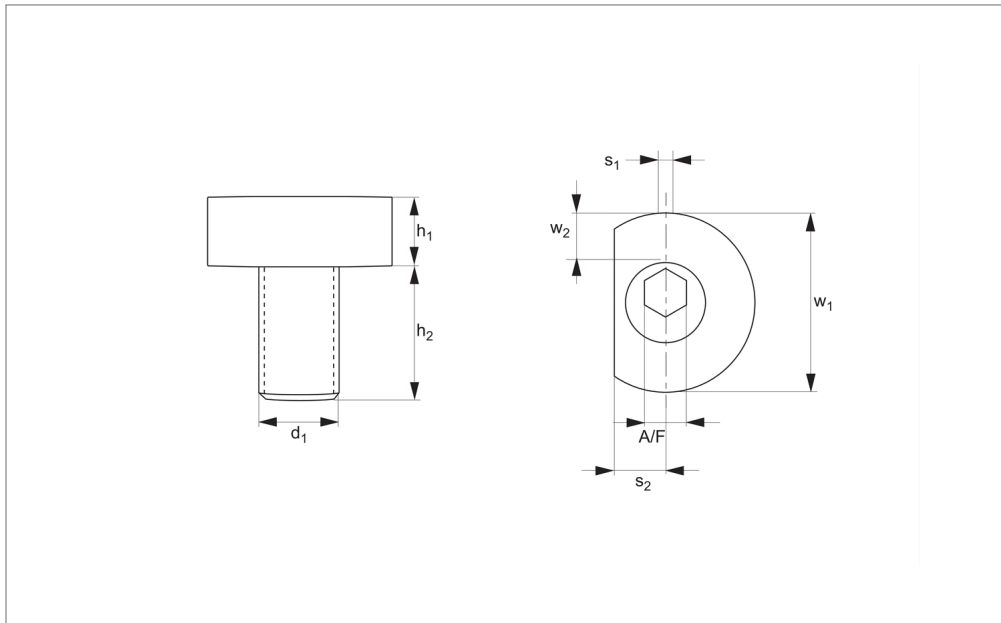
The support surface of the clamp can be installed flush with the fixture plate or raised to allow through drilling. Often used in conjunction with our Talongrips, part no. E12034.

Important Notes

1. Bore installation hole d_1 , with a centre-line at distance l_1 (tol. M8) from edge of workpiece.
2. Drill and tap „ d_2 “ to mount the clamp in the pocket.
3. Machine counterbore „ h_4 “ if recessing the clamp into the fixture.
4. Provide a back stop to locate the part.

Order No.	Jaw type	d_1	d_2	Drive screw d_3	h_1	h_2	h_3 min.	h_3 opt.	h_3 max.	h_4	h_5 +0.1 -0.1	l_1 +0.1 -0.1	l_2	r_1 +0.1 -0.0	Weight g
20266486	Smooth	20	M 5	M 6x12	19.0	4.5	3.3	5.0	6.8	4.5	20	4.9	5.0	25	54
20338190	Serrated	20	M 5	M 6x12	19.0	4.5	3.3	5.0	6.8	4.5	20	4.9	5.0	25	54
20266509	Smooth	25	M 6	M 8x16	24.0	5.0	4.5	6.5	8.3	5.0	25	5.6	6.0	30	100
20266516	Serrated	25	M 6	M 8x16	24.0	5.0	4.5	6.5	8.3	5.0	25	5.6	6.0	30	100
20266523	Smooth	30	M 8	M10x18	29.0	7.0	4.5	7.5	10.8	7.0	30	7.1	7.5	38	159
20266530	Serrated	30	M 8	M10x18	29.0	7.0	4.5	7.5	10.8	7.0	30	7.1	7.5	38	159

Order No.	r_2 +0.1 -0.0	R_3	Stroke s_1	w_1	w_2	w_3	Torque to Nm max.	Key size A/F	Holding force kN
20266486	20	6.0	2.0	24.9	19.9	13.5	10	5	8.8
20338190	20	6.0	2.0	24.9	19.9	13.5	10	5	8.8
20266509	25	6.5	2.2	29.9	24.9	15.0	24	6	11.5
20266516	25	6.5	2.2	29.9	24.9	15.0	24	6	11.5
20266523	30	8.0	3.8	37.9	29.9	20.0	42	8	14.2
20266530	30	8.0	3.8	37.9	29.9	20.0	42	8	14.2



E12020

LOW PROFILE SIDE CLAMPING

Material

Steel, mild.

Technical Notes

Used to machine and hold irregular or round parts.

Dimension „w₂“ is the amount of machinable stock. Dimension „s₂“ is the distance to drill and tap hole from edge of workpiece to use flat face.

Tips

Suitable for holding flat, round or irregular shaped workpieces, the mild steel washer

can easily be machined to match the profile of a component.

Supplied with cam screws, and one machining screw to hold clamp during machining of clamp face to fit profile of the component.

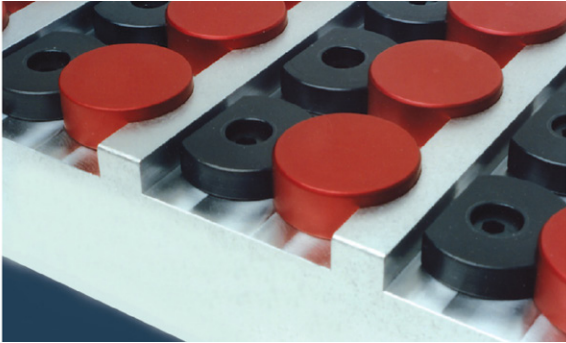
Important Notes

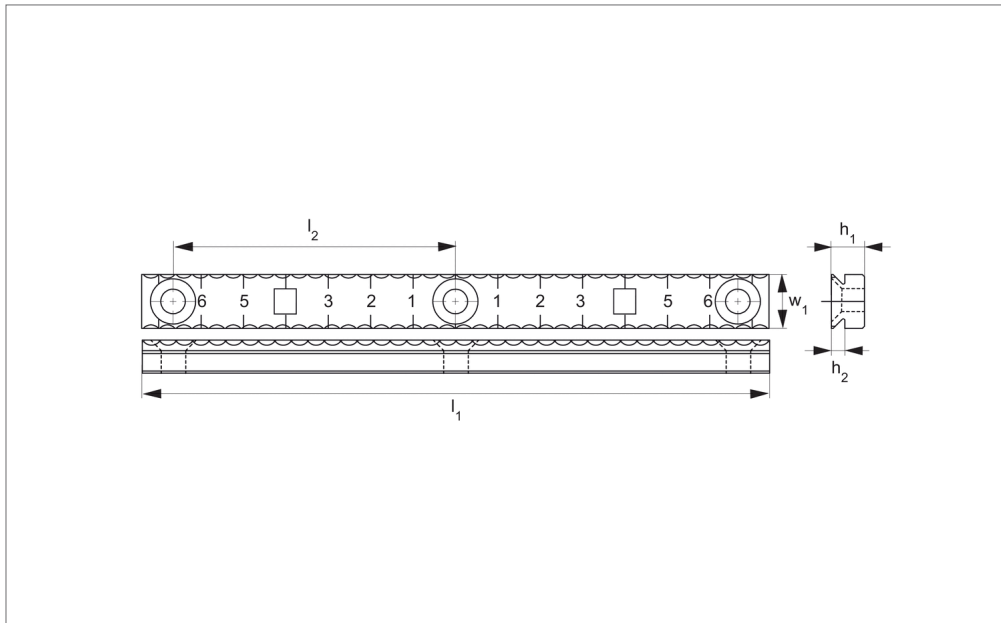
1. Drill and tap hole in required location, refer to dimension „s₂“ if using the clamp flat face.
2. Clear drill 1,5mm deep.
3. Using the special machining screw

supplied (identifiable by NOT having a cam action), insert and tighten the steel washer.

4. Machine the washer to conform with profile of the workpiece.
5. Exchange the machining screw for a cam screw, load the component and clamp with cam screw.
6. CAUTION: Never assume clamp is tight, always check the tightened clamp prior to machining.

Order No.	d ₁	h ₁	h ₂	Clamping force kN max.	Stroke s ₁	Stroke s ₂	w ₁	w ₂	A/F	Torque to Nm max.	Qty/pack	Weight g
20266547	M 6	6.4	11.9	3.4	1.0	7.8	24.9	6.4	4	8.5	4	100
20266554	M10	8.9	18.0	8.9	1.5	10.2	31.2	7.0	7	28.0	4	236
20266561	M12	11.4	22.9	17.8	2.0	12.7	37.6	7.6	8	88.0	4	435
20266578	M16	14.0	28.6	26.7	2.5	15.0	43.9	8.9	12	135.0	4	748





E12030

Material

Steel (S7), heat-treated, black oxide.

Technical Notes

Installation instructions:

1. Set grip in Talongrip jaw, install with screws provided. For fixture, machine slot 0,025mm-0,075mm larger than dimension w_1 , drill and tap.
2. Torque screws to 6,1 Nm. for standard

cap screw and 3,3 Nm. for low head cap screw.

3. Tighten vice until penetration is felt. As a general rule, an additional 1/4-3/4 turn of vice handle is needed to secure the workpiece dependent on material type and vice model. Recommended penetration is 0,15mm-0,40mm.

Tips

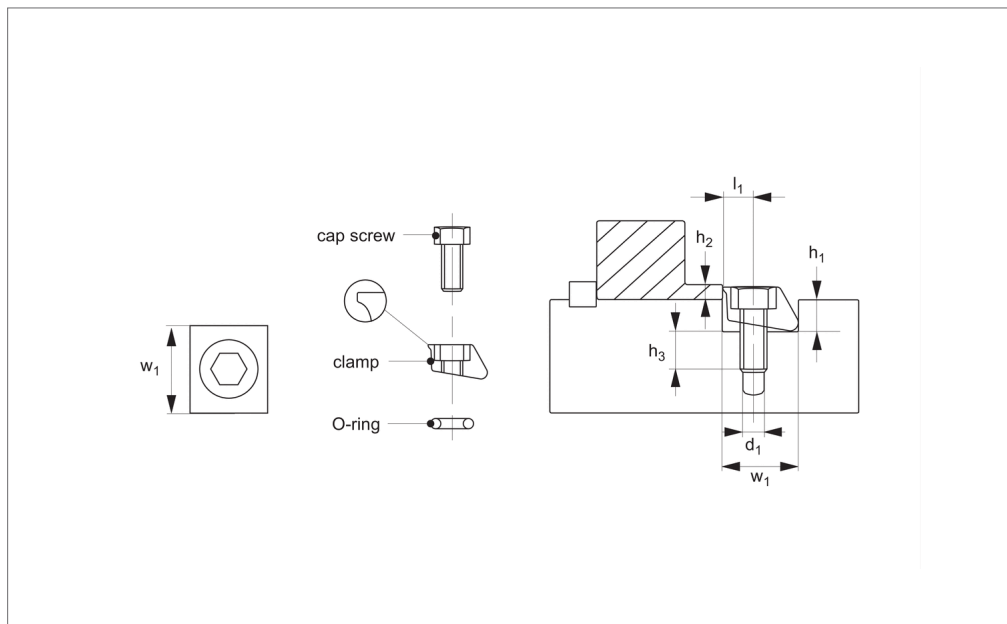
M 5x12 screws provided, as well as 10-32x1/2". Either can be used in M 5 threaded holes as long as they do not exceed 25mm in length.

The 10-32 screws sit better in the gripper rail and are less likely to bind during removal.

Order No.	Qty/pack	h_1	l_1	l_2	w_1	Fits Wixroyd jaw set	Gripping height h_2	Weight g
20266349	2	9.3	50.0	38.1	19.1	12035 & 12464	1,3-4,1	113
20266356	2	7.8	98.8	41.3	12.7	12035	1,3-3,2	181
20266363	2	7.8	148.1	66.7	12.7	12035	1,3-3,2	259



E12031.1



Material

Tool: steel (HRC 43-45) or brass.
Screw: steel and oil resistant nitrile rubber.
O-ring: plastic.

Technical Notes

Provides positive down force and a very low grip height. High vertical and horizontal clamping forces. The O-ring lifts the clamp when unclamping.
Hardness: approx. HRC 45.
Temperature range -30°C to +80°C.
Clamps sold by pack quantity.

Tips

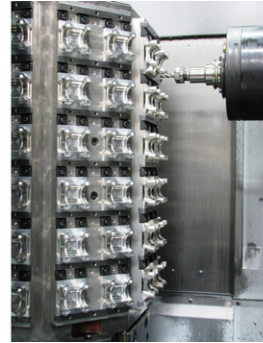
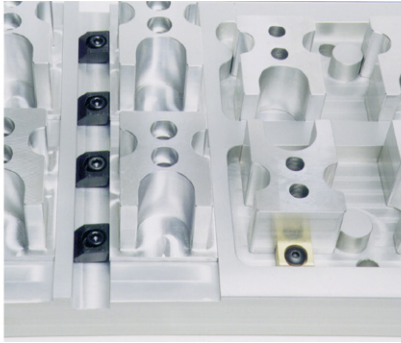
The tool steel blunt edge is less likely to mark workpieces, whilst the knife edge version bites into the material for more aggressive machining requirements. Often used with E12034 Talongrip or E12036 Versagrip. Location rails are ideal for use with pitbull clamps.

Important Notes

1. Machine a slot for the Pitbull clamp in the fixture according to dimensions „w₁“ and „h₁“.

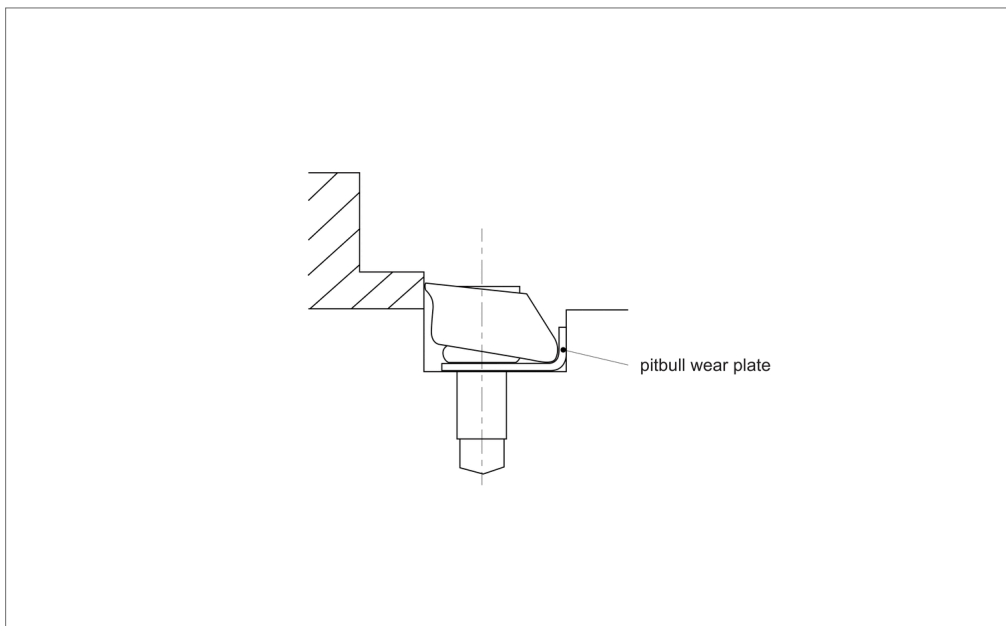
2. Drill and tap a fixing hole to match screw size- refer to dimension „l₁“ for distance of hole from the component.
 3. Assemble clamp as shown in the diagram above.
 4. Position the clamp, and loosely screw to fixture.
 5. Load the component and tighten screw cap.
- Dimension „h₂“ is the minimum recommended clamping height.

Order No.	Material	Type	Qty/pack	d ₁	h ₁	h ₂	h ₃	l ₁	Stroke s ₁	w ₁	Torque to Nm max.	Holding force kN	Weight g
20266608	Brass	Blunt Edge	8	M 2,5	3.6	1.9	5.6	3.8	0.2	9.5	0.6	0.9	45
20266639	Brass	Blunt Edge	8	M 4	4.8	2.6	8.6	5.1	0.4	12.7	2.8	1.8	64
20266660	Brass	Blunt Edge	6	M 6	7.1	3.8	11.2	7.6	0.6	19.0	5.6	4.2	163
20266585	Tool Steel	Knife Edge	8	M 2,5	3.6	1.9	6.6	3.8	0.2	9.5	1.8	2.8	32
20266592	Tool Steel	Blunt Edge	8	M 2,5	3.6	1.9	6.6	3.8	0.2	9.5	1.8	2.8	45
20266615	Tool Steel	Knife Edge	8	M 4	4.8	2.6	9.9	5.1	0.4	12.7	5.6	6.6	64
20266622	Tool Steel	Blunt Edge	8	M 4	4.8	2.6	9.9	5.1	0.4	12.7	5.6	6.6	64
20266646	Tool Steel	Knife Edge	6	M 6	7.1	3.8	14.5	7.6	0.6	19.0	22.5	16.0	136
20266653	Tool Steel	Blunt Edge	6	M 6	7.1	3.8	14.5	7.6	0.6	19.0	22.5	16.0	132
20266677	Tool Steel	Knife Edge	4	M10	11.4	6.4	18.0	10.2	1.3	25.4	40.6	26.0	256
20266684	Tool Steel	Blunt Edge	4	M10	11.4	6.4	18.0	10.2	1.3	25.4	40.6	26.0	277
20266691	Tool Steel	Knife Edge	2	M12	16.3	9.5	19.6	15.2	1.9	38.1	145.0	50.0	408
20266707	Tool Steel	Blunt Edge	2	M12	16.3	9.5	19.6	15.2	1.9	38.1	145.0	50.0	408





E12031.2



Material

back wall when using aluminium or mild steel fixtures.

travel and holding forces at max. pressure. Refurbish old fixtures or add to existing aluminium fixtures to maximise machining capabilities.

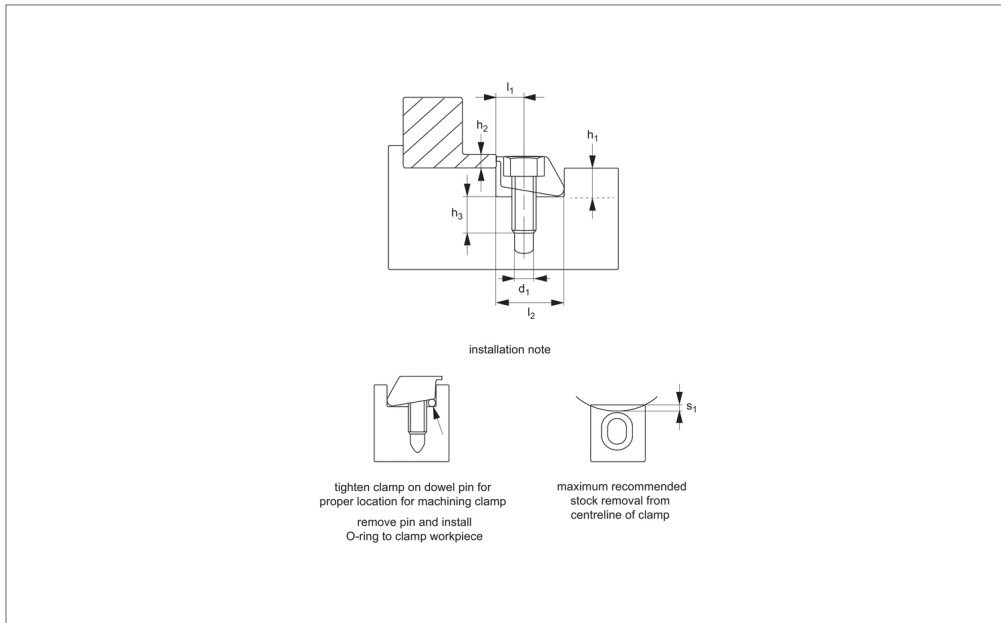
Technical Notes

Provides a hard barrier between pitbull clamp and fixture, preventing distortion of

Tips

To keep fixtures light, maintain full clamp

Order No.	Screw	Part number	Qty/pack
20266158	M 2,5	12031.W0005, 12031.W0010, 12031.W0015	8
20266165	M 4	12031.W0020, 12031.W0030, 12031.W0040	8
20266172	M 6	12031.W0050, 12031.W0060, 12031.W0065	6
20266189	M10	12031.W0070, 12031.W0075, 12032.W0570	4
20266196	M12	12031.W0080, 12031.W0085, 12032.W0580	2



E12032

Material

Tool: steel, heat treated to HRC 43, machinable.

Screw: steel and oil resistant nitrile rubber.

O-ring: plastic.

Technical Notes

A machinable version of the standard pitbull clamps.

Provides positive down force and a very low grip height.

High vertical and horizontal clamping forces.

Hardness: approx. 45HRC

Tips

There is additional material of the clamp

face to allow machining of a radius.

Often used with part no. E12034 Talongrip or part no. E12036 Versagrip.

Important Notes

Installation:

1. Machine face of clamp to suit profile of component, taking note of dimension „ s_1 “ as the max. recommended stock removal. A dowel pin is included in each pack to locate the clamp whilst machining the face. After machining of face, remove pin and install O-ring to clamp workpiece.
2. Machine a slot for the pitbull clamp in the fixture, according to dimensions „ l_2 “ and „ h_2 “.
3. Drill and tap a fixing hole to match

screw size, refer to dimension „ l_1 “ for distance of hole from the component.

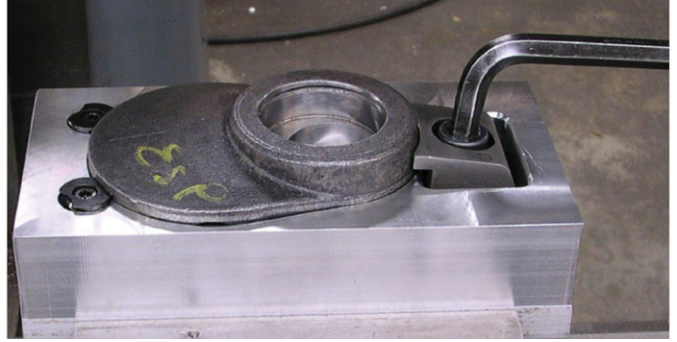
4. Assemble clamp as shown in the diagram above.

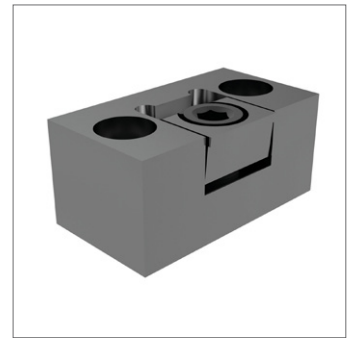
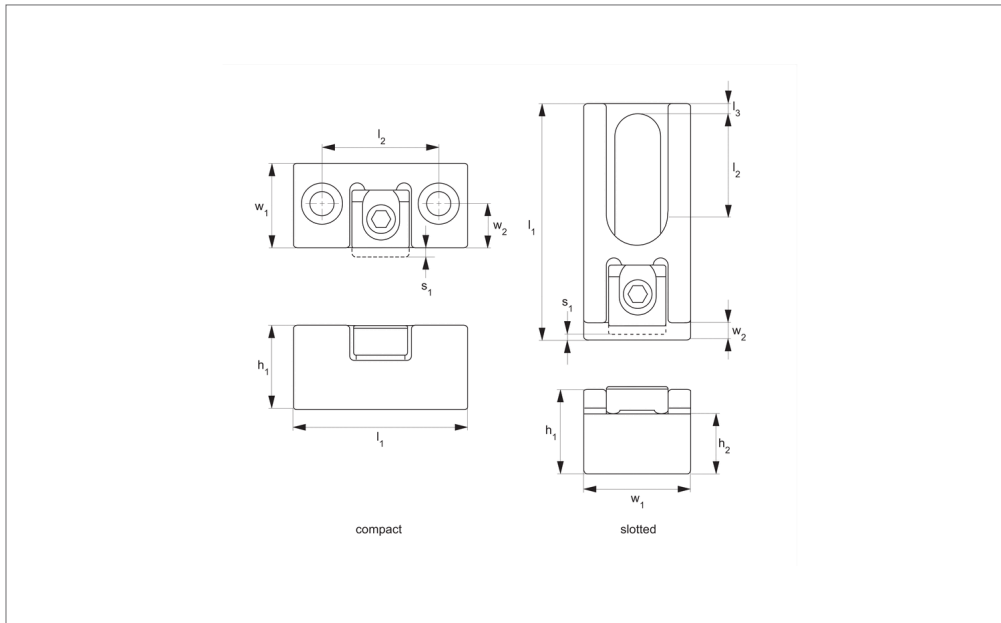
5. Position the clamp, and loosely screw to fix.

6. Load the component and tighten the cap screw.

Dimension „ h_2 “ is the minimum recommended clamping height.

Order No.	Qty/pack	d_1	Stroke max.	h_1	h_2	h_3	l_1	l_2	s_1	Dowel pin dia.	Torque to Nm max.	Holding force kN	Weight g
20266714	4	M10	1.27	11.43	6.4	18.0	10.16	25.4	1.5	3.18	40	26	263
20266721	2	M12	1.90	16.26	9.5	19.6	15.24	38.1	4.5	6.35	145	50	463





E12033.1

LOW PROFILE SIDE CLAMPING

Material

Body: steel hardened and ground with pitbull clamps insert (part no. E12031).

Technical Notes

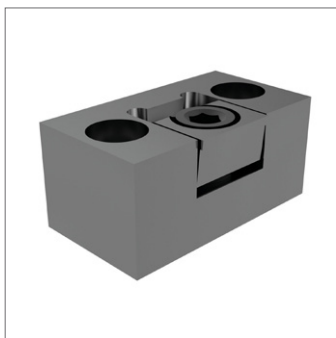
Designed to be used in fixtures, on cubes etc.

The slotted version has a clamp step to support the workpiece off the machine table for through milling or drilling. The height of the clamp can be adjusted by varying the depth of the milled slot used to locate the clamp.

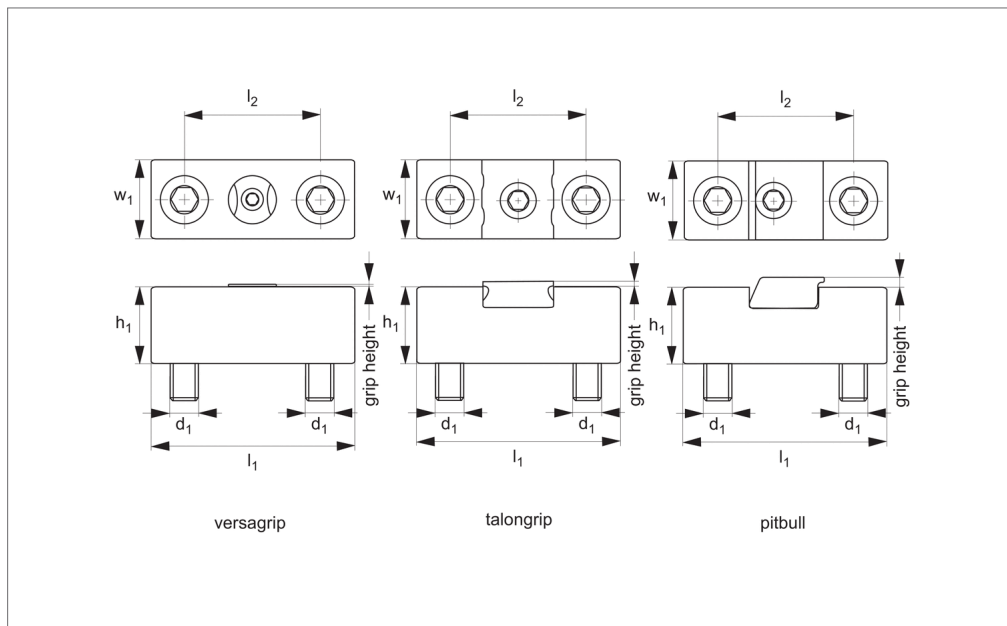
Tips

The compact version is ideal for clamping workpieces in series using the back surface of clamp to locate the next workpiece. Back of clamp is ground square to the bottom for precise part location.

Order No.	Body type	Clamp type	h_1	h_2 +0.000 -0.013	l_1	l_2	l_3	Stroke s_1	w_1	w_2	Torque to Nm max.	Clamping force kN max.	Mounting screw	Replacement clamps 12031	Weight g
20267353	Compact	Knife	25,1		57,1	38,1		0,6	31,2	15,7	22,5	16	M 8	.W0050	
20267360	Compact	Blunt	25,1		57,1	38,1		0,6	31,2	15,7	22,5	16	M 8	.W0060	
20267377	Compact	Knife	31,5		68,6	47,0		1,3	37,6	18,8	40,6	26	M10	.W0070	
20267384	Compact	Blunt	31,5		68,6	47,0		1,3	37,6	18,8	40,6	26	M10	.W0075	
20267391	Slotted	Knife	25,1	18,5	103,6	43,2	12,7	0,6	31,7	9,1	22,5	16	M12	.W0050	12,7
20267407	Slotted	Blunt	25,1	18,5	103,6	43,2	12,7	0,6	31,7	9,1	22,5	16	M12	.W0060	12,7
20267414	Slotted	Knife	40,9	35,0	107,0	37,6	10,9	1,3	38,1	9,1	40,6	26	M16	.W0075	10,9
20267421	Slotted	Blunt	40,9	35,0	107,0	37,6	10,9	1,3	38,1	9,1	40,6	26	M16	.W0075	10,9



E12033.2



Material

Hardened and ground steel bodies with pitbull clamps insert (part no. E12031).

Technical Notes

Designed to be used in fixtures, on cubes etc.

The slotted version has a clamp step to

support the workpiece off the machine table for through milling or drilling. The height of the clamp can be adjusted by varying the depth of the milled slot used to locate the clamp.

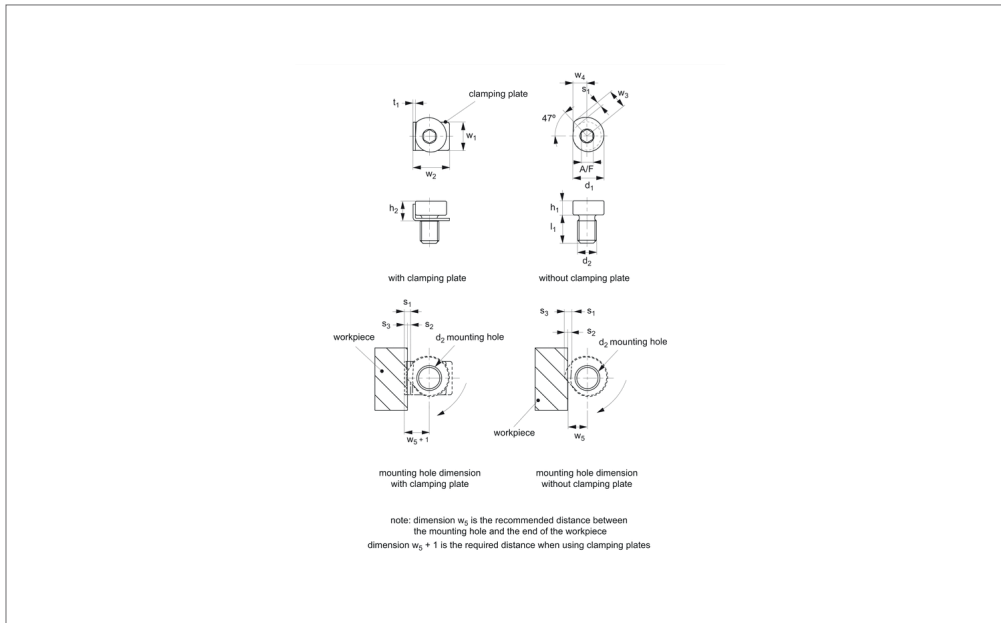
Tips

The compact version is ideal for clamping

workpieces in series, using the back surface of the clamp to locate the next workpiece.

Back of clamp is ground square to the bottom for precise part location.

Order No.	Clamp type	d_1	h_1	l_1	l_2	w_1	Grip height	Replacement clamps
20266202	Versagrip	M12	35	76.2	50	25.4	1,5 to 3,0	12036.W0175
20266219	Talongrip	M12	35	76.2	50	25.4	1,5 to 3,0	12034.W0050
20266226	Pitbull - Knife	M12	35	76.2	50	25.4	6.4	12031.W0060
20266233	Pitbull - Blunt	M12	35	76.2	50	25.4	6.4	12031.W0070
20266240	Pitbull - Mach.	M12	35	76.2	50	25.4	6.4	12032.W0570



E12108.1

Material

Clamp: steel AISI 4140, HRC 33-39, blackened.

Plate: stainless steel (AISI 304, 1.4301).

Technical Notes

Extremely small and low height cam clamp offering upto 14 kN. clamping force. Ideal for multi-component fixtures.

Clamp is actuated with use of a hexagon key.

To avoid any deformation to work piece during clamping, select our clamping plate type.

Also available with an easy to actuate clamping handle model - see parts 20266288 through 20266332.

Spare clamping plates can be ordered separately, see part no. 20265960 through 20265991.

Tips

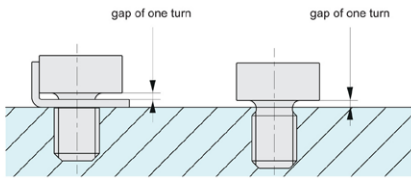
To install, drill and tap required hole to dimension d_2 and space hole to dimension w_5 away from workpiece surface (or $w_5 + 1$ if using clamping plate).

Fully tighten spiral clamp, then slacken off by one turn. Mount workpiece and then re-tighten clockwise to clamp workpiece.

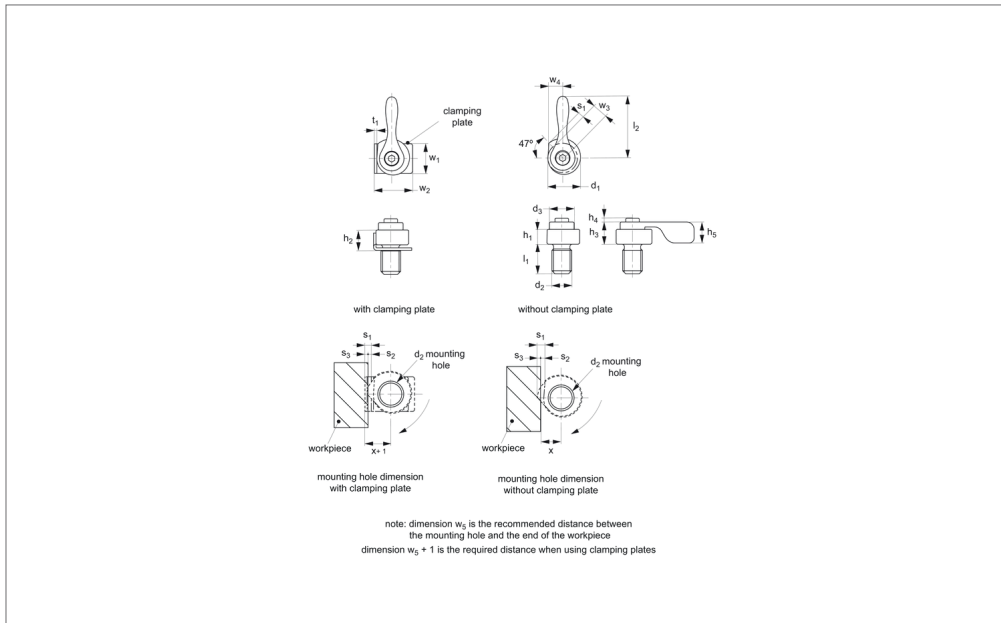
Place a stop to the right of the workpiece to prevent movement.

Order No.	Type	d_1	d_2	h_1	h_2	l_1	w_1	w_2	Weight g
20265892	W/o Clamping Plate	10	M 6x1,00	5	-	9	-	-	6
20266004	W/o Clamping Plate	12	M 8x1,25	6	-	12	-	-	11
20266264	W/o Clamping Plate	14	M10x1,50	7	-	15	-	-	19
20266271	W/o Clamping Plate	16	M12x1,75	8	-	18	-	-	30
20265779	With Clamping Plate	10	M 6x1,00	5	6	9	10	13.0	7
20265939	With Clamping Plate	12	M 8x1,25	6	7	12	12	15.5	13
20265946	With Clamping Plate	14	M10x1,50	7	8	15	14	18.0	21
20265953	With Clamping Plate	16	M12x1,75	8	9	18	16	20.0	33

Order No.	w_3	w_4	w_5	Stroke s_1	Stroke s_2	Stroke s_3	t_1	A/F	Torque to Nm max.	Clamping force kN max.
20265892	6.8	5	5.9	1.8	0.9	0.9	-	4	7.4	2.2
20266004	8.2	6	7.1	2.2	1.1	1.1	-	5	18.0	4.7
20266264	9.5	7	8.3	2.5	1.3	1.2	-	6	35.0	7.9
20266271	10.9	8	9.5	2.9	1.5	1.4	-	8	60.0	14.0
20265779	6.8	5	5.9	1.8	0.9	0.9	1	4	7.4	2.2
20265939	8.2	6	7.1	2.2	1.1	1.1	1	5	18.0	4.7
20265946	9.5	7	8.3	2.5	1.3	1.2	1	6	35.0	7.9
20265953	10.9	8	9.5	2.9	1.5	1.4	1	8	60.0	14.0



tighten spiral cam clamp fully and loosen it about one turn
then mount to workpiece



E12108.2

LOW PROFILE SIDE CLAMPING

Material

Clamp: steel (AISI 4140), HRc 33-39, blackened.

Plate: stainless steel (AISI 304, 1.4301).

Technical Notes

Extremely small and low height cam clamp offering upto 14 kN. clamping force. Ideal for multi-component fixtures.

Clamp is actuated via small handle/lever. To avoid any deformation to workpiece

during clamping, select our with clamping plate type.

Also available in model actuated with use of hexagon key - see parts 20265892 through 20265953.

Spare clamping plates can be ordered separately, see part no. 20265960 through 20265991.

Tips

To install, drill and tap required hole to

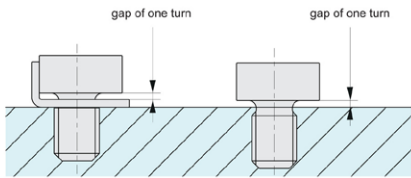
dimension d_2 and space hole to dimension w_5 away from workpiece surface (or $w_5 + 1$ if using clamping plate).

Fully tighten spiral clamp, then slacken off by one turn. Mount workpiece and then re-tighten clockwise to clamp workpiece.

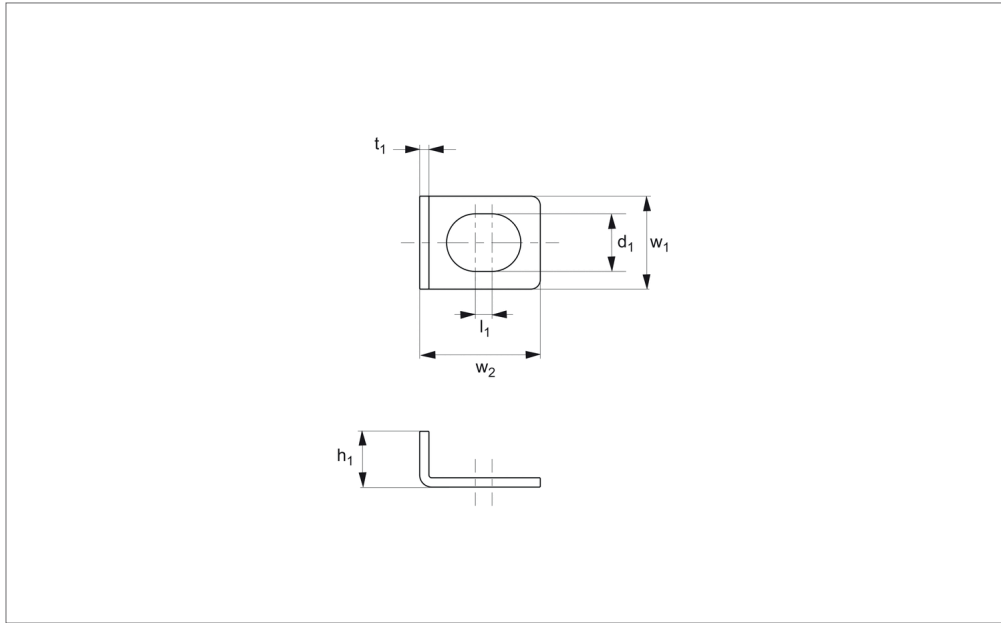
Place a stop to the right of the workpiece to prevent movement.

Order No.	Type	d_1	d_2	d_3	h_1	h_2	h_3	h_4	h_5	l_1	Weight g
20266288	W/o Clamping Plate	12	M 8x1,25	10	6	-	9	1.5	8.5	12	17
20266295	W/o Clamping Plate	14	M10x1,50	12	7	-	11	1.8	10.0	15	30
20266301	W/o Clamping Plate	16	M12x1,75	14	8	-	13	2.2	12.0	18	51
20266318	With Clamping Plate	12	M 8x1,25	10	6	7	9	1.5	8.5	12	19
20266325	With Clamping Plate	14	M10x1,50	12	7	8	11	1.8	10.0	15	32
20266332	With Clamping Plate	16	M12x1,75	14	8	9	13	2.2	12.0	18	54

Order No.	l_2	w_1	w_2	w_3	w_4	w_5	Stroke s_1	Stroke s_2	Stroke s_3	t_1	Torque to Nm max.	Clamping force kN max.
20266288	25	-	-	8.2	6	7.1	2.2	1.1	1.1	-	18	4.7
20266295	30	-	-	9.5	7	8.3	2.5	1.3	1.2	-	35	7.9
20266301	40	-	-	10.9	8	9.5	2.9	1.5	1.4	-	60	14.0
20266318	25	12	15.5	8.2	6	7.1	2.2	1.1	1.1	1	18	4.7
20266325	30	14	18.0	9.5	7	8.3	2.5	1.3	1.2	1	35	7.9
20266332	40	16	20.0	10.9	8	9.5	2.9	1.5	1.4	1	60	14.0



tighten spiral cam clamp fully and loosen it about one turn
then mount to workpiece



E12108.3

Material

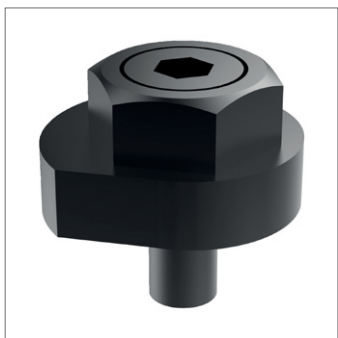
Stainless steel (AISI 304, 1.4301).

no. E12108. Use plates to avoid any deformation to workpiece during clamping.

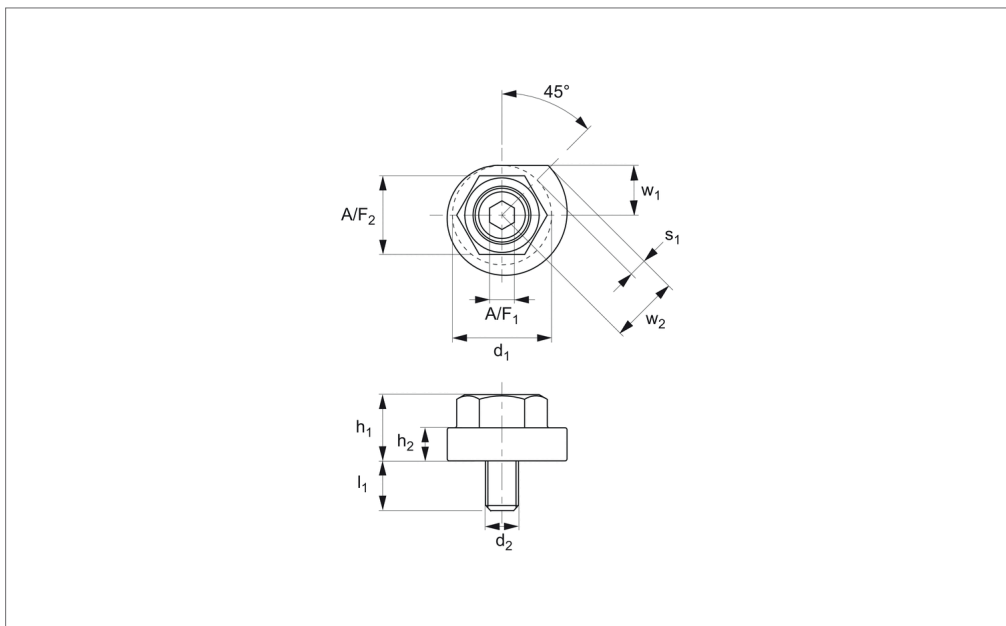
Technical Notes

Clamping plates for spiral cam clamp, part

Order No.	d_1	For spiral clamp size d_2	h_1	l_1	w_1	w_2	t_1	Weight g
20265960	6.2	10	6	1.8	10	13.0	1	17
20265977	8.2	12	7	2.2	12	15.5	1	17
20265984	10.2	14	8	2.6	14	18.0	1	30
20265991	12.2	16	9	2.9	16	20.0	1	51



E12109



Material

Steel (AISI 4140), HRc 33-39, blackened.

Technical Notes

Simple and robust cam clamp. Easy to

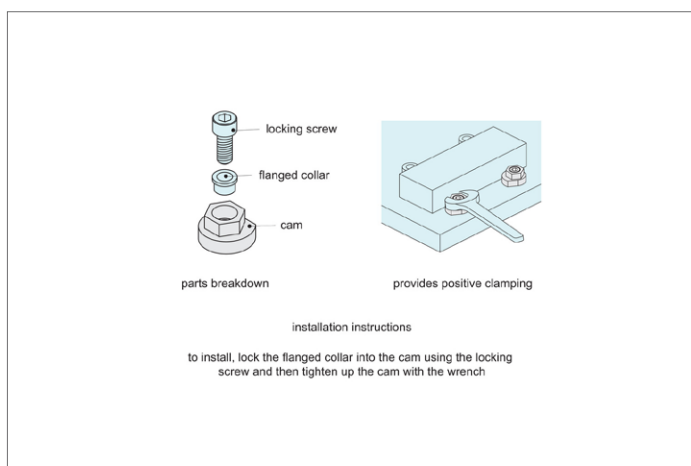
install. Actuated with spanner.

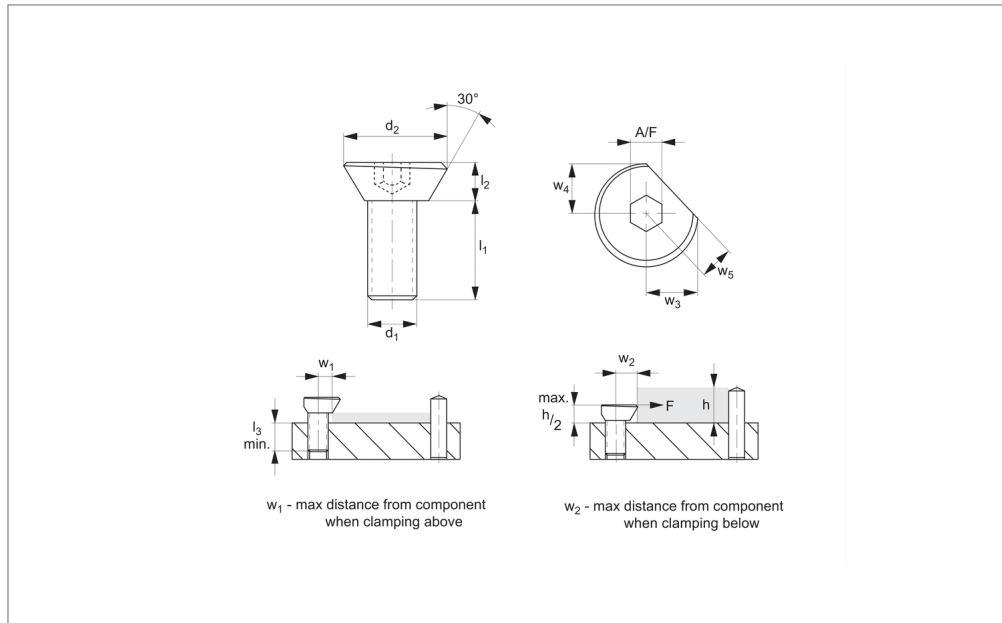
Tips

To install: insert flanged collar and locking screw into cam body. Tighten locking screw

to fix cam in position. Load component, then use spanner to turn and actuate cam to clamp up to workpiece surface.

Order No.	d_1	d_2	h_1	h_2	l_1	w_1	w_2	Stroke s_1	A/F_1	A/F_2	Torque to Nm max.	Clamping force kN max.	Weight g
20265908	24	M 8x1,25	16	8	12	12	16.4	4.4	6	19	50	5.2	55
20265915	30	M10x1,50	20	10	15	15	20.5	5.5	8	24	75	8.0	110
20265922	34	M12x1,75	24	12	18	17	23.2	6.2	10	27	90	9.3	185





E12111

LOW PROFILE SIDE CLAMPING

Material

Steel, hardened and blue zinc coated.

Technical Notes

Single piece clamping screw. Unique eccentric side profile of the clamp ensures

both downhold and side clamping action.

„w₁“ = max. distance from component when clamping above component surface.

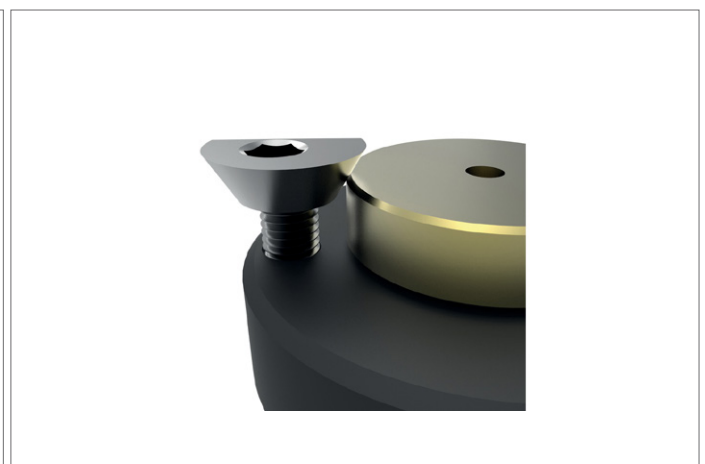
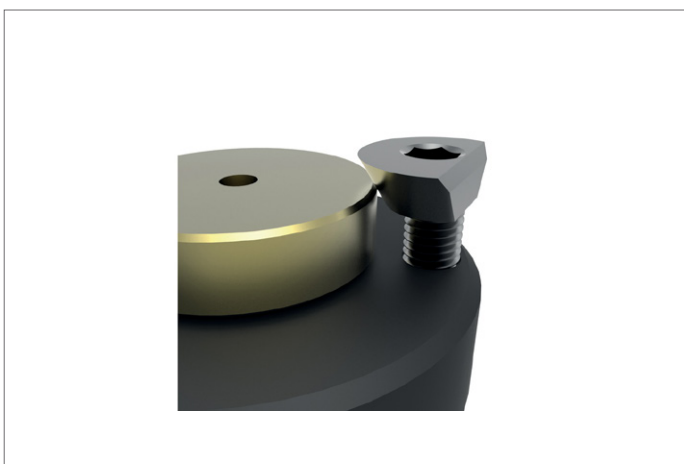
„w₂“ = max. distance from component when clamping below component surface.

„h“ - workpiece height.

„l₃“ - min. suggested thread engagement.

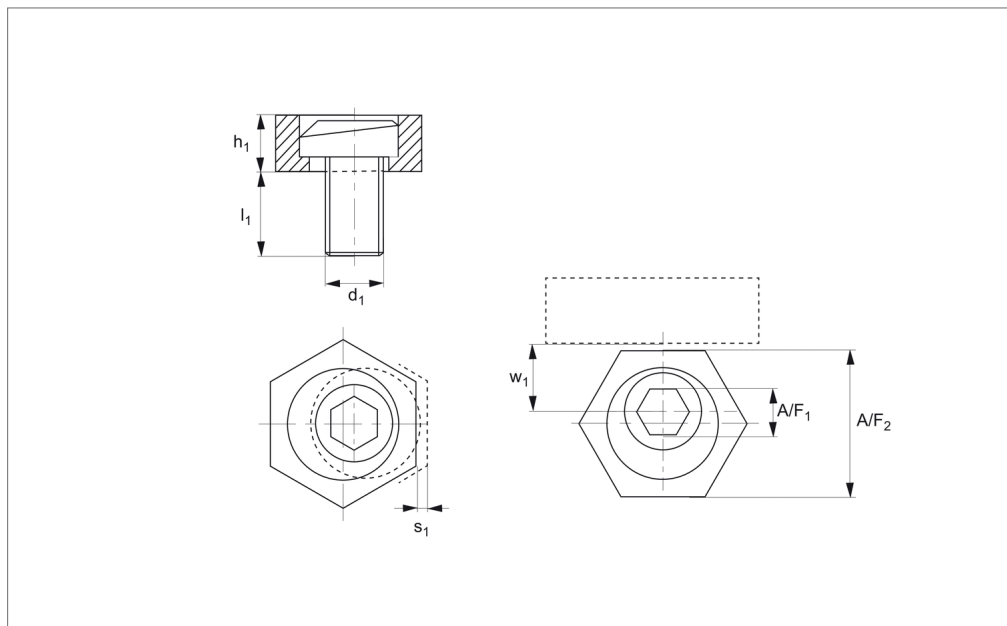
Clamping stroke achieved via 120° turn of clamping screw.

Order No.	d ₁	d ₂	l ₁	l ₂	l ₃ min.	w ₁	w ₂ ±0.2	w ₃	w ₄	w ₅	A/F	Torque to Nm max.	Holding force F kN	Weight g
20265731	M 3	6.7	6	2	3	3.0	3.2	3.5	2.9	2.2	2.0	1.0	0.05	0.57
20265540	M 4	8.7	8	3	4	3.5	4.2	4.6	4.0	3.0	2.5	1.5	0.09	1.43
20265649	M 5	10.9	10	4	5	4.2	5.2	5.7	5.0	3.5	3.0	2.0	0.10	2.84
20265557	M 6	13.5	12	5	6	5.4	6.4	7.1	6.1	4.5	4.0	4.5	0.30	4.95
20265564	M 8	16.9	16	6	8	6.6	8.0	8.9	7.7	5.5	5.0	20.0	2.70	9.10
20265571	M10	20.9	20	7	10	8.3	9.8	11.1	9.4	6.5	6.0	30.0	4.00	17.0
20265588	M12	26.1	24	9	12	10.1	12.0	13.5	11.6	8.0	8.0	44.0	5.40	31.0





E12112



Material

Hexagonal clamp: brass.
Screw: steel, hardened, strength class 10,9.

Technical Notes

Cam action provides fast, strong clamping.
Small size allows more parts per load.

Workpiece stop is on the right hand side of the clamp.

Tips

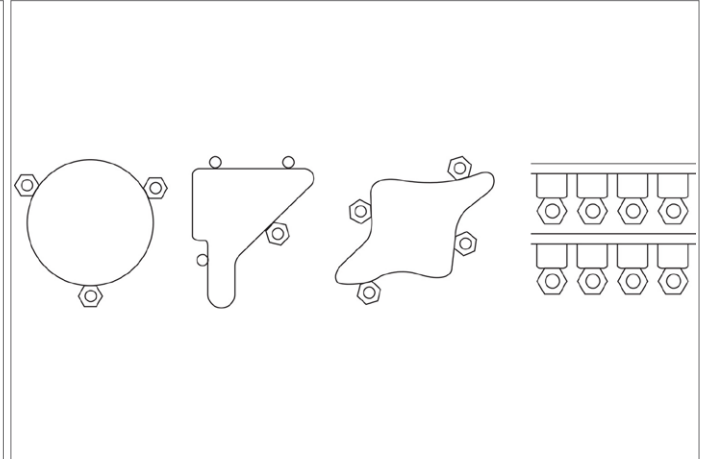
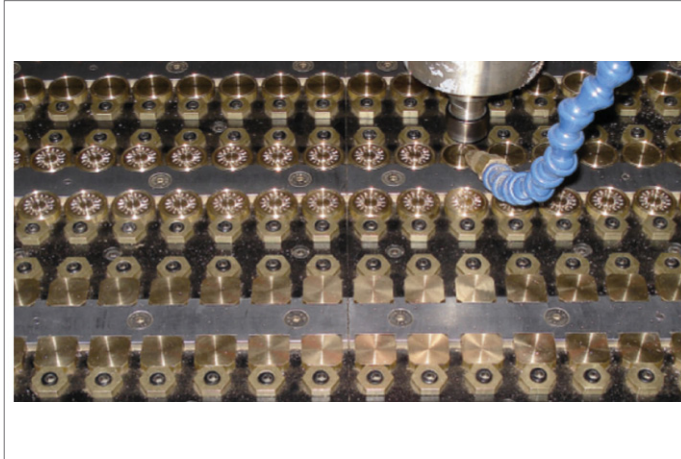
Clockwise rotation is recommended. The workpiece stop should be to the right of the clamp. Replacement cam screws are suitable for all clamp parts E12112,

E12120, E12020 and E12150. For stainless steel version, see E12113.

Important Notes

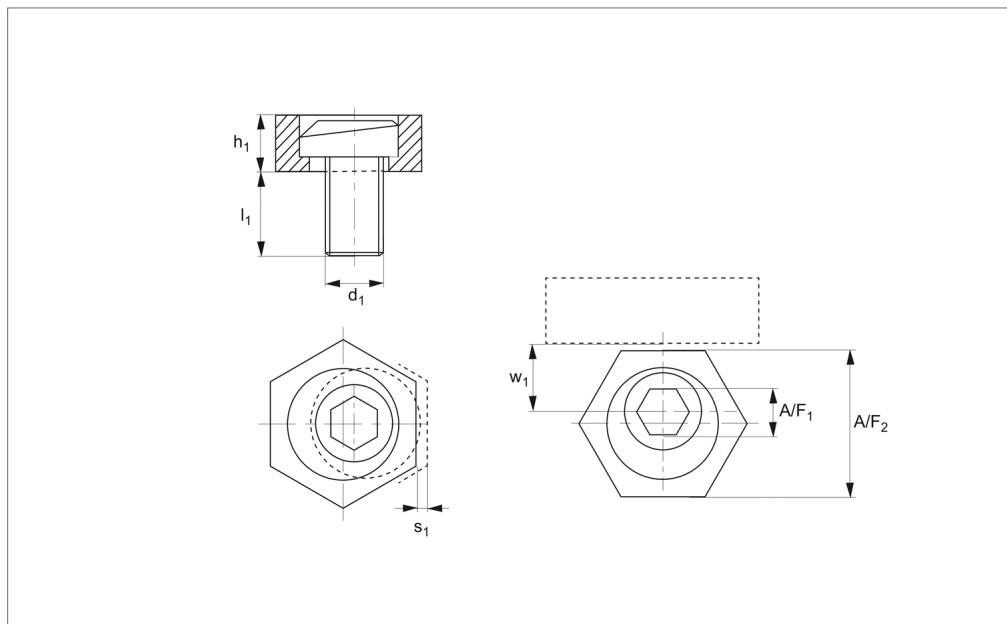
w_1 - is the location to drill and tap from the edge of workpiece.

Order No.	Type	d_1	h_1	l_1	Clamping force kN	Stroke s_1	w_1	A/F_1	A/F_2	Torque to Nm max.	Qty/pack	Weight g
20266899	Brass Clamp	M 4x0,7	2.80	9.6	0.9	0.76	3.8	3	7.93	2.5	10	3.0
20266905	Brass Clamp	M 6x1	4.75	11.2	3.5	1.01	7.8	4	15.86	10.0	10	11.0
20266912	Brass Clamp	M 8x1,25	4.55	15.0	3.5	1.01	10.2	5	20.60	18.0	12	18.0
20266929	Brass Clamp	M10x1,5	6.35	19.0	8.8	1.27	10.2	7	20.60	26.0	10	27.0
20266936	Brass Clamp	M12x1,75	9.52	22.8	17.7	2.03	12.7	8	25.38	75.0	8	53.0
20266943	Brass Clamp	M16x2	12.70	28.5	26.6	2.54	15.0	12	30.13	120.0	4	103.0
20266974	Replacement Screw	M 4x0,7	-	-	-	-	-	-	-	-	-	-
20266981	Replacement Screw	M 6x1	-	-	-	-	-	-	-	-	-	-
20266998	Replacement Screw	M 8x1,25	-	-	-	-	-	-	-	-	-	-
20267001	Replacement Screw	M10x1,5	-	-	-	-	-	-	-	-	-	-
20267018	Replacement Screw	M12x1.75	-	-	-	-	-	-	-	-	-	-
20267025	Replacement Screw	M16x2	-	-	-	-	-	-	-	-	-	-





E12113



Material

Hexagonal clamp: stainless steel.
Eccentric clamp screw and washer: stainless steel.

Technical Notes

Clockwise rotation is recommended. Work-

piece stop is on the right hand side of the clamp. For non-stainless steel versions of E12112.

Tips

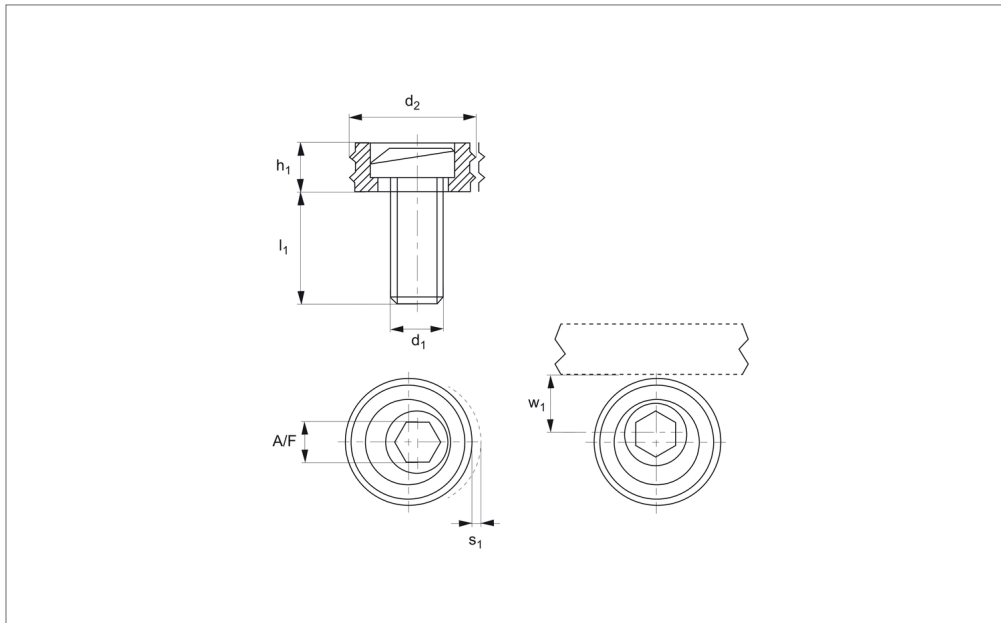
Compact size and fast, strong clamping allows maximum number of parts to be

clamped.

Important Notes

w_1 - is the location to drill and tap from the edge of workpiece.

Order No.	Type	d_1	h_1	l_1	Stroke s_1	w_1	A/F_1	A/F_2	Clamp force kN	Torque to Nm max.	Qty/pack	Weight g
20266400	Stainless Screw	M 4 x 0,7	-	-	-	-	-	-	-	-	4	-
20266394	Stainless Clamp	M 4x0,7	2.80	9.6	0.76	3.80	3	7.93	0.9	2.0	4	3.0
20266950	Stainless Clamp	M 6x1	4.75	11.2	1.01	7.80	4	15.86	3.5	8.5	4	11.0
20266967	Stainless Clamp	M 8x1,25	6.35	15.0	1.01	10.20	5	20.60	3.5	11.3	4	18.0
20265380	Stainless Screw	M 6x1	-	-	-	-	-	-	-	-	4	-
20267032	Stainless Screw	M 8x1,25	-	-	-	-	-	-	-	-	4	-



E12120

LOW PROFILE SIDE CLAMPING

Material

Ribbed face steel, hardened and plated.
Screw steel hardened, strength class 10,9.

Technical Notes

For clamping workpieces with uneven

surfaces, this clamp provides serrations to help the clamp grip the workpiece.

Tips

Clockwise rotation is recommended. The workpiece should be to the right of the

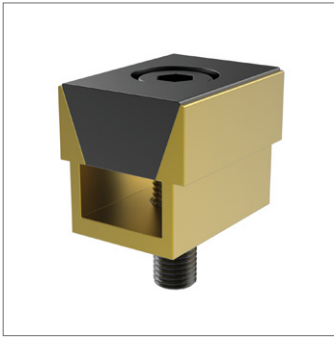
clamp. For replacement cam screws see parts E12112.

Important Notes

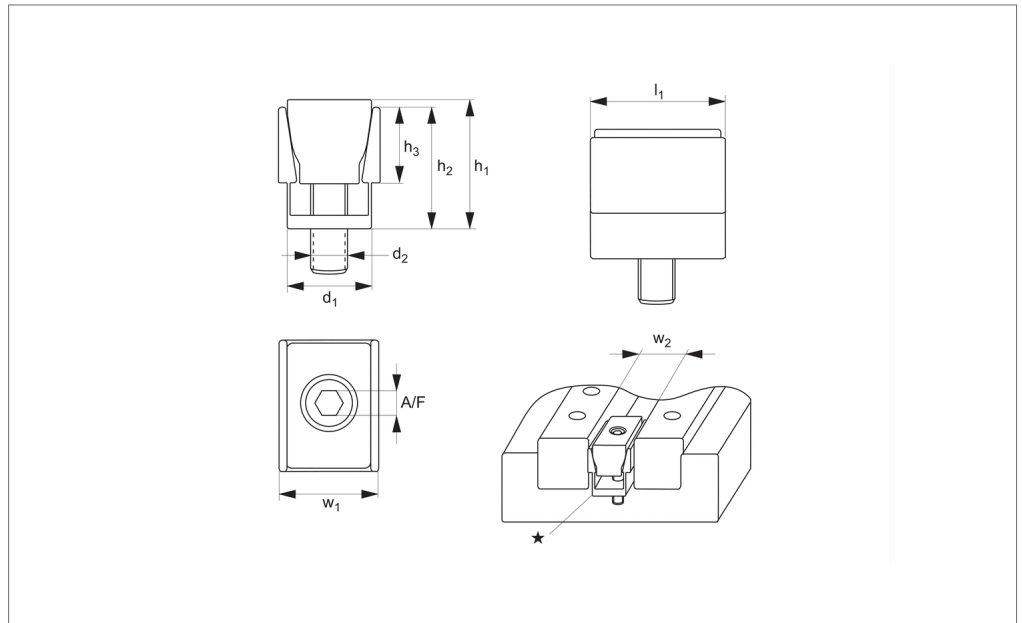
w_1 is distance to drill and tap from edge of workpiece.

Order No.	d_1	d_2	h_1	l_1	Clamping force kN	Stroke s_1	w_1	A/F	Torque to Nm max.	Qty/pack	Weight g
20267049	M10x1,5	20.60	6.35	19.0	8.8	1.22	10.2	7	28	8	40
20267056	M12x1,75	25.40	9.52	22.8	17.7	2.03	12.7	8	88	8	45
20267063	M16x2	30.15	12.70	28.5	26.6	2.54	15.0	12	135	4	90





E12130



Material

Channel: aluminium, anodised (7075-T6).
Wedge and screw: steel, hardened and blackened.

Technical Notes

Holds two parts with an equal clamping action. Very effective for multiple work-piece clamping. Can easily be used with hydraulic pull cylinders. Can be used to

clamp round bar, as long as centre line of clamp is above the centre line of the work-piece.

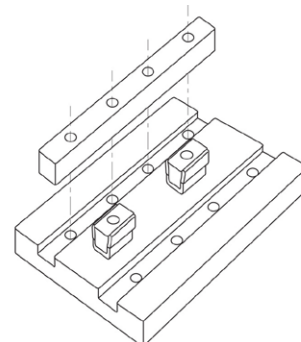
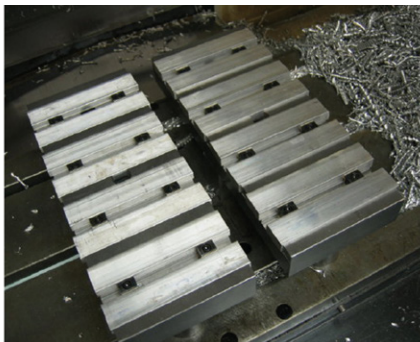
Tips

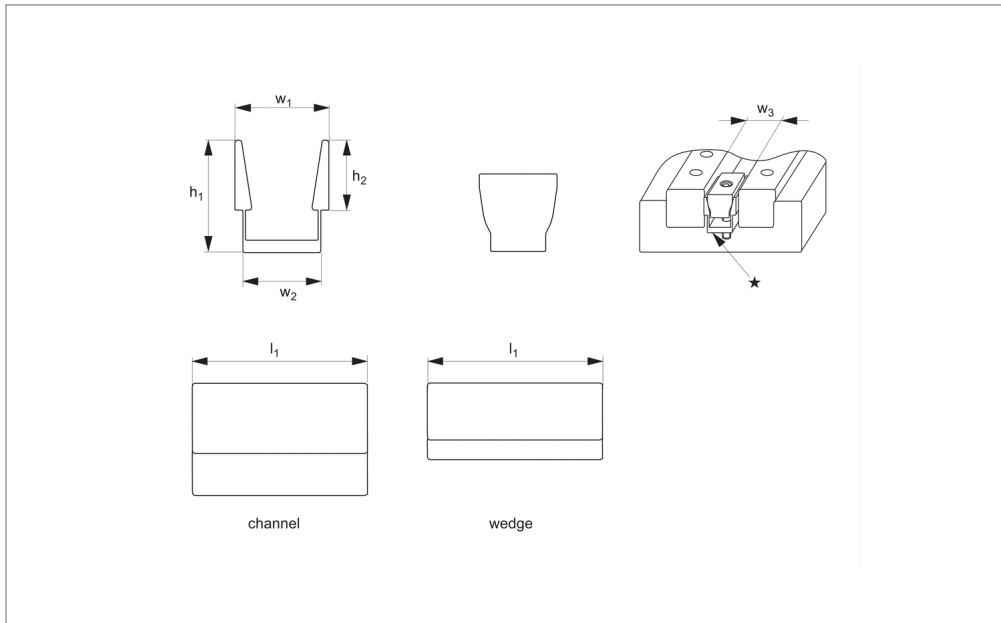
Clockwise rotation is recommended. The workpiece should be on the right of the clamp. For replacement cam screws see parts E12112.

Important Notes

Dimension w_2 is the distance needed between workpieces for clamp clearance. Drill and tap mounting hole on the centre of this dimension.
“*” a milled slot wider than d_1 will ensure the clamp remains in line with the work-piece. Clamp sides should not come into contact with slot walls during expansion.

Order No.	d_1	d_2	h_1	h_2	h_3	l_1	w_1	w_2	Spread max.	A/F	Torque to Nm max.	Qty/pack	Holding force kN	Weight g
20267070	5.3	M 2	6.9	6.40	3.6	8.1	6.1	6.4	6.7	1.5	0.7	6	0.88	45
20267087	7.9	M2,5	9.7	9.50	4.7	11.9	9.1	9.5	10.0	2.0	1.5	6	1.35	68
20267094	10.4	M 4	14.5	12.70	5.6	15.9	12.3	12.7	13.2	3.0	3.4	8	2.23	100
20267100	16.1	M 6	19.0	19.05	9.5	23.8	18.6	19.0	20.3	5.0	13.5	6	6.68	222
20267117	20.8	M 8	25.9	25.40	12.7	31.7	24.8	25.4	26.9	6.0	25.0	4	11.13	340
20267124	30.8	M12	38.6	38.10	19.0	47.6	37.3	38.1	39.9	10.0	38.4	2	15.58	612
20267131	41.2	M16	51.5	50.80	25.4	63.5	49.7	50.8	53.0	14.0	74.6	2	26.70	1404





E12131

Material

Channel: aluminium (7075-T6).

Wedge: steel.

Technical Notes

Standard length of 508mm supplied, to allow machining to your own requirements.

No drilled holes.

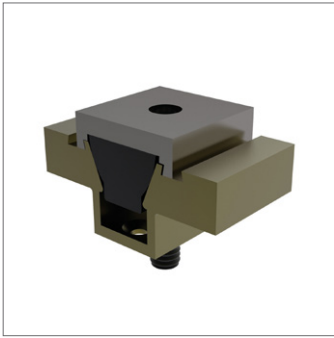
Important Notes

Dimension „w₃“ is distance needed between workpieces for clamp clearance. Drill and tap mounting hole on centre of this dimension.

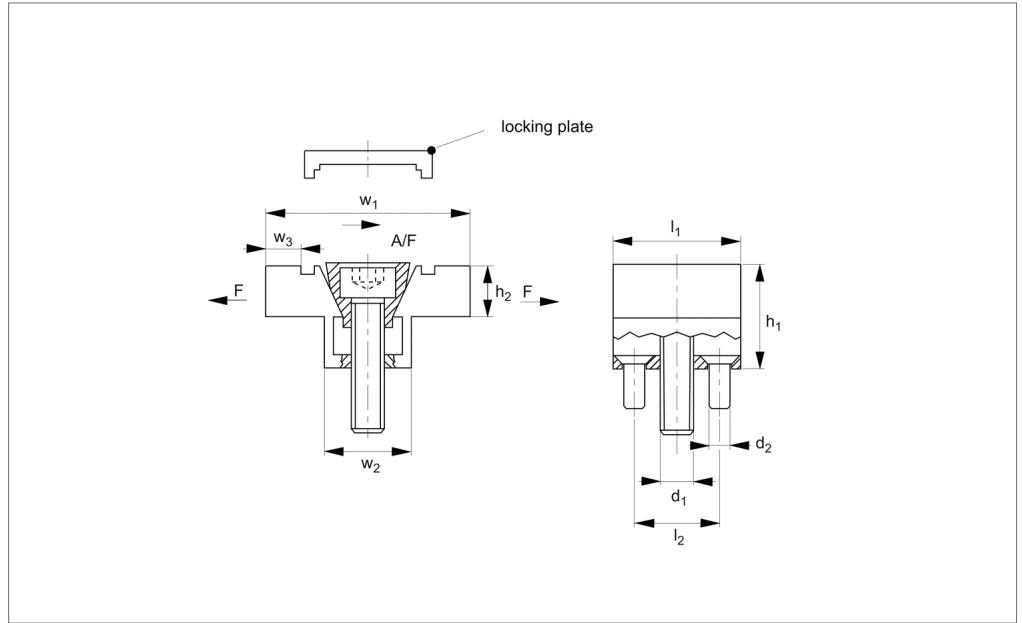
„*“ a milled slot wider than w₂ will ensure

clamp remains in line with workpiece. Clamp sides should not come into contact with slot wall during expansion. Channel and wedge supplied separately. If both parts are required please order them separately.

Order No.	Part	h ₁	h ₂	l ₁	w ₁	w ₂	w ₃	Spread max.
20265410	Channel	9.5	4.7	508	9.1	7.9	9.5	10.0
20265427	Channel	12.7	5.6	508	12.3	10.4	12.7	13.2
20265434	Channel	19.1	9.5	508	18.6	16.1	19.0	20.3
20265441	Channel	25.4	12.7	508	24.8	20.8	25.4	26.9
20265458	Channel	50.8	25.4	508	49.7	41.2	50.8	53.0
20265465	Wedge	-	-	508	6.1	-	-	-
20265472	Wedge	-	-	508	9.1	-	-	-
20265489	Wedge	-	-	508	12.3	-	-	-
20265496	Wedge	-	-	508	18.6	-	-	-
20265502	Wedge	-	-	508	24.8	-	-	-
20265519	Wedge	-	-	508	37.3	-	-	-
20265526	Wedge	-	-	508	49.7	-	-	-



E12140



Material

Channel: aluminium, anodised (7075-T6).
Wedge and screw: steel, hardened, blackened.

Technical Notes

Extra material on the clamp jaws can be machined away to suit the shape of your workpiece.
The specially designed steel wedge spreads

the clamp force uniformly across both sides of the clamp.

Tips

The locking plate should be used to machine the jaws, and removed after this process to enable workpiece clamping.
When the clamp is used to machine flat faced parts, use the locking plates to machine the faces parallel.

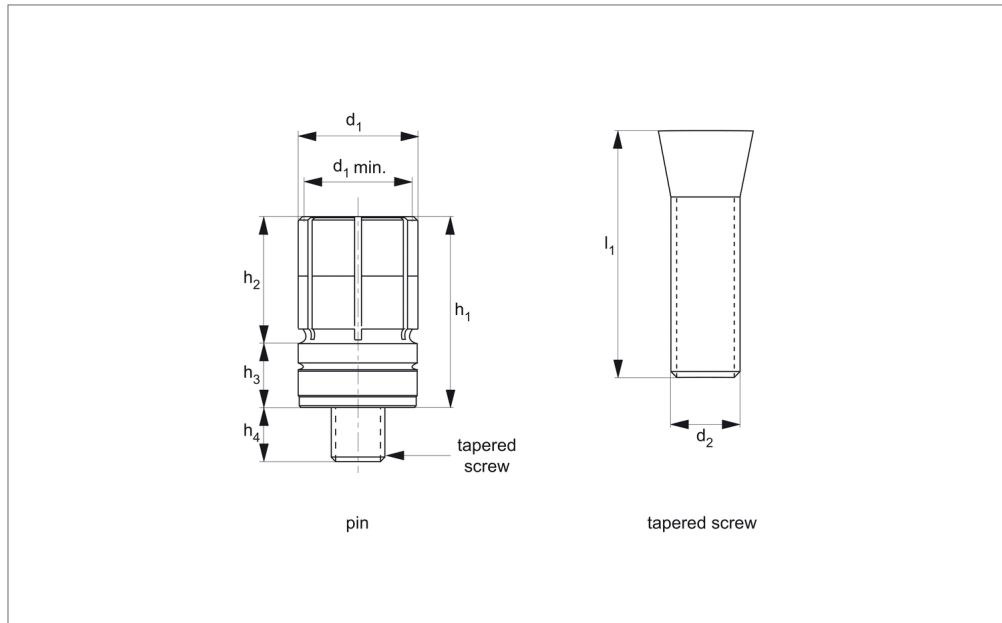
Full clamping cannot be achieved if locking plate has not been removed.

Important Notes

w_1 is the distance needed between workpieces for clamp clearance. Drill and tap mounting holes on the centre of this dimension.
 w_3 is the amount of machinable stock on the jaws.

Order No.	d_1	d_2	h_1	h_2	l_1	l_2	w_1	w_2	w_3	Torque to Nm max.	Holding force F kN	Weight g
20267148	M 4	M 2	12.7	6.3	15.7	10.2	28.6	10.7	4.6	3.4	2.2	18
20267155	M 6	M 4	19.1	9.4	23.9	15.9	38.1	16.1	6.6	13.5	6.6	25
20267162	M 8	M 4	25.4	12.7	31.8	20.6	50.8	20.8	9.9	25.0	11.1	13
20267179	M12	M 5	38.1	19.1	47.5	30.5	76.2	30.9	15.7	38.4	15.5	93
20267186	M16	M 6	50.8	25.4	63.5	41.3	101.6	41.3	20.3	74.6	26.7	1000





E12058

PULL BACK INSERTS

Material

Stainless steel (17-4PH) or steel (12L14). Pin and screw supplied together. Replacement pins can be ordered separately, see parts 20265793-20265762. Supplied as one pin and one tapered screw.

Technical Notes

XYZ Xpansion pins provide a cost-effective workholding solution for tombstones, grid and fixture plates, enabling full tool access to the work surface with no external clamping interference.

Unique design provides accurate location and repeatability with high holding forces to secure parts on an internal diameter.

Press-fit XYZ Xpansion pins are for installation into a precision bored hole, with a centred threaded hole to receive tapered screw.

Easy to use installation/removal tool available, please order separately.

Tips

Designed for applications requiring quick set-up on secondary operation, water jetting or even non-machining applications where discrete location and clamping of parts is required.

Important Notes

Clamping of component achieved via tight-

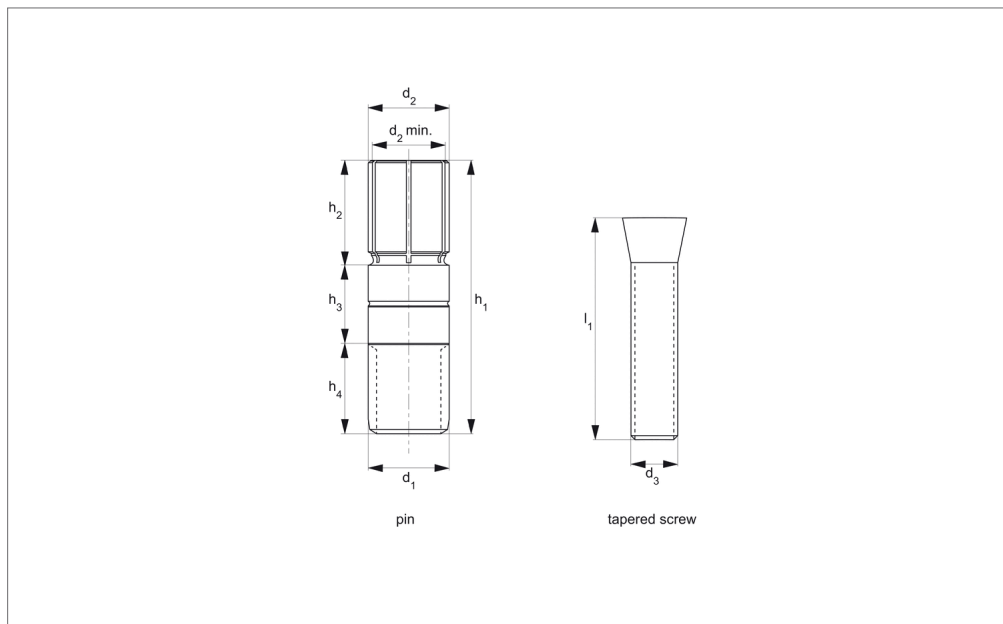
tening of tapered screw to expand the XYZ pin collet; expansion of 0,7mm is possible. The top of the pin has been slightly tapered to maximise line contact in the mounting bore and to provide adequate clearance during workpiece loading and unloading. If recessing pin into a fixture at a depth below the collet slits, be sure to provide sufficient clearance to allow for expansion of clamp (approx. 0,7mm).

d_{1 min.} is the minimum diameter to which the pin can be machined down. The tapered screws listed on the data table are for replacement purposes.

Order No.	Type	Material	l ₁	d ₁ +0.00 -0.025	d ₁ min.	d ₂	h ₁	h ₂	h ₃	h ₄	Weight g
20265625	Pin	17-4PH	16	6	5.5	-	13	7.0	5.8	7.3	2.7
20265618	Pin	17-4PH	22	10	7.5	-	19	12.7	6.4	8.4	9.5
20265601	Pin	17-4PH	22	12	10.5	-	19	12.7	6.4	11.1	17
20265595	Pin	17-4PH	22	16	12.0	-	19	12.7	6.4	13.0	27
20265786	Pin	12L14	16	6	5.5	-	13	7.0	5.8	7.3	2.7
20266431	Pin	12L14	22	10	7.5	-	19	12.7	6.4	8.4	9.5
20266448	Pin	12L14	22	12	10.5	-	19	12.7	6.4	11.1	17.2
20266455	Pin	12L14	22	16	12.0	-	19	12.7	6.4	13.0	27.2
20265793	Tapered Screw	-	-	-	-	M 3x0,5	-	-	-	-	-
20265809	Tapered Screw	-	-	-	-	M 4x0,7	-	-	-	-	4.5
20265717	Tapered Screw	-	-	-	-	M 6x1,0	-	-	-	-	-
20265762	Tapered Screw	-	-	-	-	M 8x1,25	-	-	-	-	13.6
20265670	Inst. Tool	-	-	-	-	-	-	-	-	-	-
20265687	Inst. Tool	-	-	-	-	-	-	-	-	-	-
20265694	Inst. Tool	-	-	-	-	-	-	-	-	-	-
20265700	Inst. Tool	-	-	-	-	-	-	-	-	-	63.5



E12059



Material

Stainless steel (17-4PH, AISI 630) or steel (12L14). Pin and screw supplied together. Replacement pins can be ordered separately, see parts 20265816-20265823. Supplied as one pin and one tapered screw.

Technical Notes

XYZ Xpansion pins provide a cost-effective workholding solution for tombstones, grid and fixture plates, enabling full tool access to the work surface with no external clamping interference.

Unique design provides accurate location and repeatability with high holding forces to secure parts on an internal diameter. Threaded XYZ Xpansion pins are installed

via a drilled and reamed hole for precise location, or set in a hardened drill bush for additional fixture strength and wear resistance. d_2 tolerance $+0.00/-0.025$.

Tips

Designed for applications requiring quick set-up on secondary operation, water jetting or even non machining applications where discrete location and clamping of parts is required.

Important Notes

Clamping of component achieved via tightening of tapered screw to expand the XYZ pin collet; expansion of 0,7mm is possible. The top of the pin has been slightly tapered

to maximise line contact in the mounting bore and to provide adequate clearance during loading and unloading of workpieces.

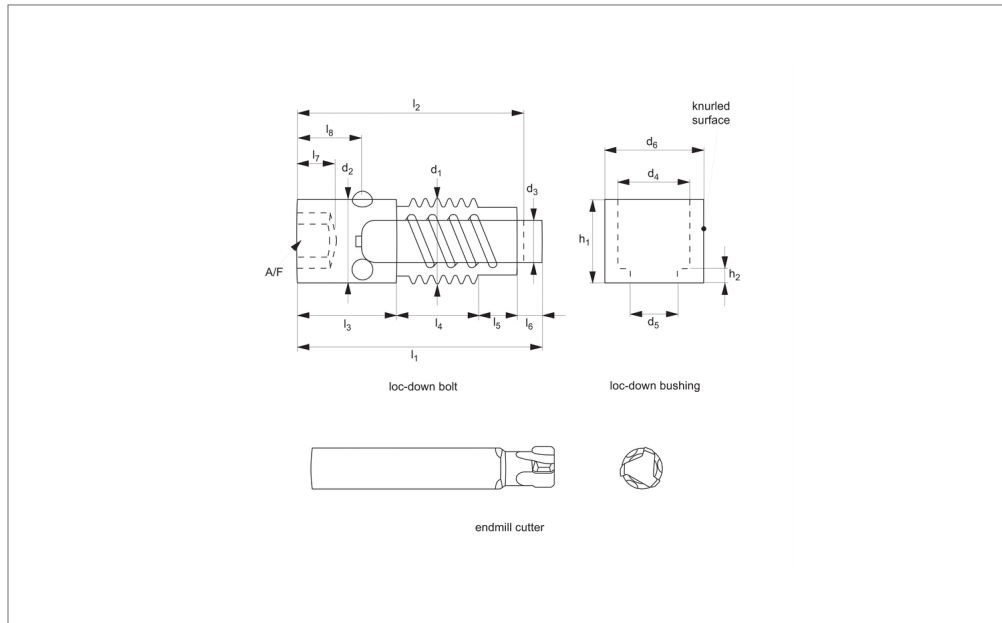
If installation pin in a precision bore, drill and ream the hole over the nominal diameter d_2 by minimum $+0,003$ to $+0,013$ mm.

If recessing pin into a fixture at a depth below the collet slits, be sure to provide sufficient clearance to allow for expansion of clamp (approx. 0,7mm).

d_2 min.* is the minimum diameter to which the pin can be machined down.

The tapered screws listed on the data table are for replacement purposes.

Order No.	Type	l_1	d_1	d_2 $+0.00 -0.025$	d_2 min.*	d_3	h_1	h_2	h_3	h_4	Weight g
20265656	Pin	-	M12x1,75	12	10.5	-	40	15	12	13	34
20265663	Pin	-	M16x2,00	16	12.0	-	45	16	16	13	59
20265816	Tapered Screw	30	-	-	-	M 6x1,00	-	-	-	-	9.1
20265823	Tapered Screw	30	-	-	-	M 8x1,25	-	-	-	-	14



E12098

PULL BACK INSERTS

Material

Bolt: stainless steel, heat treated
Bushings: alloy steel (4140), Rc 58-60, black oxide finish
Endmill cutter: stainless steel, heat treated
Install tool: stainless steel, heat treated

Technical Notes

**Please note: max. clamping force is typically 0,33kN. force for every 1 Nm. of torque, and is dependent upon workpiece material.

Max torque:

With bushing 20 Nm.
Alu/brass (without bush) 20 Nm.
Mild steel/ stainless steel 27Nm.
Metals HRc 45 20Nm.
See technical pages.

Tips

Ideal low cost quick component and fixture change. Use in conjunction with location pins E36340 and drill bushes E30800 for fast and accurate positioning. Provides

repeatability to 0,01mm.

Time saving solution, removing the need for traditional bolts whilst reducing tooling interference from traditional clamping methods.
Ideal for high speed machining of components.

Important Notes

See installation guidance sheet for correct installation procedure.

Order No.	Type	Size	d ₁	d ₂	d ₃	d ₄	d ₅	d ₆	h ₁	Weight g
20266103	Loc-down bolt	M10	M10x1,5	9.9	5.0	-	-	-	-	16
20267643	Loc-down bolt	M12	M12x1,75	12.6	7.9	-	-	-	-	27
20266134	Loc-down bolt	M16	M16x2	15.9	9.8	-	-	-	-	58
20266127	Loc-down bushing	M10	-	-	-	13.2	10.2	18.0	10.0	10
20266110	Loc-down bushing	M16	-	-	-	20.7	16.1	26.9	14.1	30
20266370	Endmill cutter	M10	-	-	-	-	-	-	-	-
20266387	Endmill cutter	for M12, M16	-	-	-	-	-	-	-	-
20265724	Bushing install tool	for M10 to M16	-	-	-	-	-	-	-	159

Order No.	h ₂	l ₁	l ₂	l ₃	l ₄	l ₅	l ₆	l ₇	l ₈	A/F
20266103	-	42.8	40.2	14.1	18.7	5.3	4.6	6.3	10.5	5
20267643	-	43.8	38.5	15.8	16.0	6.3	5.7	6.8	12.3	6
20266134	-	56.4	50.0	21.3	22.7	6.0	6.3	8.5	15.9	8
20266127	2.9	-	-	-	-	-	-	-	-	-
20266110	3.6	-	-	-	-	-	-	-	-	-
20266370	-	-	-	-	-	-	-	-	-	-
20266387	-	-	-	-	-	-	-	-	-	-
20265724	-	-	-	-	-	-	-	-	-	-

