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Sections

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Products

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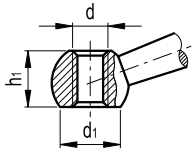
Sections

Products

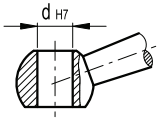
Clamping Lever Turned and Blacked

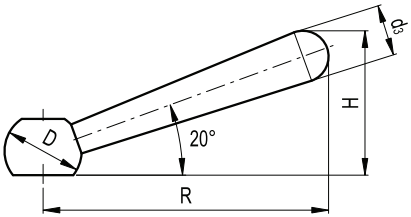
- **Material**
  Turned and black-oxide steel.
- **Assembly**
- Type B: plain through hole.
- Type A: tapped through hole.

Type A



Type B





						Mounting hole		
Part Reference	**R**	**D**	**H**	**d1**	**d3**	**dH7**	**d**	**h1**
CL1B	48	12	24	11	8	6	-	9.5
CL2A	48	12	24	11	8	-	M6	9.5
CL3B	60	16	30.5	12.5	10	8	-	12
CL3A	60	16	30.5	12.5	10	-	M8	12
CL5B	76	20	38	16	13	10	-	14.5
CL6A	76	20	38	16	13	-	M10	14.5
CL7B	95	25	47	20	16	12	-	18.5
CL8A	95	25	47	20	16	-	M12	18.5
CL9B	119	32	59.5	25	20	16	-	24
CL10A	119	32	59.5	25	20	-	M16	24
CL11B	152	40	76	31	25	20	-	30
CL12A	152	40	76	31	25	-	M20	30

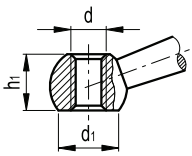
Clamping Lever Stainless Steel

Stainless Steel

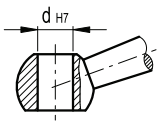
- **Material**
  AISI 303 stainless steel, sandblasted matte finish.
- **Assembly**
- Type B: plain through hole.
- Type A: tapped through hole.

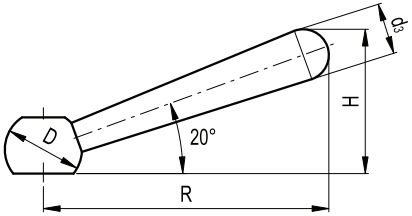
Features and applications
AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these clamping levers on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.

Type A



Type B

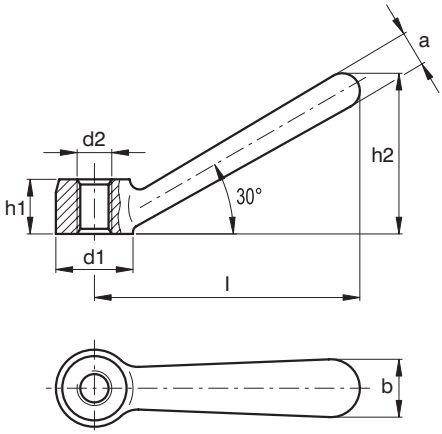




						Mounting hole		
Part Reference	**R**	**D**	**H**	**d1**	**d3**	**dH7**	**d**	**h1**
CL1ASS	48	12	24	8	8	-	M6	9.5
CL2BSS	60	16	30.5	12.5	10	8	-	12
CL3ASS	60	16	30.5	12.5	10	-	M8	12
CL4BSS	76	20	38	16	13	10	-	14.5
CL5ASS	76	20	38	16	13	-	M10	14.5
CL6BSS	95	25	47	20	16	12	-	18.5
CL7ASS	95	25	47	20	16	-	M12	18.5
CL8ASS	119	32	59.5	25	20	-	M16	24

- **Material**
  Malleable cast iron, smooth finish, paintable.
- **Assembly**
  Tapped through hole.

Special executions on request
(For sufficient quantities): clamping levers with two lever arms.



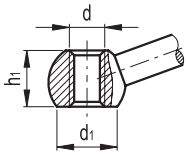
Material: Malleable Iron, contact faces machined

Part Reference	d1	d2	a	b	h1	h2	l
CL1-7400	16	M8	7	12	12	34.0	56
CL2-7400	20	M10	9	14	14	42.5	70
CL3-7400	25	M12	11	18	18	53.0	87
CL4-7400	32	M16	15	22	22	66.5	109
CL5-7400	40	M20	18	28	28	84.5	140

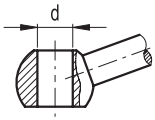
Clamping Lever Ball End

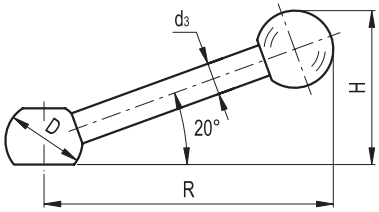
- **Lever Body**
  Turned and black-oxide steel.
- **Assembly**
- Type B: plain through hole.
- Type A: tapped through hole.
- **Handle**
  Phenolic based (PF) Duroplast, black colour, glossy finish type PL. Resistant to solvents, oils, greases and other chemical agents.

Type A



Type B





						Mounting hole		
Part Reference	**R**	**H**	**D**	**d1**	**d3**	**dH7**	**d**	**h1**
CLB1B	60	33	16	12.5	8	8	-	12
CLB2A	60	33	16	12.5	8	-	M8	12
CLB3B	76	40	20	16	9	10	-	14.5
CLB4A	76	40	20	16	9	-	M10	14.5
CLB5B	95	50	25	20	11	12	-	18.5
CLB6A	95	50	25	20	11	-	M12	18.5
CLB7B	119	63	32	25	15	16	-	24
CLB8A	119	63	32	25	15	-	M16	24
CLB9B	152	80	40	31	18	20	-	30
CLB10A	152	80	40	31	18	-	M20	30

Adjustable Clamping Lever Push Action

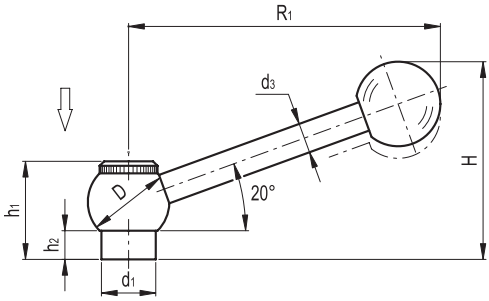
Adjustable handles with push action

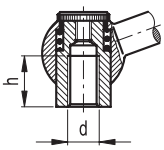
- **Lever body**
  Black-oxide steel.
- **Handle**
  Phenolic based (PF) Duroplast, black colour. Resistant to solvents, oils, greases and other chemical agents.
- **Clamping element**
  Black-oxide steel with toothed element for coupling to the lever body, black-oxide steel retaining screw, treated steel return spring.

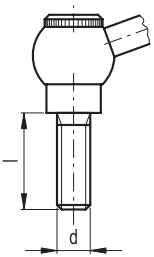
Special executions on request
(For sufficient quantities)
- Different lengths and threadings.
- Straight arm.

Features and applications
Particularly suitable when the lever turning angle is limited owing to lack of space.

Instructions of use
By pressing the lever, toothing is disengaged and the handle can be placed in the most suitable position for the operation. As it is released, the handle is automatically engaged.
If the lever cannot make a 360° rotation, the clamping element can be easily screwed by means of the knurled screw (after having disengaged the lever).





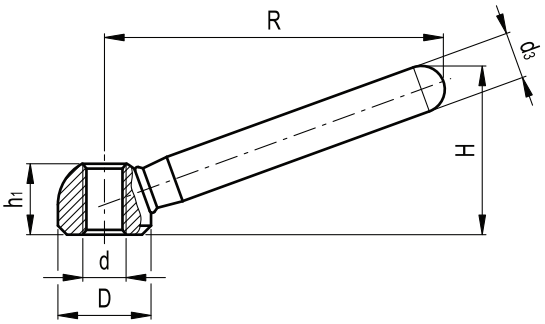


								Mounting hole	
Part Reference	**D**	**R1**	**H**	**h1**	**h2**	**d1**	**d3**	**d**	**h**
ACLPAF1	20	70	46	25	8	13.5	8.5	M8	12
ACLPAF2	25	87	58	29	8	16	11	M10	15
ACLPAF3	28	109	70.5	33.5	10.5	19	13	M12	18

								Thread	
Part Reference	**D**	**R1**	**H**	**h1**	**h2**	**d1**	**d3**	**d**	**l**
ACLPA1	20	70	46	25	8	13.5	8.5	M8	20
ACLPA2	20	70	46	25	8	13.5	8.5	M8	25
ACLPA3	20	70	46	25	8	13.5	8.5	M8	32
ACLPA4	25	87	58	29	8	16	11	M10	32
ACLPA5	25	87	58	29	8	16	11	M10	40
ACLPA6	25	87	58	29	8	16	11	M10	50
ACLPA7	25	87	58	29	8	16	11	M10	63
ACLPA8	28	109	70.5	33.5	10.5	19	13	M12	32
ACLPA9	28	109	70.5	33.5	10.5	19	13	M12	40
ACLPA10	28	109	70.5	33.5	10.5	19	13	M12	50
ACLPA11	28	109	70.5	33.5	10.5	19	13	M12	63

Clamping Lever Butt Welded

- **Material**
  Steel, sandblasted matte finish.
  The lever arm is butt-welded to the hub.
- **Assembly**
  Tapped through hole.

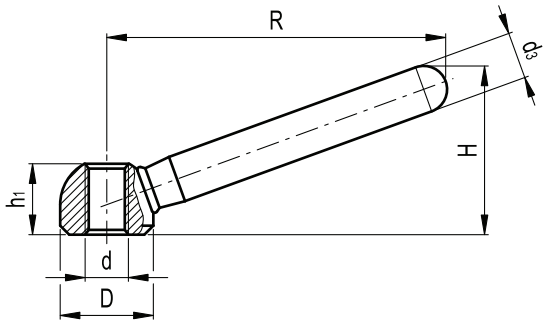


					Mounting Hole	
Part Reference	**R**	**D**	**H**	**d3**	**d**	**h1**
CLBW1	60	16	30.5	9	M8	12.5
CLBW2	76	20	37	11	M10	15
CLBW3	95	25	46	14	M12	19
CLBW4	119	32	58.5	18	M16	25
CLBW5	152	40	73	20	M20	31

Clamping Lever
Butt Welded Stainless Steel

- **Material**
  AISI 304 stainless steel, sandblasted matte finish.
  The lever arm is butt-welded to the hub.
- **Assembly**
  Tapped through hole.

- **Features and applications**
  AISI 304 stainless steel, thanks to its high resistance to corrosion allows the application of these clamping levers on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.

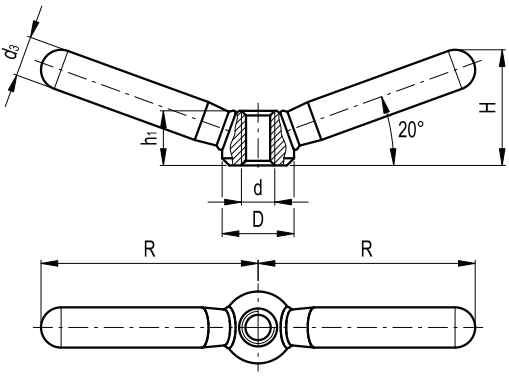


					Mounting Hole	
Part Reference	**R**	**D**	**H**	**d3**	**d**	**h1**
CLBW1SS	60	16	30.5	9	M8	12.5
CLBW2SS	76	20	37	11	M10	15
CLBW3SS	95	25	46	14	M12	19
CLBW4SS	119	32	58.5	18	M16	25
CLBW5SS	152	40	73	20	M20	31

Double Clamping Levers Butt Welded

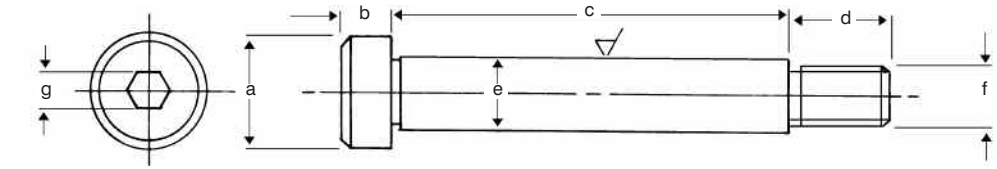
Clamping nuts with double levers

- **Material**
  Steel, sandblasted matte finish.
  The two lever arms are butt-welded to the hub.
- **Assembly**
  Tapped through hole.



					Mounting Hole	
Part Reference	**D**	**R**	**H**	**d3**	**d**	**h1**
DCLBW1	16	47.5	26	9	M8	12.5
DCLBW2	20	59.5	32	11	M10	15
DCLBW3	25	75.5	40	14	M12	19
DCLBW4	32	94.5	52	18	M16	25
DCLBW5	40	118	62	20	M20	31

Stripper Bolts



Advise e dia. and length

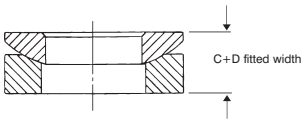
e	Length c sizes available										a dia	b	d	f thread	g
8	25	30	40	50							13	5.5	11	6x1	4
10		30	40	50	60	70	80				16	7	13	8x1.25	5
12		30	40	50	60	70	80	90	100		18	8	16	10x1.5	6
16		30	40	50	60	70	80	90	100	120	24	11	18	12x1.75	8
20				50	60	70	80	90	100	120	30	14	22	16x2	10
24						70	80	90			36	16	27	20x2.5	12

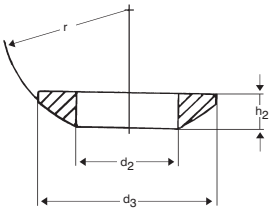
Spherical Seat and Dished Washers

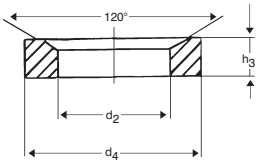
- **Material**
  D: case-hardened steel (hardening depth 0.2 - 0.4 mm), hardness (550 + 100) HV 10.

Applications
Concave and convex washers are suitable for locking mechanical parts on non-parallel surfaces.

Product normally sold in pairs but singular on request.







Material: Case hardened steel

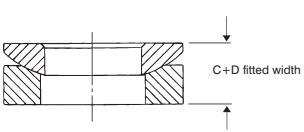
DIN 6319 C/D

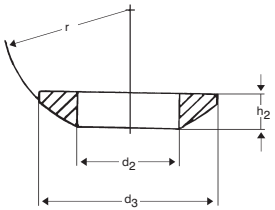
Part Reference	Screw	d1	d2	d3	d4	h2	h3	Total Width c + d	r
S1728-1950	M6	6.4	7.1	12	12	2.3	2.8	4.0	9
S1737-1869	M8	8.4	9.6	17	17	3.2	3.5	5.0	12
S1745-1877	M10	10.5	12.0	21	21	4.0	4.2	6.3	15
S1752-1885	M12	13.0	14.2	24	24	4.6	5.0	8.0	17
S1760-1893	M14	15.0	16.5	28	28	5.0	5.6	8.6	22
S1778-1901	M16	17.0	19.0	30	30	5.3	6.2	9.3	22
S1786-1919	M20	21.0	23.2	36	36	6.3	7.5	11.5	27
S1794-1927	M24	25.0	28.0	44	44	8.2	9.5	15.0	32
S1802-1935	M30	31.0	35.0	56	56	11.2	12.0	19.7	41
S1810-1943	M36	37.0	42.0	68	68	14.0	15.0	23.0	50
S1836-1968	M42	43.0	49.0	78	78	17.0	18.0	29.0	58
S1844-1976	M48	50.0	56.0	92	92	21.0	22.0	36.0	67

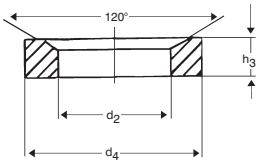
Spherical Seat and Dished Washers
Stainless Steel

- **Material**
  AISI 303 stainless steel.

Features and Applications
Concave and convex washers are suitable for locking mechanical parts on non-parallel surfaces.
AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these washers on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.







Material: Case hardened steel

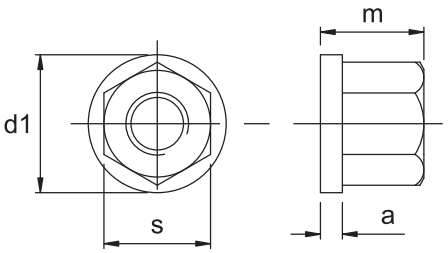
DIN 6319 C/D

Part Reference	Screw	d1	d2	d3	d4	h2	h3	Total Width c + d	r
S1728-SS	M6	6.4	7.1	12	12	2.3	2.8	4.0	9
S1737-SS	M8	8.4	9.6	17	17	3.2	3.5	5.0	12
S1745-SS	M10	10.5	12.0	21	21	4.0	4.2	6.3	15
S1752-SS	M12	13.0	14.2	24	24	4.6	5.0	8.0	17
S1760-SS	M14	15.0	16.5	28	28	5.0	5.6	8.6	22
S1778-SS	M16	17.0	19.0	30	30	5.3	6.2	9.3	22
S1786-SS	M20	21.0	23.2	36	36	6.3	7.5	11.5	27
S1794-SS	M24	25.0	28.0	44	44	8.2	9.5	15.0	32
S1802-SS	M30	31.0	35.0	56	56	11.2	12.0	19.7	41
S1810-SS	M36	37.0	42.0	68	68	14.0	15.0	23.0	50
S1836-SS	M42	43.0	49.0	78	78	17.0	18.0	29.0	58
S1844-SS	M48	50.0	56.0	92	92	21.0	22.0	36.0	67

Collar Nut

- **Material**
  DIN6331 - Refined Steel.

Turned and Milled
Heat treated to Strength Class 10

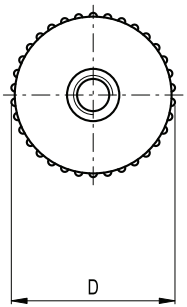


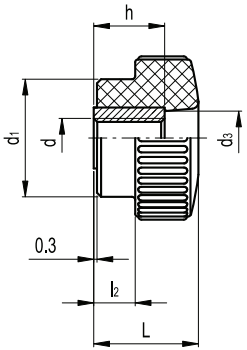
DIN 6331

Part Reference	d	s	e	m	a	d1
CN1-2651	M6	10	11.5	9	3.0	14
CN2-2537	M8	13	15.0	12	3.5	18
CN3-2545	M10	16	19.6	15	4.0	22
CN4-2552	M12	18	21.9	18	4.0	25
CN5-2560	M14	21	25.4	21	4.5	28
CN6-2578	M16	24	27.7	24	5.0	31
CN7-2586	M18	27	31.2	27	5.0	34
CN8-2594	M20	30	34.6	30	6.0	37
CN9-2602	M22	33	36.9	33	6.0	40
CN10-2610	M24	36	41.6	36	6.0	45
CN11-2628	M27	41	47.3	40	8.0	51
CN12-2636	M30	46	53.1	45	8.0	58

Grip Knobs Blind Hole

- **Material**
  Phenolic based (PF) Duroplast. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, glossy finish.
- **Assembly**
  Brass boss, tapped blind hole.



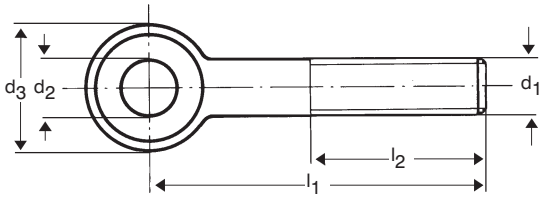


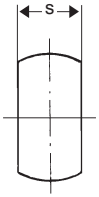
Grip Knobs Through Hole

Part Reference	D	L	d1	l2	d	h
GKBH1	15	11	11	2	M3	6
GKBH2	15	11	11	2	M4	6
GKBH3	15	11	11	2	M5	5
GKBH4	18	12	13	3	M5	5
GKBH5	22	14	15	4	M6	6
GKBH6	26	18	19	6	M6	10
GKBH7	31	18	24	6	M8	10
GKBH8	36	23	27	8	M8	10
GKBH9	40	26	29	10	M10	13
GKBH10	50	32	36	12	M10	17
GKBH11	50	32	36	12	M12	20

- **Material**
  Heat Treated Steel, turned and thread rolled.
  Blackened finish.

  Also available in stainless steel.



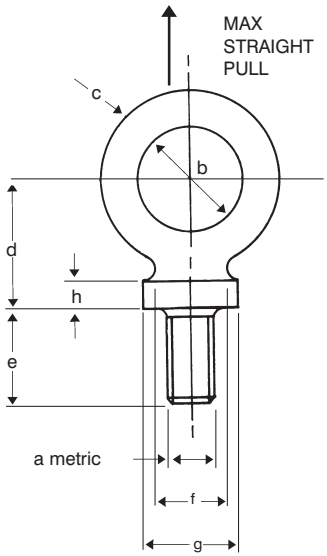


DIN 444

Part Reference	d1	l1	l2	d2 H7	d3	s -0.2
ESB1-1882	M6	50	32	6	14	7
ESB2-1882		75				
ESB3-1882	M8	40	22	8	18	9
ESB4-1882		60				
ESB5-1882	M10	50	26	10	20	12
ESB6-1882		75				
ESB7-1882		100				
ESB8-1882	M12	60	30	12	25	14
ESB9-1882		80				
ESB10-1882		120				
ESB11-1882	M16	80	38	16	32	17
ESB12-1882		150	44			
ESB14-1882	M20	100	63	18	40	22
ESB15-1882		130				
ESB16-1882		160				

Lifting Eye Bolts

- **Material**
  Steel.

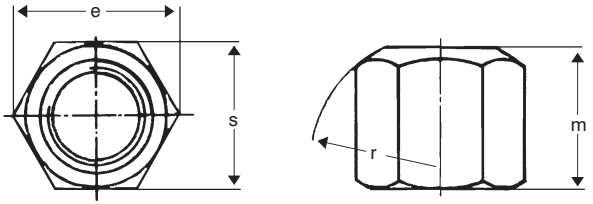


Material: Steel

Part Ref	a thread	b dia	c dia	d	e	f dia	g dia	h	j kg.
LEB1M	M8 x 1.25	22	9.5	27	19	16	19	6.4	114
LEB2M	M10 x 1.5	22	9.5	27	19	16	19	6.4	190
LEB3M	M12 x 1.75	29	10.3	35	25	19	25	7.9	360
LEB4M	M16 x 2.0	32	12.7	41	29	22	29	9.5	610
LEB5M	M20 x 2.5	41	16	54	32	27	35	11.1	930

Lifting eye bolts to B.S. 4278 available if required.

- **Material**
  DIN6330B - Refined Steel.



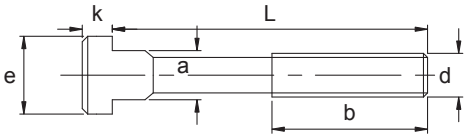
Heat treated to Strength Class 10

DIN 6330B

Part Reference	d1	s	e	m	r
FN1-2362	M6	10	11.5	9	9
FN2-2370	M8	13	15.0	12	12
FN3-2388	M10	16	19.6	15	15
FN4-2396	M12	18	21.9	18	17
FN5-2404	M14	21	25.4	21	20
FN6-2412	M16	24	27.7	24	22
FN7-2420	M18	27	31.2	27	24
FN8-2438	M20	30	34.6	30	27
FN9-2446	M22	33	36.9	33	30
FN10-2453	M24	36	41.6	36	32
FN11-2461	M27	41	47.3	40	36
FN12-2479	M30	46	53.1	45	41

T Slot Bolts

- **Material**
  Forged steel with milled T. Slot guide faces rolled thread. M6 - M12 strength class 10.9. M14 - M30 class 8.8.



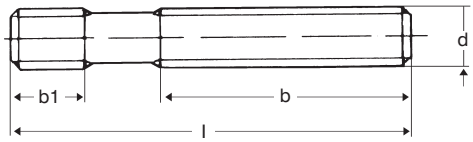
DIN 787 plus additional sizes
* = Slot width

Part Reference	d x * x L	b	a	e	k
TB-4004	M6 x 6 x 25	15	5.7	10	4
TB-4012	M6 x 6 x 40	28	5.7	10	4
TB-4020	M6 x 6 x 63	40	5.7	10	4
TB-4038	M8 x 8 x 32	22	7.7	13	6
TB-0374	M8 x 8 x 50	35	7.7	13	6
TB-0382	M8 x 8 x 80	50	7.7	13	6
TB-4046	M10 x 10 x 40	30	9.7	15	6
TB-0390	M10 x 10 x 63	45	9.7	15	6
TB-0408	M10 x 10 x 100	60	9.7	15	6
TB-0416	M12 x 12 x 50	35	11.7	18	7
TB-5605	M12 x 12 x 63	40	11.7	18	7
TB-0424	M12 x 12 x 80	55	11.7	18	7
TB-0432	M12 x 12 x 125	75	11.7	18	7
TB-0440	M12 x 12 x 200	120	11.7	18	7
TB-0457	M12 x 14 x 50	35	13.7	22	8
TB-5613	M12 x 14 x 63	45	13.7	22	8
TB-0465	M12 x 14 x 80	55	13.7	22	8
TB-0473	M12 x 14 x 125	75	13.7	22	8
TB-0481	M12 x 14 x 200	120	13.7	22	8
TB-0499	M14 x 16 x 63	45	15.7	25	9
TB-0507	M14 x 16 x 100	65	15.7	25	9
TB-0515	M14 x 16 x 160	100	15.7	25	9
TB-0523	M14 x 16 x 250	150	15.7	25	9
TB-0531	M16 x 16 x 63	45	15.7	25	9
TB-5621	M16 x 16 x 80	55	15.7	25	9
TB-0549	M16 x 16 x 100	65	15.7	25	9
TB-0556	M16 x 16 x 160	100	15.7	25	9
TB-5647	M16 x 16 x 200	125	15.7	25	9
TB-0564	M16 x 16 x 250	150	15.7	25	9
TB-0572	M16 x 18 x 63	45	17.8	28	10
TB-5639	M16 x 18 x 80	55	17.7	28	10
TB-0580	M16 x 18 x 100	65	17.7	28	10
TB-0598	M16 x 18 x 160	100	17.7	28	10
TB-5654	M16 x 18 x 200	125	17.7	28	10
TB-0606	M16 x 18 x 250	150	17.7	28	10

Part Reference	d x * x L	b	a	e	k
TB-4103	M20 x 20 x 80	55	19.7	32	12
TB-4053	M20 x 20 x 100	65	19.7	32	12
TB-4111	M20 x 20 x 125	85	19.7	32	12
TB-5662	M20 x 20 x 160	110	19.7	32	12
TB-4129	M20 x 20 x 200	125	19.7	32	12
TB-4079	M20 x 20 x 250	150	19.7	32	12
TB-4137	M20 x 20 x 315	190	19.7	32	12
TB-0614	M20 x 22 x 80	55	21.7	35	14
TB-5829	M20 x 22 x 100	65	21.7	35	14
TB-0622	M20 x 22 x 125	85	21.7	35	14
TB-5670	M20 x 22 x 160	110	21.7	35	14
TB-0630	M20 x 22 x 200	125	21.7	35	14
TB-5845	M20 x 22 x 250	150	21.7	35	14
TB-0648	M20 x 22 x 315	190	21.7	35	14
TB-0770	M24 x 24 x 100	70	23.7	40	16
TB-5688	M24 x 24 x 125	85	23.7	40	16
TB-0788	M24 x 24 x 160	110	23.7	40	16
TB-5704	M24 x 24 x 200	125	23.7	40	16
TB-0796	M24 x 24 x 250	150	23.7	40	16
TB-4061	M24 x 24 x 315	190	23.7	40	16
TB-0804	M24 x 24 x 400	240	23.7	40	16
TB-0655	M24 x 28 x 100	70	27.7	44	18
TB-5696	M24 x 28 x 125	85	27.7	44	18
TB-0663	M24 x 28 x 160	110	27.7	44	18
TB-5712	M24 x 28 x 200	125	27.7	44	18
TB-0671	M24 x 28 x 250	150	27.7	44	18
TB-4087	M24 x 28 x 315	190	27.7	44	18
TB-0689	M24 x 28 x 400	240	27.7	44	18
TB-0697	M30 x 36 x 125	80	35.6	54	22
TB-5720	M30 x 36 x 160	110	35.6	54	22
TB-0705	M30 x 36 x 200	135	35.6	54	22
TB-5738	M30 x 36 x 250	150	35.6	54	22
TB-0713	M30 x 36 x 315	200	35.6	54	22
TB-0721	M30 x 36 x 500	300	35.6	54	22

- **Material**
  Forged steel, rolled thread.
  M6 to M12 heat treated to strength class 10.9.
  M14 to M30 class 8.8.

DIN 6379

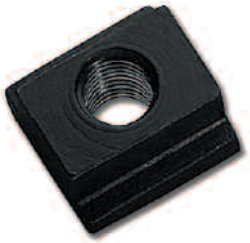


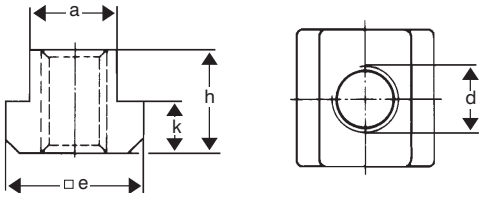
Part Reference	d x l	b	b1
SD1-4772	M6 x 32	16	9
SD1-6546	x 40	20	9
SD1-4780	x 50	30	9
SD1-5522	x 63	40	9
SD1-4798	x 80	50	9
SD2-1257	M8 x 40	20	11
SD2-4806	x 63	40	11
SD2-1273	x 90	50	11
SD2-4814	x 100	63	11
SD2-4822	x 160	100	11
SD3-1299	M10 x 50	25	13
SD3-4830	x 80	50	13
SD3-6041	x 100	75	13
SD3-1315	x 125	75	13
SD3-5928	x 160	100	13
SD3-4848	x 200	100	13
SD4-4855	M12 x 50	25	15
SD4-1331	x 63	32	15
SD4-4863	x 80	50	15
SD4-1349	x 100	63	15
SD4-4871	x 125	75	15
SD4-5480	x 160	100	15
SD4-4889	x 200	125	15
SD5-1372	M14 x 63	32	17
SD5-1380	x 100	63	17
SD5-1398	x 160	100	17
SD5-6553	x 200	125	17
SD5-4897	x 250	160	17
SD6-4905	M16 x 63	32	19
SD6-1414	x 80	50	19
SD6-4913	x 100	63	19
SD6-1422	x 125	75	19
SD6-4921	x 160	100	19
SD6-5498	x 200	125	19
SD6-4939	x 250	160	19
SD6-5548	x 315	180	19
SD6-5472	x 500	315	19

Part Reference	d x l	b	b1
SD7-4947	M18 x 80	50	23
SD7-4954	x 125	75	23
SD7-6561	x 160	100	23
SD7-1471	x 200	125	23
SD7-1489	x 250	150	23
SD7-4962	x 315	180	23
SD8-4970	M20 x 80	32	27
SD8-4988	x 125	70	27
SD8-5506	x 160	100	27
SD8-1513	x 200	125	27
SD8-1521	x 250	160	27
SD8-4996	x 315	200	27
SD8-5977	x 400	250	27
SD8-5001	x 500	315	27
SD9-5019	M22 x 100	45	31
SD9-1539	x 160	100	31
SD9-6579	x 200	125	31
SD9-1554	x 250	160	31
SD9-6595	x 315	180	31
SD9-5027	x 400	250	31
SD10-5035	M24 x 100	45	35
SD10-5563	x 125	63	35
SD10-1570	x 160	100	35
SD10-5514	x 200	125	35
SD10-1596	x 250	160	35
SD10-6009	x 315	200	35
SD10-5043	x 400	250	35
SD10-6025	x 500	315	35
SD10-5050	x 630	315	35
SD11-1695	M27 x 125	56	39
SD11-1703	x 200	125	39
SD11-1711	x 315	200	39
SD11-6587	x 400	250	39
SD11-1729	x 500	315	39
SD12-5068	M30 x 125	56	43
SD12-1612	x 200	125	43
SD12-1620	x 315	200	43
SD12-1638	x 500	315	43
SD12-1646	x 700	400	43
SD12-1661	x 1000	400	43

T. Nuts

- **Material**
  DIN508 - Refined Steel.





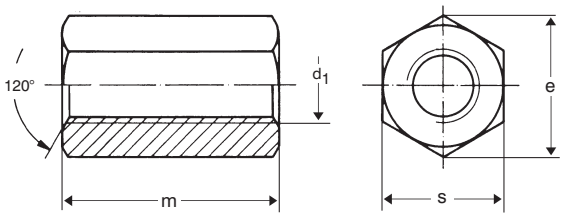
Heat treated to Strength Class 10

DIN 508

Part Reference	d x slot width	a	e	h	k
TN-0002	M5 x 6	5.7	10	8	4
TN-0010	M6 x 8	7.7	13	10	6
TN-0028	M8 x 10	9.7	15	12	6
TN-0036	M10 x 12	11.7	18	14	7
TN-0044	M12 x 14	13.7	22	16	8
TN-0366	M10 x 16	15.7	25	18	9
TN-1265	M10 x 18	17.7	28	20	10
TN-0069	M16 x 18	17.7	28	20	10
TN-0184	M16 x 20	19.7	32	24	12
TN-0242	M18 x 22	21.7	35	28	14
TN-0085	M20 x 22	21.7	35	28	14
TN-0358	M22 x 28	27.7	44	36	18
TN-0101	M24 x 28	27.7	44	36	18
TN-0127	M30 x 36	35.6	54	44	22

Extension Nut

- **Material**
  DIN6334.

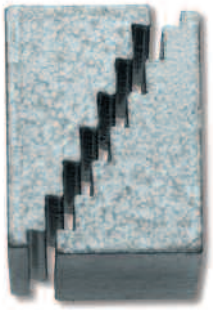


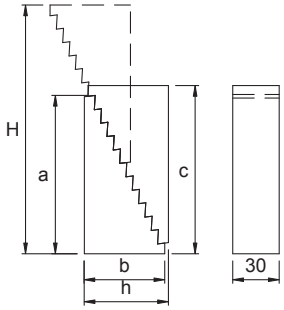
Heat treated to Strength Class 10

Part Reference	d1	s	e	m
EN1-2651	M6	10	11.5	18
EN2-2669	M8	13	15.0	24
EN3-2677	M10	17	19.6	30
EN4-2685	M12	19	21.9	36
EN5-2693	M14	22	25.4	42
EN6-2701	M16	24	27.7	48
EN7-2719	M18	27	31.2	54
EN8-2727	M20	30	34.6	60
EN9-2735	M22	32	36.9	66
EN10-2743	M24	36	41.6	72
EN11-2750	M27	41	47.3	81
EN12-2768	M30	46	53.1	90

Step Blocks

- **Material**
  Carbon Steel.
  Enamelled finish.





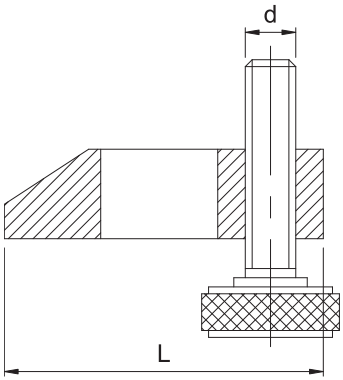
Part Reference	a	b	c	h	H
SB1-3296	33	19	38	22	51
SB2-3304	66	35.5	70	39	107
SB3-3312	131	68	135	71	208

Supplied in Pairs

Adjustable Plain Clamp

(wih screw) less T bolt washer & nut

- **Material**
  DIN 6314AT - Heat Treated and Enamelled.

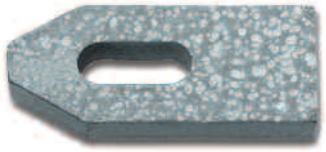


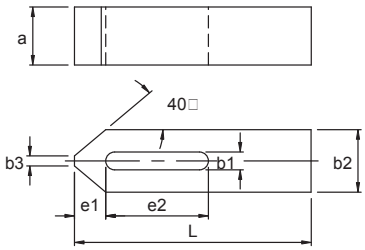
Part Reference	b1*	L	Screw Size	a	b2*	b3*	d	e1	e2
PCA1-0177	11	80	M10	15	30	12	m10	15	30
PCA2-0193	14	100	M12/14	20	40	14	m12	21	40
PCA3-0219	18	125	M16/18	25	50	18	m16	26	45
PCA4-0201	22	160	M20/22	30	60	22	m20	30	60

Complete with adjusting screw *as Plain Clamp sketch

Plain Clamp

- **Material**
  Carbon Steel.
  Enamelled finish.





DIN 6314

Part Reference	b1	l	Screw Size	a	b2	b3	e1	e2
PC1-0003	7	50	M6	10	20	8	10	20
PC2-0011	9	60	M8	12	25	10	13	22
PC3-0029	11	80	M10	15	30	12	15	30
PC4-0037	14	100	M12/14	20	40	14	21	40
PC5-0045		125						50
PC6-0052	18	125	M16/18	25	50	18	26	45
PC7-0060		160						65
PC8-0078	22	160	M20/22	30	60	22	30	60
PC9-0086		200						80
PC10-0094	26	200	M24	30	70	26	35	80
PC11-0102		250		35				105
PC12-0110	34	250	M30	40	80	34	45	100
PC13-0128		315		50				130

Universal Step Block Assortment

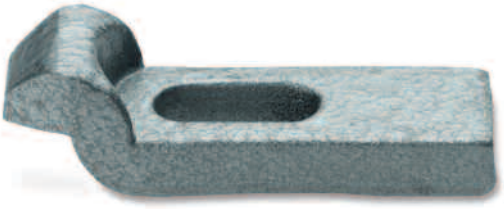
Part Reference	Contents
USBA1	4 pieces 25-50, 4 pieces 35-100, 2 pieces 60-190mm

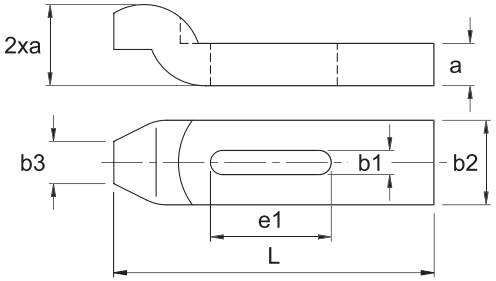
Parallel Supports

Part Ref.	l	No.	Contents
PS100	100	20	5-10-15-20 (2x) / 6-11-16-21 (3x) / 7-12-17-22 (4x) / 8-13-18-23 (5x) / 9-13-19-24 (6x)
PS125	125	24	11-16-21-26-31-36 (8X) / 13-18-23-28-33-38 (10X) / 15-20-25-30-35-40 (12X) / 17-22-27-32-37-42 (14X)
PS150	150	24	11-16-21-26-31-36 (8X) / 13-18-23-28-33-38 (10X) / 15-20-25-30-35-40 (12X) / 17-22-27-32-37-42 (14X)

Swan-Neck Clamp

- **Material**
  DIN6316 - Heat treated steel, enamelled.

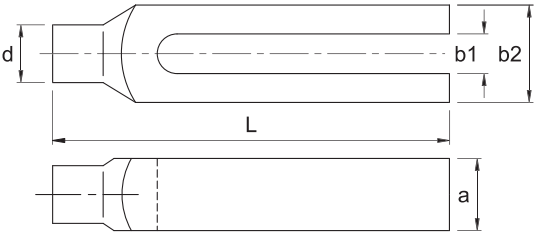




Part Reference	b1	L	M	a	b2	b3	e1
SNC1	7	60	M6	20	20	10	10
SNC2	9	80	M8	25	25	12	12
SNC3	11	100	M10	30	32	15	15
SNC4	14	125	M12+M14	40	40	20	20
SNC5	18	125	M16+M18	50	50	25	25
SNC6	18	160	M16+M18	50	50	25	25
SNC7	22	160	M20	60	70	30	30
SNC8	22	200	M20	60	70	30	30
SNC9	26	200	M24	70	80	35	35
SNC10	26	250	M24	70	80	35	35
SNC11	34	315	M30	80	100	40	50

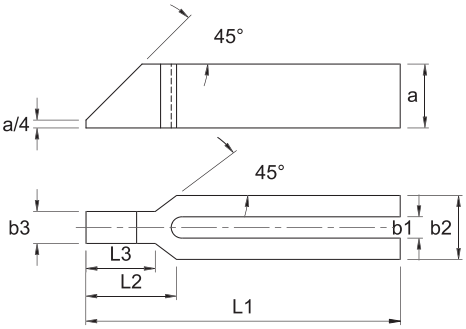
Pin Ended Forked Clamp

- **Material**
  DIN6315-C - Heat treated steel, enamelled.



Part Reference	b1	L	d	M	b2	a
PEFC1	7	80	12	M6	19	15
PEFC2	9	90	12	M8	25	15
PEFC3	11	125	16	M10	31	20
PEFC4	14	160	20	M12+M14	38	25
PEFC5	18	200	24	M16+M18	48	30
PEFC6	22	250	30	M20+M22	62	40
PEFC7	26	315	38	M24	66	40
PEFC8	34	400	45	M27+M30	74	50

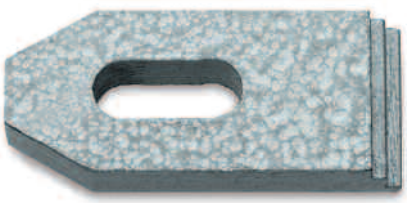
- **Material**
  DIN6315GN - Heat treated steel, enamelled.

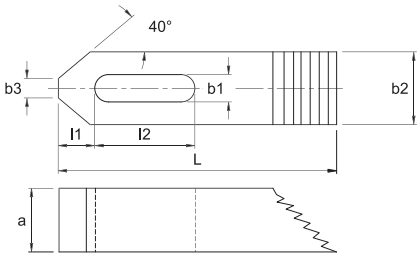


Part Reference	b1	L1	a	M	b2	b3	L2	L3
SFC1	9	100	15	M8	30	16	32	18
SFC2	11	125	20	M10	30	20	38	24
SFC3	14	160	25	M12+M14	40	24	47	30
SFC4	14	200	25	M12+M14	40	24	47	30
SFC5	18	160	30	M16+M18	50	28	57	36
SFC6	18	200	30	M16+M18	50	28	57	36
SFC7	18	250	30	M16+M18	50	28	57	36
SFC8	22	200	40	M20+M22	60	35	68	45
SFC9	22	250	40	M20+M22	60	35	68	45
SFC10	22	315	40	M20+M22	60	35	68	45
SFC11	26	250	40	M24	70	43	83	56
SFC12	26	315	40	M24	70	43	83	56
SFC13	34	315	50	M30	80	50	88	56
SF14	34	400	50	M30	80	50	88	56

Step Clamp

- **Material**
  DIN6314Z - Heat treated steel, enamelled.

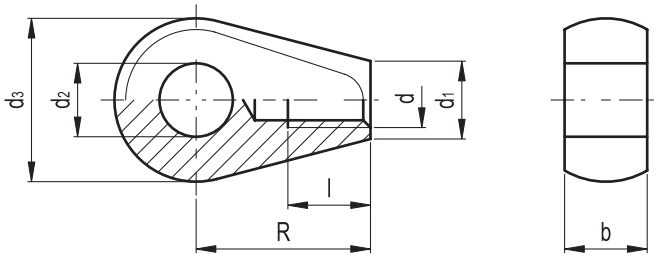




Part Reference	b1	L	a	M	b2	b3	l1	l2
SPC1	7	50	10	M6	20	8	10	20
SPC2	9	60	12	M8	25	10	13	22
SPC3	11	80	15	M10	30	12	15	30
SPC4	14	100	20	M12+M14	40	14	21	40
SPC5	18	125	25	M16+M18	50	18	26	45
SPC6	22	160	30	M20+M22	60	22	30	60
SPC7	26	200	30	M24	70	26	35	80

- **Material**
  Black-oxide steel, class 5.8 (tensile strength 500 N/mmÇ).

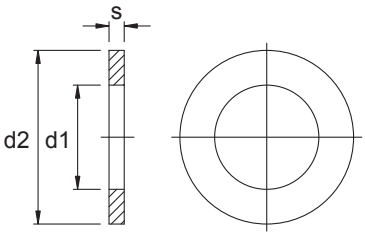
Applications
Eye nuts can be used together with threaded studs of different lengths. They are used mainly for assembly equipment and connections.



Part Reference	d	d1	d2 H7	d3 -0.3	R	b -0.15	l
EYN1	M6	8.5	8	18	19	9	9
EYN2	M8	11	10	20	24	12	11
EYN3	M10	13.5	12	25	28	14	14
EYN4	M12	16	16	32	34	17	16

Washer

- **Material**
  DIN 6340 Hardened Steel.



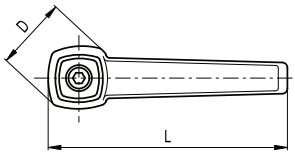
Part Reference	Screw Size	d1	d2	s
W1-2818	M6	6.4	17	3
W2-2826	M8	8.4	23	4
W3-2834	M10	10.5	28	4
W4-2842	M12	13.0	35	5
W5-2859	M14	15.0	40	5
W6-2867	M16	17.0	45	6
W7-2875	M18	19.0	45	6
W8-2883	M20	21.0	50	6
W9-2891	M22	23.0	50	8
W10-2909	M24	25.0	60	8
W11-2917	M27	28.0	68	10
W12-2928	M30	31.0	68	10
W13-2933	M36	38	80	12

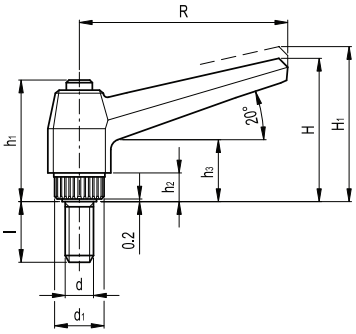
Adjustable Clamping Lever
Straight Handle Hex Socket

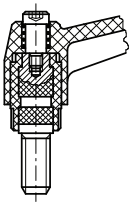
- **Lever body**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, orange, grey, matte finish.
  For sufficient quantities RAL 6011 green.
- **Clamping element**
  Glass-fibre reinforced technopolymer, black colour, with knurling on the protruding part to make initial tightening easier. Black-oxide steel retaining screw and AISI 302 stainless steel return spring.
- **Assembly**
  Black-oxide steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753.

Features and applications
Particularly suitable when the lever turning angle is limited owing to lack of space.
The adjustable handles can be quickly screwed during assembly by means of electric or pneumatic screwdrivers with controlled tightening torque system.

Instructions of use
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position.
By releasing the lever, the return spring automatically engages the toothing.
If the lever cannot make a 360° rotation, the clamping element can be easily screwed by means of the hexagon socket front head screw (after having disengaged the lever).







Adjustable Handles

Part Reference

Black | Orange Add 'O' | Grey Add 'G'

Part Reference	R	L	D	H	H1	h1	h2	h3	d1	d 6g	l	z
ACLHS1	42	50	18	32	36.5	29	6	14	12	M5	10	18
ACLHS2	42	50	18	32	36.5	29	6	14	12	M5	16	18
ACLHS3	42	50	18	32	36.5	29	6	14	12	M5	20	18
ACLHS4	42	50	18	32	36.5	29	6	14	12	M6	10	18
ACLHS5	42	50	18	32	36.5	29	6	14	12	M6	16	18
ACLHS6	42	50	18	32	36.5	29	6	14	12	M6	20	18
ACLHS7	42	50	18	32	36.5	29	6	14	12	M6	25	18
ACLHS8	42	50	18	32	36.5	29	6	14	12	M6	30	18
ACLHS9	42	50	18	32	36.5	29	6	14	12	M6	40	18
ACLHS10	42	50	18	32	36.5	29	6	14	12	M8	20	18
ACLHS11	63	73	23	43	47	36	8	17	15	M6	10	20
ACLHS12	63	73	23	43	47	36	8	17	15	M6	16	20
ACLHS13	63	73	23	43	47	36	8	17	15	M6	20	20
ACLHS14	63	73	23	43	47	36	8	17	15	M6	25	20
ACLHS15	63	73	23	43	47	36	8	17	15	M6	30	20
ACLHS16	63	73	23	43	47	36	8	17	15	M6	35	20
ACLHS17	63	73	23	43	47	36	8	17	15	M6	40	20
ACLHS18	63	73	23	43	47	36	8	17	15	M8	16	20
ACLHS19	63	73	23	43	47	36	8	17	15	M8	20	20
ACLHS20	63	73	23	43	47	36	8	17	15	M8	25	20
ACLHS21	63	73	23	43	47	36	8	17	15	M8	30	20
ACLHS22	63	73	23	43	47	36	8	17	15	M8	32	20
ACLHS23	63	73	23	43	47	36	8	17	15	M8	35	20
ACLHS24	63	73	23	43	47	36	8	17	15	M8	40	20
ACLHS25	63	73	23	43	47	36	8	17	15	M8	45	20
ACLHS26	63	73	23	43	47	36	8	17	15	M8	50	20
ACLHS27	63	73	23	43	47	36	8	17	15	M8	60	20
ACLHS28	63	73	23	43	47	36	8	17	15	M10	40	20
ACLHS29	80	92	28	54	59.5	45	10	22	19	M8	70	24
ACLHS30	80	92	28	54	59.5	45	10	22	19	M10	16	24
ACLHS31	80	92	28	54	59.5	45	10	22	19	M10	20	24
ACLHS32	80	92	28	54	59.5	45	10	22	19	M10	25	24
ACLHS33	80	92	28	54	59.5	45	10	22	19	M10	30	24
ACLHS34	80	92	28	54	59.5	45	10	22	19	M10	32	24
ACLHS35	80	92	28	54	59.5	45	10	22	19	M10	35	24
ACLHS36	80	92	28	54	59.5	45	10	22	19	M10	40	24
ACLHS37	80	92	28	54	59.5	45	10	22	19	M10	50	24
ACLHS38	80	92	28	54	59.5	45	10	22	19	M10	60	24
ACLHS39	80	92	28	54	59.5	45	10	22	19	M10	70	24
ACLHS40	80	92	28	54	59.5	45	10	22	19	M12	20	24
ACLHS41	80	92	28	54	59.5	45	10	22	19	M12	25	24
ACLHS42	80	92	28	54	59.5	45	10	22	19	M12	30	24
ACLHS43	80	92	28	54	59.5	45	10	22	19	M12	35	24
ACLHS44	80	92	28	54	59.5	45	10	22	19	M12	40	24
ACLHS45	80	92	28	54	59.5	45	10	22	19	M12	45	24
ACLHS46	80	92	28	54	59.5	45	10	22	19	M12	50	24
ACLHS47	80	92	28	54	59.5	45	10	22	19	M12	60	24
ACLHS48	80	92	28	54	59.5	45	10	22	19	M12	70	24
ACLHS49	80	92	28	54	59.5	45	10	22	19	M12	80	24
ACLHS50	80	92	28	54	59.5	45	10	22	19	M14	40	24
ACLHS51	100	114	33	65	70.5	53	12	25	25	M12	30	28
ACLHS52	100	114	33	65	70.5	53	12	25	25	M12	50	28
ACLHS53	100	114	33	65	70.5	53	12	25	25	M12	70	28
ACLHS54	100	114	33	65	70.5	53	12	25	25	M14	30	28
ACLHS55	100	114	33	65	70.5	53	12	25	25	M14	35	28
ACLHS56	100	114	33	65	70.5	53	12	25	25	M14	50	28
ACLHS57	100	114	33	65	70.5	53	12	25	25	M14	70	28
ACLHS58	100	114	33	65	70.5	53	12	25	25	M16	30	28
ACLHS59	100	114	33	65	70.5	53	12	25	25	M16	50	28
ACLHS60	100	114	33	65	70.5	53	12	25	25	M16	70	28

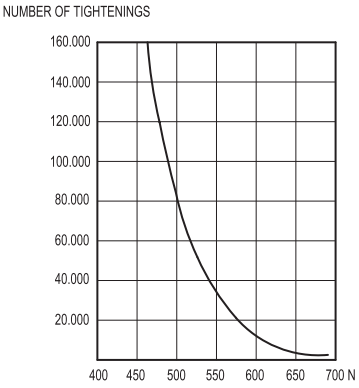
Adjustable Clamping Lever
Straight Handle Hex Socket Female

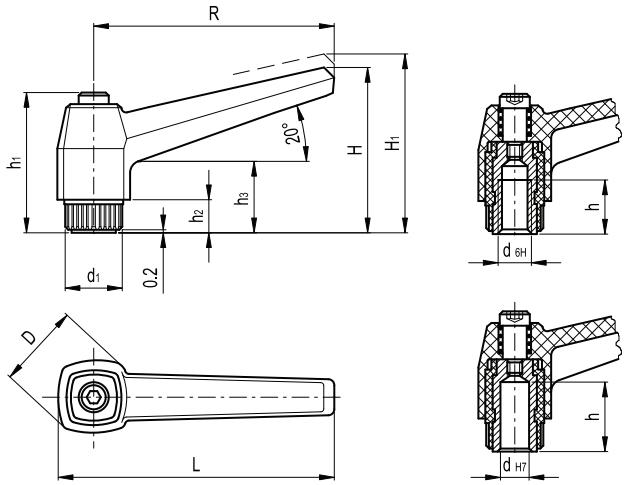
- **Lever body**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, orange, grey, matte finish.
  For sufficient quantities RAL 6011 green.
- **Clamping element**
  Glass-fibre reinforced technopolymer, black colour, with knurling on the protruding part to make initial tightening easier.
- **Assembly**
  - Execution **A**: black-oxide steel boss, plain or tapped blind hole. Black-oxide steel retaining screw, AISI 302 stainless steel return spring.
  - Execution **B**: brass boss, tapped blind hole. Brass retaining screw, AISI 302 stainless steel return spring.

Features and applications
Particularly suitable when the lever turning angle is limited owing to lack of space.
Adjustable handles can be quickly screwed during assembly by means of electric or pneumatic screwdrivers with controlled tightening torque system.

Instructions of use
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position.
By releasing the lever, the return spring automatically engages the toothing.
If the lever cannot make a 360° rotation, the clamping element can be easily screwed by means of the hexagon socket front head screw (after having disengaged the lever).

Stress resistance
Adjustable handles are generally used for repetitive clamping operations sometimes with very high-frequency. Therefore, the stress resistance (i.e. the resistance to repeated tightening cycles) of the handle unit is particularly important and, especially, the strength of the toothed element which transmits the tightening force from the handle to the threaded element (boss or stud). In fact, the results of several laboratory tests, performed with a special instrument that simulates the most severe use conditions, have shown that e.g. the adjustable handle can withstand without yielding more than 100,000 tightening cycles, under the action of a force of 490 N (see graphic).





RAL 9005 RAL 2004 RAL 7031

Part Reference

Black | Orange Add 'O' | Grey Add 'G'

Part Reference	R	L	D	H	H1	h1	h2	h3	d1	Mounting Hole d H7	Mounting Hole d 6H	h	Teeth no. z	Bosses Steel	Bosses Brass
ACLHSF1	42	50	18	32	36.5	29	6	14	12	5	-	10	18	•	
ACLHSF2	42	50	18	32	36.5	29	6	14	12	-	M4	10	18	•	
ACLHSF3	42	50	18	32	36.5	29	6	14	12	-	M5	10	18	•	
ACLHSF4	42	50	18	32	36.5	29	6	14	12	-	M6	10	18	•	
ACLHSF5	42	50	18	32	36.5	29	6	14	12	-	M6	10	18		•
ACLHSF6	63	73	23	43	47	36	8	17	15	6	-	15	20	•	
ACLHSF7	63	73	23	43	47	36	8	17	15	-	M6	12	20	•	
ACLHSF8	63	73	23	43	47	36	8	17	15	-	M8	12	20	•	
ACLHSF9	63	73	23	43	47	36	8	17	15	-	M8	12	20		•
ACLHSF10	80	92	28	54	59.5	45	10	22	19	8	-	20	24	•	
ACLHSF11	80	92	28	54	59.5	45	10	22	19	-	M8	17	24	•	
ACLHSF12	80	92	28	54	59.5	45	10	22	19	-	M10	17	24	•	
ACLHSF13	80	92	28	54	59.5	45	10	22	19	-	M12	17	24	•	
ACLHSF14	80	92	28	54	59.5	45	10	22	19	-	M10	17	24		•
ACLHSF15	100	114	33	65	70.5	53	12	25	25	10	-	25	28	•	
ACLHSF16	100	114	33	65	70.5	53	12	25	25	-	M10	20	28	•	
ACLHSF17	100	114	33	65	70.5	53	12	25	25	-	M12	20	28	•	
ACLHSF18	100	114	33	65	70.5	53	12	25	25	-	M14	20	28	•	
ACLHSF19	100	114	33	65	70.5	53	12	25	25	-	M16	20	28	•	

Adjustable Clamping Lever
Straight Handle Stainless Steel

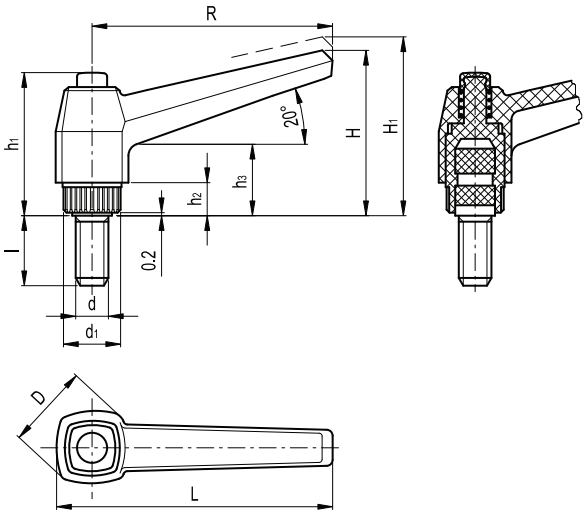
- **Lever body**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, matte finish.
- **Push button**
  Technopolymer, black colour, matte finish.
- **Clamping element with retaining pin**
  Glass-fibre reinforced technopolymer, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.
- **Assembly**
  AISI 303 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753.

Special executions on request
(For sufficient quantities)
Lever body RAL 2004 orange, RAL 6011 green, RAL 7031 grey.

Features and applications
Particularly suitable when the lever turning angle is limited owing to lack of space.
Compared to other types of adjustable handles with metal retaining screw this solution offers:
- absolute electric insulation for the operator's hand
- more comfortable lever release.

AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these adjustable handles on machines and equipment working in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.

Instructions of use
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position.
By releasing the lever, the return spring automatically engages the toothing.



										Threaded stud		Teeth no.
Part Reference	**R**	**L**	**D**	**H**	**H1**	**h1**	**h2**	**h3**	**d1**	**d 6g**	**l**	**z**
ACLSH1SS	42	50	18	32	35.5	29	6	14	12	M6	16	18
ACLSH2SS	42	50	18	32	35.5	29	6	14	12	M6	20	18
ACLSH3SS	42	50	18	32	35.5	29	6	14	12	M6	25	18
ACLSH4SS	42	50	18	32	35.5	29	6	14	12	M6	30	18
ACLSH5SS	63	73	23	43	46.5	37	8	17	15	M8	16	20
ACLSH6SS	63	73	23	43	46.5	37	8	17	15	M8	20	20
ACLSH7SS	63	73	23	43	46.5	37	8	17	15	M8	25	20
ACLSH8SS	63	73	23	43	46.5	37	8	17	15	M8	30	20
ACLSH9SS	63	73	23	43	46.5	37	8	17	15	M8	40	20
ACLSH10SS	63	73	23	43	46.5	37	8	17	15	M8	50	20
ACLSH11SS	80	92	28	54	58.5	47	10	22	19	M10	20	24
ACLSH12SS	80	92	28	54	58.5	47	10	22	19	M10	30	24
ACLSH13SS	80	92	28	54	58.5	47	10	22	19	M10	40	24
ACLSH14SS	80	92	28	54	58.5	47	10	22	19	M12	30	24
ACLSH15SS	80	92	28	54	58.5	47	10	22	19	M12	40	24
ACLSH16SS	80	92	28	54	58.5	47	10	22	19	M12	50	24
ACLSH17SS	100	114	33	65	69.5	54	12	25	25	M12	30	28
ACLSH18SS	100	114	33	65	69.5	54	12	25	25	M12	40	28
ACLSH19SS	100	114	33	65	69.5	54	12	25	25	M12	50	28
ACLSH20SS	100	114	33	65	69.5	54	12	25	25	M12	70	28

Adjustable Clamping Lever
Straight Handle Female Stainless Steel

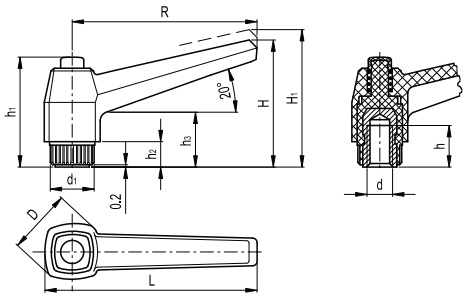
- **Lever body**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, matte finish.
- **Push button**
  Technopolymer, black colour, matte finish.
- **Clamping element with retaining pin**
  Glass-fibre reinforced technopolymer, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.
- **Assembly**
  AISI 303 stainless steel boss, tapped blind hole.

Special executions on request
(For sufficient quantities) Lever body in RAL 2004 orange, RAL 6011 green, RAL 7031 grey.

Features and applications
Particularly suitable when the lever turning angle is limited owing to lack of space.
Compared to other types of adjustable handles with metal retaining screw this solution offers:
- absolute electric insulation for the operator's hand
- more comfortable lever release.

AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these adjustable handles on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.

Instructions of use
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position.
By releasing the lever, the return spring automatically engages the toothing.



										Mounting hole		Teeth no.
Part Reference	**R**	**L**	**D**	**H**	**H1**	**h1**	**h2**	**h3**	**d1**	**d 6h**	**h**	**z**
ACLSHF1SS	42	50	18	32	35.5	29	6	14	12	M5	6	18
ACLSHF2SS	42	50	18	32	35.5	29	6	14	12	M6	10	18
ACLSHF3SS	63	73	23	43	46.5	37	8	17	15	M6	12	20
ACLSHF4SS	63	73	23	43	46.5	37	8	17	15	M8	13	20
ACLSHF5SS	80	92	28	54	58.5	47	10	22	19	M8	13	24
ACLSHF6SS	80	92	28	54	58.5	47	10	22	19	M10	17	24
ACLSHF7SS	100	114	33	65	69.5	54	12	25	25	M12	20	28

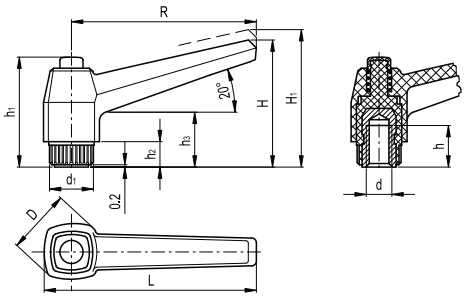
Adjustable Clamping Lever
Straight Handle Female

- **Lever body**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, matte finish.
- **Push button**
  Technopolymer, black colour, matte finish.
- **Clamping element with retaining pin**
  Glass-fibre reinforced technopolymer, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.
- **Assembly**
  Brass boss, tapped blind hole.

Special executions on request
(For sufficient quantities) Lever body in RAL 2004 orange, RAL 6011 green, RAL 7031 grey.

Features and applications
Particularly suitable when the lever turning angle is limited owing to lack of space.
Compared to other types of adjustable handles with metal retaining screw this solution offers:
- absolute electric insulation for the operator's hand
- no visible steel parts subject to rust
- more comfortable lever release.

Instructions of use
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position.
By releasing the lever, the return spring automatically engages the toothing.



										Mounting hole		Teeth no.
Part Reference	**R**	**L**	**D**	**H**	**H1**	**h1**	**h2**	**h3**	**d1**	**d 6h**	**h**	**z**
ACLSHF1	42	50	18	32	35.5	29	6	14	12	M5	10	18
ACLSHF2	42	50	18	32	35.5	29	6	14	12	M5	10	18
ACLSHF3	63	73	23	43	46.5	37	8	17	15	M6	16	20
ACLSHF4	63	73	23	43	46.5	37	8	17	15	M8	13	20
ACLSHF5	80	92	28	54	58.5	47	10	22	19	M8	20	24
ACLSHF6	80	92	28	54	58.5	47	10	22	19	M10	18	24
ACLSHF7	80	92	28	54	58.5	47	10	22	19	M12	17	24
ACLSHF8	100	114	33	65	69.5	54	12	25	25	M10	20	28
ACLSHF9	100	114	33	65	69.5	54	12	25	25	M12	20	28
ACLSHF10	100	114	33	65	69.5	54	12	25	25	M14	20	28
ACLSHF11	100	114	33	65	69.5	54	12	25	25	M10	22	28

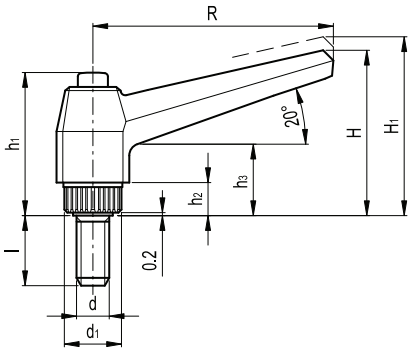
Adjustable Clamping Lever Straight Handle

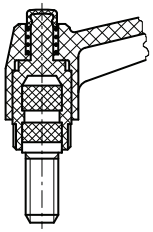
- **Lever body**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, matte finish.
- **Push button**
  Technopolymer, black colour, matte finish.
- Clamping element with retaining pin
  Glass-fibre reinforced technopolymer, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.
- **Assembly**
  Zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753.

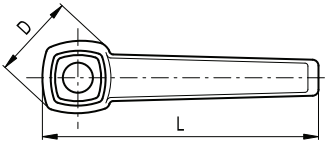
Special executions on request
(For sufficient quantities)
Lever body RAL 2004 orange, RAL 6011 green, RAL 7031 grey.

Features and applications
Particularly suitable when the lever turning angle is limited owing to lack of space.
Compared to other types of adjustable handles with metal retaining screw this solution offers:
- absolute electric insulation for the operator's hand
- no visible steel parts subject to rust
- more comfortable lever release.

Instructions of use
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position. By releasing the lever, the return spring automatically engages the toothing.







										Threaded stud		Teeth no.
Part Reference	**R**	**L**	**D**	**H**	**H1**	**h1**	**h2**	**h3**	**d1**	**d 6g**	**l**	**z**
ACLSH1	42	50	18	32	35.5	29	6	14	12	M5	10	18
ACLSH2	42	50	18	32	35.5	29	6	14	12	M5	16	18
ACLSH3	42	50	18	32	35.5	29	6	14	12	M5	20	18
ACLSH4	42	50	18	32	35.5	29	6	14	12	M6	10	18
ACLSH5	42	50	18	32	35.5	29	6	14	12	M6	16	18
ACLSH6	42	50	18	32	35.5	29	6	14	12	M6	20	18
ACLSH7	42	50	18	32	35.5	29	6	14	12	M6	25	18
ACLSH8	42	50	18	32	35.5	29	6	14	12	M6	30	18
ACLSH9	42	50	18	32	35.5	29	6	14	12	M6	40	18
ACLSH10	63	73	23	43	46.5	37	8	17	15	M6	10	20
ACLSH11	63	73	23	43	46.5	37	8	17	15	M6	16	20
ACLSH12	63	73	23	43	46.5	3	78	17	15	M6	20	20
ACLSH13	63	73	23	43	46.5	3	78	17	15	M6	25	20
ACLSH14	63	73	23	43	46.5	3	78	17	15	M6	30	20
ACLSH15	63	73	23	43	46.5	3	78	17	15	M6	35	20
ACLSH16	63	73	23	43	46.5	3	78	17	15	M6	40	20
ACLSH17	63	73	23	43	46.5	3	78	17	15	M8	16	20
ACLSH18	63	73	23	43	46.5	3	78	17	15	M8	20	20
ACLSH19	63	73	23	43	46.5	3	78	17	15	M8	25	20
ACLSH20	63	73	23	43	46.5	3	78	17	15	M8	30	20
ACLSH21	63	73	23	43	46.5	3	78	17	15	M8	35	20
ACLSH22	63	73	23	43	46.5	3	78	17	15	M8	40	20
ACLSH23	63	73	23	43	46.5	3	78	17	15	M8	45	20
ACLSH24	63	73	23	43	46.5	3	78	17	15	M8	50	20
ACLSH25	63	73	23	43	46.5	3	78	17	15	M8	60	20
ACLSH26	80	92	28	54	58.5	47	10	22	19	M10	20	24
ACLSH27	80	92	28	54	58.5	47	10	22	19	M10	25	24
ACLSH28	80	92	28	54	58.5	47	10	22	19	M10	30	24
ACLSH29	80	92	28	54	58.5	47	10	22	19	M10	35	24
ACLSH30	80	92	28	54	58.5	47	10	22	19	M10	40	24
ACLSH31	80	92	28	54	58.5	47	10	22	19	M10	50	24
ACLSH32	80	92	28	54	58.5	47	10	22	19	M10	60	24
ACLSH33	80	92	28	54	58.5	47	10	22	19	M10	70	24
ACLSH34	80	92	28	54	58.5	47	10	22	19	M12	20	24
ACLSH35	80	92	28	54	58.5	47	10	22	19	M12	25	24
ACLSH36	80	92	28	54	58.5	47	10	22	19	M12	30	24
ACLSH37	80	92	28	54	58.5	47	10	22	19	M12	35	24
ACLSH38	80	92	28	54	58.5	47	10	22	19	M12	40	24
ACLSH39	80	92	28	54	58.5	47	10	22	19	M12	45	24
ACLSH40	80	92	28	54	58.5	47	10	22	19	M12	50	24
ACLSH41	80	92	28	54	58.5	47	10	22	19	M12	60	24
ACLSH42	80	92	28	54	58.5	47	10	22	19	M12	70	24
ACLSH43	80	92	28	54	58.5	47	10	22	19	M12	80	24
ACLSH44	100	114	33	65	69.5	54	12	25	25	M12	30	28
ACLSH45	100	114	33	65	69.5	54	12	25	25	M12	50	28
ACLSH46	100	114	33	65	69.5	54	12	25	25	M12	70	28
ACLSH47	100	114	33	65	69.5	54	12	25	25	M14	30	28
ACLSH48	100	114	33	65	69.5	54	12	25	25	M14	50	28
ACLSH49	100	114	33	65	69.5	54	12	25	25	M14	70	28
ACLSH50	100	114	33	65	69.5	54	12	25	25	M16	30	28
ACLSH51	100	114	33	65	69.5	54	12	25	25	M16	50	28
ACLSH52	100	114	33	65	69.5	54	12	25	25	M16	70	28

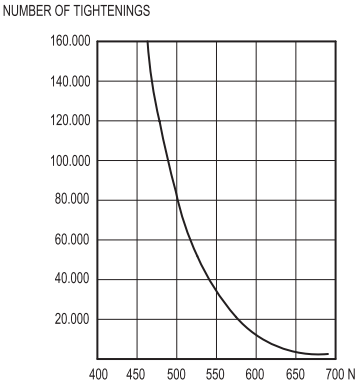
Adjustable Clamping Lever ERX Female

- **Lever body**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Grey-black, matte finish.
- Push button
  Technopolymer in Ergostyle colours, glossy finish.
- **Clamping element with retaining pin**
  Glass-fibre reinforced technopolymer, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.
- **Assembly**
  Brass boss, tapped blind hole.

Special executions on request
(For sufficient quantities) Lever body in orange colour.

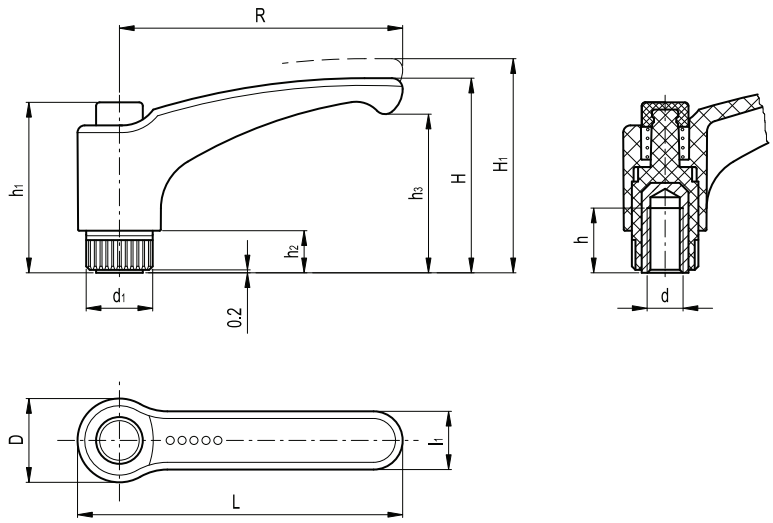
Features and applications
Particularly suitable when the lever turning angle is limited owing to lack of space.
Compared to other types of adjustable handles with metal retaining screw this solution offers:
- absolute electric insulation for the operator's hand
- no visible steel parts subject to rust
- more comfortable lever release.

Stress resistance
Adjustable handles are generally used for repetitive clamping operations sometimes with very high-frequency. Therefore, the stress resistance (i.e. the resistance to repeated tightening cycles) of the handle unit is particularly important and, especially, the strength of the toothed element which transmits the tightening force from the handle to the threaded element (boss or stud). In fact, the results of several laboratory tests, performed with a special instrument that simulates the most severe use conditions, have shown that e.g. the adjustable handle can withstand without yielding more than 100,000 tightening cycles, under the action of a force of 490 N (see graphic).



Instructions of use
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position.
By releasing the lever, the return spring automatically engages the toothing.

Ergonomy and design
The slightly arched shape of the lever and the ergonomic terminal enlargement give the operator a comfortable and safe grip and make the design of the handle more elegant, while the thumb rests naturally on the push button.



RAL 7021 RAL 2004 RAL 7035 RAL 1021 RAL 5024 RAL 3000

											Mounting hole		Teeth no.
Part Reference	**R**	**L**	**D**	**H**	**H1**	**h1**	**h2**	**h3**	**d1**	**L1**	**d 6h**	**h**	**z**
ACLERXF1	44	52	15.5	32.5	36	29.5	6	25	12	11	M5	10	18
ACLERXF2	44	52	15.5	32.5	36	29.5	6	25	12	11	M6	10	18
ACLERXF3	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M6	16	20
ACLERXF4	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M8	13	20
ACLERXF5	78	90.5	23	54	58	47	12	44	19	16	M8	20	24
ACLERXF6	78	90.5	23	54	58	47	12	44	19	16	M10	18	24
ACLERXF7	78	90.5	23	54	58	47	12	44	19	16	M12	17	24
ACLERXF8	95	109	26.5	64.5	69	54.5	13	53	21.5	18	M12	20	26
ACLERXF9	95	109	26.5	64.5	69	54.5	13	53	21.5	18	M14	20	26

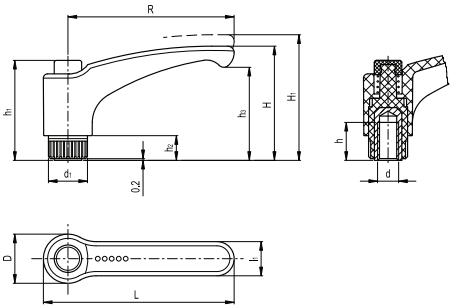
Adjustable Clamping Lever
ERX Stainless Steel Female

- **Lever body**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Grey-black, matte finish.
- **Push button**
  Technopolymer in Ergostyle colours, glossy finish.
- **Clamping element with retaining pin**
  Glass-fibre reinforced technopolymer, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.
- **Assembly**
  AISI 303 stainless steel boss, tapped blind hole.

Special executions on request
(For sufficient quantities) Lever body in orange colour.

Features and applications
Particularly suitable when the lever turning angle is limited owing to lack of space.
Compared to other types of adjustable handles with metal retaining screw this solution offers:
- absolute electric insulation for the operator's hand
- more comfortable lever release.

AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these adjustable handles on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.



Instructions of use
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position.
By releasing the lever, the return spring automatically engages the toothing.

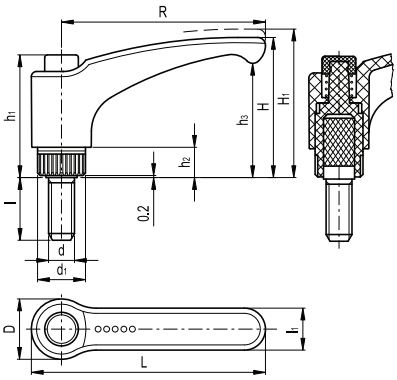
Ergonomy and design
The slightly arched shape of the lever and the ergonomic terminal enlargement give the operator a comfortable and safe grip and make the design of this handle more elegant, while the thumb rests naturally on the push button.

RAL 7021 RAL 2004 RAL 7035 RAL 1021 RAL 5024 RAL 3000

											Mounting hole		Teeth no.
Part Reference	**R**	**L**	**D**	**H**	**H1**	**h1**	**h2**	**h3**	**d1**	**L1**	**d 6h**	**h**	**z**
ACLERXF1SS	44	52	15.5	32.5	36	29.5	6	25	12	11	M5	6	18
ACLERXF2SS	44	52	15.5	32.5	36	29.5	6	25	12	11	M6	10	18
ACLERXF3SS	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M6	12	20
ACLERXF4SS	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M8	13	20
ACLERXF5SS	78	90.5	23	54	58	47	12	44	19	16	M8	13	24
ACLERXF6SS	78	90.5	23	54	58	47	12	44	19	16	M10	17	24
ACLERXF7SS	95	109	26.5	64.5	69	54.5	13	53	21.5	18	M12	20	26

Adjustable Clamping Lever
ERX Stainless Steel

- **Lever body**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Grey-black, matte finish.
- **Push button**
  Technopolymer in Ergostyle colours, glossy finish.
- **Clamping element with retaining pin**
  Glass-fibre reinforced technopolymer, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.
- **Assembly**
  AISI 303 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753.



Special executions on request
(For sufficient quantities) Lever body in orange colour.

Features and applications
Particularly suitable when the lever turning angle is limited owing to lack of space.
Compared to other types of adjustable handles with metal retaining screw this solution offers:
- absolute electric insulation for the operator's hand
- more comfortable lever release.

AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these adjustable handles on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.

Instructions of use
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position.
By releasing the lever, the return spring automatically engages the toothing.

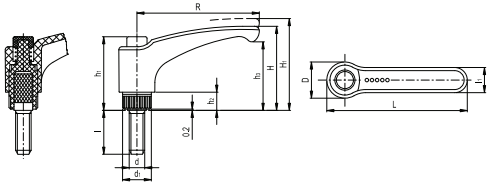
Ergonomy and design
The slightly arched shape of the lever and the ergonomic terminal enlargement give the operator a comfortable and safe grip and make the design of this handle more elegant, while the thumb rests naturally on the push button.

Adjustable Clamping Lever ERX

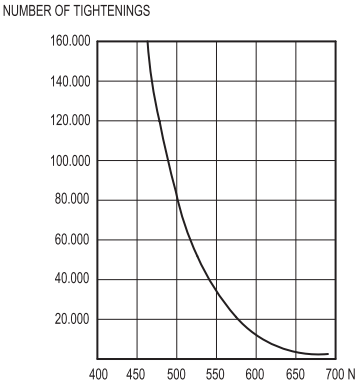
- **Lever body**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Grey-black, matte finish.
- **Push button**
  Technopolymer in Ergostyle colours, glossy finish.
- **Clamping element with retaining pin**
  Glass-fibre reinforced technopolymer, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.
- **Assembly**
  Zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753.

Special executions on request
(For sufficient quantities) Lever body in orange colour.

Features and applications
Particularly suitable when the lever turning angle is limited owing to lack of space.
Compared to other types of adjustable handles with metal retaining screw this solution offers:
- absolute electric insulation for the operator's hand
- no visible steel parts subject to rust
- more comfortable lever release.



Stress resistance
Adjustable handles are generally used for repetitive clamping operations sometimes with very high-frequency. Therefore, the stress resistance (i.e. the resistance to repeated tightening cycles) of the handle unit is particularly important and, especially, the strength of the toothed element which transmits the tightening force from the handle to the threaded element (boss or stud).
In fact, the results of several laboratory tests, performed with a special instrument that simulates the most severe use conditions, have shown that e.g. the adjustable handle can withstand without yielding more than 100,000 tightening cycles, under the action of a force of 490 N (see graphic).



Instructions of use
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position.
By releasing the lever, the return spring automatically engages the toothing.

Ergonomy and design
The slightly arched shape of the lever and the ergonomic terminal enlargement give the operator a comfortable and safe grip and make the design of the handle more elegant, while the thumb rests naturally on the push button.

RAL 7021 RAL 2004 RAL 7035 RAL 1021 RAL 5024 RAL 3000

											Threaded stud		Teeth no.
Part Reference	**R**	**L**	**D**	**H**	**H1**	**h1**	**h2**	**h3**	**d1**	**L1**	**d 6h**	**h**	**z**
ACLERX1	44	52	15.5	32.5	36	29.5	6	25	12	11	M5	10	18
ACLERX2	44	52	15.5	32.5	36	29.5	6	25	12	11	M5	16	18
ACLERX3	44	52	15.5	32.5	36	29.5	6	25	12	11	M5	20	18
ACLERX4	44	52	15.5	32.5	36	29.5	6	25	12	11	M6	10	18
ACLERX5	44	52	15.5	32.5	36	29.5	6	25	12	11	M6	16	18
ACLERX6	44	52	15.5	32.5	36	29.5	6	25	12	11	M6	20	18
ACLERX7	44	52	15.5	32.5	36	29.5	6	25	12	11	M6	25	18
ACLERX8	44	52	15.5	32.5	36	29.5	6	25	12	11	M6	30	18
ACLERX9	44	52	15.5	32.5	36	29.5	6	25	12	11	M6	40	18
ACLERX10	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M6	10	20
ACLERX11	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M6	16	20
ACLERX12	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M6	20	20
ACLERX13	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M6	25	20
ACLERX14	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M6	30	20
ACLERX15	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M6	35	20
ACLERX16	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M6	40	20
ACLERX17	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M8	16	20
ACLERX18	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M8	20	20
ACLERX19	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M8	25	20
ACLERX20	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M8	30	20
ACLERX21	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M8	35	20
ACLERX22	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M8	40	20
ACLERX23	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M8	45	20
ACLERX24	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M8	50	20
ACLERX25	63	73.5	19	43	47	37.5	8	34.5	15	13.5	M8	60	20
ACLERX26	78	90.5	23	54	58	47	12	44	19	16	M10	20	24
ACLERX27	78	90.5	23	54	58	47	12	44	19	16	M10	25	24
ACLERX28	78	90.5	23	54	58	47	12	44	19	16	M10	30	24
ACLERX29	78	90.5	23	54	58	47	12	44	19	16	M10	35	24
ACLERX30	78	90.5	23	54	58	47	12	44	19	16	M10	40	24
ACLERX31	78	90.5	23	54	58	47	12	44	19	16	M10	50	24
ACLERX32	78	90.5	23	54	58	47	12	44	19	16	M10	60	24
ACLERX33	78	90.52	3	54	58	47	12	44	19	16	M10	70	24
ACLERX34	78	90.5	23	54	58	47	12	44	19	16	M12	20	24
ACLERX35	78	90.5	23	54	58	47	12	44	19	16	M12	25	24
ACLERX36	78	90.5	23	54	58	47	12	44	19	16	M12	30	24
ACLERX37	78	90.5	23	54	58	47	12	44	19	16	M12	35	24
ACLERX38	78	90.5	23	54	58	47	12	44	19	16	M12	40	24
ACLERX39	78	90.5	23	54	58	47	12	44	19	16	M12	45	24
ACLERX40	78	90.5	23	54	58	47	12	44	19	16	M12	50	24
ACLERX41	78	90.5	23	54	58	47	12	44	19	16	M12	60	24
ACLERX42	78	90.5	23	54	58	47	12	44	19	16	M12	70	24
ACLERX43	78	90.5	23	54	58	47	12	44	19	16	M12	80	24
ACLERX44	95	109	26.5	64.5	69	54.5	13	53	21.5	18	M12	30	26
ACLERX45	95	109	26.5	64.5	69	54.5	13	53	21.5	18	M12	50	26
ACLERX46	95	109	26.5	64.5	69	54.5	13	53	21.5	18	M12	70	26
ACLERX47	95	109	26.5	64.5	69	54.5	13	53	21.5	18	M16	30	26
ACLERX48	95	109	26.5	64.5	69	54.5	13	53	21.5	18	M16	50	26
ACLERX49	95	109	26.5	64.5	69	54.5	13	53	21.5	18	M16	70	26

Adjustable Clamping Lever for Quick Assembly Female

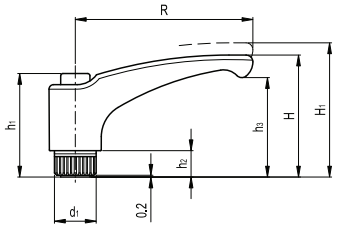
- **Lever body**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Grey-black, matte finish.
- **Push button**
  Technopolymer, RAL 2004 orange colour, glossy finish. On request and for sufficient quantities it can be supplied in one of the other Ergostyle colours.
- **Clamping element with retaining pin**
  Glass-fibre reinforced technopolymer, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.
- **Assembly**
  Brass boss, tapped blind hole.

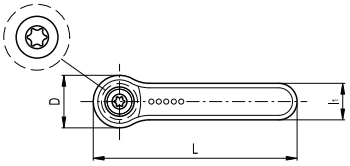
Special executions on request
(For sufficient quantities) Lever body in orange colour.

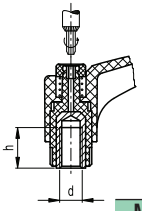
Features and applications
Even if it has a plastic push button, adjustable handle offers the possibility of a quick initial screwing during assembly by means of electric or pneumatic screwdrivers with controlled tightening torque system.

Instructions of use
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position.
By releasing the lever, the return spring automatically engages the toothing.

Ergonomy and design
The slightly arched shape of the lever and the ergonomic terminal enlargement give the operator a comfortable and safe grip and make the design of the handle more elegant, while the thumb rests naturally on the push button.







											Mounting hole		Teeth no.
Part Reference	**R**	**L**	**D**	**H**	**H1**	**h1**	**h2**	**h3**	**d1**	**L1**	**d 6h**	**h**	**z**
ACLQAF1	78	90.5	23	54	58	45	12	44	19	16	M10	18	24
ACLQAF2	78	90.5	23	54	58	45	12	44	19	16	M12	17	24

Adjustable Clamping Lever for Quick Assembly

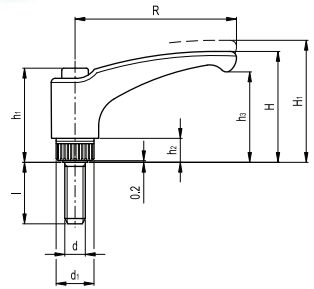
- **Lever body**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Grey-black, matte finish.
- **Push button**
  Technopolymer RAL 2004 orange colour, glossy finish. On request and for sufficient quantities it can be supplied in one of the other Ergostyle colours.
- **Clamping element with retaining pin**
  Glass-fibre reinforced technopolymer, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.
- **Assembly**
  Zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753.

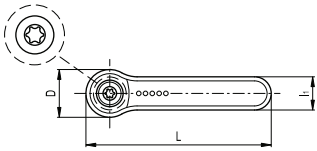
Special executions on request
(For sufficient quantities) Lever body in orange colour.

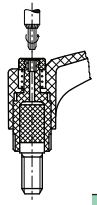
Features and applications
Even if it has a plastic push button, adjustable handle offers the possibility of a quick initial screwing during assembly by means of electric or pneumatic screwdrivers with controlled tightening torque system.

Instructions of use
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position.
By releasing the lever, the return spring automatically engages the toothing.

Ergonomy and design
The slightly arched shape of the lever and the ergonomic terminal enlargement give the operator a comfortable and safe grip and make the design of the handle more elegant, while the thumb rests naturally on the push button.



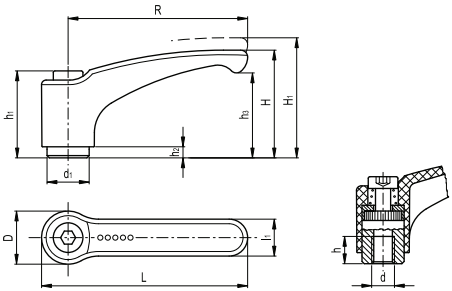




											Threaded stud		Teeth no.
Part Reference	**R**	**L**	**D**	**H**	**H1**	**h1**	**h2**	**h3**	**d1**	**L1**	**d 6h**	**h**	**z**
ACLQA1	78	90.5	23	54	58	45	12	44	19	16	M10	20	24
ACLQA2	78	90.5	23	54	58	45	12	44	19	16	M10	30	24
ACLQA3	78	90.5	23	54	58	45	12	44	19	16	M10	40	24
ACLQA4	78	90.5	23	54	58	45	12	44	19	16	M10	50	24

Adjustable Clamping Lever Stainless Steel Glass Fibre Reinforced Female

- **Lever body**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents. Built-in zinc alloy toothed insert for coupling to the metal clamping element.
- **Colour**
  Grey-black with matte finish.
- **Clamping element**
  AISI 303 stainless steel with threaded bore and toothed element for coupling to the built-in zinc alloy insert, AISI 303 stainless steel retaining screw and return spring.



Special executions on request
(For sufficient quantities) Lever body in orange colour.

Features and applications
Particularly suitable when the lever turning angle is limited owing to lack of space.
The metal toothing of the built-in zinc alloy insert allows the assembly of clamping elements completely made out of metal, which can be easily modified by machining in case of special assembly requirements.
AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these adjustable handles on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.

Instructions of use
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position. By releasing the lever, the return spring automatically engages the toothing.
If the lever cannot make a 360° rotation, the clamping element can be easily screwed by means of the hexagon socket front head screw (after having disengaged the lever).

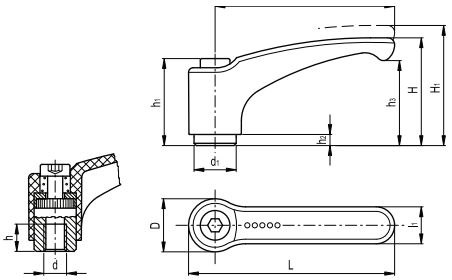
Ergonomy and design
The slightly arched shape of the lever and the ergonomic terminal enlargement give the operator a comfortable and safe grip and make the design of the handle more elegant.

											Mounting hole		Teeth no.
Part Reference	**R**	**L**	**D**	**H**	**H1**	**h1**	**h2**	**h3**	**d1**	**L1**	**d 6h**	**h**	**z**
ACLGFF1SS	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M5	8	18
ACLGFF2SS	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M6	8	18
ACLGFF3SS	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M6	10	24
ACLGFF4SS	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M8	10	24
ACLGFF5SS	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M8	14	26
ACLGFF6SS	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M10	14	26
ACLGFF7SS	95	109	26.5	56.5	61.5	43	5	45	19	18	M10	17	28
ACLGFF8SS	95	109	26.5	56.5	61.5	43	5	45	19	18	M12	17	28

Adjustable Clamping Lever
Glass Fibre Reinforced Female

- **Lever body**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents. Built-in zinc alloy toothed insert for coupling to the metal clamping element.
- **Colour**
  Grey-black, matte finish.
- **Clamping element**
  Black-oxide steel with threaded bore and toothed element for coupling to the built-in zinc alloy insert, black-oxide steel retaining screw and return spring.

Special executions on request
(For sufficient quantities) Lever body in orange colour.
Features and applications
Particularly suitable when the lever turning angle is limited owing to lack of space.
The metal toothing of the built-in zinc alloy insert allows the assembly of clamping elements completely made out of metal, which can be easily modified by machining in case of special assembly requirements.
Instructions of use
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position.
By releasing the lever, the return spring automatically engages the toothing.
If the lever cannot make a 360° rotation, the clamping element can be easily screwed by means of the hexagon socket front head screw (after having disengaged the lever).



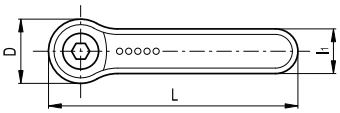
Ergonomy and design
The slightly arched shape of the lever and the ergonomic terminal enlargement give the operator a comfortable and safe grip and make the design of the handle more elegant.

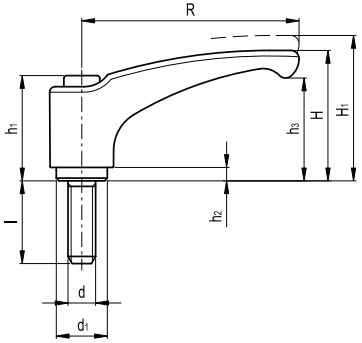
											Threaded stud		Teeth no.
Part Reference	**R**	**L**	**D**	**H**	**H1**	**h1**	**h2**	**h3**	**d1**	**L1**	**d 6h**	**h**	**z**
ACLGFF1	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M4	8	18
ACLGFF2	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M5	8	18
ACLGFF3	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M6	8	18
ACLGFF4	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M6	10	24
ACLGFF5	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M8	10	24
ACLGFF6	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M8	14	26
ACLGFF7	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M10	14	26
ACLGFF8	95	109	26.5	56.5	61.5	43	5	45	19	18	M10	17	28
ACLGFF9	95	109	26.5	56.5	61.5	43	5	45	19	18	M12	17	28

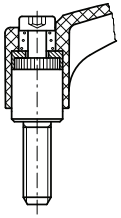
Adjustable Clamping Lever Glass Fibre Reinforced ERZ

- **Lever body**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents. Built-in zinc alloy toothed insert for coupling to the metal clamping element.
- **Colour**
  Grey-black, matte finish.
- **Clamping element**
  Black-oxide steel with toothed element for coupling to the built-in zinc alloy insert, black-oxide steel retaining screw and return spring.

Special executions on request
(For sufficient quantities) Lever body in orange colour.
Features and applications
Particularly suitable when the lever turning angle is limited owing to lack of space.
The metal toothing of the built-in zinc alloy insert allows the assembly of clamping elements completely made out of metal, which can be easily modified by machining in case of special assembly requirements.
Instructions of use
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position. By releasing the lever, the return spring automatically engages the toothing.
If the lever cannot make a 360° rotation, the clamping element can be easily screwed by means of the hexagon socket front head screw (after having disengaged the lever).
Ergonomy and design
The slightly arched shape of the lever and the ergonomic terminal enlargement give the operator a comfortable and safe grip and make the design of the handle more elegant.







											Thread		Teeth no.
Part Reference	**R**	**L**	**D**	**H**	**H1**	**h1**	**h2**	**h3**	**d1**	**L1**	**d 6h**	**h**	**z**
ACLGF1	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M4	12	18
ACLGF2	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M4	16	18
ACLGF3	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M4	20	18
ACLGF4	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M4	25	18
ACLGF5	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M4	32	18
ACLGF6	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M5	12	18
ACLGF7	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M5	16	18
ACLGF8	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M5	20	18
ACLGF9	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M5	25	18
ACLGF10	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M5	32	18
ACLGF11	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M5	40	18
ACLGF12	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M5	50	18
ACLGF13	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M6	12	18
ACLGF14	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M6	16	18
ACLGF15	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M6	20	18
ACLGF16	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M6	25	18
ACLGF17	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M6	32	18
ACLGF18	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M6	40	18
ACLGF19	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M6	50	18
ACLGF20	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M6	12	24
ACLGF21	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M6	16	24
ACLGF22	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M6	20	24
ACLGF23	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M6	25	24
ACLGF24	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M6	32	24
ACLGF25	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M6	40	24
ACLGF26	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M6	50	24
ACLGF27	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M6	63	24
ACLGF28	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M8	12	24
ACLGF29	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M8	16	24
ACLGF30	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M8	20	24
ACLGF31	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M8	25	24
ACLGF32	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M8	32	24
ACLGF33	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M8	40	24
ACLGF34	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M8	50	24
ACLGF35	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M8	63	24
ACLGF36	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M10	20	24
ACLGF37	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M10	25	24
ACLGF38	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M10	32	24
ACLGF39	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M10	40	24
ACLGF40	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M10	50	24
ACLGF41	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M10	63	24
ACLGF42	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M10	80	24

continued...

											Thread		Teeth no.
Part Reference	**R**	**L**	**D**	**H**	**H1**	**h1**	**h2**	**h3**	**d1**	**L1**	**d 6h**	**h**	**z**
ACLGF43	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M8	16	26
ACLGF44	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M8	20	26
ACLGF45	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M8	25	26
ACLGF46	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M8	32	26
ACLGF47	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M8	40	26
ACLGF48	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M8	50	26
ACLGF49	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M8	63	26
ACLGF50	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M8	80	26
ACLGF51	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M10	16	26
ACLGF52	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M10	20	26
ACLGF53	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M10	25	26
ACLGF54	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M10	32	26
ACLGF55	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M10	40	26
ACLGF56	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M10	50	26
ACLGF57	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M10	63	26
ACLGF58	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M10	80	26
ACLGF59	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M12	25	26
ACLGF60	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M12	32	26
ACLGF61	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M12	40	26
ACLGF62	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M12	50	26
ACLGF63	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M12	63	26
ACLGF64	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M12	80	26
ACLGF65	95	109	26.5	56.5	61.5	43	5	45	19	18	M10	16	28
ACLGF66	95	109	26.5	56.5	61.5	43	5	45	19	18	M10	20	28
ACLGF67	95	109	26.5	56.5	61.5	43	5	45	19	18	M10	25	28
ACLGF68	95	109	26.5	56.5	61.5	43	5	45	19	18	M10	32	28
ACLGF69	95	109	26.5	56.5	61.5	43	5	45	19	18	M10	40	28
ACLGF70	95	109	26.5	56.5	61.5	43	5	45	19	18	M10	50	28
ACLGF71	95	109	26.5	56.5	61.5	43	5	45	19	18	M10	63	28
ACLGF72	95	109	26.5	56.5	61.5	43	5	45	19	18	M10	80	28
ACLGF73	95	109	26.5	56.5	61.5	43	5	45	19	18	M12	16	28
ACLGF74	95	109	26.5	56.5	61.5	43	5	45	19	18	M12	20	28
ACLGF75	95	109	26.5	56.5	61.5	43	5	45	19	18	M12	25	28
ACLGF76	95	109	26.5	56.5	61.5	43	5	45	19	18	M12	32	28
ACLGF77	95	109	26.5	56.5	61.5	43	5	45	19	18	M12	40	28
ACLGF78	95	109	26.5	56.5	61.5	43	5	45	19	18	M12	50	28
ACLGF79	95	109	26.5	56.5	61.5	43	5	45	19	18	M12	63	28
ACLGF80	95	109	26.5	56.5	61.5	43	5	45	19	18	M12	80	28
ACLGF81	95	109	26.5	56.5	61.5	43	5	45	19	18	M16	25	28
ACLGF82	95	109	26.5	56.5	61.5	43	5	45	19	18	M16	32	28
ACLGF83	95	109	26.5	56.5	61.5	43	5	45	19	18	M16	40	28
ACLGF84	95	109	26.5	56.5	61.5	43	5	45	19	18	M16	50	28
ACLGF85	95	109	26.5	56.5	61.5	43	5	45	19	18	M16	63	28
ACLGF86	95	109	26.5	56.5	61.5	43	5	45	19	18	M16	80	28

Adjustable Clamping Lever ERM

see next 2 pages for chart...

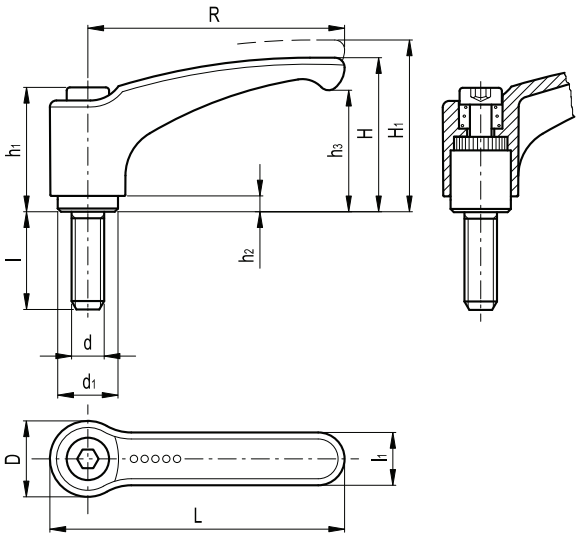
- **Lever body**
  Zinc alloy die-cast, epoxy resin coating.
- **Colour**
  RAL 2004 orange, RAL 3000 red, RAL 9006 grey, RAL 9005 black matte finish.
- **Clamping element**
  Black-oxide steel with toothed element for coupling to the lever body, treated steel retaining screw and return spring.

Special executions on request
(For sufficient quantities)
- Lever body in different colours.
- Chrome-plated lever.
- Clamping element with different threadings and lengths.

Features and applications
Particularly suitable when the lever turning angle is limited owing to lack of space.

Instructions of use
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position. By releasing the lever, the return spring automatically engages the toothing.
If the lever cannot make a 360° rotation, the clamping element can be easily screwed by means of the hexagon socket front head screw (after having disengaged the lever).

Ergonomy and design
The slightly arched shape of the lever and the ergonomic terminal enlargement give the operator a comfortable and safe grip and make the design of the handle more elegant.



continued...

											Thread		Teeth no.
Part Reference	**R**	**L**	**D**	**H**	**H1**	**h1**	**h2**	**h3**	**d1**	**L1**	**d 6h**	**h**	**z**
ACLP1	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M4	12	18
ACLP2	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M4	16	18
ACLP3	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M4	20	18
ACLP4	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M4	25	18
ACLP5	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M4	32	18
ACLP6	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M5	12	18
ACLP7	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M5	16	18
ACLP8	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M5	20	18
ACLP9	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M5	25	18
ACLP10	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M5	32	18
ACLP11	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M5	40	18
ACLP12	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M5	50	18
ACLP13	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M6	12	18
ACLP14	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M6	16	18
ACLP15	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M6	20	18
ACLP16	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M6	25	18
ACLP17	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M6	32	18
ACLP18	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M6	40	18
ACLP19	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M6	50	18
ACLP20	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M6	12	24
ACLP21	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M6	16	24
ACLP22	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M6	20	24
ACLP23	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M6	25	24
ACLP24	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M6	32	24
ACLP25	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M6	40	24
ACLP26	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M6	50	24
ACLP27	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M6	63	24
ACLP28	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M8	12	24
ACLP29	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M8	16	24
ACLP30	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M8	20	24
ACLP31	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M8	25	24
ACLP32	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M8	32	24
ACLP33	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M8	40	24
ACLP34	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M8	50	24
ACLP35	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M8	63	24
ACLP36	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M10	20	24
ACLP37	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M10	25	24
ACLP38	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M10	32	24
ACLP39	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M10	40	24
ACLP40	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M10	50	24
ACLP41	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M10	63	24
ACLP42	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M10	80	24

Adjustable Clamping Lever ERM

											Thread		Teeth no.
Part Reference	**R**	**L**	**D**	**H**	**H1**	**h1**	**h2**	**h3**	**d1**	**L1**	**d 6h**	**h**	**z**
ACLP43	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M8	16	26
ACLP44	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M8	20	26
ACLP45	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M8	25	26
ACLP46	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M8	32	26
ACLP47	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M8	40	26
ACLP48	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M8	50	26
ACLP49	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M8	63	26
ACLP50	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M10	16	26
ACLP51	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M10	20	26
ACLP52	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M10	25	26
ACLP53	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M10	32	26
ACLP54	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M10	40	26
ACLP55	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M10	50	26
ACLP56	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M10	63	26
ACLP57	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M10	80	26
ACLP58	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M12	25	26
ACLP59	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M12	32	26
ACLP60	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M12	40	26
ACLP61	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M12	50	26
ACLP62	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M12	63	26
ACLP63	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M12	80	26
ACLP64	95	109	25	56	61	43	5	42	19	18	M10	16	28
ACLP65	95	109	25	56	61	43	5	42	19	18	M10	20	28
ACLP66	95	109	25	56	61	43	5	42	19	18	M10	25	28
ACLP67	95	109	25	56	61	43	5	42	19	18	M10	32	28
ACLP68	95	109	25	56	61	43	5	42	19	18	M10	40	28
ACLP69	95	109	25	56	61	43	5	42	19	18	M10	50	28
ACLP70	95	109	25	56	61	43	5	42	19	18	M10	63	28
ACLP71	95	109	25	56	61	43	5	42	19	18	M10	80	28
ACLP72	95	109	25	56	61	43	5	42	19	18	M12	16	28
ACLP73	95	109	25	56	61	43	5	42	19	18	M12	20	28
ACLP74	95	109	25	56	61	43	5	42	19	18	M12	25	28
ACLP75	95	109	25	56	61	43	5	42	19	18	M12	32	28
ACLP76	95	109	25	56	61	43	5	42	19	18	M12	40	28
ACLP77	95	109	25	56	61	43	5	42	19	18	M12	50	28
ACLP78	95	109	25	56	61	43	5	42	19	18	M12	63	28
ACLP79	95	109	25	56	61	43	5	42	19	18	M12	80	28
ACLP80	95	109	25	56	61	43	5	42	19	18	M16	25	28
ACLP81	95	109	25	56	61	43	5	42	19	18	M16	32	28
ACLP82	95	109	25	56	61	43	5	42	19	18	M16	40	28
ACLP83	95	109	25	56	61	43	5	42	19	18	M16	50	28
ACLP84	95	109	25	56	61	43	5	42	19	18	M16	63	28
ACLP85	95	109	25	56	61	43	5	42	19	18	M16	80	28

Adjustable Clamping Lever ERM SS

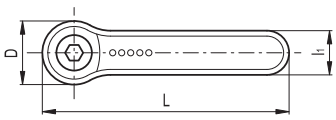
- **Lever body**
  Zinc alloy die-cast, epoxy resin coating.
- **Colour**
  RAL 2004 orange, RAL 3000 red, RAL 9006 grey, RAL 9005 black matte finish.
- **Clamping element**
  AISI 303 stainless steel with toothed element for coupling to the lever body, stainless steel retaining screw and return spring.

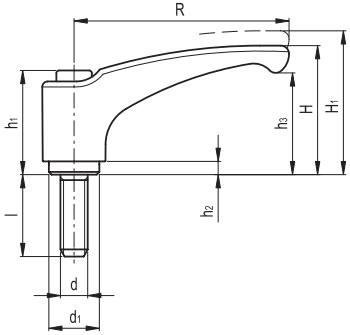
Special executions on request
(For sufficient quantities)
- Lever body in different colours.
- Chrome-plated lever.
- Clamping element with different threadings and lengths.

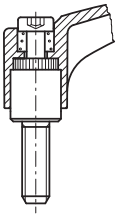
Features and applications
Particularly suitable when the lever turning angle is limited owing to lack of space.
AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these adjustable handles on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.

Instructions of use
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position. By releasing the lever, the return spring automatically engages the toothing.
If the lever cannot make a 360° rotation, the clamping element can be easily screwed by means of the hexagon socket front head screw (after having disengaged the lever).

Ergonomy and design
The slightly arched shape of the lever and the ergonomic terminal enlargement give the operator a comfortable and safe grip and make the design of the handle more elegant.







RAL 2004 RAL 3000 RAL 9006 RAL 9005

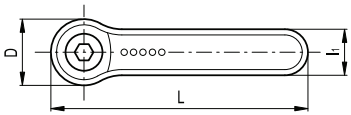
											Thread		Teeth no.
Part Reference	**R**	**L**	**D**	**H**	**H1**	**h1**	**h2**	**h3**	**d1**	**L1**	**d 6h**	**h**	**z**
ACLP1SS	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M5	12	18
ACLP2SS	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M5	16	18
ACLP3SS	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M5	20	18
ACLP4SS	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M5	25	18
ACLP5SS	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M5	32	18
ACLP6SS	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M5	40	18
ACLP7SS	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M5	50	18
ACLP8SS	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M6	12	18
ACLP9SS	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M6	16	18
ACLP10SS	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M6	20	18
ACLP11SS	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M6	25	18
ACLP12SS	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M6	32	18
ACLP13SS	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M6	40	18
ACLP14SS	44	52	14.5	30	33	24.5	3.5	20.5	10	11	M6	50	18
ACLP15SS	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M6	16	24
ACLP16SS	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M6	20	24
ACLP17SS	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M6	25	24
ACLP18SS	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M6	32	24
ACLP19SS	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M6	40	24
ACLP20SS	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M6	50	24
ACLP21SS	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M6	63	24
ACLP22SS	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M8	16	24
ACLP23SS	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M8	20	24
ACLP24SS	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M8	25	24
ACLP25SS	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M8	32	24
ACLP26SS	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M8	40	24
ACLP27SS	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M8	50	24
ACLP28SS	63	73.5	18	38	41	31	3.5	27	13.5	13.5	M8	63	24
ACLP29SS	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M10	20	26
ACLP30SS	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M10	25	26
ACLP31SS	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M10	32	26
ACLP32SS	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M10	40	26
ACLP33SS	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M10	50	26
ACLP34SS	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M10	63	26
ACLP35SS	78	90.5	21.5	46	50	36	3.5	34.5	16	16	M10	80	26
ACLP36SS	95	109	25	56	61	43	5	42	19	18	M10	20	28
ACLP37SS	95	109	25	56	61	43	5	42	19	18	M10	25	28
ACLP38SS	95	109	25	56	61	43	5	42	19	18	M10	32	28
ACLP39SS	95	109	25	56	61	43	5	42	19	18	M10	40	28
ACLP40SS	95	109	25	56	61	43	5	42	19	18	M10	50	28
ACLP41SS	95	109	25	56	61	43	5	42	19	18	M10	63	28
ACLP42SS	95	109	25	56	61	43	5	42	19	18	M10	80	28
ACLP43SS	95	109	25	56	61	43	5	42	19	18	M12	20	28
ACLP44SS	95	109	25	56	61	43	5	42	19	18	M12	25	28
ACLP45SS	95	109	25	56	61	43	5	42	19	18	M12	32	28
ACLP46SS	95	109	25	56	61	43	5	42	19	18	M12	40	28
ACLP47SS	95	109	25	56	61	43	5	42	19	18	M12	50	28
ACLP48SS	95	109	25	56	61	43	5	42	19	18	M12	63	28
ACLP49SS	95	109	25	56	61	43	5	42	19	18	M12	80	28

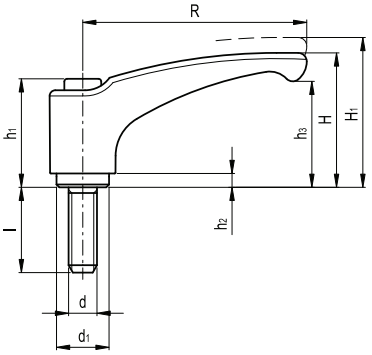
Adjustable Clamping Lever Stainless Steel Glass Fibre Reinforced

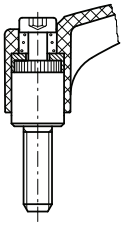
Stainless Steel

- **Lever body**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents. Built-in zinc alloy toothed insert for coupling to the metal clamping element.
- **Colour**
  Grey-black, matte finish.
- **Clamping element**
  AISI 303 stainless steel with toothed element for coupling to the built-in zinc alloy insert, AISI 303 stainless steel retaining screw and return spring.

Special executions on request
(For sufficient quantities) Lever body in orange colour.
Features and applications
Particularly suitable when the lever turning angle is limited owing to lack of space.
The metal toothing of the built-in zinc alloy insert allows the assembly of clamping elements completely made out of metal, which can be easily modified by machining in case of special assembly requirements.
AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these adjustable handles on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.
Instructions of use
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position. By releasing the lever, the return spring automatically engages the toothing.
If the lever cannot make a 360° rotation, the clamping element can be easily screwed by means of the hexagon socket front head screw (after having disengaged the lever).
Ergonomy and design
The slightly arched shape of the lever and the ergonomic terminal enlargement give the operator a comfortable and safe grip and make the design of the handle more elegant.







											Thread		Teeth no.
Part Reference	**R**	**L**	**D**	**H**	**H1**	**h1**	**h2**	**h3**	**d1**	**L1**	**d 6h**	**h**	**z**
ACLGF1SS	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M5	12	18
ACLGF2SS	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M5	16	18
ACLGF3SS	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M5	20	18
ACLGF4SS	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M5	25	18
ACLGF5SS	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M5	32	18
ACLGF6SS	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M5	40	18
ACLGF7SS	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M5	50	18
ACLGF8SS	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M6	12	18
ACLGF9SS	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M6	16	18
ACLGF10SS	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M6	20	18
ACLGF11SS	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M6	25	18
ACLGF12SS	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M6	32	18
ACLGF13SS	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M6	40	18
ACLGF14SS	44	52	15.5	30.5	34	24.5	3.5	22.5	10	11	M6	50	18
ACLGF15SS	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M6	16	24
ACLGF16SS	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M6	20	24
ACLGF17SS	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M6	25	24
ACLGF18SS	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M6	32	24
ACLGF19SS	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M6	40	24
ACLGF20SS	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M6	50	24
ACLGF21SS	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M6	63	24
ACLGF22SS	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M8	16	24
ACLGF23SS	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M8	20	24
ACLGF24SS	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M8	25	24
ACLGF25SS	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M8	32	24
ACLGF26SS	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M8	40	24
ACLGF27SS	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M8	50	24
ACLGF28SS	63	73.5	19	38.5	42	31	3.5	30	13.5	13.5	M8	63	24
ACLGF29SS	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M10	20	26
ACLGF30SS	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M10	25	26
ACLGF31SS	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M10	32	26
ACLGF32SS	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M10	40	26
ACLGF33SS	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M10	50	26
ACLGF34SS	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M10	63	26
ACLGF35SS	78	90.5	23	46.5	50.5	36	3.5	36.5	16	16	M10	80	26
ACLGF36SS	95	109	26.5	56.5	61.5	43	5	45	19	18	M10	20	28
ACLGF37SS	95	109	26.5	56.5	61.5	43	5	45	19	18	M10	25	28
ACLGF38SS	95	109	26.5	56.5	61.5	43	5	45	19	18	M10	32	28
ACLGF39SS	95	109	26.5	56.5	61.5	43	5	45	19	18	M10	40	28
ACLGF40SS	95	109	26.5	56.5	61.5	43	5	45	19	18	M10	50	28
ACLGF41SS	95	109	26.5	56.5	61.5	43	5	45	19	18	M10	63	28
ACLGF42SS	95	109	26.5	56.5	61.5	43	5	45	19	18	M10	80	28
ACLGF43SS	95	109	26.5	56.5	61.5	43	5	45	19	18	M12	20	28
ACLGF44SS	95	109	26.5	56.5	61.5	43	5	45	19	18	M12	25	28
ACLGF45SS	95	109	26.5	56.5	61.5	43	5	45	19	18	M12	32	28
ACLGF46SS	95	109	26.5	56.5	61.5	43	5	45	19	18	M12	40	28
ACLGF47SS	95	109	26.5	56.5	61.5	43	5	45	19	18	M12	50	28
ACLGF48SS	95	109	26.5	56.5	61.5	43	5	45	19	18	M12	63	28
ACLGF49SS	95	109	26.5	56.5	61.5	43	5	45	19	18	M12	80	28

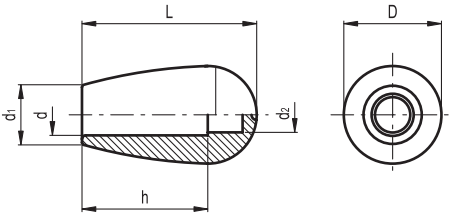
- **Material**
  High resilience polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  RAL 9005 black or RAL 3000 red, glossy finish.
- **Assembly**
  Plain blind hole.
  The elastic coupling by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off.

Special executions on request
(For sufficient quantities) Different RAL colours.

Assembly instructions
Fit the handle onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.

RAL 9005 RAL 3000

				Mounting Hole		
Part Reference	**D**	**L**	**d1**	**d**	**h**	**d2**
CH1	16	25	12	6	17	4
CH2-3000	16	25	12	6	17	4
CH3	20	32	14	8	21	6
CH4-3000	20	32	14	8	21	6
CH9	26	42	17	8	25	6
CH10-3000	26	42	17	8	25	6
CH11	26	42	17	10	30	7.5
CH12-3000	26	42	17	10	30	7.5
CH5	34	54.5	21	10	40	5.5
CH6-3000	34	54.5	21	10	40	5.5
CH7	34	54.5	21	12	40	5.5
CH8-3000	34	54.5	21	12	40	5.5



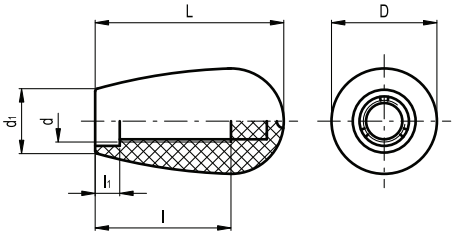
Taper Knobs

- **Material**
  Polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Six standard colours: RAL 9005 black, RAL 2004 orange, RAL 7035 grey, RAL 1021 yellow, RAL 5024 light-blue, RAL 3000 red. Glossy finish.
- **Assembly**
  Tapped blind hole.

Special executions on request
(For sufficient quantities) Different RAL colours.

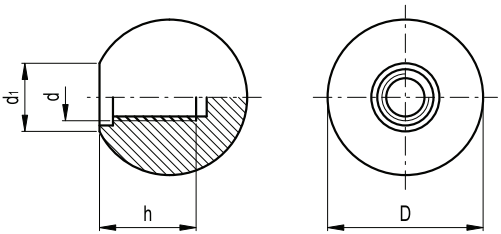
RAL 2004 RAL 7035 RAL 1021 RAL 5024 RAL 3000

				Mounting Hole		
Part Reference	**D**	**L**	**d1**	**d**	**h**	**d2**
TK1	16	25	12	M6	16	3.5
TK2	20	32	14	M8	20	3.5
TK3	26	42	17	M8	30	5
TK4	26	42	17	M10	30	5
TK5	34	54.5	21	M10	35	8
TK6	34	54.5	21	M12	35	8



Spherical Knobs Tapped

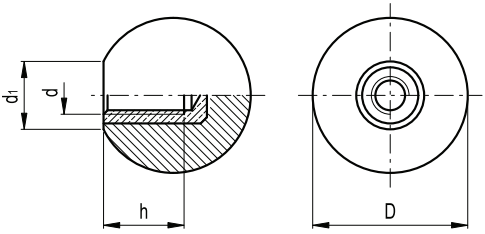
- **Material**
  Phenolic based (PF) Duroplast. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  RAL 9005 black or RAL 3000 red, glossy finish on request.
- **Assembly**
  Tapped blind hole.



			Mounting Hole	
Part Reference	**D**	**d1**	**d**	**h**
PSK1	20	7	M4	10
PSK2	20	7	M5	10
PSK3	20	7	M6	12
PSK4	25	10	M5	16
PSK5	25	10	M6	16
PSK6	25	10	M8	16
PSK7	25	10	M10	18
PSK8	30	15	M5	16
PSK9	30	15	M8	16
PSK10	30	15	M8	16
PSK11	30	15	M10	18
PSK12	35	15	M8	16
PSK13	35	15	M10	18
PSK14	35	15	M12	20
PSK15	40	18	M8	16
PSK16	40	18	M10	18
PSK17	40	18	M12	20
PSK18	40	18	M16	24
PSK19	45	21	M10	26
PSK20	45	21	M12	26
PSK21	45	21	M14	28
PSK22	50	21	M10	26
PSK23	50	21	M12	26
PSK24	50	21	M16	28
PSK25	60	31	M20	35

Plain Spherical Knobs Tapped Brass Boss

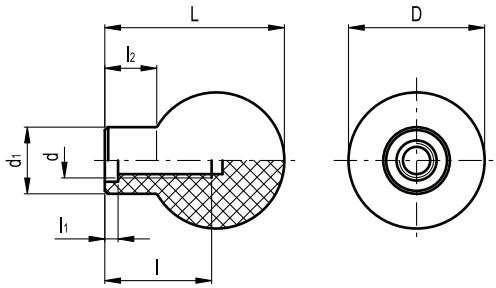
- **Material**
  Phenolic based (PF) Duroplast. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, glossy finish.
- **Assembly**
  Brass boss, tapped blind hole.



			Mounting Hole	
Part Reference	**D**	**d1**	**d**	**h**
PSKB1	20	7	M4	10
PSKB2	25	10	M6	10
PSKB3	25	10	M8	13
PSKB4	25	10	M10	13
PSKB5	30	15	M5	10
PSKB6	30	15	M6	10
PSKB7	30	15	M8	13
PSKB8	30	15	M10	17
PSKB9	35	15	M8	13
PSKB10	35	15	M10	17
PSKB11	40	18	M10	17
PSKB12	40	18	M12	20
PSKB13	45	21	M10	17
PSKB14	45	21	M12	20
PSKB15	50	21	M10	17
PSKB16	50	21	M12	20

Ball Handles Female

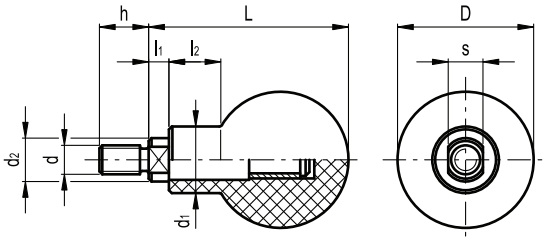
- **Material**
  Phenolic based (PF) Duroplast. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, glossy finish.
- **Assembly**
  Tapped blind hole.



					Mounting Hole		
Part Reference	**D**	**L**	**d1**	**l2**	**d**	**l**	**l1**
BH1	37	47	18	13	M8	16	4
BH2	47	62	23	17	M10	26	5

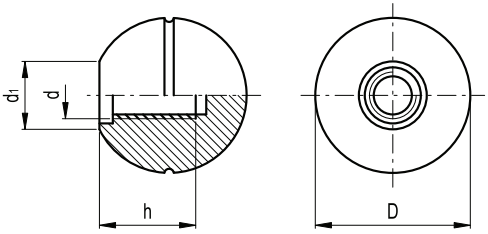
Revolving Ball Handles

- **Material**
  Phenolic based (PF) Duroplast. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, glossy finish.
- **Assembly**
  Zinc-plated steel threaded shank, two flat faces for fitting with 12mm spanner.



					Threaded Shank				
Part Reference	**D**	**L**	**d1**	**l2**	**d6g**	**h**	**d2**	**l1**	**s**
RBH1	37	54	18	13	M8	15	15	7	12
RBH2	47	69	23	17	M10	17	15	7	12

- **Material**
  Phenolic based (PF) Duroplast. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, glossy finish with equatorial groove.
- **Assembly**
  Tapped blind hole.

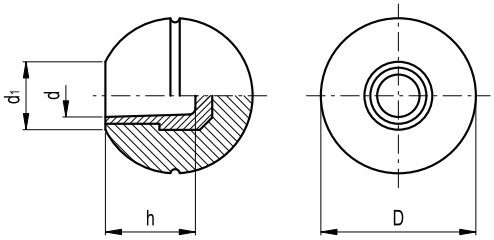


			Mounting Hole	
Part Reference	**D**	**d1**	**d**	**h**
SKT1	20	7	M4	10
SKT2	20	7	M5	10
SKT3	20	7	M6	12
SKT4	25	10	M5	16
SKT5	25	10	M6	16
SKT6	25	10	M8	16
SKT7	25	10	M10	18
SKT8	30	15	M6	16
SKT9	30	15	M8	16
SKT10	30	15	M10	18
SKT11	35	15	M8	16
SKT12	35	15	M10	18
SKT13	35	15	M12	20
SKT14	40	18	M8	16
SKT15	40	18	M10	18
SKT16	40	18	M12	20
SKT17	42	21	M10	26
SKT18	45	21	M12	26
SKT19	45	21	M14	28
SKT20	50	21	M10	26
SKT21	50	21	M12	26
SKT22	50	21	M14	28
SKT23	50	21	M16	28

Spherical Knobs Press Fit

- **Material**
  Phenolic based (PF) Duroplast. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, glossy finish with equatorial groove.
- **Assembly**
  Glass-fibre reinforced polyamide based (PA) technopolymer self-locking boss, plain blind hole. The elastic coupling by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off

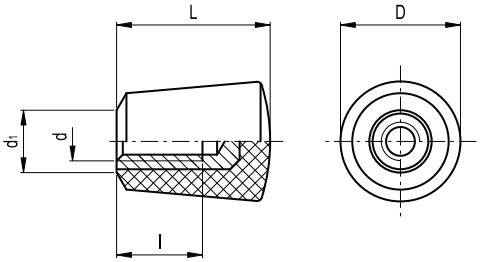
Assembly instructions
Fit the handle onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.



			Mounting Hole	
Part Reference	**D**	**d1**	**d**	**h**
SKPF1	20	7	6	13
SKPF2	25	10	6	13
SKPF3	25	10	8	14
SKPF4	30	15	8	14
SKPF5	30	15	10	18
SKPF6	35	15	8	14
SKPF7	35	15	10	18
SKPF8	40	18	10	18
SKPF9	40	18	12	21
SKPF10	45	21	12	21
SKPF11	45	21	14	24
SKPF12	50	21	12	21
SKPF13	50	21	14	24
SKPF14	50	21	16	28

Taper Knobs Brass Boss

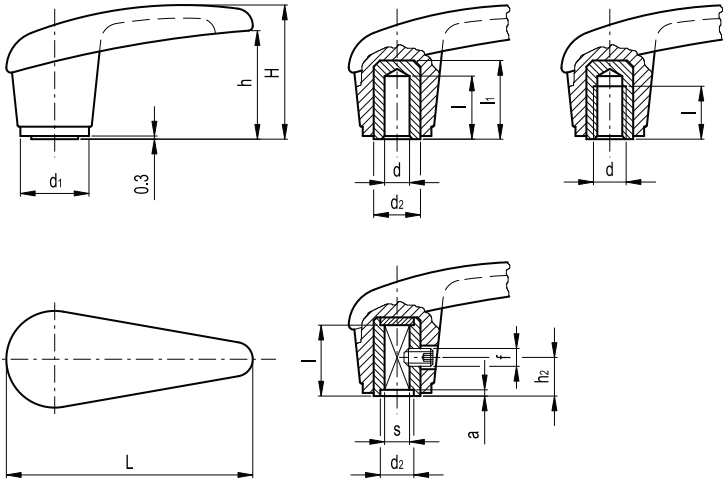
- **Material**
  Phenolic based (PF) Duroplast. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, glossy finish.
- **Assembly**
  Brass boss, tapped blind hole.



			Mounting Hole		
Part Reference	**L**	**D**	**d1**	**d6H**	**L**
TKB1	20	15	7	M5	12
TKB2	26	20	10	M6	16
TKB3	26	20	10	M8	15
TKB4	32	25	13	M10	17

Lever Handles

- **Material**
  Phenolic based (PF) Duroplast. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, glossy finish.
- **Type A**
  Black-oxide steel boss, plain blind hole.
- **Type B**
  Brass boss:
- plain blind hole
- tapped blind hole
- blind square hole complete with set screw for fitting to shaft (grub screw with hexagon socket and cup end).



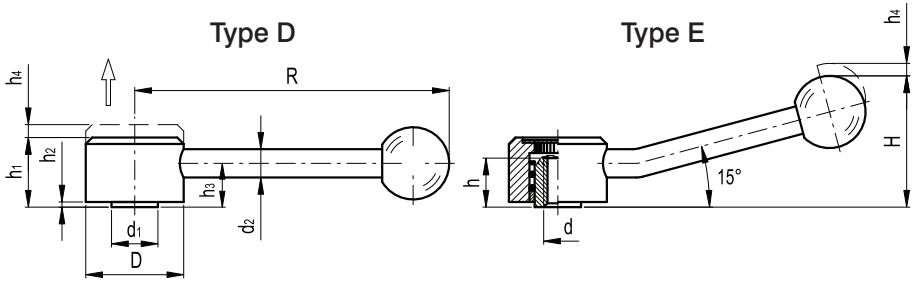
									Mounting hole				
Part Reference	**L**	**H**	**h**	**d1**	**d2**	**l1**	**h2**	**f**	**dh9**	**d 6h**	**Sh8**	**l**	**a**
LH1B	79	42	34	22	15	25	-	-	8	-	-	20	-
LH2B	79	42	34	22	-	-	-	-	-	M8	-	20	-
LH3B	79	42	34	22	12	-	13	M5	-	-	7x7	25	3
LH4A	99	52	42	22	16	25	-	-	10	-	-	21	-
LH5B	99	52	42	22	15	25	-	-	8	-	-	20	-
LH6B	99	52	42	22	12	-	13	M5	-	-	8x8	25	3
LH7A	118	57	45	25	16	25	-	-	10	-	-	21	-
LH8A	118	57	45	25	18	29	-	-	12	-	-	23	-

- **Lever Body**
  Black-oxide steel.
  - Type D: straight arm.
  - Type E: 15° inclined arm.
- **Handle**
  Phenolic based (PF) Duroplast, black colour, glossy finish type PL. Resistant to solvents, oils, greases and other chemical agents.
- **Clamping element**
  Black-oxide steel with toothed element for coupling to the lever body, treated steel return spring.
- **Hub Cap**
  Anodised aluminium, natural colour.

Features and applications
Particularly suitable when the lever turning angle is limited owing to lack of space.

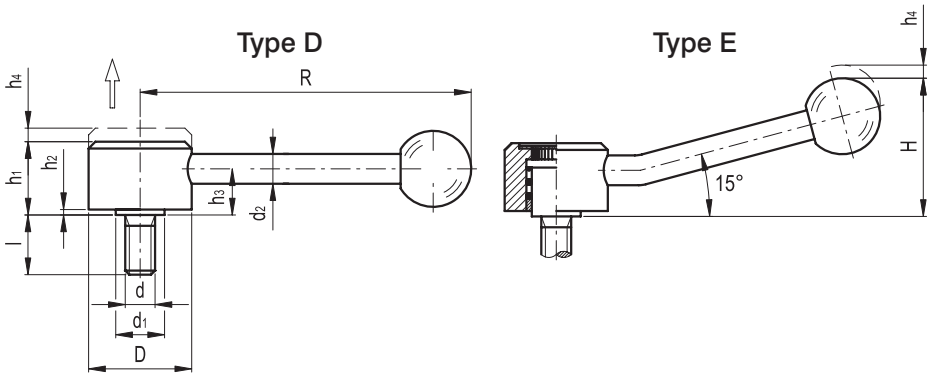
Instructions
For clamping, lift the lever to disengage the clamping device toothing and bring it back to start position.
By releasing the lever, the return spring automatically engages the toothing.

Adjustable Handle Female



										Mounting hole	
Part Reference	**D**	**R**	**H**	**h1**	**h2**	**h3**	**h4**	**d1**	**d2**	**d**	**h**
AHF1D	32	100	-	20.5	1.5	12.5	4	13.5	8	M6	11
AHF2E	32	100	36	20.5	1.5	12.5	4	13.5	8	M6	11
AHF3D	36	120	-	24.5	2	15	4.5	16	10	M8	14
AHF4E	36	120	45	24.5	2	15	4.5	16	10	M8	14
AHF5D	40	130	-	26.5	2	16	4.5	19	12	M10	17
AHF6E	40	130	50	26.5	2	16	4.5	19	12	M10	17
AHF7D	45	145	-	31.5	2	20	5	23	12	M12	23
AHF8E	45	145	60	31.5	2	20	5	23	12	M12	23

Adjustable Handle

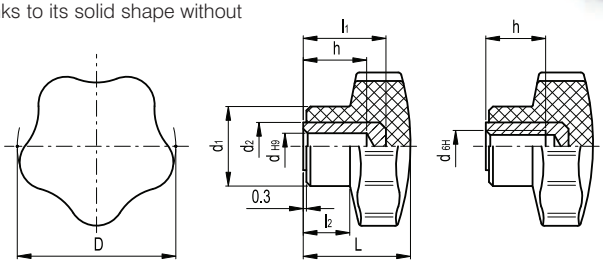


											Mounting hole	
Part Reference		**D**	**R**	**H**	**h1**	**h2**	**h3**	**h4**	**d1**	**d2**	**d**	**l**
AH1D	AH1E	32	100	36	20.5	1.5	12.5	4	13.5	8	M8	16
AH2D	AH2E	32	100	36	20.5	1.5	12.5	4	13.5	8	M8	20
AH3D	AH3E	32	100	36	20.5	1.5	12.5	4	13.5	8	M8	25
AH4D	AH4E	32	100	36	20.5	1.5	12.5	4	13.5	8	M8	32
AH5D	AH5E	32	100	36	20.5	1.5	12.5	4	13.5	8	M8	40
AH6D	AH6E	32	100	36	20.5	1.5	12.5	4	13.5	8	M8	50
AH7D	AH7E	32	100	36	20.5	1.5	12.5	4	13.5	8	M8	63
AH8D	AH8E	36	120	45	24.5	2	15	4.5	16	10	M10	20
AH9D	AH9E	36	120	45	24.5	2	15	4.5	16	10	M10	25
AH10D	AH10E	36	120	45	24.5	2	15	4.5	16	10	M10	32
AH11D	AH11E	36	120	45	24.5	2	15	4.5	16	10	M10	40
AH12D	AH12E	36	120	45	24.5	2	15	4.5	16	10	M10	50
AH13D	AH13E	36	120	45	24.5	2	15	4.5	16	10	M10	63
AH14D	AH14E	36	120	45	24.5	2	15	4.5	16	10	M10	80
AH15D	AH15E	40	130	50	26.5	2	16	4.5	19	12	M12	25
AH16D	AH16E	40	130	50	26.5	2	16	4.5	19	12	M12	32
AH17D	AH17E	40	130	50	26.5	2	16	4.5	19	12	M12	40
AH18D	AH18E	40	130	50	26.5	2	16	4.5	19	12	M12	50
AH19D	AH19E	40	130	50	26.5	2	16	4.5	19	12	M12	63
AH20D	AH20E	40	130	50	26.5	2	16	4.5	19	12	M12	80
AH21D	AH21E	45	145	60	31.5	2	20	5	23	12	M16	32
AH22D	AH22E	45	145	60	31.5	2	20	5	23	12	M16	40
AH23D	AH23E	45	145	60	31.5	2	20	5	23	12	M16	50
AH24D	AH24E	45	145	60	31.5	2	20	5	23	12	M16	63
AH25D	AH25E	45	145	60	31.5	2	20	5	23	12	M16	80

Lobe Knobs

- **Body**
  Phenolic based (PF) Duroplast. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, glossy finish.
- **Assembly**
- Execution **A**: black-oxide steel boss, plain blind hole.
- Execution **B**: brass boss, plain or tapped blind hole.

Features
The exclusive five-lobe shape offers the operator's fingers a proper grip and prevents unhealthy residues from depositing thanks to its solid shape without cavities.



Lobe Knobs

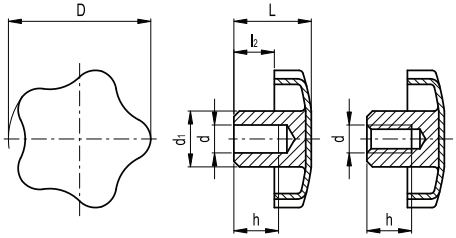
							Mounting Hole			Bosses	
Part Reference	**D**	**L**	**d1**	**d2**	**l1**	**l2**	**dH9**	**d 6h**	**h**	**Steel**	**Brass**
LBKB1	25	21	15	11	14	9	4	-	11		
LBKB2	25	21	15	-	-	9	-	M4	10		
LBKB3	32	23	19	12	17	11	6	-	14		
LBKB4	32	23	19	-	-	11	-	M5	10		
LBKB5	32	23	19	-	-	11	-	M6	12		
LBKB6	40	27	21	12	17	12	6	-	14		
LBKB7	40	27	21	12	18	12	8	-	14		
LBKB8	40	27	21	-	-	12	-	M6	12		
LBKB9	40	27	21	-	-	12	-	M8	13		
LBKA10	50	33	25	15	23	14	6	-	18		
LBKA11	50	33	25	15	25	14	8	-	20		
LBKA12	50	33	25	16	25	14	10	-	21		
LBKB13	50	33	25	15	23	14	6	-	18		
LBKB14	50	33	25	15	25	14	8	-	20		
LBKB15	50	33	25	-	-	14	-	M8	20		
LBKB16	50	33	25	-	-	14	-	M10	17		
LBKA17	60	37	27	18	28	17	6	-	20		
LBKA18	60	37	27	15	25	17	8	-	20		
LBKA19	60	37	27	18	31	17	10	-	25		
LBKB20	60	37	27	-	-	17	-	M10	17		
LBKB21	60	37	27	-	-	17	-	M12	20		
LBKA22	70	44	30	20	35	20	8	-	26		
LBKA23	70	44	30	18	31	20	10	-	25		
LBKB24	70	44	30	-	-	20	-	M12	20		
LBKB25	70	44	30	-	-	20	-	M14	20		
LBKA26	85	55	35	22	38	30	8	-	25		
LBKB27	85	55	35	-	-	30	-	M16	22		
LBKA28	100	60	38	22	38	31	8	-	25		
LBKA29	100	60	38	-14	-25	31	-	M16	22		

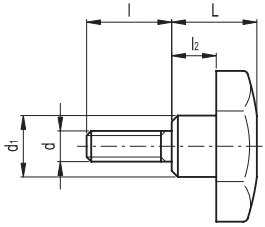
Lobe Knobs
Stainless Steel AISI 304

Stainless Steel

- **Material**
  AISI 304 stainless steel, sandblasted matte finish.
- **Assembly**
- Execution C: butt-welded hub, H7 reamed blind hole.
- Execution E: butt-welded hub, tapped blind hole.
- Execution with pin: butt-welded hub, AISI 304 stainless steel threaded pin.

Features and applications
AISI 304 stainless steel, thanks to its high resistance to corrosion, allows the application of these knobs on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.



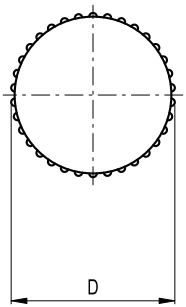


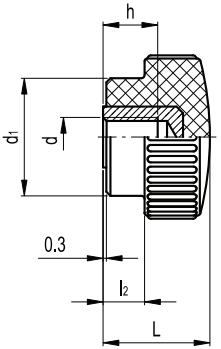
Lobe Knobs Stainless Steel AISI 304

Part Reference	D	L	d1	l2	d H7	d	h
LBK1SSC	40	24	14	12	8	-	15
LBK2SSE	40	24	14	12	-	M8	15
LBK3SSC	50	31	18	17.5	10	-	18
LBK4SSE	50	31	18	17.5	-	M10	18
LBK5SSC	60	39	20	21	12	-	22
LBK6SSE	60	39	20	21	-	M12	22

Part Reference	D	L	d1	l2	d	l
LBKP7SS	40	24	14	12	M8	20
LBKP8SS	40	24	14	12	M8	30
LBKP9SS	40	24	14	12	M8	40
LBKP10SS	50	31	18	17.5	M10	20
LBKP11SS	50	31	18	17.5	M10	30
LBKP12SS	50	31	18	17.5	M10	40
LBKP13SS	60	39	20	21	M12	30
LBKP14SS	60	39	20	21	M12	40
LBKP15SS	60	39	20	21	M12	50

- **Material**
  Phenolic based (PF) Duroplast.
  Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, glossy finish.
- **Assembly**
  Brass boss, tapped through hole.





Grip Knobs Through Hole

Part Reference	D	L	d1	d3	l2	d 6H	h
GKTH1	15	11	11	6	2	M4	10
GKTH2	18	12	13	7	3	M5	10
GKTH3	22	14	15	8	4	M6	11
GKTH4	26	18	19	10	6	M6	15
GKTH5	26	18	19	10	6	M8	15
GKTH6	31	18	24	13	6	M6	15
GKTH7	31	18	24	13	6	M8	15
GKTH8	31	18	24	13	6	M10	15
GKTH9	31	18	24	13	6	M12	15
GKTH10	36	22.5	27	14	8	M10	15
GKTH11	36	22.5	27	14	8	M12	15
GKTH12	40	26	29	14	10	M10	15
GKTH13	40	26	29	14	10	M12	15
GKTH14	50	32	36	20	12	M12	21

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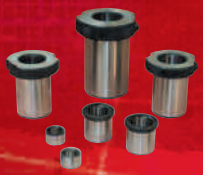

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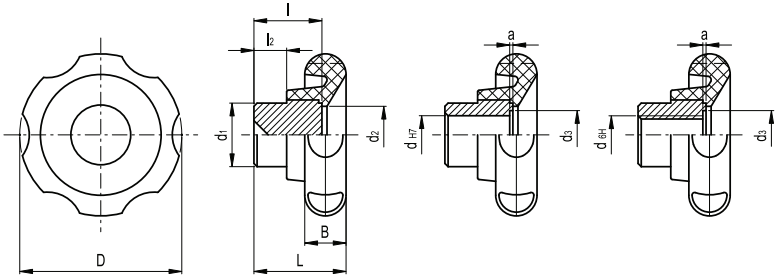
Lobe Knobs Polyamide

- **Material**
  Glass reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, glossy finish.
- **Assembly**
  Black-oxide steel hub, with uncovered front end, available in different executions:

- not drilled
- H7 reamed through hole
- 6H tapped through hole.

Special executions on request (For sufficient quantities)
Different RAL colours with zinc-plated steel hub.



Lobe Knobs Polyamide

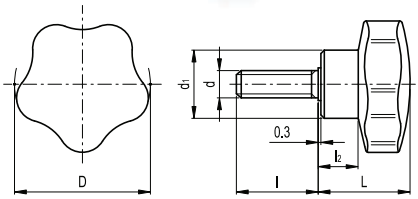
Part Reference	D	L	B	d1	d2	l2	d3	a	d H7	d 6H	l
LBKFP1	50	29	13	20	18	10	-	-	-	-	21
LBKFP2	50	29	13	20	18	10	-	-	8	-	21
LBKFP3	50	29	13	20	18	10	-	-	10	-	21
LBKFP4	50	29	13	20	18	10	-	-	-	M8	21
LBKFP5	50	29	13	20	18	10	-	-	-	M10	21
LBKFP6	61	30	16	25	24	11	-	-	-	-	23
LBKFP7	61	30	16	25	24	11	-	-	10	-	23
LBKFP8	61	30	16	25	24	11	-	-	12	-	23
LBKFP9	61	30	16	25	24	11	-	-	-	M10	23
LBKFP10	61	30	16	25	24	11	-	-	-	M12	23
LBKFP11	70	33	18	30	29	12	-	-	-	-	25
LBKFP12	70	33	18	30	29	12	18.1	0.8	12	-	25
LBKFP13	70	33	18	30	29	12	21.4	1.5	14	-	25
LBKFP14	70	33	18	30	29	12	18.1	0.8	-	M12	25
LBKFP15	80	40	19	35	34	15	-	-	-	-	30
LBKFP16	80	40	19	35	34	15	18.1	0.8	14	-	30
LBKFP17	80	40	19	35	34	15	21.4	1.5	16	-	30
LBKFP18	80	40	19	35	34	15	18.1	0.8	-	M14	30
LBKFP19	80	40	19	35	34	15	18.1	0.8	-	M16	30

Lobe Knobs

- **Material**
  Phenolic based (PF) Duroplast. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, glossy finish.
- **Assembly**
  Zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753.

Features
The exclusive five-lobe shape offers the operator's finger a proper grip and prevents unhealthy residues from depositing thanks to its solid shape without cavities.

Also available ISSS.



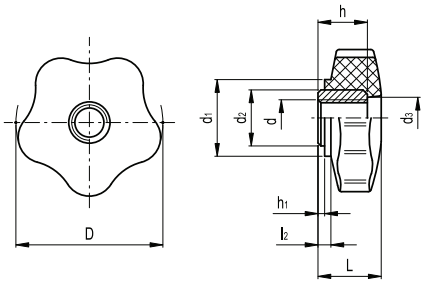
Lobe Knobs					Thread	
Part Reference	D	L	d1	l2	d 6g	l
LBKP1	25	21	15	9	M5	10
LBKP2	25	21	15	9	M5	16
LBKP3	25	21	15	9	M6	10
LBKP4	25	21	15	9	M6	16
LBKP5	25	21	15	9	M6	20
LBKP6	25	21	15	9	M6	30
LBKP7	32	23	19	11	M6	10
LBKP8	32	23	19	11	M6	16
LBKP9	32	23	19	11	M6	20
LBKP10	32	23	19	11	M6	35
LBKP11	32	23	19	11	M8	20
LBKP12	32	23	19	11	M8	30
LBKP13	32	23	19	11	M8	40
LBKP14	40	27	21	12	M6	10
LBKP15	40	27	21	12	M6	20
LBKP16	40	27	21	12	M6	30
LBKP17	40	27	21	12	M8	16
LBKP18	40	27	21	12	M8	25
LBKP19	40	27	21	12	M8	35
LBKP20	40	27	21	12	M8	45
LBKP21	50	33	25	14	M8	16
LBKP22	50	33	25	14	M8	20

Lobe Knobs					Thread	
Part Reference	D	L	d1	l2	d 6g	l
LBKP23	50	33	25	14	M8	25
LBKP24	50	33	25	14	M8	30
LBKP25	50	33	25	14	M8	40
LBKP26	50	33	25	14	M10	20
LBKP27	50	33	25	14	M10	30
LBKP28	50	33	25	14	M10	40
LBKP29	50	33	25	14	M10	50
LBKP30	60	37	27	17	M10	20
LBKP31	60	37	27	17	M10	30
LBKP32	60	37	27	17	M10	40
LBKP33	60	37	27	17	M10	50
LBKP34	60	37	27	17	M12	25
LBKP35	60	37	27	17	M12	30
LBKP36	60	37	27	17	M12	40
LBKP37	60	37	27	17	M12	50
LBKP38	70	44	30	20	M12	30
LBKP39	70	44	30	20	M12	50
LBKP40	70	44	30	20	M12	60
LBKP41	70	44	30	20	M12	70
LBKP42	70	44	30	20	M14	50
LBKP43	70	44	30	20	M14	70
LBKP44	85	55	35	30	M16	50

Lobe Knobs Shortened Series

- **Material**
  Phenolic based (PF) Duroplast. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, glossy finish.
- **Assembly**
  Black-oxide steel boss, tapped through hole.

Features
The exclusive five-lobe shape offers the operator's fingers a proper grip and prevents unhealthy residues from depositing thanks to its solid shape without cavities.

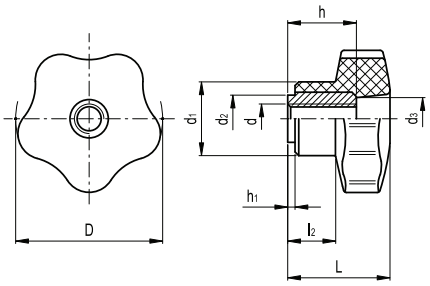


Lobe Knobs Shortened Series								Mounting Hole	
Part Reference	**D**	**L**	**d1**	**d2**	**d3**	**l2**	**h1**	**d 6H**	**h**
LBKS1	40	19	23	17	14	3	1.5	M8	15
LBKS2	40	19	23	17	14	3	1.5	M10	15
LBKS3	40	19	23	17	14	3	1.5	M12	15
LBKS4	50	21	26	19	14	3	1.5	M12	16
LBKS5	60	24	30	19	16	4	1.5	M12	16
LBKS6	85	30	32	18	18	6	1.5	M14	22

Lobe Knobs Type B

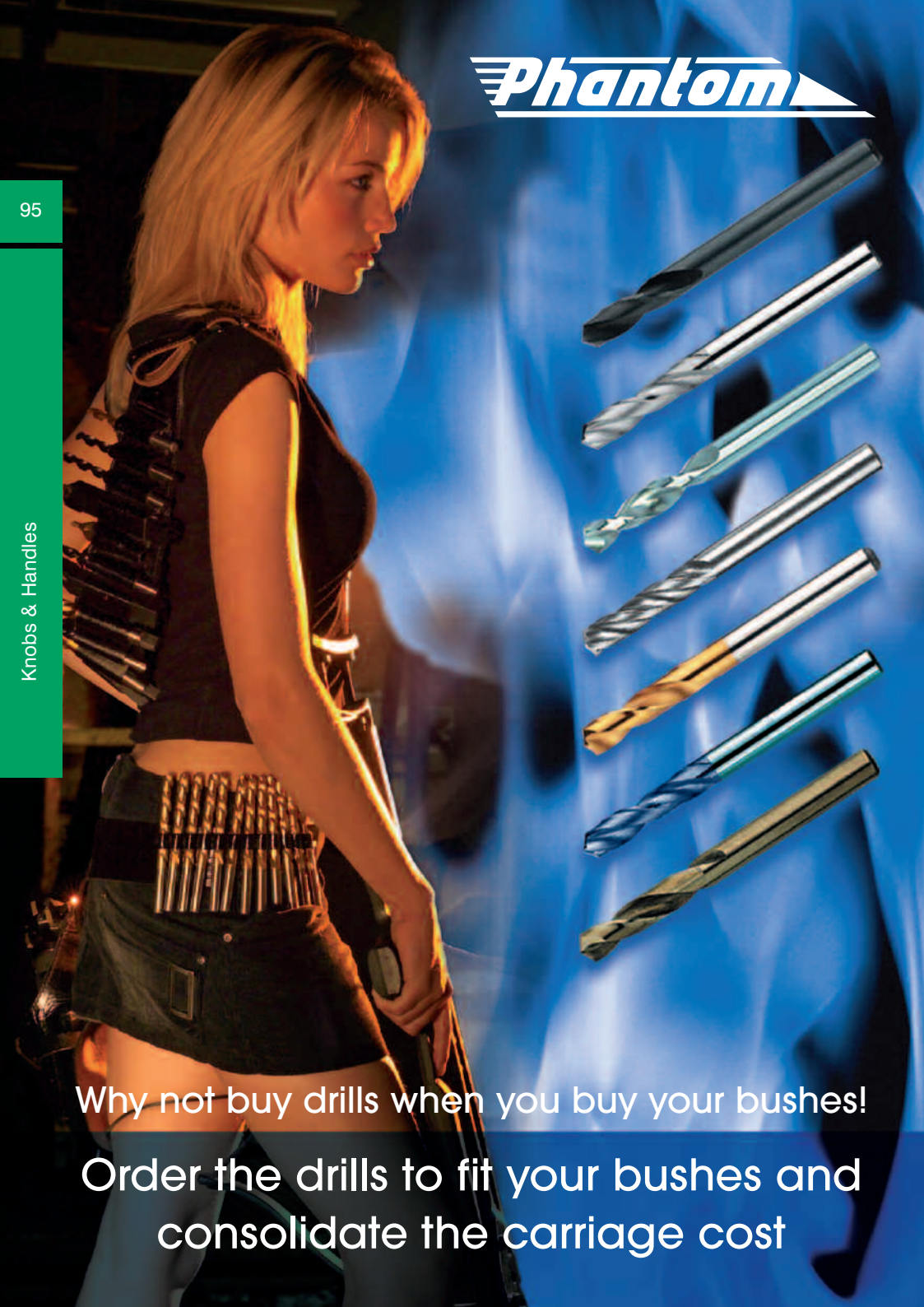
- **Material**
  Phenolic based (PF) Duroplast. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, glossy finish.
- **Assembly**
  Brass boss, tapped through hole and large metal locking face.

Features
The exclusive five-lobe shape offers the operator's fingers a proper grip and prevents unhealthy residues from depositing thanks to its solid shape without cavities.



Lobe Knobs Type B

Part Reference	D	L	d1	d2	d3	l2	h1	Mounting Hole d 6H	Mounting Hole h
LBKSB1	40	28	21	14	13	13	1.5	M6	18
LBKSB2	40	28	21	14	13	13	1.5	M8	18
LBKSB3	40	28	21	14	13	13	1.5	M10	18
LBKSB4	50	34	25	16	13	15	1.5	M10	22
LBKSB5	50	34	25	16	13	15	1.5	M12	22
LBKSB6	60	38	27	17	15	18	1.5	M10	26
LBKSB7	60	38	27	17	15	18	1.5	M12	26
LBKSB8	60	38	27	17	15	18	1.5	M14	26
LBKSB9	70	45	30	17	17	21	1.5	M12	26
LBKSB10	70	45	30	17	17	21	1.5	M14	26
LBKSB11	85	56	35	24	18	32	2	M16	35



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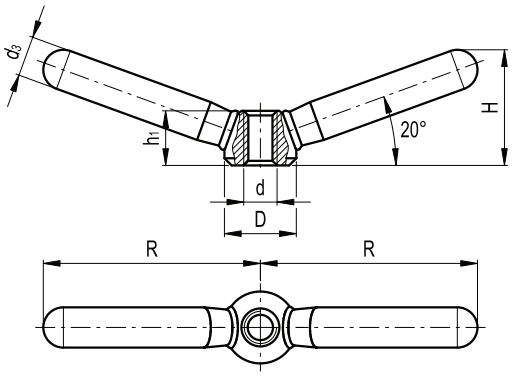
Double Clamping Levers
Butt Welded Stainless Steel

Clamping nuts with double levers

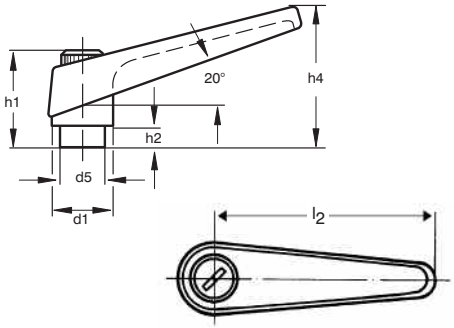
- **Material**
  AISI 304 stainless steel, sandblasted matte finish. The two lever arms are butt-welded to the hub.
- **Assembly**
  Tapped through hole.

- **Features and applications**
  AISI 304 stainless steel, thanks to its high resistance to corrosion allows the application of these clamping nuts on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.



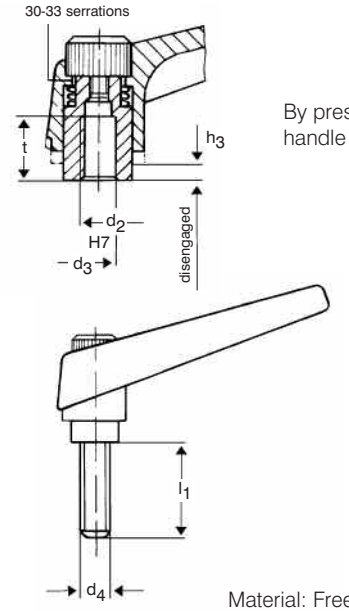
					Mounting Hole	
Part Reference	**D**	**R**	**H**	**d3**	**d**	**h1**
DCLBW1SS	16	47.5	26	9	M8	12.5
DCLBW2SS	20	59.5	32	11	M10	15
DCLBW3SS	25	75.5	40	14	M12	19
DCLBW4SS	32	94.5	52	18	M16	25
DCLBW5SS	40	118	62	20	M20	31

Adjustable Clamping Levers



FEMALE REF	d1	d2	d4	l1	d5	h1	h2	h3	h4	l2	≧ t	MALE REF
ACL7440-1	14	M5	M5	12	11.0	23	5.0	2.0	32	45	9	ACL7442-1
				16								ACL7442-2
				20								ACL7442-3
				25								ACL7442-4
				32								ACL7442-5
				40								ACL7442-6
ACL7440-2		M6	M6	12								ACL7442-7
				16								ACL7442-8
				20								ACL7442-9
				25								ACL7442-10
				32								ACL7442-11
				40								ACL7442-12
				50								ACL7442-13
ACL7440-3	18	M6	M6	16	13.5	27	6.0	3.0	40	62	12	ACL7442-14
				20								ACL7442-15
				25								ACL7442-16
				32								ACL7442-17
				40								ACL7442-18
				50								ACL7442-19
				63								ACL7442-20
ACL7440-4		M8	M8	16								ACL7442-21
				20								ACL7442-22
				25								ACL7442-23
				32								ACL7442-24
				40								ACL7442-25
				50								ACL7442-26
				63								ACL7442-27

Adjustable Clamping Levers



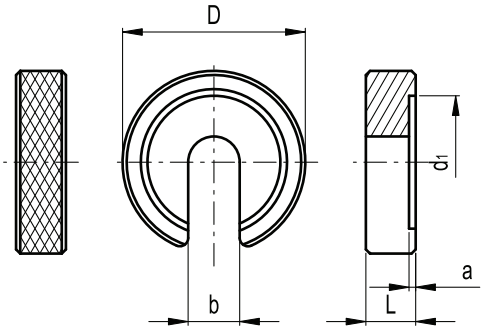
By pressing down the lever, the serrations are disengaged and the handle can then be swung to any desired position.

Material: Free cutting Steel, blackened. Handle, zinc die casting, plastic coated

FEMALE REF	d1	d2	d4	l1	d5	h1	h2	h3	h4	l2	≥ t	MALE REF
ACL7440-5	22	M10	M10	20	16.0	33	7.0	4.0	50	74	15	ACL7442-28
				25								ACL7442-29
				32								ACL7442-30
				40								ACL7442-31
				50								ACL7442-32
				63								ACL7442-33
				80								ACL7442-34
ACL7440-6	25	M12	M12	25	19.0	38	9.5	5.5	58	89	18	ACL7442-35
				32								ACL7442-36
				40								ACL7442-37
				50								ACL7442-38
				63								ACL7442-39
				80								ACL7442-40
ACL7440-7	30	M16	M16	32	23.0	45	10.5	6.0	70	108	24	ACL7442-41
				40								ACL7442-42
				50								ACL7442-43
				63								ACL7442-44
				80								ACL7442-45

- **Material**
  Case-hardened and black-oxide steel.

Features
C-shaped washers are suitable for assembly on parts to be machined without removing the nut from the screw.



Part Reference	D	L	b	d1	a	For Threadings
CW1-3660	22	6	6.2	16	0.8	M6
CW1-3660-1	28	6	6.2	16	1	M6
CW2-3660	28	7	8.3	21	1	M8
CW2-3660-2	34	7	8.3	21	1.2	M8
CW3-3660	34	8	10.4	25	1.2	M10
CW3-3660-3	40	8	10.4	30	1.8	M10
CW4-3660	40	9	12.5	30	1.8	M12
CW4-3660-4	56	9	12.5	37	1.8	M12
CW5-3660	56	12	16.5	37	1.8	M16

Spring Rings for Ball/Roller Units

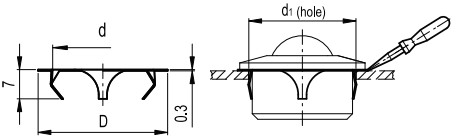
Stainless Steel

- **Material**
  Stainless steel.

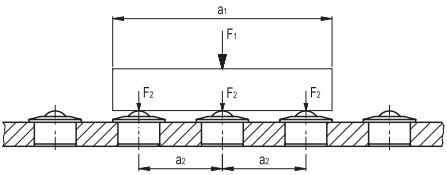
Features
Spring rings allow an easy and quick assembly and removal of ball transfer units type PRU and CRU.

Technical data for ball transfer units PRU and CRU
Ball transfer units consist of a metal body inside which a ball, supported by smaller balls, helps in conveying loads applied on a plane surface in every direction (for example conveyor belts).

Choice of the ball transfer unit
To choose the proper ball transfer unit for a conveyer track, both weight and dimension of the load to be carried must be taken into consideration. The max distance "a2" between the ball transfer units (on a plane surface) is obtained by dividing the smaller load dimension to be conveyed (a1) by 2.5. This calculation (based on an elementary geometry principle) guarantees that a load is always supported by at least 3 ball transfer units, thus preventing it from tipping over.
As far as the weight is concerned, as the load is supported by at least three different ball transfer units, each of them would bear a third of the total weight (the total weight divided by three).
It may be equal or lower than the max load capacity values showed in the table for every unit.



Part Ref.	d	D	d1	For ball transfer units PRU - CRU
PRU-CRU	24	31	25-0.2	15
PRU-CRU	36	44	37.3-0.3	22
PRU-CRU	45	55	46.7-0.3	30



a1 = smaller dimension of the load to be conveyed
a2 = max distance between ball transfer units
$a2 = \frac{a1}{2.5}$
F1 = load weight
F2 = load supported by each ball transfer unit
$F2 = \frac{F1}{3} \leq$ max load capacity of each ball transfer unit

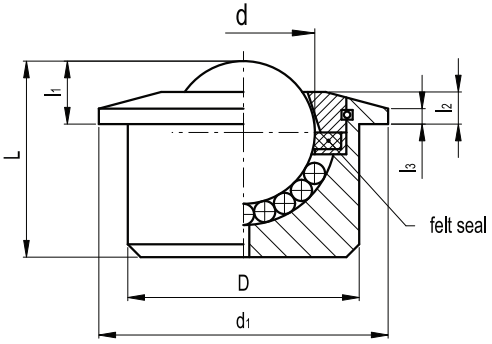
Speed and friction
The permissible conveying speed is 2 m/sec. With speeds higher than 1 m/sec., according to the dimensions of the ball transfer units, a rise in temperature, in proportion to the dimensions of them, could occur owing to the increase of the rotation speed of the support balls. The friction value of the ball transfer units, at a speed of 1 m/sec., is 0.005 μ. This value depends, however, on the application and it could be subject to several variables. Ball transfer units in turned and black-oxide steel offer a higher rigidity in comparison with the zinc-plated drawn sheet steel ones. Lubrication of the balls is recommended to prevent corrosion, even though some applications may not require it.

Ball transfer units

- **Material**
  Turned and zinc-plated steel.
- **Retaining components**
  Zinc-plated steel.
- **Balls**
  Zinc-plated steel - ZP
  Stainless steel - SS
- **Retaining ring**
  Felt seat (only for dimensions 22 and 30)

Special executions on request
(For sufficient quantities)
Stainless steel body and balls.

Applications
Ball transfer units are particularly suitable on conveyer tracks. They make linear or rotary movements easier even with heavy loads.



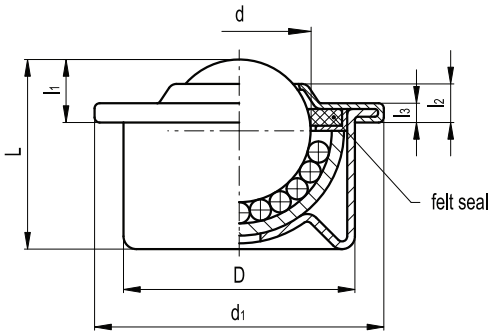
Part Reference	d	L ±0.3	D ±0.8	d1	l1 ±0.3	l2 ±0.3	l3	Max. load carrying capacity (N)
PRU1ZP	12.7	17	22	27	8	4	3.2	200
PRU2SS	12.7	17	22	27	8	4	3.2	150
PRU3ZP	15.8	21	24	31	9.5	5.5	4	500
PRU4SS	15.8	21	24	31	9.5	5.5	4	400
PRU5ZP	22.2	30.5	36	45	9.5	5	2.4	1300
PRU6SS	22.2	30.5	36	45	9.5	5	2.4	1000
PRU7ZP	30.1	37	45	55	13.5	7	4.5	2500
PRU8SS	30.1	37	45	55	13.5	7	4.5	2500

Cup Roller Unit (Ball Transfer)

- **Material**
  Zinc-plated drawn sheet steel.
- **Retaining components**
  Zinc-plated steel.
- **Balls**
  Zinc-plated steel - ZP
  Stainless steel - SS
- **Retaining ring**
  Felt seat (only for dimensions 22 and 30)

Special executions on request
(For sufficient quantities)
Stainless steel body and balls.

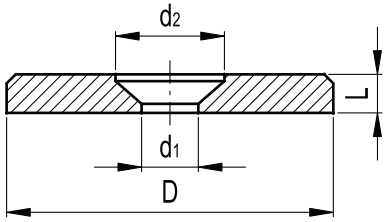
Applications
Ball transfer units are particularly suitable on conveyer tracks. They make linear or rotary movements easier even with heavy loads.



Part Reference	d	L ±0.3	D	d1	l1 ±0.3	l2 ±0.3	l3	Max. load carrying capacity (N)
CRU1ZP	15.8	21	24	31	9.5	5	2.5	500
CRU2SS	15.8	21	24	31	9.5	5	2.5	300
CRU3ZP	22.2	29.5	36	45	10	6	3	1200
CRU4SS	22.2	29.5	36	45	10	6	3	900
CRU5ZP	30.1	38	45	55	13.5	7	3.5	2000
CRU6SS	30.1	38	45	55	13.5	7	3.5	1500

- **Material**
  Turned and black-oxide steel.

Applications
Washers are generally used on shafts to fit handwheels.

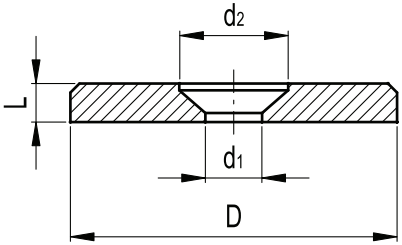


Part Reference	D	L	d1	l2	Countersunk screws DIN 7991 DIN ISO 2009
CSW1	16	3	4.3	8	M4
CSW2	20	3	4.3	8	M4
CSW3	22	3.5	5.3	10	M5
CSW4	25	3.5	5.3	10	M5
CSW5	28	3.5	5.3	10	M5
CSW6	32	4	6.4	12	M6
CSW7	36	4	6.4	12	M6
CSW8	40	5	6.4	12	M6
CSW9	45	6	6.4	12	M6
CSW10	52	6	6.4	12	M6

Countersunk Washers
Stainless Steel

- **Material**
  AISI 303 stainless steel, sandblasted matte finish.

Features and applications
Washers are generally used on shafts to fit handwheels. AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these washers on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.



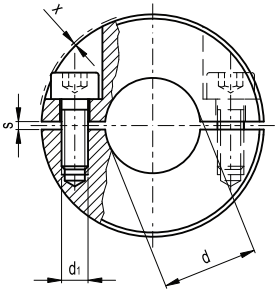
Part Reference	D	L	d1	l2	Countersunk screws DIN 7991 DIN ISO 2009
CSW1SS	16	3	4.3	8	M4
CSW2SS	20	3	4.3	8	M4
CSW3SS	22	3.5	5.3	10	M5
CSW4SS	25	3.5	5.3	10	M5
CSW5SS	28	3.5	5.3	10	M5
CSW6SS	32	4	6.4	12	M6
CSW7SS	36	4	6.4	12	M6
CSW8SS	40	5	6.4	12	M6
CSW9SS	45	6	6.4	12	M6
CSW10SS	52	6	6.4	12	M6

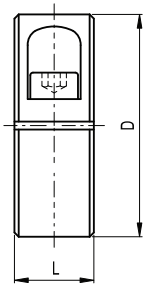
Split Clamping Collar Stainless Steel

Stainless Steel

- **Material**
  AISI 303 stainless steel, sandblasted matte finish.
- **Clamping assembly system**
  AISI 303 stainless steel grub screws, cylindrical head with hexagon socket, supplied assembled.
  For diameters D = from 20 to 36 threaded through holes; D ≥ 42 threaded blind holes.

Features and applications
Split set collars can be used not only as end stops, but they can also be used for fixing other components, such as end limit switches.
Split set collars can also be assembled on shafts whose shape may not allow their sliding.
AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these split set collars on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.



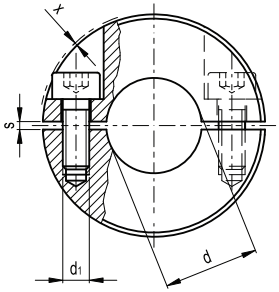


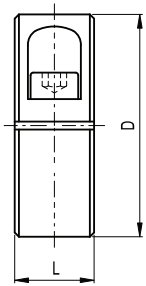
Part Reference	D	dH8	L	d1	s	x
SCC1SS	20	6	9	M3	1.2	0.3
SCC2SS	22	8	9	M3	1.2	0.2
SCC3SS	26	10	11	M4	1.5	1
SCC4SS	30	12	11	M4	1.5	0.2
SCC5SS	32	14	11	M4	1.5	0.2
SCC6SS	36	15	13	M5	1.5	1
SCC7SS	36	16	13	M5	1.5	1
SCC8SS	42	18	15	M5	1.5	0.2
SCC9SS	42	20	15	M5	1.5	0.2
SCC10SS	48	22	15	M5	1.5	0
SCC11SS	48	25	15	M5	1.5	0
SCC12SS	55	28	15	M6	1.5	0
SCC13SS	55	30	15	M6	1.5	0
SCC14SS	60	32	15	M6	2	0
SCC15SS	60	35	15	M6	2	0
SCC16SS	65	40	15	M6	2	0.2

Split Clamping Collar

- **Material**
  Black-oxide steel.
- **Clamping assembly system**
  AISI 303 stainless steel grub screws, cylindrical head with hexagon socket, supplied assembled.
  For diameters D = from 20 to 36 threaded through holes; D ≥ 42 threaded blind holes.

Features and applications
Split set collars can be used not only as end stops, but they can also be used for fixing other components, such as end limit switches.
Split set collars can also be assembled on shafts whose shape may not allow their sliding.



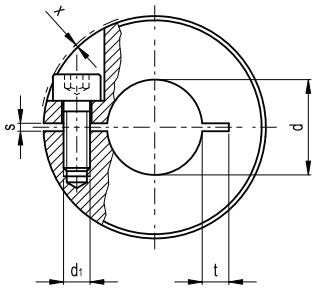


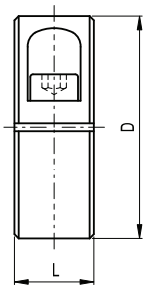
Part Reference	D	dH8	L	d1	s	x
SCC1	20	6	9	M3	1.2	0.3
SCC2	22	8	9	M3	1.2	0.2
SCC3	26	10	11	M4	1.5	1
SCC4	30	12	11	M4	1.5	0.2
SCC5	32	14	11	M4	1.5	0.2
SCC6	36	15	13	M5	1.5	1
SCC7	36	16	13	M5	1.5	1
SCC8	42	18	15	M5	1.5	0.2
SCC9	42	20	15	M5	1.5	0.2
SCC10	48	22	15	M5	1.5	0
SCC11	48	25	15	M5	1.5	0
SCC12	55	28	15	M6	1.5	0
SCC13	55	30	15	M6	1.5	0
SCC14	60	32	15	M6	2	0
SCC15	60	35	15	M6	2	0
SCC16	65	40	15	M6	2	0.2

- **Material**
  Black-oxide steel.
- **Clamping assembly system**
  Black-oxide steel grub screw, cylindrical head with hexagon socket, supplied assembled.
  For diameters D = from 20 to 36 threaded through hole; D ≥ 42 threaded blind hole.

Features and applications
Split set collars can be used not only as end stops, but they can also be used for fixing other components, such as end limit switches.
Semi-split set collars can be assembled without damaging the surfaces of the shaft when high clamping forces are necessary.

Technical data
Shaft tolerance = h11.





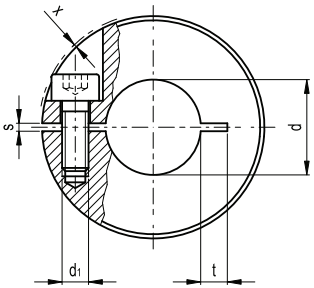
Part Reference	D	dH8	L	d1	s	x
SSCC1	20	6	9	M3	1.2	0.3
SSCC2	22	8	9	M3	1.2	0.2
SSCC3	26	10	11	M4	1.5	1
SSCC4	30	12	11	M4	1.5	0.2
SSCC5	32	14	11	M4	1.5	0.2
SSCC6	36	15	13	M5	1.5	1
SSCC7	36	16	13	M5	1.5	1
SSCC8	42	18	15	M5	1.5	0.2
SSCC9	42	20	15	M5	1.5	0.2
SSCC10	48	22	15	M5	1.5	0
SSCC11	48	25	15	M5	1.5	0
SSCC12	55	28	15	M6	1.5	0
SSCC13	55	30	15	M6	1.5	0
SSCC14	60	32	15	M6	2	0
SSCC15	60	35	15	M6	2	0
SSCC16	65	40	15	M6	2	0.2

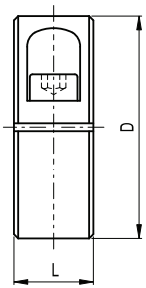
Semi-Split Clamping Collar Stainless Steel

- **Material**
  AISI 303 stainless steel, sandblasted matte finish.
- **Clamping assembly system**
  AISI 303 stainless steel grub screws, cylindrical head with hexagon socket, supplied assembled.
  For diameters D = from 20 to 36 threaded through holes; D ≥ 42 threaded blind holes.

Features and applications
Split set collars can be used not only as end stops, but they can also be used for fixing other components, such as end limit switches.
Split set collars can also be assembled on shafts whose shape may not allow their sliding.
AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these split set collars on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.

Technical data
Shaft tolerance = h11.

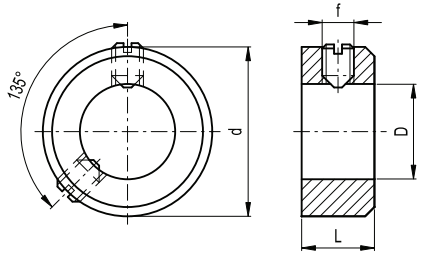




Part Reference	D	dH8	L	d1	s	x
SSCC1SS	20	6	9	M3	1.2	0.3
SSCC2SS	22	8	9	M3	1.2	0.2
SSCC3SS	26	10	11	M4	1.5	1
SSCC4SS	30	12	11	M4	1.5	0.2
SSCC5SS	32	14	11	M4	1.5	0.2
SSCC6SS	36	15	13	M5	1.5	1
SSCC7SS	36	16	13	M5	1.5	1
SSCC8SS	42	18	15	M5	1.5	0.2
SSCC9SS	42	20	15	M5	1.5	0.2
SSCC10SS	48	22	15	M5	1.5	0
SSCC11SS	48	25	15	M5	1.5	0
SSCC12SS	55	28	15	M6	1.5	0
SSCC13SS	55	30	15	M6	1.5	0
SSCC14SS	60	32	15	M6	2	0
SSCC15SS	60	35	15	M6	2	0
SSCC16SS	65	40	15	M6	2	0.2

- **Material**
  Black-oxide steel.
- **Clamping assembly system**

- Execution A: grub screw with screwdriver slotted head.
- Execution E: grub screw with hexagon socket.
  Rings with d = 75 and 80 mm are provided with two grub screws.

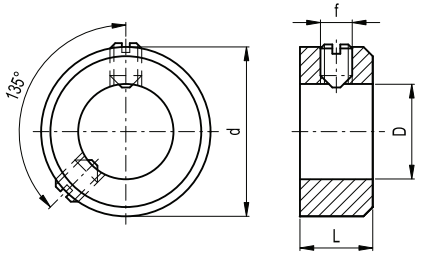


Part Reference	D	d1	d	f
PR1-A	5	6	10	M3x4
PR2-A	6	8	12	M4x5
PR3-A	7	8	12	M4x5
PR4-A	8	8	16	M4x6
PR5-A	9	10	18	M5x8
PR6-A	10	10	20	M5x8
PR7-A	11	10	20	M5x8
PR8-A	12	12	22	M6x8
PR9-A	13	12	22	M6x8
PR10-A	14	12	25	M6x8
PR11-A	15	12	25	M6x8
PR12-A	16	12	28	M6x8
PR13-A	18	14	32	M6x8
PR14-A	20	14	32	M6x8
PR15-A	22	14	36	M6x10
PR16-A	24	16	40	M8x10
PR17-A	25	16	40	M8x10
PR18-A	26	16	40	M8x10
PR19-A	28	16	45	M8x12
PR20-A	30	16	45	M8x10
PR21-A	32	16	50	M8x12
PR22-A	34	16	50	M8x12
PR23-A	35	16	56	M8x12
PR24-A	36	16	56	M8x12
PR25-A	38	16	56	M8x12
PR26-A	40	18	63	M10x16
PR27-A	42	18	63	M10x16
PR28-A	45	18	70	M10x16
PR29-A	48	18	70	M10x16
PR30-A	50	18	80	M10x16
PR31-A	52	18	80	M10x16
PR32-A	55	18	80	M10x16
PR33-A	56	18	80	M10x16
PR34-A	58	20	90	M10x16
PR35-A	60	20	90	M10x16
PR36-A	63	20	90	M10x16
PR37-A	65	20	100	M10x20
PR38-A	68	20	100	M10x20
PR39-A	70	20	100	M10x20
PR40-A	72	22	110	M12x20
PR41-A	75	22	110	M12x20
PR42-A	80	22	110	M12x20

Part Reference	D	d1	d	f
PR1-E	5	6	10	M3x4
PR2-E	6	8	12	M4x5
PR3-E	7	8	12	M4x5
PR4-E	8	8	16	M4x6
PR5-E	9	10	18	M5x8
PR6-E	10	10	20	M5x8
PR7-E	11	10	20	M5x8
PR8-E	12	12	22	M6x8
PR9-E	13	12	22	M6x8
PR10-E	14	12	25	M6x8
PR11-E	15	12	25	M6x8
PR12-E	16	12	28	M6x8
PR13-E	18	14	32	M6x8
PR14-E	20	14	32	M6x8
PR15-E	22	14	36	M6x10
PR16-E	24	16	40	M8x10
PR17-E	25	16	40	M8x10
PR18-E	26	16	40	M8x10
PR19-E	28	16	45	M8x12
PR20-E	30	16	45	M8x10
PR21-E	32	16	50	M8x12
PR22-E	34	16	50	M8x12
PR23-E	35	16	56	M8x12
PR24-E	36	16	56	M8x12
PR25-E	38	16	56	M8x12
PR26-E	40	18	63	M10x16
PR27-E	42	18	63	M10x16
PR28-E	45	18	70	M10x16
PR29-E	48	18	70	M10x16
PR30-E	50	18	80	M10x16
PR31-E	52	18	80	M10x16
PR32-E	55	18	80	M10x16
PR33-E	56	18	80	M10x16
PR34-E	58	20	90	M10x16
PR35-E	60	20	90	M10x16
PR36-E	63	20	90	M10x16
PR37-E	65	20	100	M10x20
PR38-E	68	20	100	M10x20
PR39-E	70	20	100	M10x20
PR40-E	72	22	110	M12x20
PR41-E	75	22	110	M12x20
PR42-E	80	22	110	M12x20

Positioning Rings Screw Assembly Stainless Steel

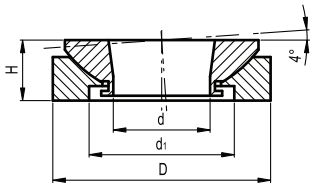
- **Material**
  Black-oxide steel.
- **Clamping assembly system**
- Execution A: grub screw with screwdriver slotted head.
- Execution E: grub screw with hexagon socket.
  Rings with d = 75 and 80 mm are provided with two grub screws.



Part Reference	d H8	L js14	D	f
PR1-ASS	5	6	10	M3x4
PR2-ASS	6	8	12	M4x5
PR3-ASS	8	8	16	M4x6
PR4-ASS	9	10	18	M5x8
PR5-ASS	10	10	20	M5x8
PR6-ASS	11	10	20	M5x8
PR7-ASS	12	12	22	M6x8
PR8-ASS	13	12	22	M6x8
PR9-ASS	14	12	25	M6x8
PR10-ASS	15	12	25	M6x8
PR11-ASS	16	12	28	M6x8
PR12-ASS	18	14	32	M6x8
PR13-ASS	20	14	32	M6x8
PR14-ASS	22	14	36	M6x10
PR15-ASS	24	16	40	M8x10
PR16-ASS	25	16	40	M8x10
PR17-ASS	26	16	40	M8x10
PR18-ASS	28	16	45	M8x12
PR19-ASS	30	16	45	M8x10
PR20-ASS	32	16	50	M8x12
PR21-ASS	34	16	50	M8x12
PR22-ASS	35	16	56	M8x12
PR23-ASS	36	16	56	M8x12
PR24-ASS	38	16	56	M8x12
PR25-ASS	40	18	63	M10x16
PR26-ASS	45	18	70	M10x16
PR27-ASS	50	18	80	M10x16

- **Material**
  Zinc-plated steel.

Applications
Levelling washers are suitable for locking mechanical parts on non-parallel surfaces.
The coupling of the spherical surfaces of the two "non-dismountable" washers allows a high load resistance.

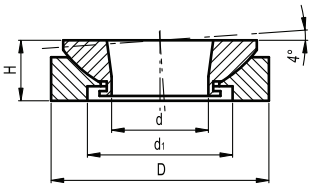


Part Reference	D	H	d	d1	Max screw dimension	Static load (N)
LW1	25	8	8.5	15	M6	40000
LW2	32	10	13	20	M10	65000
LW3	45	12.5	20	30	M16	12000
LW4	58	16	29	38	M24	210000
LW5	70	20	36	48	M30	330000
LW6	80	20	44	61	M36	495000

Levelling Washers
Stainless Steel

- **Material**
  AISI 316 stainless steel.

Features and applications
Levelling washers are suitable for locking mechanical parts on non-parallel surfaces.
The coupling of the spherical surfaces of the two "non-dismountable" washers allows a high load resistance.
AISI 316 stainless steel, thanks to its high resistance to corrosion, allows the application of these washers on machines and equipment in those sectors where laws or particular hygenic, climatic and environmental factors make it mandatory to use corrosion resistant materials.



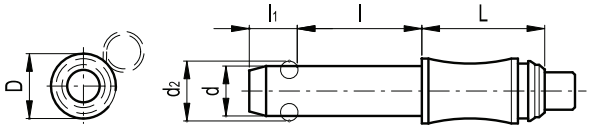
Part Reference	D	H	d	d1	Max screw dimension	Static load (N)
LW1SS	25	8	8.5	15	M6	27100
LW2SS	32	10	13	20	M10	43400
LW3SS	45	12.5	20	30	M16	84000
LW4SS	58	16	29	38	M24	148000
LW5SS	70	20	36	48	M30	225000
LW6SS	80	20	44	61	M36	323000

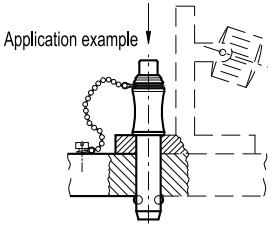
Plain Ball Lock Pin

Stainless Steel

- **Pin and push button**
  AISI 303 stainless steel.
- **Balls and spring**
  Stainless steel.
- **Cylindrical body**
  For a safer grip, with groove for a metal ring.
- **Maximum working temperature**
  250°C

Special executions on request
(For sufficient quantities) Other dimensions.
Accessories on request
Metal ring to avoid loss or misplacement when the pin is in the rest position.
Features and applications
Ball lock pins are without knob therefore they have very compact shape and dimensions for use in very limited spaces. Ball lock pins are suitable for quick fixation or connection of parts to be machined, in particular for elements which need to be removed and reset continuously.
AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these lock pins on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to corrosion resistant materials.
Instructions of use
By pressing the push button the two balls are freed and the pin can be pulled-out or inserted.





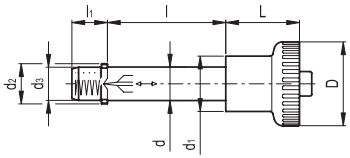
Part Reference	$d^{-0.04}_{-0.08}$	d2	D	l	l1	L	Mounting hole H11	Double sided Shearing force (KN)
PBLP1	6	7	12	10	7	22	6	21
PBLP2	6	7	12	15	7	22	6	21
PBLP3	6	7	12	20	7	22	6	21
PBLP4	6	7	12	25	7	22	6	21
PBLP5	6	7	12	30	7	22	6	21
PBLP6	6	7	12	40	7	22	6	21
PBLP7	8	9.5	12	20	8.2	20	8	38
PBLP8	8	9.5	12	25	8.2	20	8	38
PBLP9	8	9.5	12	30	8.2	20	8	38
PBLP10	8	9.5	12	40	8.2	20	8	38
PBLP11	8	9.5	12	50	8.2	20	8	38
PBLP12	10	12	13	20	9.6	24.5	10	60
PBLP13	10	12	13	25	9.6	24.5	10	60
PBLP14	10	12	13	30	9.6	24.5	10	60
PBLP15	10	12	13	40	9.6	24.5	10	60
PBLP16	10	12	13	50	9.6	24.5	10	60
PBLP17	12	14.5	15	25	10.6	24.5	12	87
PBLP18	12	14.5	15	30	10.6	24.5	12	87
PBLP19	12	14.5	15	40	10.6	24.5	12	87
PBLP20	12	14.5	15	50	10.6	24.5	12	87
PBLP21	12	14.5	15	60	10.6	24.5	12	87

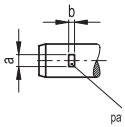
Knurled Lock Pins

Stainless Steel

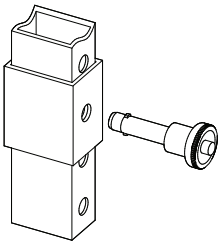
- **Pin**
  Zinc-plated steel.
- **Pawls and spring**
  AISI 304 stainless steel.
- **Knurled knob**
  Anodised aluminium, black colour, provided with a hole for security ring.
- **Push button**
  Zinc-plated steel.

Special executions on request
(For sufficient quantities) Other dimensions.
Accessories on request
Metal ring to avoid loss or misplacement when the pin is in the rest position.
Applications
Lock pins are suitable for quick fixation or connection of parts to be machined, in particular for elements which need to be removed and reset continuously.
Instructions of use
By pressing the push button the two pawls are freed and the pin can be pulled-out or inserted.





Application example

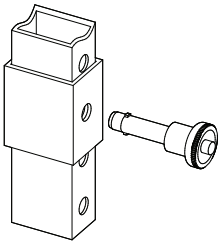


Part Ref.	d -0.04	d2	d3	D	d1	l	l2	L	a	b	Double sided Shearing force (KN)
KLP1	8	10	7.9	22	12.5	20	9	17.5	2.8	0.8	30
KLP2	8	10	7.9	22	12.5	25	9	17.5	2.8	0.8	30
KLP3	8	10	7.9	22	12.5	30	9	17.5	2.8	0.8	30
KLP4	8	10	7.9	22	12.5	40	9	17.5	2.8	0.8	30
KLP5	8	10	7.9	22	12.5	50	9	17.5	2.8	0.8	30
KLP6	10	12	9.9	27	16	20	10.5	22	3.3	1.2	40
KLP7	10	12	9.9	27	16	25	10.5	22	3.3	1.2	40
KLP8	10	12	9.9	27	16	30	10.5	22	3.3	1.2	40
KLP9	10	12	9.9	27	16	40	10.5	22	3.3	1.2	40
KLP10	10	12	9.9	27	16	50	10.5	22	3.3	1.2	40
KLP11	12	14	11.9	27	16	25	12	22	3.8	1.2	60
KLP12	12	14	11.9	27	16	30	12	22	3.8	1.2	60
KLP13	12	14	11.9	27	16	40	12	22	3.8	1.2	60
KLP14	12	14	11.9	27	16	50	12	22	3.8	1.2	60
KLP15	12	14	11.9	27	16	60	12	22	3.8	1.2	60

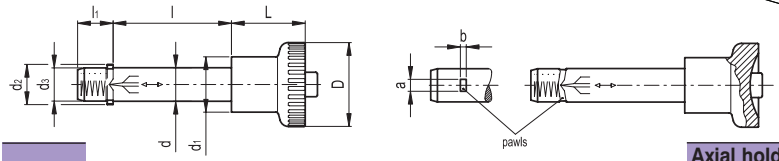
Lock Pin

- **Pin and push button**
  Zinc-plated steel.
- **Pawls and spring**
  Acetal resin based (POM) technopolymer connected by means of a stainless steel spring.
- **Knurled knob**
  Polyamide based (PA) technopolymer, black colour, matte finish, provided with a hole for security ring.
  Resistant to solvents, oils, greases and other chemical agents.
- **Push button**
  Polyamide based (PA) technopolymer, grey colour, glossy finish.
- **Working temperature**
  From -20°C to +80°C.

Application example



Special executions on request
(For sufficient quantities) Other dimensions.
Accessories on request
Metal ring to avoid loss or misplacement when the pin is in the rest position.
Applications
Lock pins are suitable for quick fixation or connection of parts to be machined, in particular for elements which need to be removed and reset continuously.
Instructions of use
By pressing the push button the two pawls are freed and the pin can be pulled-out or inserted.



Part Ref.	d -0.04	d2	d3	D	d1	l	l1	L	a	b	Axial holding force (N)	Double sided Shearing force (KN)
LP1	6	7.5	5.9	21	13	10	8	17.5	2.3	1.5	100	14
LP2	6	7.5	5.9	21	13	15	8	17.5	2.3	1.5	100	14
LP3	6	7.5	5.9	21	13	20	8	17.5	2.3	1.5	100	14
LP4	6	7.5	5.9	21	13	25	8	17.5	2.3	1.5	100	14
LP5	6	7.5	5.9	21	13	30	8	17.5	2.3	1.5	100	14
LP6	6	7.5	5.9	21	13	40	8	17.5	2.3	1.5	100	14
LP7	8	10	7.9	21	13	20	9.8	17.5	2.8	1.5	220	30
LP8	8	10	7.9	21	13	25	9.8	17.5	2.8	1.5	220	30
LP9	8	10	7.9	21	13	30	9.8	17.5	2.8	1.5	220	30
LP10	8	10	7.9	21	13	40	9.8	17.5	2.8	1.5	220	30
LP11	8	10	7.9	21	13	50	9.8	17.5	2.8	1.5	220	30
LP12	10	12	9.9	25	16.5	20	10.5	22	3.3	1.7	300	40
LP13	10	12	9.9	25	16.5	25	10.5	22	3.3	1.7	300	40
LP14	10	12	9.9	25	16.5	30	10.5	22	3.3	1.7	300	40
LP15	10	12	9.9	25	16.5	40	10.5	22	3.3	1.7	300	40
LP16	10	12	9.9	25	16.5	50	10.5	22	3.3	1.7	300	40
LP17	12	14	11.9	25	16.5	25	12.5	22	3.8	2	400	60
LP18	12	14	11.9	25	16.5	30	12.5	22	3.8	2	400	60
LP19	12	14	11.9	25	16.5	40	12.5	22	3.8	2	400	60
LP20	12	14	11.9	25	16.5	50	12.5	22	3.8	2	400	60
LP21	12	14	11.9	25	16.5	60	12.5	22	3.8	2	400	60

Spring Loaded Ball Lock Pins

Stainless Steel

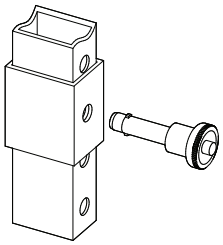
- **Pin**
  AISI 303 stainless steel.
- **Balls and spring**
  Stainless steel.
  Ø d from 6 to 8: one ball.
  Ø d from 10 to 12: two balls.
- **Knurled knob**
  Polyamide based (PA) technopolymer, black colour, matte finish. Resistant to solvents, oils, greases and other chemical agents.
- **Working temperature**
  From -30°C to +80°C.

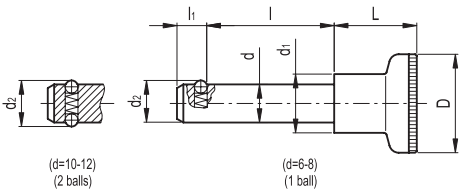
Features and applications

The two balls of SLBLP1 are not provided with a locking mechanism but they are kept in position by a spring. This is the reason why their tensile strength is limited compared to BLP. Ball lock pins are suitable for quick fixation or connection of parts to be machined, in particular for elements which need to be removed and inserted continuously.

AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these lock pins on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.

Application example

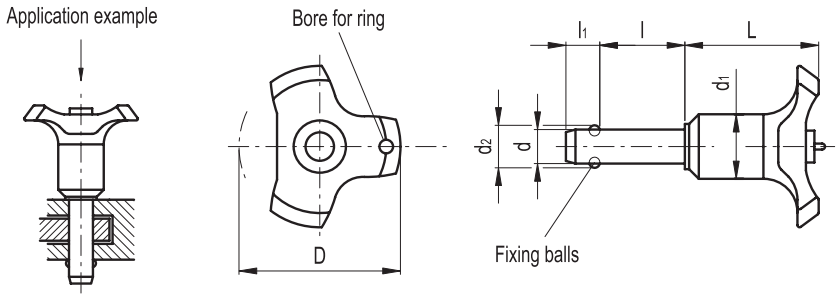




Part Ref.	d h9	d2	D	d1	l	l1	L	Mounting hole D12	Axial holding force (N)	Double sided Shearing force (KN)
SLBLP1	6	6.5	25	14.5	10	5	22.5	6	8	22
SLBLP2	6	6.5	25	14.5	15	5	22.5	6	8	22
SLBLP3	6	6.5	25	14.5	20	5	22.5	6	8	22
SLBLP4	6	6.5	25	14.5	25	5	22.5	6	8	22
SLBLP5	6	6.5	25	14.5	30	5	22.5	6	8	22
SLBLP6	6	6.5	25	14.5	50	5	22.5	6	8	22
SLBLP7	8	8.7	25	14.5	15	6.3	22.5	8	15	40
SLBLP8	8	8.7	25	14.5	20	6.3	22.5	8	15	40
SLBLP9	8	8.7	25	14.5	25	6.3	22.5	8	15	40
SLBLP10	8	8.7	25	14.5	30	6.3	22.5	8	15	40
SLBLP11	8	8.7	25	14.5	50	6.3	22.5	8	15	40
SLBLP12	10	12	31	18.5	15	8.7	27	10	30	62
SLBLP13	10	12	31	18.5	20	8.7	27	10	30	62
SLBLP14	10	12	31	18.5	25	8.7	27	10	30	62
SLBLP15	10	12	31	18.5	30	8.7	27	10	30	62
SLBLP16	10	12	31	18.5	50	8.7	27	10	30	62
SLBLP17	12	14.5	31	18.5	20	9.5	27	12	32	90
SLBLP18	12	14.5	31	18.5	30	9.5	27	12	32	90
SLBLP19	12	14.5	31	18.5	40	9.5	27	12	32	90
SLBLP20	12	14.5	31	18.5	50	9.5	27	12	32	90

- **Pin and push button**
  AISI 630 stainless steel.
- **Balls and spring**
  Stainless steel.
- **Three-arm knob**
  Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, provided with a hole for security ring.
  Resistant to solvents, oils, greases and other chemical agents.
- **Cylindrical cap**
  Technopolymer, orange colour, matte finish.
- **Working temperature**
  From -30°C to +80°C.

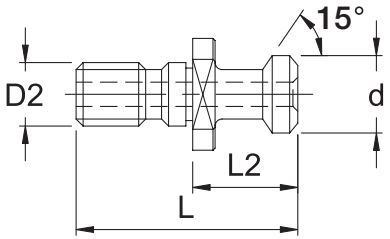
Special executions on request
(For sufficient quantities) Other dimensions.
Accessories on request
Metal ring to avoid loss or misplacement when the pin is in the rest position.
Features and applications
Ball lock pins are suitable for quick fixation or connection of parts to be machined, in particular for elements which need to be removed and reset continuously.
AISI 630 stainless steel, thanks to its high resistance to corrosion, allows the application of these lock pins on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.
Instructions of use
By pressing the push button the two balls are freed and the pin can be pulled-out or inserted.



Part Ref.	d $^{-0.04}_{-0.08}$	d1	d2	D	l	l1	L	Mounting hole H11	Double sided Shearing force (KN)
BLP1	5	16	5.5	38	10	6	31.5	5	24
BLP2	5	16	5.5	38	15	6	31.5	5	24
BLP3	5	16	5.5	38	20	6	31.5	5	24
BLP4	5	16	5.5	38	25	6	31.5	5	24
BLP5	5	16	5.5	38	30	6	31.5	5	24
BLP6	6	16	7	38	10	7	31.5	6	35
BLP7	6	16	7	38	15	7	31.5	6	35
BLP8	6	16	7	38	20	7	31.5	6	35
BLP9	6	16	7	38	25	7	31.5	6	35
BLP10	6	16	7	38	30	7	31.5	6	35
BLP11	6	16	7	38	40	7	31.5	6	35
BLP12	8	16	9.5	38	20	8	31.5	8	63
BLP13	8	16	9.5	38	25	8	31.5	8	63
BLP14	8	16	9.5	38	30	8	31.5	8	63
BLP15	8	16	9.5	38	40	8	31.5	8	63
BLP16	8	16	9.5	38	50	8	31.5	8	63
BLP17	10	23	12	43	20	9	36	10	100
BLP18	10	23	12	43	25	9	36	10	100
BLP19	10	23	12	43	30	9	36	10	100
BLP20	10	23	12	43	40	9	36	10	100
BLP21	10	23	12	43	50	9	36	10	100
BLP22	12	23	14.5	43	25	10	36	12	144
BLP23	12	23	14.5	43	30	10	36	12	144
BLP24	12	23	14.5	43	40	10	36	12	144
BLP25	12	23	14.5	43	50	10	36	12	144
BLP26	12	23	14.5	43	60	10	36	12	144
BLP27	16	26	19	50	30	13.5	45	16	257
BLP28	16	26	19	50	40	13.5	45	16	257
BLP29	16	26	19	50	50	13.5	45	16	257
BLP30	16	26	19	50	60	13.5	45	16	257

- ISO 7388/2

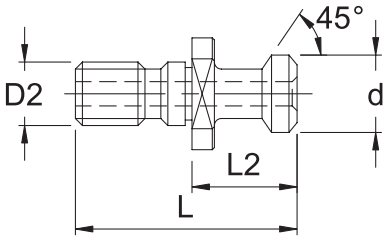
Various other DIN standard pull studs available.



Part Reference	D2	d	L	L2
PS1-7388A	M16	19	54	26
PS2-7388A	M24	28	74	34

Pull Stud Type B

- ISO 7388/2

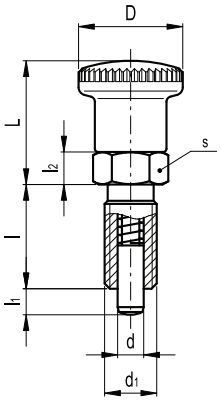


Part Reference	D2	d	L	L2
PS1-7388B	M16	18.9	44.5	16.4
PS2-7388B	M24	29	65.5	25.5

- **Threaded body**
  Black-oxide steel.
- **Plunger**
  Black-oxide steel with hardened end.
  Suggested matching hole in H7 tolerance.
- **Locking nut**
  Black-oxide steel.
- **"Push / Pull" knurled knob**
  High resilience polyamide based (PA) technopolymer, black colour, matte finish. Resistant to solvents, oils, greases and other chemical agents.

Accessories on request (For sufficient quantities)
Black-oxide steel distance bushings are available for making up for the length of the threading in case the plunger is assembled on thin sheets.

Applications
Indexing plungers with locking nut are used where positioning operations are required and in those applications where the plunger needs to be locked in the retracted position.



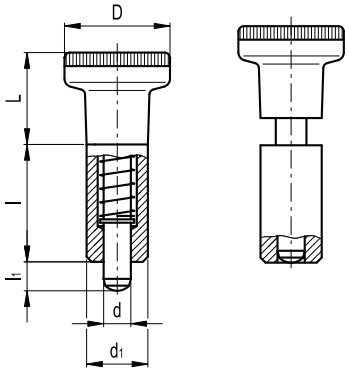
Part Reference	d	d1	D	L11	L1	l	L2	s
IP1-3270	5	m10 x 1	21	49-0	5	17	5	12
IP2-3270	6	m12 x 1.5	25	59-0	6	20	6	14
IP3-3270	8	m16 x 1.5	31	73.5	7	26	8	19

Other Index Plunger types available on request

Indexing Plungers

- **Plain body**
  Black-oxide steel, welding quality.
- **Plunger**
  Black-oxide steel with hardened end.
  Suggested matching hole in G7 tolerance.
- **"Push / Pull" knurled knob**
  High resilience polyamide based (PA) technopolymer, black colour, matte finish. Resistant to solvents, oils, greases and other chemical agents.

Applications
Indexing plungers are especially designed for assembly by means of welding.

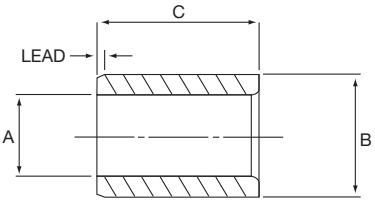


Part Reference	d $^{-0.02}_{-0.04}$	L	d1 h9	D	l	l1	Spring pressure	
							Preload (N~)	Max. load (N~)
IPW1-3272	5	18	12	21	22	5	7	16
IPW2-3272	6	22.5	14	25	26	6	6.5	15
IPW3-3272	8	27	18	31	34	8	12	31

BS 1098 PT. 2 1977/ISO 4247/DIN 179A

Nitrided bushes for longer life can be supplied.
Price on application.

TO ORDER STATE QTY, TYPE, BORE SIZE AND LENGTH
EXAMPLE:- 5, PP15E 10mm



All dimensions in millimetres

A Dia. F7 Limits (Drills) * Limits(Reamers)		B Dia. n6 Limits	Length C and Bush Reference					
			Short		Long		Extra Long	
From	Up to		C	Ref.	C	Ref.	C	Ref.
-	1	3	6	PP3A	9	PP3C	-	-
1.05	1.8	4	6	PP4A	9	PP4C	-	-
1.85	2.6	5	6	PP5A	9	PP5C	-	-
2.65	3.3	6	8	PP6B	12	PP6E	16	PP6F
3.4	4	7	8	PP7B	12	PP7E	16	PP7F
4.1	5	8	8	PP8B	12	PP8E	16	PP8F
5.1	6	10	10	PP10D	16	PP10F	20	PP10H
6.1	8	12	10	PP12D	16	PP12F	20	PP12H
8.1	10	15	12	PP15E	20	PP15H	25	PP15J
10.1	12	18	12	PP18E	20	PP18H	25	PP18J
12.1	15	22	16	PP22F	28	PP22K	36	PP22N
15.25	18	26	16	PP26F	28	PP26K	36	PP26N
18.25	22	30	20	PP30H	36	PP30N	45	PP30R
22.25	26	35	20	PP35H	36	PP35N	45	PP35R
26.25	30	42	25	PP42J	45	PP42R	56	PP42S
30.25	35	48	25	PP48J	45	PP48R	56	PP48S
35.50	42	55	30	PP55L	56	PP55S	67	PP55T
42.50	48	62	30	PP62L	56	PP62S	67	PP62T
48.50	55	70	30	PP70L	56	PP70S	67	PP70T
56	63	78	35	PP78M	67	PP78T	78	PP78W
64	70	85	35	PP85M	67	PP85T	78	PP85W
71	78	95	40	PP95P	78	PP95W	105	PP95Y
79	85	105	40	PP105P	78	PP105W	105	PP105Y
86	95	115	45	PP115R	89	PP115X	112	PP115Z
96	105	125	45	PP125R	89	PP125X	112	PP125Z

ORDERING INSTRUCTIONS State quantity, ref and bore size.

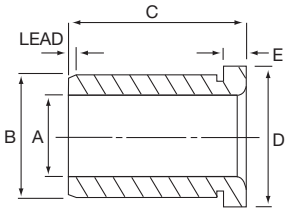
NOTE See page 48 for table showing ISO Limits for Jig Bushes and standard bore sizes. *(Also Reamer Limits.) Bushes with a bore size above 48mm are not stock items. Price and delivery on application.

Headed Bushes

BS 1098 PT. 2 1977/ISO 4247/DIN 172A

Nitrided bushes for longer life can be supplied.
Price on application.

TO ORDER STATE QTY, TYPE, BORE SIZE AND LENGTH
EXAMPLE:- 5, PH18E 10.1mm



All dimensions in millimetres

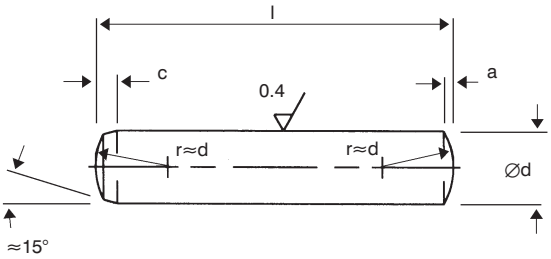
A Dia. F7 Limits (Drills) * Limits(Reamers)		B Dia. n6 Limits	Length C and Bush Reference						D Dia. h13 Limits	E Length
			Short		Long		Extra Long			
From	Up to		C	Ref.	C	Ref.	C	Ref.		
-	1	3	6	PH3A	9	PH3C	-	-	6	2
1.05	1.8	4	6	PH4A	9	PH4C	-	-	7	
1.85	2.6	5	6	PH5A	9	PH5C	-	-	8	
2.65	3.3	6	8	PH6B	12	PH6E	16	PH6F	9	2.5
3.4	4	7	8	PH7B	12	PH7E	16	PH7F	10	
4.1	5	8	8	PH8B	12	PH8E	16	PH8F	11	
5.1	6	10	10	PH10D	16	PH10F	20	PH10H	13	3
6.1	8	12	10	PH12D	16	PH12F	20	PH12H	15	
8.1	10	15	12	PH15E	20	PH15H	25	PH15J	18	
10.1	12	18	12	PH18E	20	PH18H	25	PH18J	22	4
12.1	15	22	16	PH22F	28	PH22K	36	PH22N	26	
15.25	18	26	16	PH26F	28	PH26K	36	PH26N	30	
18.25	22	30	20	PH30H	36	PH30N	45	PH30R	34	5
22.25	26	35	20	PH35H	36	PH35N	45	PH35R	39	
26.25	30	42	25	PH42J	45	PH42R	56	PH42S	46	
30.25	35	48	25	PH48J	45	PH48R	56	PH48S	52	
35.50	42	55	30	PH55L	56	PH55S	67	PH55T	59	
42.50	48	62	30	PH62L	56	PH62S	67	PH62T	66	6
48.50	55	70	30	PH70L	56	PH70S	67	PH70T	74	
56	63	78	35	PH78M	67	PH78T	78	PH78W	82	
64	70	85	35	PH85M	67	PH85T	78	PH85W	90	
71	78	95	40	PH95P	78	PH95W	105	PH95Y	100	
79	85	105	40	PH105P	78	PH105W	105	PH105Y	110	
86	95	115	45	PH115R	89	PH115X	112	PH115Z	120	
96	105	125	45	PH125R	89	PH125X	112	PH125Z	130	

ORDERING INSTRUCTIONS State quantity, ref and bore size.

NOTE See page 48 for table showing ISO Limits for Jig Bushes and standard bore sizes. *(Also Reamer Limits.) Bushes with a bore size above 48mm are not stock items. Price and delivery on application.

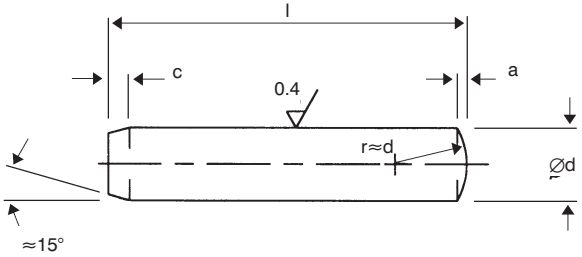
Type A

Through hardened steel



Type B

Hardened Steel. Except 1mm to 3mm unhardened.



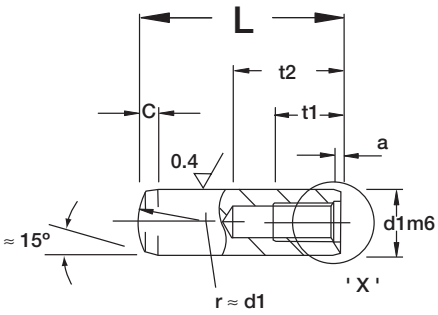
1mm to 3mm dia Pins can be supplied hardened specially.

Our stock is based on Type B Pins

d= m6 limit mm			+.002 +.009	+.002 +.009	+.002 +.009	+.002 +.009	+.002 +.009	+.004 +.012	+.004 +.012	+.004 +.012	+.006 +.015	+.006 +.015	+.007 +.018	+.007 +.018	+.008 +.021	+.008 +.021
l min	l max	d / l	1	1.5	2	2.5	3	4	5	6	8	10	12	16	20	25
2.75	3.25	3														
3.75	4.25	4														
4.75	5.25	5														
5.75	6.25	6														
7.75	8.25	8														
9.75	10.25	10														
11.5	12.5	12														
13.5	14.5	14														
15.5	16.5	16														
17.5	18.5	18														
19.5	20.5	20														
21.5	22.5	22														
23.5	24.5	24														
24.5	25.5	25														
25.5	26.5	26														
27.5	28.5	28														
29.5	30.5	30														
31.5	32.5	32														
34.5	35.5	35														
39.5	40.5	40														
44.5	45.5	45														
49.5	50.5	50														
54.25	55.75	55														
59.25	60.75	60														
64.25	65.75	65														
69.25	70.75	70														
74.25	75.75	75														
79.25	80.75	80														
84.25	85.75	85														
89.25	90.75	90														
94.25	95.75	95														
99.25	100.75	100														
109.25	110.75	110														
119.25	120.75	120														

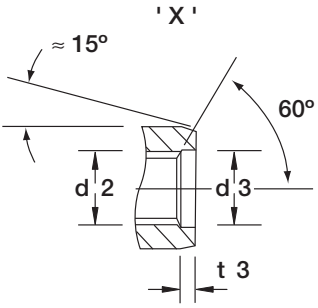
Type A

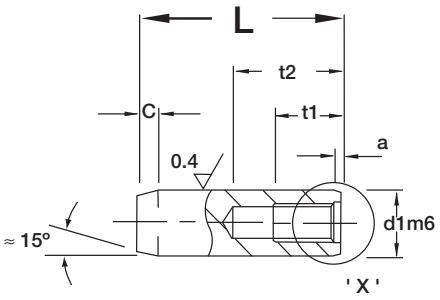
through hardened steel



Type B

hardened steel





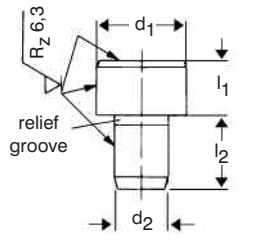
d2* to prevent cracking B&T supply 6mm and 8mm pins with smaller tapped hole size than the BS/ISO standard.

Tapped Dowel Pin Extractors available - state thread size.
Dowel Pins can be supplied with air release flat at extra cost.

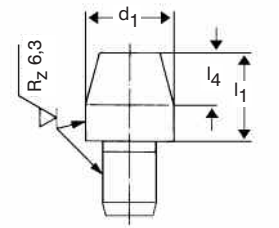
BS 8735 / ISO 8735 Limits Types A and B

Our stock is based on Type B Pins

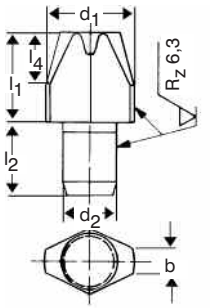
d¹			6	8	10	12	16	20	25	30	40	50
d= m6 Limits			+.004 +.012	+.006 +.015	+.006 +.015	+.007 +.018	+.007 +.018	+.008 +.021	+.008 +.021			
a		≈	0.8	1	1.2	1.6	2	2.5	3	4	5	6.3
c			2.1	2.6	3	3.8	4.6	6	6	7	8	10
d_2			M3*	M4*	M6	M6	M8	M10	M16	M20	M20	M24
d_3			4.3	5.3	6.4	6.4	8.4	10.5	17	21	21	25
t_1			6	8	10	12	16	18	24	30	30	36
t_2		min.	10	12	16	20	25	28	35	40	40	50
t_3			1	1.2	1.2	1.2	1.5	1.5	2	2	2.5	2.5
L												
nom.	min.	max.										
16	15.5	16.5										
18	17.5	18.5										
20	19.5	20.5										
22	21.5	22.5										
24	23.5	24.5										
25	24.5	25.5										
28	27.5	28.5										
30	29.5	30.5										
32	31.5	32.5										
35	34.5	35.5										
40	39.5	40.5										
45	44.5	45.5										
50	49.5	50.5										
55	54.25	55.75										
60	59.25	60.75										
65	64.25	65.75										
70	69.25	70.75										
75	74.25	75.75										
80	79.25	80.75										
85	84.25	85.75										
90	89.25	90.75										
95	94.25	95.75										
100	99.25	100.75										
120	119.25	120.75										
140	139.25	140.75										
160	159.25	160.75										
180	179.25	180.75										
200	199.25	200.75										



Material: Tool steel
hardened and ground



Material: Tool steel
hardened and ground



Material: Tool steel
hardened and ground

DIN 6321

REF	d_1 g6	l_1	l_2	d_2 n6
SP1-3622	6	5	6	4
SP2-3622	10	6	9	6
SP3-3622	16	8	12	8
SP4-3622	25	10	18	12

REF	d_1 g6	l_1 short	l_1 long	d_2 n6	l_2	l_4
LPR1-3622	6	7	12	4	6	4
LPR2-3622	8	10	16	6	9	6
LPR3-3622	10	10	18	6	9	6
LPR4-3622	12	10	18	6	9	6
LPR5-3622	16	13	22	8	12	8
LPR6-3622	20	15	25	12	18	9
LPR7-3622	25	15	25	12	18	9

Advise ref and l1 size short or long
Note: add suffix S or L to reference. (eg. LPR1-3622 s)

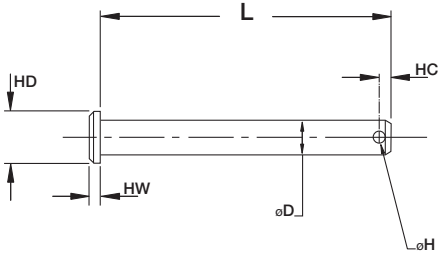
REF	d_1 g6	l_1 short	l_1 long	b	d_2 n6	l_2	l_4
LPF1-3622	6	7	12	1-0	4	6	4
LPF2-3622	8	10	16	1-6	6	9	6
LPF3-3622	10	10	18	2-5	6	9	6
LPF4-3622	12	10	18	2-5	6	9	6
LPF5-3622	16	13	22	3-5	8	12	8
LPF6-3622	20	15	25	5-0	12	18	9
LPF7-3622	25	15	25	5-0	12	18	9

Advise ref and L1 size short or long
Note: add suffix S or L to reference. (eg. LPF1-3622 s)

Clevis Pins - Metric

ISO 2341 B DIN 1444 B

Material: Steel Bright Zinc Plated - Stainless Steel Type A2



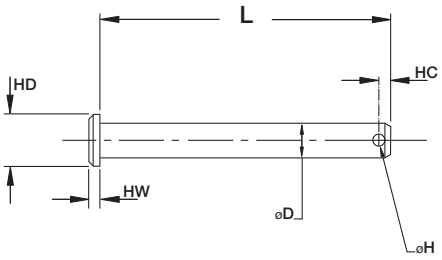
Dia	D	3	4	5	6	8	10	12	16	20	24
Head Dia	HD	4.5	6	8	10	14	18	20	25	28	36
Head Width	HW	1.2	1.5	1.6	2	3	4	4	4.5	5	6
Hole Dia	H	1.1	1.2	1.2	1.6	2	3.2	3.2	4	5	6.3
Hole Centre	HC	2.1	2.5	2.9	3.2	3.5	4.5	5.5	6	8	9

L \ D	3	4	5	6	8	10	12	16	20	24
10										
12										
16										
20										
25										
30										
35										
40										
50										
60										
70										
80										
90										
100										

Clevis Pins - Imperial

Stainless Steel

Material: Steel Bright Zinc Plated - Stainless Steel Type A2

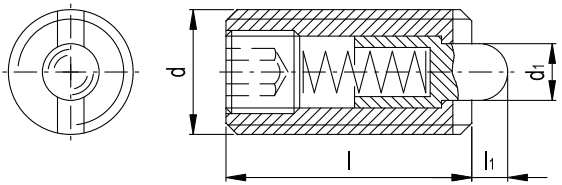


Dia	D	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Head Dia	HD	5/16"	3/8"	7/16"	1/2"	5/8"	11/16"	15/16"	1.3/16"
Head Width	HW	1/16"	3/32"	3/32"	1/8"	5/32"	13/64"	1/4"	11/32"
Hole Dia	H	0.078"	0.078"	0.104"	0.104"	0.135"	0.156"	0.156"	0.156"
Hole Centre	HC	0.100"	0.100"	0.140"	0.160"	0.160"	0.160"	0.160"	0.210"

L \ D	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
1/2								
5/8"								
3/4"								
1"								
1 1/4"								
1 1/2"								
1 3/4"								
2"								
2 1/4"								
2 1/2"								
2 3/4"								
3"								
3 1/4"								
3 1/2"								
3 3/4"								
4"								

- **Threaded body**
  Black-oxide steel, hexagon socket head.
- **Bolt and spring**
  - hardened steel bolt, steel spring with normal end-force.

Special executions on request



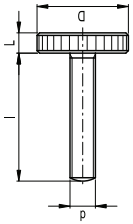
Part Reference	d	d1	l+-0.2	l1	Initial	Max
SPH1-3220	M3	1	12	1	2	4
SPH2-3220	M4	1.5	15	1.5	4.5	16
SPH3-3220	M5	2.4	18	2.3	6	19
SPH4-3220	M6	2.7	20	2.5	6	19
SPH5-3220	M8	3.5	22	3	10	39
SPH6-3220	M10	4	22	3	10	39
SPH7-3220	M12	6	28	4	12	53
SPH8-3220	M16	7.5	32	5	45	100
SPH9-3220	M20	10	40	7	52	125
SPH10-3220	M24	12	52	10	70	170

Thumb Screw DIN 653

Stainless Steel

- **Material**
  Turned black-oxide steel.
- Assembly
  Threaded pin.

Special executions on request
(For sufficient quantities)
Different lengths and threadings.

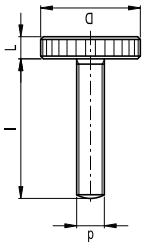


Part Reference	d	l	D	L
TS1-3702	M3	6	12	2.5
TS2-3702	M3	8	12	2.5
TS3-3702	M3	10	12	2.5
TS4-3702	M3	16	12	2.5
TS5-3702	M4	8	16	3.5
TS6-3702	M4	10	16	3.5
TS7-3702	M4	12	16	3.5
TS8-3702	M4	16	16	3.5
TS9-3702	M4	20	16	3.5
TS10-3702	M4	25	16	3.5
TS11-3702	M5	10	20	4
TS12-3702	M5	12	20	4
TS13-3702	M5	16	20	4
TS14-3702	M5	20	20	4
TS15-3702	M5	25	20	4
TS16-3702	M5	30	20	4
TS17-3702	M6	12	24	5
TS18-3702	M6	16	24	5
TS19-3702	M6	20	24	5
TS20-3702	M6	25	24	5
TS21-3702	M6	30	24	5
TS22-3702	M8	20	30	6
TS23-3702	M8	25	30	6
TS24-3702	M8	30	30	6
TS25-3702	M8	35	30	6
TS26-3702	M8	40	30	6
TS27-3702	M10	20	36	8
TS28-3702	M10	25	36	8
TS29-3702	M10	30	36	8
TS30-3702	M10	40	36	8

- **Material**
  AISI 303 stainless steel, sandblasted matte finish.
- **Assembly**
  Threaded pin.

Special executions on request
(For sufficient quantities)
Different lengths and threadings.

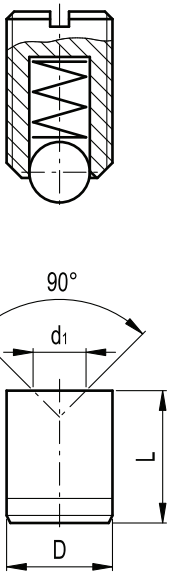
Features and applications
AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these knobs on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.

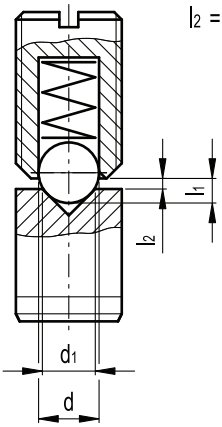


Part Reference	d	l	D	L
TS1SS	M5	10	20	4
TS2SS	M5	16	20	4
TS3SS	M6	16	24	5
TS4SS	M6	20	24	5
TS5SS	M8	20	30	6
TS6SS	M8	30	30	6

- **Material**
  Ground and hardened steel.

Applications
Striker bushings are used together with ball or bolt spring plungers when a high wear resistance contact surface is required.
In particular, they are recommended for use with plungers with high load springs and plungers with reinforced spring.





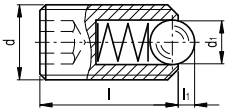
Part Reference	d +-0.03	d#	d1	l+-0.2	l1#	*	**
STBU1	4	#See corresponding Plunger	1.5	5	#See corresponding Plunger	M4	-
STBU2	5		2	6		M5	4
STBU3	6		2	8		M6	5
STBU4	8		3	10		M8	6
STBU5	10		4	12		M10	8
STBU6	12		6	14		M12	10
STBU7	16		8	18		M16	12

** Thread of the corresponding plunger SPH, SPB, SPP, SPBH, SPBP[II]
** Diameter of corresponding plunger SBSB

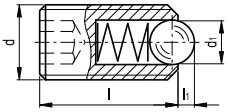
Threaded Ball Spring Plungers

Stainless Steel

- **Threaded body**
  Black-oxide steel, hexagon socket head.
- **Ball and spring**
  - Hardened steel ball, steel spring with normal end-force.



- **Threaded body**
  AISI 303 stainless steel, hexagon socket head.
- **Ball and spring**
  - Hardened stainless steel ball, stainless steel spring with normal end-force.



Spring Plunger with Ball and Hex

Part Reference	d	d1	l+-0.1	l1	Initial	Max
SPBH1	M4	2.5	12	0.8	8.5	14
SPBH2	M5	3	14	0.9	8	14
SPBH3	M6	3.5	15	1	11	18
SPBH4	M8	4.5	18	1.5	18	31
SPBH5	M10	6	23	2	24	45
SPBH6	M12	8	26	2.5	26	49
SPBH7	M16	10	33	3.5	41	86
SPBH8	M20	12	43	4.5	66	111
SPBH9	M24	15	48	5.5	81	151

Spring Plunger with Ball and Hex Stainless Steel

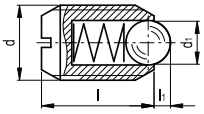
Part Reference	d	d1	l+-0.1	l1	Initial	Max
SPBH1SS	M4	2.5	12	0.8	8.5	14
SPBH2SS	M5	3	14	0.9	8	14
SPBH3SS	M6	3.5	15	1	11	18
SPBH4SS	M8	4.5	18	1.5	18	31
SPBH5SS	M10	6	23	2	24	45
SPBH6SS	M12	8	26	2.5	26	49
SPBH7SS	M16	10	33	3.5	41	86
SPBH8SS	M20	12	43	4.5	66	111
SPBH9SS	M24	15	48	5.5	81	151

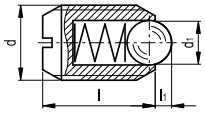
Threaded Ball Spring Plungers

- **Threaded body**
  Black-oxide steel, screwdriver slotted head.
- **Ball and spring**
- **SPB**: hardened steel ball, steel spring with normal end-force.

- **Threaded body**
  AISI 303 stainless steel, screwdriver slotted head.
- **Ball and spring**
- **SPBSS**: hardened stainless steel ball, stainless steel spring with normal end-force.

Features and applications
AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these plungers on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.





Spring Plunger with Ball and Slot

Part Reference	d	d1	l+-0.1	l1	Initial	Max
SPB1-3210	M3	1.5	7	0.4	3	4.5
SPB2-3210	M4	2.5	9	0.8	6	14.5
SPB3-3210	M5	3	12	0.9	8	14
SPB4-3210	M6	3.5	14	1	11	18
SPB5-3210	M8	4.5	16	1.5	18	31
SPB6-3210	M10	6	19	2	24	45
SPB7-3210	M12	8	22	2.5	26	49
SPB8-3210	M16	10	24	3.5	41	86
SPB9-3210	M20	12	30	4.5	56	111
SPB10-3210	M24	15	34	5.5	81	151

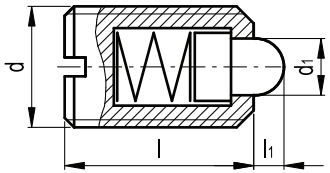
Spring Plunger Stainless Steel with Ball and Slot

Part Reference	d	d1	l+-0.1	l1	Initial	Max
SPB1SS	M3	1.5	7	0.4	3	4.5
SPB2SS	M4	2.5	9	0.8	6	14.5
SPB3SS	M5	3	12	0.9	8	14
SPB4SS	M6	3.5	14	1	11	18
SPB5SS	M8	4.5	16	1.5	18	31
SPB6SS	M10	6	19	2	24	45
SPB7SS	M12	8	22	2.5	26	49
SPB8SS	M16	10	24	3.5	41	86
SPB9SS	M20	12	30	4.5	56	111
SPB10SS	M24	15	34	5.5	81	151

Threaded Bolt Spring Plungers

- **Threaded body**
  Black-oxide steel, screwdriver slotted head.
- **Bolt and spring**
- Execution **B**: hardened steel bolt, black-oxide steel spring with normal endforce.
- **BS**: zinc-plated steel bolt, black-oxide steel spring with heavy end-force.

Special executions on request



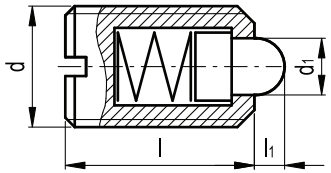
Threaded Bolt Spring Plungers

Part Reference	d	d=+-0.1	l+-0.1	l1	Initial	Max
SPP1-3215	M4	1.8	9	1.5	4.5	12.5
SPP2-3215	M5	2.4	12	2	5	13
SPP3-3215	M6	2.7	14	2	6	17
SPP4-3215	M8	3.8	16	2	16	33
SPP5-3215	M10	4.5	19	2.5	19	42
SPP6-3215	M12	6	22	3.5	22	57
SPP7-3215	M16	8.5	24	4.5	38	78
SPP8-3215	M20	10	30	6.5	39	81
SPP9-3215	M24	13	34	8	72	155

Threaded Bolt Spring Plungers

- **Threaded body**
  AISI 303 stainless steel, screwdriver slotted head.
- **Bolt and spring**
- Nitrided AISI 303 stainless steel bolt, stainless steel spring with normal end-force.

Features and applications
AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these plungers on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.



Threaded Bolt Spring Plungers Stainless Steel

Part Reference	d	d=+-0.1	l+-0.1	l1	Initial	Max
SPP1SS-3215	M4	1.8	9	1.5	4.5	12.5
SPP2SS-3215	M5	2.4	12	2	5	13
SPP3SS-3215	M6	2.7	14	2	6	17
SPP4SS-3215	M8	3.8	16	2	16	33
SPP5SS-3215	M10	4.5	19	2.5	19	42
SPP6SS-3215	M12	6	22	3.5	22	57
SPP7SS-3215	M16	8.5	24	4.5	38	78
SPP8SS-3215	M20	10	30	6.5	39	81
SPP9SS-3215	M24	13	34	8	72	155

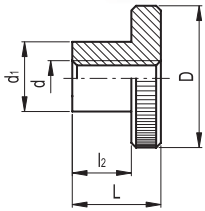
Knurled Grip Knobs

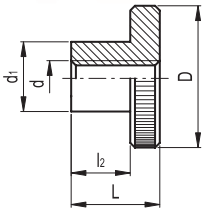
Stainless Steel

- **Material**
  Turned black-oxide steel.
- **Assembly**
  Hub, tapped through hole.

- **Threaded body**
  AISI 303 stainless steel, sandblasted matte finish.
- **Assembly**
  Hub, tapped through hole.

Features and applications
AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these knobs on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.





Knurled Nut DIN 466

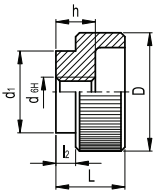
Part Reference	Hole d	D	L	d1	l2
KN1-3710	M3	12	7.5	6	5
KN2-3710	M4	16	9.5	8	6
KN3-3710	M5	20	11.5	10	7.5
KN4-3710	M6	24	15	12	10
KN5-3710	M8	30	18	16	12
KN6-3710	M10	36	23	20	15
KN7-3710	M12	40	25	22	15

Knurled Nut Stainless DIN 466

Part Reference	Hole d	D	L	d1	l2
KN1SS	M4	16	9.5	8	6
KN2SS	M5	20	11.5	10	7.5
KN3SS	M6	24	15	12	10
KN4SS	M8	30	18	16	12

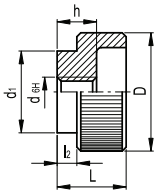
Knurled Grip Knobs

- **Material**
  Black-oxide steel.
- **Assembly**
  Tapped through hole.



- **Material**
  AISI 303 stainless steel, sandblasted matte finish.
- **Assembly**
  Tapped through hole.

Features and applications
AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these knobs on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.



Knurled Grip Nuts DIN 6303

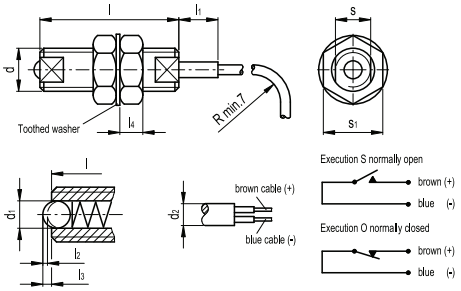
Part Reference	Hole d	h	D	L	d1	l2
KGN1	M5	7	20	12	14	4
KGN2	M6	8	24	14	16	4
KGN3	M8	10	30	17	20	5
KGN4	M10	12	36	20	28	6
KGN5	M12	16	40	24	32	8

Knurled Grip Nuts DIN 6303-303 Stainless Steel

Part Reference	Hole d	h	D	L	d1	l2
KGN1SS	M5	7	20	12	14	4
KGN2SS	M6	8	24	14	16	4
KGN3SS	M8	10	30	17	20	5
KGN4SS	M10	12	36	20	28	6
KGN5SS	M12	16	40	24	32	8

Threaded Ball Spring Plungers with Switch

- **Threaded body**
  Hardened nickel-plated steel.
- **Ball**
  Hardened steel.
- **Hexagon nuts**
  Nickel-plated steel.
- **Toothed washer**
  Hardened nickel-plated steel.
- **Spring**
  Stainless steel.
- **Working temperature**
  From -10°C to +80°C.
- **Standard execution available**
- Execution **S**: grey colour sheath for normally open contact.
- Execution **SB**: black colour sheath for normally closed contact.



Features and applications
Threaded ball spring plungers are suitable for locking or releasing a device by using a built-in electrical switch.

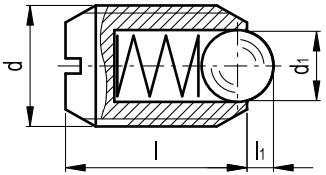
Electrical characteristics of the switch
Power supply: 20 mA DC
Voltage: from 12 to 24 V DC
Protection class: IP 40 according to table IEC 529 (see page 431)
Supply cable: Ø 3 mm, two-phase, length 2 metres
Average switch life-span: 10 million switchings

Technical data
Maximum tensile strength 20 N.

Spring Plunger With Switch

Part Reference	d	d1	d2	l	l1	$l2_{+-0.1}$	$l3_{+-0.1}$	l4	s	s1	Initial	Max
SPBS1	M6	3	3	27	10	0.3	0.8	3.5	5.5	10	6	13
SPBS2	M8	4	3	30	10	0.5	1	5	7	13	8	16
SPBS3	M10	5	3	33	10	0.7	1.2	6	8	17	10	20
SPBSB4	M6	3	3	27	10	0.3	1.8	3.5	5.5	10	6	13
SPBSB5	M8	4	3	30	10	0.5	1	5	7	13	8	16
SPBSB6	M10	5	3	33	10	0.7	1.2	6	8	17	10	20

- **Threaded body**
  Acetal resin based (POM) technopolymer, screwdriver slotted head.
  Resistant to solvents, oils, greases and other chemical agents.
- **Ball and spring**
- Execution **S**: hardened stainless steel ball, stainless steel spring.
- **SPBP**: technopolymer ball, stainless steel spring.
- **Working temperature**
  From -30°C to +50°C.



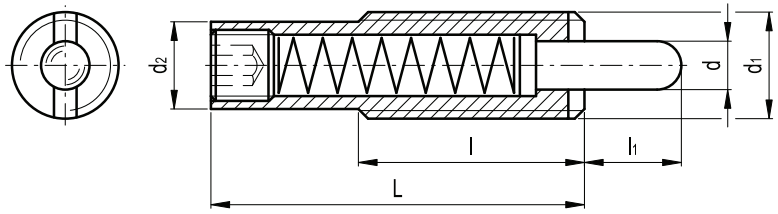
Spring Plunger Technopolymer with Ball End and Slotted Head

Part Reference	Hole d	h	D	L	d1	l2
SPBPS1	M6	3.5	14	1	12	17
SPBPS2	M8	5	16	1.5	20	35
SPBPS3	M10	6	19	2	25	45
SPBP1	M6	3.5	14	1	12	17
SPBP2	M8	5	16	1.5	20	35
SPBP3	M10	6	19	2	25	45

Threaded Bolt Spring Plungers Long Stroke

- **Threaded body**
  Black-oxide steel, partially coated with PFB polyamide blue coating for threads instant locking (see Technical Data on page A21).
- **Bolt**
  Case-hardened ground black-oxide steel.
- **Spring**
  Steel.
- Execution **L**: with normal end-force.
- Execution **LS**: with heavy end-force with not burnished hexagon socket.
- **Working temperature**
  From -50°C to +90°C.

Applications
Threaded bolt spring plungers are normally used for machining metal sheets, as ejectors for push-on or push-off operations or as cushion.



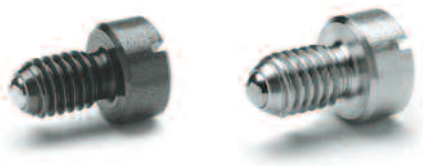
Threaded Bolt Spring Plungers Long Stroke

Part Reference	d1	d	d2	L	l	l1	Initial	Max
SPHL1	M10	4	7.8	35	25	8	6	16
SPHL2	M12	5.5	9.5	43	35	10	4	18
SPHL3	M16	8	13.4	58	35	15	9	33
SPHL4	M16	8	13.4	58	35	20	4	23
SPHL5	M16	8	13.4	98	35	30	13	47
SPHL6LS	M12	5.5	9.5	43	35	10	12	44
SPHL7LS	M16	8	13.4	58	35	15	10	57
SPHL8LS	M16	8	13.4	98	35	30	20	80

Threaded Plungers with Screwdriver Slotted Head

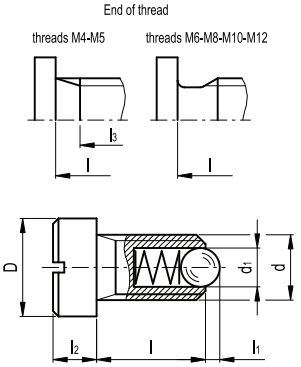
- **Body**
  Black-oxide steel, screwdriver slotted head.
- **Ball and spring**
  Hardened steel ball, steel spring.

Features
The screwdriver slot on the head of the plunger is also useful to provide an indication of the position of the blocked element.



- **Body**
  AISI 303 stainless steel, screwdriver slotted head.
- **Ball and spring**
  Hardened stainless steel ball, stainless steel spring.

Features and applications
The screwdriver slot on the head of the plunger is also useful to provide an indication of the position of the blocked element. AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these threaded plungers on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.



Spring Plunger Headed With Ball

Part Reference	d	d1	D	l	l1	l2	l3	Initial	Max
SPHB1	M4	2.5	6	6.5	0.8	3	5	8	14
SPHB2	M5	3	8	8.5	0.9	4	6.7	8	14
SPHB3	M6	3.5	10	9	1	5	-	11	18
SPHB4	M8	4.5	13	11	1.5	5.5	-	18	31
SPHB5	M10	6	16	14	2	6	-	24	45
SPHB6	M12	8	18	15	2.5	7	-	26	49

Spring Plunger Headed With Ball Stainless Steel

Part Reference	d	d1	D	l	l1	l2	l3	Initial	Max
SPHB1SS	M4	2.5	6	6.5	0.8	3	5	8	14
SPHB2SS	M5	3	8	8.5	0.9	4	6.7	8	14
SPHB3SS	M6	3.5	10	9	1	5	-	11	18
SPHB4SS	M8	4.5	13	11	1.5	5.5	-	18	31
SPHB5SS	M10	6	16	14	2	6	-	24	45
SPHB6SS	M12	8	18	15	2.5	7	-	26	49

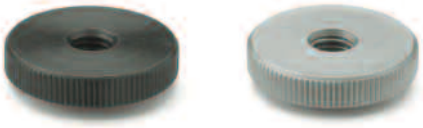
Knurled Grip Knobs

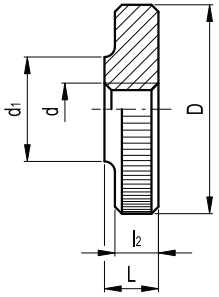
Stainless Steel

- **Material**
  Turned black-oxide steel.
- **Assembly**
  Tapped through hole.

- **Material**
  AISI 303 stainless steel, sandblasted matte finish.
- **Assembly**
  Tapped through hole.

Features and applications
AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these knobs on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.





Flat Knurled Nut DIN 464

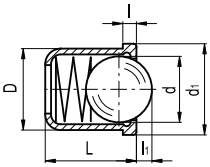
Part Reference	Hole d	D	L	d1	l2
FKN1	M3	12	3	6	2.5
FKN2	M4	16	4	8	3.5
FKN3	M5	20	5	10	4
FKN4	M6	24	6	12	5
FKN5	M8	30	8	16	6
FKN6	M10	36	10	20	8
FKN7	M12	40	12	22	10

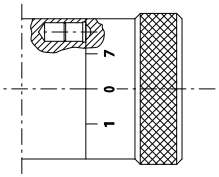
Flat Knurled Nut DIN 464-303 Stainless Steel

Part Reference	Hole d	D	L	d1	l2
FKN1SS	M3	12	3	6	2.5
FKN2SS	M4	16	4	8	3.5
FKN3SS	M5	20	5	10	4
FKN4SS	M6	24	6	12	5
FKN5SS	M8	30	8	16	6

- **Body**
  Acetal resin based (POM) technopolymer.
  Resistant to solvents, oils, greases and other chemical agents.
- **Ball and spring**
- **SBSB**: hardened stainless steel ball, stainless steel spring.
- **P**: technopolymer ball, stainless steel spring.
- **Working temperature**
  From -30°C to +50°C.

Accessories
Holders for spring plungers type HSBP to optimise the use of smooth ball spring plungers.





Spring Plunger Headed With Ball

Part Reference	D+-0.1	L	d	d1	I+-0.1	I1	Initial	Max
SBSB1	4	5	3	4.6	1	0.8	2.5	6.5
SBSB2	5	6	4	5.6	1	1	4.5	9
SBSB3	6	7	5	6.5	1	1.6	6.5	13
SBSB4	8	9	6.5	8.5	1	1.9	8	18
SBSB5	10	13.5	8.5	11	1.5	2.4	12	23
SBSB6	12	16	10	13	1.5	3.3	13	25
SBSBP7	4	5	3	4.6	1	0.8	2.5	6.5
SBSBP8	5	6	4	5.6	1	1	4.5	9
SBSBP9	6	7	5	6.5	1	1.6	6.5	13
SBSBP10	8	9	6.5	8.5	1	1.9	8	18

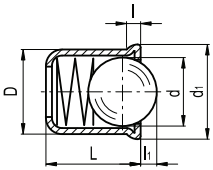
Smooth Ball Spring Plungers

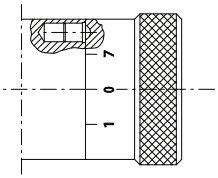
Stainless Steel

- **Body**
  Stainless steel.
- **Ball and spring**
  Hardened stainless steel ball, stainless steel spring.

Features and applications
Stainless steel, thanks to its high resistance to corrosion, allows the application of these smooth plungers on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.

Accessories
Holders for spring plungers type HSBP to optimise the use of smooth ball spring plungers.





Smooth Ball Spring Plungers Stainless Steel

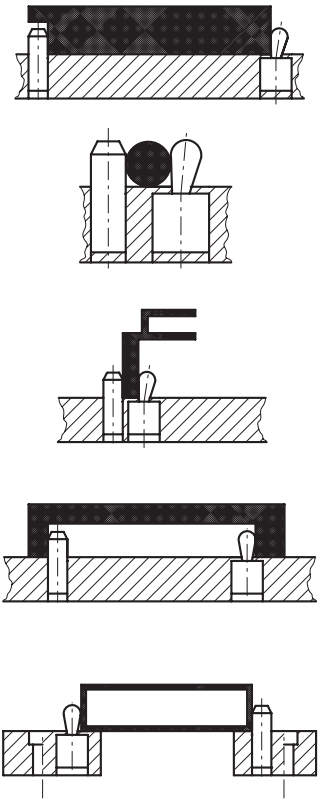
Part Reference	D+-0.1	L	d	d1	I	I1	Initial	Max
SP1-3230	4	5	3	4.6	0.9	1	2.5	6
SP2-3230	5	6	4	5.6	0.9	1.4	3	6.5
SP3-3230	6	7	5	6.5	1	1.8	5.5	11.5
SP4-3230	8	9	6.5	8.5	1.1	2.4	7	12.5
SP5-3230	10	13.5	8.5	11	1.7	3.3	8.5	18.5
SP6-3230	12	16	10	13	2.3	4	12	26.5

- **Body**
  Passivated aluminium.
- **STP**: without gasket. For universal use, preferably in environments without machining residues.
  Maximum working temperature: 250°C.
- **STPG**: with NBR synthetic rubber gasket.
  For universal use, also in environments with machining residues. Maximum working temperature: 120°C (avoid contact with halocarbons, hydraulic fluids with a phosphoric ester base, nitrated hydrocarbons, ketons, toluol, strong acids).
- **Oscillating pin**
  Zinc-plated hardened steel.
- **Spring**
  Steel with:
- low spring load (grey)
- medium spring load (black)
- high spring load (silver).

Accessories on request
Eccentric bushings are available to obtain a more precise adjustment of the side thrust pins, providing different positionings.

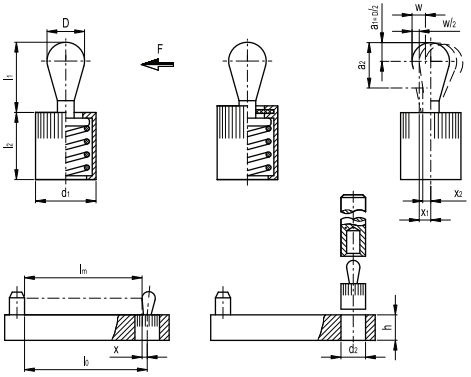
Features and applications
Side thrust pins are practical and versatile elements for positioning and locking pieces to be machined. They are used for operations such as boring, milling, tapping, welding, brazing, mounting, gluing, temporary or permanent equipping, marking, engraving, etc...
They completely replace expensive equipment, take a limited space and are easily assembled to holes drilled with H8 tolerance. To make it easier to mount the side thrust pins, it is recommended to use an assembly tool (when ordering, please specify the diameter D of the corresponding side thrust pin.

Application example



Technical data

w = movement of the oscillating pin from the initial position
F(N) = side load
Fo = pre-load
1.1 x Fo = final load
a2 - a1 = contact point area (suggested)
x = distance from pin axis to contact point due to pin movement equal to w/2
x1 = distance x for contact point a1
x2 = distance x for contact point a2
lo = distance from centre of thrust pin attachment to piece support point
l = lm + x where lm = average length of the piece (lmax x lmin) : 2
For contact point between a1 and a2 (according to the height of the piece), the value x is obtained through interpolation between x1 and x2.
In compliance with the above mentioned data, the movement of the oscillating pin may cover the normal tolerances of the piece to be machined.



Side Thrust Pins

Part Reference	D	l1	l2-1	d1	d2H8	a1	a2	h	w	x1	x2	Initial Load
STP1	3	4	7	6	6	1.5	3.5	7	1	1	0.75	10
STP2	3	4	7	6	6	1.5	3.5	7	1	1	0.75	20
STP3	3	4	7	6	6	1.5	3.5	7	1	1	0.75	40
STP4	5	6.7	11	10	10	2.5	5.7	12	1.6	1.7	1.3	20
STP5	5	6.7	11	10	10	2.5	5.7	12	1.6	1.7	1.3	50
STP6	5	6.7	11	10	10	2.5	5.7	12	1.6	1.7	1.3	100
STP7	6	10.7	11	10	10	3	7.7	12	2	1.9	1.4	40
STP8	6	10.7	11	10	10	3	7.7	12	2	1.9	1.4	75
STP9	6	10.7	11	10	10	3	7.7	12	2	1.9	1.4	150
STP10	8	13.9	13	12	12	4	8.9	14	2.6	2.7	2.1	50
STP11	8	13.9	13	12	12	4	8.9	14	2.6	2.7	2.1	100
STP12	8	13.9	13	12	12	4	8.9	14	2.6	2.7	2.1	200
STP13	10	16.7	17	16	16	5	10.7	18	3.2	3.4	2.7	100
STP14	10	16.7	17	16	16	5	10.7	18	3.2	3.4	2.7	200
STP15	10	16.7	17	16	16	5	10.7	18	3.2	3.4	2.7	300

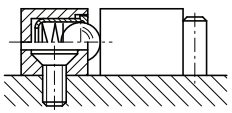
Side Thrust Pins with Gasket

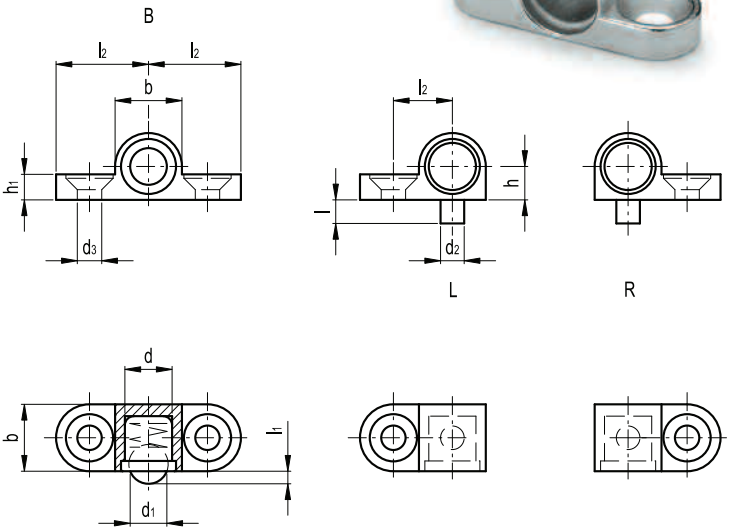
Part Reference	D	l1	l2-1	d1	d2H8	a1	a2	h	w	x1	x2	Initial Load
STPG1	3	4	7	6	6	1.5	3.5	7	1	1	0.75	10
STPG2	3	4	7	6	6	1.5	3.5	7	1	1	0.75	20
STPG3	3	4	7	6	6	1.5	3.5	7	1	1	0.75	40
STPG4	5	6.7	11	10	10	2.5	5.7	12	1.6	1.7	1.3	20
STPG5	5	6.7	11	10	10	2.5	5.7	12	1.6	1.7	1.3	50
STPG6	5	6.7	11	10	10	2.5	5.7	12	1.6	1.7	1.3	100
STPG7	6	10.7	11	10	10	3	7.7	12	2	1.9	1.4	40
STPG8	6	10.7	11	10	10	3	7.7	12	2	1.9	1.4	75
STPG9	6	10.7	11	10	10	3	7.7	12	2	1.9	1.4	150
STPG10	8	13.9	13	12	12	4	8.9	14	2.6	2.7	2.1	50
STPG11	8	13.9	13	12	12	4	8.9	14	2.6	2.7	2.1	100
STPG12	8	13.9	13	12	12	4	8.9	14	2.6	2.7	2.1	200
STPG13	10	16.7	17	16	16	5	10.7	18	3.2	3.4	2.7	100
STPG14	10	16.7	17	16	16	5	10.7	18	3.2	3.4	2.7	200
STPG15	10	16.7	17	16	16	5	10.7	18	3.2	3.4	2.7	300

- **Material**
  Nickel-plated die-cast zinc.
- **Fixing**
- Execution B: two-side fixing wings.
- Execution L: left-side fixing wing with positioning pin.
- Execution R: right-side fixing wing with positioning pin.

Applications
Holders for spring plungers optimise the use of smooth ball spring plungers type (see on page 147 and 148).

Application example



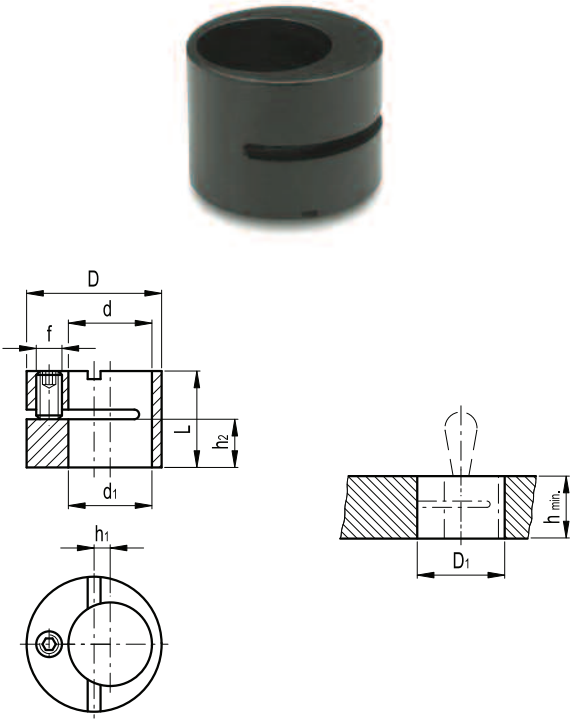


Holders for Smooth Ball Spring Plungers

Part Reference	D +- 0.05	d1	d2 +- 0.05	b	h +- 0.05	h1	l	l1 +- 0.1	l2 +- 0.05	Hole d3	Screw
HSBP1B	6	5	3	8.5	4.25	3.2	3	1.5	7.5	3.2	M3
HSBP2B	8	6.5	4	10.5	5.25	4.2	4	1.8	9.5	4.3	M4
HSBP3L	6	5	3	8.5	4.25	3.2	3	1.5	7.5	3.2	M3
HSBP4L	8	6.5	4	10.5	5.25	4.2	4	1.8	9.5	4.3	M4
HSBP5R	6	5	3	8.5	4.25	3.2	3	1.5	7.5	3.2	M3
HSBP6R	8	6.5	4	10.5	5.25	4.2	4	1.8	9.5	4.3	M4

- **Material**
  Black-oxide steel.

Features and applications
Eccentric bushings are used to position side thrust pins correctly. By using the eccentric bushings, the thrust pin can be positioned very precisely to adapt to the tolerance of the piece to be machined.



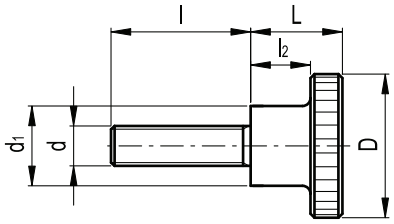
Eccentric Bushings

Part Reference	d	D1+0.1	D	D1 H7	f	h	h1	h2	L-0.2
ECB1	6	6.2	12	12	M4	10	2	4.4	9.9
ECB2	10	10.2	16	16	M4	12	2	5.4	11.9
ECB3	12	12.2	18	18	M4	14	2	6.6	13.9
ECB4	16	16.2	25	25	M6	18	3	7.9	17.9

Knurled Thumb Screw DIN 464

- **Material**
  Turned black-oxide steel.
- **Assembly**
  Threaded pin.

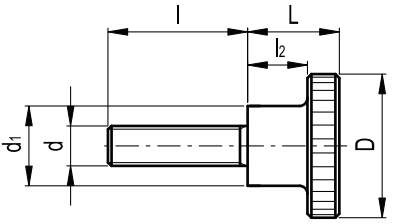
Special executions on request
(For sufficient quantities)
Different lengths and threadings.



- **Material**
  AISI 303 stainless steel, sandblasted matte finish.
- **Assembly**
  Threaded pin.

Special executions on request
(For sufficient quantities)
Different lengths and threadings.

Features and applications
AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these knobs on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.



Knurled Thumb Screw DIN 464

Part Reference	d	l	D	L	d1	l2
KTS1-3714	M3	6	12	7.5	6	5
KTS2-3714	M3	10	12	7.5	6	5
KTS3-3714	M3	12	12	7.5	6	5
KTS4-3714	M3	16	12	7.5	6	5
KTS5-3714	M4	8	16	9.5	8	6
KTS6-3714	M4	10	16	9.5	8	6
KTS7-3714	M4	12	16	9.5	8	6
KTS8-3714	M4	16	16	9.5	8	6
KTS9-3714	M4	20	16	9.5	8	6
KTS10-3714	M4	25	16	9.5	8	6
KTS11-3714	M5	6	20	11.5	10	7.5
KTS12-3714	M5	8	20	11.5	10	7.5
KTS13-3714	M5	10	20	11.5	10	7.5
KTS14-3714	M5	12	20	11.5	10	7.5
KTS15-3714	M5	16	20	11.5	10	7.5
KTS16-3714	M5	20	20	11.5	10	7.5
KTS17-3714	M5	25	20	11.5	10	7.5
KTS18-3714	M5	30	20	11.5	10	7.5
KTS19-3714	M6	8	24	15	12	10
KTS20-3714	M6	10	24	15	12	10
KTS21-3714	M6	12	24	15	12	10
KTS22-3714	M6	16	24	15	12	10
KTS23-3714	M6	20	24	15	12	10
KTS24-3714	M6	25	24	15	12	10
KTS25-3714	M6	30	24	15	12	10
KTS26-3714	M8	12	30	18	16	12
KTS27-3714	M8	16	30	18	16	12
KTS28-3714	M8	20	30	18	16	12
KTS29-3714	M8	25	30	18	16	12
KTS30-3714	M8	30	30	18	16	12
KTS31-3714	M8	35	30	18	16	12
KTS32-3714	M8	40	30	18	16	12
KTS33-3714	M10	20	36	23	20	15
KTS34-3714	M10	25	36	23	20	15
KTS35-3714	M10	30	36	23	20	15
KTS36-3714	M10	35	36	23	20	15
KTS37-3714	M10	40	36	23	20	15

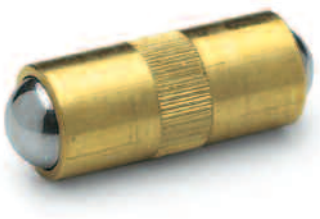
Knurled Thumb Screw DIN 464-303 Stainless Steel

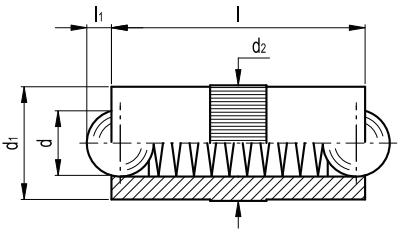
Part Reference	d	l	D	L	d1	l2
KTS1SS	M5	10	20	11.5	10	7.5
KTS2SS	M5	16	20	11.5	10	7.5
KTS3SS	M6	16	24	15	12	10
KTS4SS	M6	20	24	15	12	10
KTS5SS	M8	16	30	18	16	12
KTS6SS	M8	20	30	18	16	12
KTS7SS	M8	30	30	18	16	12

Spring Plunger Double Ended Ball Type

- **Body**
  Brass with central horizontal knurling.
- **Balls and spring**
  Hardened stainless steel balls, stainless steel spring.

Features and applications
Double ended smooth balls spring plungers represent a further development of plungers type SBSB.





Spring Plunger Double Ended Ball Type

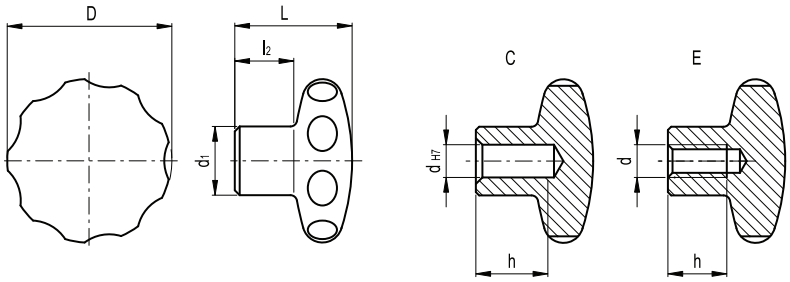
Part Reference	d1	2	d2+0.05	l	l1	Initial	Max
SPBDE1	2.5	2	2.52	5.3	0.65	1.3	2.5
SPBDE2	3	2.5	3.02	7.3	0.8	2	4.5
SPBDE3	4	3	4.03	9	0.9	2.5	7.5
SPBDE4	5	4	5.03	10.8	1.2	3.5	8
SPBDE5	7	6	7.03	14	2	4	12
SPBDE6	8	6.5	8.03	18	2.1	6	15

Star Knobs
Stainless Steel AISI 304

- **Material**
  AISI 303 stainless steel, sandblasted matte finish.
- **Assembly**
- Execution **C**: hub, H7 reamed blind hole.
- Execution **E**: hub, tapped blind hole.

Special executions on request
(For sufficient quantities)
Hub, tapped through hole.

Features and applications
AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these knobs on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.

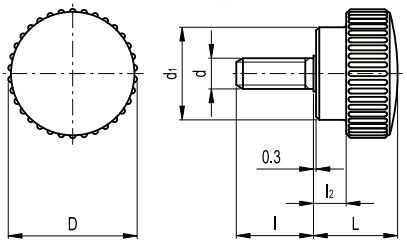


Star Knobs Stainless Steel AISI 304

Part Reference	D	L	d1	l2	d H7	d	h
SRK1SSC	40	26.5	18	15	8	-	15
SRK2SSE	40	26.5	18	15	-	M6	12
SRK3SSE	40	26.5	18	15	-	M8	15
SRK4SSC	50	29	21	17	10	-	18
SRK5SSE	50	29	21	17	-	M8	15
SRK6SSE	50	29	21	17	-	M10	15
SRK7SSC	60	33	25	18	12	-	22
SRK8SSE	60	33	25	18	-	M10	18
SRK9SSE	60	33	25	18	-	M12	22

Grip Knobs with Pin

- **Material**
  Phenolic based (PF) Duroplast.
  Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, glossy finish.
- **Assembly**
  Zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753.



Grip Knobs with Pin

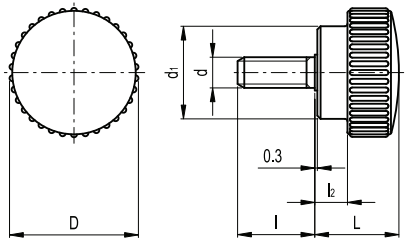
Part Reference	d	L	d1	l2	d 6g	l
GKP1	15	44	44	2	M4	6
GKP2	15	44	44	2	M4	10
GKP3	15	44	44	2	M4	16
GKP4	15	44	44	2	M5	10
GKP5	15	44	44	2	M5	16
GKP6	18	12	13	3	M5	10
GKP7	18	12	13	3	M5	10
GKP8	18	12	13	3	M5	40
GKP9	22	14	15	4	M6	10
GKP10	22	14	15	4	M6	16
GKP11	22	14	15	4	M6	25
GKP12	22	14	15	4	M6	40
GKP13	26	18	19	6	M6	16
GKP14	26	18	19	6	M6	25
GKP15	26	18	19	6	M8	16
GKP16	26	18	19	6	M8	25
GKP17	31	18	24	6	M8	16
GKP18	31	18	24	6	M8	25
GKP19	31	18	24	6	M8	40
GKP20	36	23	27	8	M8	25
GKP21	36	23	27	8	M8	40
GKP22	40	26	29	10	M10	30
GKP23	50	32	36	12	M10	40

Grip Knobs
Stainless Steel with Pin

Stainless Steel

- **Material**
  Phenolic based (PF) Duroplast. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, glossy finish.
- **Assembly**
  AISI 303 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753.

Features and applications
AISI 303 stainless steel, thanks to its high resistance to corrosion, allows the application of these knobs on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.



Grip Knobs Stainless Steel with Pin

Part Reference	d	L	d1	l2	d 6g	l
GKP1SS	15	11	11	2	M4	6
GKP2SS	15	11	11	2	M4	10
GKP3SS	15	11	11	2	M4	16
GKP4SS	22	14	15	4	M6	10
GKP5SS	22	14	15	4	M6	16
GKP6SS	26	19	18	6	M6	16
GKP7SS	26	19	18	6	M6	25

PP. HEADLESS TYPE. PRESS FIT BS 1098 PT. 2 1977/ISO 4247/DIN 179A
This type of bush is normally used for all jigs where an economical bush is required.

They also afford the minimum spacing between bushes.

PH. HEADED TYPE. PRESS FIT. BS1098 PT. 2 1977/ISO 4247/DIN 172A
This range is the same as type PP but headed. The head is convenient for pressing the bush home.

The head is also useful when it is desired to feed down to a dead stop.

All other types of bushes including Liner, renewable and fixed are available through the Boneham & Turner Ltd Bush Catalogue.

STANDARD INCREMENT BORE SIZES FOR METRIC JIG BUSH RANGE

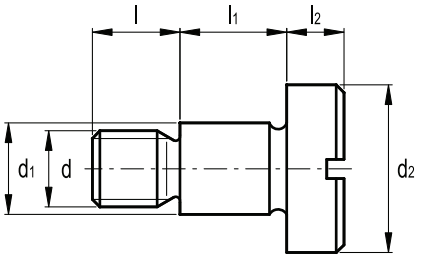
From 1.0mm to 3mm in steps of 0.05mm.
From 3mm to 14mm in steps of 0.1mm and including all 0.25mm and 0.75mm sizes.
From 14mm to 33mm in steps of 0.25mm.
From 33mm to 51mm in steps of 0.5mm.
From 51mm to 100mm in steps of 1.0mm.

Note:- ALL other sizes are regarded as specials. Bushes with a bore size above 48mm are not stock items. These bushes are manufactured against customer's order only.
USA Bushings ANSI standards including thin wall range available.
Serrated Serra-Bond Bushes available to order.

I.S.O. Limits for Reference in connection with Drill Bushes Unit = 0.001mm												Limits for Bores * of Reamer Bushes	
Nominal Sizes		H6 Hole		F7 Hole		n6 Shaft		m6 Shaft		h13 shaft			
Over	Up to	High+	Low	High+	Low+	High+	Low+	High+	Low+	High	Low-	High+	Low+
-	3	6	0	16	6	10	4	8	2	0	140	18	11
3	6	8	0	22	10	16	8	12	4	0	180	23	15
6	10	9	0	28	13	19	10	15	6	0	220	27	18
10	18	11	0	34	16	23	12	18	7	0	270	31	21
18	30	13	0	41	20	28	15	21	8	0	330	38	25
30	50	16	0	50	25	33	17	25	9	0	390	46	30
50	80	19	0	60	30	39	20	30	11	0	460	-	-
80	120	22	0	71	36	45	23	35	13	0	540	-	-

Shoulder Screw

- **Material**
  Steel

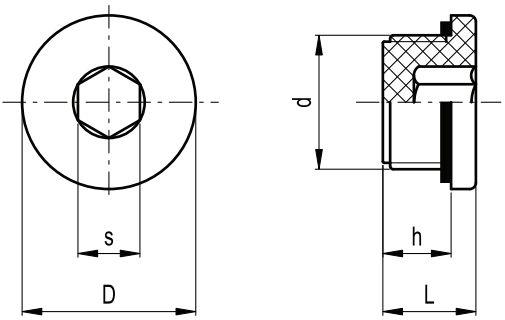


Part Reference	d1	d2	d3 hg	l	b	k
SS1-3670	M6	13	8	10	9.0	3.1
SS2-3670	M8	16	10	12	11.0	3.8
SS3-3670	M8	16	10	16	11.0	3.8

Threaded Hexagon Socket Plug

- **Material**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, matt finish.
- **Flat packing ring**
  NBR synthetic rubber.
- **Maximum continuous working temperature**
  130°C.

Technical data
An adequate tightening torque (see table below) is recommended when screwing the plug, so as to guarantee optimal tightness without any deformation of the packing ring. Suggested tightening torque is the result of laboratory tests carried out at ambient temperature (23°C) with plug, packing ring and reservoir walls perfectly cleaned.

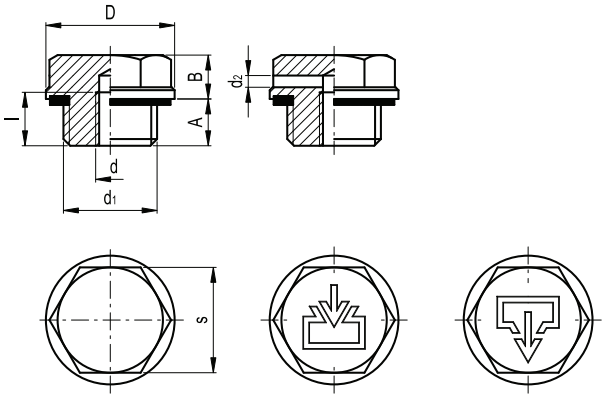


						Tightening torque
Part Reference	**D**	**h**	**s**	**L**	**D**	**(Nm)**
THSP1	G 1/4	9	6	12	20	3
THSP2	G 3/8	9	8	13	22	3-5
THSP3	G 1/2	11	10	15	28	3-4
THSP4	G 3/4	12	12	16.5	32	3-5

Aluminium Threaded Plug

- **Material**
  Aluminium, sandblasted matt finish.
- **Flat packing ring**
  NBR synthetic rubber.
- **Maximum continuous working temperature**
  120°C.

Features
Plugs are provided with a threaded blind hole for assembling a dipstick.
High temperature up to 200°C. Available on request.

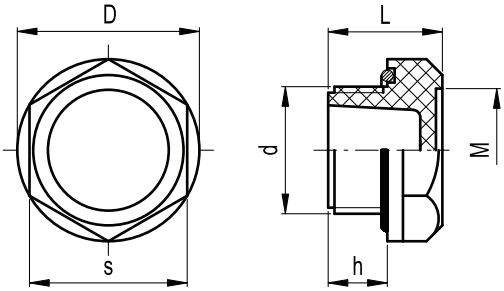


Part Reference	d1	A	B	D	d	l	s
ATP1	M16x1.5	8	7.5	22	M5	8	18
ATP2	M20x1.5	8.5	7.5	26	M5	8	21
ATP3	M26x1.5	9	8	32	M5	8	27
ATP4	G 3/8	8	7.5	22	M5	8	18
ATP5	G 1/2	8.5	7.5	26	M5	8	21
ATP6	G 3/4	9	8	32	M5	8	27
ATP7	G 1	11	8.5	40	M5	8	32

- **Material**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, matt finish.
- **Packing ring**
  NBR synthetic rubber O-Ring.
- **Maximum continuous working temperature**
  130°C.

Accessories on request
Plugs are suitable for mounting MH. aluminium plates with graphic symbols here beside.

Technical data
An adequate tightening torque (see table below) is recommended when screwing the plug, so as to guarantee optimal tightness without any deformation of the packing ring. Suggested tightening torque is the result of laboratory tests carried out at ambient temperature (23°C) with plug, packing ring and reservoir walls perfectly cleaned.



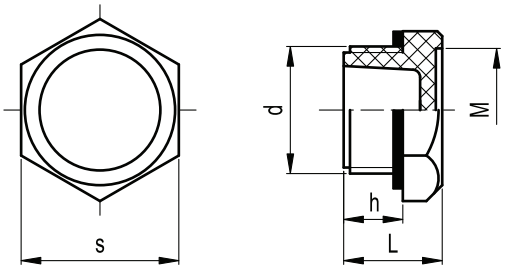
							Tightening torque
Part Reference	**d**	**h**	**D**	**s**	**L**	**M**	**(Nm)**
TPOR1	G 1/2	11	32	27	20	20.5	8-10
TPOR2	G 3/4	12	37	32	22	25	10-12
TPOR3	G 1	13	44	38	23	31	12-15

Threaded Plug

- **Material**
  Glass-fibre reinforced polyamide based (PA) technopolymer. Resistant to solvents, oils, greases and other chemical agents.
- **Colour**
  Black, matt finish.
- **Flat packing ring**
  NBR synthetic rubber.
- **Maximum continuous working temperature**
  130°C.

Accessories on request
Plugs are suitable for mounting MH. aluminium plates with graphic symbols.

Technical data
An adequate tightening torque (see table below) is recommended when screwing the plug, so as to guarantee optimal tightness without any deformation of the packing ring. Suggested tightening torque is the result of laboratory tests carried out at ambient temperature (23°C) with plug, packing ring and reservoir walls perfectly cleaned.



Part Reference	D	h	s	L	M	Tightening torque (Nm)
TP1	M10x1.5	9	19	16	15	4-5
TP2	M12x1.5	9	19	16	15	6-8
TP3	M14x1.5	9	19	16	15	6-8
TP4	M16x1.5	9	22	16	17	8-10
TP5	M18x1.5	11	26	18	20.5	8-10
TP6	M20x1.5	11	26	18	20.5	8-10
TP7	M22x1.5	12	32	20	25	10-12
TP8	M25x1.5	12	32	20	25	10-12
TP9	M26x1.5	12	32	20	25	10-12
TP10	M35x1.5	13	38	22	31	15-18
TP11	M40x1.5	14	46	24	38	15-18
TP12	G 1/8	9	19	16	15	4-6
TP13	G 1/4	9	19	16	15	4-6
TP14	G 3/8	9	22	16	17	8-10
TP15	G 1/2	11	26	18	20.5	8-10
TP16	G 3/4	12	32	20	25	10-12
TP17	G 1	13	38	22	31	12-15
TP18	G1¼	14	46	24	38	15-18
TP19	G1½	15	55	26	46	15-18

MB Series

The concept of the MB Series is that of a pressure/expand principle. Each plug consists of a ball, as the expanding element, and a cup-shaped expansion sleeve. Forcing the ball into the sleeve causes the sleeve to expand outward.
The serrations on the outside of the sleeve dig into the base material to provide a secure anchorage. The ball is set when it is flush with or slightly below the top of the sleeve. The top of the sleeve constricts slightly and prevents the ball from coming out.

Sidex - SK Series

The Sidex SK plug works on the pull/expand principle.
The plug consists of an expandable sleeve around a mandrel type expanding element. By applying an axial force to the mandrel while restraining the sleeve with a special tool, the sleeve is forced to radially expand, and the serrations on the outside of the sleeve anchor into the base material of the bore wall. Upon reaching a predetermined force, the mandrel breaks off and the plug is set.

LK Series

The LK Series works on the pull/expand principle. The plug consists of an expandable sleeve around a mandrel type expanding element. By applying an axial force to the mandrel, while restraining the sleeve with a special tool, the sleeve is forced to radially expand and the serration on the outside of the sleeve anchors in the bore of the base material due to the roughness of the hole. Upon reaching a predetermined force,the mandrel brakes off and the plug is set.

LP Series

Press fit and anchorage concept of the LP Series are achieved by a surface hardened but still flexible cup and cone shaped insertion sleeve. During the setting process, the flexible sleeve moulds into the hole configuration and the labyrinth serration on the outside of the sleeve anchors in the bore wall due to the roughness of the hole. The insertion sleeve is forced by its self locking cone shape, to radially brace and anchor in the material.

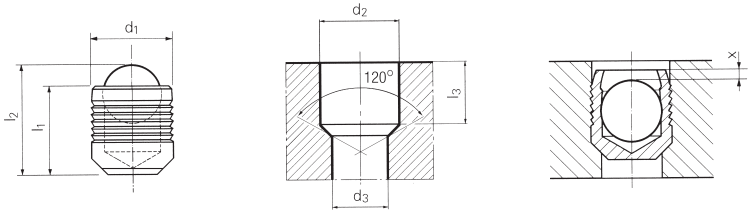
For more information on these products and installation and tools, please see the Boneham & Turner Koenig brochure.

MB 600 Series Sealing Plugs

Sleeve: Stainless Steel
DIN 1.4305, AISI 303
Hardness: HB = 220

Ball: Stainless Steel
DIN 1.4301, AISI 304

Sleeve and Ball clear passivated per MIL S 5002 Aerospace quality



Dimensions in mm							
Type	**d_1**	**l_1**	**l_2 -**	**d_2 + 0.1**	**d3 max.**	**l3 min.**	**x ±0.2**
MB 600-030	3.0	3.6	4.6	3.0	2.2	3.4	0.4
MB 600-040	4.0	4.0	5.2	4.0	3.3	3.8	0.2
MB 600-050	5.0	5.5	7.0	5.0	4.3	5.3	0.4
MB 600-060	6.0	6.5	8.6	6.0	5.3	6.3	0.4
MB 600-070	7.0	7.5	10.1	7.0	6.4	7.3	0.4
MB 600-080	8.0	8.5	11.7	8.0	7.4	8.3	0.3
MB 600-090	9.0	10.0	13.7	9.0	8.4	9.8	0.4
MB 600-100	10.0	11.0	15.2	10.0	9.4	10.8	0.4
MB 600-120	12.0	13.0	18.0	12.0	10.6	12.8	0.4
MB 600-140	14.0	15.0	20.8	14.0	12.7	14.5	0.4

Pressure Performance [1] Proof Pressure Test B [2] Maximum allowable working pressure = nominal pressure

	Base Material / Minimum Hardness HB						
	High Strength Stl ETG-100 AISI 1144	Free Machining Case Hard Stl. C15 Pb	Cast Iron GG-25 DIN 1691	Ductile Cast Iron GGG-50 DIN 1693 DIN 1.0403	Aluminium Alloy Al Cu Mg 2 DIN 3.1354 AA2024	Aluminium Alloy Al Mg Si Pb DIN 3.0615 AA6262	Cast Al Alloy G-Al Si 7 Mg 3.2371 AA356-T6
	280	180	160	170	120	90	80
d_1 mm	P Test B[1] Bar		PW[2] Bar			P Test B[1] Bar	PW[2] Bar
3-10	1400		450			1200	380
12-14	1000		350			900	280

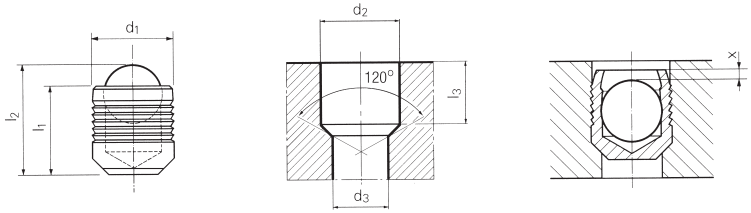
- Equivalent working pressure capability can be obtained when using base materials with similar mechanical characteristics. However, the appropriate installation instructions must be followed.
- Anchorage between sleeve and base material is achieved when the sleeve is a minimum of HB=30 greater than the base material. If the hardness difference is less, hole roughness of 10 to 30 μm is needed to achieve indicated working pressures.

Security Range
The security range (the difference between working pressure and Test **B** pressure) allows for uncontrollable variations. For instance, dynamic loading at 1 million cycles and a frequency of 3-4Hz has shown that burst pressure Test **A** and Test **B** pressure are reduced about 20% after this point.

Sleeve: Stainless Steel
DIN 1.4305, AISI 303
Hardness: HB = 220

Ball: Stainless Steel
DIN 1.4034, AISI 420 (.093" Dia.)
DIN 1.4301, AISI 304 (.125" to .281" Dia.)

Sleeve and ball clear passivated to MIL S 5002 Aerospace quality



Dimensions in inches							
Type	**d_1**	**l_1**	**l_2** -	**d_2**	**d3 max.**	**l3 min.**	**x**
MB 600-093 A	.093 ($^3/_{32}$")	.100	.120	.0937 $^{+.002}_{0}$	.062	.095	.0 to max .012
MB 600-125 A	.125 ($^1/_8$")	.138	.170	.1250 $^{+.004}_{0}$	.093	.125	
MB 600-156 A	.156 ($^5/_{32}$")	.150	.195	.1562 $^{+.004}_{0}$	.125	.130	
MB 600-187 A	.187 ($^3/_{16}$")	.193	.260	.1875 $^{+.004}_{0}$	.156	.152	
MB 600-218 A	.218 ($^7/_{32}$")	.225	.300	.2187 $^{+.004}_{0}$	.187	.187	
MB 600-250 A	.250 ($^1/_4$")	.260	.350	.2500 $^{+.004}_{0}$	.218	.212	
MB 600-281 A	.281 ($^9/_{32}$")	.285	.380	.2812 $^{+.004}_{0}$	.250	.250	

Pressure Performance [1] Proof Pressure Test B [2] Maximum allowable working pressure = nominal pressure

Base Material / Minimum Hardness HB							
	High Strength Stl ETG-100 AISI 1144	Free Machining Case Hard Stl. C15 Pb	Cast Iron GG-25 DIN 1691 DIN 1.0403	Ductile Cast Iron GGG-50 DIN 1693	Aluminium Alloy Al Cu Mg 2 DIN 3.1354 AA2024	Aluminium Alloy Al Mg Si Pb DIN 3.0615 AA6262	Cast Al Alloy G-Al Si 7 Mg 3.2371 AA356-T6
	280	180	160	170	120	90	80
d_1 mm	P Test B[1] Bar		PW[2] Bar			P Test B[1] Bar	PW[2] Bar
3/32 - 9/32	1400		450			1200	380

- Equivalent working pressure capability can be obtained when using base materials with similar mechanical characteristics. However, the appropriate installation instructions must be followed.
- Anchorage between sleeve and base material is achieved when the sleeve is a minimum of HB=30 greater than the base material. If the hardness difference is less, hole roughness of 10 to 30 μm is needed to achieve indicated working pressures.

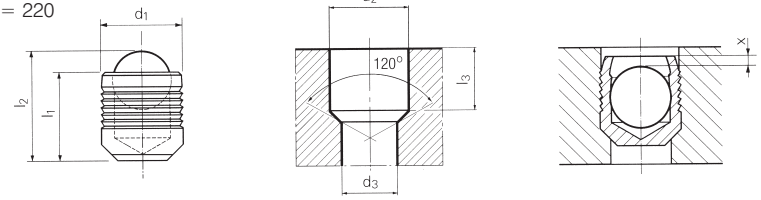
Security Range

The security range (the difference between working pressure and Test **B** pressure) allows for uncontrollable variations. For instance, dynamic loading at 1 million cycles and a frequency of 3-4Hz has shown that burst pressure Test **A** and Test **B** pressure are reduced about 20% after this point.

MB 700 Series Sealing Plugs

Sleeve: Stainless Steel
DIN 1.4305, AISI 303
Hardness: HB = 220

Ball: Bearing Steel. Heat treated



Dimensions in mm							
Type	**d_1**	**l_1**	**l_2 -**	**d_2 + 0.1**	**d3 max.**	**l3 min.**	**x ±0.2**
MB 700-030	3.0	3.6	4.6	3.0	2.2	3.4	0.4
MB 700-040	4.0	4.0	5.2	4.0	3.3	3.8	0.2
MB 700-050	5.0	5.5	7.0	5.0	4.3	5.3	0.4
MB 700-060	6.0	6.5	8.6	6.0	5.3	6.3	0.4
MB 700-070	7.0	7.5	10.1	7.0	6.4	7.3	0.4
MB 700-080	8.0	8.5	11.7	8.0	7.4	8.3	0.3
MB 700-090	9.0	10.0	13.7	9.0	8.4	9.8	0.4
MB 700-100	10.0	11.0	15.2	10.0	9.4	10.8	0.4
MB 700-120	12.0	13.0	18.0	12.0	10.6	12.8	0.4
MB 700-140	14.0	15.0	20.8	14.0	12.7	14.5	0.4
MB 700-160	16.0	17.0	23.7	16.0	14.7	16.5	0.6
MB 700-180	18.0	19.0	26.3	18.0	16.7	18.5	0.6
MB 700-200	20.0	22.0	30.5	20.0	18.7	21.5	0.8
MB 700-220	22.0	25.0	34.2	22.0	20.7	24.5	0.8

Pressure Performance [1] Proof Pressure Test B [2] Maximum allowable working pressure = nominal pressure

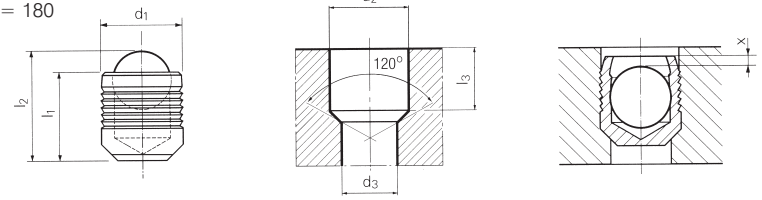
Base Material / Minimum Hardness HB							
	High Strength Stl ETG-100 AISI 1144	Free Machining Case Hard Stl. C15 Pb	Cast Iron GG-25 DIN 1691 DIN 1.0403	Ductile Cast Iron GGG-50 DIN 1693	Aluminium Alloy Al Cu Mg 2 DIN 3.1354 AA2024	Aluminium Alloy Al Mg Si Pb DIN 3.0615 AA6262	Cast Al Alloy G-Al Si 7 Mg 3.2371 AA356-T6
	280	180	160	170	120	90	80
d_1 mm	P Test B[1] Bar		PW[2] Bar			P Test B[1] Bar	PW[2] Bar
3-10	1400		450			1200	380
12-22	1150		350			900	280

- Equivalent working pressure capability can be obtained when using base materials with similar mechanical characteristics. However, the appropriate installation instructions must be followed.
- Anchorage between sleeve and base material is achieved when the sleeve is a minimum of HB=30 greater than the base material. If the hardness difference is less, hole roughness of 10 to 30 μm is needed to achieve indicated working pressures.

Security Range
The security range (the difference between working pressure and Test **B** pressure) allows for uncontrollable variations. For instance, dynamic loading at 1 million cycles and a frequency of 3-4Hz has shown that burst pressure Test **A** and Test **B** pressure are reduced about 20% after this point.

Sleeve: Case Hardened Steel
Passivated coating Cr6 free coating
Hardness: HB = 180

Ball: Bearing Steel. Heat treated



Dimensions in mm							
Type	**d_1**	**l_1**	**l_2 -**	**d_2 + 0.1**	**d3 max.**	**l3 min.**	**x ±0.2**
MB 850-030	3.0	3.6	4.6	3.0	2.2	3.4	0.4
MB 850-040	4.0	4.0	5.2	4.0	3.3	3.8	0.2
MB 850-050	5.0	5.5	7.0	5.0	4.3	5.3	0.4
MB 850-060	6.0	6.5	8.6	6.0	5.3	6.3	0.4
MB 850-070	7.0	7.5	10.1	7.0	6.4	7.3	0.4
MB 850-080	8.0	8.5	11.7	8.0	7.4	8.3	0.3
MB 850-090	9.0	10.0	13.7	9.0	8.4	9.8	0.4
MB 850-100	10.0	11.0	15.2	10.0	9.4	10.8	0.4
MB 850-120	12.0	13.0	18.0	12.0	10.6	12.8	0.4
MB 850-140	14.0	15.0	20.8	14.0	12.7	14.5	0.4
MB 850-160	16.0	17.0	23.7	16.0	14.7	16.5	0.6
MB 850-180	18.0	19.0	26.3	18.0	16.7	18.5	0.6
MB 850-200	20.0	22.0	30.5	20.0	18.7	21.5	0.8
MB 850-220	22.0	25.0	34.2	22.0	20.7	24.5	0.8

Pressure Performance [1] Proof Pressure Test B [2] Maximum allowable working pressure = nominal pressure

Base Material / Minimum Hardness HB							
	High Strength Stl ETG-100 AISI 1144	Free Machining Case Hard Stl. C15 Pb	Cast Iron GG-25 DIN 1691 DIN 1.0403	Ductile Cast Iron GGG-50 DIN 1693	Aluminium Alloy Al Cu Mg 2 DIN 3.1354 AA2024	Aluminium Alloy Al Mg Si Pb DIN 3.0615 AA6262	Cast Al Alloy G-Al Si 7 Mg 3.2371 AA356-T6
	280	180	160	170	120	90	80
d_1 mm	P Test B[1] Bar		PW[2] Bar			P Test B[1] Bar	PW[2] Bar
4-10	1100		350			1000	320
12-22	900		280			800	250

- Equivalent working pressure capability can be obtained when using base materials with similar mechanical characteristics. However, the appropriate installation instructions must be followed.
- Anchorage between sleeve and base material is achieved when the sleeve is a minimum of HB=30 greater than the base material. If the hardness difference is less, hole roughness of 10 to 30 μm is needed to achieve indicated working pressures.

Security Range

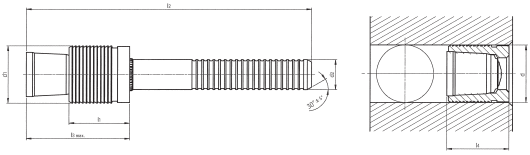
The security range (the difference between working pressure and Test **B** pressure) allows for uncontrollable variations. For instance, dynamic loading at 1 million cycles and a frequency of 3-4Hz has shown that burst pressure Test **A** and Test **B** pressure are reduced about 20% after this point.

Sidex-SK Series

Sleeve: Case Hardened Steel
DIN 1.0403 - AISI 10L 15
Gunmetal finish
Hardness: HB = 180

Mandrel: Heat Treated Forging Steel 1.7033. Cold Forged

This range (Forged Steel) replaces the HK range with the exception of 3mm HK030-CK55-111-AK



Sidex-SK Series

- Working pressure to 500 Bar (7,250 psi)
- Shorter installed length
- Larger working tolerances (0/+0.12mm)
- Installs directly into drilled holes
- Clean mechanical sealing through positive anchoring
- Quick installation using rivet type tools

Dimensions in mm							Bore Dia. d	
Type	d_1	l_1	d_2	l_2	l_3 max.	l_4 min.		
SK 550-F-040	4.0	4.5	2.50	39	9.0	6.5	4.0	+0.12 0
SK 550-F-050	5.0	5.5	3.00	41	10.0	7.5	5.0	
SK 550-F-060	6.0	6.5	3.40	43	12.0	8.0	6.0	
SK 550-F-070	7.0	7.5	4.10	43	14.0	9.0	7.0	
SK 550-F-080	8.0	8.5	4.20	40	15.0	10.5	8.0	
SK 550-F-090	9.0	9.5	4.50	43	17.0	11.0	9.0	
SK 550-F-100	10.0	10.5	4.75	45	19.0	12.5	10.0	

Pressure Performance [1] Proof Pressure Test B [2] Maximum allowable working pressure = nominal pressure

Base Material / Minimum Hardness HB							
	High Strength Stl ETG-100 AISI 1144	Free Machining Case Hard Stl. C15 Pb	Cast Iron GG-25 DIN 1691 DIN 1.0403	Ductile Cast Iron GGG-50 DIN 1693	Aluminium Alloy Al Cu Mg 2 DIN 3.1354 AA2024	Aluminium Alloy Al Mg Si Pb DIN 3.0615 AA6262	Cast Al Alloy G-Al Si 7 Mg 3.2371 AA356-T6
	280	180	160	170	120	90	80
d_1 mm	P Test B[1] Bar		PW[2] Bar			P Test B[1] Bar	PW[2] Bar
4-10	1600		500			1400	450

- Equivalent working pressure capability can be obtained when using base materials with similar mechanical characteristics. However, the appropriate installation instructions must be followed.
- If pressure is applied to both sides of the Sidex-SK plug, allowable working pressure on the insertion side is reduced by 50%.
- Anchorage between sleeve and base material is achieved when the sleeve is a minimum of HB=30 greater than the base material. If the hardness difference is less, hole roughness of 10 to 30 μm is needed to achieve indicated working pressures.

Security Range

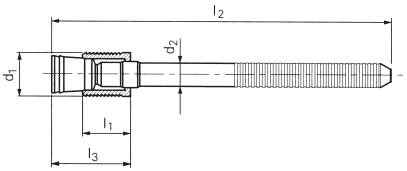
The security range (the difference between working pressure and Test **B** pressure) allows for uncontrollable variations. For instance, dynamic loading at 1 million cycles and a frequency of 3-4Hz has shown that burst pressure Test **A** and Test **B** pressure are reduced about 20% after this point.

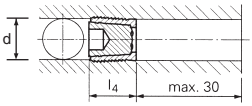
Sidex-SK Series. Long Mandrel Version

Sleeve: Case Hardened Steel
DIN 1.0403 - AISI 10L 15
Gunmetal finish
Hardness: HB = 180

Mandrel: Heat Treated Steel
- DIN 1.0728
Special oil film lubrication

One piece construction ideal for automated high production requirements. Forged long Mandrel type available upon request.

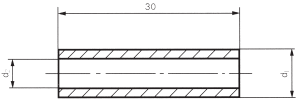


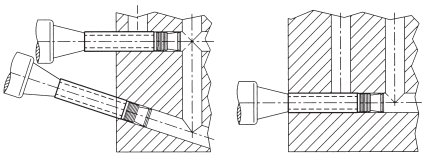


Special Type: Mandrel 30mm Longer

Dimensions in mm							
Type	**d_1**	**l_1**	**d_2**	**l_2**	**l_3 max.**	**l_4 min.**	**d +0.12**
SK552-040	4.0	4.5	2.50	69	9.0	6.5	4.0
SK552-050	5.0	5.5	3.00	71	10.0	7.5	5.0
SK552-060	6.0	6.5	3.40	73	12.0	8.0	6.0
SK552-070	7.0	7.5	4.10	68	14.0	9.0	7.0
SK552-080	8.0	8.5	4.20	70	15.0	10.5	8.0
SK552-090	9.0	9.5	4.50	73	17.0	11.0	9.0
SK552-100	10.0	10.5	4.75	75	19.0	12.5	10.0

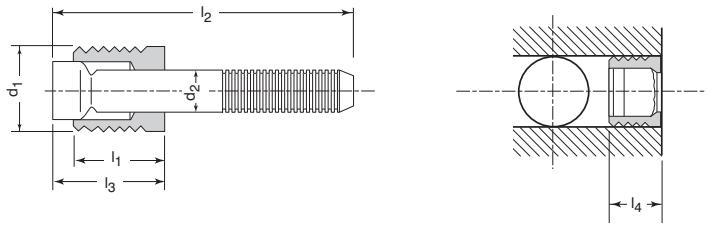
Spacers Sidex-SK





d_1	d_2	Type	Ref
4,0	2,7	4 x 30-SK	SK 552-040
5,0	3,2	5 x 30-SK	SK 552-050
6,0	3,7	6 x 30-SK	SK 552-060
7,0	4,6	7 x 30-SK	SK 552-070
8,0	4,8	8 x 30-SK	SK 552-080
9,0	5,2	9 x 30-SK	SK 552-090
10,0	5,6	10 x 30-SK	SK 552-100

LK Series.
Low Pressure Applications up to 60 bar



Sleeve: Case hardened steel DIN 1.0403, soft annealed, gun finish.
Mandrel: Free cutting steel or cold forming steel, plain finish, spec. oil film lubrication.

Type	d_1	l_1	d_2	l_2	l_3 max.	l_4 max.	Bore-Diameter	
LK 950-040	4.0	3.7	2.2	36	5.5	4.0	4.0	
LK 950-050	5.0	4.5	2.95	36	6.9	4.8	5.0	
LK 950-060	6.0	5.0	3.4	36	7.4	5.3	6.0	
LK 950-070	7.0	5.5	4.2	34	8.0	5.8	7.0	+0.12
LK 950-080	8.0	6.5	4.3	34	9.8	6.8	8.0	0
LK 950-090	9.0	6.5	4.7	34	9.8	6.8	9.0	
LK 950-100	10.0	6.5	5.1	36	9.8	6.8	10.0	
LK 950-120	12.0	7.5	5.9	36	10.8	7.8	12.0	

Also available LK950-160 16mm forged mandrel or turned on low quantities

Sleeve: Stainless steel DIN 1.4305, AISI 303, plain finish, special oil film lubrication.
Mandrel: Stainless steel, plain finish. LK600 now available upon application.

Type	d_1	l_1	d_2	l_2	l_3 max.	l_4 max.	Bore-Diameter	
LK 600-040	4.0	3.7	2.2	36	5.5	4.0	4.0	
LK 600-050	5.0	4.5	2.95	36	6.9	4.8	5.0	
LK 600-060	6.0	5.0	3.4	36	7.4	5.3	6.0	
LK 600-070	7.0	5.5	4.2	34	8.0	5.8	7.0	+0.12
LK 600-080	8.0	6.5	4.3	34	9.8	6.8	8.0	0
LK 600-090	9.0	6.5	4.7	34	9.8	6.8	9.0	
LK 600-100	10.0	6.5	5.1	36	9.8	6.8	10.0	
LK 600-120	12.0	7.5	5.9	36	10.8	7.8	12.0	

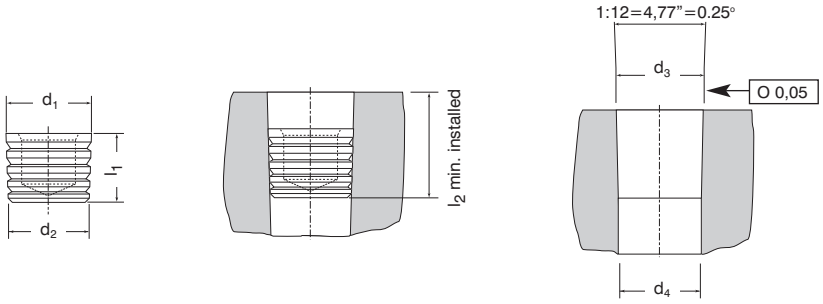
Pressure Performance

Series LK	ETG-100 AISI 1144	C15Pb 1.0403	GG-25 DIN 1691	GGG-50 DIN 1693	AlCuMg2 3.1354	AlMgSiPb 3.0615	G-AlSi7Mg 3.2371
d_1 mm	P Test (B) (1) Pressure			PB (2) Pressure		P Test (B)(1)	PB (2)
4-12	180 bar			60 bar		180 bar	60 bar

1) Proof Pressure
2) Max. allowable working pressure

- Controlled, low stress installation
- Completely mechanical sealing
- Application for metals and plastics
- Direct installation in hydraulic through holes

Material Free Cutting Steel
DIN 1.0718, nitrocarburized



Type	d_1	d_2	l_1 min.	d_3 +0.1 -0.3	d_4 min.	l_2
LP 900-040	4.4	3.7	5	4.55	4	7
LP 900-050	5.4	4.7	6	5.55	5	8.0
LP 900-060	6.4	5.7	6	6.55	6	8.5
LP 900-070	7.4	6.7	6	7.55	7	8.5
LP 900-080	8.45	7.7	7	8.6	8	9.5
LP 900-090	9.6	9.0	7.5	9.75	9	10.0
LP 900-100	10.65	10.0	8.5	10.8	10	11.0
LP 900-120	12.75	12.0	9.5	12.9	12	12.0

Pressure Performance

Series LP	ETG-100 AISI 1144	C15Pb 1.0403	GG-25 DIN 1691	GGG-50 DIN 1693	AlCuMg2 3.1354	AlMgSiPb 3.0615	G-AlSi7Mg 3.2371
d_1 mm	P Test (B) [1] Pressure			PB [2] Pressure		P Test (B)[1]	PB [2]
4-12	180 bar			60 bar		180 bar	60 bar

1) Proof Pressure
2) Max. allowable working pressure

- Press fit, grooved, labyrinth sealing surface
- Direct installation in hydraulic through holes
- Ideal for automated installation
- Applicable for metals and plastics

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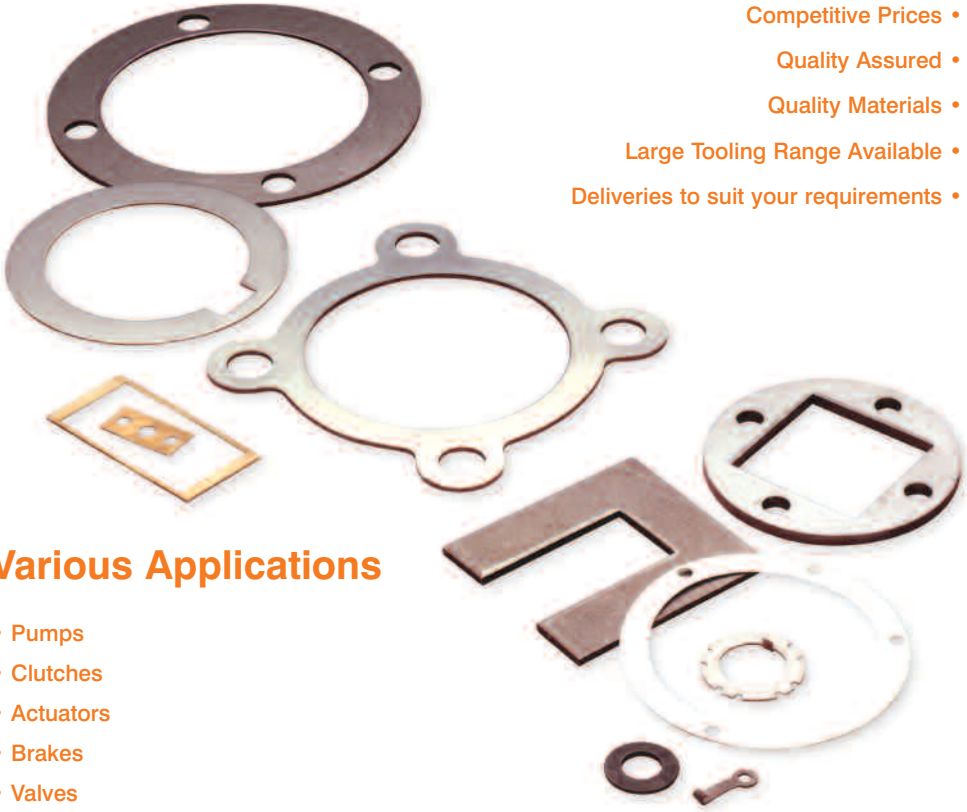

Various Applications

- Pumps
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- Compressors
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- Gear Boxes

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1 GENERAL

(a) Save as otherwise agreed in writing by Boneham & Turner Limited ('The Company'), these conditions shall govern the contract to the entire exclusion of any other express or implied conditions.

(b) Descriptions, illustrations and particulars of goods contained in the Company's price lists catalogues or other advertising material shall not form part of the contract unless specifically included.

(c) If the goods required for any special use not reasonably to be inferred by the Company, the customer shall disclose such use before the Contract is entered into.

2 PERFORMANCE

(a) The Company warrants that the goods shall at the time of delivery correspond with the specifications agreed (subject to any specified tolerance limits) and be free from defects in workmanship and materials. If any goods do not conform to this warranty the Company will at its option:-

(i) replace the goods found not to conform to the warranty or

(ii) take such steps as the Company deems necessary to bring goods into conformity with the agreed specifications (subject as aforesaid) and into a state where they are free from such defects; or

(iii) take back the goods found not to conform to the warranty and refund the appropriate part of the purchase price.

Provided that the liability of the Company shall in no event exceed the purchase price of the goods, and performance of any one of the above options shall constitute an entire discharge of the Company's liability under this warranty.

(b) The foregoing warranty is conditional upon:-

(i) the customer giving notice to the Company of the alleged defect or failure to correspond with specification immediately the customer discovers or ought to have discovered the same;

(ii) the customer affording the Company a reasonable opportunity to inspect the goods; and

(iii) the customer making no further use of the goods that are alleged to be defective or which do not correspond with specification after the time agreed the customer discovers or ought to have discovered the same.

(c) Save as provided in paragraph (a) of this Condition:-

(i) all conditions and warranties, express or implied, as to the quality or fitness for any purpose of the goods are hereby expressly excluded; and

(ii) the Company shall be under no liability for any loss or damage (whether direct, indirect or consequential) howsoever arising which may be suffered by the customer.

(d) in the event that, notwithstanding the foregoing provisions of this Condition, the Company is found liable for any loss or damage suffered by the customer, that liability shall in no event exceed the purchase price of the goods.

(e) The foregoing provisions of this Condition shall not apply to sales which are made to persons who deal as consumers (as the expression is defined in Section 12 of the Unfair Contract Terms Act 1977).

3 PRICE

(a) The price payable for each consignment of goods exstock will be the Company's list price last published on the date on which that consignment is delivered to the customer.

(b) In the case of goods which are not exstock the Company reserves the right to increase the contract price at any time after the date of the contract by such additional sums as may from time to time be necessary to cover increased costs due to:-

(i) alteration of the customer's requirements;

(ii) suspension of work due to lack of or on the customer's instructions;

(iii) any variation in costs of materials, labour, overheads or transport, or in conforming to any Act of Parliament or Order, Regulation or bye-laws made by any competent National or Local Authority arising after the date of the contract. Further in the case of specials the Company shall be entitled to deliver up to 110% of the quantity ordered and to increase the contract price accordingly.

(c) The contract price is exclusive of Value Added Tax or any similar taxes, levies or duties, which will be added to or charged on invoices at the appropriate rate.

(d) There is no minimum order value, but credit sales of goods having a total net value (exclusive of VAT, carriage, packing or postage) will be subject to an administration charge to cover the relatively high cost of processing such orders. See catalogue for details.

4 PAYMENT

Unless otherwise agreed in writing, the customer shall pay for the goods by cash on delivery. Where an order is designated as a credit order, payment shall be made on or before the tenth day of the month following the month of the invoice date. If the customer fails to make any payment in accordance with the agreed terms, the Company shall be entitled to charge interest at the rate of 3% per annum over the base rate of National Westminster Bank Limited on a day to day basis for the time being an all overdue payments.

Terms & Conditions

5 DELIVERY

(a) A date or period of delivery agreed by the Company shall be an estimate only. Every effort will be made to adhere to delivery dates, but the Company accepts no liability for any direct or any consequential loss or damage arising from delay in delivery or despatch, in particular where such delay is caused by lack of instructions from the customer, strikes, lock-outs, other industrial action, failure of the Company's suppliers to fulfil their obligations, or any other cause beyond the Company's reasonable control.

(b) Unless otherwise stated, the price quoted is for the supply of the goods exworks and unpacked. All packing, postage and other costs of delivery, and costs of storage following any failure by the customer to take delivery, will be subject to an extra charge.

(c) If the customer being a company shall pass a resolution or suffer an order of a court to be made for its winding-up, or if a receiver shall be appointed, or being an individual or partnership shall suspend payment or propose or enter into any composition with creditors or suffer a receiving order in bankruptcy, then the Company may without prejudice to any other right rescind the contract, or suspend or cancel delivery or recover the possession of any goods for which payment in full has not been received.

6 RISK AND PROPERTY

(a) The risk in the goods shall pass to the customer upon delivery of the goods to him or any carrier acting on his behalf.

(b) The property in the goods shall not pass to the customer until the price of the goods and any other goods delivered by the Company to the customer is paid.

In the event of the customer failing to pay for the goods, then all such goods of the Company not paid for shall be handed over to the Company on demand and the Company is hereby granted a licence to enter into the customer's premises for the purposes of recovering such property.

Without prejudice to the generality of the foregoing, if the said goods are sold by the customer then the Company's beneficial interest shall attach to any proceeds of such sale and the customer shall forthwith hand over to the Company any proceeds of such sale and the Company shall be entitled to call upon the customer to assign all claims that the customer may have in respect of such sale.

7 COPYRIGHT

All designs, drawings, plans or models prepared by the Company for the customer's information remain the Company's property and copyright, and neither they nor any copies thereof must be made use of by any person without the Company's written consent. In respect of any goods supplied to the customer the design or specification whereof shall have been supplied by the customer, the customer accepts responsibility for any claims which may arise in respect of the making, supplying or using for the purposes of the contract of any patented invention or process or registered design, and the customer agrees to indemnify the company against any action, claim or proceeding for infringement or alleged infringement in respect thereof.

8 CANCELLATION

Contracts are not subject to cancellation without the Company's written consent. Where cancellation is accepted, the Company shall in addition to any express terms of acceptance of cancellation be entitled to reimbursement of any costs incurred by the Company in connection with the contract.

9 FORCE MAJEURE

The Company shall have the right to cancel or to reduce the volume of the goods delivered if it is prevented from or hindered in delivering the goods through any circumstances beyond its control including (but not limited to) industrial action, war , fire, or prohibition or enactment of any kind, without incurring any liability for any loss or damage whatsoever resulting therefrom.

10 ARBITRATION

At the option of either party in writing, any question, dispute or difference arising between the Company and the customer in relation to the contract shall be referred to the arbitration in England of a person to be mutually agreed upon, or failing arrangement of some person appointed by the London Chamber of Commerce and Industry and the City Corporation in accordance with, and subject to the provisions of the Arbitration Act 1934 or any statutory modifications or re-enactment thereof.

11 LOSS OR DAMAGE IN TRANSIT

Where the price includes delivery other than at our works we will repair or at our option replace free of charge within a reasonable time all goods lost or damaged in transit, provided we are given written notice of such loss or damage within such time as will enable us to comply with the carriers conditions of carriage or where delivery is made by our own transport within seven days (exclusive of Public Holidays) after receipt of the Advice Note. If so requested by you prior to the despatch of the goods we will notify you of the name and address of the carrier (if any) and any time limit laid down by such carriers conditions of carriage.

12 GOVERNING LAW

The contract shall be governed by English Law.

NOTE:The Company's prices are calculated on the basis that the above Conditions will apply. Customers requiring prices to be quoted on a different basis should inform the Company. Information regarding any of our components that bears reference to the Health and Safety at Work Act 1974 will be available upon request.

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Boneham and Turner Ltd

the precision engineers

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