3 CLAMPING ELEMENTS

Nuts for T-Slots • DIN 508

EH 23010.

PRODUCT DESCRIPTION

Material

- Heat-treated steel, quality 8, bright
- Heat-treated steel, tempered, quality 10, blackened
- Stainless steel 1.4301

Assembly

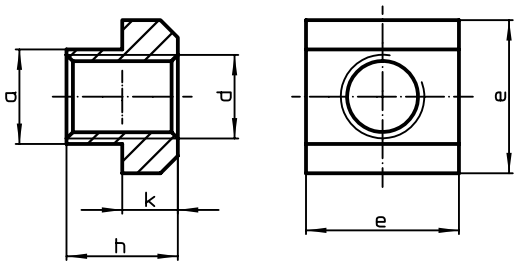
The entire loading capacity of the T-nut can only be applied if the screwing is guaranteed to be made over the total thread length of the T-nut.

MORE INFORMATION

Notes

Special types on request.

DRAWING



ORDER INFORMATION

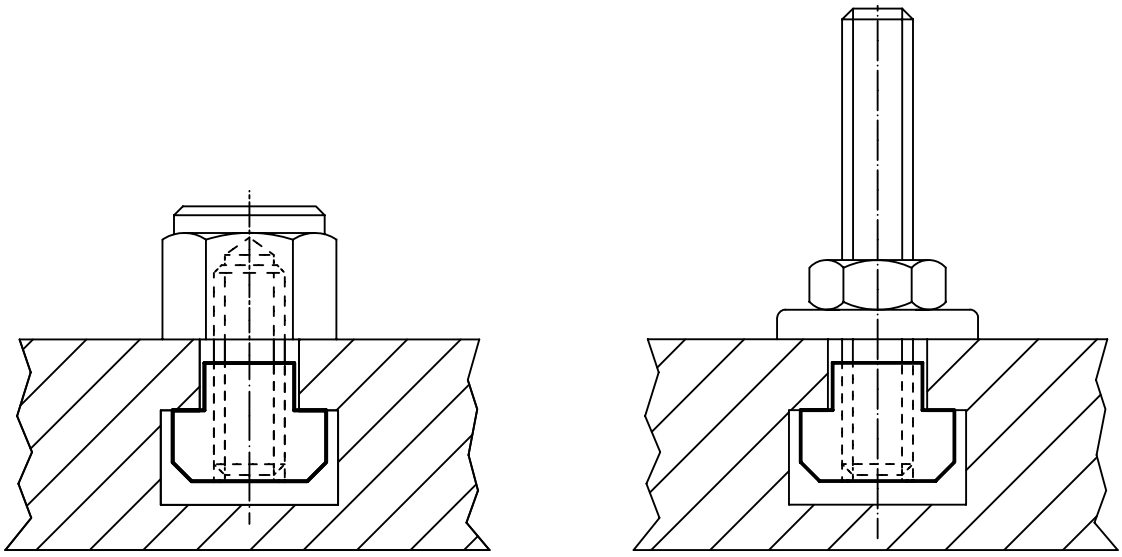
T-slot size	Dimensions					For T-slots DIN 650	Testing force to DIN 508 F min.		Art. No.		
	d	a	e	h	k				heat-treated steel, quality 8, bright	heat-treated steel, tempered, quality 10, blackened	stainless steel 1.4301
[mm]	[mm]					[mm]	[kN]	[g]			
5	M 4	4,6	9	6,5	3	5	7,0	2,3	23010.0051	23010.0052	–
6	M 5	5,6	10	8,0	4	6	11,4	3,4	23010.0061	23010.0062	–
8	M 6	7,6	13	10,0	6	8	16,0	8,3	23010.0081	23010.0082	23010.0721
10	M 6	9,6	15	12,0	6	10	16,0	14,0	23010.0103[1)]	23010.0104[1)]	–
	M 8	9,6	15	12,0	6	10	29,0	13,0	23010.0101	23010.0102	23010.0731
12	M 8	11,6	18	14,0	7	12	29,0	23,0	23010.0123[1)]	23010.0124[1)]	–
	M10	11,6	18	14,0	7	12	46,0	20,0	23010.0121	23010.0122	23010.0741
14	M 6	13,6	22	16,0	8	14	16,0	46,0	–	23010.0146[1)]	–
	M 8	13,6	22	16,0	8	14	29,0	41,0	–	23010.0145[1)]	–
	M10	13,6	22	16,0	8	14	46,0	37,0	23010.0143[1)]	23010.0144[1)]	–
	M12	13,6	22	16,0	8	14	67,0	34,0	23010.0141	23010.0142	23010.0751
16	M 8	15,6	25	18,0	9	16	29,0	62,0	–	23010.0166[1)]	–
	M10	15,6	25	18,0	9	16	46,0	59,0	–	23010.0165[1)]	–
	M12	15,6	25	18,0	9	16	67,0	54,0	23010.0163[1)]	23010.0164[1)]	–
	M14	15,6	25	18,0	9	16	–	49,0	23010.0161[1)]	23010.0162[1)]	23010.0761[1)]
18	M 8	17,6	28	20,0	10	18	29,0	89,0	–	23010.0187[1)]	–
	M10	17,6	28	20,0	10	18	46,0	85,0	–	23010.0186[1)]	–
	M12	17,6	28	20,0	10	18	67,0	80,0	–	23010.0185[1)]	–
	M14	17,6	28	20,0	10	18	–	74,0	23010.0183[1)]	23010.0184[1)]	–
	M16	17,6	28	20,0	10	18	128,0	68,0	23010.0181	23010.0182	23010.0781
20	M12	19,6	32	24,0	12	20	67,0	131,0	–	23010.0205[1)]	–
	M16	19,6	32	24,0	12	20	128,0	116,0	23010.0203[1)]	23010.0204[1)]	–
	M18	19,6	32	24,0	12	20	–	108,0	23010.0201[1)]	23010.0202[1)]	–

[1)] DIN standards do not include these dimensions.

T-slot size	Dimensions					For T-slots DIN 650	Testing force to DIN 508 F min.		Art. No.		
	d	a	e	h	k				heat-treated steel, quality 8, bright	heat-treated steel, tempered, quality 10, blackened	stainless steel 1.4301
[mm]	[mm]					[mm]	[kN]	[g]			
22	M12	21,6	35	28,0	14	22	67,0	189,0	–	23010.0225[1]	–
	M16	21,6	35	28,0	14	22	128,0	172,0	–	23010.0226[1]	–
	M18	21,6	35	28,0	14	22	–	163,0	23010.0223[1]	23010.0224[1]	–
	M20	21,6	35	28,0	14	22	196,0	149,0	23010.0221	23010.0222	–
24	M16	23,6	40	32,0	16	24	128,0	262,0	–	23010.0246[1]	–
	M20	23,6	40	32,0	16	24	196,0	237,0	23010.0243[1]	23010.0244[1]	–
	M22	23,6	40	32,0	16	24	–	221,0	23010.0241[1]	23010.0242[1]	–
28	M16	27,6	44	36,0	18	28	128,0	375,0	–	23010.0286[1]	–
	M20	27,6	44	36,0	18	28	196,0	360,0	–	23010.0284[1]	–
	M22	27,6	44	36,0	18	28	–	333,0	–	23010.0283[1]	–
	M24	27,6	44	36,0	18	28	282,0	330,0	23010.0281	23010.0282	–
32	M27	31,5	50	40,0	20	32	–	460,0	–	23010.0322[1]	–
36	M24	35,5	54	44,0	22	36	282,0	600,0	–	23010.0364[1]	–
	M30	35,5	54	44,0	22	36	448,0	585,0	23010.0361	23010.0362	–
42	M36	41,5	65	52,0	26	42	653,0	1000,0	23010.0421	23010.0422	–
48	M42	47,5	75	60,0	30	48	653,0	1500,0	23010.0481	23010.0482	–
54	M48	53,4	85	70,0	34	54	653,0	2100,0	23010.0541	23010.0542	–

[1] DIN standards do not include these dimensions.

APPLICATION EXAMPLE



Nuts for T-Slots • DIN 508, semi-finished

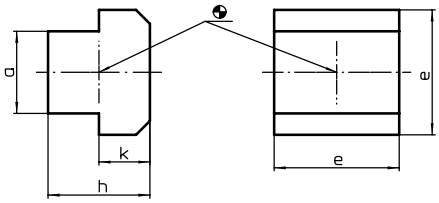
EH 23010.

PRODUCT DESCRIPTION

Material

- Heat-treated steel, bright
- Stainless steel 1.4301

DRAWING



ORDER INFORMATION

T-slot size	Dimensions					Art. No.	
	a	e	h	k		Heat-treated steel	stainless steel
[mm]	[mm]				[g]		
6	5,6	10	8	4	4	23010.0060	–
8	7,6	13	10	6	10	23010.0080	23010.0720
10	9,6	15	12	6	17	23010.0100	23010.0730
12	11,6	18	14	7	27	23010.0120	23010.0740
14	13,6	22	16	8	46	23010.0140	23010.0750
16	15,6	25	18	9	68	23010.0160[1)]	23010.0760[1)]
18	17,6	28	20	10	95	23010.0180	23010.0780
20	19,6	32	24	12	149	23010.0200[1)]	–
22	21,6	35	28	14	210	23010.0220	–
24	23,6	40	32	16	300	23010.0240[1)]	–
28	27,6	44	36	18	430	23010.0280	–
32	31,5	50	40	20	580	23010.0320[1)]	–
36	35,5	54	44	22	800	23010.0360	–
42	41,5	65	52	26	1250	23010.0420	–
48	47,5	75	60	30	1900	23010.0480	–
54	53,4	85	70	34	2600	23010.0540	–

[1)] DIN standards do not include these dimensions.

Nuts for T-Slots • DIN 508 with slip protection

EH 23010.

PRODUCT DESCRIPTION

The spring element avoids vertical and horizontal slipping of T-nut.

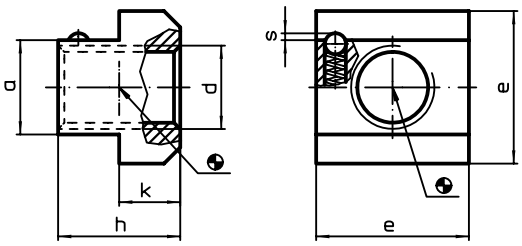
Material

Ball
- Ball-bearing steel, hardened

T-nut
- Heat-treated steel, tempered, quality 10, blackened

Spring
- Stainless steel

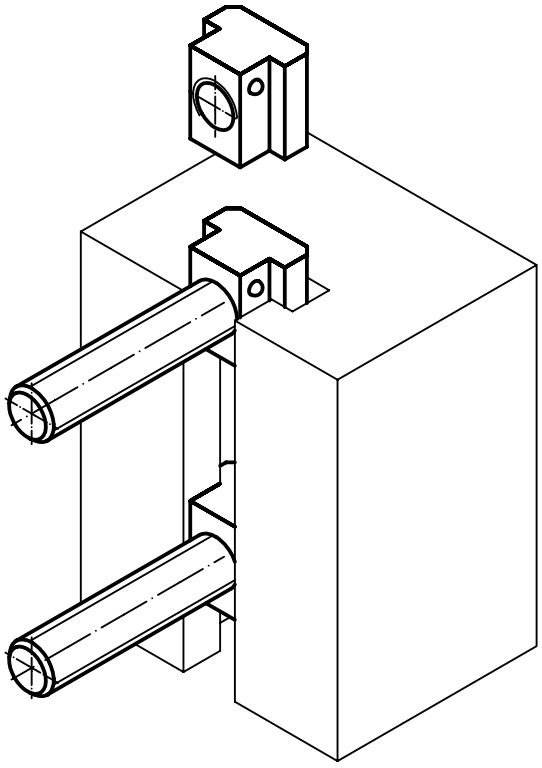
DRAWING



ORDER INFORMATION

T-slot size	Dimensions							Art. No.
	d	a	e	h	k	s		
[mm]	[mm]						[g]	
10	**M 8**	9,6	15	12	6	0,65	12	23010.0811
12	**M10**	11,6	18	14	7	0,80	20	23010.0813
14	**M12**	13,6	22	16	8	0,90	33	23010.0815
18	**M16**	17,6	28	20	10	1,00	67	23010.0819
22	**M20**	21,6	35	28	14	1,60	148	23010.0823

APPLICATION EXAMPLE



Nuts for T-Slots • extended

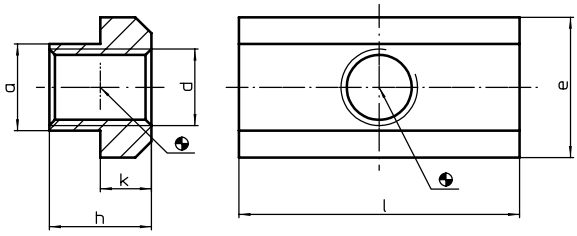
EH 23020.

PRODUCT DESCRIPTION

Material

- Heat-treated steel, tempered, quality 10, blackened

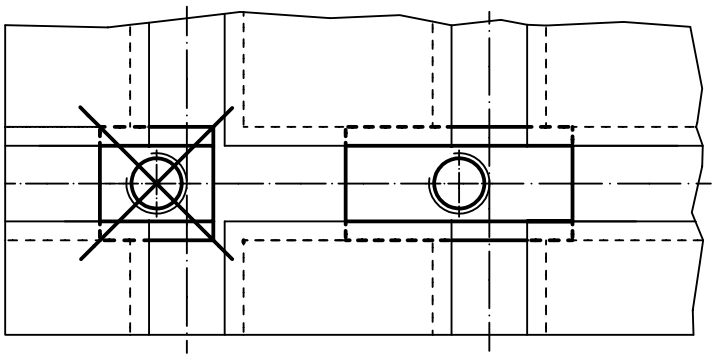
DRAWING



ORDER INFORMATION

T-slot size	Dimensions							Art. No.
	d	a	e	l	h	k		
[mm]	[mm]						[g]	
6	M 5	5,6	10	20	8	4	8	23020.0060
8	M 6	7,6	13	26	10	6	19	23020.0080
10	M 8	9,6	15	30	12	6	29	23020.0100
12	M10	11,6	18	36	14	7	48	23020.0120
14	M 6	13,6	22	44	16	8	95	23020.0146
	M12	13,6	22	44	16	8	81	23020.0140
16	M14	15,6	25	50	18	9	118	23020.0160
18	M16	17,6	28	56	20	10	164	23020.0180
20	M18	19,6	32	64	24	12	257	23020.0200
22	M20	21,6	35	70	28	14	359	23020.0220
28	M24	27,6	44	88	36	18	741	23020.0280
36	M30	35,5	54	108	44	22	1394	23020.0360

APPLICATION EXAMPLE



Nuts for T-Slots • rhombus

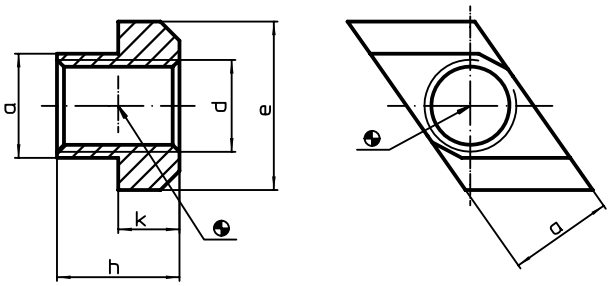
EH 23020.

PRODUCT DESCRIPTION

Material

- Heat-treated steel, tempered, blackened

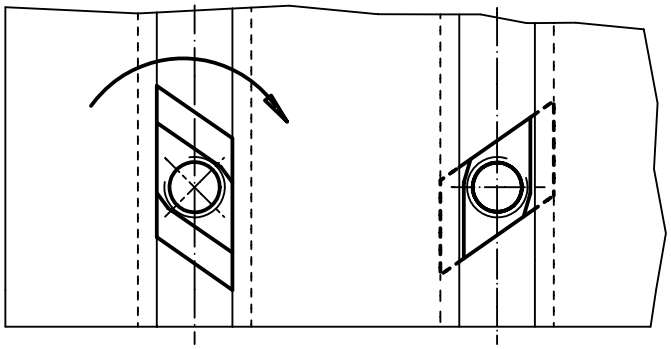
DRAWING



ORDER INFORMATION

T-slot size	Dimensions						Art. No.
	d	a	e	h	k		
[mm]			[mm]			[g]	
6	M 5	5,7	10	8	4	2,1	23020.0560
8	M 6	7,6	13	10	6	5,4	23020.0580
10	M 8	9,6	15	12	6	8,8	23020.0600
12	M10	11,6	18	14	7	14,0	23020.0620
14	M12	13,6	22	16	8	23,0	23020.0640
16	M14	15,6	25	18	9	33,0	23020.0660
18	M16	17,6	28	20	10	46,0	23020.0680
20	M18	19,6	32	24	12	69,0	23020.0700
22	M20	21,6	35	28	14	98,0	23020.0720
28	M24	27,6	44	36	18	213,0	23020.0780
36	M30	35,5	54	44	22	423,0	23020.0860
42	M36	41,5	65	52	26	676,0	23020.0920

APPLICATION EXAMPLE



Nuts for T-Slots • rhombus, semi-finished

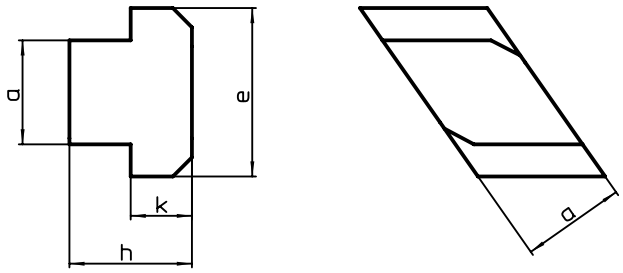
EH 23020.

PRODUCT DESCRIPTION

Material

- Heat-treated steel, bright

DRAWING



ORDER INFORMATION

T-slot size	Dimensions					Art. No.
	a	e	h	k		
[mm]	[mm]				[g]	
6	5,7	10	8	4	3	23020.0561
8	7,6	13	10	6	7	23020.0581
10	9,6	15	12	6	13	23020.0601
12	11,6	18	14	7	21	23020.0621
14	13,6	22	16	8	35	23020.0641
16	15,6	25	18	9	52	23020.0661
18	17,6	28	20	10	73	23020.0681
20	19,6	32	24	12	110	23020.0701
22	21,6	35	28	14	158	23020.0721
28	27,6	44	36	18	324	23020.0781
36	35,5	54	44	22	635	23020.0861

T-Bolts • DIN 787

EH 23030.

PRODUCT DESCRIPTION

T-bolts when combined with DIN 6330 fixture nuts (EH 23070.) and DIN 6340 plain washers (EH 23060.) become complete clamping bolts.

Material

- Heat-treated steel, black, forged, T-slot guidance milled

MORE INFORMATION

Notes

Special types on request.

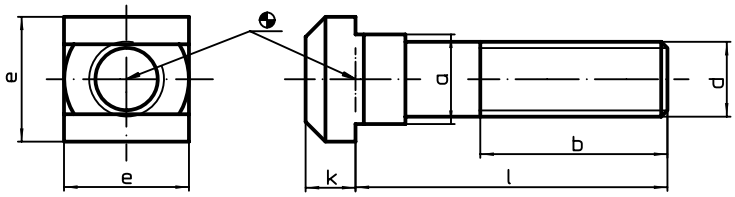
References

For torques and strengths please refer to appendix - Technical Data -

Further products

Shaft / Plain Washers, DIN 6340 heat-treated . . . . . → p. 380
Fixture Nuts, DIN 6330 (height 1,5 d) . → p. 383

DRAWING



ORDER INFORMATION

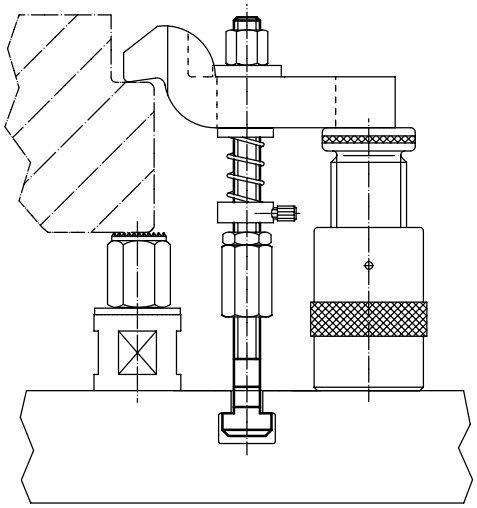
T-slot size	Dimensions							Art. No.
	d	l	a	b	e	k		
[mm]	[mm]						[g]	
quality 10.9								
6	**M 6**	**25**	5,6	15	10	4	8	23030.0061
		40	5,6	28	10	4	10	23030.0062
		63	5,6	40	10	4	14	23030.0063
8	**M 8**	**32**	7,6	22	13	6	19	23030.0081
		50	7,6	35	13	6	25	23030.0082
		80	7,6	50	13	6	34	23030.0083
10	**M10**	**40**	9,6	30	15	6	32	23030.0101
		63	9,6	45	15	6	44	23030.0102
		100	9,6	60	15	6	62	23030.0103
12	**M12**	**50**	11,6	35	18	7	57	23030.0121
		63	11,6	40	18	7	66	23030.0125[1)]
		80	11,6	55	18	7	79	23030.0122
		125	11,6	75	18	7	111	23030.0123
		160	11,6	100	18	7	136	23030.0126
		200	11,6	120	18	7	164	23030.0124
14	**M12**	**50**	13,6	35	22	8	76	23030.0141
		63	13,6	45	22	8	85	23030.0145[1)]
		80	13,6	55	22	8	97	23030.0142
		125	13,6	75	22	8	129	23030.0143
		160	13,6	100	22	8	154	23030.0146
		200	13,6	120	22	8	182	23030.0144

[1)] DIN standards do not include these dimensions.

→

T-slot size	Dimensions							Art. No.
	d	l	a	b	e	k		
[mm]	[mm]						[g]	
quality 8.8								
16	**M14**	**63**	15,6	45	25	9	118	23030.0150[1)]
		100	15,6	65	25	9	154	23030.0152[1)]
		160	15,6	100	25	9	213	23030.0154[1)]
		250	15,6	150	25	9	301	23030.0156[1)]
	M16	**63**	15,6	45	25	9	136	23030.0161[1)]
		80	15,6	55	25	9	158	23030.0165[1)]
		100	15,6	63	25	9	185	23030.0162[1)]
		160	15,6	100	25	9	263	23030.0163[1)]
		200	15,6	125	25	9	315	23030.0166[1)]
		250	15,6	150	25	9	381	23030.0164[1)]
18	**M16**	**63**	17,6	45	28	10	162	23030.0181
		80	17,6	55	28	10	184	23030.0185[1)]
		100	17,6	63	28	10	210	23030.0182
		160	17,6	100	28	10	289	23030.0183
		200	17,6	125	28	10	340	23030.0186[1)]
		250	17,6	150	28	10	407	23030.0184
20	**M20**	**80**	19,6	55	32	12	278	23030.0201[1)]
		100	19,6	65	32	12	320	23030.0205[1)]
		125	19,6	85	32	12	370	23030.0202[1)]
		160	19,6	100	32	12	442	23030.0206[1)]
		200	19,6	125	32	12	523	23030.0203[1)]
		250	19,6	150	32	12	624	23030.0207[1)]
		315	19,6	190	32	12	758	23030.0204[1)]
22	**M20**	**80**	21,6	55	35	14	330	23030.0221
		100	21,6	65	35	14	371	23030.0225[1)]
		125	21,6	85	35	14	422	23030.0222
		160	21,6	100	35	14	494	23030.0226[1)]
		200	21,6	125	35	14	576	23030.0223
		250	21,6	150	35	14	678	23030.0227[1)]
		315	21,6	190	35	14	800	23030.0224
28	**M24**	**100**	27,6	70	44	18	639	23030.0281
		125	27,6	85	44	18	713	23030.0285[1)]
		160	27,6	110	44	18	814	23030.0282
		315	27,6	190	44	18	1275	23030.0287
		250	27,6	150	44	18	1082	23030.0283
		200	27,6	125	44	18	936	23030.0286[1)]
		400	27,6	240	44	18	1496	23030.0284[1)]
36	**M30**	**125**	35,5	80	54	22	1203	23030.0361
		200	35,5	135	54	22	1562	23030.0362
		315	35,5	200	54	22	2061	23030.0363
		500	35,5	300	54	22	2959	23030.0364
42	**M36**	**160**	41,5	100	65	26	2167	23030.0421
		250	41,5	175	65	26	2779	23030.0422
		400	41,5	250	65	26	3789	23030.0423
		600	41,5	340	65	26	5500	23030.0424[1)]

[1)] DIN standards do not include these dimensions.



Studs • DIN 6379 for T-nuts

EH 23040.

PRODUCT DESCRIPTION

Studs combined with T-nuts DIN 508 (EH 23010./23020.), fixture nuts DIN 6330 (EH 23070.) and plain washers DIN 6340 (EH 23060.) become complete clamping studs.

Material

- Heat-treated steel

MORE INFORMATION

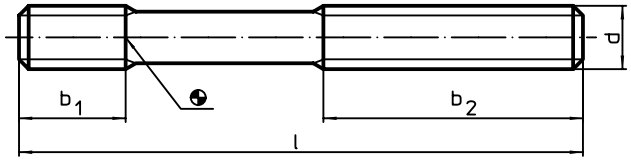
References

For torques and strengths please refer to appendix - Technical Data -
Studs for T-nuts with elongated dimension b_1 also available.

Further products

Nuts for T-Slots, DIN 508 . . . . . → p. 362
Studs, DIN 6379 b_1 long for T-nuts . . . → p. 373
Studs, with internal hexagon, similar to DIN 6379, for T-nuts . . . . . → p. 374
Shaft / Plain Washers, DIN 6340 heat-treated . . . . . → p. 380
Fixture Nuts, DIN 6330 (height 1,5 d) . → p. 383

DRAWING



ORDER INFORMATION

d	Dimensions l	b_1	b_2	[g]	Art. No.
	[mm]				
quality 10.9					
M 6	**32**	9	16	5	23040.0061[1]
	50	9	30	8	23040.0062
	63	9	40	11	23040.0064[1]
	80	9	50	13	23040.0063
M 8	**40**	11	20	12	23040.0081
	63	11	40	19	23040.0082
	100	11	63	31	23040.0083
	160	11	100	49	23040.0084[1]
M10	**50**	13	25	24	23040.0101
	80	13	50	39	23040.0102
	100	13	75	50	23040.0106[1]
	125	13	75	61	23040.0103
	160	13	100	78	23040.0105[1]
	200	13	122[2]	98	23040.0104
M12	**50**	15	25	35	23040.0121
	63	15	32	44	23040.0122[1]
	80	15	50	56	23040.0123
	100	15	63	70	23040.0124[1]
	125	15	75	88	23040.0125
	160	15	100	112	23040.0127[1]
	200	15	122[2]	141	23040.0126

[1] DIN standards do not include these dimensions.
[2] Dimension differ from DIN standard.

→

d	Dimensions l [mm]	b_1 [mm]	b_2 [mm]	[g]	Art. No.
quality 8.8					
M14	**63**	17	32	60	23040.0141[1]
	100	17	63	96	23040.0142[1]
	160	17	100	154	23040.0143[1]
	250	17	160	241	23040.0144[1]
M16	**63**	19	32	80	23040.0161
	80	19	50	103	23040.0162[1]
	100	19	63	129	23040.0163
	125	19	75	162	23040.0164[1]
	160	19	100	207	23040.0165
	200	19	122[2]	260	23040.0167[1]
	250	19	160	325	23040.0166
	315	19	180	409	23040.0168[1]
	500	19	315	652	23040.0169[1]
M20	**80**	27	32	160	23040.0201
	125	27	70	252	23040.0202
	160	27	100	323	23040.0207[1]
	200	27	122[2]	405	23040.0203
	250	27	160	508	23040.0204[1]
	315	27	200[2]	639	23040.0205
	400	27	250	813	23040.0208[1]
	500	27	315	1019	23040.0206[1]
M24	**100**	35	45	289	23040.0241
	125	35	70[2]	380	23040.0246[1]
	160	35	100	466	23040.0242
	200	35	122[2]	585	23040.0247[1]
	250	35	160	730	23040.0243
	315	35	190	924	23040.0248[1]
	400	35	250	1171	23040.0244
	500	35	315	1466	23040.0249[1]
	630	35	315	1860	23040.0245[1]
M30	**125**	43	56	573	23040.0301
	200	43	122[2]	923	23040.0302
	315	43	200[2]	1461	23040.0303
	500	43	315	2323	23040.0304
	700	43	400	3261	23040.0305[1]
M36	**160**	51	80	1065	23040.0361
	250	51	160	1674	23040.0362
	400	51	250	2687	23040.0363
	700	51	400	5130	23040.0364[1]

[1] DIN standards do not include these dimensions.
[2] Dimension differ from DIN standard.

Studs • DIN 6379 b_1 long for T-nuts

EH 23040.

PRODUCT DESCRIPTION

Studs combined with T-nuts DIN 508 (EH 23010./23020.), fixture nuts DIN 6330 (EH 23070.) and plain washers DIN 6340 (EH 23060.) become complete clamping studs.

Material

- Heat-treated steel

MORE INFORMATION

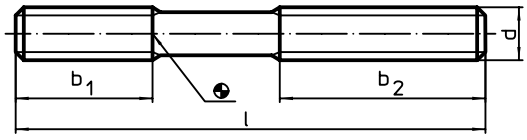
References

For torques and strengths please refer to appendix - Technical Data -

Further products

Nuts for T-Slots, DIN 508 . . . . . → p. 362
Studs, DIN 6379 for T-nuts . . . . . → p. 371
Shaft / Plain Washers, DIN 6340 heat-treated . . . . . → p. 380
Fixture Nuts, DIN 6330 (height 1,5 d) . → p. 383

DRAWING



ORDER INFORMATION

d	Dimensions l	b_1	b_2	[g]	Art. No.
quality 10.9					
M 6	**50**	15	30	8	23040.0562
	63	15	40	11	23040.0563
	80	15	50	14	23040.0564
M 8	**63**	20	40	19	23040.0582
	100	20	63	31	23040.0583
	160	20	100	49	23040.0584
M10	**80**	25	50	39	23040.0602
	100	25	75	49	23040.0603
	125	25	75	61	23040.0604
	160	25	100	78	23040.0605[1]
	200	25	122	98	23040.0606
M12	**63**[2]	–	–	44	23040.0622
	80[2]	–	–	56	23040.0623
	100	30	63	70	23040.0624[1]
	125	30	75	88	23040.0625
	160	30	100	112	23040.0626
	200	30	122	140	23040.0627
quality 8.8					
M16	**80**[2]	–	–	103	23040.0662
	125	40	63	161	23040.0664
	160	40	75	207	23040.0665
	200	40	100	260	23040.0666[1]
	250	40	125	325	23040.0667

[1] DIN standards do not include these dimensions.
[2] Throughgoing thread

Studs • with internal hexagon, similar to DIN 6379, for T-nuts

EH 23040.

PRODUCT DESCRIPTION

Studs combined with T-nuts DIN 508 (EH 23010./23020.), fixture nuts DIN 6330 (EH 23070.) and plain washers DIN 6340 (EH 23060.) become complete clamping studs.

Material

- Heat-treated steel

Assembly

The stud has an internal hexagon additionally. This guarantees a fast and simple assembling and dismounting.

MORE INFORMATION

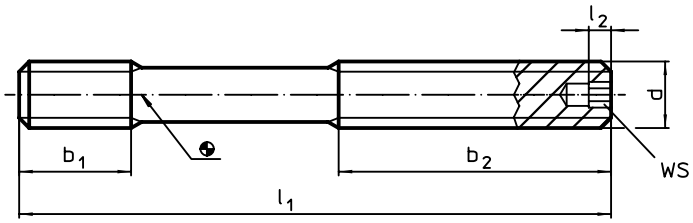
References

For torques and strengths please refer to appendix - Technical Data -

Further products

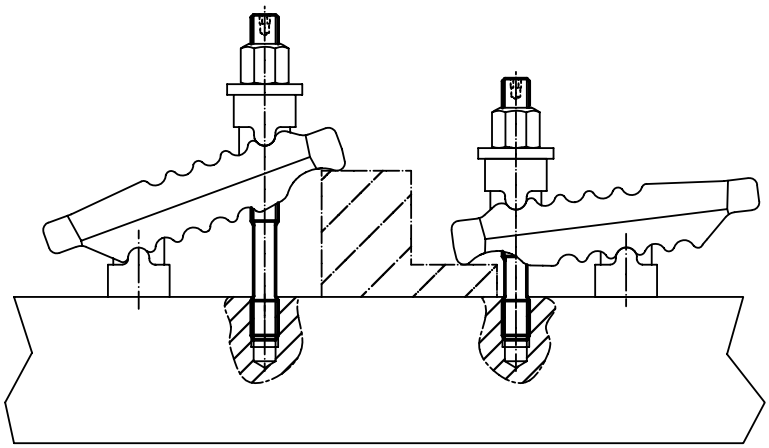
Nuts for T-Slots, DIN 508 . . . . . → p. 362
Studs, DIN 6379 for T-nuts . . . . . → p. 371
Shaft / Plain Washers, DIN 6340 heat-treated . . . . . → p. 380
Fixture Nuts, DIN 6330 (height 1,5 d) . → p. 383

DRAWING



ORDER INFORMATION

d	Dimensions l_1 [mm]	b_1 [mm]	b_2	l_2	WS [mm]	[g]	Art. No.
quality 10.9							
M12	**100**	15	63	4	4	73	23040.0724
	125	15	75	4	4	91	23040.0725
	160	15	100	4	4	115	23040.0726
quality 12.9							
M16	**125**	19	75	4	4	165	23040.0763
	160	19	100	4	4	212	23040.0764
	200	19	122	4	4	262	23040.0765
M20	**160**	27	100	5	5	327	23040.0783
	200	27	122	5	5	411	23040.0784
	250	27	160	5	5	522	23040.0785
M24	**200**	35	122	5	5	589	23040.0804
	250	35	160	5	5	745	23040.0805



Spherical Washers / Conical Seats • DIN 6319

EH 23050.

PRODUCT DESCRIPTION

Material

Conical seat
- Case-hardened steel, case-hardened, manganese phosphate treated
- Heat-treated steel, tempered, manganese phosphated

Spherical washer
- Case-hardened steel, case-hardened, manganese phosphate treated

Assembly

Conical seats form D are to be used only for plain, closed round areas.
For larger holes only use form G!

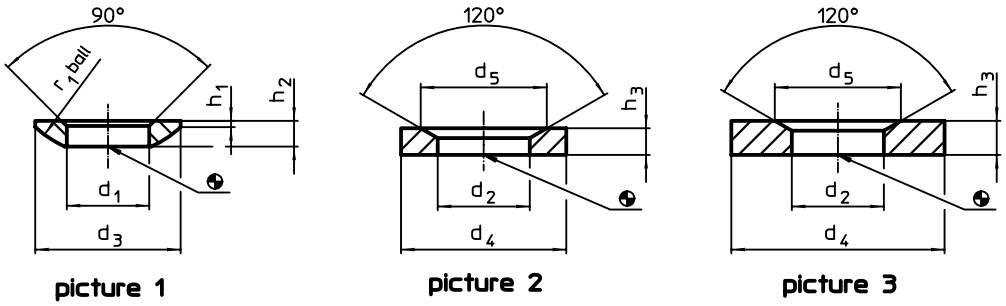
MORE INFORMATION

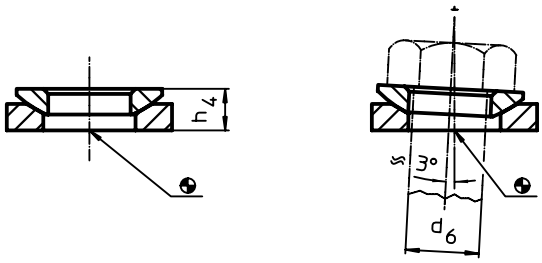
Further products

Spherical Washers / Conical Seats, similar to DIN 6319, stainless steel . . . → p. 377
Fixture Nuts, DIN 6330 (height 1,5 d) . → p. 383

3

DRAWING





ORDER INFORMATION

Dimensions											For pins d_6	For screws d_6	Load capacity for static load max.	Torque for screwed connections max.		Art. No.
d_1 H13	d_2 H13	d_3	d_4	d_5	h_1	h_2	h_3	h_4 with conical seat form D ~	h_4 with conical seat form G ~	r_1						
[mm]											[mm]	[mm]	[kN]	[Nm]	[g]	
spherical washers from case-hardened steel, form C – picture 1																
6,4	–	12	–	–	0,7	2,3	–	4,2	5,4	9,0	6	M 6	9	10[1)]	1,0	23050.0006
8,4	–	17	–	–	0,6	3,2	–	5,6	7,1	12,0	8	M 8	17	25[1)]	2,8	23050.0008
10,5	–	21	–	–	0,8	4,0	–	6,5	7,3	15,0	10	M10	26	46[1)]	5,3	23050.0010
13,0	–	24	–	–	1,1	4,6	–	8,0	9,0	17,0	12	M12	38	82[1)]	7,6	23050.0012
15,0	–	28	–	–	1,4	5,0	–	8,5	9,5	22,0	14	M14	53	130[1)]	12,0	23050.0014
17,0	–	30	–	–	1,3	5,3	–	9,6	10,4	22,0	16	M16	73	206[1)]	13,0	23050.0016
21,0	–	36	–	–	2,0	6,3	–	11,7	12,2	27,0	20	M20	117	407[1)]	23,0	23050.0020
23,0	–	40	–	–	2,5	7,6	–	13,5	–	29,5	22	M22	146	542[1)]	34,0	23050.0022[2)]
25,0	–	44	–	–	2,4	8,2	–	15,2	15,7	32,0	24	M24	168	698[1)]	45,0	23050.0024
28,0	–	50	–	–	3,3	10,2	–	17,0	–	36,0	27	M27	221	1021[1)]	74,0	23050.0027[2)]
31,0	–	56	–	–	3,6	11,2	–	19,2	19,7	41,0	30	M30	269	1355[1)]	101,0	23050.0030
34,0	–	62	–	–	4,4	13,0	–	21,8	–	45,0	33	M33	326[3)]	1969[3)1)]	150,0	23050.0033[2)]
37,0	–	68	–	–	4,6	14,0	–	23,5	–	50,0	36	M36	394	2372[1)]	190,0	23050.0036
40,0	–	75	–	–	5,6	16,0	–	26,8	–	54,0	39	M39	460[3)]	3276[3)1)]	218,0	23050.0039[2)]
43,0	–	78	–	–	6,5	17,0	–	29,0	–	58,0	42	M42	542	3802[1)]	310,0	23050.0042
50,0	–	92	–	–	8,0	21,0	–	35,5	–	67,0	48	M48	714	5730[1)]	540,0	23050.0048
54,0	–	96	–	–	9,3	22,0	–	38,3	–	72,0	52	M52	832[3)]	7876[3)1)]	620,0	23050.0052[2)]
58,0	–	103	–	–	9,8	23,0	–	39,3	–	79,0	56	M56	960[3)]	9793[3)1)]	760,0	23050.0056[2)]
62,0	–	112	–	–	11,0	25,0	–	43,6	–	86,0	60	M60	1122[3)]	12219[3)1)]	990,0	23050.0060[2)]
66,0	–	120	–	–	12,0	27,0	–	46,6	–	93,0	64	M64	1269[3)]	14762[3)1)]	1220,0	23050.0064[2)]

[1)] Torques of screws 8.8, eventual pre-loads to be conisdered, coefficient of friction μ_{total} 0,14.
[2)] DIN standards do not include these dimensions.
[3)] Figures theoretically determined

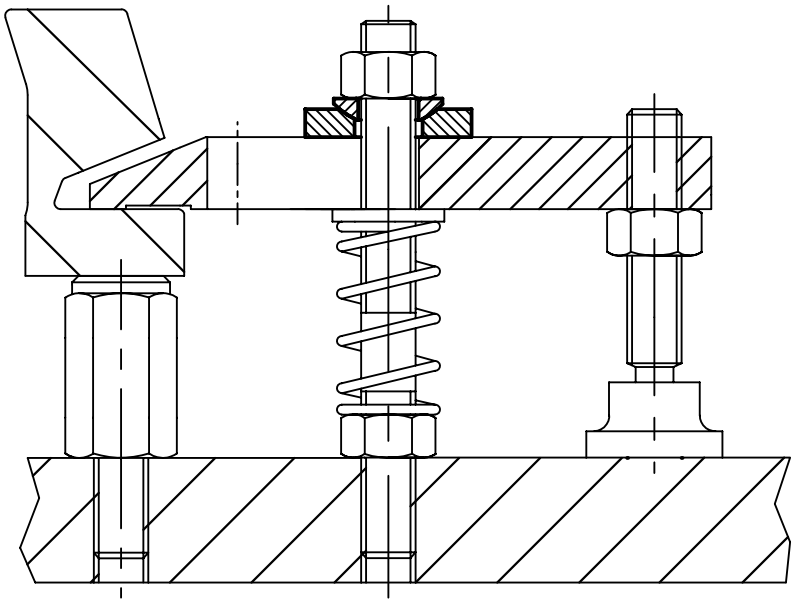
→

3

Dimensions											For pins	For screws	Load capacity for static load	Torque for screwed connections		Art. No.
d_1 H13	d_2 H13	d_3	d_4	d_5	h_1	h_2	h_3	h_4 with conical seat form D ~	h_4 with conical seat form G ~	r_1	d_6	d_6	max.	max.		
[mm]											[mm]	[mm]	[kN]	[Nm]	[g]	
conical seats from case-hardened steel, form D – picture 2																
	7,1	–	12	11,0	–	–	2,8	–	–	–	6	M 6	9	10[1]	1,4	23050.0106
	9,6	–	17	14,5	–	–	3,5	–	–	–	8	M 8	17	25[1]	3,7	23050.0108
	12,0	–	21	18,5	–	–	4,2	–	–	–	10	M10	26	46[1]	6,5	23050.0110
	14,2	–	24	20,0	–	–	5,0	–	–	–	12	M12	38	82[1]	10,0	23050.0112
	16,5	–	28	24,8	–	–	5,6	–	–	–	14	M14	53	130[1]	15,0	23050.0114
	19,0	–	30	26,0	–	–	6,2	–	–	–	16	M16	73	206[1]	18,0	23050.0116
	23,2	–	36	31,0	–	–	7,5	–	–	–	20	M20	117	407[1]	30,0	23050.0120
	26,0	–	40	34,0	–	–	8,5	–	–	–	22	M22	146	542[1]	44,0	23050.0122[2]
	28,0	–	44	37,0	–	–	9,5	–	–	–	24	M24	168	698[1]	61,0	23050.0124
–	**31,5**	–	50	43,0	–	–	10,5	–	–	–	27	M27	221	1021[1]	90,0	23050.0127[2]
	35,0	–	56	49,0	–	–	12,0	–	–	–	30	M30	269	1355[1]	124,0	23050.0130
	38,5	–	62	55,0	–	–	14,0	–	–	–	33	M33	326[3]	1969[3][1]	180,0	23050.0133[2]
	42,0	–	68	60,0	–	–	15,0	–	–	–	36	M36	394	2372[1]	230,0	23050.0136
	45,0	–	75	67,0	–	–	17,0	–	–	–	39	M39	460[3]	3276[3][1]	339,0	23050.0139[2]
	49,0	–	78	70,0	–	–	18,0	–	–	–	42	M42	542	3802[1]	360,0	23050.0142
	56,0	–	92	82,0	–	–	22,0	–	–	–	48	M48	714	5730[1]	640,0	23050.0148
	60,0	–	96	85,0	–	–	24,0	–	–	–	52	M52	832[3]	7876[3][1]	740,0	23050.0152[2]
	65,0	–	103	93,0	–	–	25,0	–	–	–	56	M56	960[3]	9793[3][1]	900,0	23050.0156[2]
	70,0	–	112	102,0	–	–	28,0	–	–	–	60	M60	1122[3]	12219[3][1]	1165,0	23050.0160[2]
	75,0	–	120	110,0	–	–	30,0	–	–	–	64	M64	1269[3]	14762[3][1]	1430,0	23050.0164[2]
conical seats from heat-treated steel, form G – picture 3																
	7,1	–	17	11,0	–	–	4,0	–	–	–	6	M 6	9	10[1]	5,6	23050.0206
	9,6	–	24	14,5	–	–	5,0	–	–	–	8	M 8	17	25[1]	14,0	23050.0208
	12,0	–	30	18,5	–	–	5,0	–	–	–	10	M10	26	46[1]	22,0	23050.0210
	14,2	–	36	20,0	–	–	6,0	–	–	–	12	M12	38	82[1]	39,0	23050.0212
–	**16,5**	–	40	24,8	–	–	6,0	–	–	–	14	M14	53	130[1]	47,0	23050.0214
	19,0	–	44	26,0	–	–	7,0	–	–	–	16	M16	73	206[1]	65,0	23050.0216
	23,2	–	50	31,0	–	–	8,0	–	–	–	20	M20	117	407[1]	93,0	23050.0220
	28,0	–	60	37,0	–	–	10,0	–	–	–	24	M24	168	698[1]	165,0	23050.0224
	35,0	–	68	49,0	–	–	12,0	–	–	–	30	M30	269	1355[1]	235,0	23050.0230

[1] Torques of screws 8.8, eventual pre-loads to be conisdered, coefficient of friction μ_{total} 0,14.
[2] DIN standards do not include these dimensions.
[3] Figures theoretically determined

APPLICATION EXAMPLE



Spherical Washers / Conical Seats • similar to DIN 6319, stainless steel

EH 23050.

PRODUCT DESCRIPTION

Material

Conical seat
- Stainless steel 1.4305
- Stainless steel A4

Spherical washer
- Stainless steel 1.4305
- Stainless steel A4

Assembly

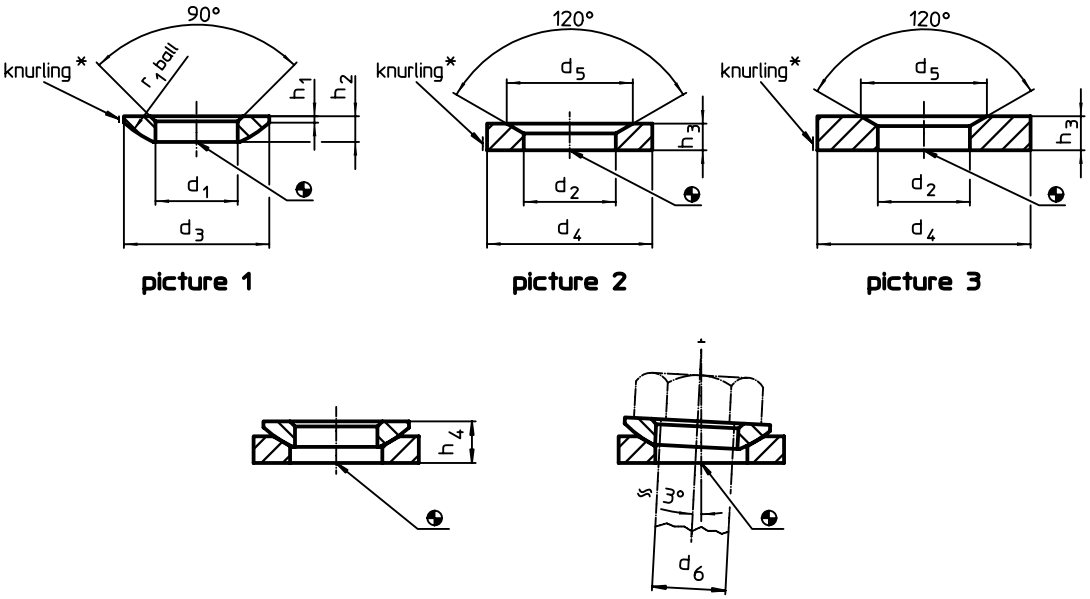
Conical seats form D are to be used only for plain, closed round areas.
For larger holes only use form G!

MORE INFORMATION

Further products

Spherical Washers / Conical Seats, DIN 6319 . . . . . → p. 375
Fixture Nuts, DIN 6330 (height 1,5 d) . → p. 383

DRAWING



* Knurling = material identification for stainless steel A4 type

ORDER INFORMATION

Dimensions											For pins	For screws	Load capacity for static load	Torque for screwed connec-tions[1]		Art. No.	
d_1 H13	d_2 H13	d_3	d_4	d_5	h_1	h_2	h_3	h_4 with conical seat form D ~	h_4 with conical seat form G ~	r_1	d_6	d_6	max.	max.		stainless steel 1.4305	stainless steel A4
[mm]											[mm]	[mm]	[kN]	[Nm]	[g]		
spherical washers from stainless steel, form C – picture 1																	
6,4	–	12	–	–	0,7	2,3	–	4,0	5,2	9	6	M 6	6	6	1,1	23050.0306	23050.0606
8,4	–	17	–	–	0,6	3,2	–	5,3	6,8	12	8	M 8	12	16	2,8	23050.0308	23050.0608
10,5	–	21	–	–	0,8	4,0	–	6,3	7,1	15	10	M10	16	32	5,2	23050.0310	23050.0610
13,0	–	24	–	–	1,1	4,6	–	7,9	8,9	17	12	M12	24	56	7,7	23050.0312	23050.0612
17,0	–	30	–	–	1,3	5,3	–	9,3	10,1	22	16	M16	45	135	13,0	23050.0316	23050.0616
21,0	–	36	–	–	2,0	6,3	–	11,6	12,1	27	20	M20	71	280	23,0	23050.0320	23050.0620
25,0	–	44	–	–	2,4	8,2	–	14,9	15,4	32	24	M24	105	455	46,0	23050.0324	23050.0624
31,0	–	56	–	–	3,6	11,2	–	18,8	18,8	41	30	M30	191	1050	104,0	23050.0330	23050.0630
37,0	–	68	–	–	4,6	14,0	–	23,4	–	50	36	M36	–	–	193,0	23050.0336	23050.0636
43,0	–	78	–	–	6,5	17,0	–	28,3	–	58	42	M42	–	–	313,0	23050.0342	23050.0642
50,0	–	92	–	–	8,0	21,0	–	35,0	–	67	48	M48	–	–	545,0	23050.0348	23050.0648

[1] Torques for screws A2-70 are provided as very rough values having only informational character. The pre-load may need to be taken into account, coefficient of friction μ_{ges} 0.12.

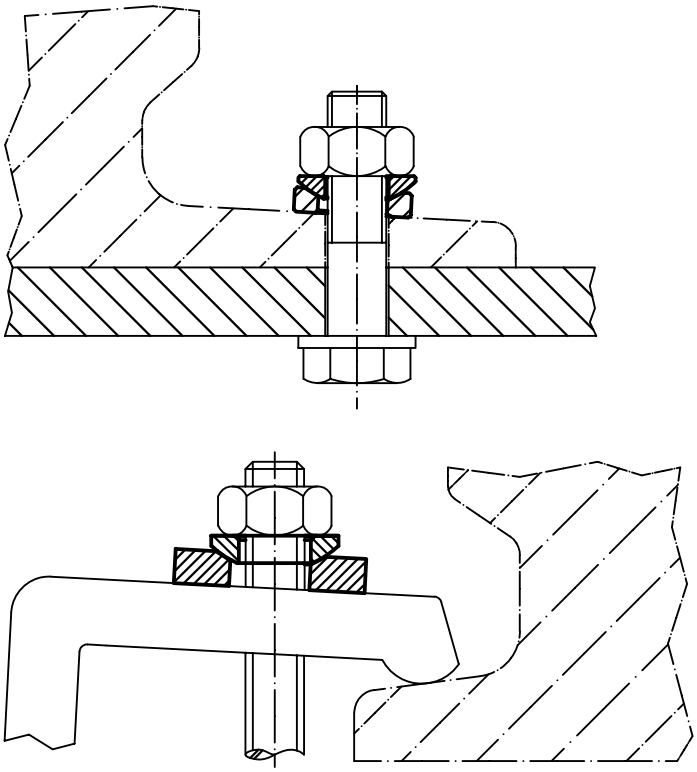
→

3

Dimensions										For pins	For screws	Load capacity for static load	Torque for screwed connec-tions[1]		Art. No.	
d_1 H13	d_2 H13	d_3	d_4	d_5	h_1	h_2	h_3	h_4 with conical seat form D ~	h_4 with conical seat form G ~	r_1	d_6	d_6	max.	max.		stainless steel 1.4305	stainless steel A4
[mm]											[mm]	[mm]	[kN]	[Nm]	[g]		
conical seats from stainless steel, form D – picture 2																	
–	**7,1**	–	12	11,0	–	–	2,8	–	–	–	6	M 6	6	6	1,4	23050.0406	23050.0666
	9,6	–	17	14,5	–	–	3,5	–	–	–	8	M 8	12	16	3,8	23050.0408	23050.0668
	12,0	–	21	18,5	–	–	4,2	–	–	–	10	M10	16	32	6,5	23050.0410	23050.0670
	14,2	–	24	20,0	–	–	5,0	–	–	–	12	M12	24	56	11,0	23050.0412	23050.0672
	19,0	–	30	26,0	–	–	6,2	–	–	–	16	M16	45	135	19,0	23050.0416	23050.0676
	23,2	–	36	31,0	–	–	7,5	–	–	–	20	M20	71	280	32,0	23050.0420	23050.0680
	28,0	–	44	37,0	–	–	9,5	–	–	–	24	M24	105	455	63,0	23050.0424	23050.0684
	35,0	–	56	49,0	–	–	12,0	–	–	–	30	M30	191	1050	127,0	23050.0430	23050.0686
	42,0	–	68	60,0	–	–	15,0	–	–	–	36	M36	–	–	234,0	23050.0436	23050.0688
	49,0	–	78	70,0	–	–	18,0	–	–	–	42	M42	–	–	362,0	23050.0442	23050.0692
	56,0	–	92	82,0	–	–	22,0	–	–	–	48	M48	–	–	642,0	23050.0448	23050.0694
conical seats from stainless steel, form G – picture 3																	
–	**7,1**	–	17	11,0	–	–	4,0	–	–	–	6	M 6	6	6	5,8	23050.0466	23050.0706
	9,6	–	24	14,5	–	–	5,0	–	–	–	8	M 8	12	16	15,0	23050.0468	23050.0708
	12,0	–	30	18,5	–	–	5,0	–	–	–	10	M10	16	32	22,0	23050.0470	23050.0710
	14,2	–	36	20,0	–	–	6,0	–	–	–	12	M12	24	56	40,0	23050.0472	23050.0712
	19,0	–	44	26,0	–	–	7,0	–	–	–	16	M16	45	135	66,0	23050.0476	23050.0716
	23,2	–	50	31,0	–	–	8,0	–	–	–	20	M20	71	280	95,0	23050.0480	23050.0720
	28,0	–	60	37,0	–	–	10,0	–	–	–	24	M24	105	455	171,0	23050.0484	23050.0724
	35,0	–	68	49,0	–	–	12,0	–	–	–	30	M30	191	1050	236,0	23050.0490	23050.0730

[1] Torques for screws A2-70 are provided as very rough values having only informational character. The pre-load may need to be taken into account, coefficient of friction μ_{ges} 0.12.

APPLICATION EXAMPLE



Compact Spherical Washers / Conical Seats • similar to DIN 6319

EH 23050.

PRODUCT DESCRIPTION

The compact spherical washer / conical seat is a permanently fastened component of spherical washer and conical seat offering the following benefits:

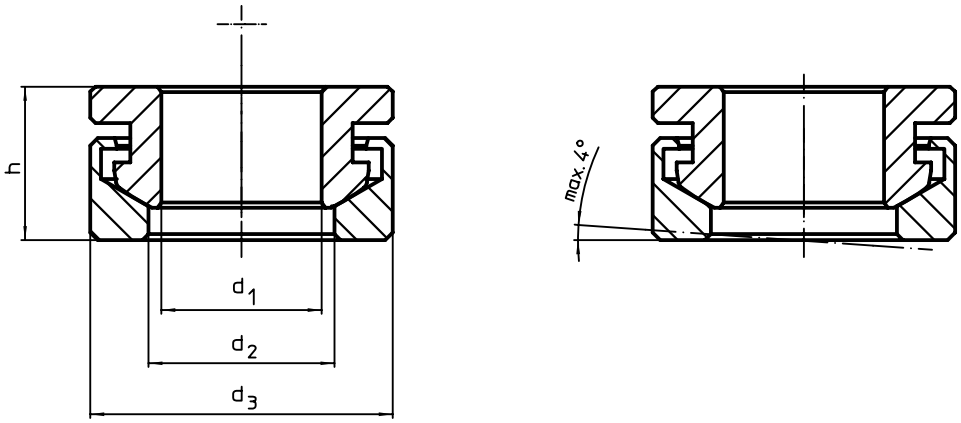
- Function-safety
- Secured against loss
- Quick and rational assembly
- Simplified stock holding
- Swiveling range max. 4°.

Material

Conical seat
- Heat-treated steel, heat treated
- Stainless steel 1.4305

Spherical washer
- Case-hardened steel, case hardened
- Stainless steel 1.4305

DRAWING

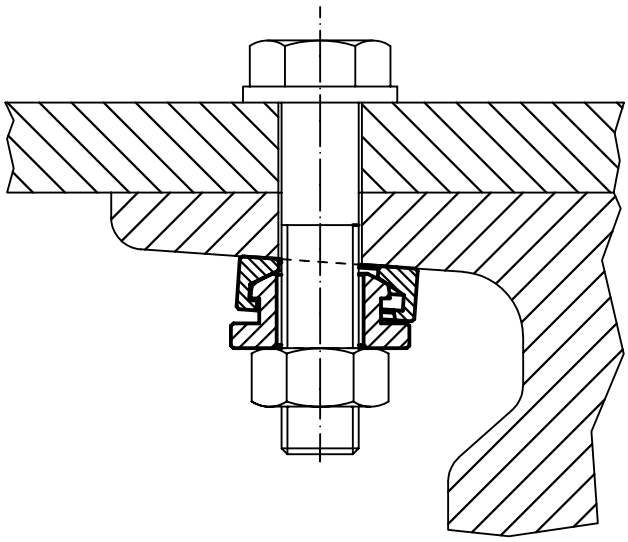


ORDER INFORMATION

Dimensions d_1 H13 [mm]	d_2 [mm]	d_3 [mm]	h [mm]	For pin d_6 [mm]	For screws d_6 [mm]	Load capacity for static load[1] max. [kN]	[g]	Art. No. heat-treated steel	Art. No. stainless steel
6,4	7,4	13	7,0	6	M 6	9	4	23050.0506	23050.0556
8,4	9,7	17	8,5	8	M 8	17	9	23050.0508	23050.0558
10,5	12,0	21	10,4	10	M10	26	17	23050.0510	23050.0560
13,0	14,8	25	13,1	12	M12	38	34	23050.0512	23050.0562
17,0	19,7	32	17,0	16	M16	73	61	23050.0516	23050.0566
21,0	24,6	40	20,3	20	M20	117	112	23050.0520	23050.0570

[1] Statements on load capacity are not valid for the stainless steel type.

APPLICATION EXAMPLE



Shaft / Plain Washers • DIN 6340 heat-treated

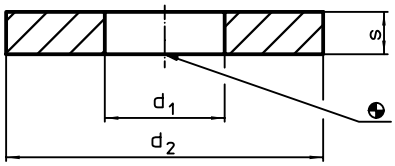
EH 23060.

PRODUCT DESCRIPTION

Material

- Heat-treated steel, tempered, punched, mechanically trued, phosphatized

DRAWING

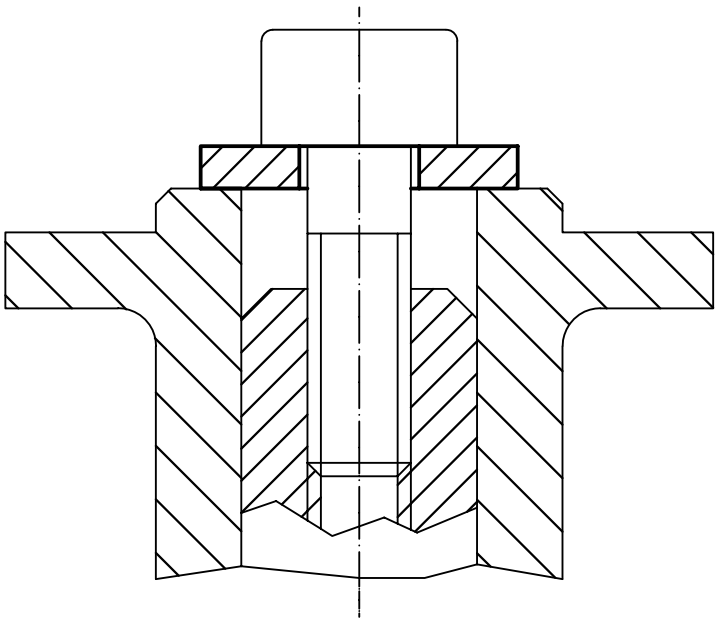


ORDER INFORMATION

Dimensions			For screws		Art. No.
d_1	d_2	s			
[mm]			[mm]	[g]	
6,4	17	3	M 6	3,8	**23060.0006**
8,4	23	4	M 8	9,8	**23060.0008**
10,5	28	4	M10	14,0	**23060.0010**
13,0	35	5	M12	28,0	**23060.0012**
15,0	40	5	M14	40,0	**23060.0014**[1)]
17,0	45	6	M16	55,0	**23060.0016**
19,0	45	6	M18	53,0	**23060.0018**[1)]
21,0	50	6	M20	71,0	**23060.0020**
23,0	50	8	M22	86,0	**23060.0022**[1)]
25,0	60	8	M24	122,0	**23060.0024**
31,0	68	10	M30	214,0	**23060.0030**
38,0	80	12	M36	360,0	**23060.0036**[1)]

[1)] DIN standards do not include these dimensions.

APPLICATION EXAMPLE



Washers • high precision design

EH 23060.

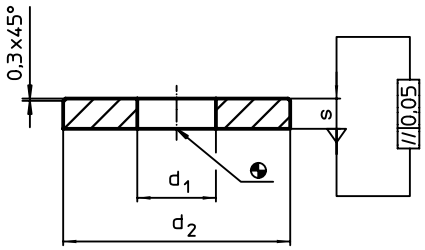
PRODUCT DESCRIPTION

The precisely manufactured washers have an allowance in parallelism of 0,05 mm.

Material

- Heat-treated steel, tempered, blackened
- Stainless steel 1.4305

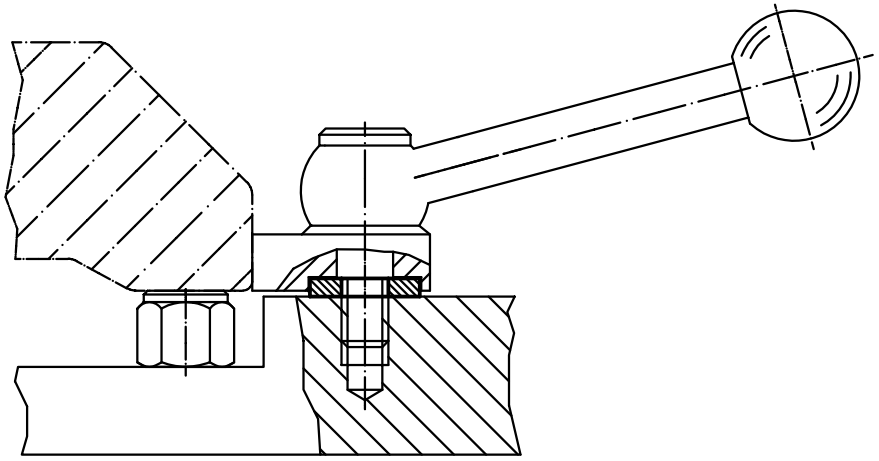
DRAWING



ORDER INFORMATION

Dimensions			For screw		Art. No.	
d_1	d_2	s			heat-treated steel	stainless steel
[mm]			[mm]	[g]		
3,2	8	2	M 3	0,7	–	23060.0153
4,2	12	2	M 4	1,5	–	23060.0154
5,3	13	3	M 5	2,5	23060.0105	23060.0155
6,4	17	3	M 6	4,5	23060.0106	23060.0156
8,4	24	4	M 8	12,0	23060.0108	23060.0158
10,5	30	4	M10	19,0	23060.0110	23060.0160
13,0	36	5	M12	34,0	23060.0113	23060.0163
17,0	45	5	M16	53,0	23060.0117	23060.0167

APPLICATION EXAMPLE



Shaft / Plain Washers

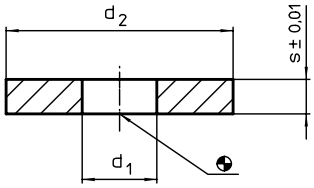
EH 23061.

PRODUCT DESCRIPTION

Material

- Steel, case-hardened, ground

DRAWING



ORDER INFORMATION

Dimensions				Art. No.
d_1	d_2	s ±0,01		
[mm]			[g]	
25	59,5	3	53	23061.2403
		4	71	23061.2404
		5	87	23061.2405
		10	178	23061.2410
		20	358	23061.2420

Fixture Nuts • DIN 6330 (height 1,5 d)

EH 23070.

PRODUCT DESCRIPTION

The spherical face matches DIN 6319 conical seats (EH 23050.).
This combination enables compensating for uneven surfaces.

Material

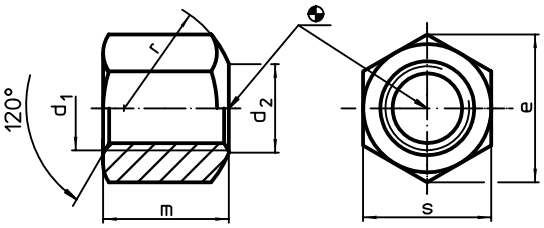
- Heat-treated steel, tempered, quality 10, phosphated
- Stainless steel 1.4305

MORE INFORMATION

References

For torques and strengths please refer to appendix - Technical Data -

DRAWING

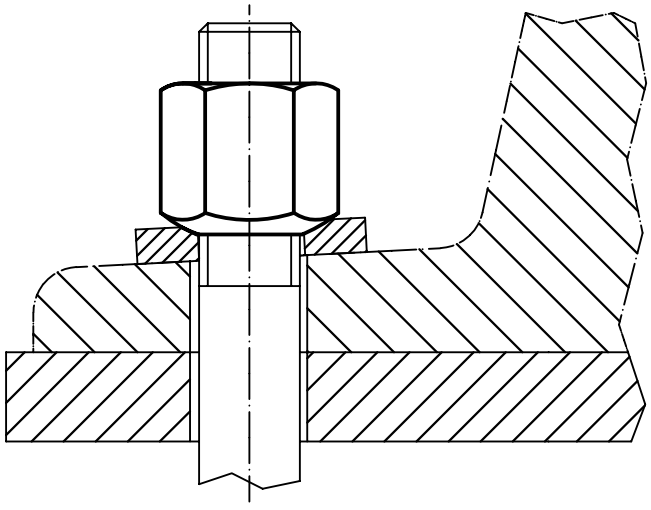


ORDER INFORMATION

Dimensions							Art. No.	
d_1	d_2	e	m	r	s		heat-treated steel	stainless steel
[mm]						[g]		
with lateral spherical bearing surface, form B								
M 6	7,0	11,5	9	9,0	10	3,8	23070.0006	–
M 8	9,0	15,0	12	11,0	13	8,4	23070.0008	23070.0108[1]
M10	11,5	18,5	15	15,0	16	17,0	23070.0010	–
					17	17,0	–	23070.0110[1]
M12	14,0	20,8	18	17,0	18	24,0	23070.0012	–
					19	24,0	–	23070.0112[1]
M14	16,0	24,2	21	20,0	21	39,0	23070.0014[2]	–
M16	18,0	27,7	24	22,0	24	55,0	23070.0016	23070.0116[1]
M18	20,0	31,2	27	24,5	27	82,0	23070.0018[2]	–
M20	22,0	34,6	30	27,0	30	110,0	23070.0020	23070.0120[1]
M22	24,0	39,3	33	29,0	34	162,0	23070.0022[2]	–
M24	26,0	41,6	36	32,0	36	192,0	23070.0024	–
M30	32,0	53,1	45	41,0	46	400,0	23070.0030	–
M36	38,0	63,5	54	50,0	55	684,0	23070.0036	–

[1] DIN standard do not include these material.
[2] DIN standards do not include these dimensions.

APPLICATION EXAMPLE



Collar Nuts • DIN 6331 (height 1,5 d)

EH 23080.

PRODUCT DESCRIPTION

Material

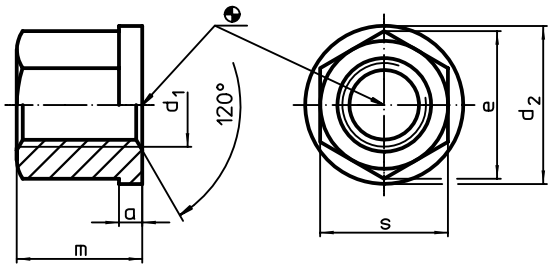
- Heat-treated steel, tempered, quality 10, phosphated
- Stainless steel 1.4305

MORE INFORMATION

References

For torques and strengths please refer to appendix - Technical Data -

DRAWING

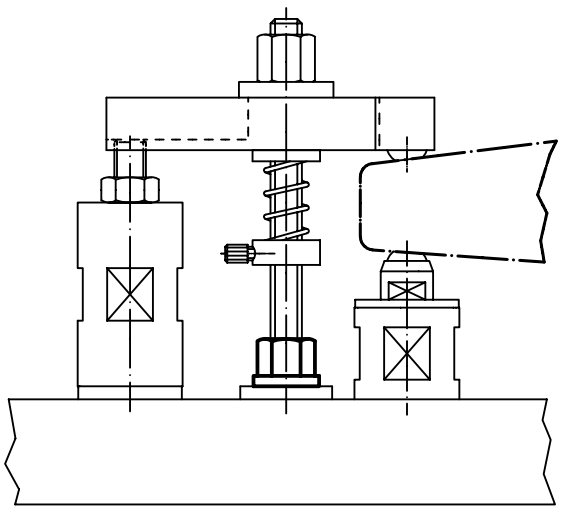


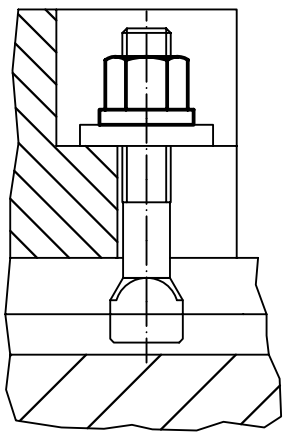
ORDER INFORMATION

Dimensions							Art. No.	
d_1	a	d_2	e	m	s		heat-treated steel	stainless steel
[mm]						[g]		
M 6	3,0	14	11,5	9	10	5	23080.0006	–
M 8	3,5	18	15,0	12	13	12	23080.0008	23080.0108[1]
M10	4,0	22	18,5	15	16	22	23080.0010	–
					17	22	–	23080.0110[1]
M12	4,0	25	20,8	18	18	30	23080.0012	–
					19	30	–	23080.0112[1]
M14	4,5	28	24,2	21	21	47	23080.0014[2]	–
M16	5,0	31	27,7	24	24	67	23080.0016	23080.0116[1]
M18	5,5	34	31,2	27	27	97	23080.0018[2]	–
M20	6,0	37	34,6	30	30	129	23080.0020	23080.0120[1]
M22	6,0	40	39,3	33	34	179	23080.0022[2]	–
M24	6,0	45	41,6	36	36	221	23080.0024	–
M30	8,0	58	53,1	45	46	468	23080.0030	–
M36	10,0	68	63,5	54	55	783	23080.0036	–

[1] DIN standard do not include these material.
[2] DIN standards do not include these dimensions.

APPLICATION EXAMPLE





Collar Nuts with Conical Seat

EH 23080.

PRODUCT DESCRIPTION

Material

Conical seat
- Heat-treated steel, tempered, blackened

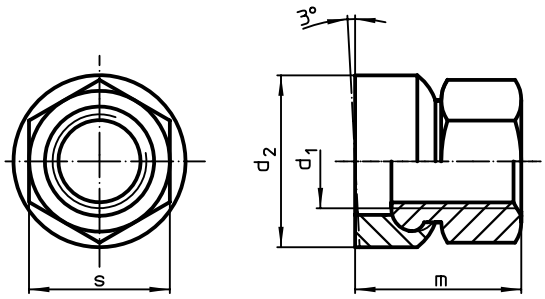
Nut
- Heat-treated steel, tempered, blackened

MORE INFORMATION

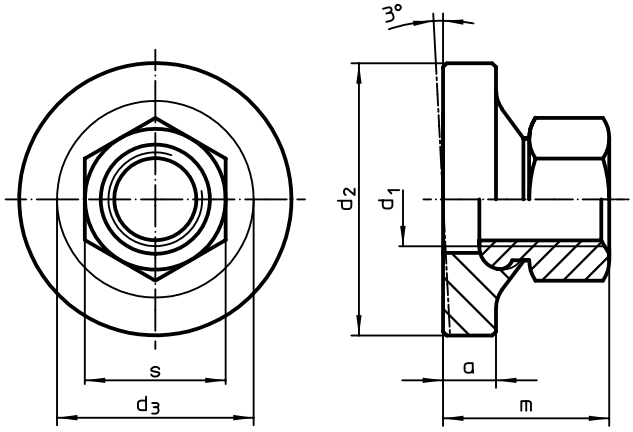
References

For torques and strengths please refer to appendix - Technical Data -

DRAWING



picture 1

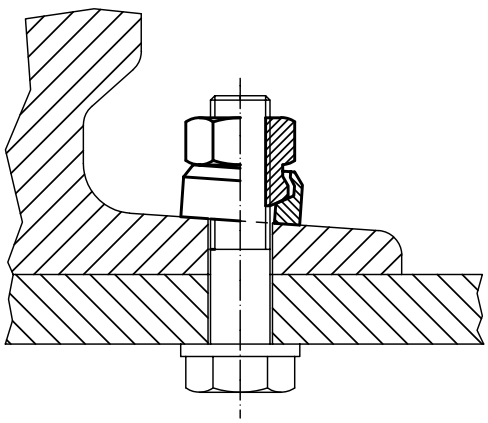


picture 2

ORDER INFORMATION

d_1	a	d_2	d_3	m ~	s		Art. No.
		[mm]			[mm]	[g]	
with small surface – picture 1							
M 8	–	17	–	14,0	13	13	23080.0508
M10	–	21	–	17,5	16	24	23080.0510
M12	–	24	–	21,5	18	38	23080.0512
M16	–	30	–	28,0	24	75	23080.0516
M20	–	36	–	35,0	30	143	23080.0520
M24	–	44	–	42,5	36	261	23080.0524
M30	–	55	–	56,0	46	557	23080.0530
with large surface – picture 2							
M 8	4,0	24	17,8	14,0	13	20	23080.0608
M10	5,5	30	21,2	17,5	16	40	23080.0610
M12	7,0	36	25,2	21,5	18	69	23080.0612
M16	8,0	44	30,9	28,0	24	126	23080.0616
M20	9,5	50	39,9	35,0	30	213	23080.0620
M24	11,0	60	49,6	42,5	36	377	23080.0624
M30	14,0	68	61,3	56,0	46	702	23080.0630

APPLICATION EXAMPLE



Extension Nuts • (height 3 d)

EH 23090.

PRODUCT DESCRIPTION

Material

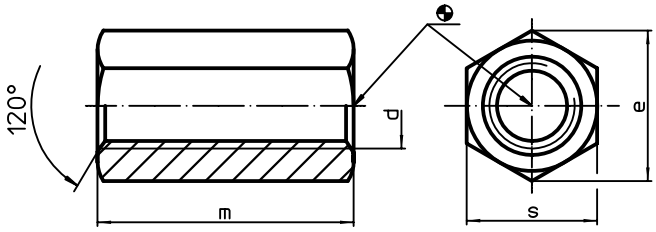
- Heat-treated steel, tempered, quality 10, phosphated

MORE INFORMATION

References

For torques and strengths please refer to appendix - Technical Data -

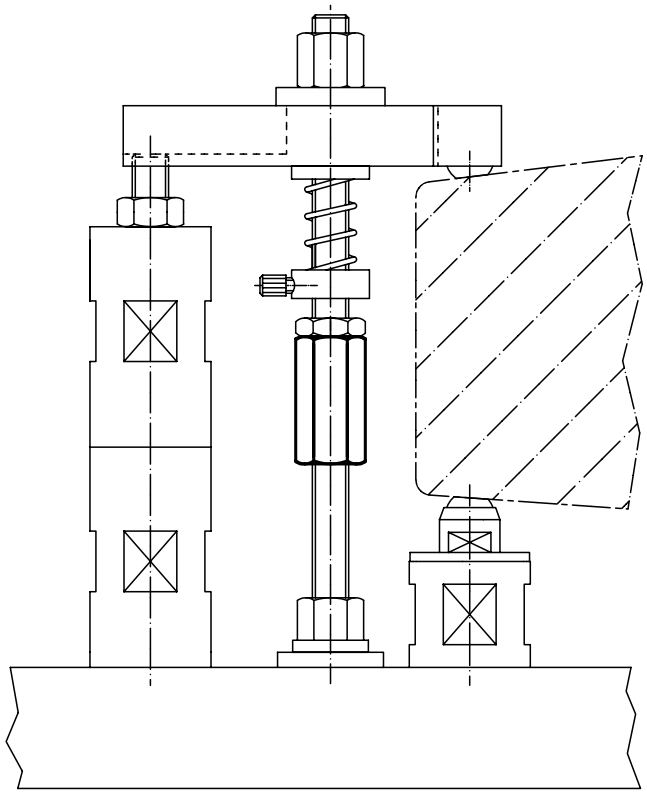
DRAWING



ORDER INFORMATION

d	Dimensions e	m	s	[g]	Art. No.
	[mm]				
M 6	11,5	18	10	9	23090.0006
M 8	15,0	24	13	19	23090.0008
M10	18,5	30	16	35	23090.0010
M12	20,8	36	18	49	23090.0012
M14	24,2	42	21	79	23090.0014
M16	27,7	48	24	119	23090.0016
M20	34,6	60	30	229	23090.0020
M24	41,6	72	36	403	23090.0024
M30	53,1	90	46	819	23090.0030
M36	63,5	108	55	1386	23090.0036

APPLICATION EXAMPLE



Drive Blocks • DIN 2079

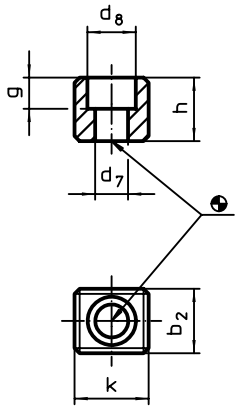
EH 23100.

PRODUCT DESCRIPTION

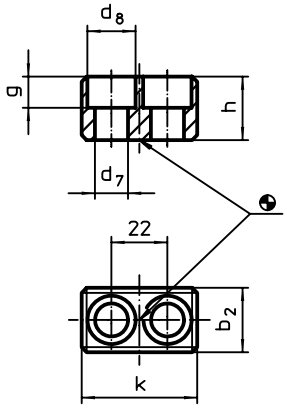
Material

- Alloyed case-hardened steel, case hardened, blackened, ground

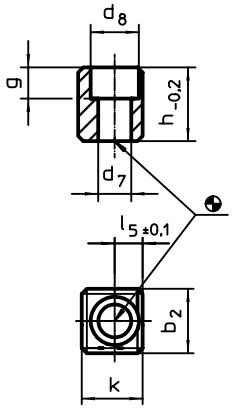
DRAWING



picture 1



picture 2

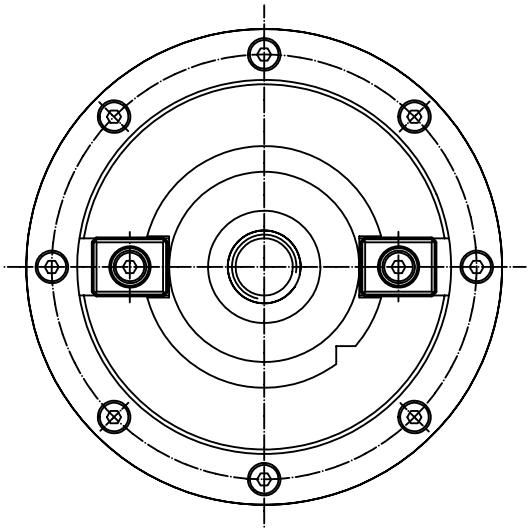


picture 3

ORDER INFORMATION

Spindle head No.	Dimensions k	b2 h5	d7	d8	g	h	l5 ±0,1	For screws ISO 4762		Art. No.
	[mm]							[mm]	[g]	
for spindle heads no. 30 to 60, form A – picture 1										
30	16,5	15,9	6,4	10,4	6,2	16,0	–	M 6 x 16	25	23100.0030
40	19,5	15,9	6,4	10,4	6,2	16,0	–	M 6 x 16	31	23100.0040
45	19,5	19,0	8,4	13,5	8,3	19,0	–	M 8 x 20	38	23100.0045
50 – 55	26,5	25,4	13,0	19,0	12,3	25,0	–	M12 x 25	85	23100.0050
60	45,5	25,4	13,0	19,0	12,3	25,0	–	M12 x 25	179	23100.0060
for spindle heads no. 60 form B – picture 2										
60	45,5	25,4	13,0	19,0	12,3	25,0	–	M12 x 25	140	23100.0160
for spindle heads no. 30 to 50, form C – picture 3										
30	13,5	15,9	6,4	10,4	6,2	24,5	5,5	M 6 x 25	30	23100.0230
40	16,5	15,9	6,4	10,4	6,2	24,5	7,0	M 6 x 25	39	23100.0240
45	17,5	19,0	8,4	13,5	10,0	26,0	7,5	M 8 x 25	47	23100.0245
50	24,0	25,4	13,0	19,0	12,3	29,0	11,0	M12 x 30	89	23100.0250

APPLICATION EXAMPLE



Fixed Slot Tenons

EH 23110.

PRODUCT DESCRIPTION

To be used for locating fixtures and clamping elements onto machine tables with T-slots to DIN 650.

Material

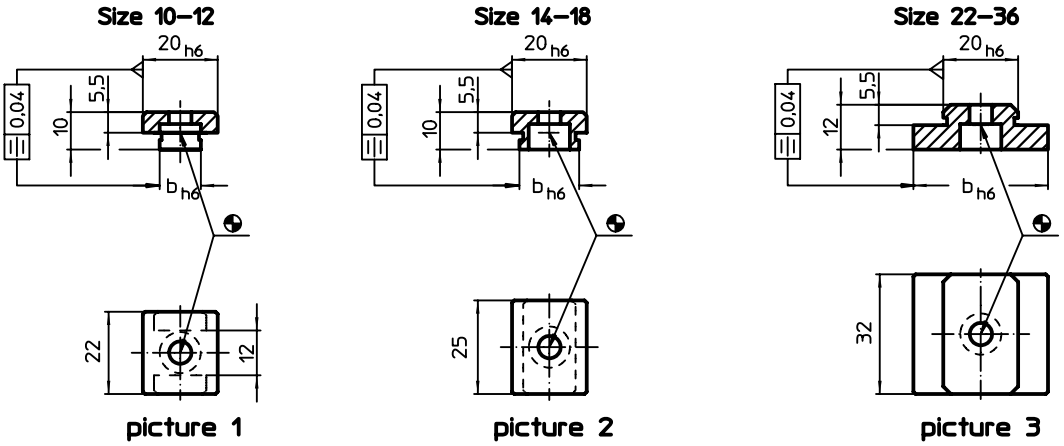
- Steel, case-hardened, blackened, ground

MORE INFORMATION

References

For size 20 refer to 23130.0020.

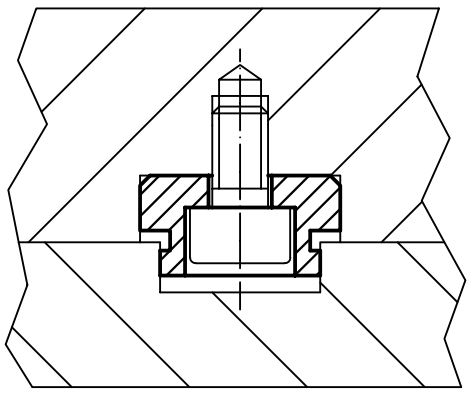
DRAWING



ORDER INFORMATION

T-slot size machine b h6 [mm]	For screws ISO 4762 [mm]	[g]	Art. No.
size 10-12 – picture 1			
10	M6	17	23110.0010
12	M6	18	23110.0012
size 14-18 – picture 2			
14	M6	26	23110.0014
16	M6	28	23110.0016
18	M6	29	23110.0018
size 22-36 – picture 3			
22	M6	53	23110.0022
24	M6	60	23110.0024
28	M6	62	23110.0028
36	M6	80	23110.0036

APPLICATION EXAMPLE



Fixed Slot Tenons • with cylindrical fastening

EH 23110.

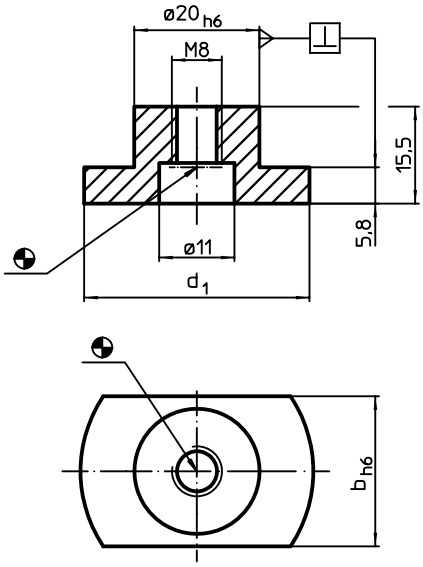
PRODUCT DESCRIPTION

To be used for locating fixtures and clamping elements onto mounting pallets or pallets with cylindrical location holes.
They can be inserted in holes as well as in slots.

Material

- Steel, case-hardened, blackened, ground

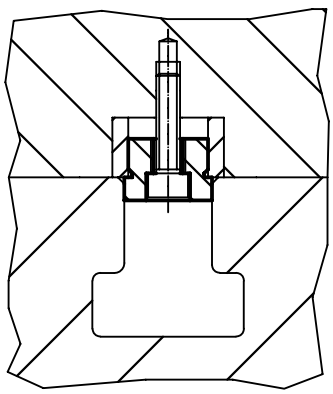
DRAWING



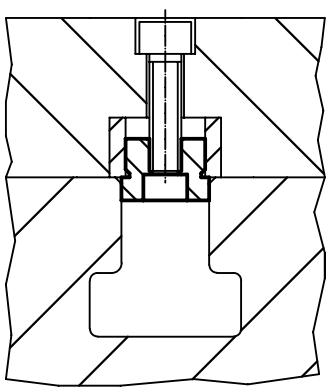
ORDER INFORMATION

T-slot size machine b h6 [mm]	Dimensions d_1 [mm]	For screws ISO 4762 (picture 1) [mm]	For screws ISO 4762 (picture 2) [mm]	[g]	Art. No.
10	30	M6	M8	28	23110.0110
12	30	M6	M8	39	23110.0112
14	30	M6	M8	41	23110.0114
16	30	M6	M8	36	23110.0116
18	30	M6	M8	45	23110.0118
20	36	M6	M8	48	23110.0120
22	40	M6	M8	54	23110.0122
28	42	M6	M8	65	23110.0128
36	48	M6	M8	86	23110.0136

APPLICATION EXAMPLE



picture 1



picture 2

Centering Pins

EH 23110.

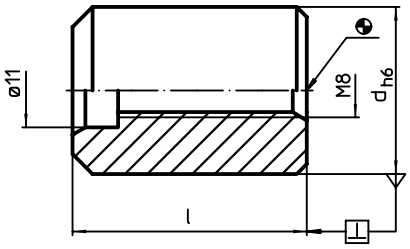
PRODUCT DESCRIPTION

The centering pins are used for centering fixtures on pallets.

Material

- Alloyed case-hardened steel, case hardened, ground

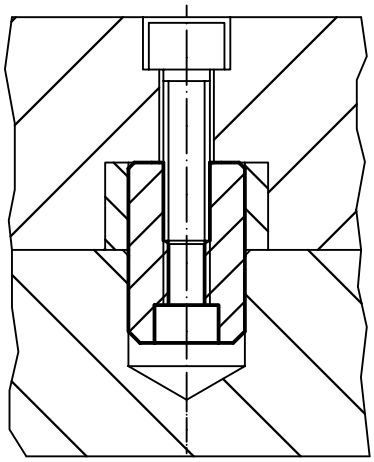
DRAWING

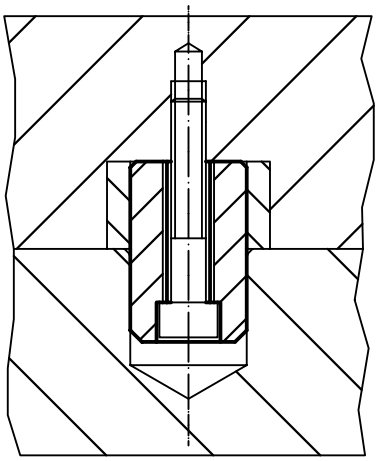


ORDER INFORMATION

Dimensions			Art. No.
d h6	l		
[mm]		[g]	
20	**31**	70	23110.0510
25	**35**	118	23110.0520
50	**31**	473	23110.0530
	45	672	23110.0540

APPLICATION EXAMPLE





Centering Pins • stepped

EH 23110.

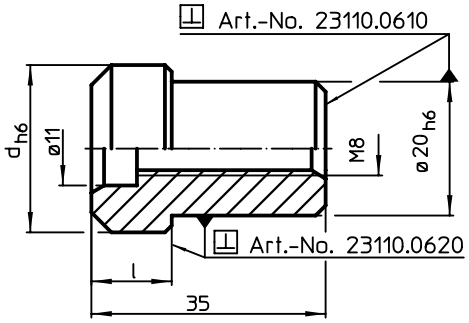
PRODUCT DESCRIPTION

The stepped centering pins are used for centering fixtures on pallets.

Material

- Alloyed case-hardened steel, case hardened, ground

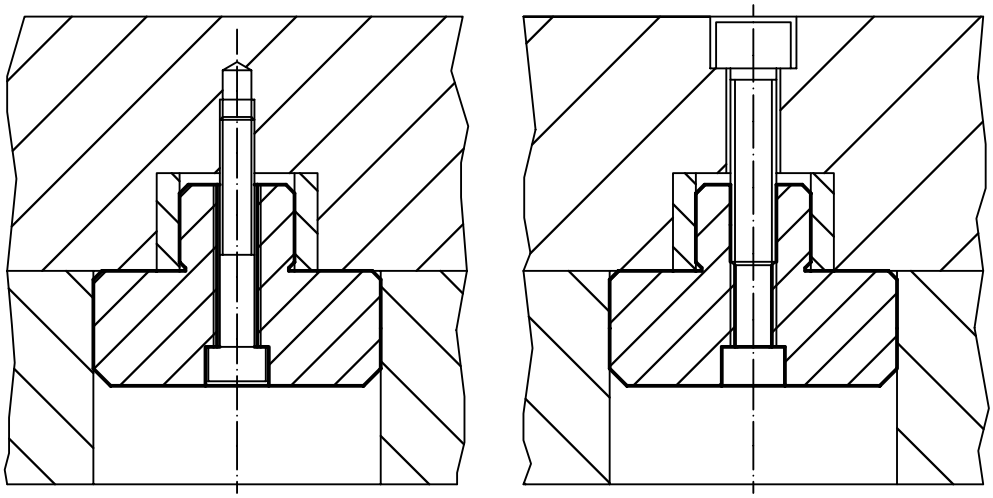
DRAWING



ORDER INFORMATION

Dimensions			Art. No.
d h6	l		
[mm]		[g]	
25	**12**	87	23110.0610
50	**20**	330	23110.0620

APPLICATION EXAMPLE



3

Loose Slot Tenons • DIN 6323

EH 23120.

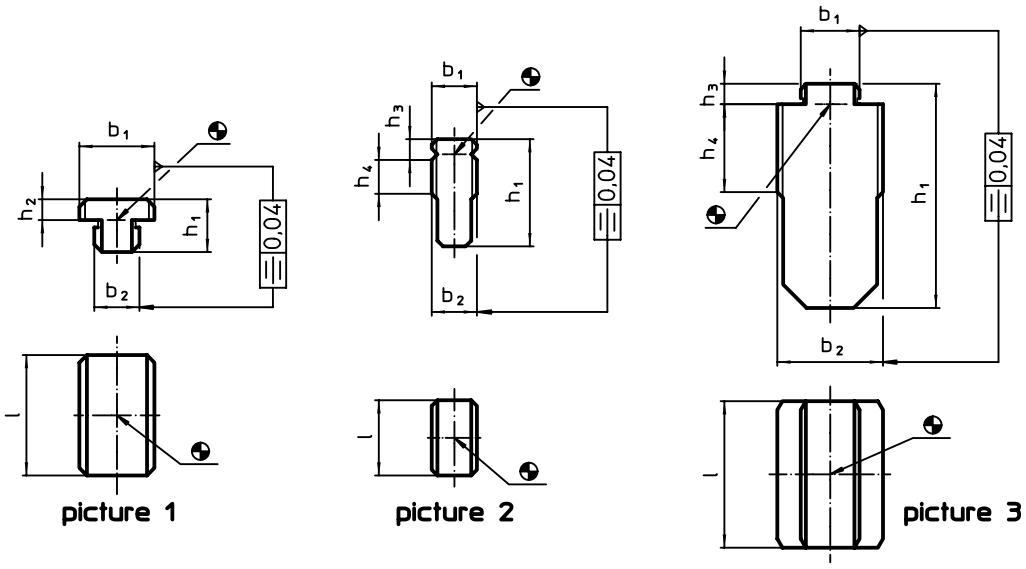
PRODUCT DESCRIPTION

To be used for locating fixtures and clamping elements onto machine tables with T-slots to DIN 650.
Being simply pushed into position after fixture or clamping element has been roughly positioned, they cannot cause damage to the machine as could protruding fixed slot tenons or low slot tenons.

Material

- Steel, case-hardened, blackened, ground

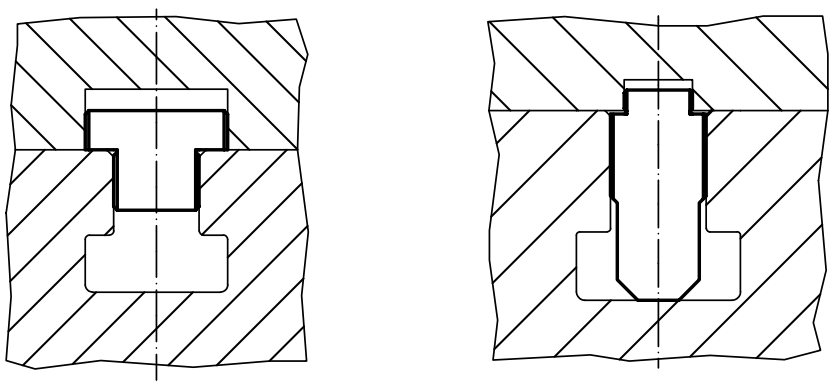
DRAWING



ORDER INFORMATION

T-slot size fixture b_1 h6 [mm]	T-slot size machine b_2 h6 [mm]	Dimensions h_1 [mm]	h_2 [mm]	h_3 [mm]	h_4 [mm]	l [mm]	[g]	Art. No.
form A, $b_1 > b_2$ – picture 1								
12	**10**	12,0	3,6	–	–	20	20	23120.0010
20	**12**	14,0	5,5	–	–	32	52	23120.0012
	14	14,0	5,5	–	–	32	56	23120.0014
	16	14,0	5,5	–	–	32	60	23120.0016
	18	14,0	5,5	–	–	32	65	23120.0018
form B, $b_1 = b_2$ – picture 2								
12	**12**	28,6	–	5,5	9	20	46	23120.0011
20	**20**	45,5	–	7,0	16	32	202	23120.0020
form C, $b_1 < b_2$ – picture 3								
20	**22**	50,5	–	7,0	18	40	302	23120.0022
	28	61,5	–	7,0	24	40	469	23120.0028
	36	76,5	–	7,0	30	50	951	23120.0036

APPLICATION EXAMPLE



Low Slot Tenons

EH 23130.

PRODUCT DESCRIPTION

To be used for locating fixtures and clamping elements onto machine tables with T-slots to DIN 650.

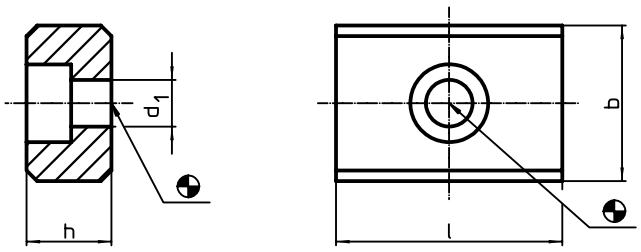
Material

- Steel, case-hardened, blackened, ground

Assembly

They are bolted into the alignment slots of the fixture. Low slot tenons are suitable for use where a fixture will only be used on machines having an identical slot width.

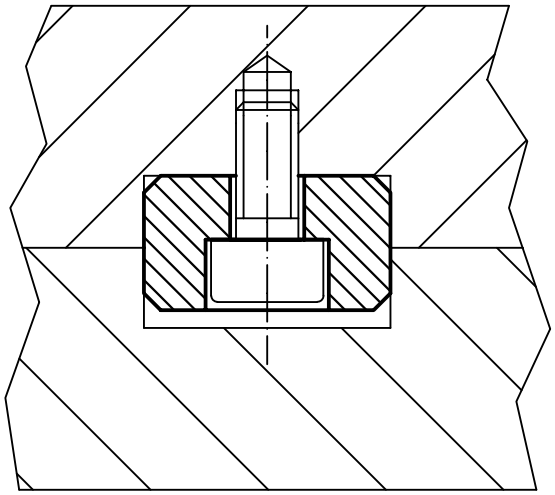
DRAWING



ORDER INFORMATION

Dimensions				For screws ISO 4762		Art. No.
b h6	h	l	d_1			
[mm]				[mm]	[g]	
10	8	20	4,5	M4	10	23130.0010
12	8	20	5,5	M5	11	23130.0012
14	10	22	6,6	M6	18	23130.0014
16	10	22	6,6	M6	22	23130.0016
18	10	22	6,6	M6	25	23130.0018
20	10	22	6,6	M6	28	23130.0020
22	12	32	6,6	M6	59	23130.0022
24	12	32	6,6	M6	64	23130.0024

APPLICATION EXAMPLE



3

POSITIONING CLAMPING PINS

QUICK AND EASY

The positioning clamping pin is centred and clamped with four balls in the locating bush by tightening the clamping bolt. The clamping bolt can be operated manually via a removable handle or using a hex key.

PRODUCT BENEFITS AT A GLANCE

- Benefits thanks to spring pre-loading:
  - Low-wear.
  - Clamping balls and locating hole are protected from being overloaded.
  - No overstressing of the clamping bolt, preventing the pin from jamming.
- Dampens vibrations during machining.
- Protection against accidental release of the pin (e.g. due to vibration).
- High repeatability of ± 0.03 mm.
- Handling facilitated during installation / disassembly thanks to spanner flats and knurls.
- Flat construction height.
- Operation by using a hex key or the optional handle.

Sample application EH 23111.
Positioning clamping pin for quick workpiece changes at the machine table.

www.halder.com/
PositioningClampingPins-Video

Positioning Clamping Pins

EH 23111.

PRODUCT DESCRIPTION

The positioning clamping pin allows fast clamping, fastening, adjusting, changing and securing of workpieces, plates, fixture systems etc.

Material

- Heat-treated steel, tempered, blackened
- Stainless steel 1.4542, precipitation-hardened

Operation

By tightening the clamping bolt, the positioning clamping pin is centred and clamped in the locating bushing by means of four balls. The clamping bolt can be operated manually via a removable handle (Art. No. 23111.0900 / .0902) or using a hexagon key.

MORE INFORMATION

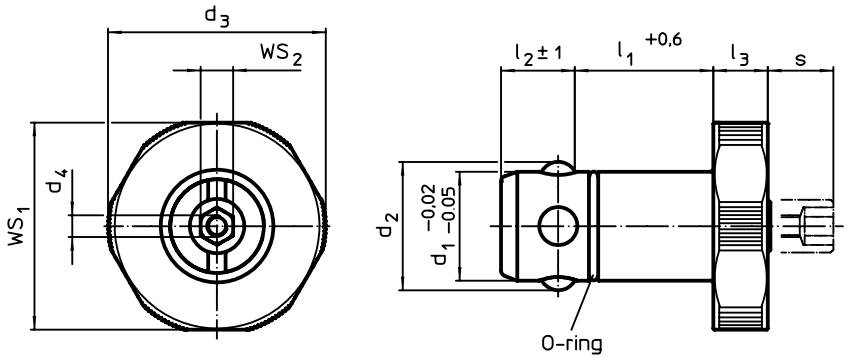
Accessories

Suitable bushings are available.

Further products

Manual Handles, for positioning clamping pins . . . . . → p. 397
Bushings, for positioning clamping pins . . . . . → p. 398
Locating Bushings, for positioning clamping pins, for press fit. . . . . → p. 399
Locating Bushings, for positioning clamping pins, for screw fit . . . . . → p. 400

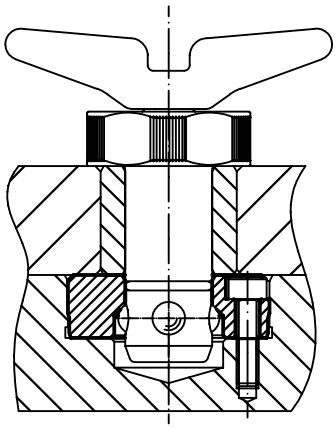
DRAWING



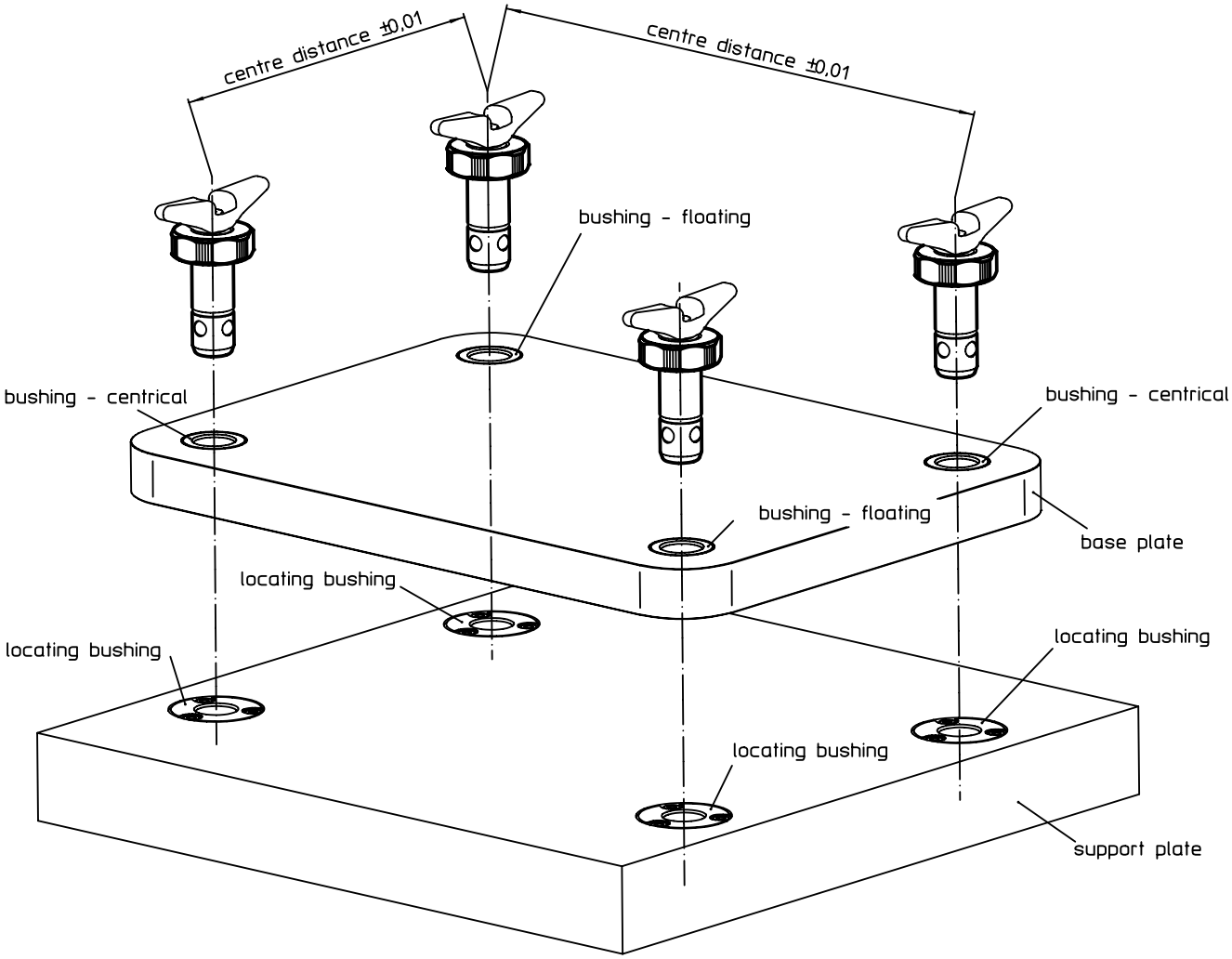
ORDER INFORMATION

Dimensions								For base plates ±0,05	WS_1	WS_2	Holding force		Art. No.	
d_1 -0,02 -0,05	l_1 +0,6	d_2	d_3	d_4	l_2 ±1	l_3	s max.						heat-treated steel	stainless steel
[mm]								[mm]	[mm]	[mm]	[kN]	[g]		
16	25	18,7	32	M4	13,6	10	9	20	30	6	5	105	23111.0016	23111.0116
	30	18,7	32	M4	13,6	10	9	25	30	6	5	115	23111.0018	23111.0118
20	25	23,6	40	M4	13,6	10	9	20	38	6	6	170	23111.0020	23111.0120
	30	23,6	40	M4	13,6	10	9	25	38	6	6	185	23111.0022	23111.0122
25	25	29,0	45	M4	18,6	10	9	20	43	10	8	255	23111.0025	23111.0125
	30	29,0	45	M4	18,6	10	9	25	43	10	8	275	23111.0027	23111.0127
30	25	34,6	55	M4	18,6	10	9	20	53	10	10	375	23111.0030	23111.0130
	30	34,6	55	M4	18,6	10	9	25	53	10	10	400	23111.0032	23111.0132

APPLICATION EXAMPLE



3


centre distance ±0,01
centre distance ±0,01
bushing - floating
bushing - centrical
bushing - centrical
bushing - floating
base plate
locating bushing
locating bushing
locating bushing
locating bushing
support plate

Manual Handles • for positioning clamping pins

EH 23111.

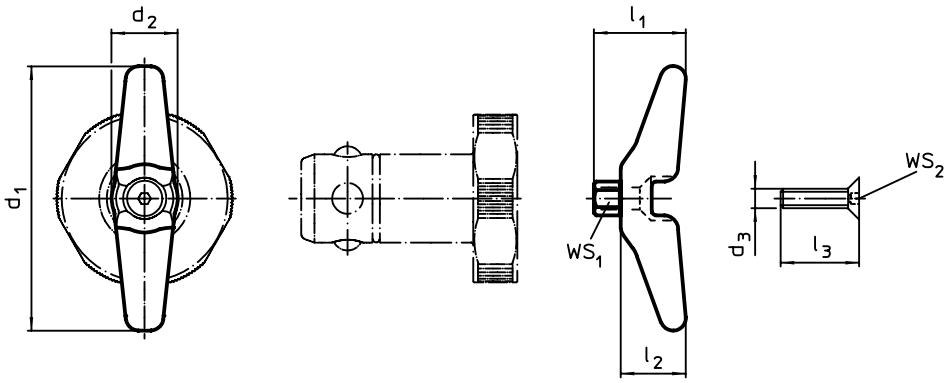
PRODUCT DESCRIPTION

The manual handle enables an easy and fast operation of the positioning clamping pin.

Material
- Stainless steel

Assembly
The handle is tightened to the positioning clamping pin with the M 4 screw included in the delivery.

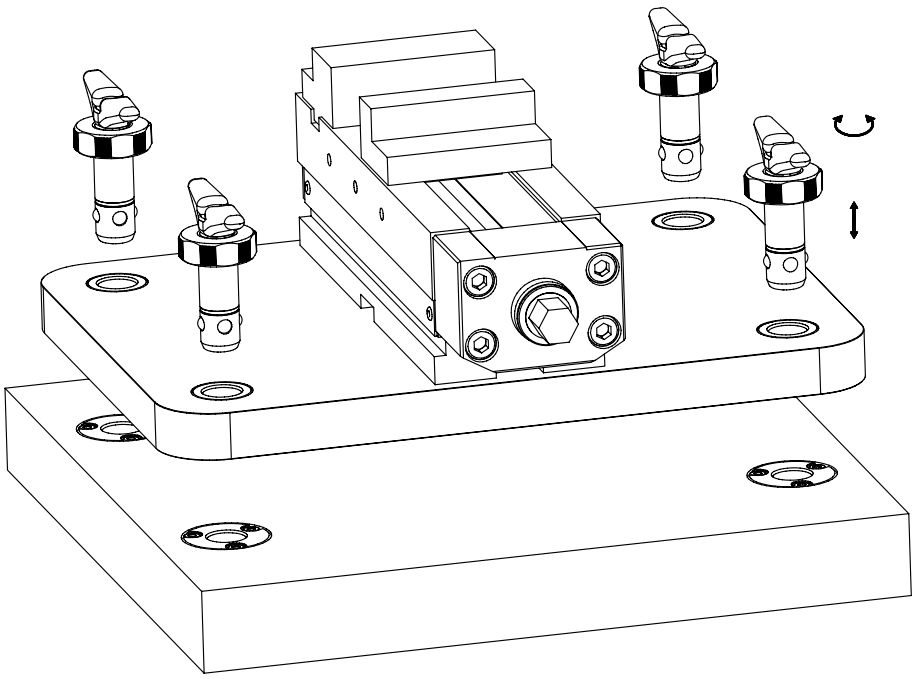
DRAWING



ORDER INFORMATION

For pin Ø	Dimensions						WS_1	WS_2		Art. No.
	d_1	d_2	d_3	l_1	l_2	l_3				
[mm]	[mm]						[mm]	[mm]	[g]	
16/20	**60**	15	M4	**20**	15	16	6	2,5	45	23111.0900
25/30	**80**	15	M4	**25**	20	20	10	2,5	80	23111.0902

APPLICATION EXAMPLE



Bushings • for positioning clamping pins

EH 23111.

PRODUCT DESCRIPTION

Material

- Case-hardened steel, case-hardened, blackened
- Stainless steel 1.4112, hardened

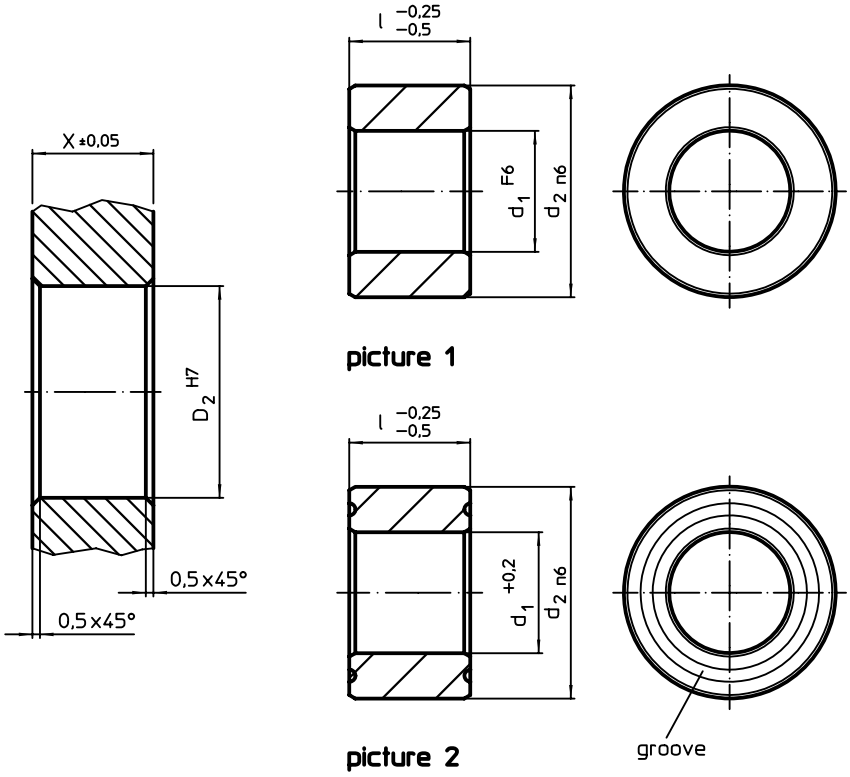
Assembly

Two centering bushes and two floating bushes are to be mounted into the plate to be clamped in order to guarantee an optimal repeatability.

Characteristic

The floating bush has a groove that serves as a differentiation mark.

DRAWING



ORDER INFORMATION

Dimensions			Location hole			Art. No.	
d_1	l -0,25 -0,5	d_2 n6	X ±0,05	D_2 H7		case-hardened steel	stainless steel
[mm]			[mm]		[g]		
centrical – picture 1							
16,0 F6	**20**	25	20	25	45	23111.0702	23111.0802
	25	25	25	25	55	23111.0704	23111.0804
20,0 F6	**20**	35	20	35	100	23111.0706	23111.0806
	25	35	25	35	125	23111.0708	23111.0808
25,0 F6	**20**	35	20	35	75	23111.0710	23111.0810
	25	35	25	35	95	23111.0712	23111.0812
30,0 F6	**20**	45	20	45	140	23111.0714	23111.0814
	25	45	25	45	175	23111.0716	23111.0816
floating – picture 2							
16,8 +0,2	**20**	25	20	25	42	23111.0732	23111.0832
	25	25	25	25	52	23111.0734	23111.0834
20,8 +0,2	**20**	35	20	35	95	23111.0736	23111.0836
	25	35	25	35	120	23111.0738	23111.0838
25,8 +0,2	**20**	35	20	35	70	23111.0740	23111.0840
	25	35	25	35	85	23111.0742	23111.0842
30,8 +0,2	**20**	45	20	45	135	23111.0744	23111.0844
	25	45	25	45	165	23111.0746	23111.0846

Locating Bushings • for positioning clamping pins, for press fit

EH 23111.

PRODUCT DESCRIPTION

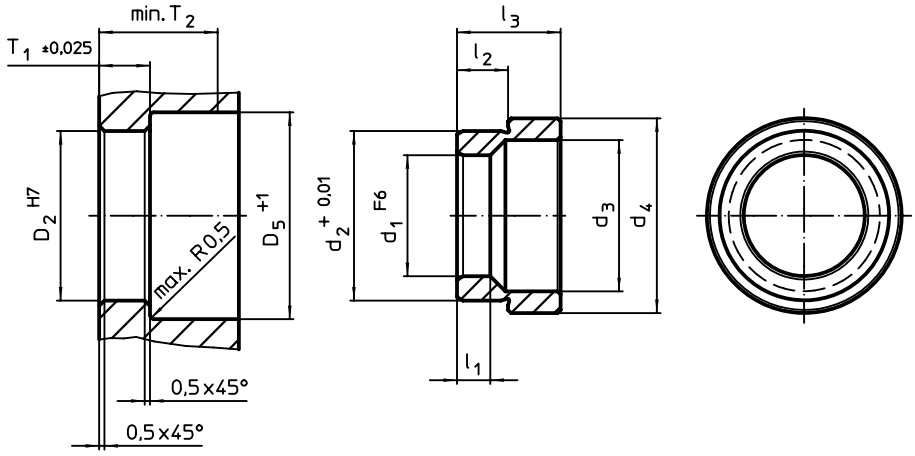
Material

- Case-hardened steel, case-hardened, blackened
- Stainless steel 1.4112, hardened

Assembly

The press fit locating bush for positioning clamping pins are inserted in the machine table or the base plate with light pressure.

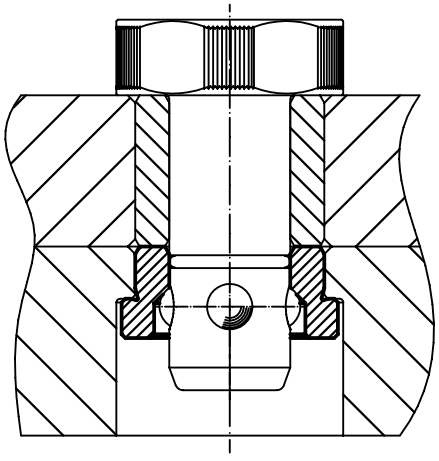
DRAWING



ORDER INFORMATION

Dimensions							Location hole					Art. No.	
d_1 F6	d_2 +0,01	d_3	d_4	l_1	l_2	l_3	D_2 h7	D_5 +1	T_1 ±0,02	T2 min.		case-hardened steel	stainless steel
[mm]							[mm]				[g]		
16	22,03	20	28,6	5,25	6,90	12,1	22	31	7,25	22	25	23111.0762	23111.0862
20	28,03	25	32,2	5,25	8,42	17,1	28	34	8,75	22	40	23111.0764	23111.0864
25	35,03	31	40,2	5,25	10,22	21,0	35	42	10,55	28	80	23111.0766	23111.0866
30	42,03	37	48,2	5,25	10,63	21,8	42	50	10,95	28	115	23111.0768	23111.0868

APPLICATION EXAMPLE



Locating Bushings • for positioning clamping pins, for screw fit

EH 23111.

PRODUCT DESCRIPTION

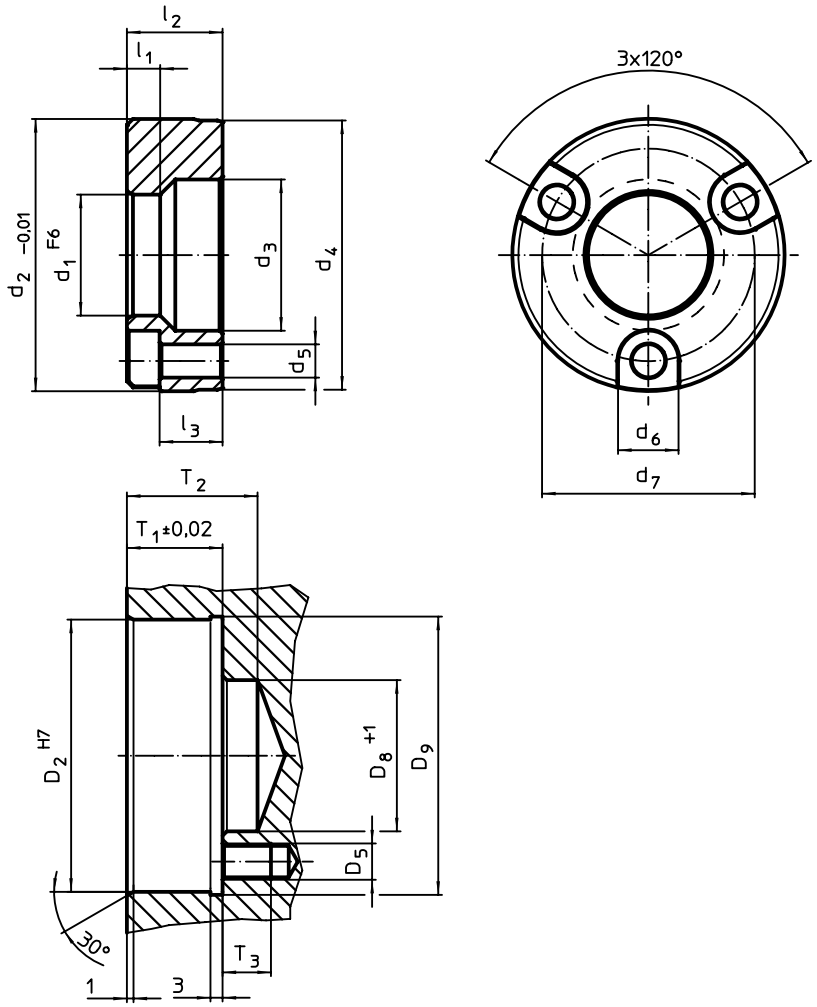
Material

- Case-hardened steel, case-hardened, blackened
- Stainless steel 1.4112, hardened

Assembly

The screw fit locating bushings for positioning clamping pins are inserted in the machine table or in the base plate and are screwed on.
Supplied with mounting screws.

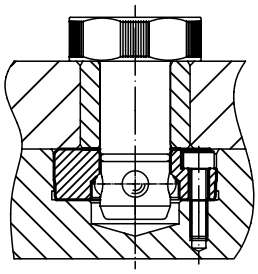
DRAWING



ORDER INFORMATION

Dimensions										Location hole								Art. No.	
d_1 F6	d_2 -0,01	d_3	d_4	d_5	d_6	d_7	l_1	l_2	l_3 ~	D_2 H7	D_5	D_8 +1	D_9	T_1 ±0,02	T2	T3		case-hardened steel	stainless steel
[mm]										[mm]							[g]		
16	36,99	20	36,5	4,5	8	29	5,25	11,56	7,0	37	M4	20	38,5	11,91	22	12	70	23111.0782	23111.0882
20	44,99	25	44,5	5,5	10	35	5,25	15,82	10,0	45	M5	25	46,5	16,21	22	12	130	23111.0784	23111.0884
25	54,99	31	54,5	6,6	11	42	5,25	19,94	13,5	55	M6	31	56,5	20,32	28	14	245	23111.0786	23111.0886
30	59,99	37	59,5	6,6	11	48	5,25	21,77	15,0	60	M6	37	61,5	22,15	28	14	300	23111.0788	23111.0888

APPLICATION EXAMPLE



Positioning Bushings • with collar, DIN 172 A

EH 23112.

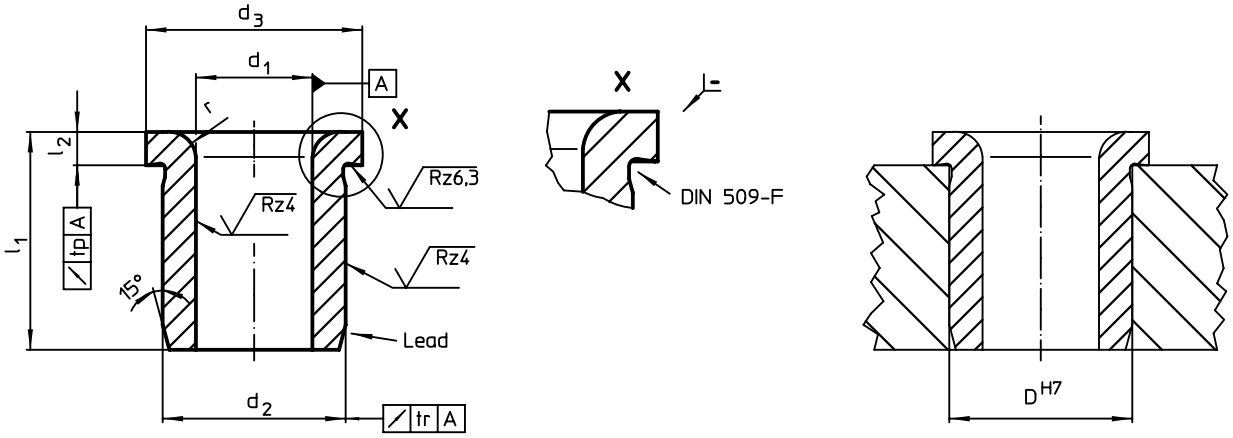
PRODUCT DESCRIPTION

Positioning or drill bushes used to drill repetitive holes in the same location to ensure repeatabililty.
The hardened and ground positioning bushings can be used as wear-resistant guide for drills, shafts etc.

Material

- Case-hardened steel, case hardened

DRAWING



ORDER INFORMATION

d_1 F7	l_1	d_2 n6	d_3	l_2	r	Location hole D H7		Art. No.
		[mm]				[mm]	[g]	
2,0	**6**	5	8	2,0	1,0	5	1,2	23112.0020
	9	5	8	2,0	1,0	5	1,6	23112.0021
2,1	**6**	5	8	2,0	1,0	5	1,2	23112.0022
	9	5	8	2,0	1,0	5	1,5	23112.0023
2,5	**6**	5	8	2,0	1,0	5	1,1	23112.0024
	9	5	8	2,0	1,0	5	1,4	23112.0025
3,0	**8**	6	9	2,5	1,0	6	1,9	23112.0030
	12	6	9	2,5	1,0	6	2,6	23112.0031
	16	6	9	2,5	1,0	6	3,2	23112.0032
3,1	**8**	6	9	2,5	1,0	6	1,9	23112.0033
	12	6	9	2,5	1,0	6	2,5	23112.0034
	16	6	9	2,5	1,0	6	3,2	23112.0035
3,5	**8**	7	10	2,5	1,0	7	2,4	23112.0036
	12	7	10	2,5	1,0	7	3,4	23112.0037
	16	7	10	2,5	1,0	7	4,3	23112.0038
4,0	**8**	7	10	2,5	1,0	7	2,3	23112.0040
	12	7	10	2,5	1,0	7	3,1	23112.0041
	16	7	10	2,5	1,0	7	3,9	23112.0042
4,1	**8**	8	11	2,5	1,0	8	3,0	23112.0043
	12	8	11	2,5	1,0	8	4,2	23112.0044
	16	8	11	2,5	1,0	8	5,3	23112.0045
4,5	**8**	8	11	2,5	1,0	8	2,9	23112.0046
	12	8	11	2,5	1,0	8	3,9	23112.0047
	16	8	11	2,5	1,0	8	5,0	23112.0048
5,0	**8**	8	11	2,5	1,0	8	2,6	23112.0050
	12	8	11	2,5	1,0	8	3,6	23112.0051
	16	8	11	2,5	1,0	8	4,5	23112.0052

→

3

Dimensions						Location hole		Art. No.
d_1 F7	l_1	d_2 n6	d_3	l_2	r	D H7		
[mm]						[mm]	[g]	
5,1	10	10	13	3,0	1,5	10	5,5	23112.0053
	16	10	13	3,0	1,5	10	8,2	23112.0054
	20	10	13	3,0	1,5	10	10,0	23112.0055
5,5	10	10	13	3,0	1,5	10	5,3	23112.0056
	16	10	13	3,0	1,5	10	7,9	23112.0057
	20	10	13	3,0	1,5	10	9,6	23112.0058
6,0	10	10	13	3,0	1,5	10	4,9	23112.0060
	16	10	13	3,0	1,5	10	7,3	23112.0061
	20	10	13	3,0	1,5	10	8,8	23112.0062
6,1	10	12	15	3,0	1,5	12	7,7	23112.0063
	16	12	15	3,0	1,5	12	12,0	23112.0064
	20	12	15	3,0	1,5	12	14,0	23112.0065
6,5	10	12	15	3,0	1,5	12	7,4	23112.0066
	16	12	15	3,0	1,5	12	11,0	23112.0067
	20	12	15	3,0	1,5	12	14,0	23112.0068
7,0	10	12	15	3,0	1,5	12	7,0	23112.0070
	16	12	15	3,0	1,5	12	10,0	23112.0071
	20	12	15	3,0	1,5	12	13,0	23112.0072
7,1	10	12	15	3,0	1,5	12	6,9	23112.0073
	16	12	15	3,0	1,5	12	10,0	23112.0074
	20	12	15	3,0	1,5	12	13,0	23112.0075
7,5	10	12	15	3,0	1,5	12	6,5	23112.0076
	16	12	15	3,0	1,5	12	9,7	23112.0077
	20	12	15	3,0	1,5	12	12,0	23112.0078
8,0	10	12	15	3,0	1,5	12	6,0	23112.0080
	16	12	15	3,0	1,5	12	9,0	23112.0081
	20	12	15	3,0	1,5	12	11,0	23112.0082
8,1	12	15	18	3,0	2,0	15	13,0	23112.0083
	20	15	18	3,0	2,0	15	25,0	23112.0084
	25	15	18	3,0	2,0	15	26,0	23112.0085
8,5	12	15	18	3,0	2,0	15	13,0	23112.0086
	20	15	18	3,0	2,0	15	20,0	23112.0087
	25	15	18	3,0	2,0	15	25,0	23112.0088
9,0	12	15	18	3,0	2,0	15	12,0	23112.0090
	20	15	18	3,0	2,0	15	19,0	23112.0091
	25	15	18	3,0	2,0	15	23,0	23112.0092
9,1	12	15	18	3,0	2,0	15	12,0	23112.0093
	20	15	18	3,0	2,0	15	19,0	23112.0094
	25	15	18	3,0	2,0	15	23,0	23112.0095
9,5	12	15	18	3,0	2,0	15	11,0	23112.0096
	20	15	18	3,0	2,0	15	18,0	23112.0097
	25	15	18	3,0	2,0	15	22,0	23112.0098
10,0	12	15	18	3,0	2,0	15	11,0	23112.0100
	20	15	18	3,0	2,0	15	17,0	23112.0101
	25	15	18	3,0	2,0	15	20,0	23112.0102
10,1	12	18	22	4,0	2,0	18	20,0	23112.0103
	20	18	22	4,0	2,0	18	30,0	23112.0104
	25	18	22	4,0	2,0	18	37,0	23112.0105
10,5	12	18	22	4,0	2,0	18	19,0	23112.0106
	20	18	22	4,0	2,0	18	29,0	23112.0107
	25	18	22	4,0	2,0	18	36,0	23112.0108
11,0	12	18	22	4,0	2,0	18	18,0	23112.0110
	20	18	22	4,0	2,0	18	28,0	23112.0111
	25	18	22	4,0	2,0	18	34,0	23112.0112
11,1	12	18	22	4,0	2,0	18	18,0	23112.0113
	20	18	22	4,0	2,0	18	28,0	23112.0114
	25	18	22	4,0	2,0	18	34,0	23112.0115
11,5	12	18	22	4,0	2,0	18	17,0	23112.0116
	20	18	22	4,0	2,0	18	26,0	23112.0117
	25	18	22	4,0	2,0	18	33,0	23112.0118
12,0	12	18	22	4,0	2,0	18	16,0	23112.0120
	20	18	22	4,0	2,0	18	25,0	23112.0121
	25	18	22	4,0	2,0	18	31,0	23112.0122

→

Dimensions						Location hole		Art. No.
d_1 F7	l_1	d_2 n6	d_3	l_2	r	D H7		
[mm]						[mm]	[g]	
12,1	16	22	26	4,0	2,0	22	37,0	23112.0123
	28	22	26	4,0	2,0	22	62,0	23112.0124
	36	22	26	4,0	2,0	22	78,0	23112.0125
12,5	16	22	26	4,0	2,0	22	36,0	23112.0126
	28	22	26	4,0	2,0	22	60,0	23112.0127
	36	22	26	4,0	2,0	22	76,0	23112.0128
13,0	16	22	26	4,0	2,0	22	34,0	23112.0130
	28	22	26	4,0	2,0	22	58,0	23112.0131
	36	22	26	4,0	2,0	22	73,0	23112.0132
14,0	16	22	26	4,0	2,0	22	32,0	23112.0140
	28	22	26	4,0	2,0	22	53,0	23112.0141
	36	22	26	4,0	2,0	22	67,0	23112.0142
15,0	16	22	26	4,0	2,0	22	29,0	23112.0150
	28	22	26	4,0	2,0	22	48,0	23112.0151
	36	22	26	4,0	2,0	22	61,0	23112.0152
16,0	16	26	30	4,0	2,0	26	45,0	23112.0160
	28	26	30	4,0	2,0	26	76,0	23112.0161
	36	26	30	4,0	2,0	26	97,0	23112.0162
16,1	16	26	30	4,0	2,0	26	45,0	23112.0163
	28	26	30	4,0	2,0	26	76,0	23112.0164
	36	26	30	4,0	2,0	26	96,0	23112.0165
16,5	16	26	30	4,0	2,0	26	44,0	23112.0166
	28	26	30	4,0	2,0	26	73,0	23112.0167
	36	26	30	4,0	2,0	26	93,0	23112.0168
17,0	16	26	30	4,0	2,0	26	42,0	23112.0171
	28	26	30	4,0	2,0	26	70,0	23112.0172
	36	26	30	4,0	2,0	26	90,0	23112.0173
18,0	16	26	30	4,0	2,0	26	39,0	23112.0181
	28	26	30	4,0	2,0	26	64,0	23112.0182
	36	26	30	4,0	2,0	26	82,0	23112.0183
19,0	20	30	34	5,0	3,0	30	71,0	23112.0191
	36	30	34	5,0	3,0	30	125,0	23112.0192
	45	30	34	5,0	3,0	30	154,0	23112.0193
20,0	20	30	34	5,0	3,0	30	67,0	23112.0201
	36	30	34	5,0	3,0	30	117,0	23112.0202
	45	30	34	5,0	3,0	30	143,0	23112.0203
20,1	20	30	34	5,0	3,0	30	66,0	23112.0204
	36	30	34	5,0	3,0	30	115,0	23112.0205
	45	30	34	5,0	3,0	30	142,0	23112.0206
22,0	20	30	34	5,0	3,0	30	56,0	23112.0221
	36	30	34	5,0	3,0	30	97,0	23112.0222
	45	30	34	5,0	3,0	30	120,0	23112.0223
25,0	20	35	39	5,0	3,0	35	80,0	23112.0251
	36	35	39	5,0	3,0	35	138,0	23112.0252
	45	35	39	5,0	3,0	35	171,0	23112.0253
30,0	25	42	46	5,0	3,0	42	139,0	23112.0301
	45	42	46	5,0	3,0	42	245,0	23112.0302
	56	42	46	5,0	3,0	42	304,0	23112.0303

Positioning Bushings • without collar, DIN 179 A

EH 23112.

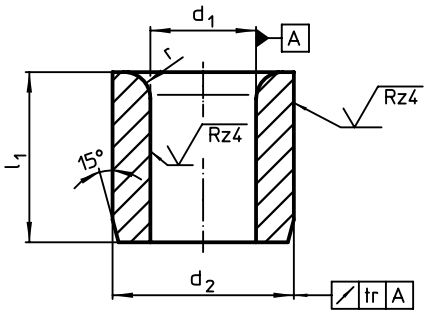
PRODUCT DESCRIPTION

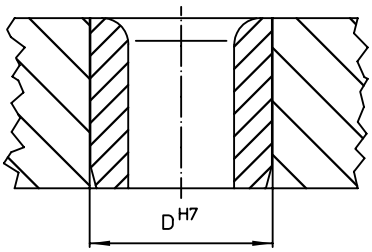
Positioning or drill bushes used to drill repetitive holes in the same location to ensure repeatabililty.
The hardened and ground positioning bushings can be used as wear-resistant guide for drills, shafts etc.

Material

- Case-hardened steel, case hardened

DRAWING





ORDER INFORMATION

Dimensions				Location hole		Art. No.
d_1 F7	l_1	d_2 n6	r	D H7		
[mm]				[mm]	[g]	
2,0	6	5	1,0	5	0,7	23112.0520
	9	5	1,0	5	1,1	23112.0521
2,1	6	5	1,0	5	0,7	23112.0522
	9	5	1,0	5	1,1	23112.0523
2,5	6	5	1,0	5	0,7	23112.0524
	9	5	1,0	5	1,0	23112.0525
3,0	8	6	1,0	6	1,3	23112.0530
	12	6	1,0	6	1,9	23112.0531
	16	6	1,0	6	2,6	23112.0532
3,1	8	6	1,0	6	1,2	23112.0533
	12	6	1,0	6	1,9	23112.0534
	16	6	1,0	6	2,5	23112.0535
3,5	8	7	1,0	7	1,7	23112.0536
	12	7	1,0	7	2,6	23112.0537
	16	7	1,0	7	3,6	23112.0538
4,0	8	7	1,0	7	1,5	23112.0540
	12	7	1,0	7	2,4	23112.0541
	16	7	1,0	7	3,2	23112.0542
4,1	8	8	1,0	8	2,2	23112.0543
	12	8	1,0	8	3,4	23112.0544
	16	8	1,0	8	4,6	23112.0545
4,5	8	8	1,0	8	2,1	23112.0546
	12	8	1,0	8	3,1	23112.0547
	16	8	1,0	8	4,2	23112.0548
5,0	8	8	1,0	8	1,8	23112.0550
	12	8	1,0	8	2,8	23112.0551
	16	8	1,0	8	3,7	23112.0552
5,1	10	10	1,5	10	4,4	23112.0553
	16	10	1,5	10	7,1	23112.0554
	20	10	1,5	10	8,9	23112.0555
5,5	10	10	1,5	10	4,1	23112.0556
	16	10	1,5	10	6,7	23112.0557
	20	10	1,5	10	8,4	23112.0558

→

Dimensions				Location hole		Art. No.
d_1 F7	l_1	d_2 n6	r	D H7		
[mm]				[mm]	[g]	
6,0	10	10	1,5	10	3,8	23112.0560
	16	10	1,5	10	6,1	23112.0561
	20	10	1,5	10	7,7	23112.0562
6,1	10	12	1,5	12	6,3	23112.0563
	16	12	1,5	12	10,0	23112.0564
	20	12	1,5	12	13,0	23112.0565
6,5	10	12	1,5	12	6,0	23112.0566
	16	12	1,5	12	9,7	23112.0567
	20	12	1,5	12	12,0	23112.0568
7,0	10	12	1,5	12	5,6	23112.0570
	16	12	1,5	12	9,1	23112.0571
	20	12	1,5	12	11,0	23112.0572
7,1	10	12	1,5	12	5,5	23112.0573
	16	12	1,5	12	9,0	23112.0574
	20	12	1,5	12	11,0	23112.0575
7,5	10	12	1,5	12	5,1	23112.0576
	16	12	1,5	12	8,4	23112.0577
	20	12	1,5	12	11,0	23112.0578
8,0	10	12	1,5	12	4,7	23112.0580
	16	12	1,5	12	7,6	23112.0581
	20	12	1,5	12	9,6	23112.0582
8,1	12	15	2,0	15	11,0	23112.0583
	20	15	2,0	15	19,0	23112.0584
	25	15	2,0	15	24,0	23112.0585
8,5	12	15	2,0	15	11,0	23112.0586
	20	15	2,0	15	18,0	23112.0587
	25	15	2,0	15	23,0	23112.0588
9,0	12	15	2,0	15	10,0	23112.0590
	20	15	2,0	15	17,0	23112.0591
	25	15	2,0	15	22,0	23112.0592
9,1	12	15	2,0	15	10,0	23112.0593
	20	15	2,0	15	17,0	23112.0594
	25	15	2,0	15	21,0	23112.0595
9,5	12	15	2,0	15	9,5	23112.0596
	20	15	2,0	15	16,0	23112.0597
	25	15	2,0	15	20,0	23112.0598
10,0	12	15	2,0	15	8,8	23112.0600
	20	15	2,0	15	15,0	23112.0601
	25	15	2,0	15	19,0	23112.0602
10,1	12	18	2,0	18	16,0	23112.0603
	20	18	2,0	18	27,0	23112.0604
	25	18	2,0	18	33,0	23112.0605
10,5	12	18	2,0	18	15,0	23112.0606
	20	18	2,0	18	26,0	23112.0607
	25	18	2,0	18	32,0	23112.0608
11,0	12	18	2,0	18	14,0	23112.0610
	20	18	2,0	18	24,0	23112.0611
	25	18	2,0	18	31,0	23112.0612
11,1	12	18	2,0	18	14,0	23112.0613
	20	18	2,0	18	24,0	23112.0614
	25	18	2,0	18	30,0	23112.0615
11,5	12	18	2,0	18	14,0	23112.0616
	20	18	2,0	18	23,0	23112.0617
	25	18	2,0	18	29,0	23112.0618
12,0	12	18	2,0	18	13,0	23112.0620
	20	18	2,0	18	22,0	23112.0621
	25	18	2,0	18	27,0	23112.0622
12,1	16	22	2,0	22	32,0	23112.0623
	28	22	2,0	22	57,0	23112.0624
	36	22	2,0	22	74,0	23112.0625
12,5	16	22	2,0	22	31,0	23112.0626
	28	22	2,0	22	66,0	23112.0627
	36	22	2,0	22	69,0	23112.0628

→

Dimensions				Location hole		Art. No.
d_1 F7	l_1	d_2 n6	r	D H7		
[mm]				[mm]	[g]	
13,0	**16**	22	2,0	22	30,0	**23112.0630**
	28	22	2,0	22	53,0	**23112.0631**
	36	22	2,0	22	69,0	**23112.0632**
14,0	**16**	22	2,0	22	27,0	**23112.0640**
	28	22	2,0	22	49,0	**23112.0641**
	36	22	2,0	22	63,0	**23112.0642**
15,0	**16**	22	2,0	22	25,0	**23112.0650**
	28	22	2,0	22	44,0	**23112.0651**
	36	22	2,0	22	56,0	**23112.0652**
16,0	**16**	26	2,0	26	45,0	**23112.0660**
	28	26	2,0	26	71,0	**23112.0661**
	36	26	2,0	26	92,0	**23112.0662**
16,1	**16**	26	2,0	26	40,0	**23112.0663**
	28	26	2,0	26	71,0	**23112.0664**
	36	26	2,0	26	91,0	**23112.0665**
16,5	**16**	26	2,0	26	39,0	**23112.0666**
	28	26	2,0	26	68,0	**23112.0667**
	36	26	2,0	26	88,0	**23112.0668**
17,0	**16**	26	2,0	26	37,0	**23112.0671**
	28	26	2,0	26	65,0	**23112.0672**
	36	26	2,0	26	84,0	**23112.0673**
18,0	**16**	26	2,0	26	33,0	**23112.0681**
	28	26	2,0	26	59,0	**23112.0682**
	36	26	2,0	26	77,0	**23112.0683**
19,0	**20**	30	3,0	30	64,0	**23112.0691**
	36	30	3,0	30	117,0	**23112.0692**
	45	30	3,0	30	147,0	**23112.0693**
20,0	**20**	30	3,0	30	59,0	**23112.0701**
	36	30	3,0	30	108,0	**23112.0702**
	45	30	3,0	30	136,0	**23112.0703**
20,1	**20**	30	3,0	30	59,0	**23112.0704**
	36	30	3,0	30	108,0	**23112.0705**
	45	30	3,0	30	135,0	**23112.0706**
22,0	**20**	30	3,0	30	49,0	**23112.0721**
	36	30	3,0	30	90,0	**23112.0722**
	45	30	3,0	30	113,0	**23112.0723**
25,0	**20**	35	3,0	35	71,0	**23112.0751**
	36	35	3,0	35	130,0	**23112.0752**
	45	35	3,0	35	163,0	**23112.0753**
30,0	**25**	42	3,0	42	129,0	**23112.0801**
	45	42	3,0	42	235,0	**23112.0802**
	56	42	3,0	42	293,0	**23112.0803**

Clamps • DIN 6314 flat

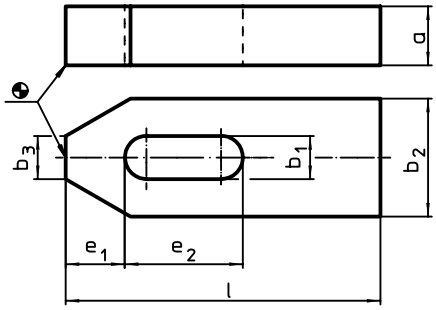
EH 23140.

PRODUCT DESCRIPTION

Material

- Heat-treated steel, varnished

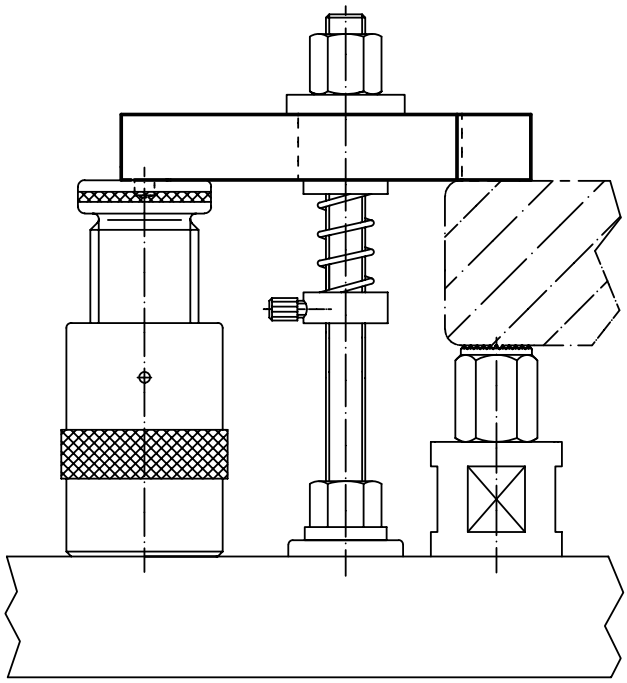
DRAWING



ORDER INFORMATION

Nominal dimension b_1	Dimensions						For screws			Art. No.
	l	a	b_2	b_3	e_1	e_2				
[mm]	[mm]						[mm]	[inch]	[g]	
6,6	**50**	10	20	8	10	20	M 6	1/4	61	**23140.0007**
9,0	**60**	12	25	10	13	22	M 8	5/16	112	**23140.0009**
11,0	**80**	15	30	12	15	30	M10	3/8	228	**23140.0011**
14,0	**100**	20	40	14	21	40	M12, M14	1/2	492	**23140.0014**
	125	20	40	14	21	50	M12, M14	1/2	623	**23140.0015**
18,0	**125**	25	50	18	26	45	M16, M18	5/8	980	**23140.0018**
	160	25	50	18	26	65	M16, M18	5/8	1246	**23140.0019**
22,0	**160**	30	60	22	30	60	M20, M22	3/4	1793	**23140.0022**
	200	30	60	22	30	80	M20, M22	3/4	2244	**23140.0023**
26,0	**200**	30	70	26	35	80	M24	1	2617	**23140.0026**
	250	30	70	26	35	105	M24	1	3823	**23140.0027**
33,0	**250**	40	80	34	45	100	M30	1 1/4	4980	**23140.0034**
	315	50	80	34	45	130	M30	1 1/4	7840	**23140.0035**

APPLICATION EXAMPLE



Clamps • DIN 6315 B forked

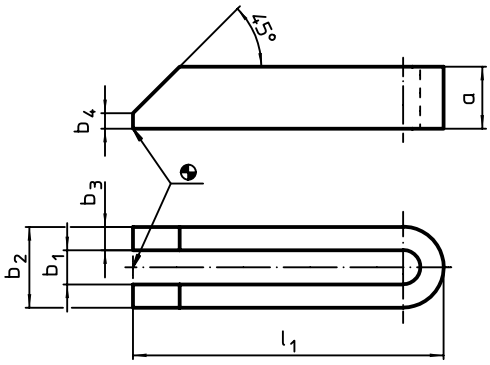
EH 23150.

PRODUCT DESCRIPTION

Material

- Heat-treated steel, varnished

DRAWING



ORDER INFORMATION

Nominal dimension b_1	Dimensions					For screws			Art. No.
	l_1	a	b_2	b_3	b_4				
[mm]	[mm]					[mm]	[inch]	[g]	
6,6	**60**	12	19	6	3	M 6	1/4	65	**23150.0007**
9,0	**80**	15	25	8	4	M 8	5/16	141	**23150.0009**
11,0	**100**	20	31	10	5	M10	3/8	299	**23150.0011**
14,0	**125**	25	38	12	6	M12, M14	1/2	578	**23150.0014**
	160	25	38	12	6	M12, M14	1/2	715	**23150.0015**
	200	25	38	12	6	M12, M14	1/2	905	**23150.0016**
18,0	**160**	30	48	15	8	M16, M18	5/8	1077	**23150.0018**
	200	30	48	15	8	M16, M18	5/8	1346	**23150.0019**
	250	40	48	15	10	M16, M18	5/8	2300	**23150.0020**
22,0	**200**	40	52	15	10	M20, M22	3/4	1809	**23150.0022**
	250	40	62	20	10	M20, M22	3/4	3021	**23150.0023**
	315	40	62	20	10	M20, M22	3/4	3800	**23150.0024**
26,0	**200**	40	66	20	10	M24	1	2377	**23150.0026**
	250	40	66	20	10	M24	1	3031	**23150.0027**
	315	40	66	20	10	M24	1	3802	**23150.0028**
	500	40	66	20	10	M24	1	8937	**23150.0030**
33,0	**250**	50	74	20	12	M30	1 1/4	3720	**23150.0034**
	315	50	74	20	12	M30	1 1/4	4743	**23150.0035**
	400	50	74	20	12	M30	1 1/4	6080	**23150.0036**
40,0	**400**	60	100	30	12	M36	1 1/2	10920	**23150.0040**[1)]
	600	60	100	30	12	M36	1 1/2	16500	**23150.0041**[1)]

[1)] DIN standards do not include these dimensions.

Clamps • DIN 6316 with goose-neck

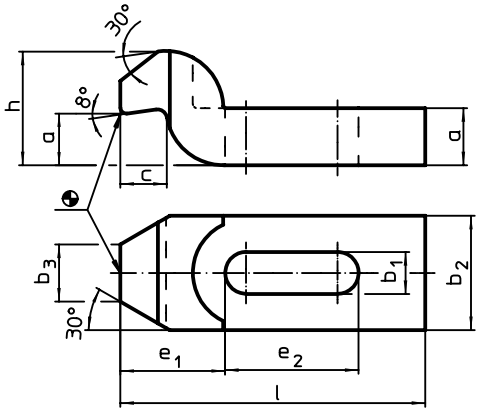
EH 23160.

PRODUCT DESCRIPTION

Material

- Heat-treated steel, varnished

DRAWING

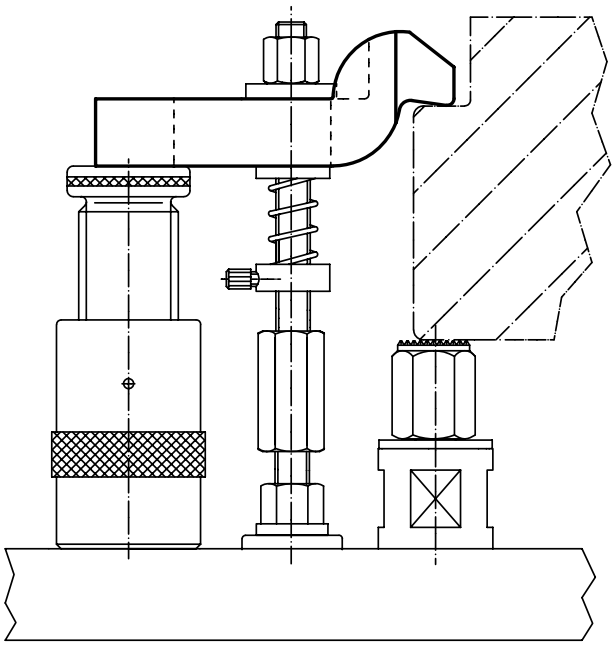


ORDER INFORMATION

Nominal dimension b_1	Dimensions								For screws			Art. No.
	l	a	b_2	b_3	c	e_1	e_2	h				
[mm]	[mm]								[mm]	[inch]	[g]	
6,6	60	10	20	10	8	20	20	20	M 6	1/4	81	23160.0007
9,0	80	12	25	12	9	25	25	24	M 8	5/16	165	23160.0009
11,0	100	15	30	15	12	32	32	30	M10	3/8	301	23160.0011
14,0	125	20	40	20	16	40	40	40	M12, M14	1/2	679	23160.0014
18,0	125	25	50	25	20	49	40	50	M16, M18	5/8	1059	23160.0018[1]
	160	25	50	25	20	49	50	50	M16, M18	5/8	1356	23160.0019
22,0	160	30	60	30	24	55	55	60	M20	3/4	1898	23160.0022[1]
	200	30	60	30	24	55	70	60	M20	3/4	2383	23160.0023
26,0	200	35	70	35	28	72	60	70	M24	1	3303	23160.0026[1]
	250	35	70	35	28	72	80	70	M24	1	4115	23160.0027
33,0	250	40	80	40	40	91	80	80	M30	1 1/4	4500	23160.0034[1]
	315	50	80	40	40	91	100	100	M30	1 1/4	8340	23160.0035

[1] DIN standards do not include these dimensions.

APPLICATION EXAMPLE



Clamps • stepped

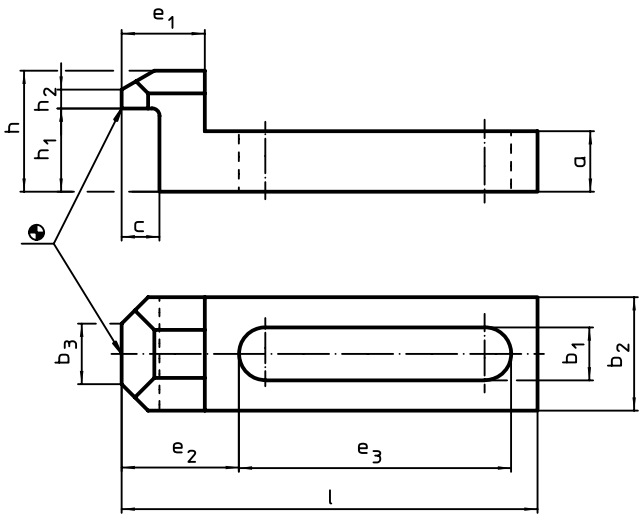
EH 23160.

PRODUCT DESCRIPTION

Material

- Heat-treated steel, tempered, blackened

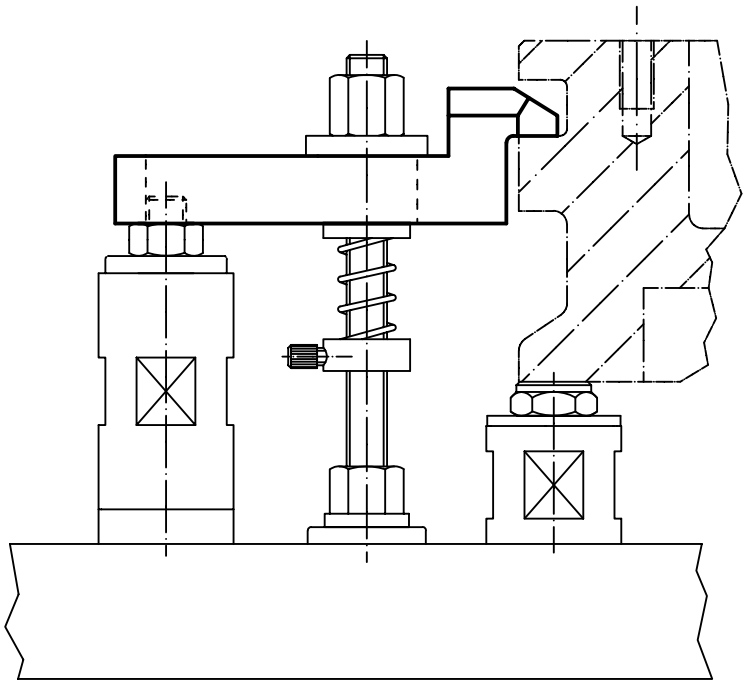
DRAWING



ORDER INFORMATION

Nominal dimension b_1	Dimensions											For screws			Art. No.
	l	a	b_2	b_3	c	e_1	e_2	e_3	h	h_1	h_2				
[mm]	[mm]											[mm]	[inch]	[g]	
6,6	**55**	8	15	8	5	11	15,5	36	16	11	2	M 6	1/4	39	23160.0107
9,0	**70**	10	20	10	8	15	19,5	46	20	14	3	M 8	5/16	80	23160.0109
11,0	**90**	13	25	12	10	19	26,5	58	25	18	4	M10	3/8	170	23160.0111
13,0	**115**	16	30	15	12	24	32,5	75	32	23	5	M12	1/2	328	23160.0113
17,0	**145**	20	40	20	14	29	38,5	99	40	28	6	M16	5/8	685	23160.0117

APPLICATION EXAMPLE



Clamps • with nose, closed

EH 23170.

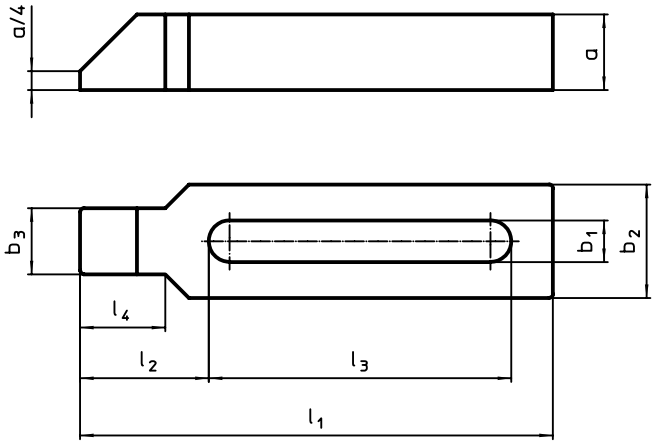
PRODUCT DESCRIPTION

Thanks to the closed slot, the clamp is suitable for an application with rotating workpieces.

Material

- Heat-treated steel, varnished

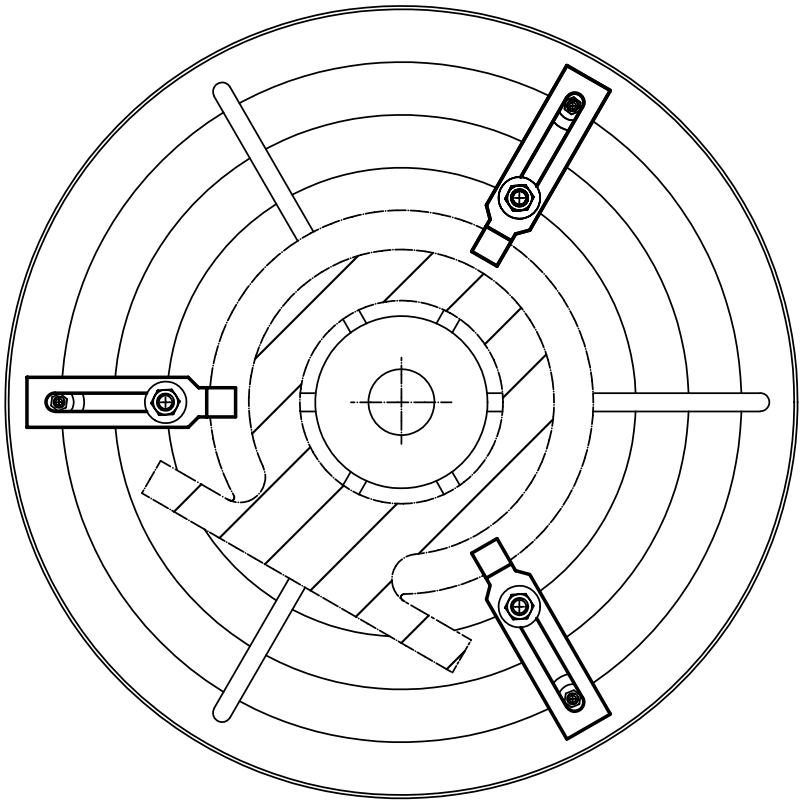
DRAWING



ORDER INFORMATION

Nominal dimension b_1	Dimensions							For screws			Art. No.
	l_1	a	b_2	b_3	l_2	l_3	l_4				
[mm]	[mm]							[mm]	[inch]	[g]	
22	250	40	60	35	68	160	45	M20, M22	3/4	2930	23170.0022
	315	40	60	35	68	220	45	M20, M22	3/4	3750	23170.0023
26	250	40	70	43	83	140	56	M24	1	3520	23170.0026
	315	40	70	43	83	200	56	M24	1	4510	23170.0027
	500	50	70	43	83	370	56	M24	1	7600	23170.0029
33	315	50	80	50	88	200	56	M30	1 1/4	6370	23170.0030
	400	50	80	50	88	283	56	M30	1 1/4	7780	23170.0031

APPLICATION EXAMPLE



Clamps • with flat-faced ball, similar to DIN 6314

EH 23180.

PRODUCT DESCRIPTION

Material

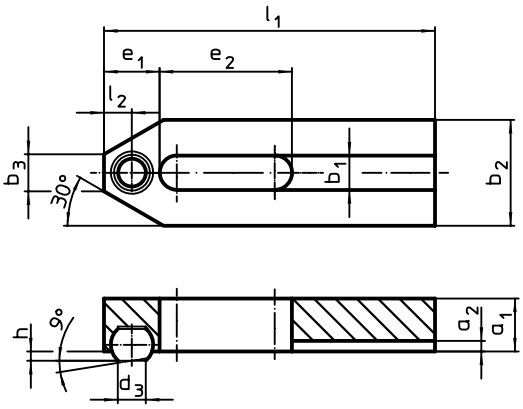
Ball
- Ball-bearing steel, hardened, bright

Clamp
- Heat-treated steel, blackened

MORE INFORMATION

Notes
Ball protected against rotating.

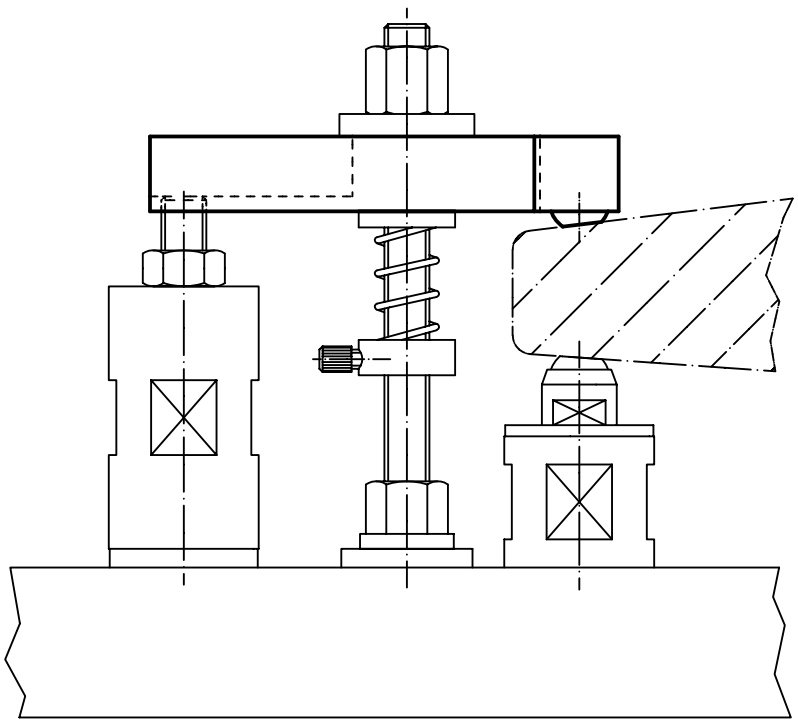
DRAWING



ORDER INFORMATION

Nominal dimension b_1	Dimensions												Art. No.
	l_1	d_3	a_1	a_2	b_2	b_3	e_1	e_2	h	l_2	Ball Ø		
[mm]	[mm]											[g]	
6,6	**50**	5,8	10	2,5	20	8	10	20	1,6	5,0	8,5	61	23180.0007
9,0	**60**	7,2	12	3,0	25	10	13	22	2,0	6,5	10,0	109	23180.0009
11,0	**80**	8,6	15	3,5	30	12	15	30	2,7	7,5	12,0	219	23180.0011
13,0	**125**	10,5	20	4,0	40	14	21	50	3,5	10,5	16,0	615	23180.0014

APPLICATION EXAMPLE



Clamps • with nose

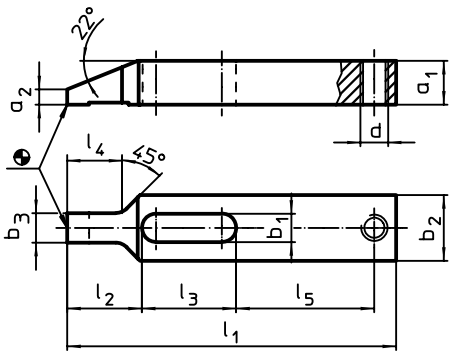
EH 23180.

PRODUCT DESCRIPTION

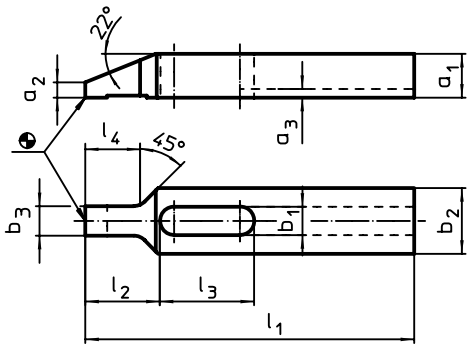
Material

- Heat-treated steel, tempered, blackened

DRAWING



picture 1

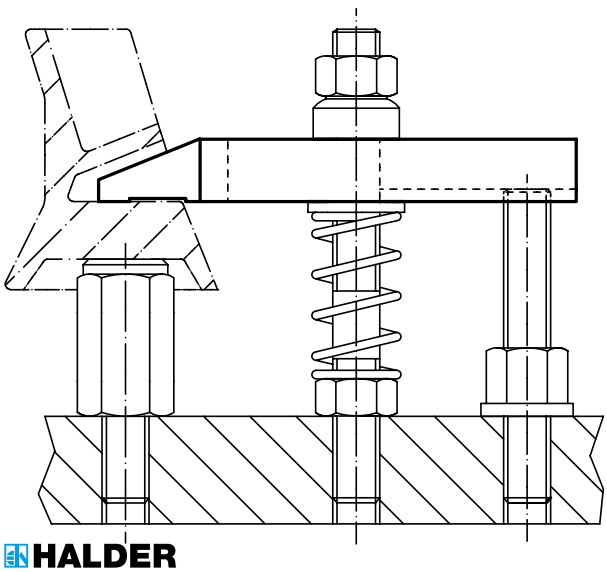


picture 2

ORDER INFORMATION

Nominal dimension b_1	Dimensions												Art. No.
	l_1	a_1	a_2	a_3	b_2	b_3	d	l_2	l_3	l_4	l_5		
[mm]	[mm]											[g]	
with thread for adjusting screw – picture 1													
6,6	**80**	8	2,5	–	15	7,5	M 6	17	23	13	34	54	23180.0107
9,0	**100**	12	4,0	–	20	9,5	M 8	22	29	17	42	133	23180.0109
11,0	**125**	15	5,0	–	25	11,5	M10	28	36	21	52	261	23180.0111
13,0	**150**	20	7,0	–	30	13,5	M12	34	43	25	63	504	23180.0113
17,0	**175**	25	9,0	–	35	15,5	M16	40	52	29	70	828	23180.0117
with keyway – picture 2													
6,6	**80**	8	2,5	2,5	15	7,5	–	17	23	13	–	50	23180.0207
9,0	**100**	12	4,0	3,0	20	9,5	–	22	29	17	–	127	23180.0209
11,0	**125**	15	5,0	3,5	25	11,5	–	28	36	21	–	251	23180.0211
13,0	**150**	20	7,0	4,0	30	13,5	–	34	43	25	–	488	23180.0213
17,0	**175**	25	9,0	4,5	35	15,5	–	40	52	29	–	812	23180.0217
22,0	**225**	35	15,5	5,5	50	19,5	–	52	62	33	–	2200	23180.0222
26,0	**250**	40	17,5	5,5	60	21,5	–	60	71	36	–	3340	23180.0226

APPLICATION EXAMPLE



Clamps • with soft face, similar to DIN 6314

EH 23190.

PRODUCT DESCRIPTION

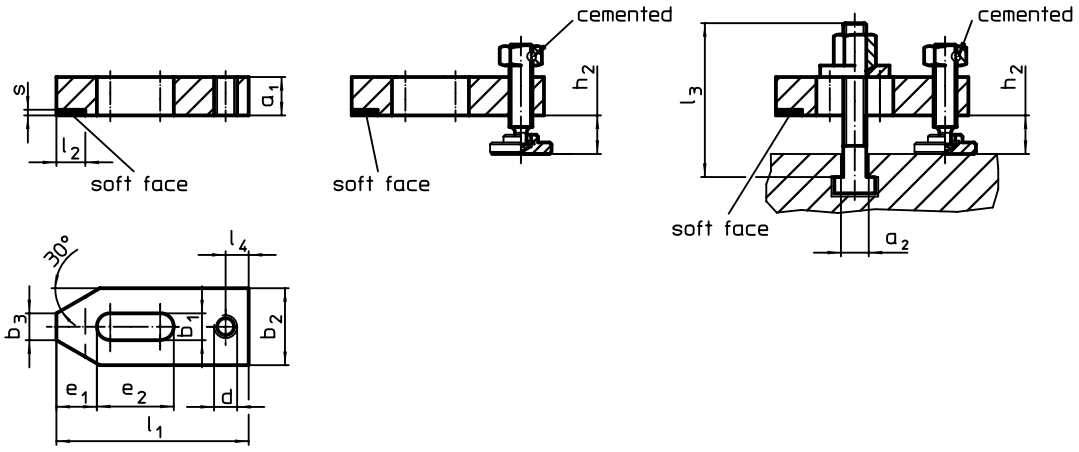
The brass plate protects the workpiece from damage. The combination of nut DIN 6330 B (EH 23070.)/ conical seat DIN 6319 G (EH 23050.) on the clamping bolt and thrust pad DIN 6311 (EH 22560. removable) on the adjusting screw compensates for the lack of parallelity. The clamp can be used either way (soft or hard clamping surface).

Material

Soft face
- Brass, brazed

Clamp
- Heat-treated steel, blackened

DRAWING



picture 1 picture 2 picture 3

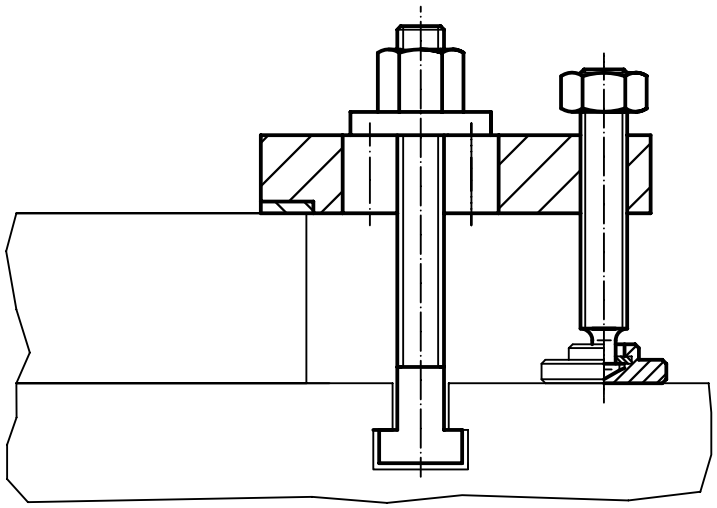
ORDER INFORMATION

Nominal dimension b_1	Dimensions												T-slot size	Clamping height			Art. No.
	a_1	l_3	a_2	b_2	b_3	d	e_1	e_2	l_1	l_2	l_4	s		h_2 min.	h_2 max.		
[mm]	[mm]												[mm]	[mm]		[g]	
without accessories – picture 1																	
9	**12**	–	–	25	10	M 8	13	22	60	10	8	2	–	–	–	104	23190.0010
11	**15**	–	–	30	12	M10	15	30	80	12	10	2	–	–	–	211	23190.0020
14	**20**	–	–	40	14	M12	21	40	100	15	12	3	–	–	–	461	23190.0030
18	**25**	–	–	50	18	M16	26	45	125	20	16	3	–	–	–	917	23190.0040
only with adjusting screw – picture 2																	
9	**12**	–	–	25	10	M 8	13	22	60	10	8	2	–	8	23	150	23190.0011
															43	160	23190.0012
11	**15**	–	–	30	12	M10	15	30	80	12	10	2	–	10	38	295	23190.0021
															58	310	23190.0022
14	**20**	–	–	40	14	M12	21	40	100	15	12	3	–	10	31	590	23190.0031
															71	620	23190.0032
18	**25**	–	–	50	18	M16	26	45	125	20	16	3	–	12	42	1150	23190.0041
															87	1220	23190.0042

→

Nominal dimension b_1	Dimensions												T-slot size	Clamping height			Art. No.
	a_1	l_3	a_2	b_2	b_3	d	e_1	e_2	l_1	l_2	l_4	s		h_2 min.	h_2 max.		
[mm]	[mm]												[mm]	[mm]		[g]	
with adjusting screw and clamping bolt – picture 3																	
9	**12**	**50**	7,6	25	10	M 8	13	22	60	10	8	2	8	8	16	200	**23190.0015**
		80	7,6	25	10	M 8	13	22	60	10	8	2	8	8	43	220	**23190.0016**
11	**15**	**65**	9,6	30	12	M10	15	30	80	12	10	2	10	10	22	385	**23190.0025**
		100	9,6	30	12	M10	15	30	80	12	10	2	10	10	58	420	**23190.0026**
14	**20**	**80**	11,6	40	14	M12	21	40	100	15	12	3	12	10	28	740	**23190.0035**
		125	11,6	40	14	M12	21	40	100	15	12	3	12	10	71	805	**23190.0036**
		80	13,6	40	14	M12	21	40	100	15	12	3	14	10	26	755	**23190.0037**
		125	13,6	40	14	M12	21	40	100	15	12	3	14	10	71	820	**23190.0038**
18	**25**	**100**	15,6	50	18	M16	26	45	125	20	16	3	16	12	31	1470	**23190.0045**
		160	15,6	50	18	M16	26	45	125	20	16	3	16	12	87	1630	**23190.0046**
		100	17,6	50	18	M16	26	45	125	20	16	3	18	12	32	1490	**23190.0047**
		160	17,6	50	18	M16	26	45	125	20	16	3	18	12	87	1650	**23190.0048**

APPLICATION EXAMPLE



3

Clamps • with exchangeable soft jaw

EH 23190.

PRODUCT DESCRIPTION

For clamping sensitive components.
The soft jaw made from brass or plastic protects the workpiece from damage.

Material

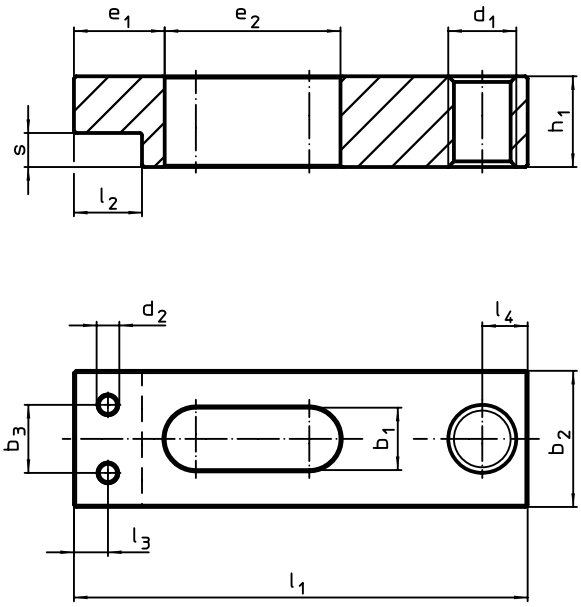
Soft jaw
- Brass
- Plastic

Clamp
- Heat-treated steel, blackened

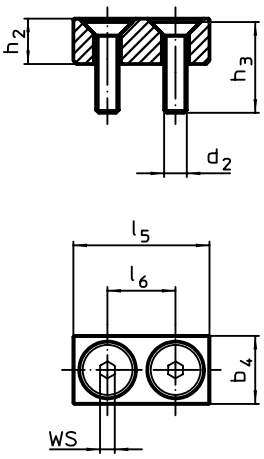
Assembly

The soft jaws are mounted or disassembled with two screws. These are included in the scope of delivery.

DRAWING



picture 1



picture 2

ORDER INFORMATION

Nominal dimension b_1 +0,5	Dimensions																	WS				Art. No.
	l_1	b_2	b_3	b_4	d_1	d_2	e_1	e_2	h_1	h_2	h_3	l_2	l_3	l_4	l_5	l_6	s		min.	max.		
[mm]	[mm]																	[mm]	[°C]		[g]	
plain clamp without soft jaw – picture 1																						
5,5	**40**	12	6	–	M 6	M2	8	15,5	8	–	–	6	3,0	4	–	–	3	–	–	–	25,0	23190.0050
7,0	**50**	16	9	–	M 6	M2,5	10	22,0	10	–	–	8	4,0	5	–	–	4	–	–	–	45,0	23190.0051
9,0	**63**	20	11	–	M 8	M3	12	29,0	12	–	–	10	5,0	6	–	–	4	–	–	–	85,0	23190.0052
11,0	**80**	25	14	–	M10	M4	15	36,0	16	–	–	13	6,5	8	–	–	6	–	–	–	180,0	23190.0053
14,0	**100**	32	16	–	M12	M5	18	44,0	20	–	–	16	8,0	10	–	–	8	–	–	–	363,0	23190.0054
18,0	**160**	50	30	–	M16	M8	30	63,0	30	–	–	28	14,0	16	–	–	12	–	–	–	1445,0	23190.0055
soft jaw from brass – picture 2																						
5,5	–	–	–	6	–	M2	–	–	–	4	8	–	–	–	12	6	–	1,3	–	250	2,5	23190.0060
7,0	–	–	–	8	–	M2,5	–	–	–	6	10	–	–	–	16	9	–	1,5	–	250	7,0	23190.0061
9,0	–	–	–	10	–	M3	–	–	–	6	12	–	–	–	20	11	–	2,0	–	250	11,0	23190.0062
11,0	–	–	–	13	–	M4	–	–	–	9	16	–	–	–	25	14	–	2,5	–	250	25,0	23190.0063
14,0	–	–	–	16	–	M5	–	–	–	12	20	–	–	–	32	16	–	3,0	–	250	53,0	23190.0064
18,0	–	–	–	28	–	M8	–	–	–	16	30	–	–	–	50	30	–	5,0	–	250	193,0	23190.0065
soft jaw from plastic – picture 2																						
5,5	–	–	–	6	–	M2	–	–	–	4	8	–	–	–	12	6	–	1,3	0	50	0,7	23190.0070
7,0	–	–	–	8	–	M2,5	–	–	–	6	10	–	–	–	16	9	–	1,5	0	50	1,6	23190.0071
9,0	–	–	–	10	–	M3	–	–	–	6	12	–	–	–	20	11	–	2,0	0	50	2,7	23190.0072
11,0	–	–	–	13	–	M4	–	–	–	9	16	–	–	–	25	14	–	2,5	0	50	6,0	23190.0073
14,0	–	–	–	16	–	M5	–	–	–	12	20	–	–	–	32	16	–	3,0	0	50	13,0	23190.0074
18,0	–	–	–	28	–	M8	–	–	–	16	30	–	–	–	50	30	–	5,0	0	50	48,0	23190.0075

Supporting Elements • for clamps

EH 23200.

PRODUCT DESCRIPTION

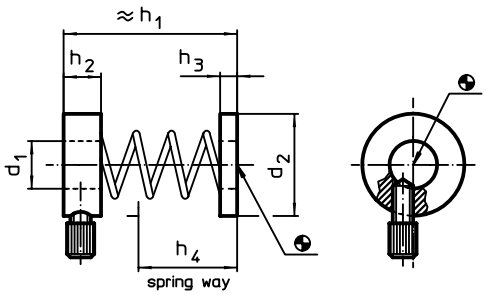
Material

Knurled screw
- Brass

Rings
- Aluminium, highly refractory

Spring
- Stainless steel

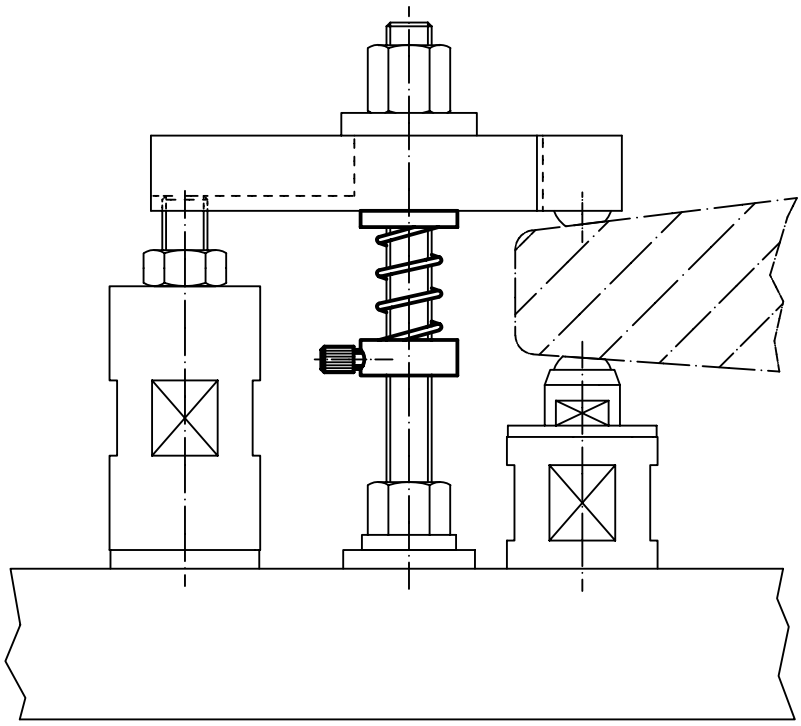
DRAWING



ORDER INFORMATION

Dimensions [mm]						For screw [mm]	[g]	Art. No.
d_1	d_2	h_1	h_2	h_3	h_4			
8,5	24	35	11	5	14	M 6, M8	24	23200.0010
14,0	28	51	11	5	29	M10, M12	28	23200.0020
16,5	35	60	12	5	35	M16	44	23200.0030

APPLICATION EXAMPLE

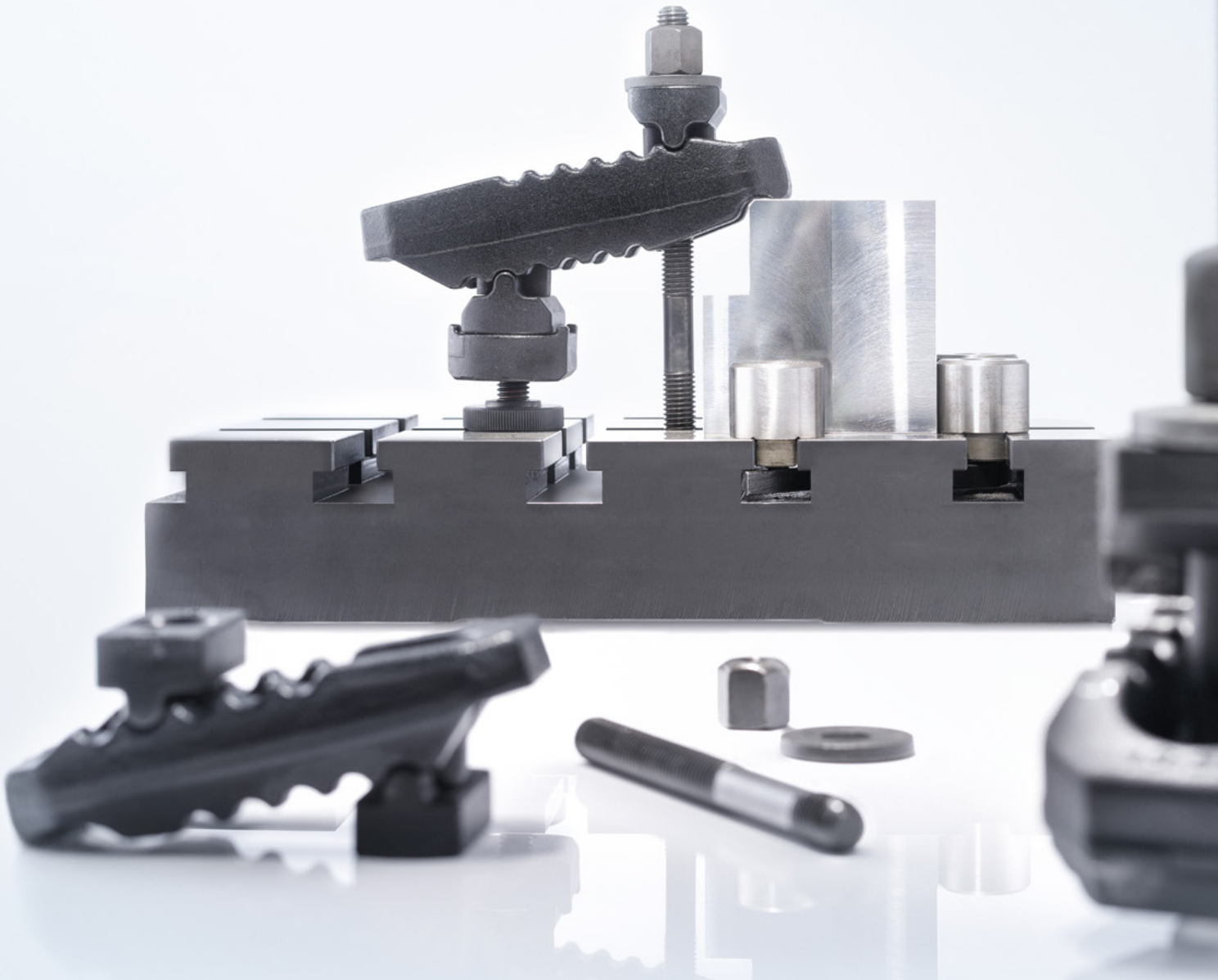


3

CLAMPING ELEMENTS

NO FEAR OF GRADIENTS

Our slotted clamps with adjustable counter piece effortlessly overcome any elevations in the clamped material. They are also quick and easy to use. What is more, thrust pad and counter piece are linked to the straight clamp by a non-losable connection, allowing for significantly improved handling.



Clamps • slotted, with adjustable counter piece

EH 23185.

PRODUCT DESCRIPTION

The thrust pad and the counter element are connected with the clamp and therefore secured against loss. Consequently, the clamp is quickly ready for use. The clamp is equipped with two flat noses and can be turned around depending on the case of application.

Material

- Steel, tempered, zinc-plated by galvanization, black

T-bolts DIN 787 (EH 23030.) or alternatively studs DIN 6379 (EH 23040.) can be used for the clamping.

MORE INFORMATION

References

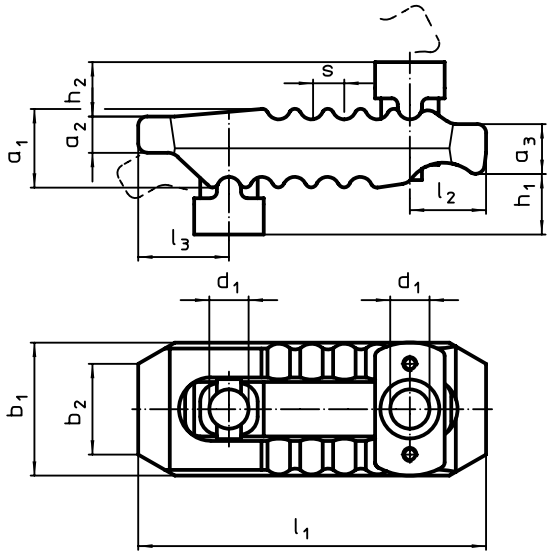
Larger clamping heights can be reached by the use of a support extension (EH 23185.).

Further products

Support Extensions, for straight clamps, slotted, with adjustable counter piece → p. 423

3

DRAWING



ORDER INFORMATION

Nominal dimension d_1	Dimensions											T-slot size	Clamping force[1] max.		Art. No.
	h_1	h_2	a_1	a_2	a_3	b_1	b_2	l_1	l_2	l_3	s				
[mm]	[mm]											[mm]	[kN]	[g]	
13	**0 – 55**	18	27	12	17	44	30	115	25	30	11	10, 12, 14	30	640	23185.0013
17	**0 – 70**	20	36	17	21	55	41	150	35	36	12	12, 14, 16, 18	40	1490	23185.0017
21	**0 – 80**	30	42	20	27	62	30	187	44	44	14	16, 18, 20, 22	60	2250	23185.0021
25	**0 – 100**	31	51	24	34	70	30	235	60	47	17	20, 22, 24, 28	75	3620	23185.0025
		35	56	24	35	73	30	285	62	51	17	20, 22, 24, 28	75	4350	23185.0026

[1] Stated clamping forces in optimal clamping position (smallest distance of the socket head screw to the clamping position). Clamping forces can vary depending on clamping, strength class of the socket head screw and condition of the thread (lubrication).

3

Clamps • slotted, with adjustable counter piece, with T-bolt

EH 23185.

PRODUCT DESCRIPTION

The thrust pad and the counter element are connected with the clamp and therefore secured against loss. Consequently, the clamp is quickly ready for use. The clamp is equipped with two flat noses and can be turned around depending on the case of application.

Material

Screw
- Heat-treated steel

Nut
- Heat-treated steel

Disc
- Heat-treated steel

Clamp
- Steel, tempered, zinc-plated by galvanization, black

MORE INFORMATION

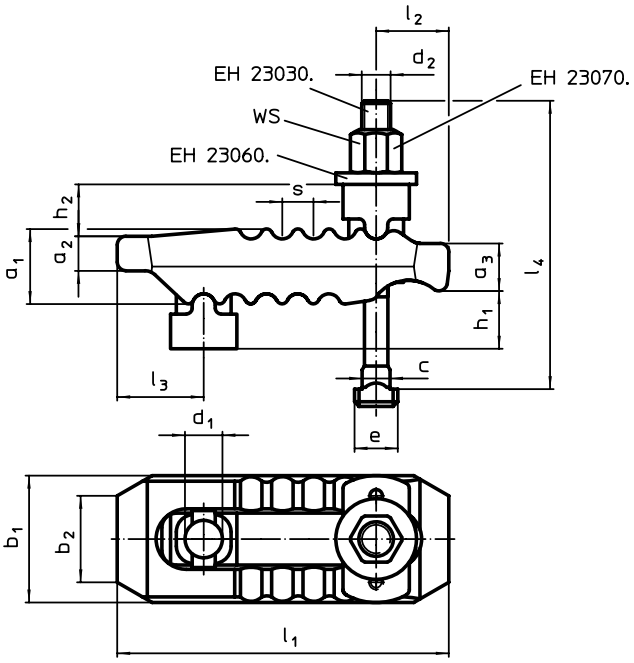
References

Larger clamping heights can be reached by the use of a support extension (EH 23185.).

Further products

Support Extensions, for straight clamps, slotted, with adjustable counter piece . . . . . → p. 423

DRAWING



ORDER INFORMATION

Nominal dimension d_1	T-slot size	Dimensions															WS	Clamping force[1] max.		Art. No.
		d_2	l_4	h_1	h_2	a_1	a_2	a_3	b_1	b_2	l_1	l_2	l_3	e	c	s				
[mm]	[mm]	[mm]															[mm]	[kN]	[g]	
13	10	M10	100	0 – 40	18	27	12	17	44	30	115	25	30	15	9,6	11	16	25	730	23185.0110
	12	M12	125	0 – 55	18	27	12	17	44	30	115	25	30	18	11,6	11	18	30	805	23185.0112
	14	M12	125	0 – 55	18	27	12	17	44	30	115	25	30	18	11,6	11	18	30	820	23185.0113
17	12	M12	160	0 – 70	20	36	17	21	55	41	150	35	36	18	11,6	12	18	35	1680	23185.0114
	14	M12	160	0 – 70	20	36	17	21	55	41	150	35	36	22	13,6	12	18	35	1695	23185.0115
	16	M16	160	0 – 70	20	36	17	21	55	41	150	35	36	25	15,6	12	24	40	1865	23185.0116
	18	M16	160	0 – 70	20	36	17	21	55	41	150	35	36	25	17,6	12	24	40	1890	23185.0117
21	16	M16	200	0 – 80	30	42	20	27	62	30	187	44	44	25	15,6	14	24	55	2675	23185.0118
	18	M16	200	0 – 80	30	42	20	27	62	30	187	44	44	25	17,6	14	24	55	2700	23185.0119
	20	M20	200	0 – 80	30	42	20	27	62	30	187	44	44	32	19,6	14	30	60	2950	23185.0120
	22	M20	200	0 – 80	30	42	20	27	62	30	187	44	44	32	21,6	14	30	60	3000	23185.0121
25	20	M20	250	0 – 100	31	51	24	34	70	30	235	60	47	32	19,6	17	30	70	4420	23185.0122
	22	M20	250	0 – 100	31	51	24	34	70	30	235	60	47	32	21,6	17	30	70	4475	23185.0123
	24	M24	250	0 – 100	31	51	24	34	70	30	235	60	47	44	23,6	17	36	75	4975	23185.0124
	28	M24	250	0 – 100	31	51	24	34	70	30	235	60	47	44	27,7	17	36	75	5015	23185.0125

[1] Stated clamping forces in optimal clamping position (smallest distance of the socket head screw to the clamping position). Clamping forces can vary depending on clamping, strength class of the socket head screw and condition of the thread (lubrication).

Clamps • slotted, with adjustable counter piece, with stud

EH 23185.

PRODUCT DESCRIPTION

The thrust pad and the counter element are connected with the clamp and therefore secured against loss. Consequently, the clamp is quickly ready for use. The clamp is equipped with two flat noses and can be turned around depending on the case of application.

Material

Screw
- Heat-treated steel

Nut
- Heat-treated steel

Disc
- Heat-treated steel

Clamp
- Steel, tempered, zinc-plated by galvani zation, black

MORE INFORMATION

References

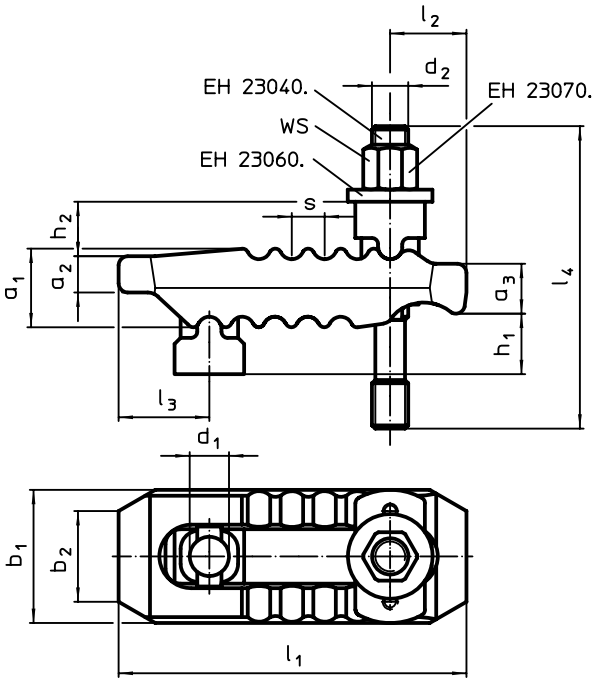
Larger clamping heights can be reached by the use of a support extension (EH 23185.).

Further products

Support Extensions, for straight clamps, slotted, with adjustable counter piece . . . . . → p. 423

3

DRAWING



ORDER INFORMATION

Nominal dimension d_1	d_2	l_4	h_1	h_2	a_1	a_2	a_3	b_1	b_2	l_1	l_2	l_3	s	WS	Clamping force[1] max.		Art. No.
[mm]	[mm]													[mm]	[kN]	[g]	
13	M12	100	0 – 30	18	27	12	17	44	30	115	25	30	11	18	30	765	23185.0212
		125	0 – 55	18	27	12	17	44	30	115	25	30	11	18	30	780	23185.0213
17	M12	125	0 – 50	20	36	17	21	55	41	150	35	36	12	18	40	1630	23185.0214
		160	0 – 70	20	36	17	21	55	41	150	35	36	12	18	40	1655	23185.0215
	M16	125	0 – 40	20	36	17	21	55	41	150	35	36	12	24	40	1765	23185.0216
		160	0 – 70	20	36	17	21	55	41	150	35	36	12	24	40	1810	23185.0217
21	M16	160	0 – 40	30	42	20	27	62	30	187	44	44	14	24	60	2575	23185.0218
		200	0 – 80	30	42	20	27	62	30	187	44	44	14	24	60	2620	23185.0219
	M20	160	0 – 40	30	42	20	27	62	30	187	44	44	14	30	60	2750	23185.0220
		200	0 – 80	30	42	20	27	62	30	187	44	44	14	30	60	2835	23185.0221
25	M20	200	0 – 70	31	51	24	34	70	30	235	60	47	17	30	75	4200	23185.0222
		250	0 – 100	31	51	24	34	70	30	235	60	47	17	30	75	4305	23185.0223
	M24	200	0 – 50	31	51	24	34	70	30	235	60	47	17	36	75	4520	23185.0224
		250	0 – 100	31	51	24	34	70	30	235	60	47	17	36	75	4665	23185.0225

[1] Stated clamping forces in optimal clamping position (smallest distance of the socket head screw to the clamping position). Clamping forces can vary depending on clamping, strength class of the socket head screw and condition of the thread (lubrication).

3

Clamps • slotted, with adjustable counter piece, with stud with internal hexagon

EH 23185.

PRODUCT DESCRIPTION

The thrust pad and the counter element are connected with the clamp and therefore secured against loss. Consequently, the clamp is quickly ready for use. The clamp is equipped with two flat noses and can be turned around depending on the case of application.

Material

Screw
- Heat-treated steel

Nut
- Heat-treated steel

Disc
- Heat-treated steel

Clamp
- Steel, tempered, zinc-plated by galvani zation, black

Assembly

The internal hexagon in the stud enables quick assembly and disassembly.

MORE INFORMATION

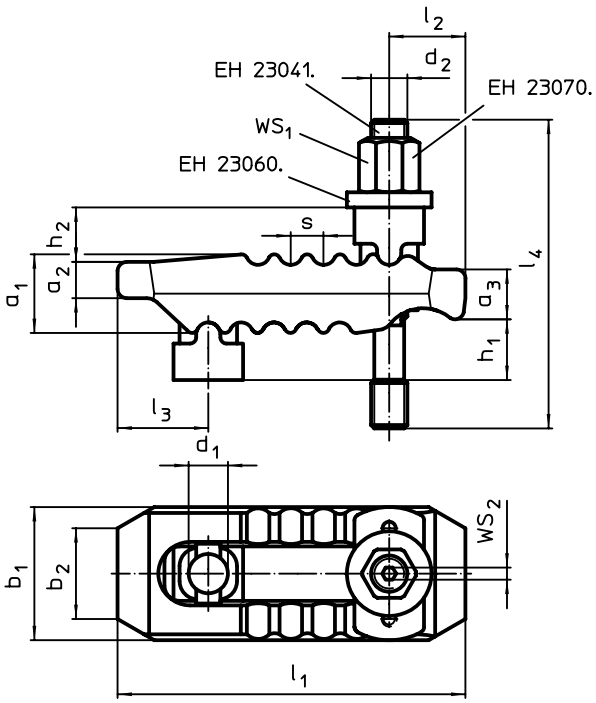
References

Larger clamping heights can be reached by the use of a support extension (EH 23185.).

Further products

Support Extensions, for straight clamps, slotted, with adjustable counter piece . . . . . → p. 423

DRAWING



ORDER INFORMATION

Nominal dimension d_1	Dimensions													WS_1	WS_2	Clamping force[1] max.		Art. No.
	d_2	l_4	h_1	h_2	a_1	a_2	a_3	b_1	b_2	l_1	l_2	l_3	s					
[mm]	[mm]													[mm]	[mm]	[kN]	[g]	
13	M12	100	0 – 30	18	27	12	17	44	30	115	25	30	11	18	4	30	765	23185.0312
		125	0 – 55	18	27	12	17	44	30	115	25	30	11	18	4	30	800	23185.0313
17	M12	125	0 – 50	20	36	17	21	55	41	150	35	36	12	18	4	40	1630	23185.0314
		160	0 – 70	20	36	17	21	55	41	150	35	36	12	18	4	40	1660	23185.0315
	M16	125	0 – 40	20	36	17	21	55	41	150	35	36	12	24	4	40	1765	23185.0316
		160	0 – 70	20	36	17	21	55	41	150	35	36	12	24	4	40	1810	23185.0317
21	M16	160	0 – 40	30	42	20	27	62	30	187	44	44	14	24	4	60	2575	23185.0318
		200	0 – 80	30	42	20	27	62	30	187	44	44	14	24	4	60	2620	23185.0319
	M20	160	0 – 40	30	42	20	27	62	30	187	44	44	14	30	5	60	2750	23185.0320
		200	0 – 80	30	42	20	27	62	30	187	44	44	14	30	5	60	2835	23185.0321
25	M20	200	0 – 70	31	51	24	34	70	30	235	60	47	17	30	5	75	4210	23185.0322
		250	0 – 100	31	51	24	34	70	30	235	60	47	17	30	5	75	4361	23185.0323
	M24	200	0 – 50	31	51	24	34	70	30	235	60	47	17	36	5	75	4525	23185.0324
		250	0 – 100	31	51	24	34	70	30	235	60	47	17	36	5	75	4680	23185.0325

[1] Stated clamping forces in optimal clamping position (smallest distance of the socket head screw to the clamping position). Clamping forces can vary depending on clamping, strength class of the socket head screw and condition of the thread (lubrication).

Support Extensions • for straight clamps, slotted, with adjustable counter piece

EH 23185.

PRODUCT DESCRIPTION

The support extension is screwed on the counter piece of the clamp EH 23185. for an extension of the clamping height (dimension h_2). The clamping height can be adjusted stepless by means of the support extension.

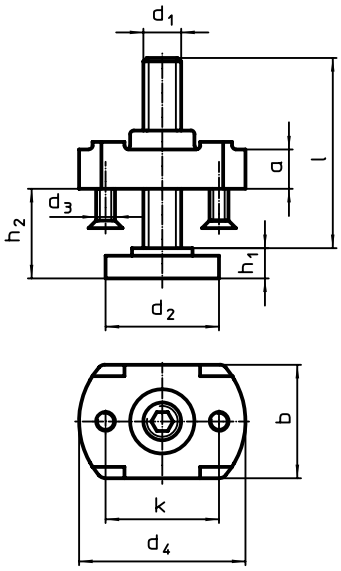
Material

Body
- Steel, tempered, zinc-plated by galvanization, black

Supporting bolt
- Heat-treated steel, quality 8.8, black

3

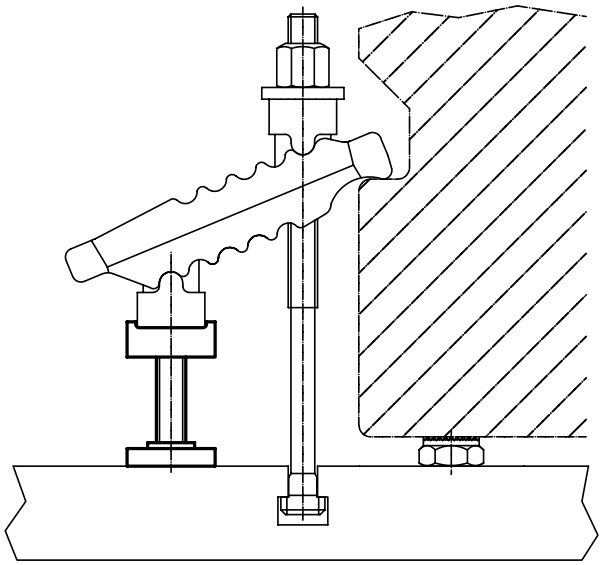
DRAWING



ORDER INFORMATION

Dimensions										For clamps d_1		Art. No.
d_1	l	d_2	d_3	d_4	h_1	h_2	a	b	k	[mm]	[g]	
M10	39	30	M5	44	8	8 – 30	10	30	30	13	140	23185.0410
M12	49	36	M5	54	10	10 – 37	16	42	35	17	350	23185.0412
	94	36	M5	54	10	10 – 80	16	42	35	17	380	23185.0413
M16	55	42	M5	60	13	13 – 41	20	50	40	21	570	23185.0416
	90	42	M5	60	13	13 – 73	20	50	40	21	610	23185.0417
M20	69	50	M6	70	16	16 – 52	25	50	50	25	925	23185.0420
	109	50	M6	70	16	16 – 91	25	50	50	25	1000	23185.0421

APPLICATION EXAMPLE



Clamping Element Systems

EH 23700.

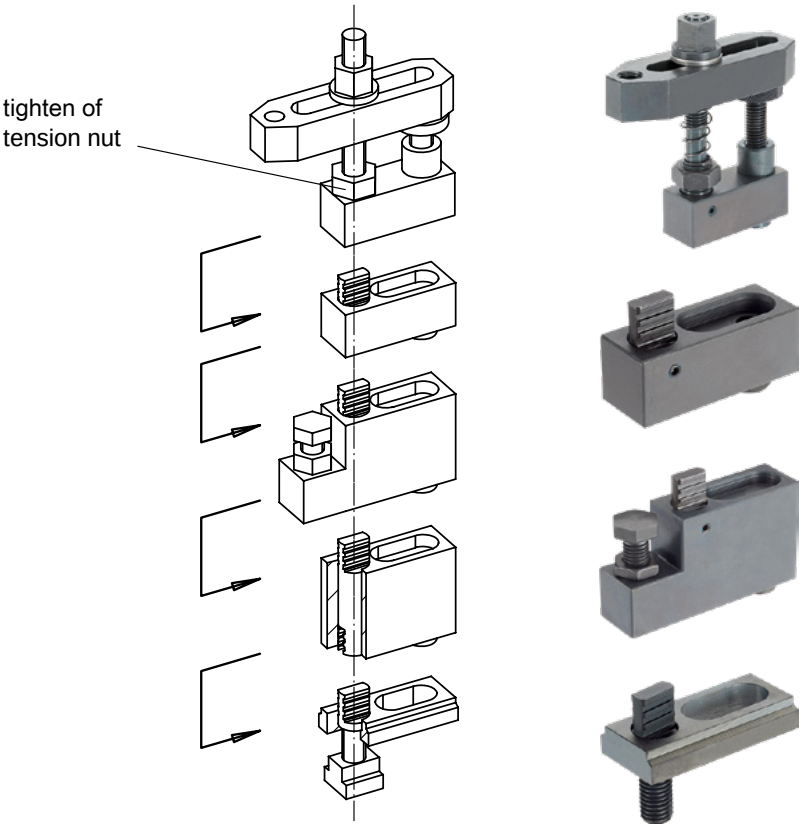
ASSEMBLY INSTRUCTIONS

Finish
Steel blackened, pull rod: special steel; wearing parts heat treated.

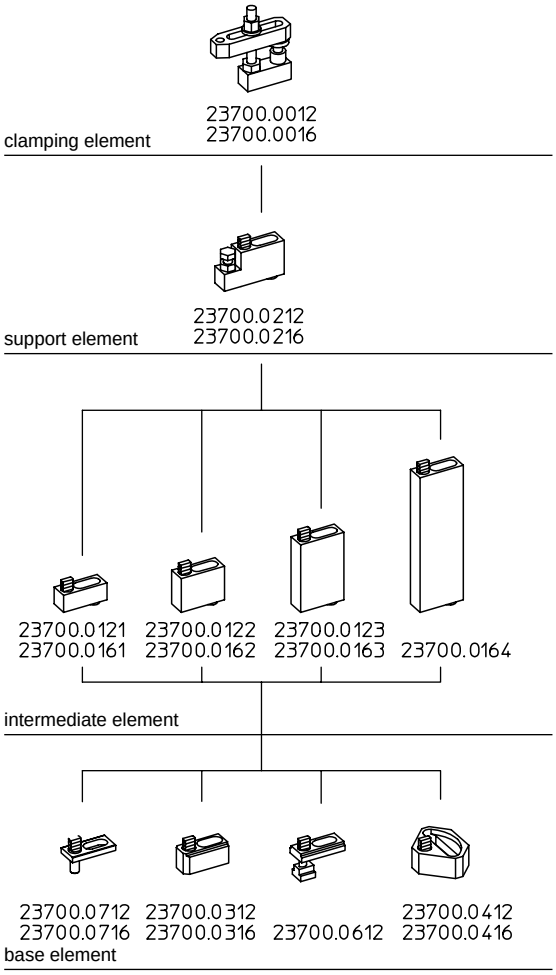
Note
All clamping elements are tightly and safely clamped on the machine table or onto the fixture via the pull rod by simply tightening the nut.

Advantages:

- Rapid, safe, simple, compact
- Stepless height adjusting by intermediate elements
- Fastening of the foot elements by using grub screws, slot tenons or socket-head cap srews.



ASSEMBLY



Clamping Element Systems

EH 23700.

PRODUCT DESCRIPTION

Material

Body
- Steel, blackened

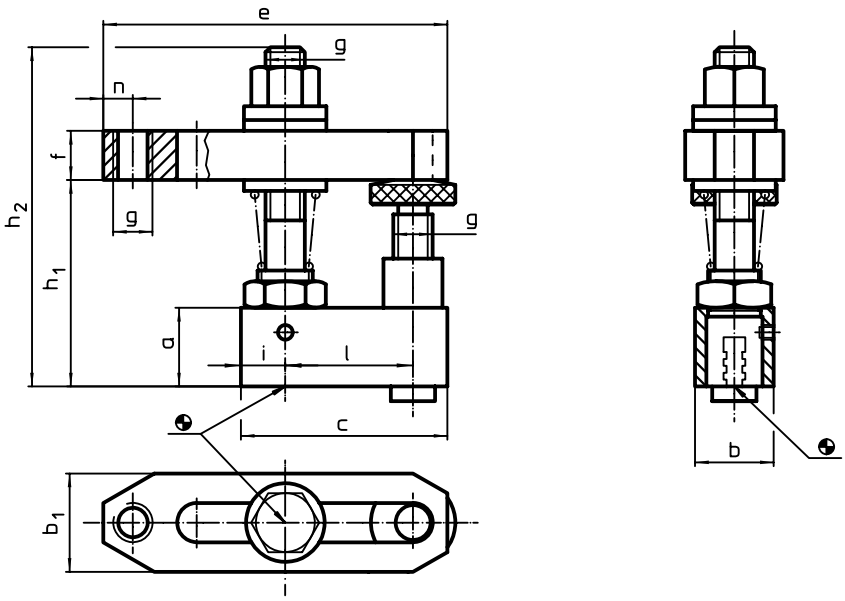
Wearing parts
- Heat-treated steel

Pull-rod
- Special steel

MORE INFORMATION

Further products

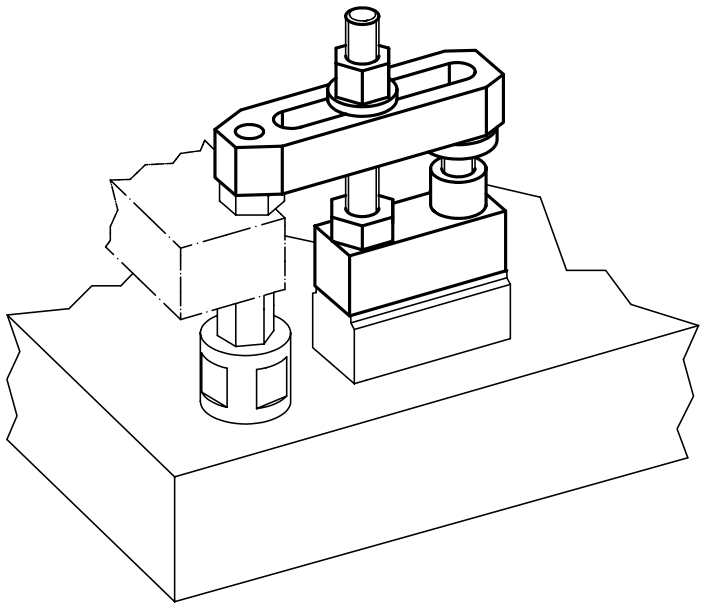
DRAWING



ORDER INFORMATION

Dimensions [mm]													Art. No.
a	b	c	b_1	e	f	g	h_1	h_2	i	l	n	[g]	
25	**25**	**65**	35	110	20	M12	48 – 78	112	12,5	40	10	860	23700.0012
30	**30**	**78**	40	142	30	M16	60 – 96	145	14,0	50	13	1698	23700.0016

APPLICATION EXAMPLE



Straight Clamps • short

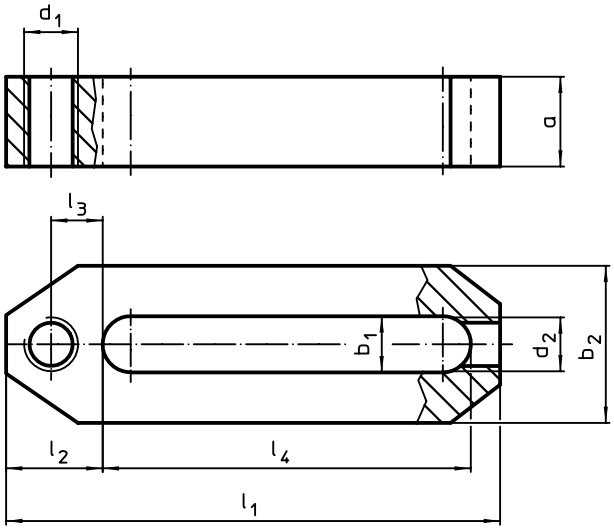
EH 23700.

PRODUCT DESCRIPTION

Material

- Heat-treated steel, tempered, blackened

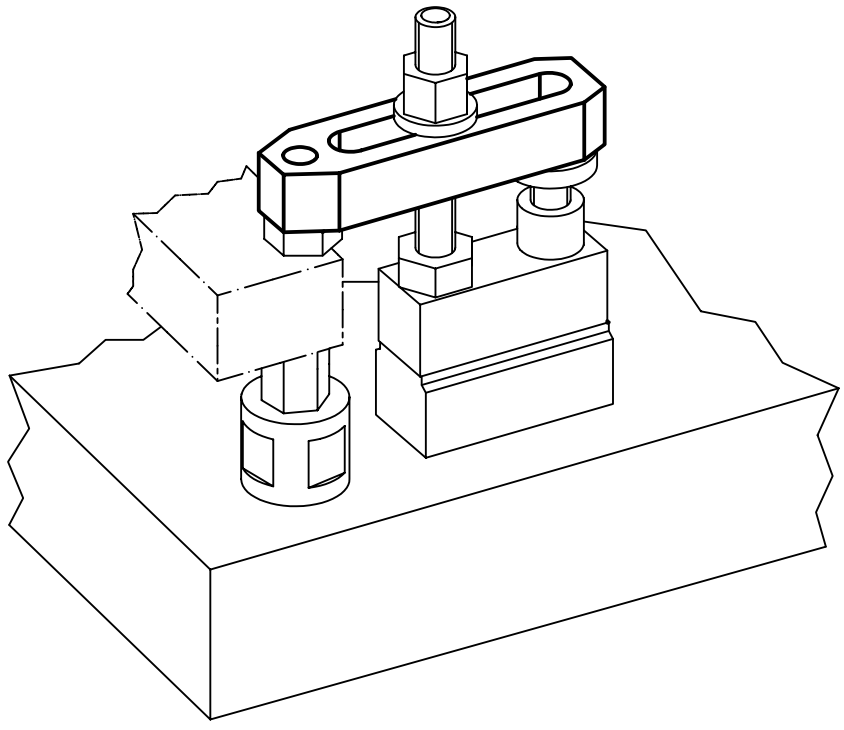
DRAWING



ORDER INFORMATION

Dimensions										Art. No.
b_1	l_1	a	b_2	d_1	d_2	l_2	l_3	l_4	[g]	
				[mm]						
12,5	**110**	20	35	M12	M10	21,5	11,5	82	370	23700.0022
17,0	**142**	30	40	M16	M12	28,0	15,0	107	788	23700.0026

APPLICATION EXAMPLE



Straight Clamps • long

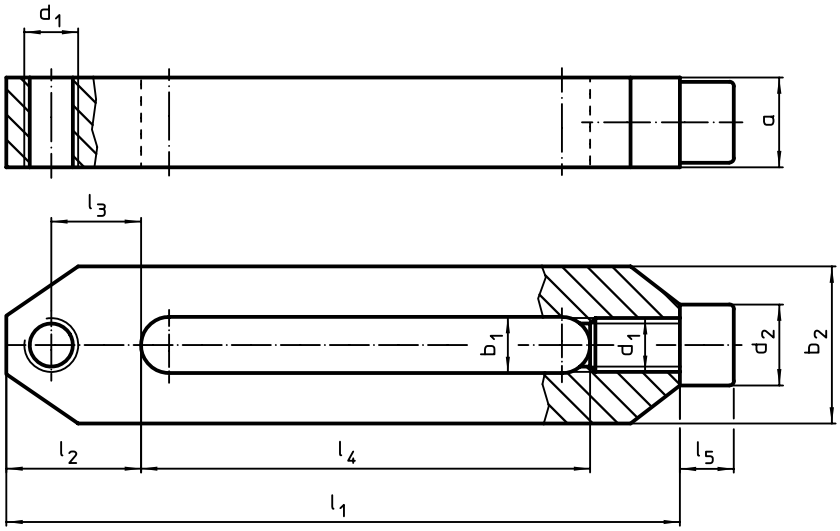
EH 23700.

PRODUCT DESCRIPTION

Material

- Heat-treated steel, tempered, blackened

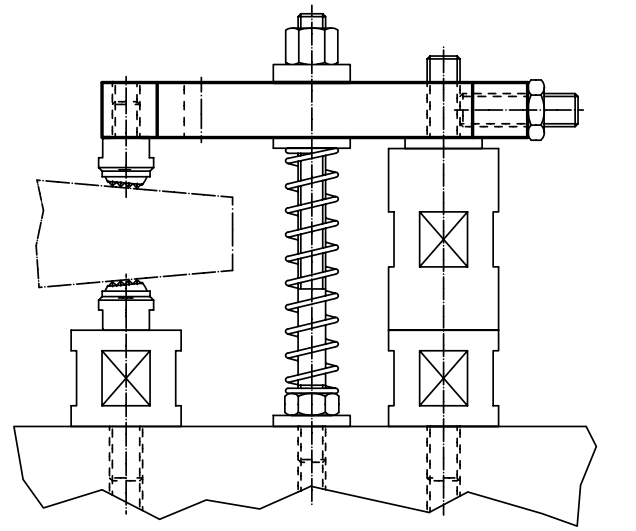
DRAWING

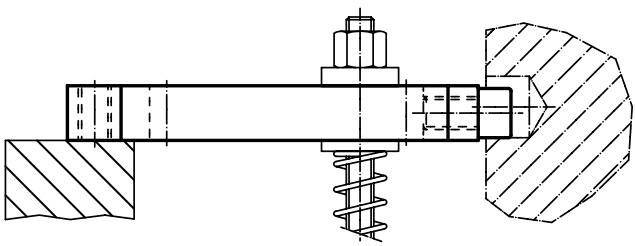


ORDER INFORMATION

Dimensions [mm]										[g]	Art. No.
b_1	l_1	a	b_2	d_1	l_2	l_3	l_4	l_5	d_2		
12,5	**156**	20	35,0	M12	30	20	106	12	18	595	23700.0042
17,0	**196**	30	45,5	M16	35	22	136	16	24	1422	23700.0046

APPLICATION EXAMPLE





Intermediate Elements

EH 23700.

PRODUCT DESCRIPTION

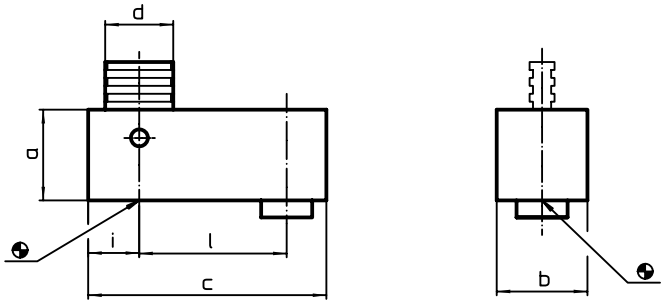
Material

Body
- Steel, blackened

Wearing part
- Heat-treated steel

Pull-rod
- Special steel

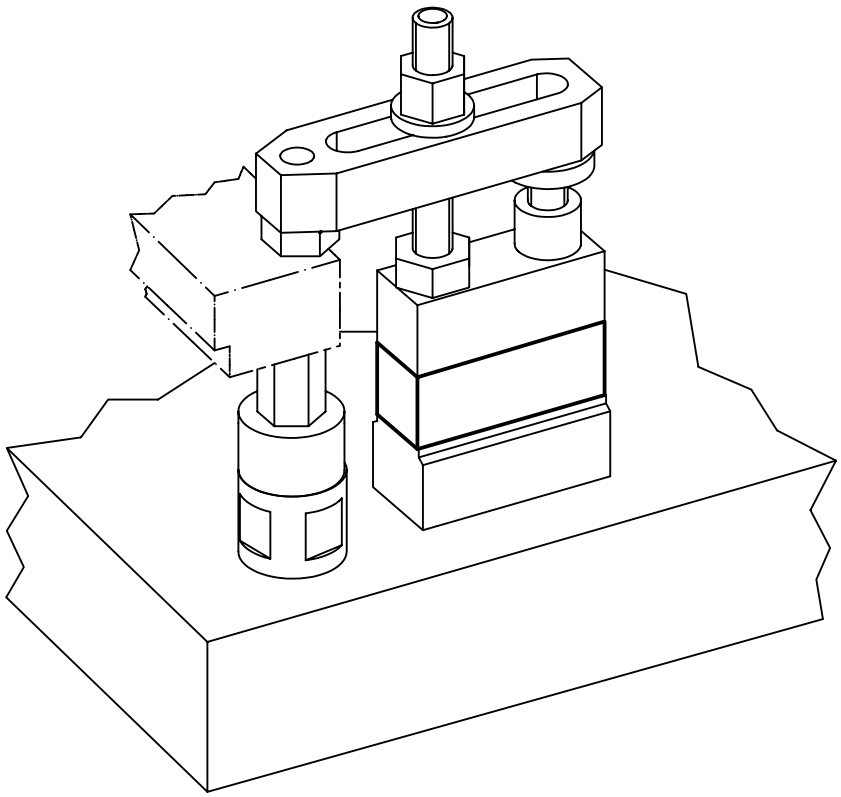
DRAWING



ORDER INFORMATION

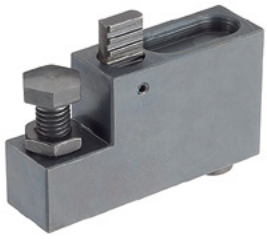
Dimensions [mm]						[g]	Art. No.
a	b	c	d	i	l		
25	**25**	**65**	16	12,5	40	261	**23700.0121**
50	**25**	**65**	16	12,5	40	574	**23700.0122**
100	**25**	**65**	16	12,5	40	1201	**23700.0123**
30	**30**	**78**	22	14,0	50	468	**23700.0161**
60	**30**	**78**	22	14,0	50	1032	**23700.0162**
120	**30**	**78**	22	14,0	50	2100	**23700.0163**
240	**30**	**78**	22	14,0	50	4340	**23700.0164**

APPLICATION EXAMPLE



Intermediate Elements • with support

EH 23700.



PRODUCT DESCRIPTION

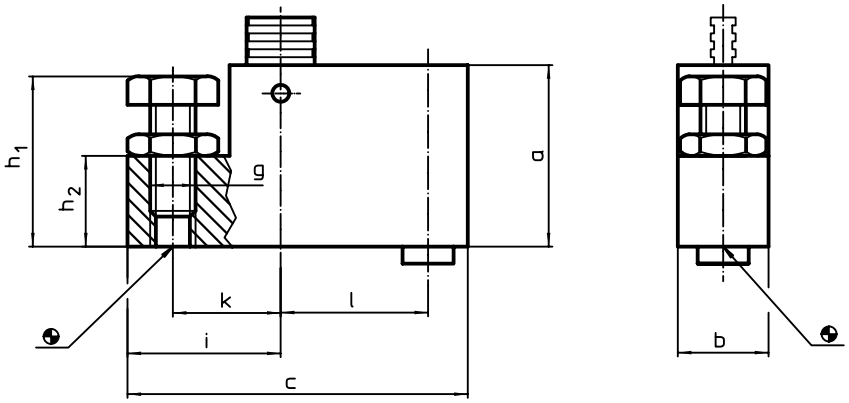
Material

Body
- Steel, blackened

Wearing part
- Heat-treated steel

Pull-rod
- Special steel

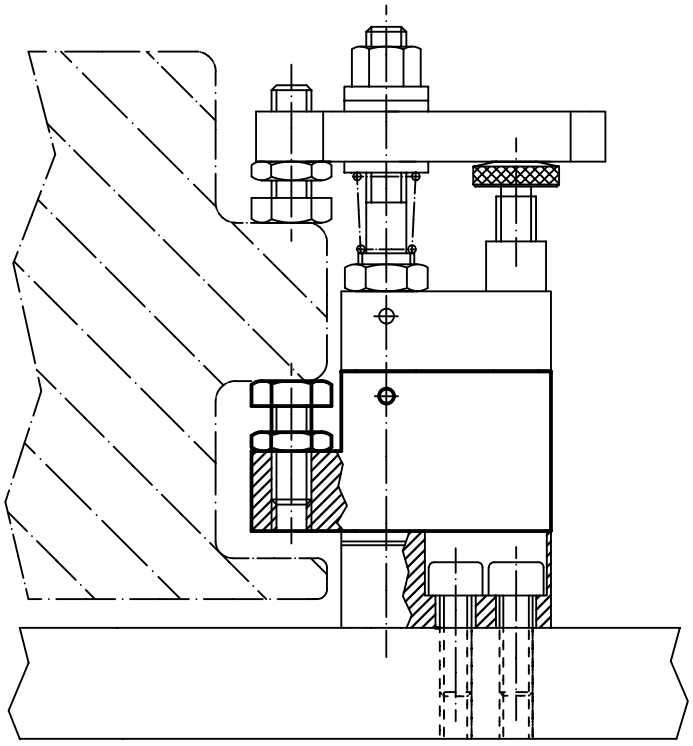
DRAWING



ORDER INFORMATION

Dimensions										Art. No.
a	b	c	g	h_1	h_2	i	k	l	[g]	
				[mm]						
50	**25**	**92**	M12	38 – 53	25	39,5	28	40	550	23700.0212
60	**30**	**112**	M16	48 – 68	30	48,0	34	50	1140	23700.0216

APPLICATION EXAMPLE



3

Base Elements

EH 23700.

PRODUCT DESCRIPTION

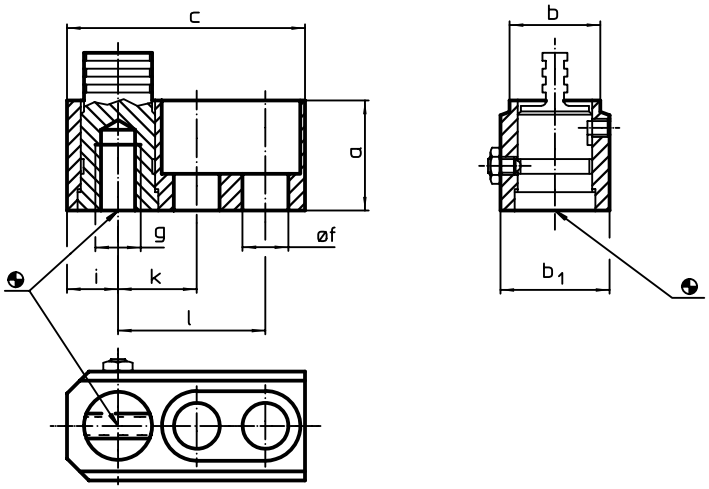
Material

Body
- Steel, blackened

Wearing part
- Heat-treated steel

Pull-rod
- Special steel

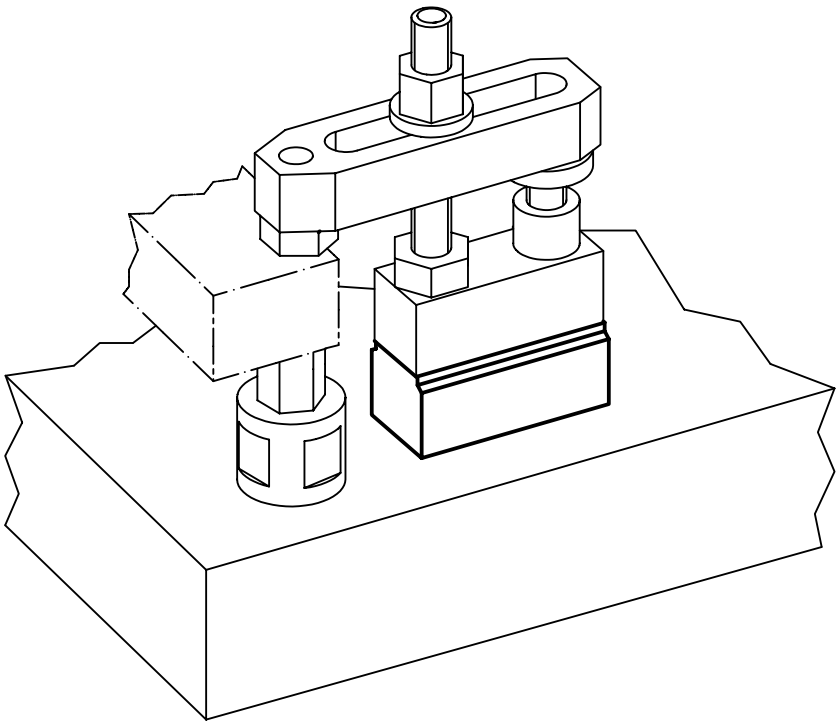
DRAWING



ORDER INFORMATION

Dimensions [mm]									[g]	Art. No.
a	b	c	b_1	f	g	i	k	l		
30	**25**	**65**	30	12,5	M12	12,5	20	40	297	23700.0312
40	**30**	**80**	40	17,0	M16	16,0	25	50	641	23700.0316

APPLICATION EXAMPLE



Base Elements • swivelling
EH 23700.

PRODUCT DESCRIPTION

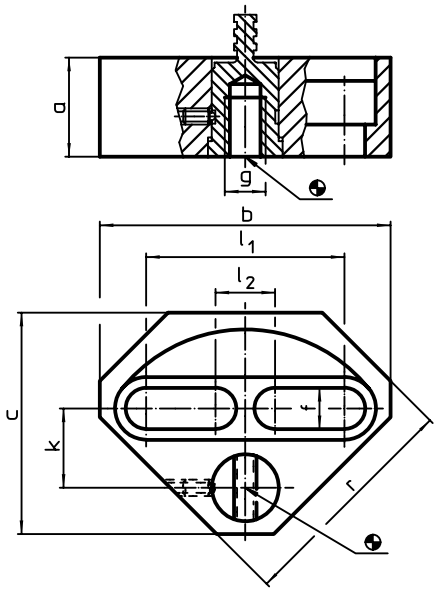
Material

Body
- Steel, blackened

Wearing part
- Heat-treated steel

Pull-rod
- Special steel

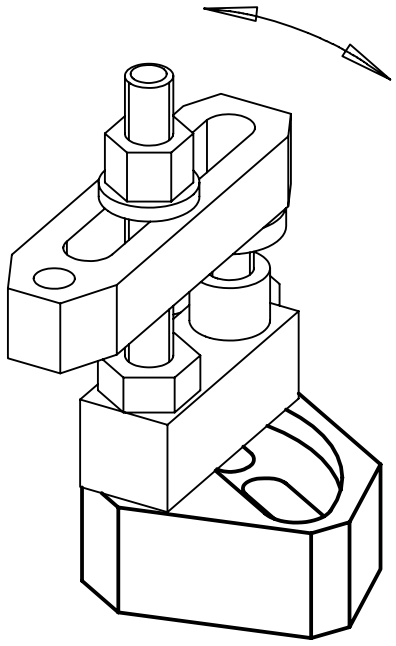
DRAWING



ORDER INFORMATION

Dimensions										Art. No.
a	b	c	f	g	k	l_1	l_2	r		
[mm]									[g]	
29,7	**90**	**70**	12,5	M12	24	57	25	73	758	23700.0412
39,7	**110**	**86**	17,0	M16	30	71	31	90	1300	23700.0416

APPLICATION EXAMPLE



Base Elements • low

EH 23700.

PRODUCT DESCRIPTION

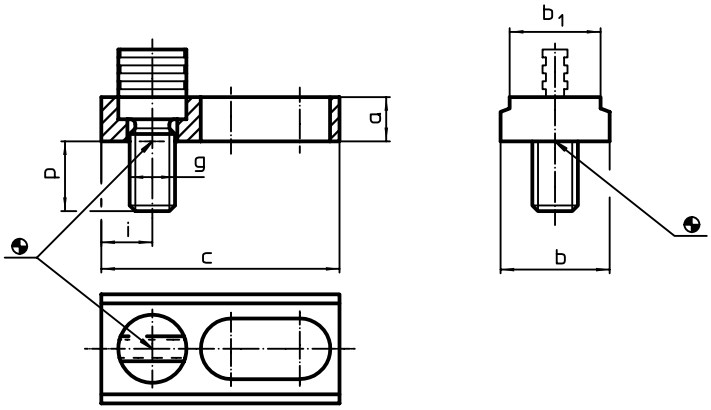
Material

Body
- Steel, blackened

Wearing part
- Heat-treated steel

Pull-rod
- Special steel

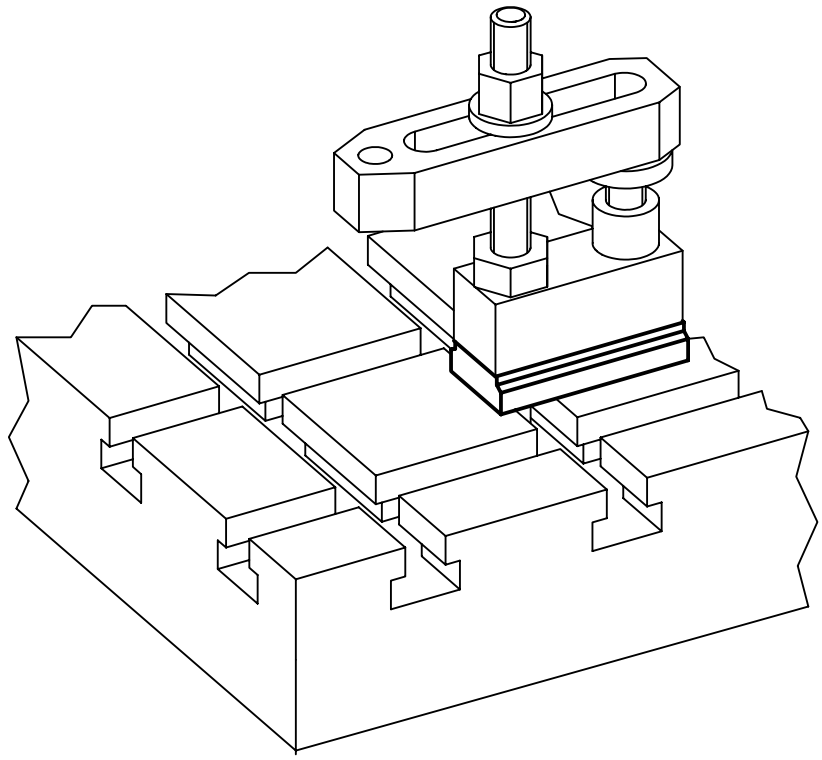
DRAWING



ORDER INFORMATION

Dimensions								Art. No.
a	b	c	b_1	g	i	p		
			[mm]				[g]	
12	**30**	**65**	25	M12	12,5	23	146	**23700.0612**

APPLICATION EXAMPLE



Base Elements • for location hole

EH 23700.

PRODUCT DESCRIPTION

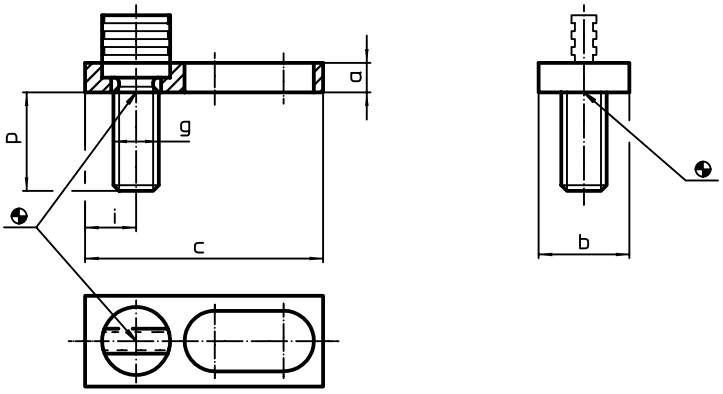
Material

Body
- Steel, blackened

Wearing part
- Heat-treated steel

Pull-rod
- Special steel

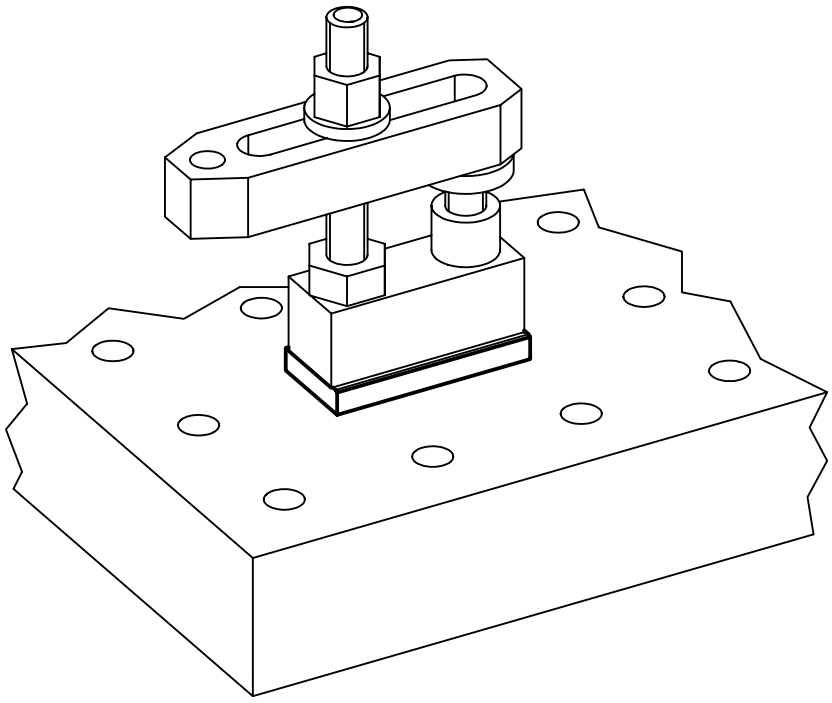
DRAWING



ORDER INFORMATION

Dimensions [mm]						[g]	Art. No.
a	b	c	g	i	p		
8	**25**	**65**	M12	12,5	27	95	23700.0712
12	**30**	**78**	M16	14,0	33	190	23700.0716

APPLICATION EXAMPLE



3

Down-Hold Clamps • with cranked clamping lever

EH 23210.

PRODUCT DESCRIPTION

The quick-acting clamping element simultaneously presses the workpieces towards both, the stops and fixture plate. The low profile construction enables the entire surface to be machined. In conjunction with cylindrical stops EH 23280., a special fixture can be replaced.

Material

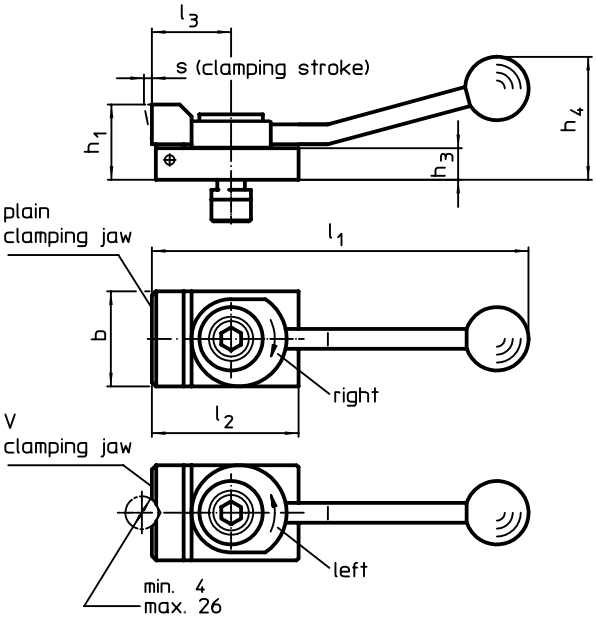
- Steel, case-hardened, blackened

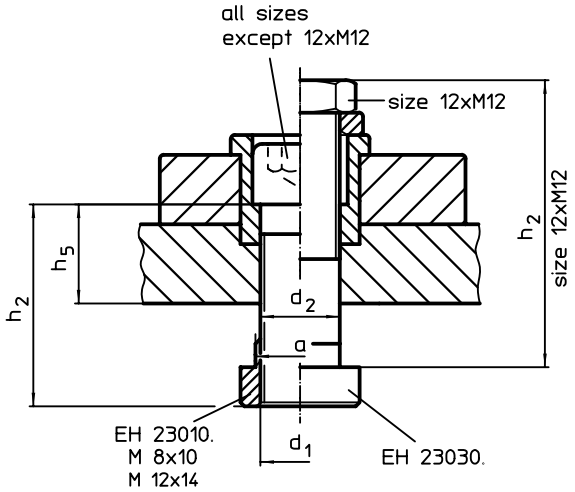
MORE INFORMATION

Further products

Stops, cylindrical . . . . . → p. 453

DRAWING



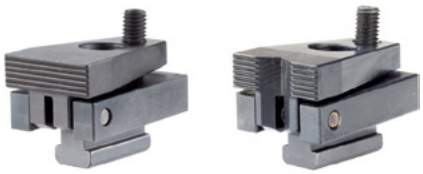


ORDER INFORMATION

T-slot size	Dimensions													Clamping force horizontal max.		Art. No.
	d_1	a	b	d_2	h_1	h_2	h_3	h_4	h_5	l_1	l_2	l_3	s			
[mm]	[mm]													[kN]	[g]	
with flat clamping jaw, clamping to the right																
10	**M 8**	9,6	32	8,4	20	30	8	40	12,6	132	50	32	3	3,5	262	23210.0101
12	**M12**	11,6	48	12,5	38	63	16	62	–	190	72	40	4	7,0	870	23210.0321
14	**M12**	13,6	48	12,5	38	40	16	62	19,1	190	72	40	4	7,0	845	23210.0341
with flat clamping jaw, clamping to the left																
10	**M 8**	9,6	32	8,4	20	30	8	40	12,6	132	50	32	3	3,5	262	23210.0105
12	**M12**	11,6	48	12,5	38	63	16	62	–	190	72	40	4	7,0	868	23210.0325
14	**M12**	13,6	48	12,5	38	40	16	62	19,1	190	72	40	4	7,0	847	23210.0345
with V-clamping jaw, clamping to the right																
10	**M 8**	9,6	32	8,4	20	30	8	40	12,6	132	50	32	3	3,5	263	23210.0102
12	**M12**	11,6	48	12,5	38	63	16	62	–	190	72	40	4	7,0	893	23210.0322
14	**M12**	13,6	48	12,5	38	40	16	62	19,1	190	72	40	4	7,0	838	23210.0342
with V-clamping jaw, clamping to the left																
10	**M 8**	9,6	32	8,4	20	30	8	40	12,6	132	50	32	3	3,5	264	23210.0106
12	**M12**	11,6	48	12,5	38	63	16	62	–	190	72	40	4	7,0	900	23210.0326
14	**M12**	13,6	48	12,5	38	40	16	62	19,1	190	72	40	4	7,0	841	23210.0346

Down-Hold Clamps • without clamping lever

EH 23210.



PRODUCT DESCRIPTION

By tightening the ball-ended thrust screw the workpiece is simultaneously pressed towards the stops and fixture plate. The favourable leverage enables high horizontal clamping forces. When using T-Nuts EH 23010. / EH 23020. (DIN 508) they can also be applied to other slot sizes.

Material

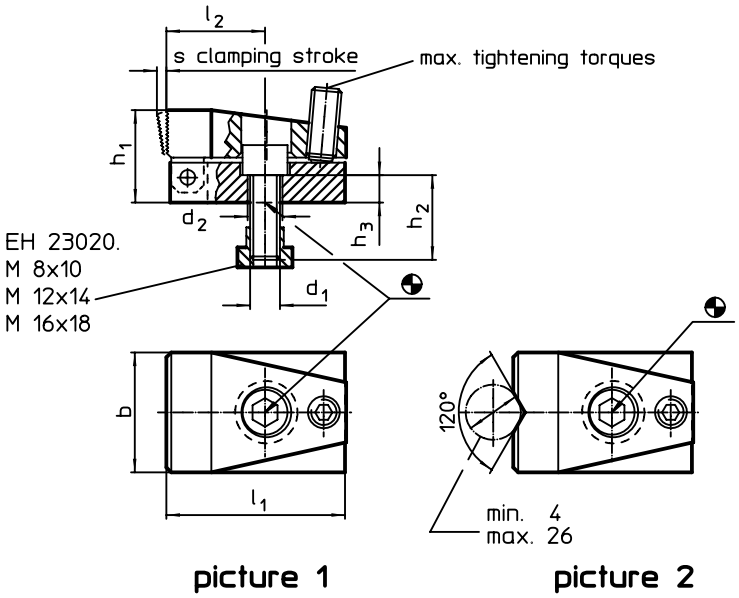
- Steel, case-hardened, blackened, ground

MORE INFORMATION

Further products

Nuts for T-Slots, DIN 508 . . . . . → p. 362
Nuts for T-Slots, extended. . . . . → p. 366

DRAWING

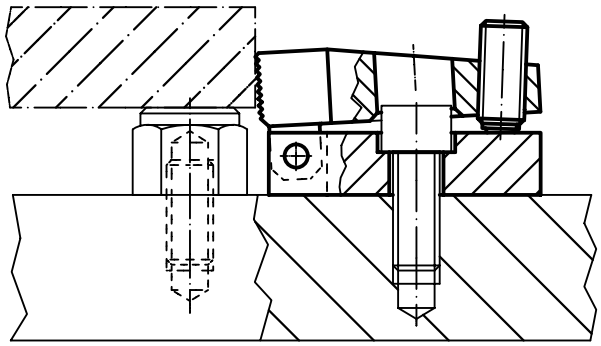


picture 1 picture 2

ORDER INFORMATION

T-slot size	Dimensions									Clamping force horizontal max.	Tightening torque max.		Art. No.
	d_1	d_2	b	h_1	h_2	h_3	l_1	l_2	s				
[mm]	[mm]									[kN]	[Nm]	[g]	
with flat clamping jaw – picture 1													
10	**M 8**	8,4	32	24	20	8	52	28	3	7,0	3	276	23210.0501
14	**M12**	12,5	48	37	30	11	72	40	4	15,0	9	831	23210.0521
18	**M16**	16,5	68	47	35	13	86	41	7	21,5	20	1749	23210.0541
with V-clamping jaw – picture 2													
10	**M 8**	8,4	32	24	20	8	52	28	3	7,0	3	266	23210.0502
14	**M12**	12,5	48	37	30	11	72	40	4	15,0	9	833	23210.0522
18	**M16**	16,5	68	47	35	13	86	41	7	21,5	20	1730	23210.0542

APPLICATION EXAMPLE



3

Down-Hold Clamps • without clamping lever, with support

EH 23210.

PRODUCT DESCRIPTION

By tightening the ball-ended thrust screw the workpiece is simultaneously pressed towards the stops and fixture plate. The favourable leverage enables high horizontal clamping forces. When using T-nuts EH 23010. / EH 23020. (DIN 508) they can also be applied to other slot sizes.

Material

- Steel, case-hardened, blackened, ground

MORE INFORMATION

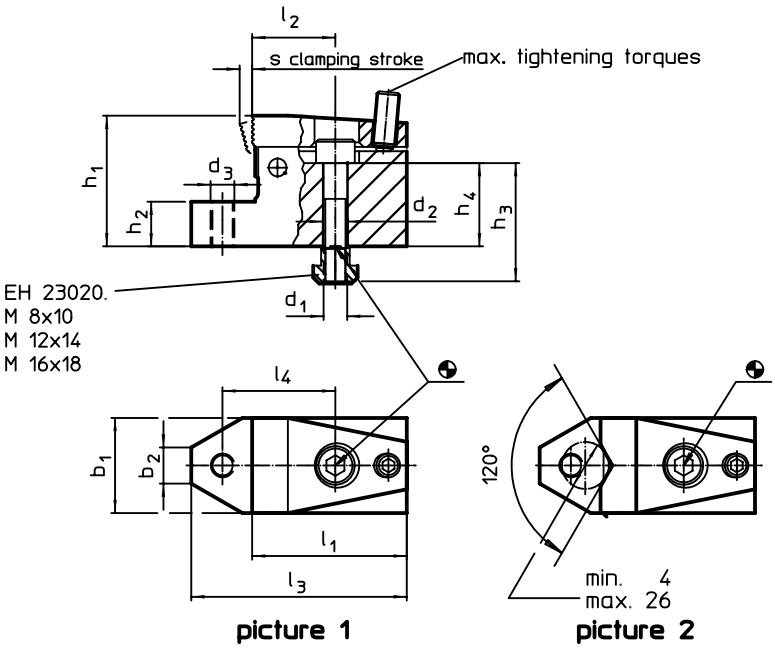
References

The integrated support is equipped with a location thread to fit for example screwed rest buttons EH 22690., self-aligning pads EH 22730. / EH 22740.

Further products

Nuts for T-Slots, DIN 508 . . . . . → p. 362
Nuts for T-Slots, extended. . . . . → p. 366

DRAWING

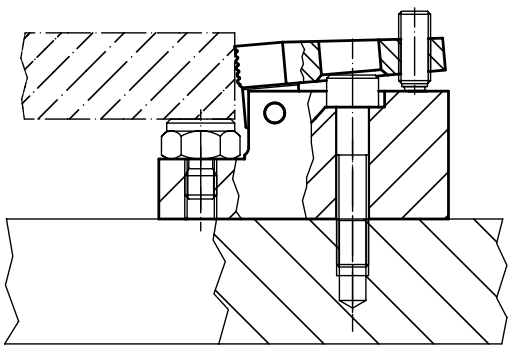


picture 1 picture 2

ORDER INFORMATION

T-slot size	Dimensions														Clamping force horizontal max.	Tightening torque max.		Art. No.
	d_1	d_2	d_3	b_1	b_2	h_1	h_2 ±0,01	h_3 ~	h_4 ~	l_1	l_2	l_3	l_4	s				
[mm]	[mm]														[kN]	[Nm]	[g]	
with flat clamping jaw – picture 1																		
10	**M 8**	8,4	M 8	32	12,1	44	15	40	28	52	28	72,5	38	3	7,0	3	556	23210.0551
14	**M12**	13,0	M12	48	16,0	53	15	45	27	72	40	100,0	55	4	15,0	9	1342	23210.0561
18	**M16**	17,0	M16	68	18,8	72	20	60	38	86	41	126,0	63	7	21,5	20	3149	23210.0571
with V-clamping jaw – picture 2																		
10	**M 8**	8,4	M 8	32	12,1	44	15	40	28	52	28	72,5	38	3	7,0	3	553	23210.0552
14	**M12**	13,0	M12	48	16,0	53	15	45	27	72	40	100,0	55	4	15,0	9	1324	23210.0562
18	**M16**	17,0	M16	68	18,8	72	20	60	38	86	41	126,0	63	7	21,5	20	3100	23210.0572

APPLICATION EXAMPLE



Holding Plates • for down-hold clamps

EH 23210.

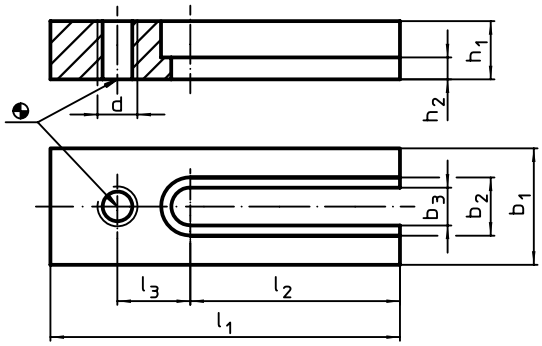
PRODUCT DESCRIPTION

By using the holding plates, the down-hold clamps can also be placed in any desired position across the T-slots.

Material

- Heat-treated steel, tempered, blackened

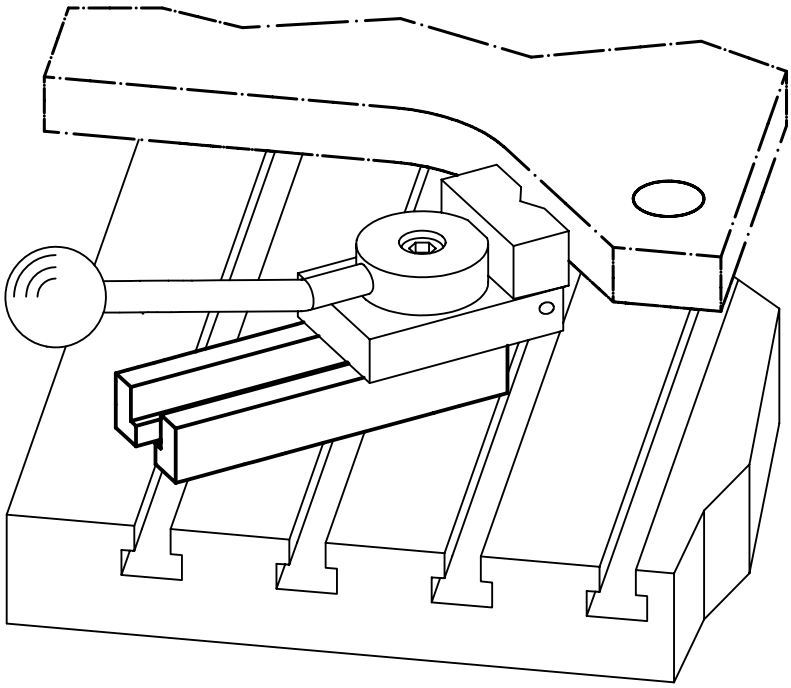
DRAWING



ORDER INFORMATION

Dimensions									For down-hold clamps		Art. No.
b_1	b_2	b_3	d	h_1 -0,4	h_2	l_1	l_2	l_3			
[mm]									[mm]	[g]	
30	15	9	M 8	15	6,5	100	63	20	M 8	246	23210.0730
40	20	13	M12	20	7,5	120	72	25	M12	515	23210.0740
60	26	17	M16	30	13,0	140	80	30	M16	1456	23210.0760
80	32	21	M20	40	18,0	200	110	50	–	3900	23210.0770
90	38	25	M24	50	24,0	220	130	55	–	5850	23210.0780

APPLICATION EXAMPLE



3

Sub-Part Clamps

EH 23211.

PRODUCT DESCRIPTION

The sub-part clamp and the sub-part stop enable workpieces to be clamped on the front face. This allows the full area of the machine table to be used to clamp the workpiece.

- Hold-down effect due to inclined arrangement of the clamping jaw
- Clamping of large workpieces on the whole of the machine table
- Large clamping forces up to 20 kN
- Clamping path 10.6 mm by means of clamping screw M 16 (WS 14)
- Solid version made of vibration-eliminating ductile iron
- Optimum adaptation to the workpiece and material, through the use of clamping inserts and interchangeable jaws
- Form and forced-fit assembly in a T-slot is possible
- Minimum interference contours, even for large workpieces
- Location holes at the sides for fastening of longitudinal stops

Material

- Ductile cast iron (GGG 60)

Assembly

The workpiece is positioned and then clamped on the ground precision support. The machine and fixture system parts in the Halder product range can be installed in the location thread to reach a customised clamping.
The location holes on the sides allow optional longitudinal stops to be installed.

MORE INFORMATION

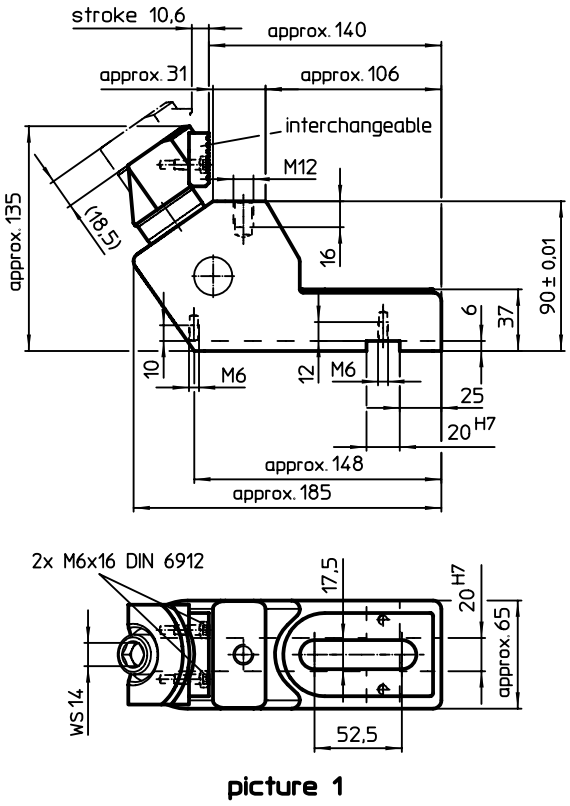
Notes

The delivery includes the interchangeable jaw 1138.400 (ribbed/smooth) - this can be changed to the interchangeable jaw 1138.100 (soft).

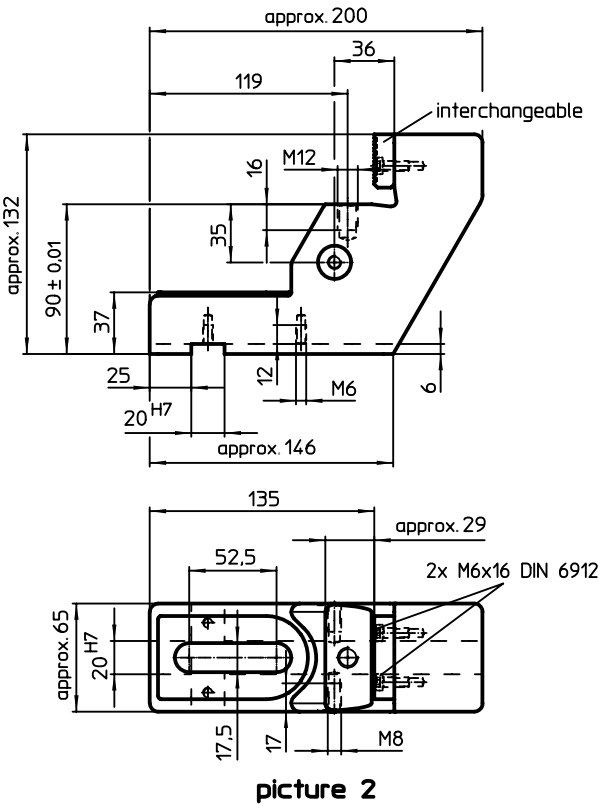
Further products

Nuts for T-Slots, DIN 508 . . . . . → p. 362
Nuts for T-Slots, extended. . . . . → p. 366
Fixed Slot Tenons . . . . . → p. 388
Fixed Slot Tenons, with cylindrical fastening . . . . . → p. 389
Clamping Vices, replacement jaw, soft → p. 747

DRAWING



picture 1

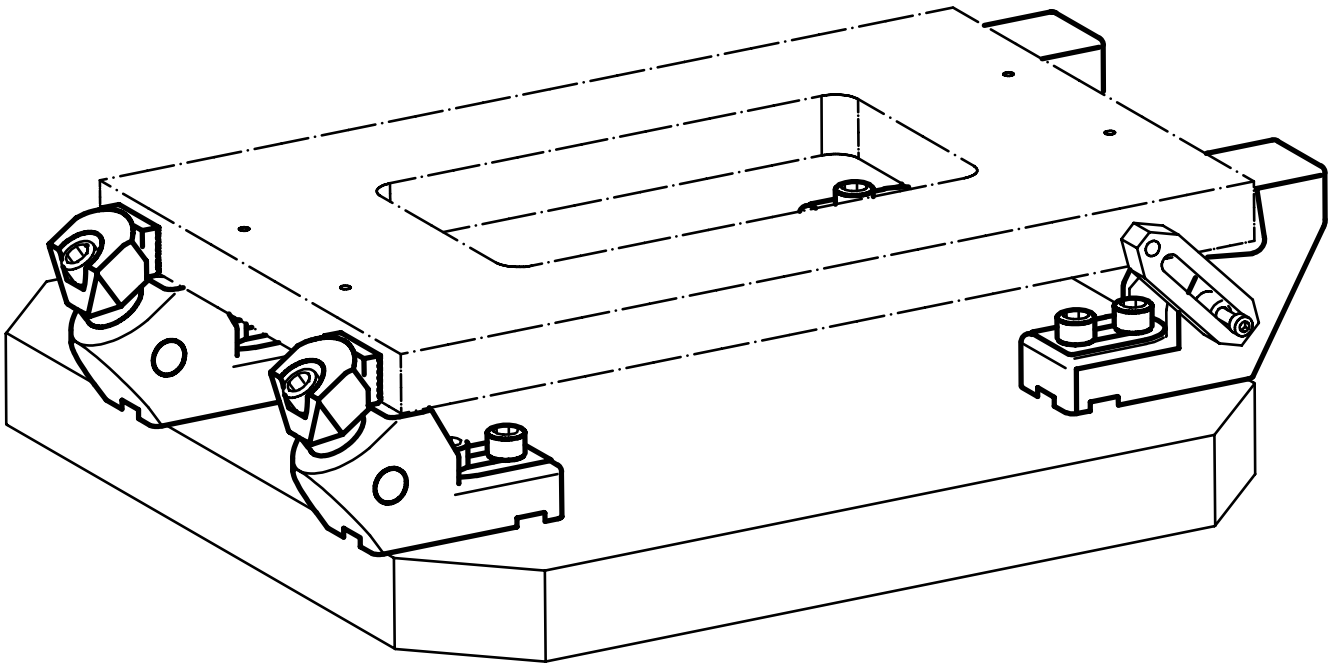


picture 2

ORDER INFORMATION

Clamping force horizontal max. [kN]	Tightening torque max. [Nm]	[g]	Art. No.
sub-part clamp – picture 1			
20	50	5000	23211.0010
sub-part stop – picture 2			
–	–	5380	23211.0020

APPLICATION EXAMPLE



Push-Pull Clamps

EH 23229.

PRODUCT DESCRIPTION

The clamp is suitable for easy and safe positioning of workpieces or components prior to clamping or assembly.
As the push/pull clamp is threaded on both sides it is possible to fix elements that are adapted to the workpiece, e.g. prisms, clamping bolts, self-aligning pads.

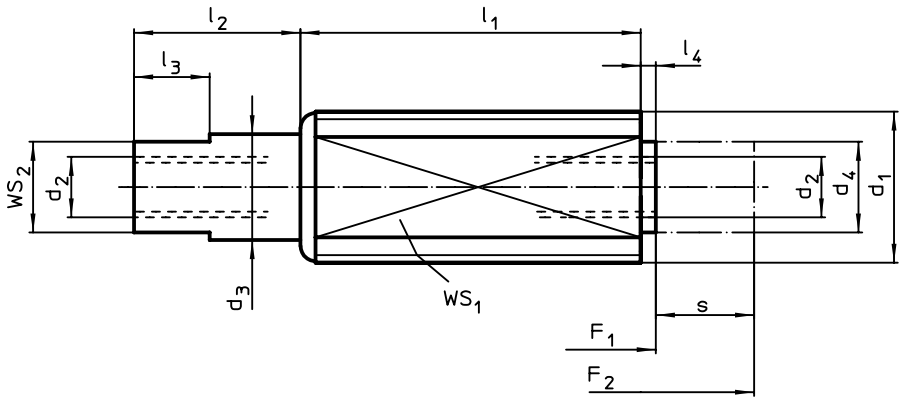
Material

Pin
- Steel, blackened

Body
- Steel, zinc-plated

Spring
- Stainless steel 1.4310

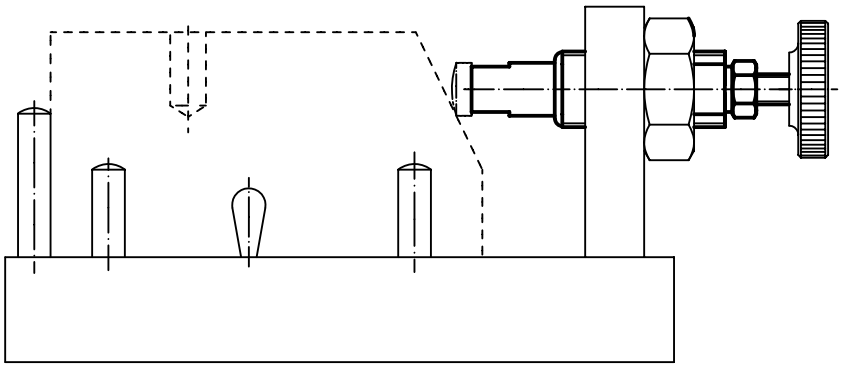
DRAWING



ORDER INFORMATION

Dimensions								Stroke	WS		Spring load			Art. No.
d_1	d_2	d_3	d_4	l_1 -1	l_2 ±0,5	l_3	l_4 -0,5	s ~	WS_1	WS_2	F_1 ~	F_2 ~		
[mm]								[mm]	[mm]		[N]		[g]	
light spring load														
M12	M4 x 8	7	6	11,0	4,5	5	1,5	3,5	10	6	5	20	5,1	23229.0005
				18,5	7,0	5	1,5	6,0	10	6	5	20	8,7	23229.0010
				26,0	11,0	5	1,5	10,0	10	6	5	20	13,0	23229.0015
standard spring load														
M12	M4 x 8	7	6	11,0	4,5	5	1,5	3,0	10	6	10	45	5,2	23229.0020
				18,5	7,0	5	1,5	5,0	10	6	10	45	8,7	23229.0025
				26,0	11,0	5	1,5	8,0	10	6	10	45	14,0	23229.0030
M18 x 1,5	M6 x 12	11	10	18,0	6,0	6	2,0	4,0	16	9	30	120	22,0	23229.0050
				31,5	11,5	6	2,0	7,0	16	9	30	120	42,0	23229.0055
				45,0	16,0	6	2,0	12,5	16	9	30	150	63,0	23229.0060
heavy spring load														
M12	M4 x 8	7	6	11,0	4,5	5	1,5	3,0	10	6	20	90	5,2	23229.0035
				18,5	7,0	5	1,5	5,0	10	6	20	90	9,0	23229.0040
				26,0	11,0	5	1,5	8,0	10	6	20	90	13,0	23229.0045

APPLICATION EXAMPLE



Push Plungers • with pin, protected against rotating

EH 23230.

PRODUCT DESCRIPTION

The push plunger is suitable for easy and safe positioning of workpieces or components prior to clamping or assembly.
Locating pins of your own profile or design can be attached to our threaded pin types.

Material

Pin
- Steel, case-hardened, blackened

Body
- Steel, zinc-plated by galvanization

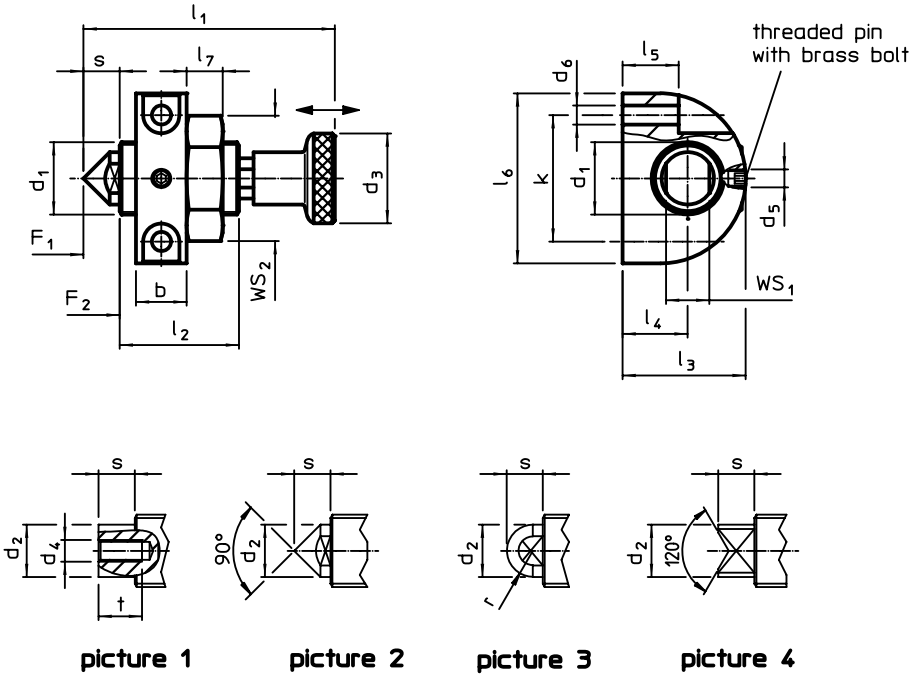
Threaded pin
- Steel, blackened, with brass pad

Mounting block
- Zinc die-cast, plastic coated, black

Knob
- Steel, blackened

Lock nut
- Steel, blackened

DRAWING



picture 1 picture 2 picture 3 picture 4

ORDER INFORMATION

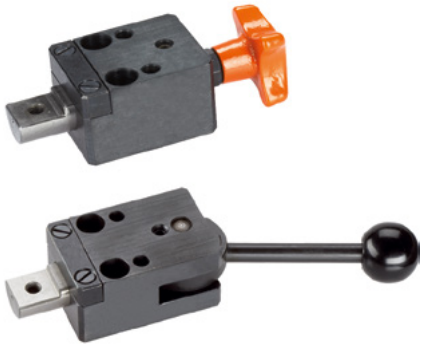
Dimensions																	Stroke s	WS		Spring load[1]				Art. No.
d_1	d_2	d_3	d_4	d_5	d_6	l_1	l_2	l_3	l_4	l_5 -0,2	l_6	l_7	t min.	r	b	k		WS_1	WS_2	F_1	F_2	max.		
[mm]																	[mm]	[mm]		[N]		[°C]	[g]	
with female thread – picture 1																								
M12 x 1,5	9,0	21	M4	M4	4,3	46,0	19	26	14	11,5	35	6	8	–	12	25	6	8	19	16	35	100	85	23230.0510
M16 x 1,5	12,0	21	M5	M5	5,3	56,0	27	34	18	15,5	47	8	10	–	14	35	8	10	24	25	71	100	154	23230.0512
M20 x 1,5	14,5	25	M6	M5	5,3	69,5	33	34	18	15,5	47	10	12	–	14	35	10	12	30	40	130	100	211	23230.0514
with tipped point – picture 2																								
M12 x 1,5	9,0	21	–	M4	4,3	46,0	19	26	14	11,5	35	6	–	–	12	25	6	8	19	16	35	100	85	23230.0530
M16 x 1,5	12,0	21	–	M5	5,3	56,0	27	34	18	15,5	47	8	–	–	14	35	8	10	24	25	71	100	154	23230.0532
M20 x 1,5	14,5	25	–	M5	5,3	69,5	33	34	18	15,5	47	10	–	–	14	35	10	12	30	40	130	100	209	23230.0534
with rounded pin – picture 3																								
M12 x 1,5	9,0	21	–	M4	4,3	46,0	19	26	14	11,5	35	6	–	4,5	12	25	6	8	19	16	35	100	85	23230.0550
M16 x 1,5	12,0	21	–	M5	5,3	56,0	27	34	18	15,5	47	8	–	6,0	14	35	8	10	24	25	71	100	155	23230.0552
M20 x 1,5	14,5	25	–	M5	5,3	69,5	33	34	18	15,5	47	10	–	7,2	14	35	10	12	30	40	130	100	210	23230.0554
with prism – picture 4																								
M12 x 1,5	9,0	21	–	M4	4,3	46,0	19	26	14	11,5	35	6	–	–	12	25	6	4	19	16	35	100	85	23230.0570
M16 x 1,5	12,0	21	–	M5	5,3	56,0	27	34	18	15,5	47	8	–	–	14	35	8	6	24	25	71	100	153	23230.0572
M20 x 1,5	14,5	25	–	M5	5,3	69,5	33	34	18	15,5	47	10	–	–	14	35	10	8	30	40	130	100	209	23230.0574

[1] statistical average value

3

Locating Clamps

EH 23230.



PRODUCT DESCRIPTION

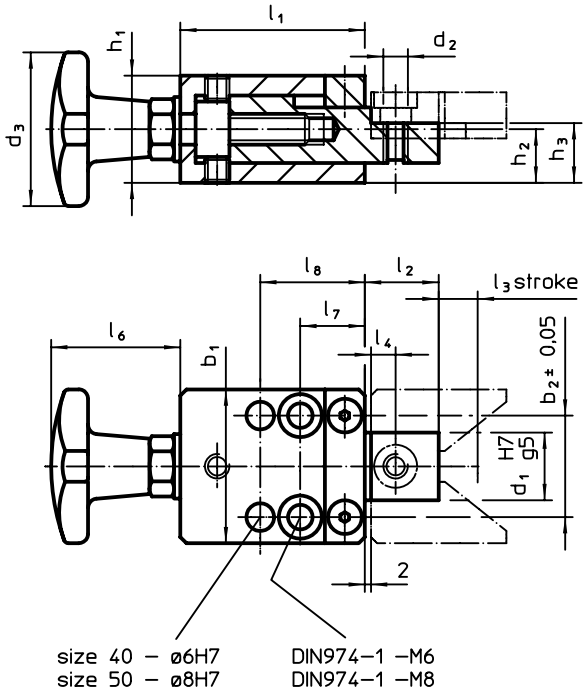
Suitable for a simultaneous "positioning" and "clamping" of workpieces. The locating element is a precision element which can be assembled from either side. The clamping and locating part adapted to the workpiece is screwed to the cylindrical support. Clamping and locating parts are manufactured by the user according to the individual requirements.

Material

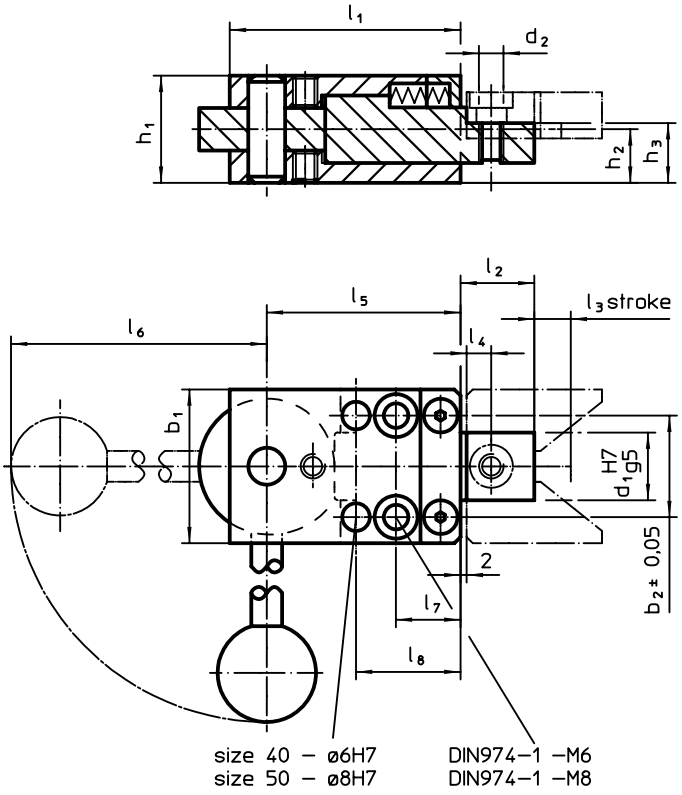
Handle
- Grey cast iron DIN 6335, orange plastic-coated
- Thermosetting plastic PF 31, black, DIN 319

Clamp
- Steel, case-hardened, blackened, ground

DRAWING



picture 1



picture 2

ORDER INFORMATION

Dimensions																	Art. No.
b_1	b_2 ±0,05	d_1 H7 g5	d_2	d_3	h_1	h_2	h_3	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	[g]	
								[mm]									
with palm grip – picture 1																	
40	27	18	M6	40	29,8	14,9	16,9	50	19	9	8	–	33	17	28	505	23230.0040
50	33	22	M8	50	34,8	17,4	19,4	60	24	10	10	–	42	21	34	862	23230.0050
with spiral eccentric clamping lever – picture 2																	
40	27	18	M6	–	29,8	14,9	16,9	60	19	3	8	50	96	17	28	566	23230.0440
50	33	22	M8	–	34,8	17,4	19,4	75	24	4	10	63	145	21	34	1071	23230.0450

Clamping Vices

EH 23231.

PRODUCT DESCRIPTION

The clamping vice is a solid, compact clamping module with a horizontally acting clamping force and a robust mechanical spindle.

- Clamping force up to max. 80 kN
- Clamping stroke 25 mm via screw drive WS 36
- Fixture via 4 cap screws M 24, quality 8.8 (tightening torque 600 Nm) with a hole spacing 100 x 100 mm
- Suitable clamping jaws 23231.0020 - .0033 are available

Material

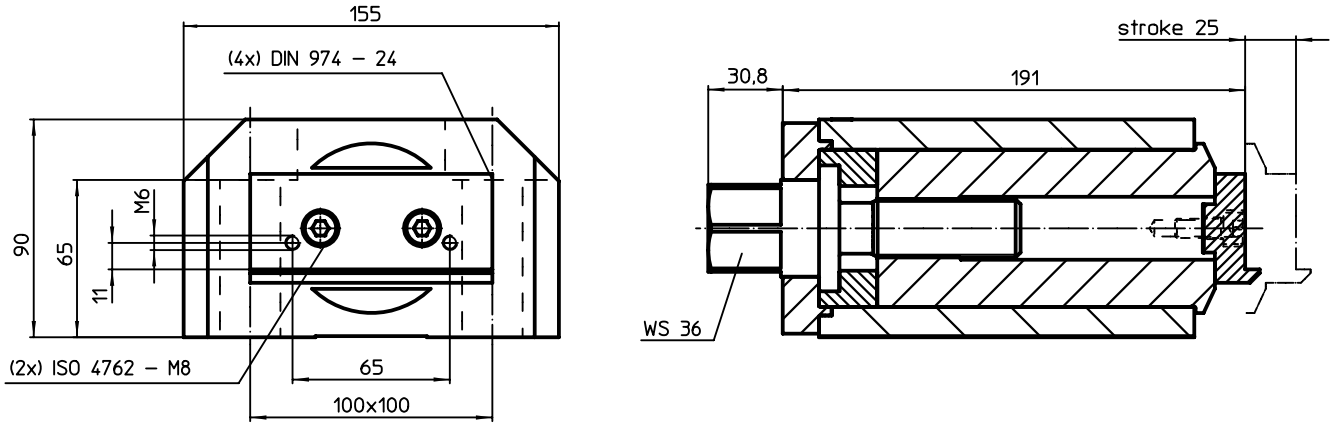
- Steel, case-hardened, ground

MORE INFORMATION

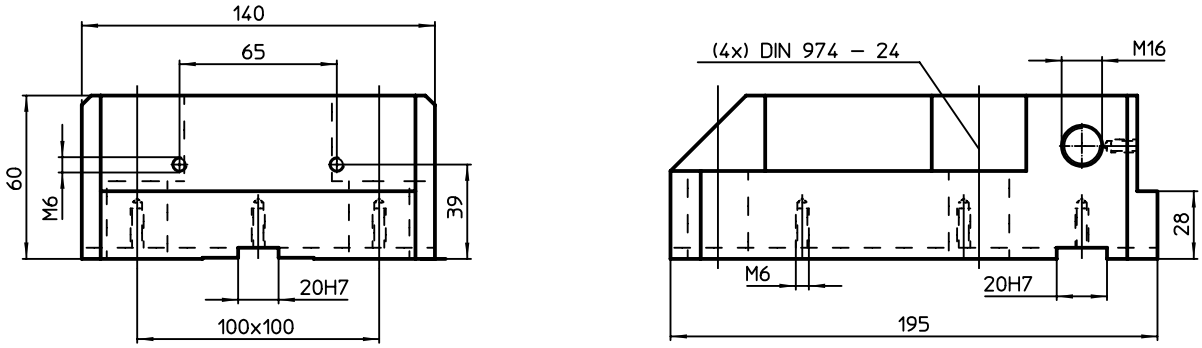
Further products

Standard Jaws, for vices . . . . . → p. 445
Interchangeable Jaws, for vices, with pull-down effect . . . . . → p. 446
Clamping Vices, moveable jaw . . . . . → p. 746
Clamping Vices, fixed jaw . . . . . → p. 746
Clamping Vices, replacement jaw, soft → p. 747
Clamping Vices, replacement jaw, ribbed/flat . . . . . → p. 747

DRAWING



picture 1



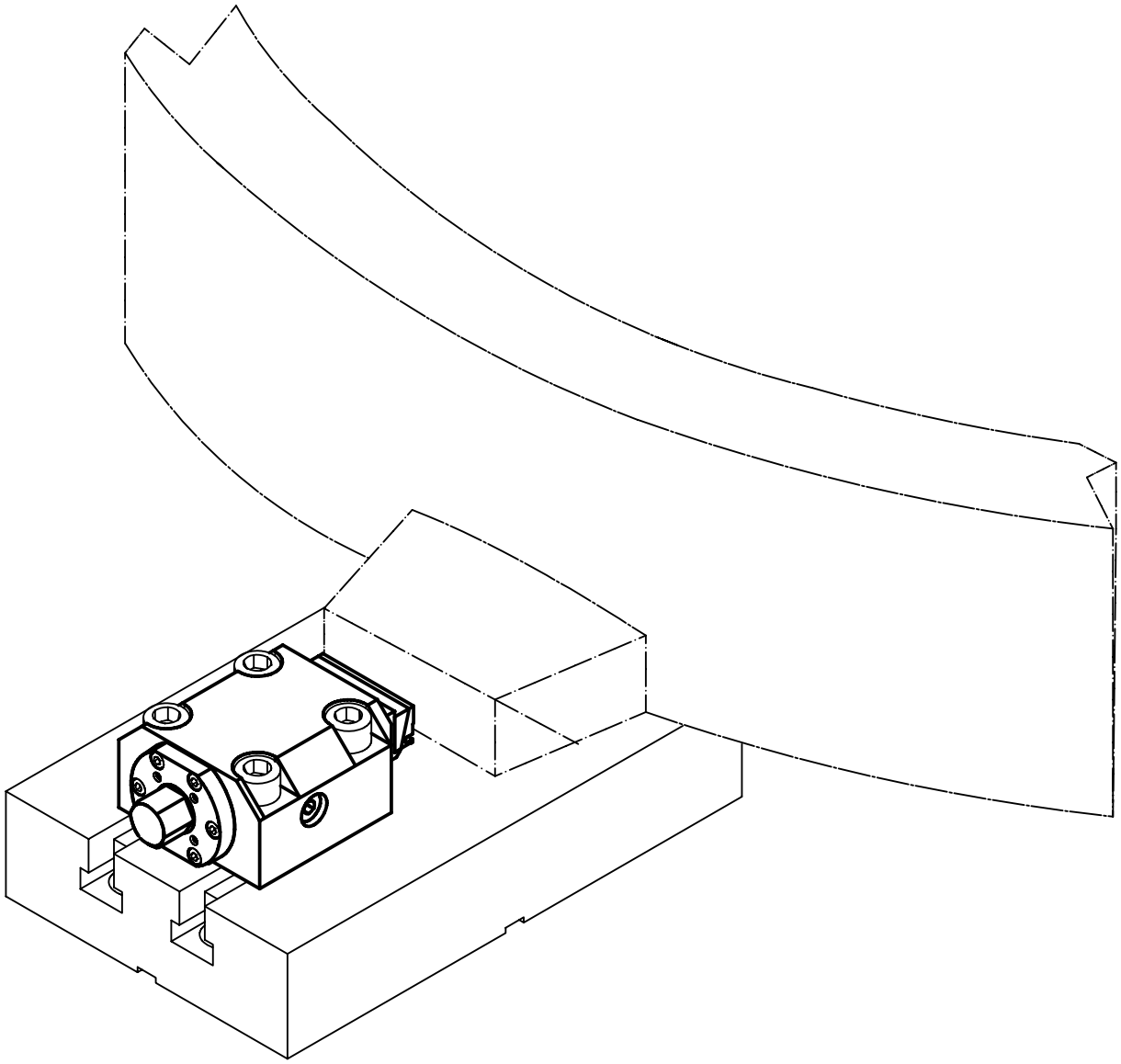
picture 2

ORDER INFORMATION

Clamping force horizontal max. [kN]	Tightening torque max. [Nm]	[kg]	Art. No.
moveable jaw – picture 1			
80	200	15,3	23231.0010
fixed jaw – picture 2			
–	–	10,0	23231.0011

3

APPLICATION EXAMPLE



Standard Jaws • for vices

EH 23231.

PRODUCT DESCRIPTION

Material

Plunger
- Heat-treated steel, induction hardened

Jaw
- Case-hardened steel

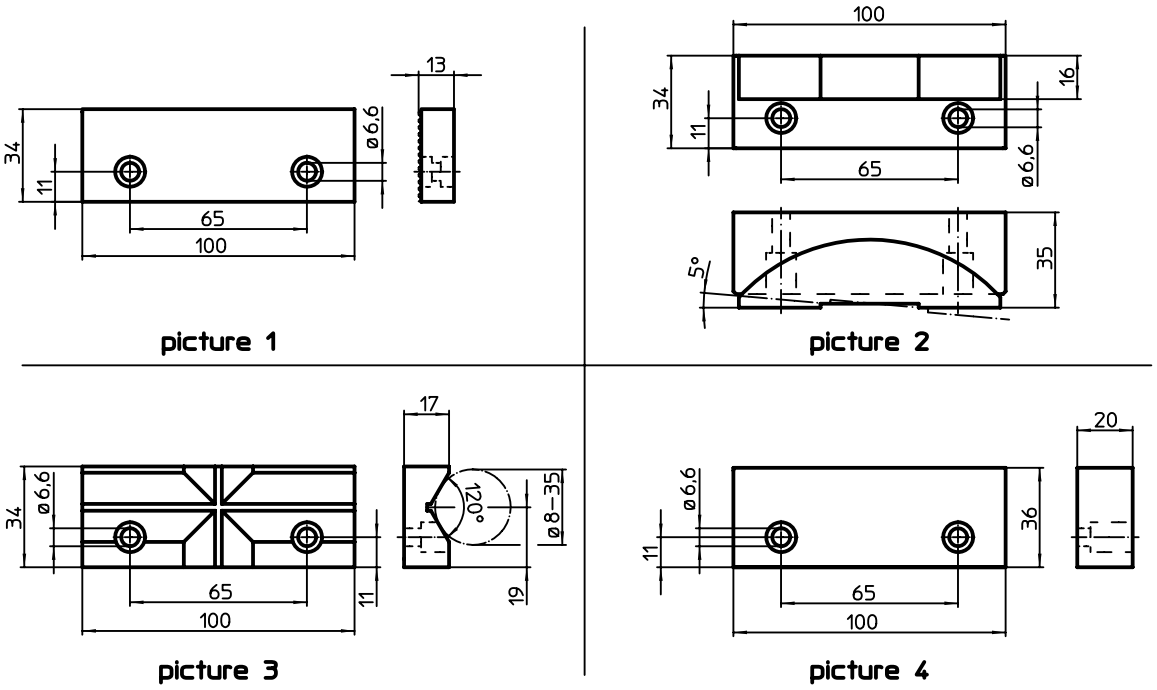
- Case-hardened steel, case hardened
- Heat-treated steel
- Tool steel

MORE INFORMATION

Notes
The delivery includes tightening screws.

3

DRAWING



ORDER INFORMATION

Nominal dimension [mm]	[g]	Art. No.
reversible jaw, smooth/ribbed made auf tool steel – picture 1		
100	320	23231.0020
floating jaw (body: of heat-treated steel / plunger: of heat-treated steel, induction-hardened) – picture 2		
100	790	23231.0021
V-clamping jaw of case-hardened steel, case-hardened – picture 3		
100	340	23231.0022
clamping jaw, soft of case-hardened steel – picture 4		
100	530	23231.0023

3

Interchangeable Jaws • for vices, with pull-down effect

EH 23231.

PRODUCT DESCRIPTION

Material

Base support
- Case-hardened steel, case hardened

Roller
- Cold worked steel, hardened

Jaw
- Case-hardened steel, case hardened
- Heat-treated steel, hardened

Assembly

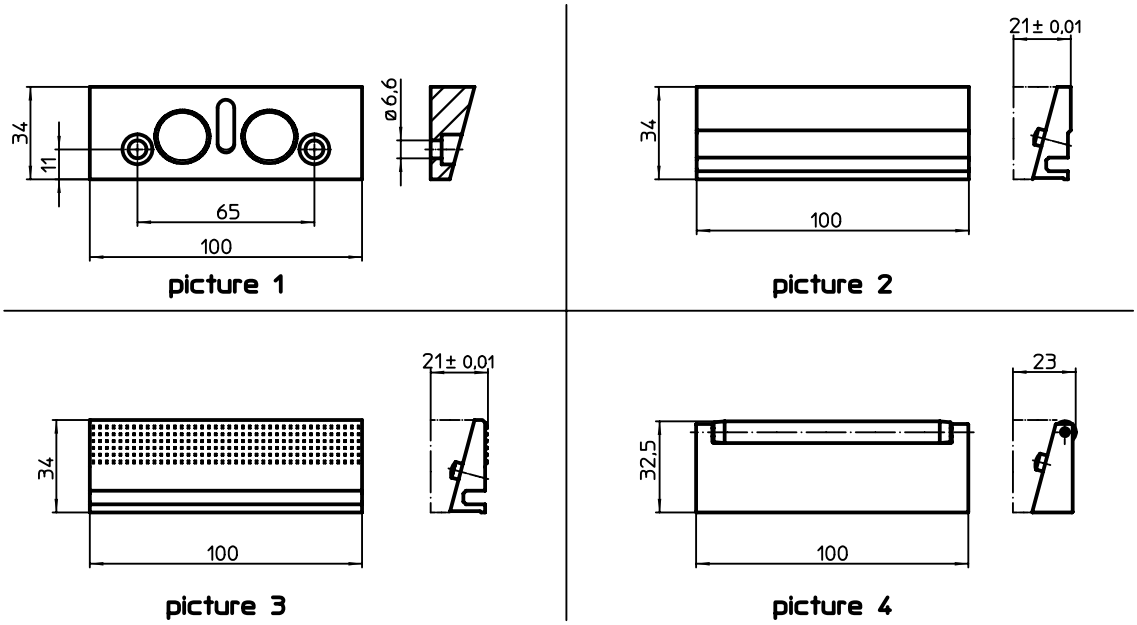
The base support (picture 1) is fixtured at the adapter of the clamping vice with the standardly delivered screws. The interchangeable jaws - held by 2 permanent magnets - can be inserted and exchanged with a manual handle.
Assembly-/Disassembly instruction:
1. Pull the jaw upwards with the manual handle until the alignment pin strikes against the slot.
2. Twist the jaw sideways and remove.
3. New jaw can be inserted.

MORE INFORMATION

Notes

The delivery includes tightening screws.

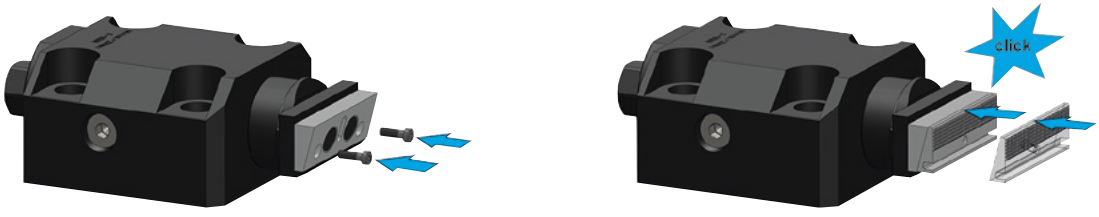
DRAWING



ORDER INFORMATION

Nominal dimension [mm]	[g]	Art. No.
base support of case-hardened steel – picture 1		
100	290	**23231.0030**
interchangeable jaw, smooth of case-hardened steel – picture 2		
100	200	**23231.0031**
interchangeable jaw, ribbed of case-hardened steel – picture 3		
100	195	**23231.0032**
interchangeable jaw with roller (body: head-treated steel, hardened / roller: cold worked steel, hardened) – picture 4		
100	270	**23231.0033**

APPLICATION EXAMPLE



Stabilizing Clamping Jaws

EH 23240.

PRODUCT DESCRIPTION

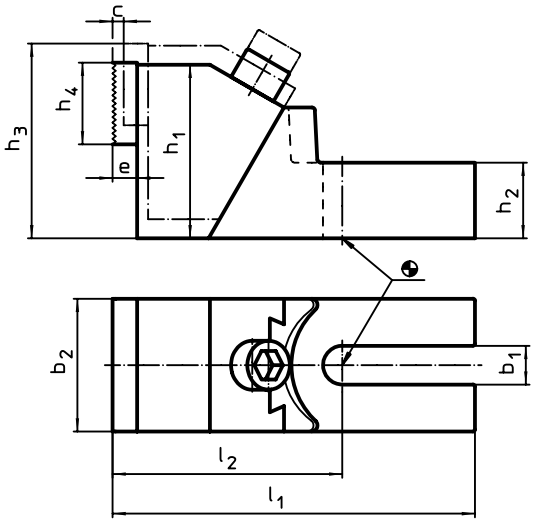
Due to the big clamping jaw, this clamping element is suitable for lateral clamping of high workpieces.
The clamping force acts forwards and downwards. Clamping plate is turnable, i.e. to the ground or ribbed side.

Material

Body
- Cast iron

Clamping jaws
- Steel, case-hardened

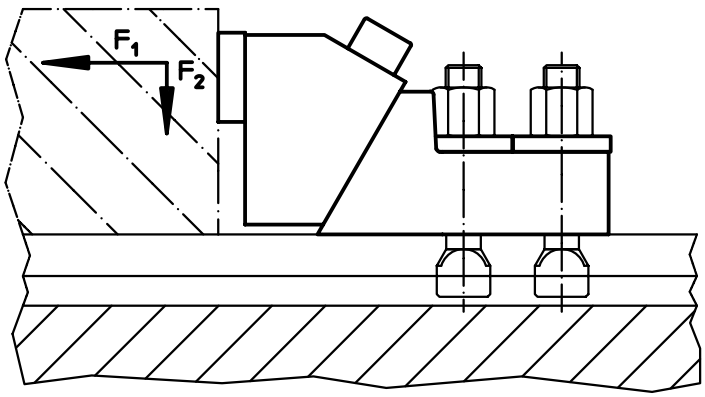
DRAWING



ORDER INFORMATION

Dimensions										T-slot size a	Spring load			Art. No.
b_1	c	h_1	h_2	h_3	h_4	b_2	l_1	l_2	e		F_1	F_2		
[mm]										[mm]	[kN]		[g]	
19	8	85	37	99	40	65	177,5	112,5	12	12 14 16 18	8 15 20 28	1,2 2,2 3,0 4,2	4013	23240.0012
26	11	100	45	118	40	75	226,5	136,5	12	20 22 24 28 30	30 30 32 32 36	4,5 4,5 4,8 4,8 5,4	6760	23240.0020

APPLICATION EXAMPLE



3

Taper Clamping Units

EH 23250.

PRODUCT DESCRIPTION

Taper clamping units are particularly suitable for horizontal and vertical multiple clampings. The taper clamps are compact in build and therefore enable clamping without geometric interference.

Material

Body
- Tool steel, hardened, bright

Screw
- Heat-treated steel, tempered, quality 12.9

Spring
- Spring steel wire
- NBR (O-Ring)

Clamping jaws
- Tool steel, hardened, blackened and ground

Assembly

Can be mounted in a threaded hole or with T-nuts for horizontal or vertical multiple clamping.

Operation

Inserting the socket head screw moves the two clamping chucks outwards and presses the workpieces against a stop. Using the double taper, an additional vertical clamping force will be achieved. Stroke of taper clamping units with M 5 = ±0,5, M 8 = ±0,5, M 12 = ±1 and M 16 = ±1,5. Can be mounted in a threaded hole or with T-nuts for horizontal or vertical multiple clamping.

MORE INFORMATION

References

For further taper clamping units, refer to section "Multiple Clamping Systems"

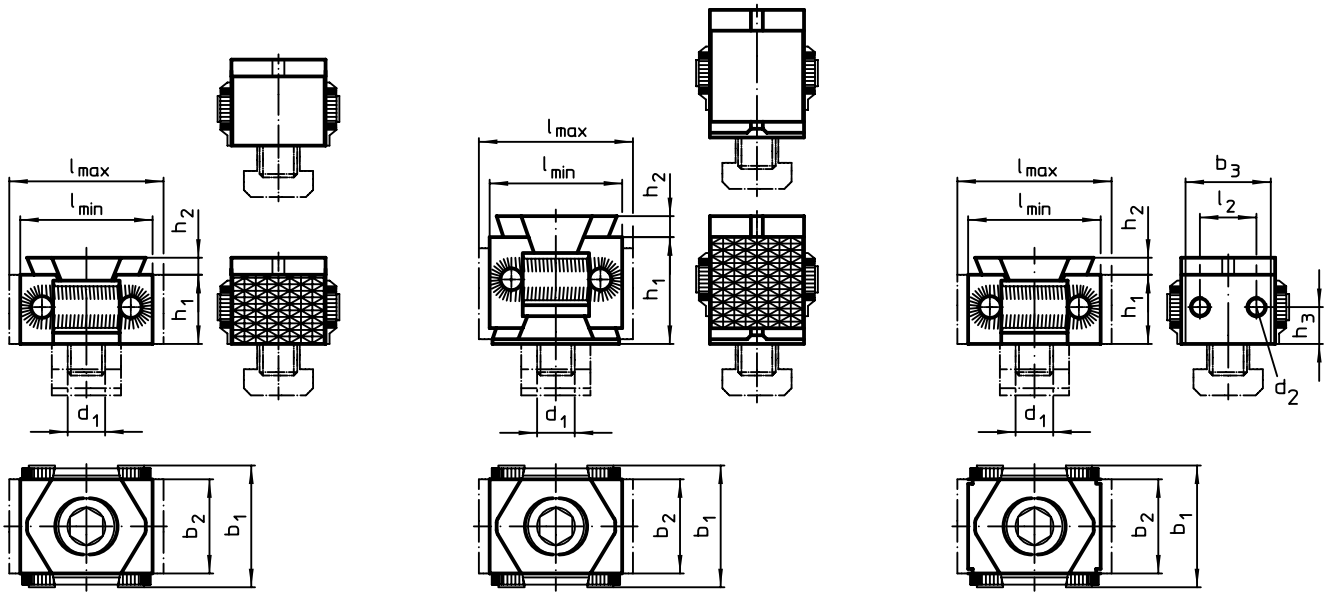
Accessories

T-nuts EH 23010. have to be purchased separately.

Further products

Nuts for T-Slots, DIN 508 . . . . . → p. 362
Coverings, for taper clamping units. . . → p. 450
Taper Clamping Units, plain / ribbed, M8 . . . . . → p. 859
Taper Clamping Units, plain / ribbed, M12 . . . . . → p. 860
Taper Clamping Units, with screw fastened thread, M12. . . . . → p. 861

DRAWING



picture 1 | picture 2 | picture 3

ORDER INFORMATION

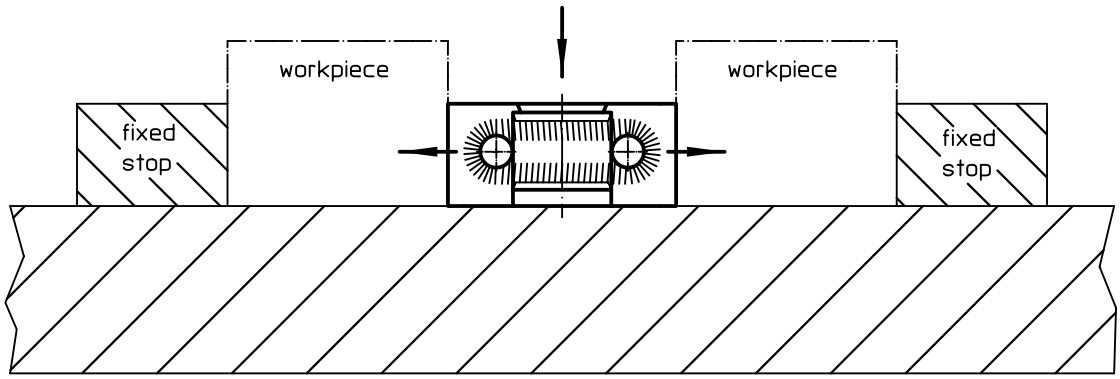
Dimensions [mm]										Clamping force max. [kN]	Tightening torque max. [Nm]	[g]	Art. No.
d_1	l	l_2	b_1	b_2	b_3	d_2	h_1	h_2	h_3				
single taper, ribbed clamping jaw, two-sided – picture 1													
M 8	27 – 31	–	29	21	–	–	15	2,5	–	20	43	73	23250.0008
M12	42 – 49	–	41	30	–	–	22	4,0	–	30	85	231	23250.0012
M16	57 – 65	–	56	42	–	–	29	5,0	–	50	210	587	23250.0016

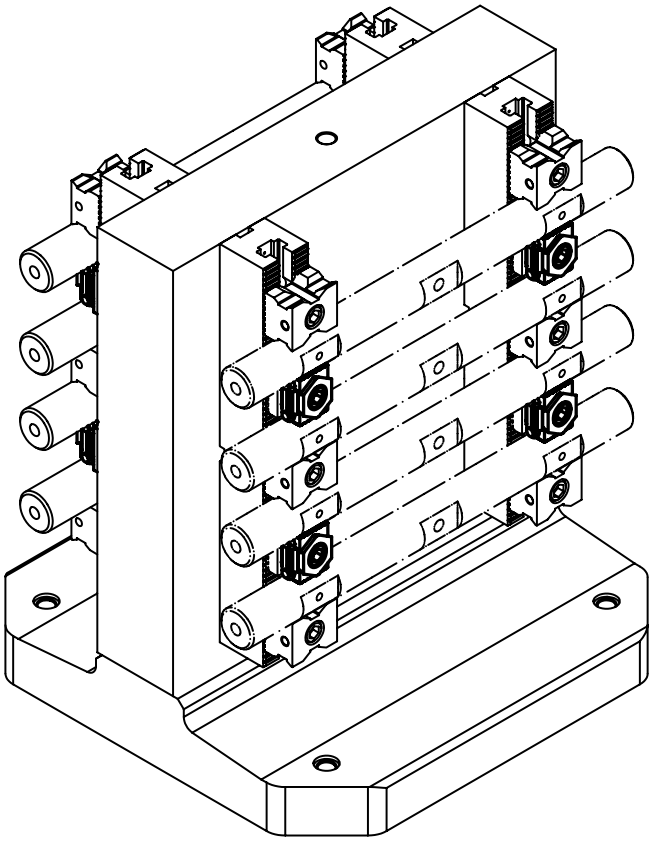
[1] Taper surfaces not ground, spring: O-ring (NBR)

Dimensions										Clamping force max.	Tightening torque max.		Art. No.
d_1	l	l_2	b_1	b_2	b_3	d_2	h_1	h_2	h_3				
[mm]										[kN]	[Nm]	[g]	
single taper, flat clamping jaw, two-sided – picture 1													
M 5	20 – 25	–	22	15	–	–	11	4,2	–	7	10	30	23250.0065[1]
M 8	27 – 31	–	29	21	–	–	15	2,5	–	20	43	73	23250.0048
M12	42 – 49	–	41	30	–	–	22	4,0	–	30	85	233	23250.0052
M16	57 – 64	–	56	42	–	–	29	5,0	–	50	210	587	23250.0056
double taper, ribbed clamping jaw, two-sided – picture 2													
M12	42 – 49	–	41	30	–	–	36	5,0	–	50	85	343	23250.0112
M16	58 – 66	–	56	42	–	–	50	5,0	–	80	210	896	23250.0116
double taper, flat clamping jaw, two-sided – picture 2													
M12	41 – 48	–	41	30	–	–	36	5,0	–	50	85	339	23250.0142
M16	58 – 66	–	56	42	–	–	50	5,0	–	80	210	895	23250.0146
single taper, clamping jaw with screw-fastened thread, two-sided – picture 3													
M 8	33 – 37	12	29	21	–	M5	15	2,5	7,5	20	43	75	23250.0158
M12	46 – 53	18	41	30	28	M5	22	4,0	11,0	30	85	247	23250.0162
M16	61 – 70	26	56	42	40	M5	29	5,0	14,5	60	210	618	23250.0166

[1] Taper surfaces not ground, spring: O-ring (NBR)

APPLICATION EXAMPLE





3

Coverings • for taper clamping units

EH 23250.

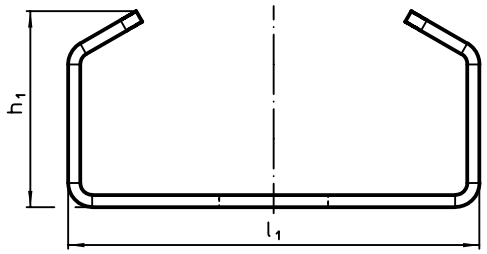
PRODUCT DESCRIPTION

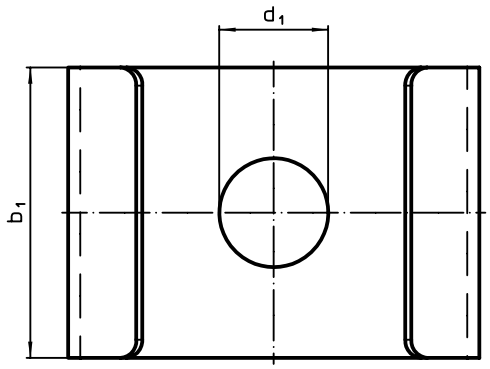
Protects against damage from scales of wood and dirt.

Material
- Steel

Assembly
The cover is mounted under the taper clamping unit.

DRAWING

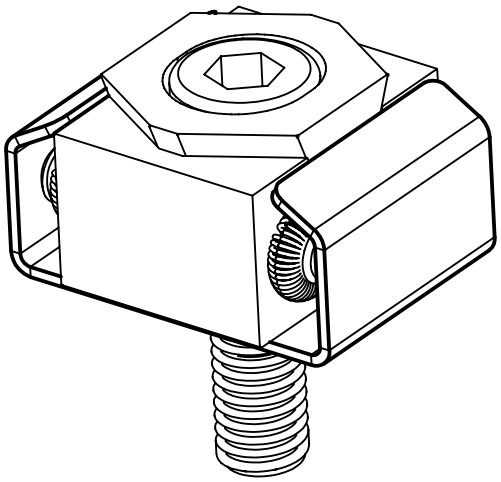




ORDER INFORMATION

Dimensions					For taper clamping units		Art. No.
d_1	For screw	b_1	h_1	l_1			
[mm]						[g]	
9	**M 8**	24	16,2	34	23250.0008/.0048/.0158	12	**23250.0408**
13	**M12**	38	22,1	44	23250.0012/.0052/.0142/.0162	26	**23250.0412**

APPLICATION EXAMPLE



Double Edge Clamps

EH 23251.

PRODUCT DESCRIPTION

Inserting the socket head screw moves the two clamping chucks outwards and presses the workpiece against a stop.

Material

Body
- Aluminium Al

Taper
- Case-hardened steel, blackened

Screw
- Steel

Assembly

Can be mounted in a threaded hole or with T-nuts for horizontal or vertical multiple clamping.

MORE INFORMATION

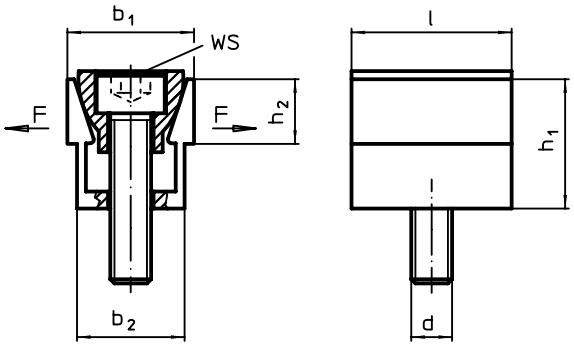
Accessories

T-nuts EH 23010. have to be purchased separately.

Further products

Nuts for T-Slots, DIN 508 . . . . . → p. 362

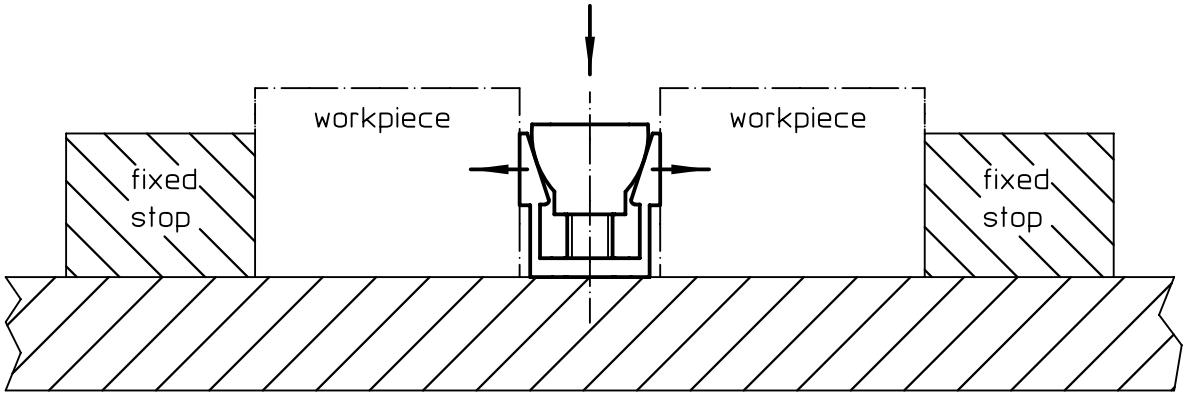
DRAWING



ORDER INFORMATION

Dimensions							WS	Clamping force max.	Tightening torque max.		Art. No.
b_1	b_1 max. spread	b_2	h_1	h_2	l	d					
[mm]							[mm]	[kN]	[Nm]	[g]	
18,6	20,3	16,1	19,0	9,5	23,8	M 6	5	6,7	14,3	36	23251.0006
24,8	26,9	20,8	25,9	12,7	31,7	M 8	6	8,9	14,5	85	23251.0008
37,3	39,9	30,8	38,6	19,0	47,6	M12	10	15,6	38,4	280	23251.0012
49,7	53,0	41,2	51,5	25,4	63,5	M16	14	26,7	74,6	700	23251.0016

APPLICATION EXAMPLE



Double Edge Clamps • machinable chucks

EH 23251.

PRODUCT DESCRIPTION

Inserting the socket head screw moves the two clamping chucks outwards and presses the workpiece against a stop.
The chucks can be machined to the needed workpiece contour. The locking plate is needed only for this machining, not for the workpiece clamping.

Material

Body
- Aluminium Al

Taper
- Case-hardened steel, blackened

Screw
- Steel

Locking plate
- Aluminium Al

Assembly

Can be mounted in a threaded hole or with T-nuts for horizontal or vertical multiple clamping.

MORE INFORMATION

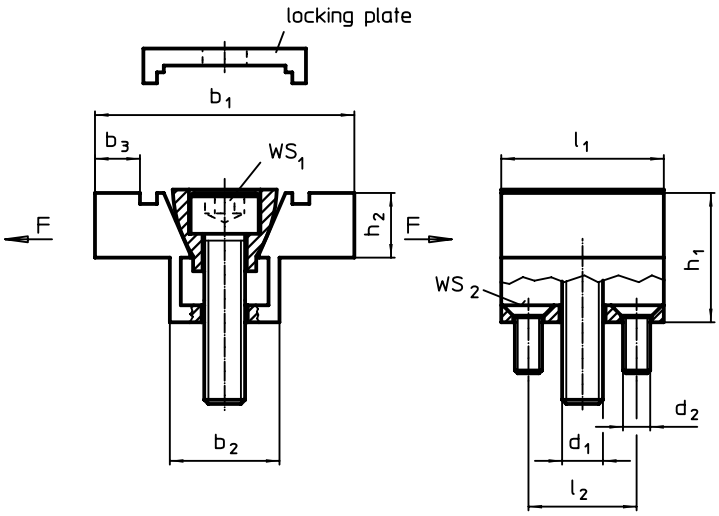
Accessories

T-nuts EH 23010. have to be purchased separately.

Further products

Nuts for T-Slots, DIN 508 . . . . . → p. 362

DRAWING

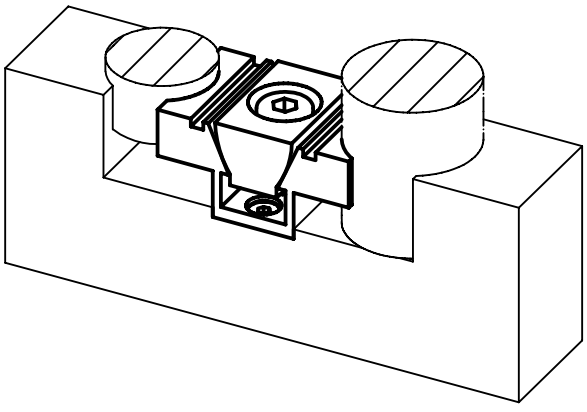


ORDER INFORMATION

Dimensions									WS1	WS2	Clamping force max.	Tightening torque max.		Art. No.
b1	b2	b3 1)	h1	h2	l1	l2	d1	d2						
[mm]									[mm]	[mm]	[kN]	[Nm]	[g]	
38,1	16,1	6,6	19,1	9,4	23,9	15,9	M 6	M4	5	2,5	6,7	14,3	67	23251.0106
50,8	20,8	9,9	25,4	12,7	31,8	20,6	M 8	M4	6	2,5	8,9	14,5	136	23251.0108
76,2	30,9	14,8	38,1	19,1	47,5	30,5	M12	M5	10	3,0	15,6	38,4	443	23251.0112
101,6	41,3	20,3	50,8	25,4	63,5	41,3	M16	M6	14	4,0	26,7	74,6	1068	23251.0116

1) machinable material allowance

APPLICATION EXAMPLE



Stops • cylindrical

EH 23280.

PRODUCT DESCRIPTION

The T-slot guide enables a quick and precise location of the workpiece. The cylindrical form of the stop facilitates to determine the 0-point coordinate. The short form, which is ground to a height tolerance of ± 0,01 mm, can also be used for locating.

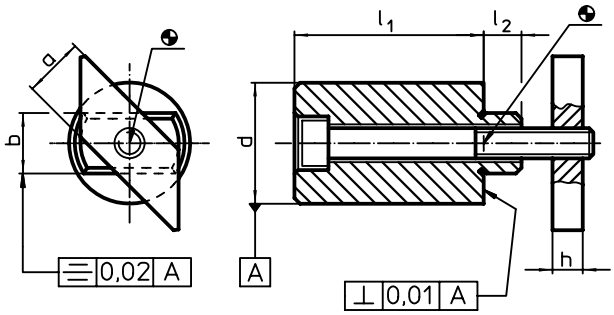
Material

Stop
- Steel, case-hardened, ground

Holding plate
- Steel, blackened

Screw
- Steel, quality 8.8 (ISO 4762)

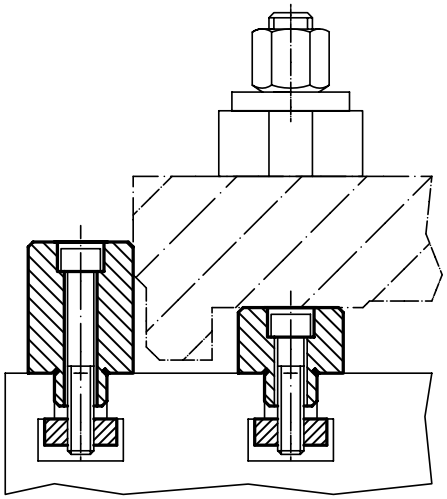
DRAWING



ORDER INFORMATION

T-slot size h6 [mm]	Dimensions [mm] l_1	a -0,6	d ±0,01	h	l_2	Screw ISO 4762 [mm]	[g]	Art. No.
10	15 ±0,01	10	20	6	8	M 6 x 25	53	23280.0110
	25 ±0,20	10	20	6	8	M 6 x 35	76	23280.0210
12	15 ±0,01	12	20	6	8	M 6 x 25	58	23280.0112
	25 ±0,20	12	20	6	8	M 6 x 35	83	23280.0212
14	25 ±0,01	14	32	8	9	M 8 x 35	202	23280.0114
	50 ±0,20	14	32	8	9	M 8 x 60	357	23280.0214
16	25 ±0,01	16	32	8	10	M 8 x 45	221	23280.0116
	50 ±0,20	16	32	8	10	M 8 x 70	371	23280.0216
18	25 ±0,01	18	40	10	15	M10 x 50	371	23280.0118
	50 ±0,20	18	40	10	15	M10 x 75	613	23280.0218
22	25 ±0,01	20	40	14	15	M10 x 55	435	23280.0122
	50 ±0,20	20	40	14	15	M10 x 80	679	23280.0222
28	25 ±0,01	22	46	16	20	M12 x 60	661	23280.0128
	50 ±0,20	22	46	16	20	M12 x 90	985	23280.0228

APPLICATION EXAMPLE



Pitbull® Clamps

EH 23290.

PRODUCT DESCRIPTION

Pitbull® clamps for low mounting height with a high clamping force and down hold effect. The O-ring serves to lift the clamp off when releasing.

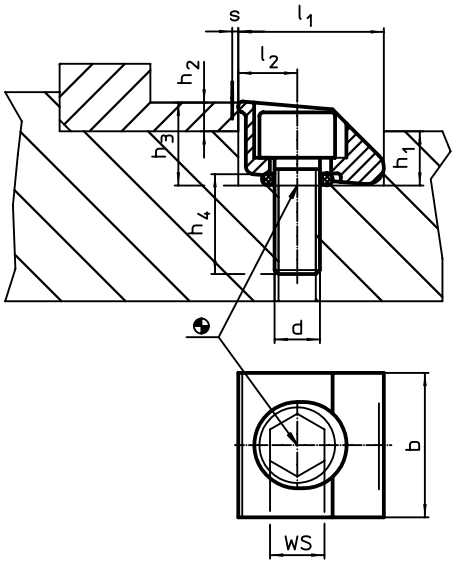
Material

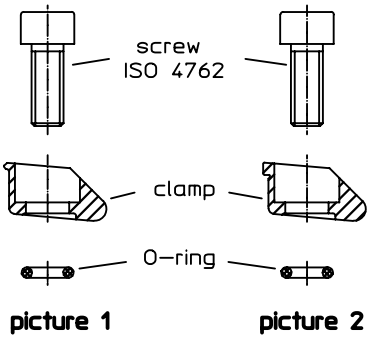
Body
- Steel, hardened

Screw
- Heat-treated steel, heat treated

O-ring
- NBR

DRAWING

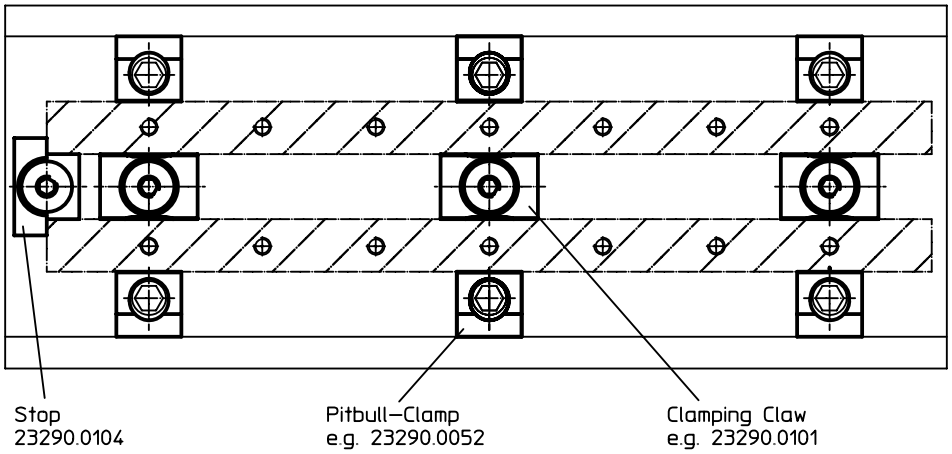




ORDER INFORMATION

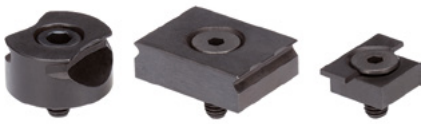
Dimensions								Clamping way s	WS	Clamping force max.	Tightening torque max.				Art. No.
d	b	l_1 H9	l_2	h_1	h_2 min.	h_3 ~	h_4 ~					min.	max.		
[mm]								[mm]	[mm]	[kN]	[Nm]	[°C]		[g]	
with knife edge – picture 1															
M 4	12,7	12,70	5,1	4,8	2,6	7,4	8	0,4	3	2,6	6	-30	80	6	23290.0052
M 6	19,1	19,05	7,6	7,1	3,8	10,9	11	0,6	5	3,8	17	-30	80	20	23290.0054
M10	25,4	25,40	10,2	11,4	6,4	17,8	17	1,2	8	15,0	80	-30	80	63	23290.0056
M12	38,1	38,10	15,2	16,3	9,5	25,8	21	1,9	10	20,8	140	-30	80	206	23290.0058
blunt edged – picture 2															
M 4	12,7	12,70	5,1	4,8	2,6	7,4	8	0,4	3	2,6	6	-30	80	6	23290.0062
M 6	19,1	19,05	7,6	7,1	3,8	10,9	11	0,6	5	5,7	17	-30	80	20	23290.0064
M10	25,4	25,40	10,2	11,4	6,4	17,8	17	1,2	8	15,1	80	-30	80	65	23290.0066
M12	38,1	38,10	15,2	16,3	9,5	25,8	21	1,9	10	22,0	140	-30	80	201	23290.0068

APPLICATION EXAMPLE



Clamping Claws

EH 23290.



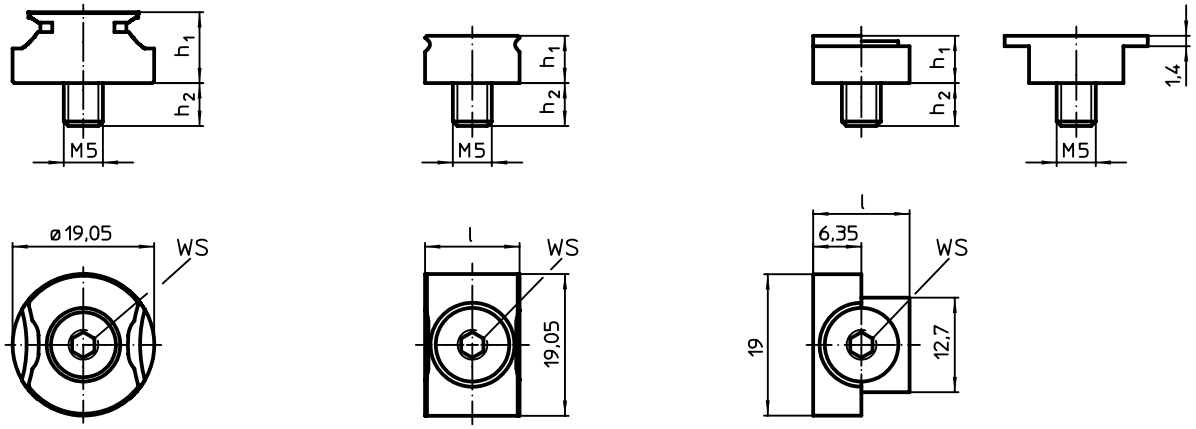
PRODUCT DESCRIPTION

The clamping claws are designated for the installation in clamping chucks and fixtures. Only a counterbore or rather a nut with threaded hole is needed for the installation. The sharp edges of the clamping claw are impressed in the workpiece and therefore they avoid a lateral and horizontal movement.
The stop can be used for the positioning of workpieces.

Material

- Steel, hardened, blackened

DRAWING

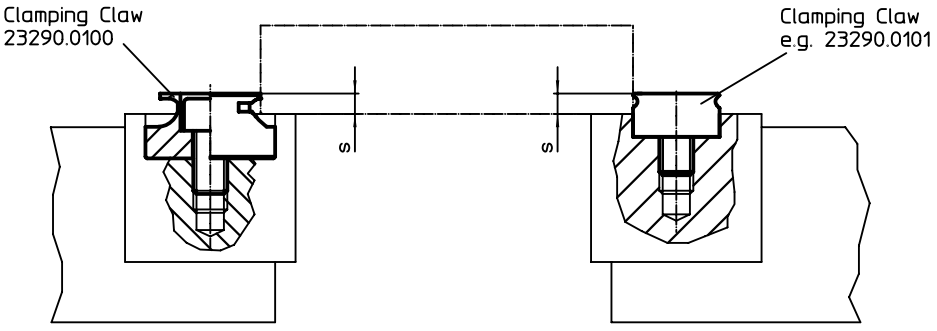


picture 1 picture 2 picture 3

ORDER INFORMATION

l	Dimensions h_1	h_2 ~	s	WS		Art. No.
	[mm]			[mm]	[g]	
clamping claw, round – picture 1						
–	9,53	5,9	1,5 – 3,0	4	18	23290.0100
clamping claw – picture 2						
12,70	6,35	6,0	1,5 – 1,9	3	12	23290.0101
19,05	7,92	8,1	1,5 – 3,0	3	22	23290.0102
25,40	7,92	8,1	1,5 – 3,0	3	30	23290.0103
stop – picture 3						
12,70	6,35	6,0	–	3	6	23290.0104

APPLICATION EXAMPLE



3

Supporting Plates

EH 23210.

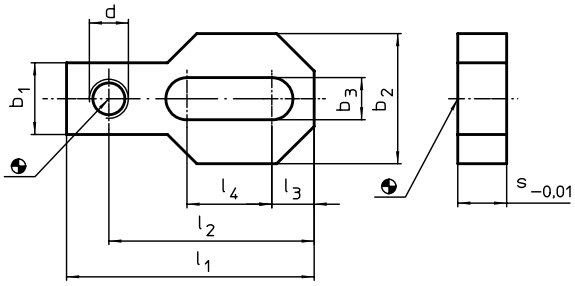
PRODUCT DESCRIPTION

Various seating elements (e.g. pins EH 22690. or self-aligning pads EH 22730., EH 22731. and EH 22740.) can be mounted on the supporting plates.
The supporting plate can be moved flexibly between two threads or T-slots.
Suitable for clamping devices M 20 - M 24.

Material

- Steel, case-hardened

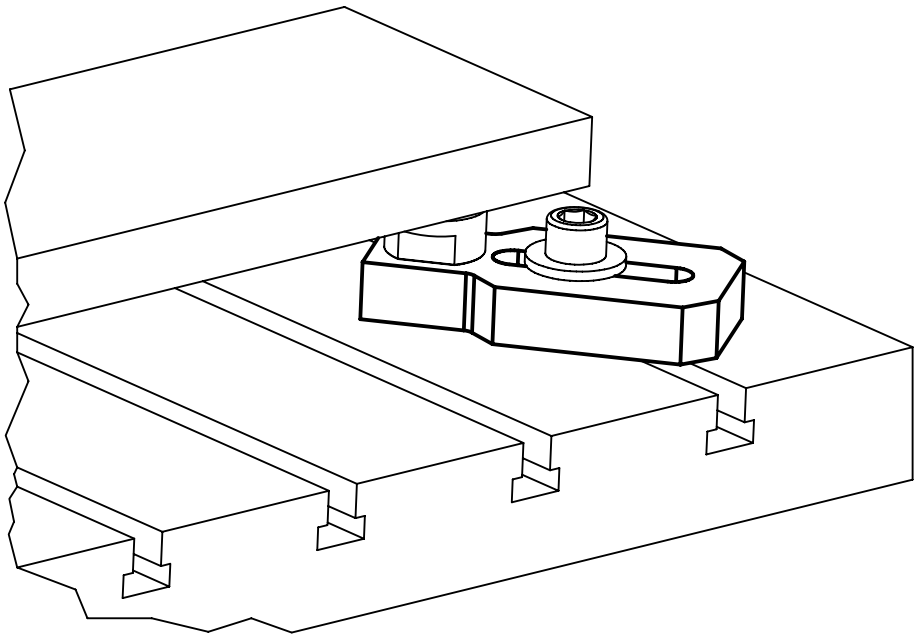
DRAWING



ORDER INFORMATION

d	Dimensions [mm]								[g]	Art. No.
	l_1	l_2	l_3	l_4	b_1	b_2	b_3	s -0,01		
M20	180	150	30	80	60	90	21	**30**	2770	23210.0870
M24	220	188	35	100	70	100	25	**30**	3770	23210.0880

APPLICATION EXAMPLE



Stops

EH 23281.

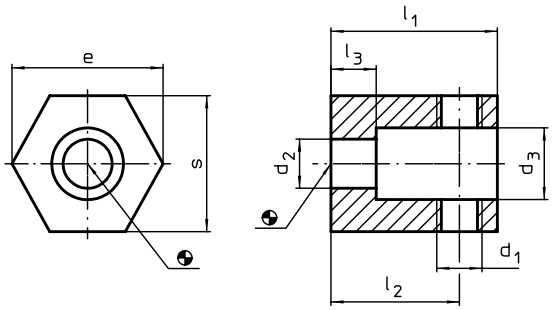
PRODUCT DESCRIPTION

With the stop a flexible stop for a workpiece can be realised.
Together with a grub screw (e.g. EH 22540.), a workpiece can be mounted and aligned.
The grub screw should be secured in position with a hexagon nut.
Suitable for clamping devices M 20 - M 24.

Material

- Steel, blackened

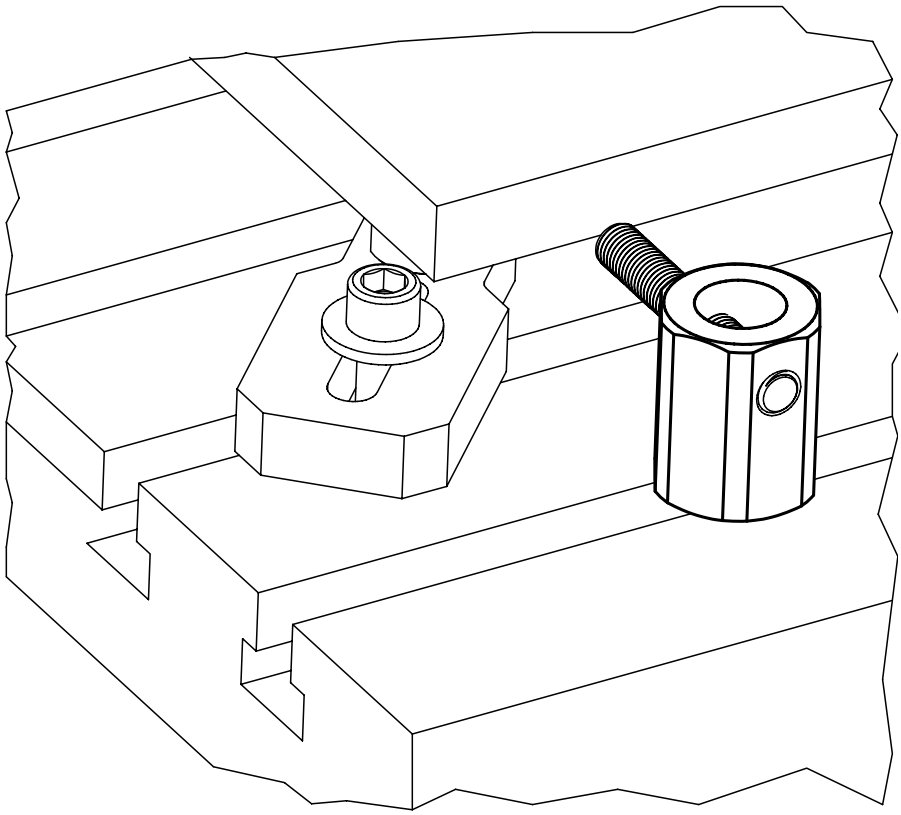
DRAWING



ORDER INFORMATION

Dimensions [mm]								[g]	Art. No.
d_1	d_2	d_3	l_1	l_2	l_3	s	e		
M20	26	38	85	60	20	65	70	1660	23281.0024

APPLICATION EXAMPLE



3

Bedding Supports

EH 23220.

PRODUCT DESCRIPTION

The bedding support is used to **support** overdetermined clamping points on components.
The benefits of the bedding support are:

- Support for unstable components, without distortion
- Eliminates tool vibration during machining
- Compact, low construction
- Supports ribs, beads and shackles, for reinforcement of clamped components
- Distortion-free support of raw parts
- Easy handling
- Flat and long design allows clamping with adjustable clamping lever even outside the workpiece.

Material

Handle
- Zinc die-cast

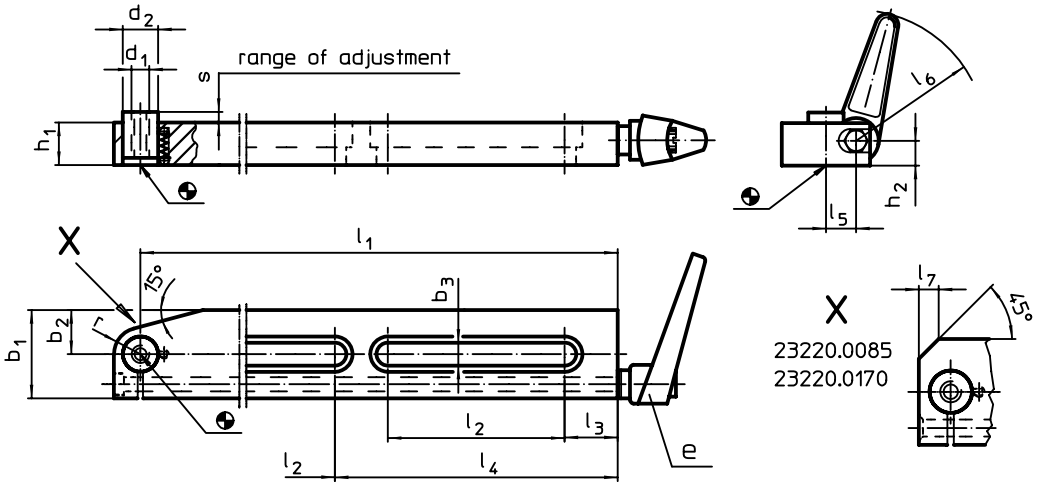
Clamp
- Steel, case-hardened, blackened, ground

Operation

1. By releasing the clamping lever, the support bolt contacts the workpiece with a light spring load.
2. By clamping the clamping lever, the support pin is blocked without displacement.
3. The clamping lever is released after removal of the workpiece. Then push the support pin into the starting position and clamp using the lever.

By screwing grub screws or supports into the support pin's female thread, the support height can be adjusted.

DRAWING

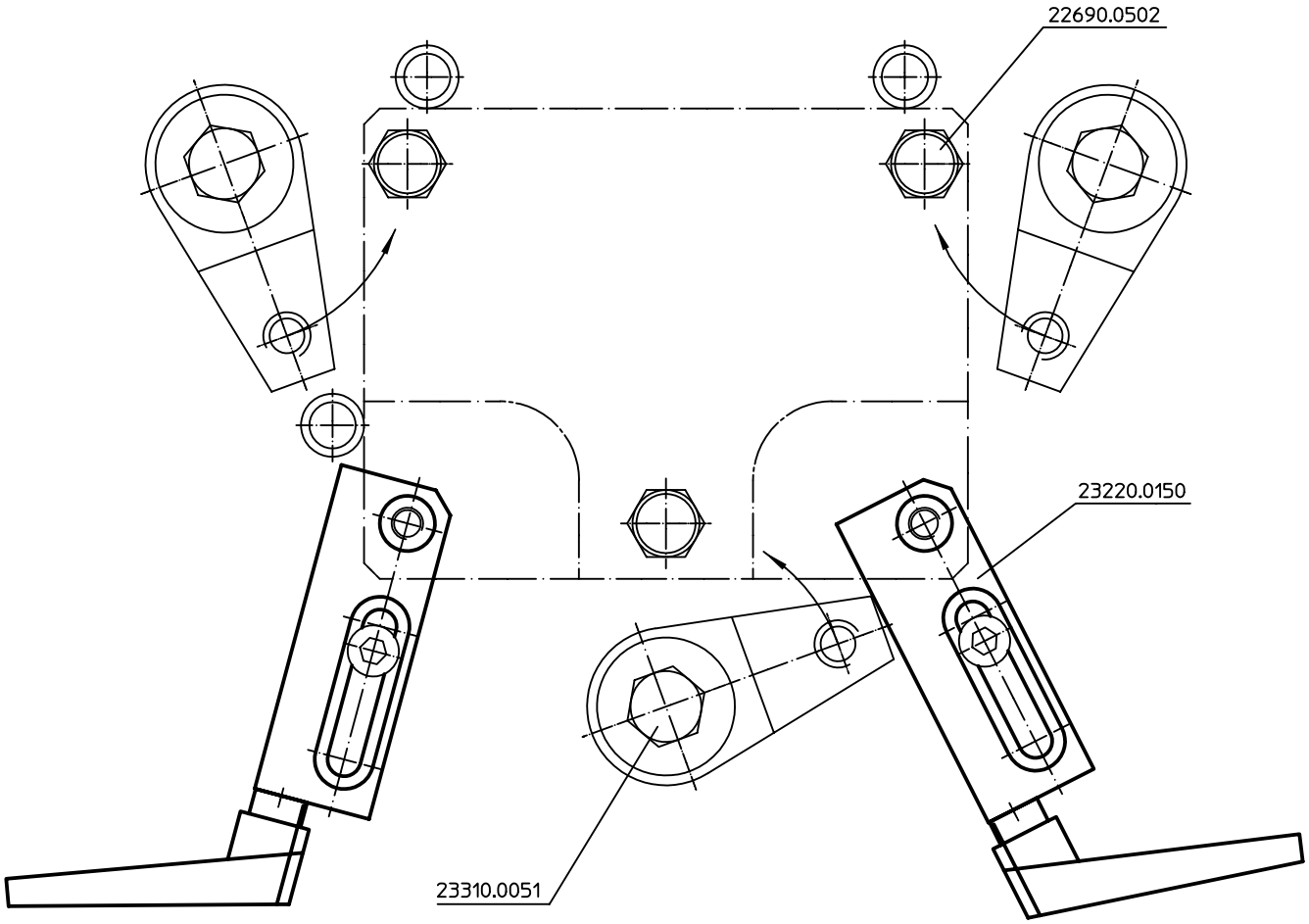


Sizes 8,5 x 75, 13 x 150 and 17 x 170 have only one slot.

ORDER INFORMATION

Dimensions [mm]															Stroke s [mm]	Load capacity max. [kN]	e	[g]	Art. No.
b_3	l_1	l_2	l_3	l_4	l_5	l_6	l_7	b_1	b_2	d_1	d_2	h_1	h_2	r					
8,5	**75**	35	13	–	13	62	5	30	10	M 8	13	19,5	11,5	–	3	0,5	24400.0311	342	23220.0085
13,0	**150**	90	20	–	17	74	–	50	25	M10	20	24,0	14,0	15	6	2,5	24400.0411	1159	23220.0150
17,0	**170**	100	25	–	27	108	11	60	20	M16	26	34,0	21,5	–	11	5,0	24400.0611	2534	23220.0170
13,0	**300**	100	30	160	17	74	–	50	25	M10	20	24,0	14,0	15	6	2,5	24400.0411	2100	23220.0300
25,0	**387**	110	30	200	30	89	–	85	40	M20	32	40,0	25,0	24	11	10,0	24420.0210	7300	23220.0450

APPLICATION EXAMPLE



3

Supporting Elements

EH 23220.

PRODUCT DESCRIPTION

The support element is used to **support** overdetermined clamping points on components.
The benefits of the support element are:

- Support for unstable components
- Eliminates tool vibration during machining
- Supports ribs, beads and shackles, for reinforcement of clamped components
- Distortion-free support of raw parts
- Easy handling

Material

Housing

- Aluminium, red anodised

Body

- Case hardened steel, nitrided, manganese phosphate treated and ground

Assembly

Fix the support element (2 x M 6 thread) onto the device. Pay attention to the operator's side!
Alternative: Dismantle the M 12 x 10 threaded pin and replace it by a M 12 x 30 threaded pin and assemble the support element with a wrench (WS 21), e.g. for T-slot mounting (no defined operator's side ensured). Threaded pin M 12 x 30 and T-nut DIN 508 M 12 x 14, quality 10, are part of the standard supply volume.
Lowering of the support element by 16 mm is possible.

Operation

By turning the clamping cam (WS 6 internal hexagon) on the outer surface of the red protective sleeve, the support pin contacts the workpiece with a slight spring load.

1. By turning on (15 Nm) as far as possible (lock), total of 180°, the clamping mechanism locks the support pin without moving. The support element has been placed onto the workpiece and locked.
2. If turned in the opposite direction (unlock), the clamping is released. If turned back as far as possible, i.e. total of 180° the support pin moves to the end position.

MORE INFORMATION

Notes

For safe functioning, the thread bore M 12 must always be closed.

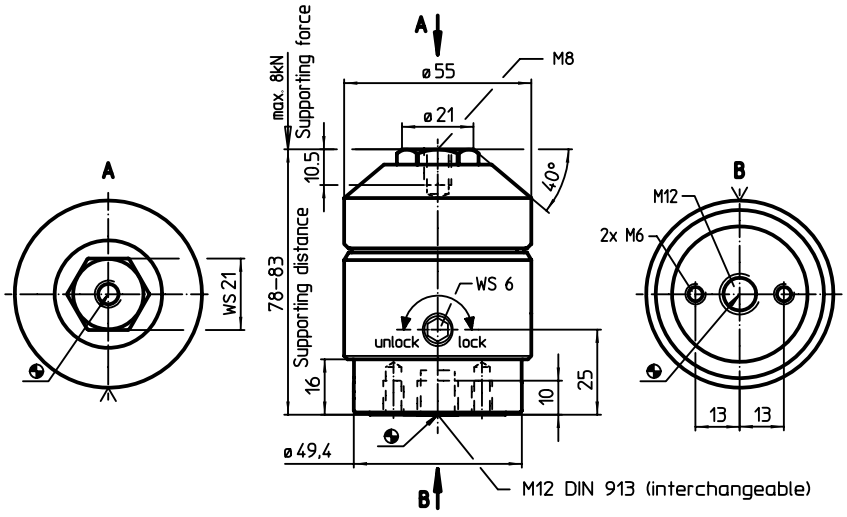
References

Additional flexible possibility of fitting with holding plate 23210.0740.
In the M 8 threaded pin on the support bolt various locating and seating pins (EH 22...) can be mounted. Custom-made extensions can also be fitted.
The clamping height can be increased using height adjusting cylinders EH 23310. and with spacers EH 1107. and EH 1108.

Further products

Holding Plates, for down-hold clamps . → p. 437
Height Adjusting Cylinders . . . . . → p. 505
Spacers . . . . . → p. 725

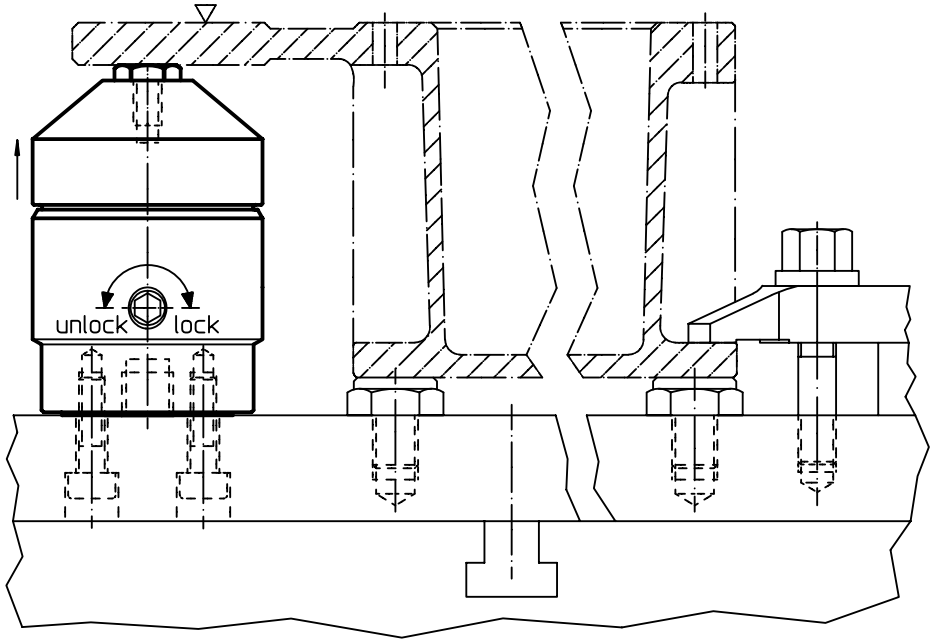
DRAWING

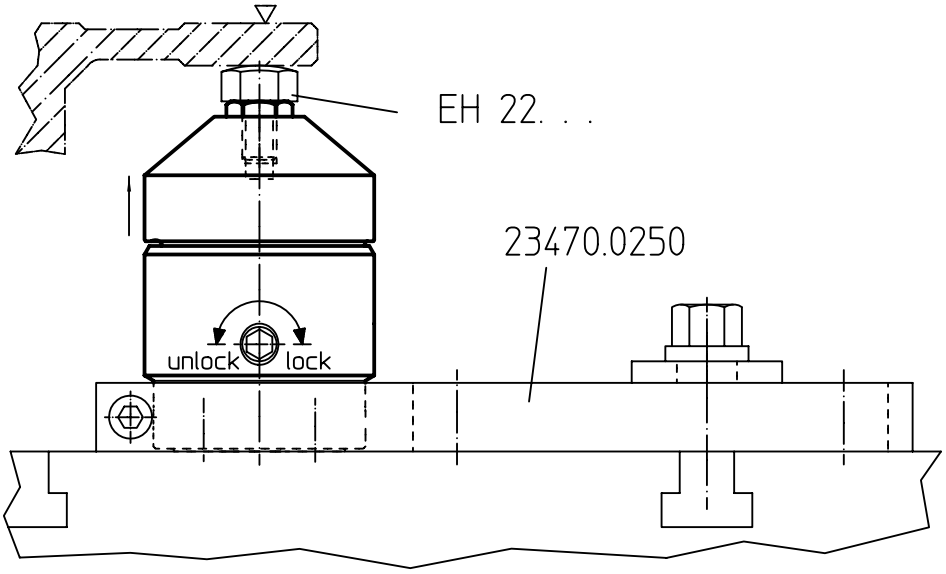


ORDER INFORMATION

[g]	Art. No.
950	23220.0400

APPLICATION EXAMPLE





3

FLOATING CLAMPS

COMPLICATED… AND SENSITIVE? NO PROBLEM.

THE RIGHT CLAMPING ELEMENT FOR EVERY WORK-PIECE.

The floating clamp is used to clamp and support additional clamping points on components. A big plus is the disortion-free clamping of raw materials. Vibrations are avoided during processing. This allows for the distortion-free clamping of such components as ribs and beads.

THEY ARE AVAILABLE IN THREE MODELS:

- M12: combined clamping and locking
- M12: separate clamping and locking
- M16: combined clamping and locking

NEW VERSION ALSO AVAILABLE WITH A COMPACT DESIGN!

Suitable for low clamping heights!

www.halder.com/
FloatingClamps-Video

Floating Clamps • compact construction, combined clamping and locking M 12

EH 23320.

PRODUCT DESCRIPTION

The floating clamp is used to **clamp and support** additional clamping points on components.
The benefits of the floating clamp are:
- Avoids vibration during the processing
- Clamps ribs, beads and shackles to reinforce clamped components
- Distortion-free clamping of raw parts
- Compact version with reduced height.

Material

Adjustable body
- Aluminium, red anodised

Body
- Case hardened steel, nitrided, manganese phosphate treated and ground

Clamping jaw
- Case hardened steel, nitrided, manganese phosphate treated

Assembly

1. Mount the floating clamp onto the device (mounting holes for M 6, see drawing).
2. Adjust the height limit stop and the rotating area with the sleeve, and clamp with set screw (4x WS 2.5). When setting the height limit upwards provide generous clearance (workpiece tolerance).

Operation

1. Push the floating clamp downwards.
2. Pivot the clamping jaws in as far as possible. The floating clamp contacts the bottom of the workpiece with a slight spring load.
3. Tighten the floating clamp with a hexagonal nut (WS 18) having a min. torque of 15 Nm and a maximum torque of 30 Nm. **In the clamping process, the workpiece is clamped and simultaneously supported.**
4. Releasing is done in reverse order.

MORE INFORMATION

Notes

For specific clamping situations, the standard clamping jaws supplied can be exchanged or replaced (see catalogue drawing: screw ISO 4762 - M8 - 12.9, M max. = 43 Nm).

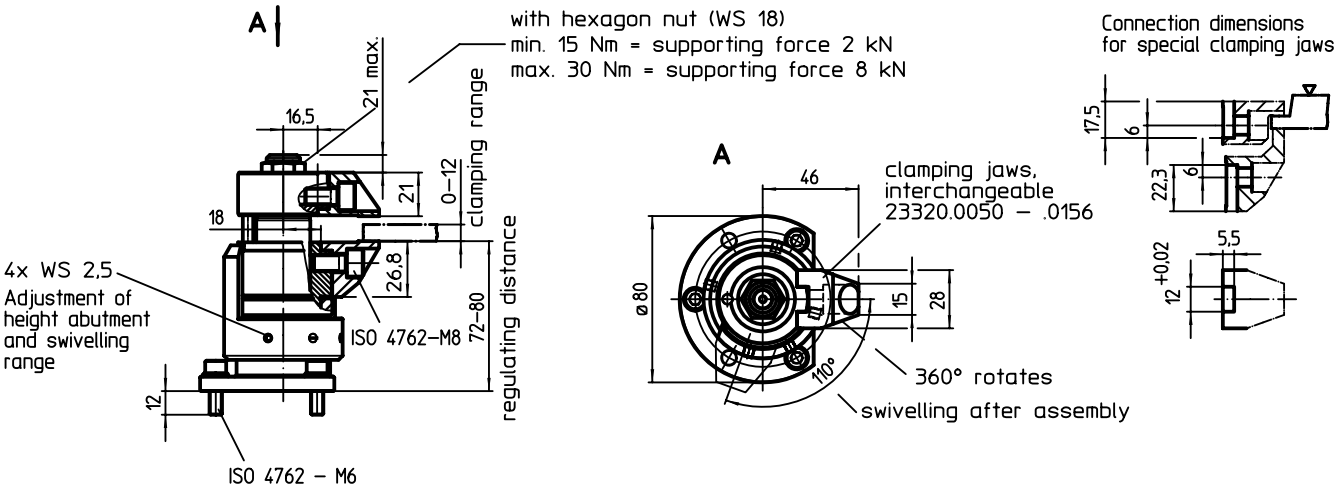
Accessories

As an accessory, we offer clamping jaws with an increased clamping range, refer to 23320.0050 -.0058, as well as pivot jaws, refer to 23320.0148 -.0156.

Further products

Nuts for T-Slots, DIN 508 . . . . . → p. 362
Nuts for T-Slots, extended. . . . . → p. 366
Standard Clamping Jaws, for floating clamp M 12 . . . . . → p. 471
Clamping Jaws, for floating clamp M 12. . . . . → p. 472

DRAWING

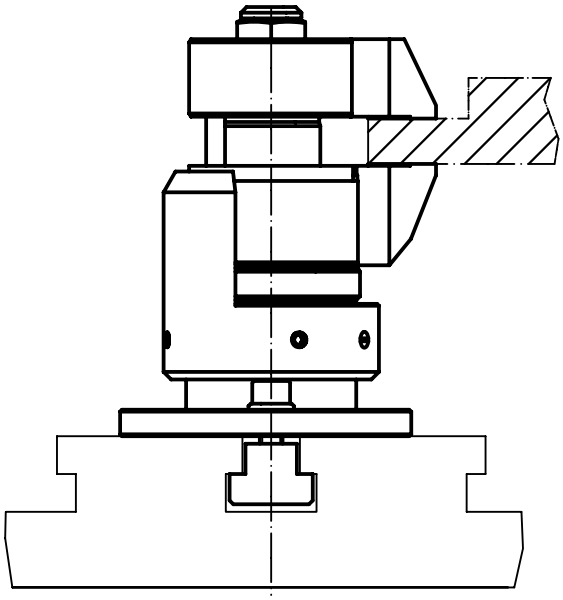


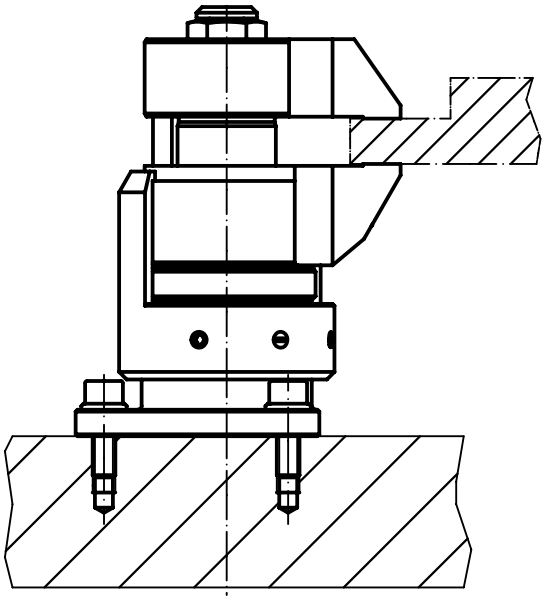
ORDER INFORMATION

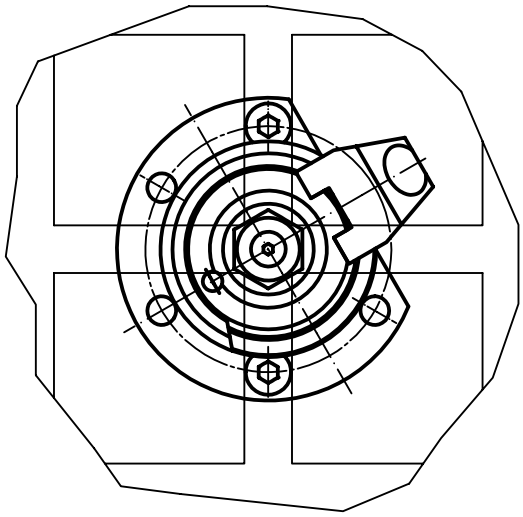
[g]	Art. No.
1450	23320.0008

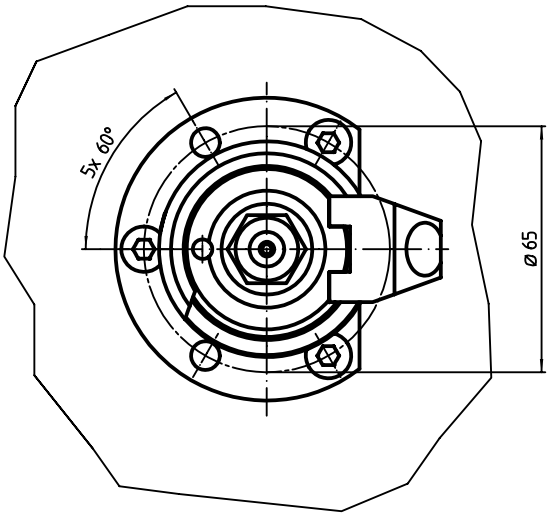
3

APPLICATION EXAMPLE









Floating Clamps • compact construction, separate clamping and locking M 12

EH 23320.

PRODUCT DESCRIPTION

Floating clamp with separate clamping and locking is used to clamp and support additional clamping points **on extremly pliable** workpieces. Both, clamping and supporting force can individually be designed.
The benefits of the floating clamp are:

- Avoids vibration during the processing
- Clamps ribs, beads and shackles to reinforce clamped components
- Distortion-free clamping of raw parts
- Compact version with reduced height.

Material

Adjustable body
- Aluminium, blue anodised

Body
- Case hardened steel, nitrided, manganese phosphate treated and ground

Clamping jaw
- Case hardened steel, nitrided, manganese phosphate treated

Assembly

1. Mount the floating clamp onto the device (mounting holes for M 6, see drawing).
2. Adjust the height limit stop and the rotating area with the sleeve, and clamp with set screw (4x WS 2.5). When setting the height limit upwards provide generous clearance (workpiece tolerance).

Operation

1. Push the floating clamp downwards.
2. Pivot the clamping jaws inwards.
3. Release floating clamp. The bottom jaw contacts the workpiece with the force of the contact spring.
4. Tighten the fixture nut (WS 18) (max. torque 15 Nm). **The jaws clamp the workpiece - the clamp is still floating.**
5. Then tighten the hexagon collar nut (WS 10) (max. torque 10 Nm).
6. The workpiece clamping process is complete.
7. Releasing is performed in the reverse order: release hexagon collar nut (WS 10) - release hexagon nut (WS 18) - pivot out the clamping jaws
8. Floating clamp is in end position.

MORE INFORMATION

Notes

For specific clamping situations, the standard clamping jaws supplied can be exchanged or replaced (see catalogue drawing: screw ISO 4762 - M8 - 12.9, M max. = 43 Nm).

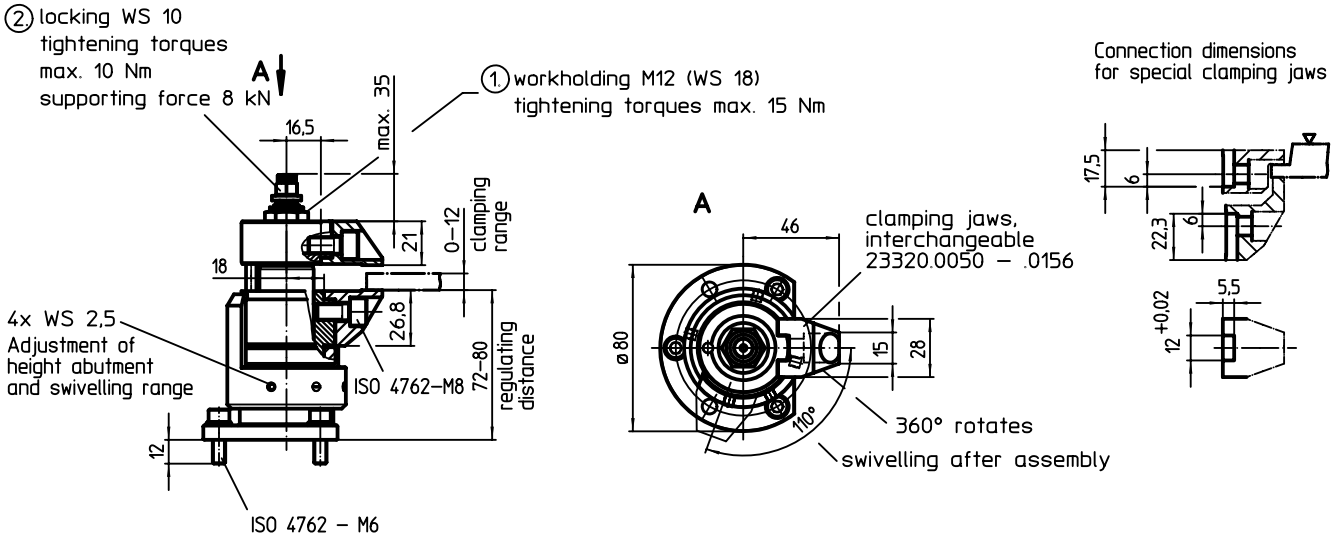
Accessories

As an accessory, we offer clamping jaws with an increased clamping range, refer to 23320.0050 -.0058, as well as pivot jaws, refer to 23320.0148 -.0156.

Further products

Nuts for T-Slots, DIN 508 . . . . . → p. 362
Nuts for T-Slots, extended. . . . . → p. 366
Standard Clamping Jaws, for floating clamp M 12 . . . . . → p. 471
Clamping Jaws, for floating clamp M 12. . . . . → p. 472

DRAWING

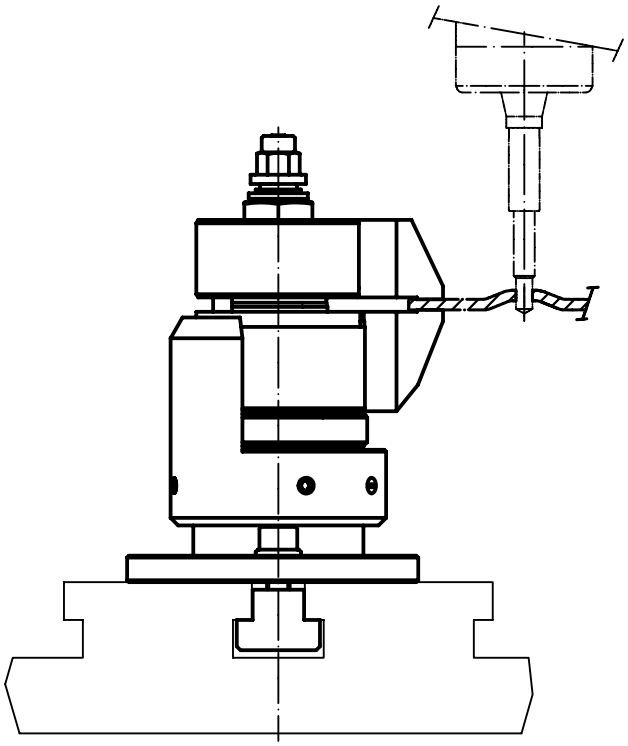


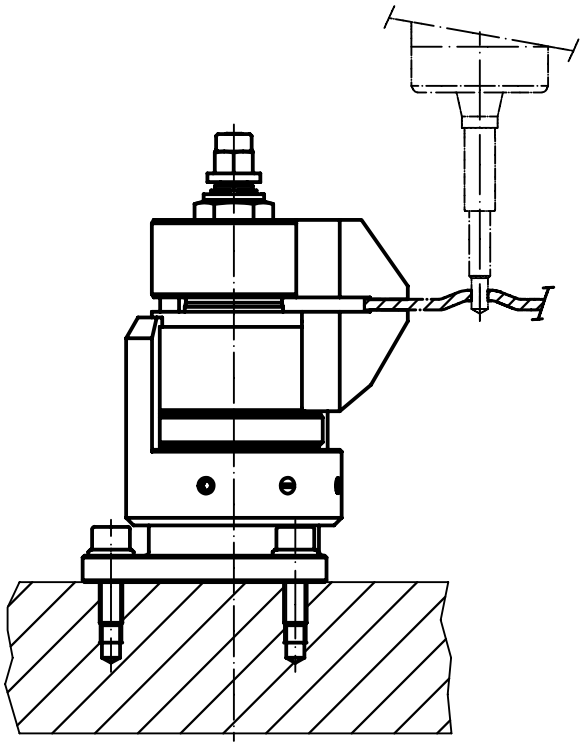
ORDER INFORMATION

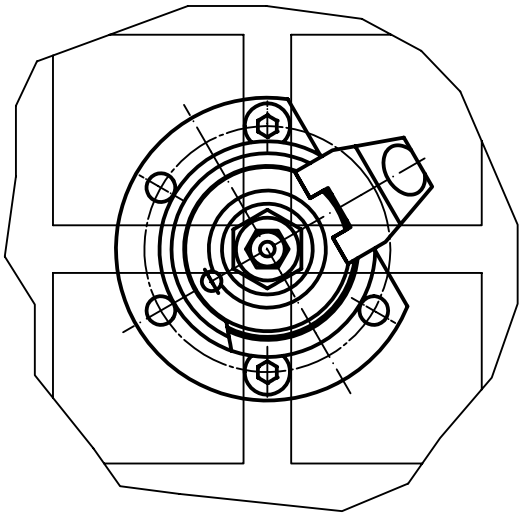
[g]	Art. No.
1650	23320.0010

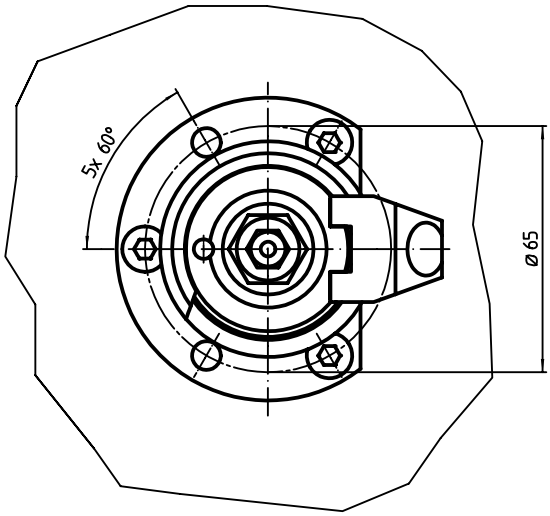
3

APPLICATION EXAMPLE









Floating Clamps • combined clamping and locking M 12

EH 23320.

PRODUCT DESCRIPTION

The floating clamp is used to **clamp and support** additional clamping points on components.
The benefits of the floating clamp are:
- Avoids vibration during the processing
- Clamps ribs, beads and shackles to reinforce clamped components
- Distortion-free clamping of raw parts.

Material

Adjustable body
- Aluminium, red anodised

Body
- Case hardened steel, nitrided, manganese phosphate treated and ground

Clamping jaw
- Case hardened steel, nitrided, manganese phosphate treated

Assembly

1. Mount the floating clamp (M 12 connection thread) onto the device with a wrench (WS 46).
2. Adjust the height limit stop and the rotating area with the red sleeve and clamp with a set screw (3 x WS 2.5). When setting the height limit, consider tolerance of workpiece.

Operation

1. Push the floating clamp downwards.
2. Pivot the clamping jaws in as far as possible. The floating clamp contacts the bottom of the workpiece with a slight spring load.
3. Tighten the floating clamp with a hexagonal nut (WS 18) having a min. torque of 15 Nm and a maximum torque of 30 Nm. **In the clamping process, the workpiece is clamped and simultaneously supported.**
4. Releasing is done in reverse order.

MORE INFORMATION

Notes

The thread bore must always be closed for safe functioning, e.g. set screw M 12 x 10. For specific clamping situations, the standard clamping jaws supplied can be exchanged or replaced (see catalogue drawing: screw ISO 4762 - M8 - 12.9, M max. = 43 Nm).

References

Additional flexible possibility of fitting with holder 23470.0250 or holding plate for down-hold clamps 23210.0740.

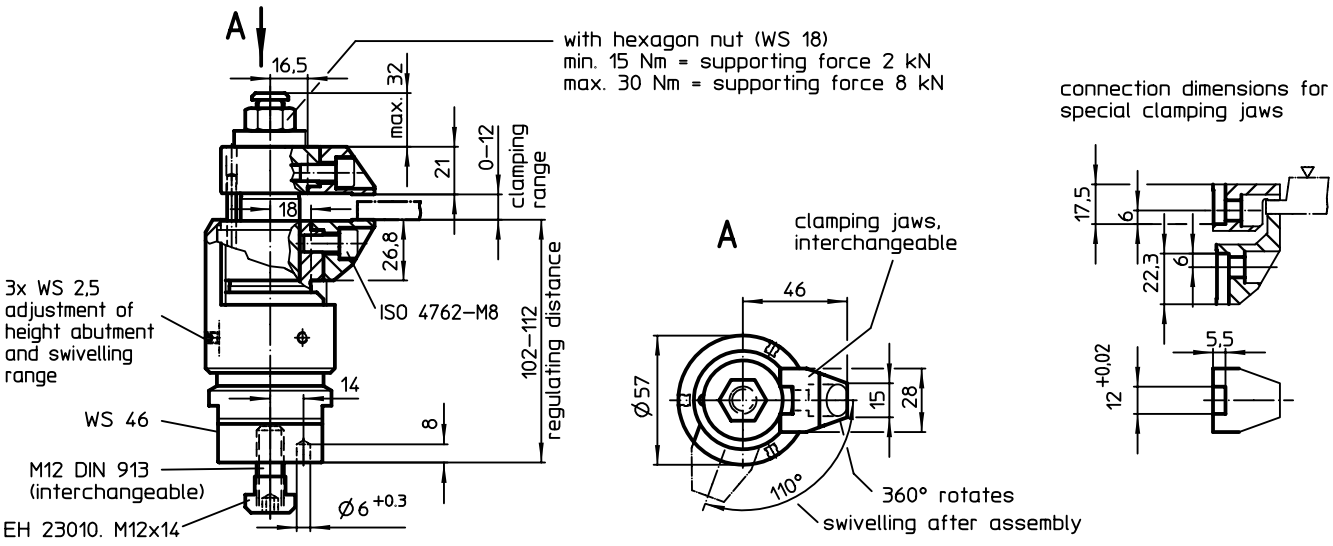
Accessories

As an accessory, we offer clamping jaws with an increased clamping range, refer to 23320.0050 -.0058, as well as pivot jaws, refer to 23320.0148 -.0156.

Further products

Holding Plates, for down-hold clamps . → p. 437
Floating Clamps, separate clamping and locking M 12 . . . . . → p. 469
Standard Clamping Jaws, for floating clamp M 12 . . . . . → p. 471
Clamping Jaws, for floating clamp M 12. . . . . → p. 472

DRAWING

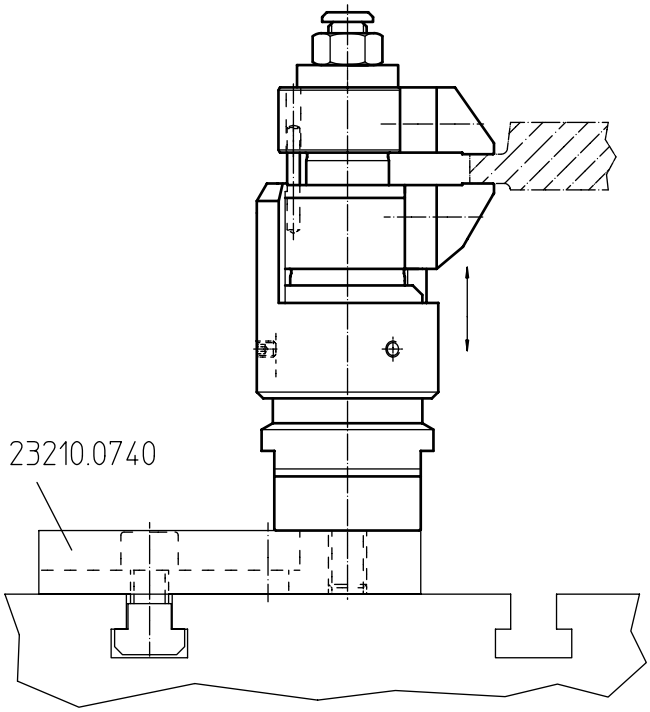


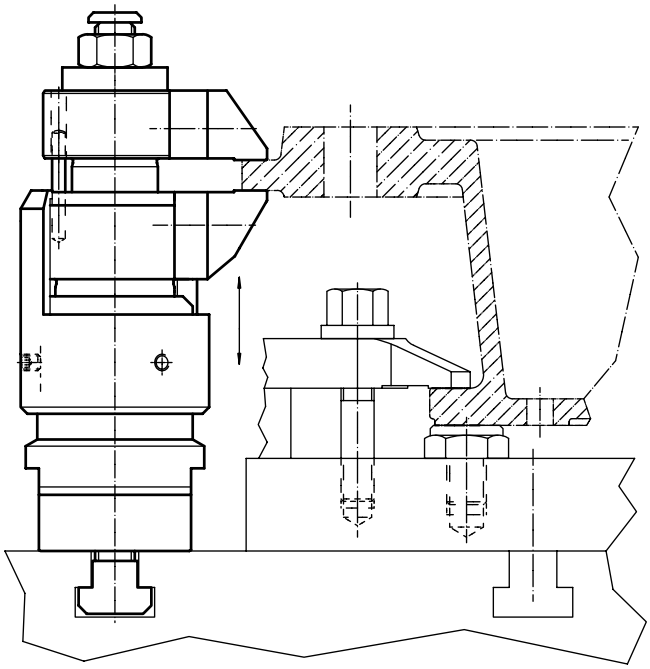
ORDER INFORMATION

[g]	Art. No.
2076	23320.0012

3

APPLICATION EXAMPLE





Floating Clamps • separate clamping and locking M 12

EH 23320.

PRODUCT DESCRIPTION

Floating clamp with separate clamping and locking is used to clamp and support additional clamping points **on extremly pliable** workpieces. Both, clamping and supporting force can individually be designed.
The benefits of the floating clamp are:

- Avoids vibration during the processing
- Clamps ribs, beads and shackles to reinforce clamped components
- Distortion-free clamping of raw parts.

Material

Adjustable body
- Aluminium, blue anodised

Body
- Case hardened steel, nitrided, manganese phosphate treated and ground

Clamping jaw
- Case hardened steel, nitrided, manganese phosphate treated

Assembly

1. Mount the floating clamp (M 12 connection thread) onto the device with a wrench (WS 46).
2. Adjust the height limit stop and the rotating area with the blue sleeve and clamp with a set screw (3 x WS 2.5). When setting the height limit, consider tolerance of workpiece.

Operation

1. Push the floating clamp downwards.
2. Pivot the clamping jaws inwards.
3. Release floating clamp. The bottom jaw contacts the workpiece with the force of the contact spring.
4. Tighten the fixture nut (WS 18) (max. torque 15 Nm). **The jaws clamp the workpiece - the clamp is still floating.**
5. Then tighten the hexagon collar nut (WS 10) (max. torque 10 Nm).
6. The workpiece clamping process is complete.
7. Releasing is performed in the reverse order: release hexagon collar nut (WS 10) - release hexagon nut (WS 18) - pivot out the clamping jaws
8. Floating clamp is in end position.

MORE INFORMATION

Notes

The thread bore must always be closed for safe functioning, e.g. set screw M 12 x 10. For specific clamping situations, the standard clamping jaws supplied can be exchanged or replaced (see catalogue drawing: screw ISO 4762 - M8 - 12.9, M max. = 43 Nm).

References

Additional flexible possibility of fitting with holder 23470.0250 or holding plate for down-hold clamps 23210.0740.

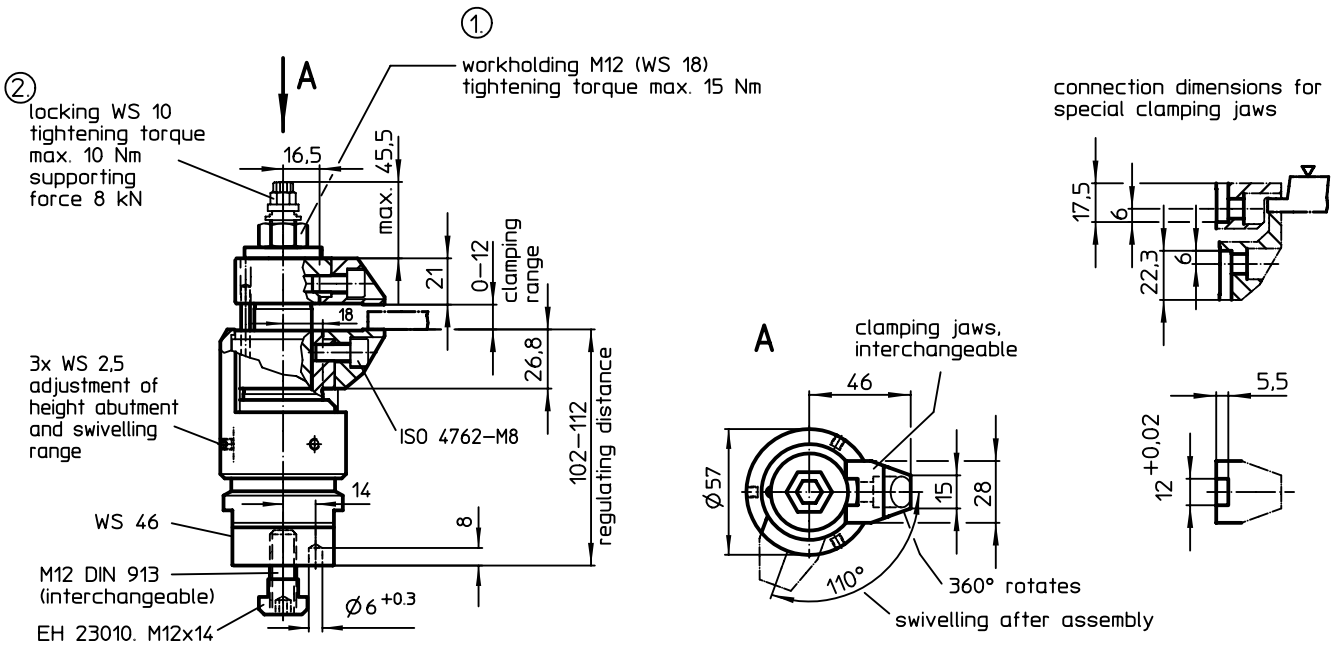
Accessories

As an accessory, we offer clamping jaws with an increased clamping range, refer to 23320.0050 -.0058, as well as pivot jaws, refer to 23320.0148 -.0156.

Further products

Holding Plates, for down-hold clamps . → p. 437
Floating Clamps, combined clamping and locking M 12 . . . . . → p. 467
Standard Clamping Jaws, for floating clamp M 12 . . . . . → p. 471
Clamping Jaws, for floating clamp M 12. . . . . → p. 472

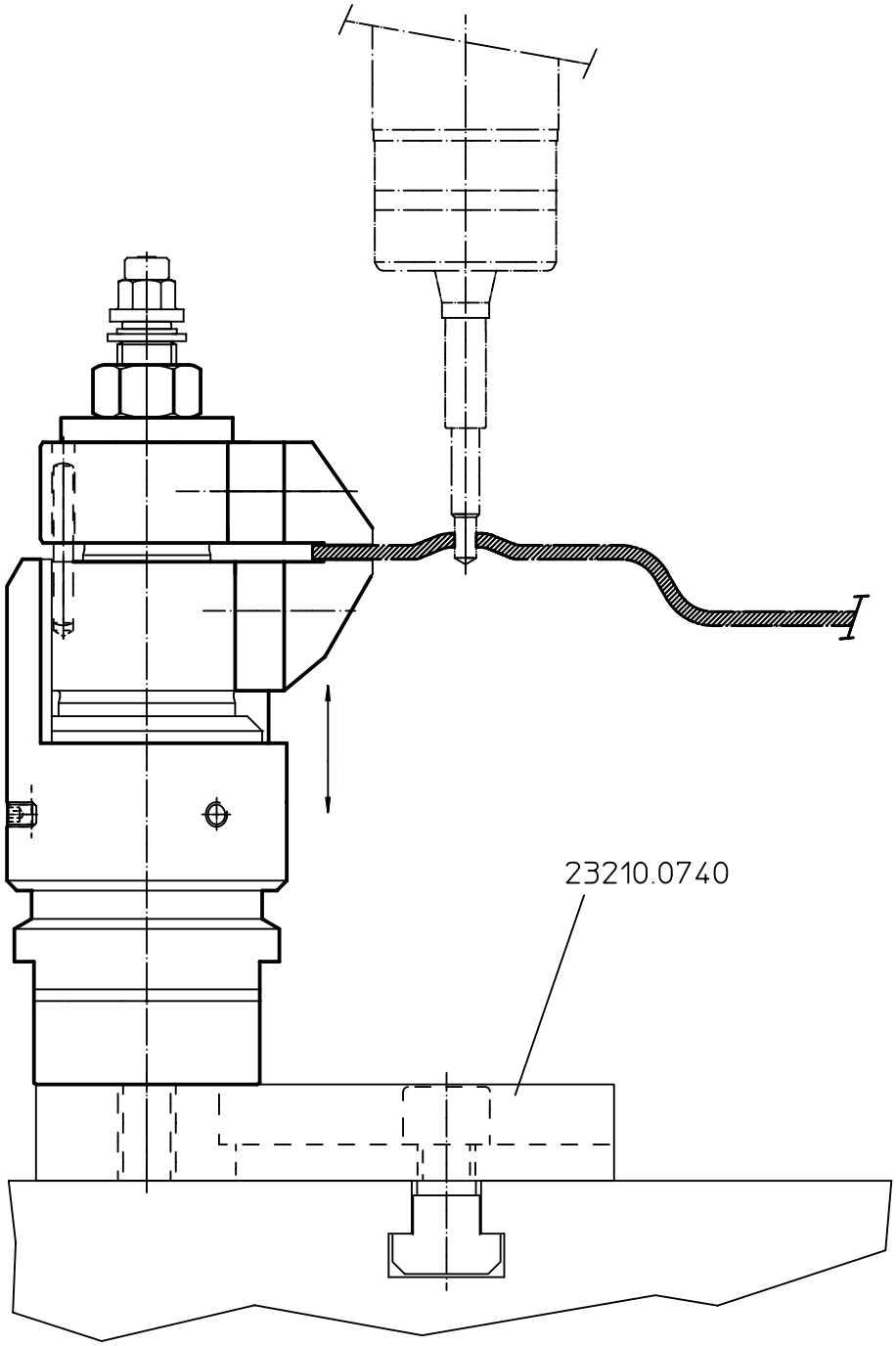
DRAWING



ORDER INFORMATION

[g]	Art. No.
1890	23320.0014

APPLICATION EXAMPLE



Standard Clamping Jaws • for floating clamp M 12

EH 23320.

PRODUCT DESCRIPTION

The clamping jaws can be used for floating clamps 23320.0008, 23320.0010, 23320.0012, and 23320.0014.

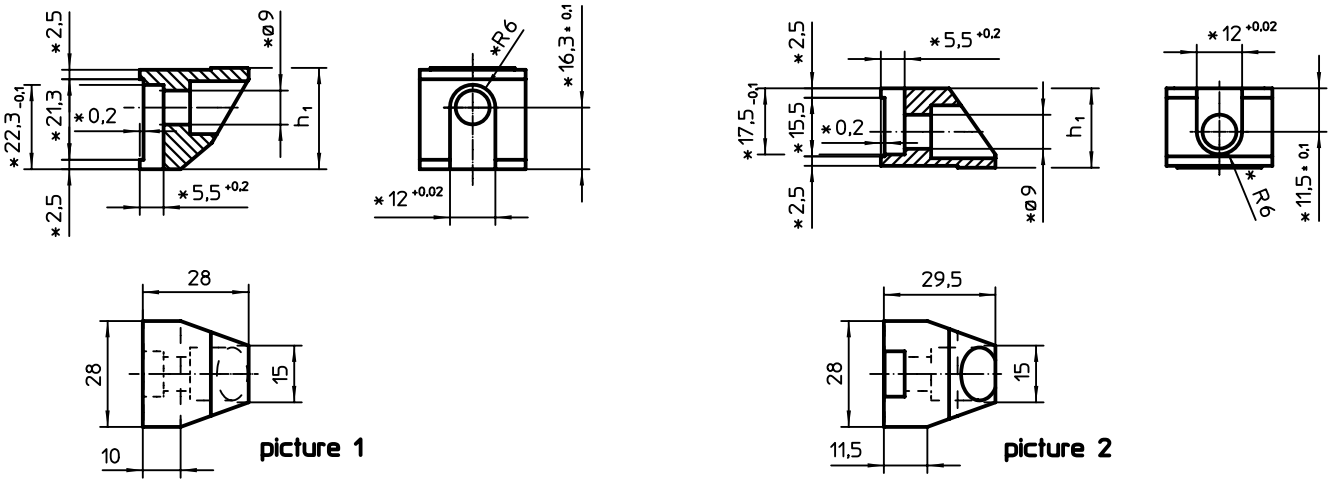
Material

- Case hardened steel, nitrided, manganese phosphate treated

Assembly

When using custom-made jaws, it is important to insert the tightening screw (M 8-12.9, 43 Nm) 10 mm deep into the clamp housing on the upper clamping jaw and 9 mm deep into the clamp housing on the lower clamping jaw.

DRAWING



* Specifications and material of especially designed jaws have to be taken into consideration.

ORDER INFORMATION

Clamping range [mm]	Dimensions h_1 -0,1 [mm]	[g]	Art. No.
lower standard clamping jaw – picture 1			
–	26,8	83	23320.0050
upper standard clamping jaw – picture 2			
0 – 12	21,0	69	23320.0052

3

Clamping Jaws • for floating clamp M 12

EH 23320.

PRODUCT DESCRIPTION

The clamping jaws can be used for floating clamps 23320.0008, 2332.0010, 23320.0012, and 23320.0014.
The upper clamping jaw (23320.0054, 23320.0056, and 23320.0058 - pictures 1 to 3) can be used to extend the clamping range.
Various standard parts can be screwed into in the upper clamping jaw as required, using female thread M 8 (23320.0154 / .0156 - pictures 4 and 5) - see "Further products".
The lower clamping jaw with pivot function (23320.0148 - picture 6) adapts to the profiles of the workpiece.

Material

Ball
- Ball-bearing steel

Clamping jaw
- Case hardened steel, nitrided, manganese phosphate treated

MORE INFORMATION

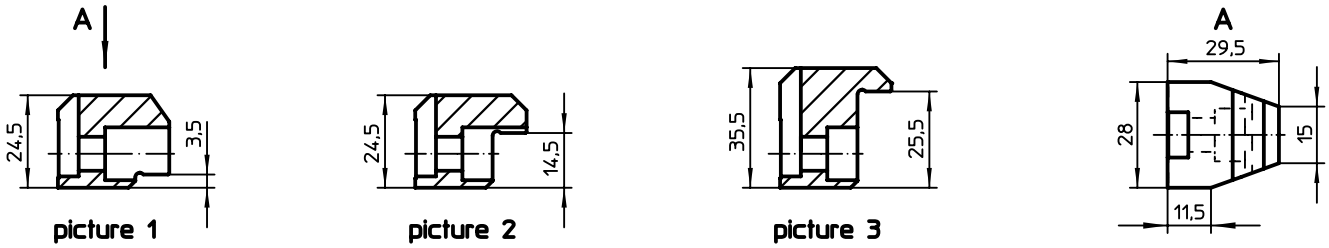
Notes

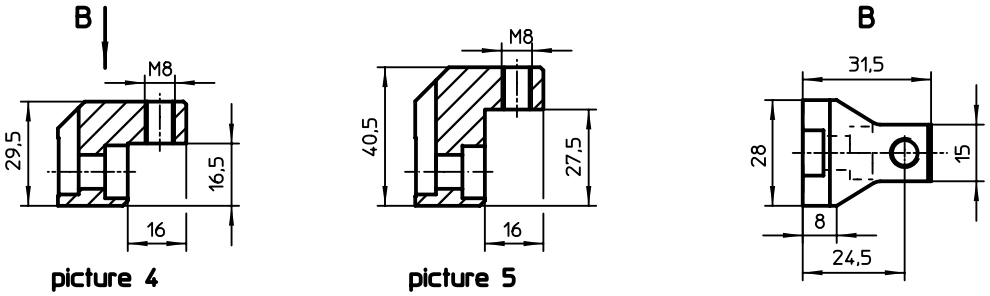
The tightening torque of the floating clamp must be adapted/reduced situationally.
Observe the surface pressure due the the reduced contact surface of the clamping jaws.

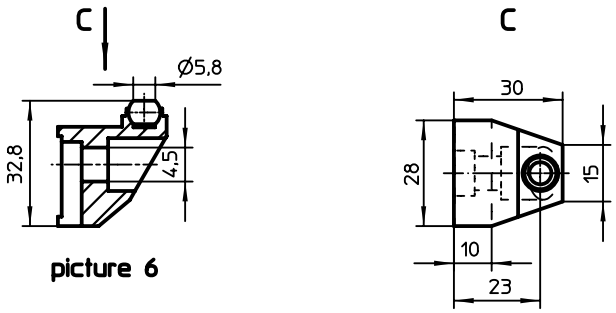
Further products

Seating Pins, ribbed or pointed . . . . . → p. 286
Ball-Ended Thrust Screws, headless, ball protected against rotating . . . . . → p. 297
Ball-Ended Thrust Screws, headless, flat-faced ball . . . . . → p. 304
Thrust Screws, with brass pad . . . . . → p. 311
Thrust Screws, with plastic pad . . . . . → p. 312
Self-Aligning Pads, adjustable . . . . . → p. 320
Self-Aligning Pads, adjustable with self-resetting . . . . . → p. 321

DRAWING



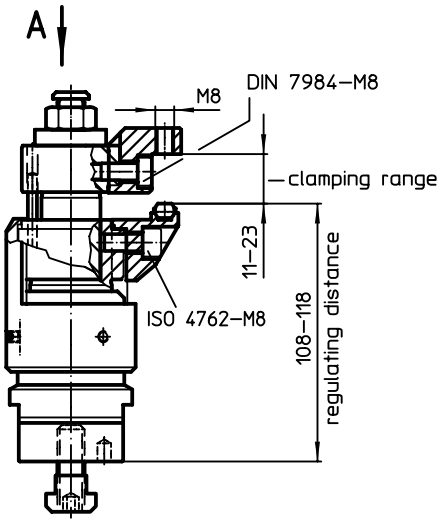


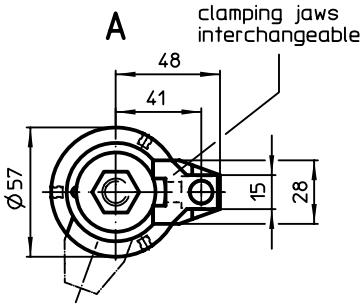


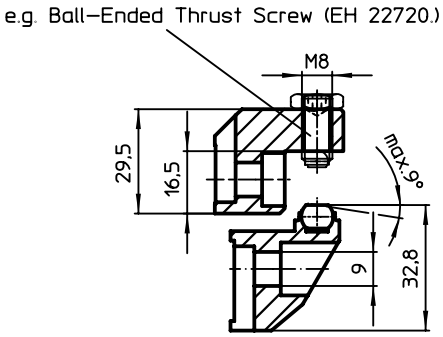
ORDER INFORMATION

Clamping range max. in combination with 23320.0050 [mm]	Clamping range max. in combination with 23320.0148 [mm]	[g]	Art. No.
upper exchange clamping jaw – picture 1			
4 – 16	**–**	91	**23320.0054**
upper exchange clamping jaw – picture 2			
15 – 27	**–**	88	**23320.0056**
upper exchange clamping jaw – picture 3			
26 – 38	**–**	130	**23320.0058**
upper clamping jaw with location hole – picture 4			
29	**23**	83	**23320.0154**
upper clamping jaw with location hole – picture 5			
40	**34**	112	**23320.0156**
lower clamping jaw with flat-faced ball and pivot function, plain surface, protected against rotating – picture 6			
–	**–**	98	**23320.0148**

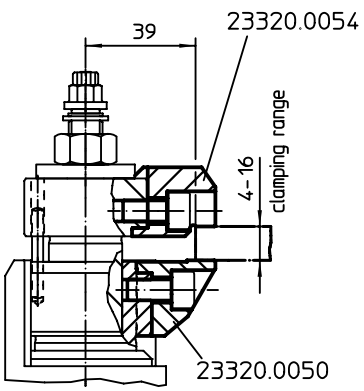
APPLICATION EXAMPLE

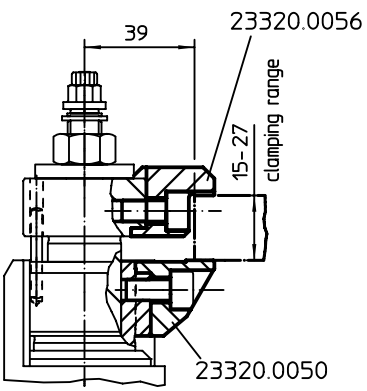


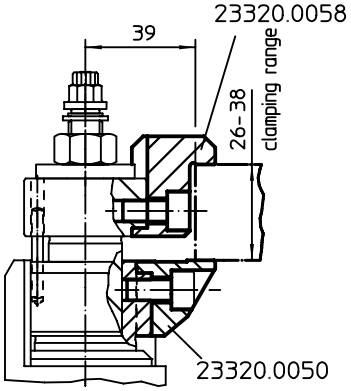


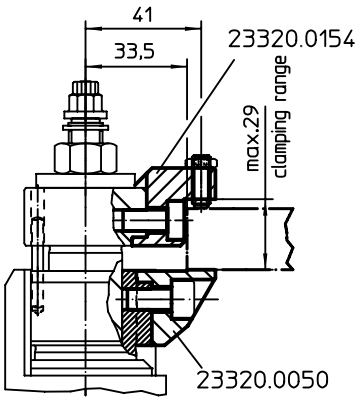


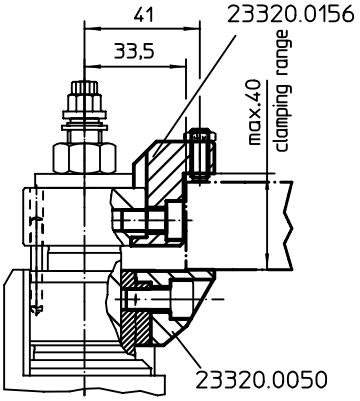
3

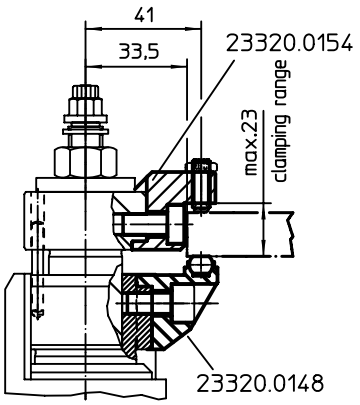

39
23320.0054
4–16
clamping range
23320.0050

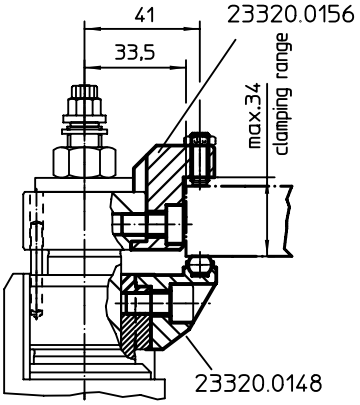

39
23320.0056
15–27
clamping range
23320.0050


39
23320.0058
26–38
clamping range
23320.0050


41
33,5
23320.0154
max.29
clamping range
23320.0050


41
33,5
23320.0156
max.40
clamping range
23320.0050


41
33,5
23320.0154
max.23
clamping range
23320.0148


41
33,5
23320.0156
max.34
clamping range
23320.0148

Floating Clamps • combined clamping and locking M 16

EH 23320.

PRODUCT DESCRIPTION

The floating clamp is used to **clamp and support** additional clamping points on components.
The benefits of the floating clamp are:

- Especially suitable for large workpieces with heavy machining
- Avoids vibration during the processing
- Clamps ribs, beads and shackles to reinforce clamped components
- Distortion-free clamping of raw parts

Material

Adjustable body
- Aluminium, red anodised

Body
- Case hardened steel, nitrided, manganese phosphate treated and ground

Clamping jaw
- Case hardened steel, nitrided, manganese phosphate treated

Assembly

1. Mount the floating clamp (M 16 connection thread) onto the device with a wrench (WS 55).
2. Adjust the height limit stop and the rotating area with the red sleeve and clamp with a set screw (3 x WS 3). When setting the height limit, consider tolerance of workpiece.

Operation

1. Push the floating clamp downwards.
2. Pivot the clamping jaws in as far as possible. The floating clamp contacts the bottom of the workpiece with a low spring load.
3. Tighten the floating clamp with a hexagonal nut (WS 24) having a min. torque of 50 Nm and a maximum torque of 115 Nm. **In the clamping process, the workpiece is clamped and simultaneously supported.**
4. Releasing is done in reverse order.

MORE INFORMATION

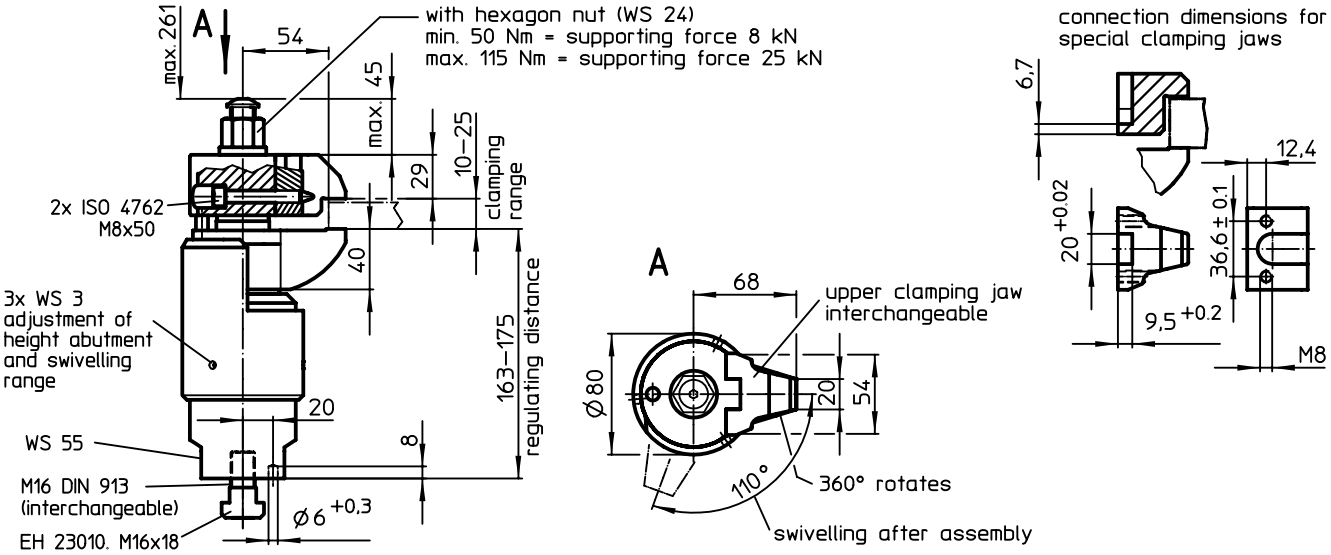
Accessories

For custom clamping situation, the standard upper clamping jaw supplied can be replaced by the exchange clamping jaws (23320.0062 / .0064 / .0066).

Further products

Clamping Jaws, for floating clamp M 16. . . . . → p. 477
Wrenches . . . . . → p. 748

DRAWING

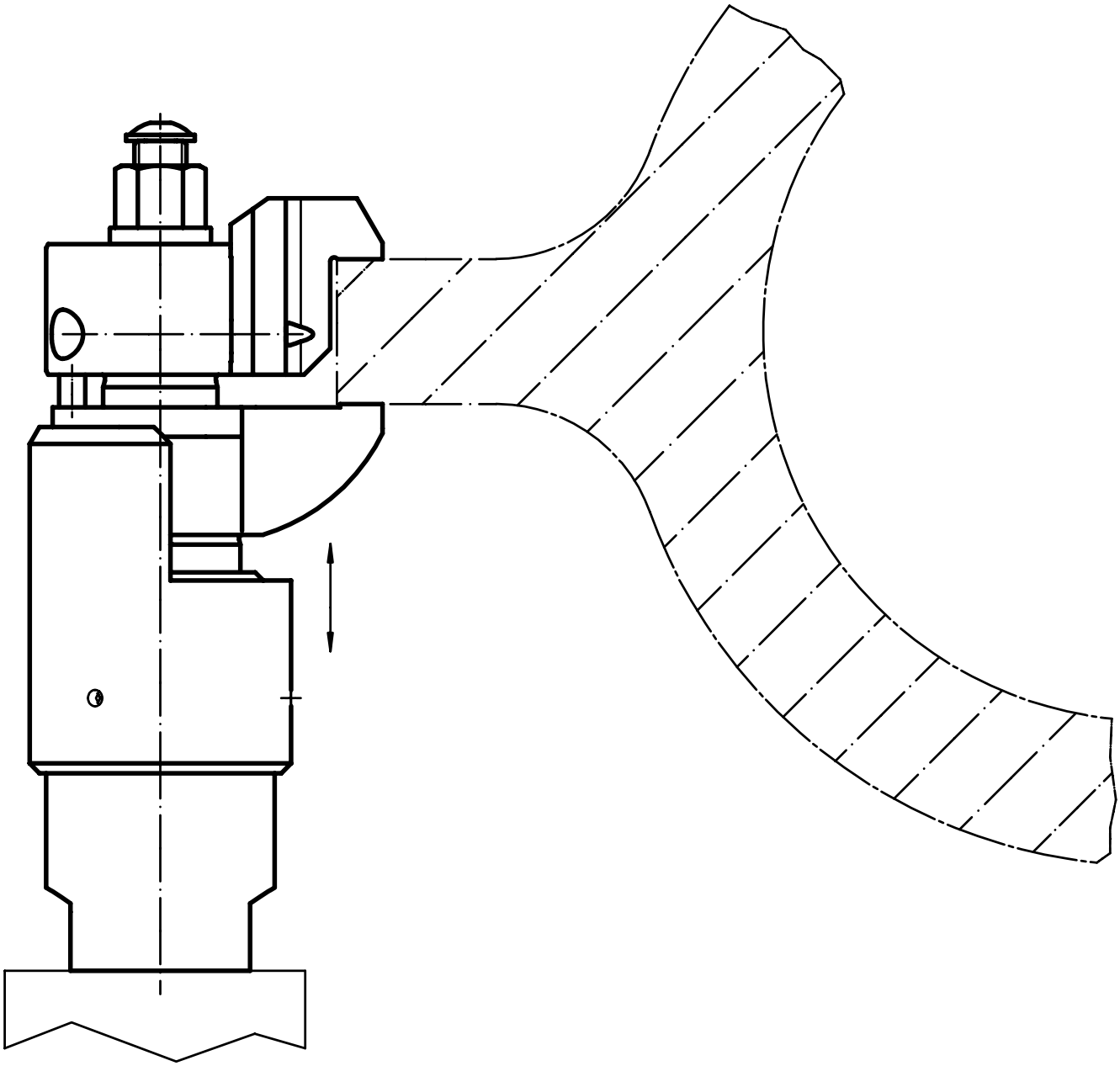


ORDER INFORMATION

[g]	Art. No.
6250	23320.0016

3

APPLICATION EXAMPLE



Clamping Jaws • for floating clamp M 16

EH 23320.

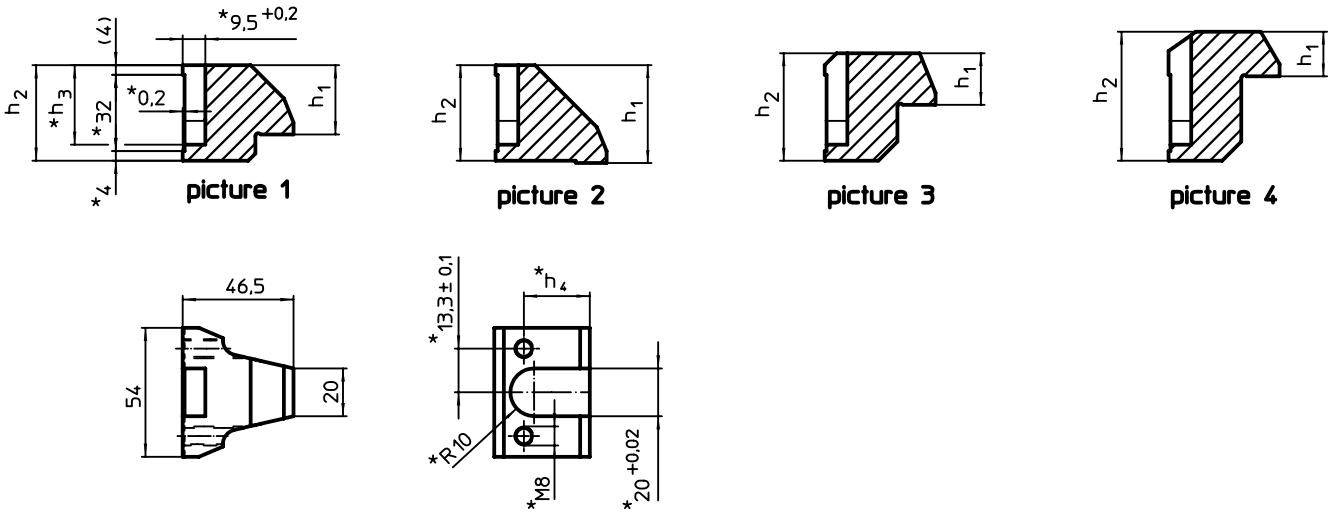
PRODUCT DESCRIPTION

The clamping jaws can be used for the floating clamp 23320.0016 to increase or decrease the clamping range.

Material

- Case hardened steel, nitrided, manganese phosphate treated

DRAWING

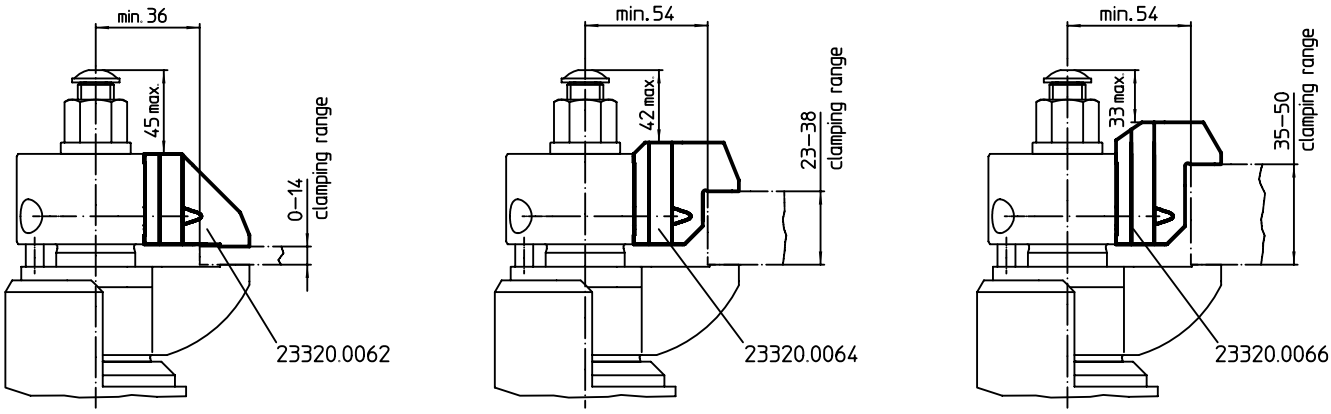


* Specifications and material of especially designed jaws have to be taken into consideration.

ORDER INFORMATION

Clamping range	Dimensions					Art. No.
	h_1	h_2	h_3	h_4		
[mm]	[mm]				[g]	
upper standard clamping jaw – picture 1						
10 – 25	29,0	40	33,3	27,6	402	23320.0060
upper exchange clamping jaw – picture 2						
0 – 14	41,0	40	33,3	27,6	380	23320.0062
upper exchange clamping jaw – picture 3						
23 – 38	21,6	45	38,3	32,6	435	23320.0064
upper exchange clamping jaw – picture 4						
35 – 50	18,6	54	47,3	41,6	490	23320.0066

APPLICATION EXAMPLE



Clamping Devices "actima"

EH 23260.

PRODUCT DESCRIPTION

The compact clamping element can be converted between pull and push clamping strain, depending on the model. The travel path is 10 mm. Within the short clamp travel of 2 mm, self-locking occurs in any position. The maximum permitted clamping force is 4.9 kN.

Material

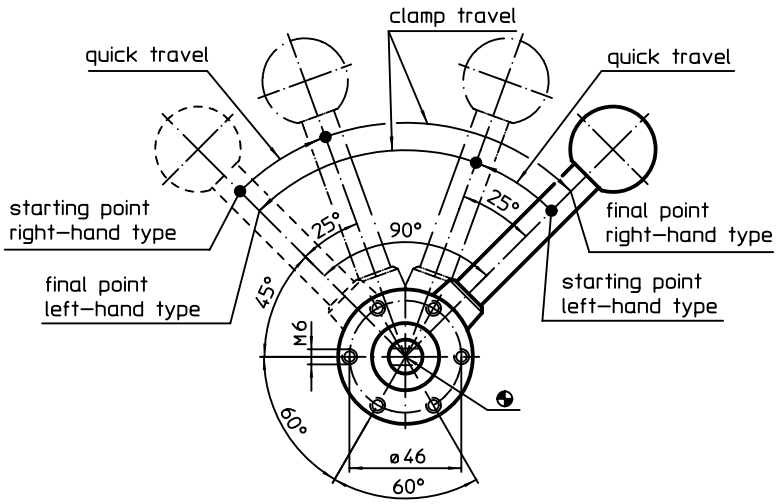
Housing
- Thermoplastic, black

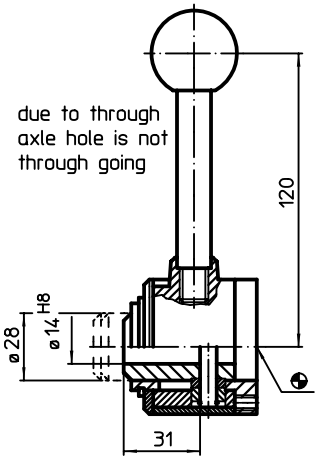
Body
- Steel, blackened

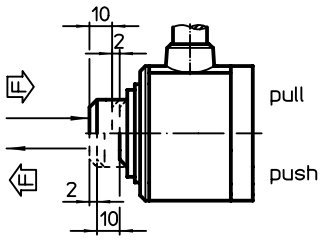
Ball knob
- DIN 7708 - thermosetting plastic (PF 31), red similar to RAL 3003

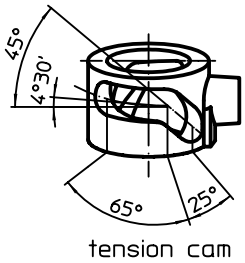
Accessories
- Steel, blackened

DRAWING

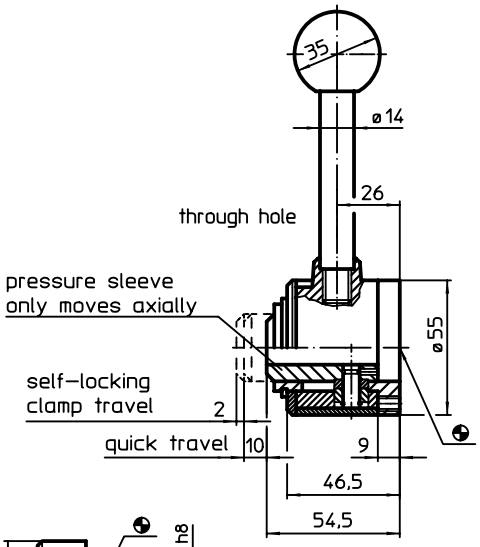




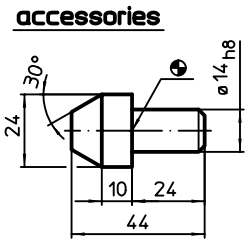




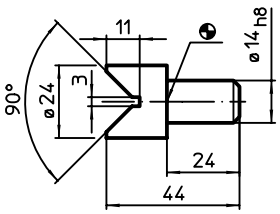
tension cam



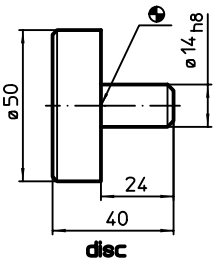
accessories



taper



V–block



disc

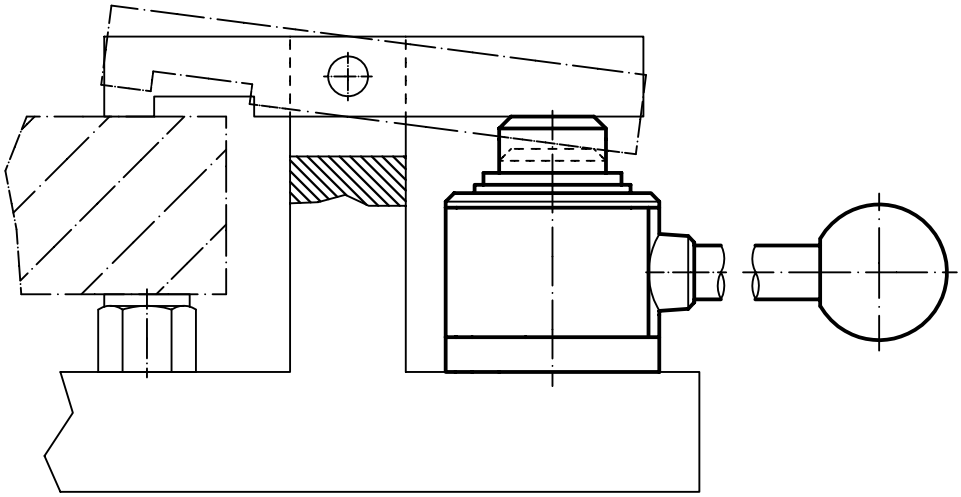
ORDER INFORMATION

Travel path [mm]	s Clamping way [mm]	Clamping force max. [kN]	[g]	Art. No. with transverse axis in the bore	Art. No. with throughgoing bore
pull to right					
10	2	4,9	751	23260.0003	–
			745	–	23260.0013
pull to left					
10	2	4,9	749	23260.0005	–
			750	–	23260.0015
push to right					
10	2	4,9	751	23260.0002	–
			745	–	23260.0012
push to left					
10	2	4,9	749	23260.0004	–
			750	–	23260.0014

ACCESSORIES

	[g]	Art. No.
disc		
	270	23260.0042
taper		
	85	23260.0044
V-block		
	82	23260.0046

APPLICATION EXAMPLE



Eccentric Clamping Clamps

EH 23270.

PRODUCT DESCRIPTION

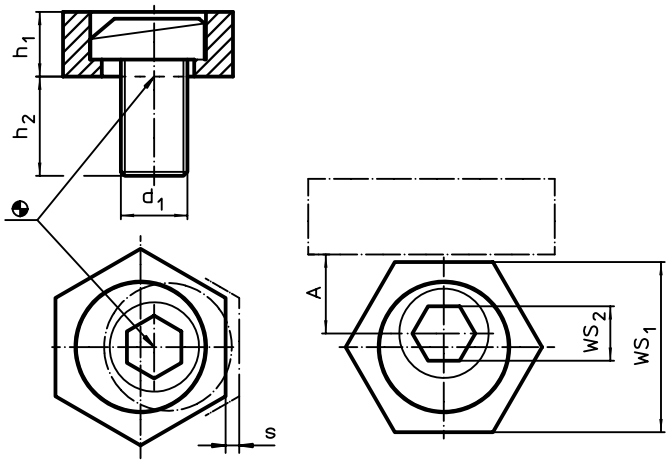
These clamps have a high clamping force for low clamping heights. The body from brass provides a gentle but safe clamping.

Material

Eccentric screw
- Steel

Body
- Brass

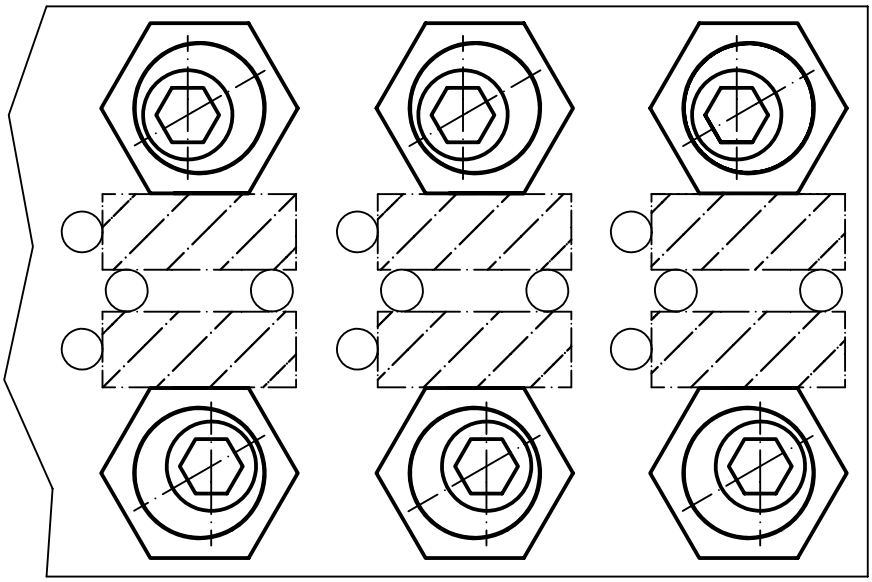
DRAWING



ORDER INFORMATION

Dimensions				A	WS1	WS2	Clamping force max.	Tightening torque max.		Art. No.
d1	h1	h2	s							
[mm]				[mm]	[mm]	[mm]	[kN]	[Nm]	[g]	
M 4	2,8	9,6	0,75	3,8	7,93	3	0,9	2,5	2	23270.0104
M 6	4,8	11,2	1,00	7,8	15,86	4	3,4	10,0	10	23270.0106
M 8	4,8	15,0	1,00	10,2	20,60	5	3,6	18,0	18	23270.0108
M10	6,3	19,0	1,30	10,2	20,60	7	7,0	26,0	27	23270.0110
M12	9,5	22,8	2,00	12,7	25,40	8	9,0	75,0	53	23270.0112
M16	12,7	28,5	2,50	15,0	30,13	12	12,0	120,0	108	23270.0116

APPLICATION EXAMPLE



Eccentric Clamping Washers

EH 23270.

PRODUCT DESCRIPTION

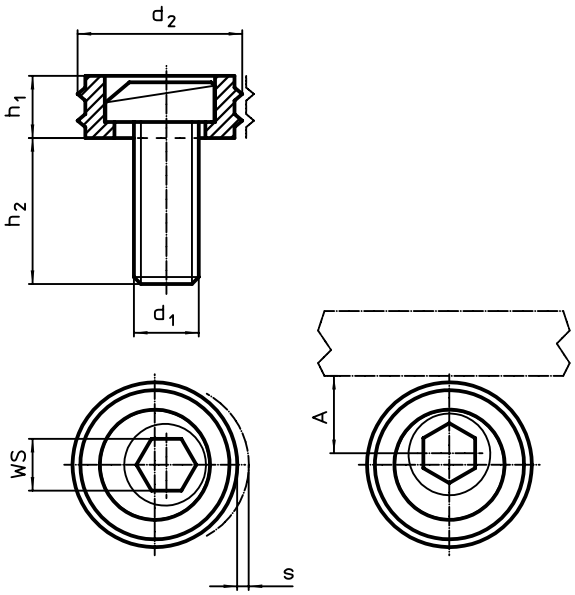
The eccentric clamping washers are especially suitable for the clamping of raw parts, e.g. cut-off portions, cast iron parts and forgings.

Material

Eccentric screw
- Steel

Body
- Steel, case-hardened

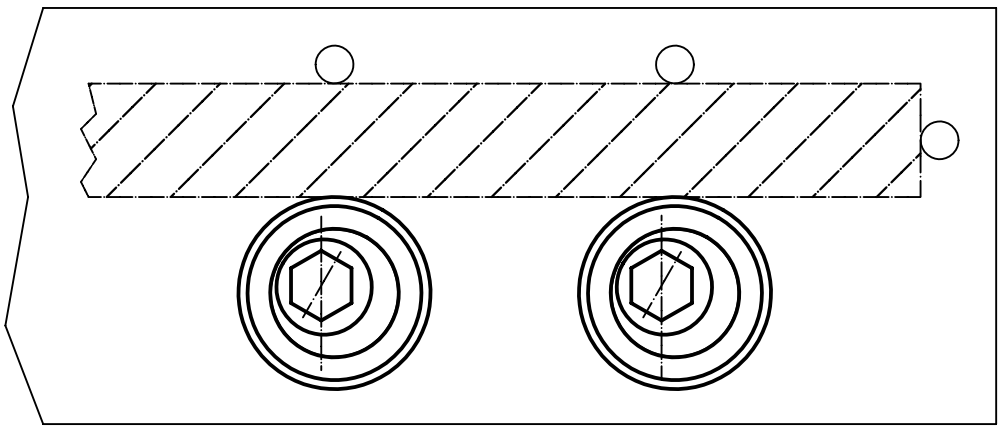
DRAWING



ORDER INFORMATION

Dimensions					A	WS	Clamping force max.	Tightening torque max.		Art. No.
d_1	d_2	h_1	h_2	s						
[mm]					[mm]	[mm]	[kN]	[Nm]	[g]	
M10	20,6	6,4	16,0	1,6	10,3	7	9,0	26	21	23270.0210
M12	25,4	9,6	22,5	2,0	12,7	8	17,8	88	40	23270.0212
M16	30,1	12,7	26,8	2,5	15,0	12	26,7	135	90	23270.0216

APPLICATION EXAMPLE



Eccentric Clamps

EH 23271.

PRODUCT DESCRIPTION

The eccentric clamp allows clamping with pull-down effect on different workpiece forms at low height.

Material

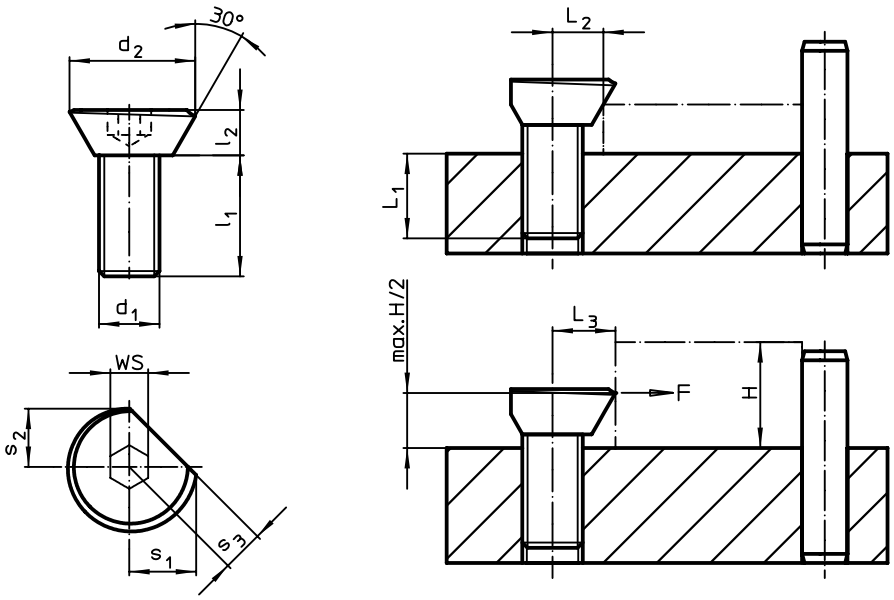
- Case-hardened steel, case-hardened and blue zinc-plated

Assembly

1. Manufacture a thread with the corresponding distance L_2 / L_3 to the workpiece.
2. Screw in the eccentric clamp at the necessary height and set it relative to the workpiece with its flat side.
3. Insert the workpiece and tighten the clamping pin using the internal hexagon. The proper tension is achieved after approx. 1/3 turn.

The threaded hole must be lubricated on a regular basis.
The rotational movement during tightening must always be completed towards the stops in order to prevent the workpiece from turning away from the stops.

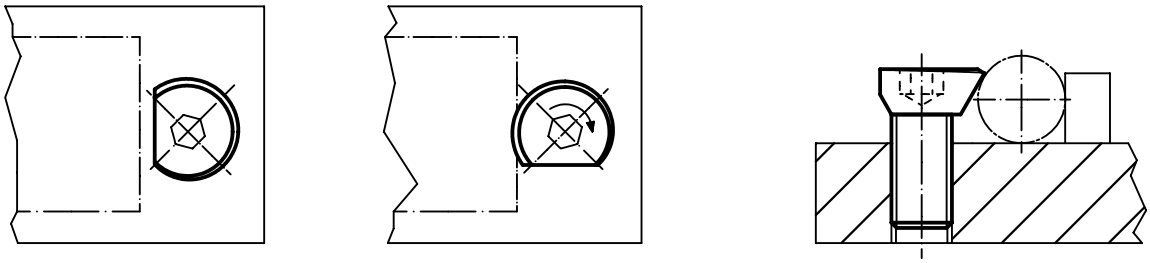
DRAWING



ORDER INFORMATION

Dimensions							L_1	L_2	L_3 ±0,2	WS	Clamping force max.	Tightening torque max.		Art. No.
d_1	d_2	l_1	l_2	s_1	s_2	s_3								
[mm]							[mm]	[mm]	[mm]	[mm]	[kN]	[Nm]	[g]	
M 3	6,7	6	2	3,5	2,9	2,2	3	3,0	3,2	2,0	0,05	1,0	0,57	23271.0003
M 4	8,7	8	3	4,6	4,0	3,0	4	3,5	4,2	2,5	0,09	1,5	1,43	23271.0004
M 5	10,9	10	4	5,7	5,0	3,5	5	4,2	5,2	3,0	0,10	2,0	2,84	23271.0005
M 6	13,5	12	5	7,1	6,1	4,5	6	5,4	6,4	4,0	0,30	4,5	4,95	23271.0006
M 8	16,9	16	6	8,9	7,7	5,5	8	6,6	8,0	5,0	2,70	20,0	9,10	23271.0008
M10	20,9	20	7	11,1	9,4	6,5	10	8,3	9,8	6,0	4,00	30,0	17,00	23271.0010
M12	26,1	24	9	13,5	11,6	8,0	12	10,1	12,0	8,0	5,40	44,0	31,00	23271.0012

APPLICATION EXAMPLE



Double Eccentric Levers • with fulcrum pin

EH 23380.

PRODUCT DESCRIPTION

Clamping on both sides.

Material

Fulcrum pin
- Steel, case-hardened

Lever
- Alloyed case-hardened steel, case hardened, blackened

Safety ring
- Spring steel

MORE INFORMATION

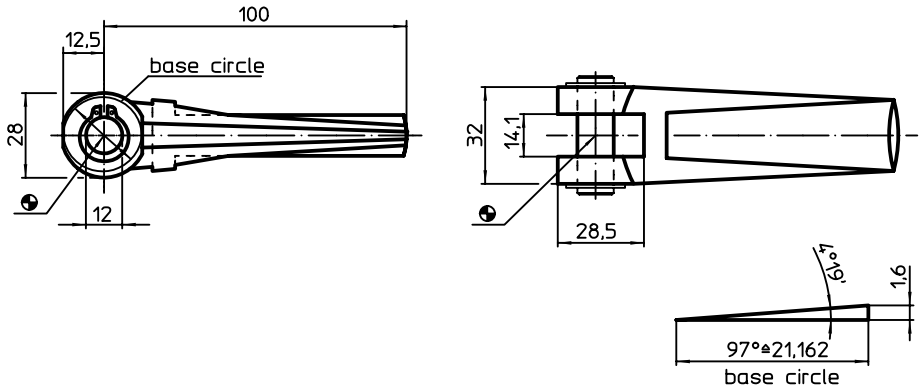
References

Can be used in combination with swing bolts DIN 444, M12 (EH 22980.).

Further products

Swing Bolts, DIN 444, form B . . . . . → p. 353
Swing Bolts, DIN 444, form B, quality 8.8 high precision design. . . . . → p. 354

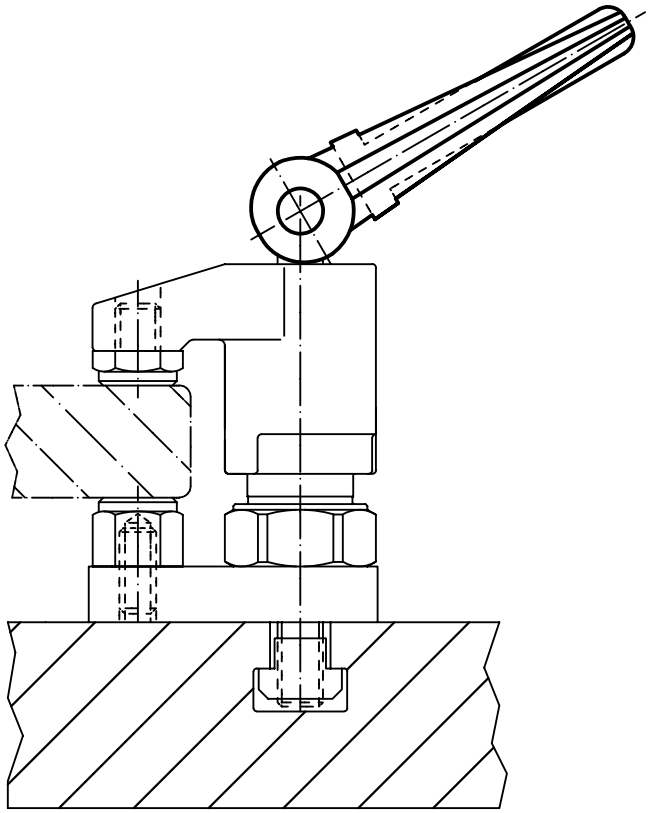
DRAWING



ORDER INFORMATION

Dimensions bore hole [mm]	[g]	Art. No.
12	334	23380.0012

APPLICATION EXAMPLE



3

Eccentric Levers • with fulcrum pin

EH 23390.

PRODUCT DESCRIPTION

Material

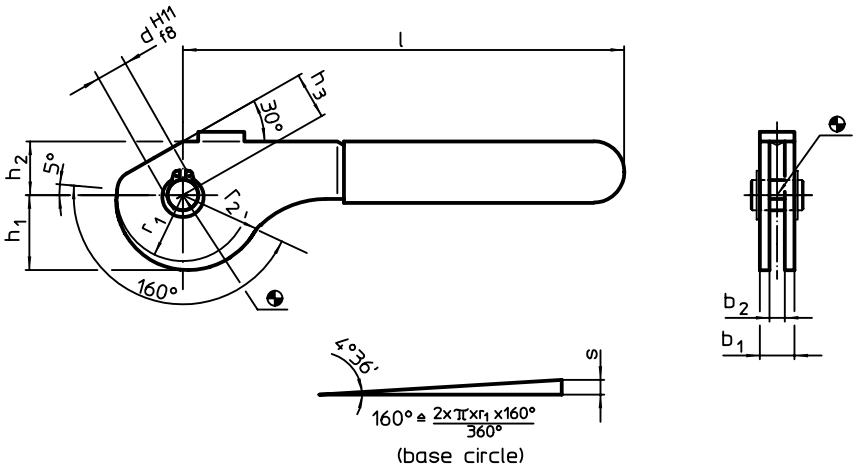
Fulcrum pin
- Stainless steel 1.4021, heat-treated

Eccentric part
- Steel St. 52-3, zinc phosphated
- Stainless steel 1.4301

Safety ring
- Stainless steel 1.4310

Plastic cap
- PVC, red

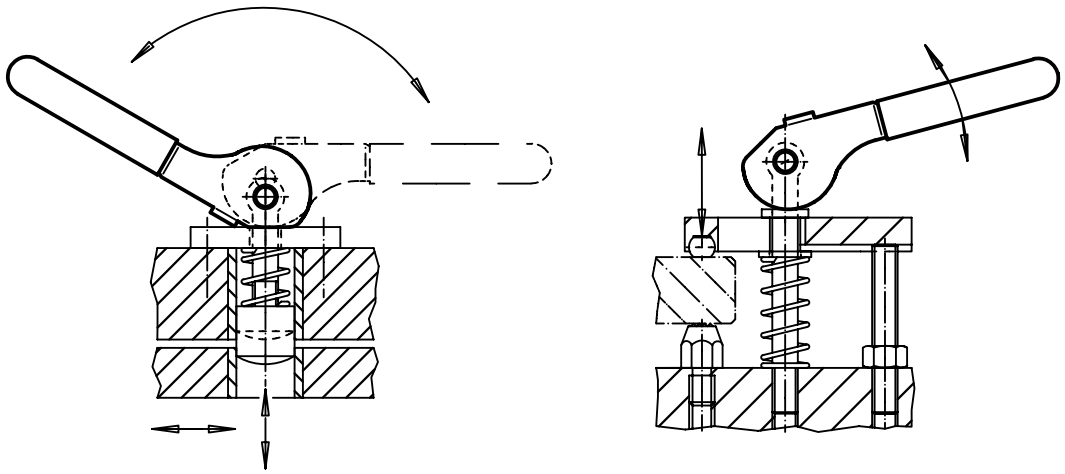
DRAWING



ORDER INFORMATION

Dimensions									Eccentric stroke s	Total stroke r_2-h_3	max.		Art. No.
b_1	d H11 f8	l ~	r_1	r_2	b_2	h_1	h_2	h_3 ~					
				[mm]					[mm]	[mm]	[°C]	[g]	
steel													
13	**8**	114	17,2	21,07	9	19,54	14	12	3,87	9,07	60	93	23390.0408
17	**10**	138	21,6	26,45	12	24,54	17	15	4,85	11,45	60	178	23390.0410
20	**12**	157	28,0	34,29	14	31,81	21	18	6,29	16,29	60	290	23390.0412
stainless steel													
13	**8**	114	17,2	21,07	9	19,54	14	12	3,87	9,07	60	94	23390.0508
17	**10**	138	21,6	26,45	12	24,54	17	15	4,85	11,45	60	175	23390.0510
20	**12**	157	28,0	34,29	14	31,81	21	18	6,29	16,29	60	288	23390.0512

APPLICATION EXAMPLE



Eccentric Quick Clamps • with female thread

EH 23390.

PRODUCT DESCRIPTION

For quick and easy clamping and releasing of workpieces.
When using the "adjustable" design (picture 2) the lever position can be moved.

Material

Support washer
- Thermoplastic PA, glass-fiber reinforced
- Thermoplastic POM, glass-fiber reinforced

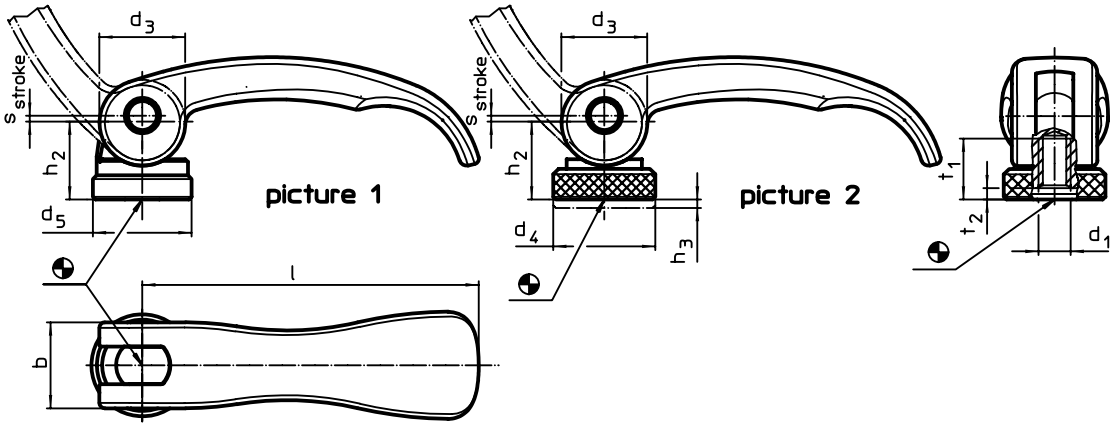
Lever
- Zinc die-cast, plastic coated, black

Threaded part
- Steel, zinc-plated by galvanization
- Stainless steel 1.4305

Inner part
- Steel, zinc-plated by galvanization
- Stainless steel 1.4305

Adjusting nut
- Steel, zinc-plated by galvanization
- Stainless steel 1.4305

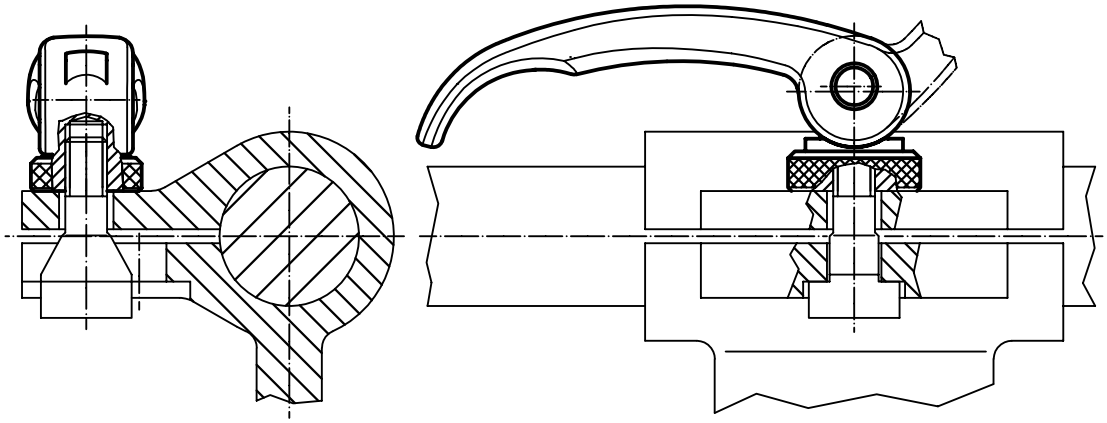
DRAWING



ORDER INFORMATION

Dimensions										Stroke s at 90° lever position	max.		Art. No.	
l	d_1	d_3	d_4	d_5	h_2 max.	Regulating-range h_3 min.	b	t_1	t_2 min. in clamp-ing position				steel	stainless steel
					[mm]					[mm]	[°C]	[g]		
with female thread – picture 1														
63	M5	16	–	18,5	16,4	–	16	13	3,0	0,75	80	60	23390.0003	23390.0203
	M6	16	–	18,5	16,4	–	16	13	3,0	0,75	80	58	23390.0001	23390.0201
82	M8	20	–	22,5	19,5	–	20	15	3,7	1,00	80	116	23390.0002	23390.0202
with female thread, adjustable – picture 2														
63	M5	16	19	–	16,4	1,5	16	13	3,0	0,75	80	65	23390.0103	23390.0303
	M6	16	19	–	16,4	1,5	16	13	3,0	0,75	80	65	23390.0101	23390.0301
82	M8	20	25	–	19,5	2,5	20	15	3,7	1,00	80	130	23390.0102	23390.0302

APPLICATION EXAMPLE



3

Eccentric Quick Clamps • with screw

EH 23390.

PRODUCT DESCRIPTION

For quick and easy clamping and releasing of workpieces.
When using the "adjustable" design (picture 2) the lever position can be moved.

Material

Support washer
- Thermoplastic PA, glass-fiber reinforced
- Thermoplastic POM, glass-fiber reinforced

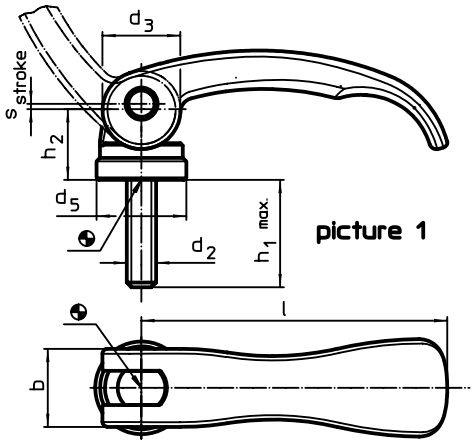
Lever
- Zinc die-cast, plastic coated, black

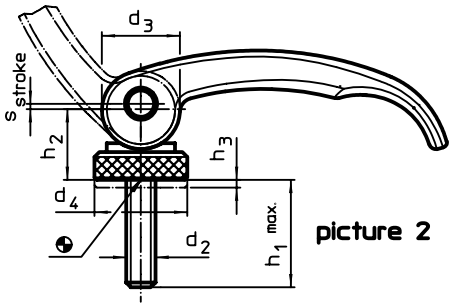
Inner part
- Steel, zinc-plated by galvanization
- Stainless steel 1.4305

Screw
- Steel, zinc-plated by galvanization
- Stainless steel 1.4305

Adjusting nut
- Steel, zinc-plated by galvanization
- Stainless steel 1.4305

DRAWING





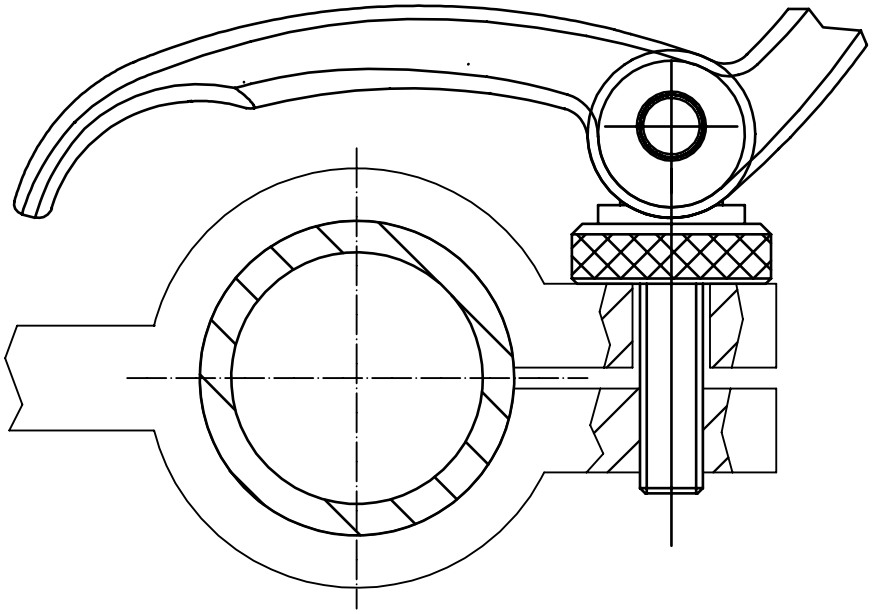
ORDER INFORMATION

Dimensions									Stroke s at 90° lever position	max.		Art. No.	
l	d_2	h_1 max. in clamping position	d_3	d_4	d_5	h_2 max.	Regulating-range h_3 min.	b				steel	stainless steel
		[mm]							[mm]	[°C]	[g]		
with screw – picture 1													
63	M5	16	16	–	18,5	16,4	–	16	0,75	80	62	23390.0030	23390.0230
		20	16	–	18,5	16,4	–	16	0,75	80	63	23390.0031	23390.0231
		25	16	–	18,5	16,4	–	16	0,75	80	64	23390.0032	23390.0232
		30	16	–	18,5	16,4	–	16	0,75	80	65	23390.0033	23390.0233
		35	16	–	18,5	16,4	–	16	0,75	80	65	23390.0034	23390.0234
		40	16	–	18,5	16,4	–	16	0,75	80	66	23390.0035	23390.0235
		50	16	–	18,5	16,4	–	16	0,75	80	67	23390.0036	23390.0236
	M6	16	16	–	18,5	16,4	–	16	0,75	80	63	23390.0009	23390.0209
		20	16	–	18,5	16,4	–	16	0,75	80	64	23390.0010	23390.0210
		25	16	–	18,5	16,4	–	16	0,75	80	65	23390.0011	23390.0211
		30	16	–	18,5	16,4	–	16	0,75	80	66	23390.0012	23390.0212
		35	16	–	18,5	16,4	–	16	0,75	80	67	23390.0013	23390.0213
		40	16	–	18,5	16,4	–	16	0,75	80	68	23390.0014	23390.0214
		50	16	–	18,5	16,4	–	16	0,75	80	69	23390.0016	23390.0216
82	M8	20	20	–	22,5	19,5	–	20	1,00	80	129	23390.0019	23390.0219
		25	20	–	22,5	19,5	–	20	1,00	80	130	23390.0020	23390.0220
		30	20	–	22,5	19,5	–	20	1,00	80	132	23390.0021	23390.0221
		35	20	–	22,5	19,5	–	20	1,00	80	133	23390.0022	23390.0222
		40	20	–	22,5	19,5	–	20	1,00	80	135	23390.0023	23390.0223
		50	20	–	22,5	19,5	–	20	1,00	80	138	23390.0025	23390.0225
		60	20	–	22,5	19,5	–	20	1,00	80	141	23390.0027	23390.0227

→

Dimensions									Stroke s at 90° lever position	max.		Art. No.	
l	d_2	h_1 max. in clamping position	d_3	d_4	d_5	h_2 max.	Regulating-range h_3 min.	b				steel	stainless steel
[mm]									[mm]	[°C]	[g]		
with screw, adjustable – picture 2													
63	M5	16	16	19	–	16,4	1,5	16	0,75	80	68	23390.0130	23390.0330
		20	16	19	–	16,4	1,5	16	0,75	80	69	23390.0131	23390.0331
		25	16	19	–	16,4	1,5	16	0,75	80	70	23390.0132	23390.0332
		30	16	19	–	16,4	1,5	16	0,75	80	71	23390.0133	23390.0333
		35	16	19	–	16,4	1,5	16	0,75	80	71	23390.0134	23390.0334
		40	16	19	–	16,4	1,5	16	0,75	80	72	23390.0135	23390.0335
		50	16	19	–	16,4	1,5	16	0,75	80	73	23390.0136	23390.0336
	M6	16	16	19	–	16,4	1,5	16	0,75	80	69	23390.0109	23390.0309
		20	16	19	–	16,4	1,5	16	0,75	80	69	23390.0110	23390.0310
		25	16	19	–	16,4	1,5	16	0,75	80	71	23390.0111	23390.0311
		30	16	19	–	16,4	1,5	16	0,75	80	72	23390.0112	23390.0312
		35	16	19	–	16,4	1,5	16	0,75	80	73	23390.0113	23390.0313
		40	16	19	–	16,4	1,5	16	0,75	80	74	23390.0114	23390.0314
		50	16	19	–	16,4	1,5	16	0,75	80	76	23390.0116	23390.0316
82	M8	20	20	25	–	19,5	2,5	20	1,00	80	142	23390.0119	23390.0319
		25	20	25	–	19,5	2,5	20	1,00	80	144	23390.0120	23390.0320
		30	20	25	–	19,5	2,5	20	1,00	80	146	23390.0121	23390.0321
		35	20	25	–	19,5	2,5	20	1,00	80	147	23390.0122	23390.0322
		40	20	25	–	19,5	2,5	20	1,00	80	149	23390.0123	23390.0323
		50	20	25	–	19,5	2,5	20	1,00	80	152	23390.0125	23390.0325
		60	20	25	–	19,5	2,5	20	1,00	80	155	23390.0127	23390.0327

APPLICATION EXAMPLE



Fulcrum Pins

EH 23400.

PRODUCT DESCRIPTION

Material

Fulcrum pin
- Stainless steel 1.4021, heat-treated

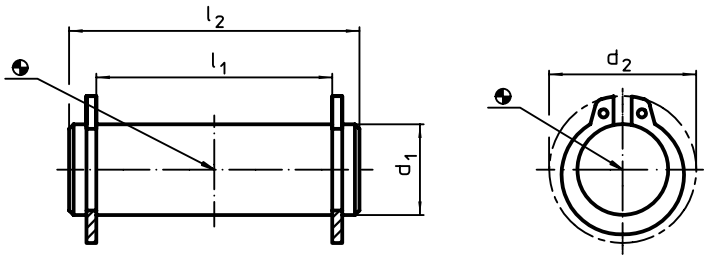
Safety ring
- Stainless steel 1.4310

MORE INFORMATION

References

Suitable for eccentric levers EH 23390. and similar applications.

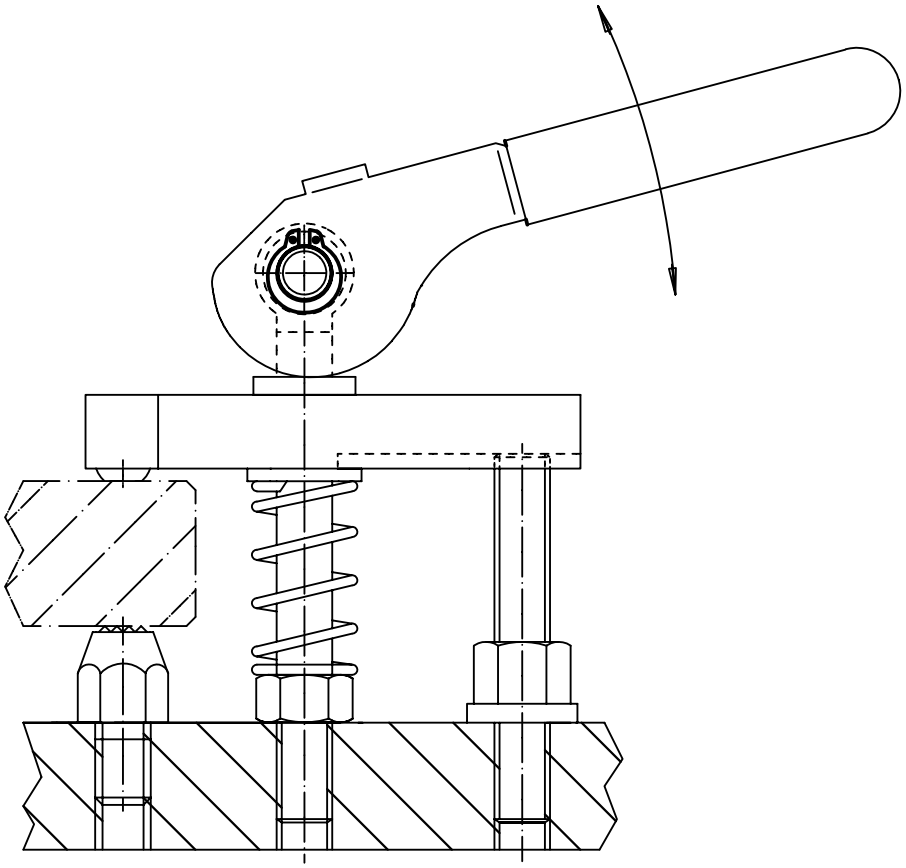
DRAWING



ORDER INFORMATION

Dimensions					Art. No.
d_1 f8	l_1 -0,5	d_2	l_2		
[mm]				[g]	
8	**14**	14,7	18	7,7	**23400.0082**
	21	14,7	27	10,0	**23400.0085**
10	**18**	17,0	24	14,0	**23400.0102**
	29	17,0	35	21,0	**23400.0105**
12	**21**	19,0	27	23,0	**23400.0122**
	31	19,0	37	34,0	**23400.0125**

APPLICATION EXAMPLE



Eccentric Clamps

EH 23410.

PRODUCT DESCRIPTION

Eccentric clamps enable fast and safe clamping and releasing with a relatively large adjustment range and high tensioning force. The eccentric plain washer enables a stepless radial clamping effect in any clamping position. Furthermore, the eccentric clamp is self-locking. The clamp can be used as a stepless stop by removing the thrust washer.

Material

Gear lever handle
- Steel, ground, blackened
- Stainless steel 1.4305, dull blasted

Body
- Steel, case-hardened, blackened
- Stainless steel 1.4305, nickel-plated

Screw
- Steel, hardened, blackened
- Stainless steel 1.4021, heat-treated, nickel-plated

Ball knob
- Thermosetting plastic PF 31, black, DIN 319

Assembly

Fix with screw bolt M 10 (WS 6). Ensure a tightening torque of max. 40 Nm.

Operation

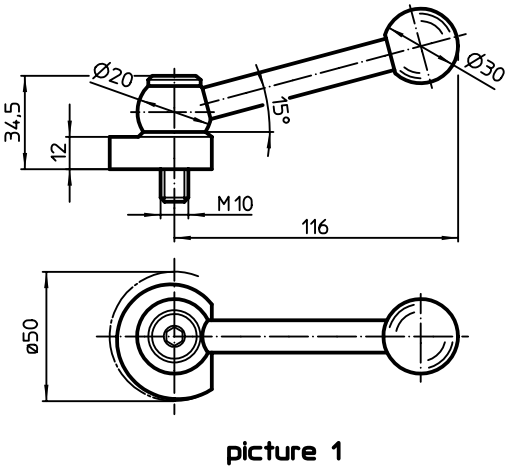
The screw bolt and the washer are adjustable. Once screwed in, the clamping catch can easily be turned to the desired position. For Art. No. 23410.0050 / .0051, the serration helps to put the clamping lever to the preferred position.

MORE INFORMATION

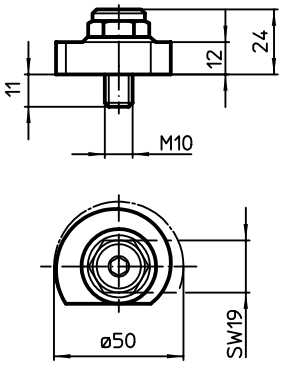
Notes

Left turn type can be supplied on request.

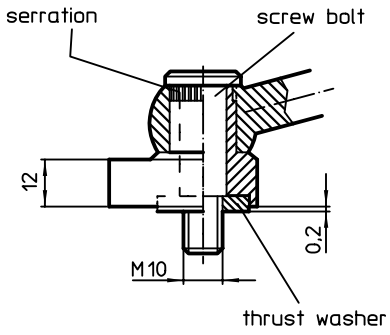
DRAWING

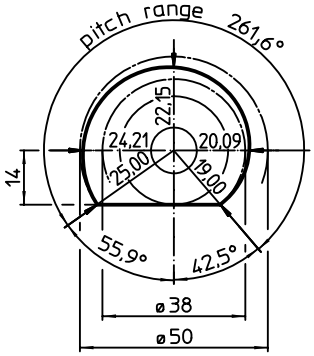


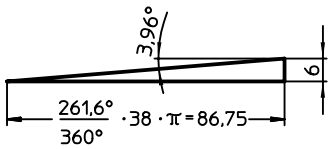
picture 1



picture 2





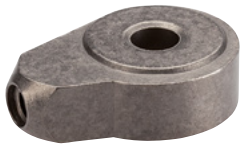


ORDER INFORMATION

[g]	Art. No. steel	Art. No. stainless steel
with clamping lever – picture 1		
317	23410.0050	23410.0051
with clamping screw – picture 2		
159	23410.0150	23410.0151

Eccentric Clamping Modules • with shaft location

EH 23410.



PRODUCT DESCRIPTION

The clamping effect remains unchanged and is self-locking in any angle position.

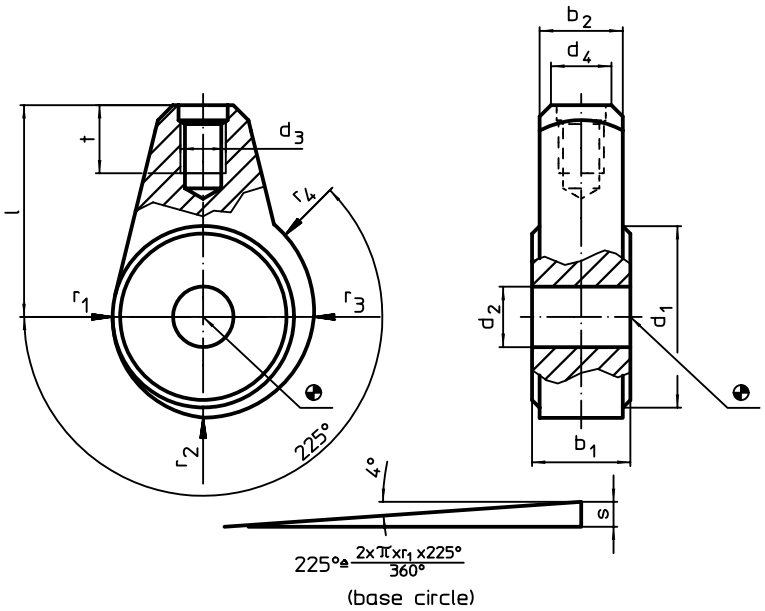
Material
- Sintered steel, case-hardened

Further products
Gear Lever Handles . . . . . → p. 574

MORE INFORMATION

References
Possible applications in combination with
e.g. gear lever handles EH 24350.

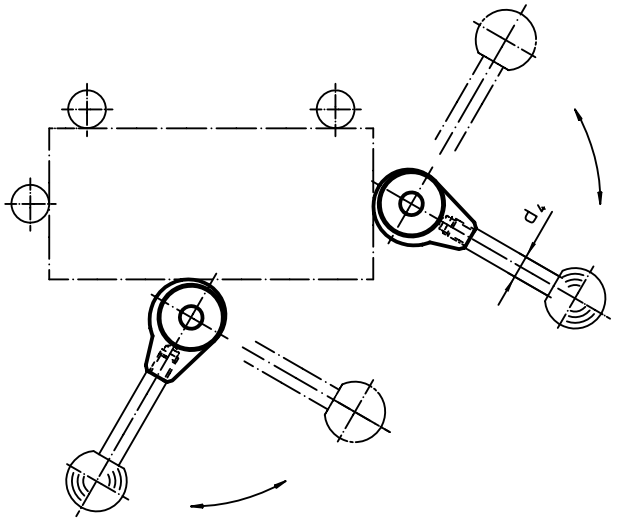
DRAWING



ORDER INFORMATION

Dimensions												d_4 Gear lever handle Ø EH 24350.		Art. No.
d_1	d_2 H9	b_1 -0,05 -0,15	b_2	d_3	l	r_1	r_2	r_3	r_4	s	t			
[mm]												[mm]	[g]	
24	**8**	13	11	M 6	28	12,0	13,32	14,64	15,30	3,3	9	8	50	23410.0210
30	**10**	15	13	M 8	32	15,0	16,65	18,30	19,12	4,1	12	10	100	23410.0220
35	**12**	17	15	M10	36	17,5	19,42	21,34	22,31	4,8	15	12	150	23410.0230

APPLICATION EXAMPLE



DOWN-THRUST CLAMPS

CLAMPED TO EXACTLY THE RIGHT SPOT

The down-thrust clamp is a universal mechanical clamping element for the fast and convenient changing and clamping of workpieces using clamping elements that can be swivelled by hand. Fast tool changes are important to cost-efficient production. The various down-thrust clamps from Erwin Halder KG offer simple and compact handling and, thanks to their height adjusting cylinders, are able to reach high clamping heights.

A special version has been created for point-accurate repeat clamping: a special positioning ring allows workpieces to always be securely clamped to the same point.

3

Down-Thrust Clamps • swivelling, size 25

EH 23310.

PRODUCT DESCRIPTION

Universal mechanical clamping element for fast and comfortable changing and clamping of workpieces by means of manually swivelling clamping claw.
The down-thrust clamps provide the following advantages:

- Rapid manual clamping by means of clamping screw, adjustable clamping lever or adjustable eccentric quick clamp.
- Easy and quick changing of the workpiece by swinging the clamping claw to the left or right.
- Reduced space requirements due to the compact design.
- Easy adaption even to larger clamping heights by means of height adjusting cylinders.

Material

- Case-hardened steel, case-hardened, blackened and ground

Assembly

Down-thrust clamps can be attached in two ways:

1. In a T-slot, using a nut for T-slots DIN 508 (EH 23010.)
2. With the set screw directly in the mounting plate of, for example, a fixture

The cylinder must make contact over the whole surface.

MORE INFORMATION

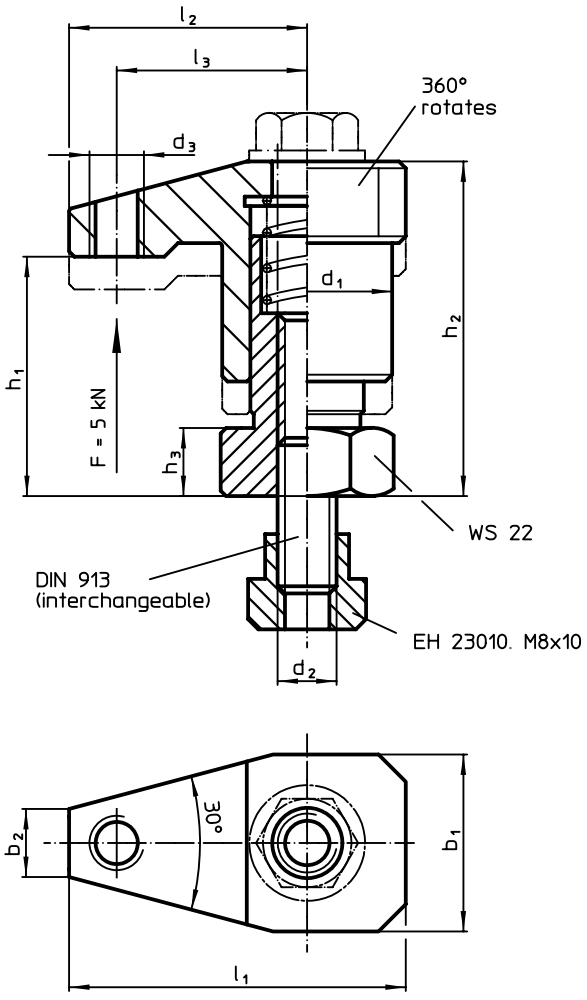
References

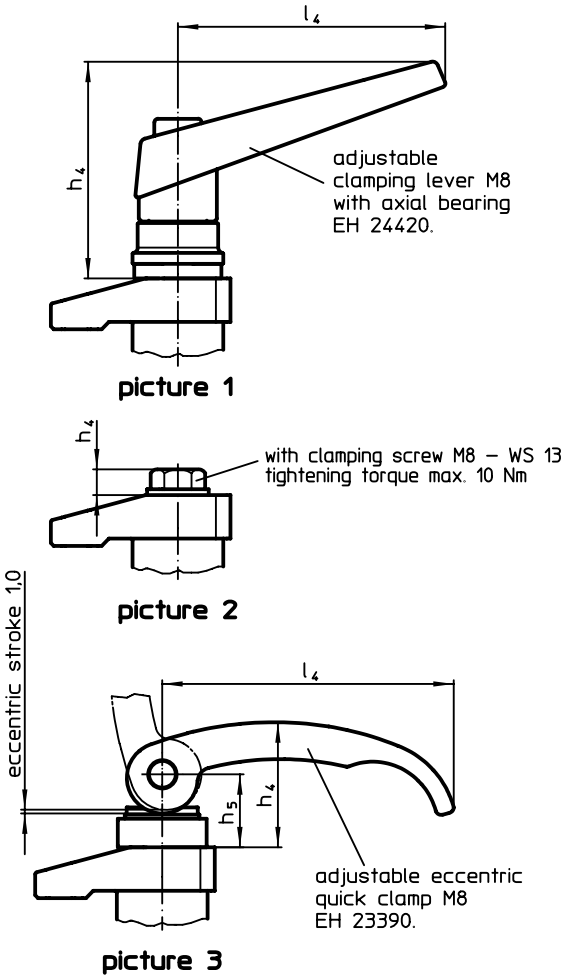
The clamping height can be increased with EH 23310. height adjusting cylinders and EH 1007. washers, and equally lowered by using clamping elements e.g. EH 22730.

Further products

Height Adjusting Cylinders . . . . . → p. 505
Spacers . . . . . → p. 725

DRAWING

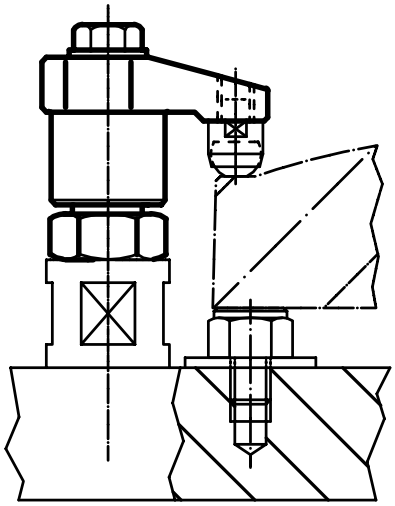


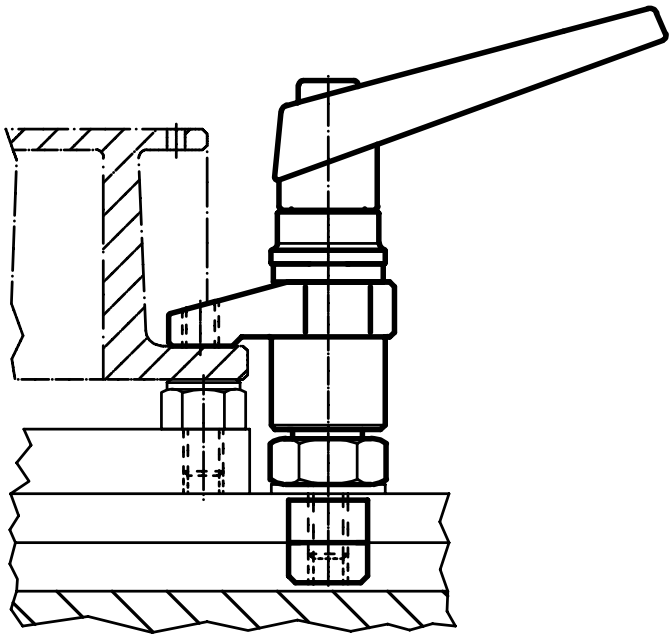


ORDER INFORMATION

Dimensions																Stroke		Art. No.
d_1	b_1	b_2	d_2	d_3	h_1 min.	h_1 max.	h_2 min.	h_2 max.	h_3	h_4	h_5	l_1	l_2	l_3	l_4			
[mm]																[mm]	[g]	
with adjustable clamping lever with axial bearing – picture 1																		
25	26	10	M8	M8	30	35	44	49	10	60,0	–	49,5	35	28	74	5	363	23310.0024
with clamping screw – picture 2																		
25	26	10	M8	M8	30	35	44	49	10	6,9	–	49,5	35	28	–	5	227	23310.0025
with adjustable excentric quick clamp – picture 3																		
25	26	10	M8	M8	30	35	44	49	10	35,0	20,5	49,5	35	28	82	5	340	23310.0026

APPLICATION EXAMPLE





3

Down-Thrust Clamps • swivelling, size 40

EH 23310.

PRODUCT DESCRIPTION

Universal mechanical clamping element for fast and comfortable changing and clamping of workpieces by means of manually swivelling clamping claw.
The clamps provide the following advantages:

- Rapid manual clamping by means of the clamping screw, the adjustable clamping lever, or the double eccentric clamping lever.
- Easier and quicker workpiece change by swinging the clamping claw to the left or right. Continuously variable setting by means of positioning ring 23310.0350
- The use of positioning ring 23310.0350 allows a repeatable precise clamping. Here h_1 min. increases by at least 7 mm (stroke minus 7 mm).
- Compact design, therefore less space requirement when clamping.
- Easily adjustable even to large clamping heights, using the height adjusting cylinders.

Material

- Case-hardened steel, case-hardened, blackened and ground

Assembly

Down-thrust clamps can be attached in two ways:

1. In a T-slot, using a nut for T-slots DIN 508 (EH 23010.)
2. With the set screw directly in the mounting plate of, for example, a fixture

The cylinder must make contact over the whole surface.
Exceeding of the clamping height is inhibited by the height limitation.

MORE INFORMATION

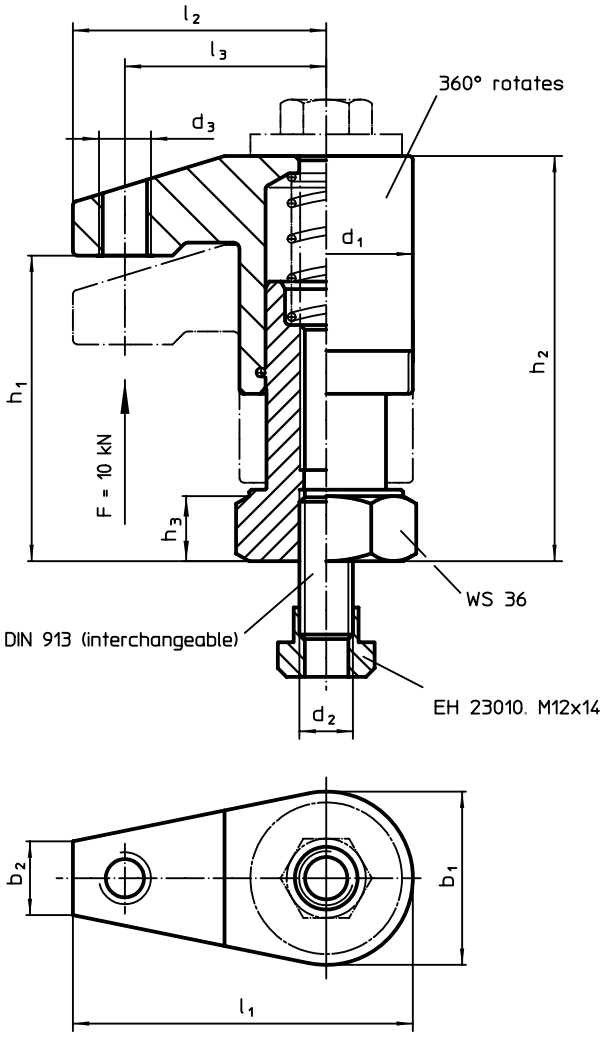
References

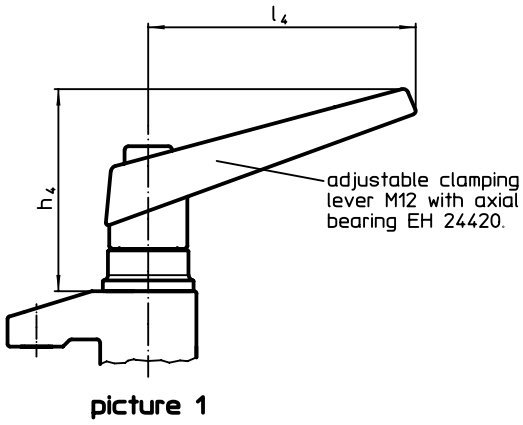
The clamping height can be increased by using height adjusting cylinders EH 23310. and disks EH 1107. and EH 1108. It can be reduced by employing clamping inserts, e.g. EH 22730.

Further products

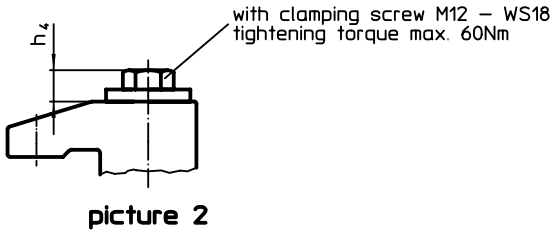
Positioning Rings, for down-thrust clamp . . . . . → p. 504
Height Adjusting Cylinders . . . . . → p. 505
Spacers . . . . . → p. 725
Wrenches . . . . . → p. 748

DRAWING

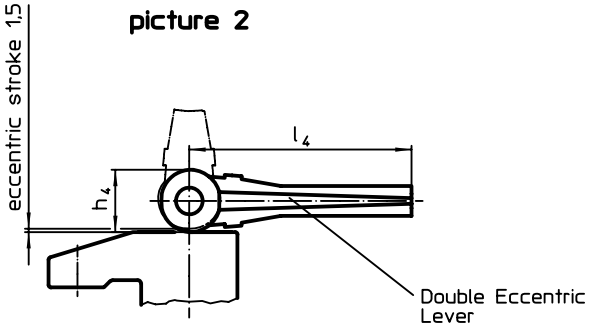




picture 1



picture 2

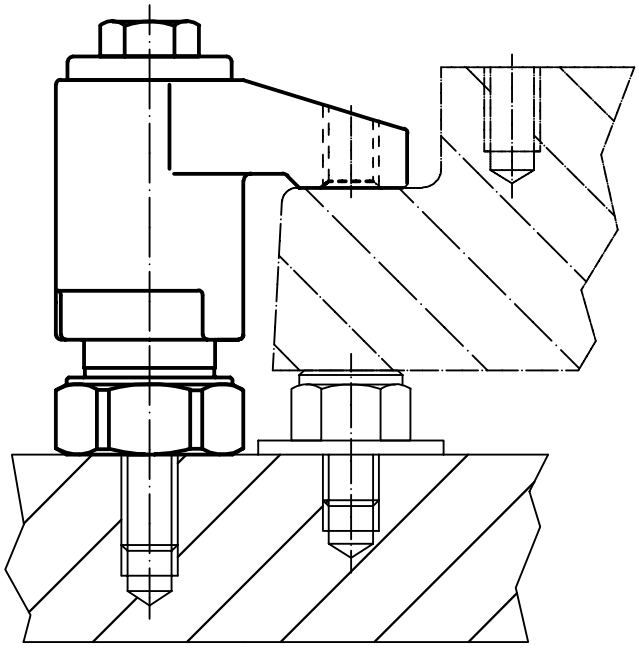


picture 3

ORDER INFORMATION

Dimensions														Stroke		Art. No.
d_1	b_1	b_2	d_2	d_3	h_1 min.	h_1 max.	h_2 min.	h_2 max.	h_3	h_4	l_1	l_2	l_3	l_4	[mm]	[g]	
with adjustable clamping lever with axial bearing – picture 1																	
40	40	17	M12	M12	50	70	73	93	15	82	75	55	43	108	20	1194	23310.0050
					68	98	91	121	15	82	75	55	43	108	30	1359	23310.0053
					95	135	118	158	22	82	75	55	43	108	40	1639	23310.0056
with clamping screw – picture 2																	
40	40	17	M12	M12	50	70	73	93	15	13	75	55	43	–	20	876	23310.0051
					68	98	91	121	15	13	75	55	43	–	30	964	23310.0054
					95	135	118	158	22	13	75	55	43	–	40	1300	23310.0057
with eccentric clamping lever – picture 3																	
40	40	17	M12	M12	50	70	73	93	15	28	75	55	43	100	20	1213	23310.0052
					68	98	91	121	15	28	75	55	43	100	30	1370	23310.0055
					95	135	118	158	22	28	75	55	43	100	40	1585	23310.0058

APPLICATION EXAMPLE



Down-Thrust Clamps • swivelling, low construction, size 44

EH 23310.

PRODUCT DESCRIPTION

Universal mechanical clamping element for fast and comfortable changing and clamping of workpieces by means of manually swivelling clamping claw.
Clamps provide the following advantages:

- Rapid manual clamping by means of a threaded spindle or eccentric lever
- Easy and rapid changing of workpieces by swinging away the clamping claw to the left or right
- Low construction, thus little space taken-up for clamping
- Simple adaption even to extreme clamping heights, using height adjusting cylinders

Material

- Case-hardened steel, case-hardened, blackened and ground

Assembly

Down-thrust clamps can be attached in two ways:

1. In a T-slot, using a nut for T-slots DIN 508 (EH 23010.)
2. With the set screw directly in the mounting plate of, for example, a fixture

The cylinder must make contact over the whole surface.

MORE INFORMATION

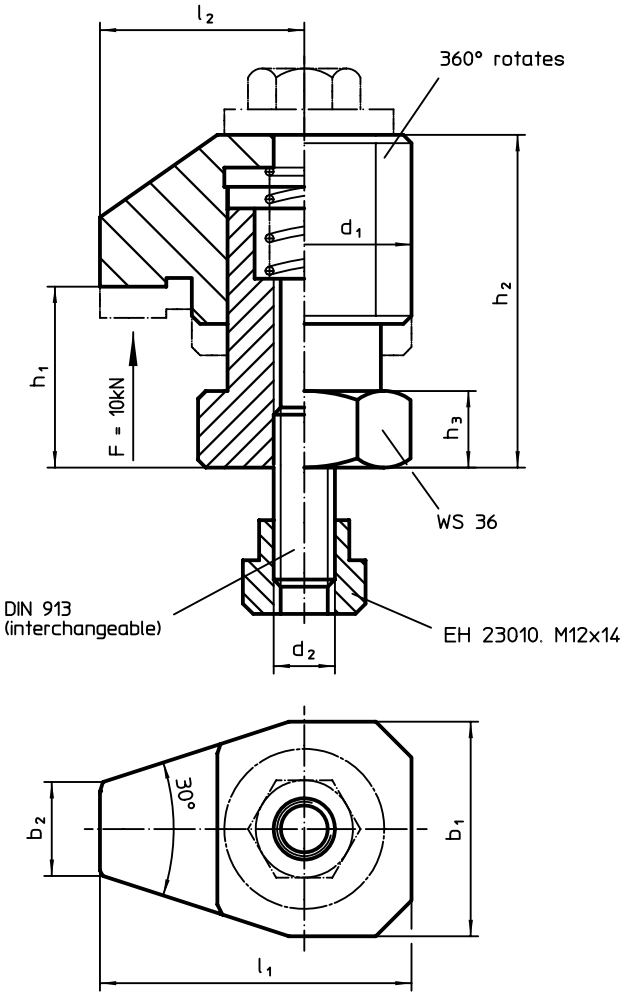
References

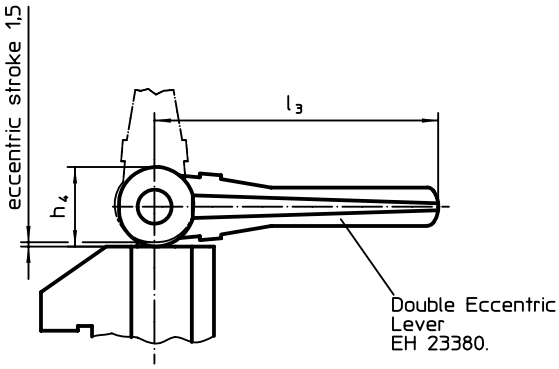
The clamping height can be increased using height adjusting cylinders EH 23310. and with spacers EH 1107. and EH 1108.

Further products

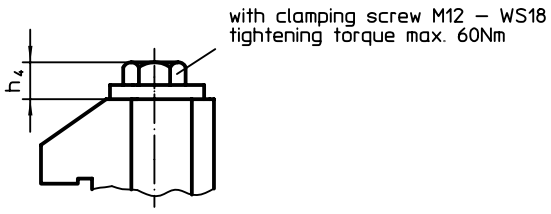
Height Adjusting Cylinders . . . . . → p. 505
Spacers . . . . . → p. 725
Wrenches . . . . . → p. 748

DRAWING





picture 1

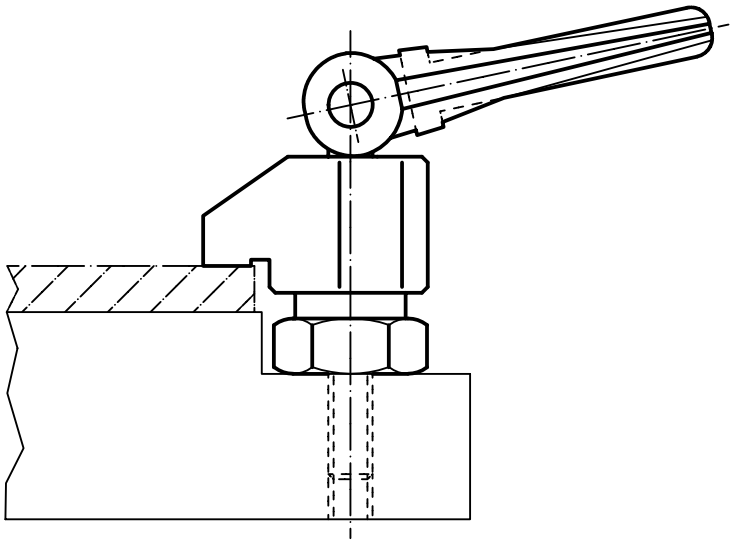


picture 2

ORDER INFORMATION

Dimensions													Stroke		Art. No.
d_1	b_1	b_2	d_2	h_1 min.	h_1 max.	h_2 min.	h_2 max.	h_3	h_4	l_1	l_2	l_3			
[mm]													[mm]	[g]	
with eccentric clamping lever – picture 1															
44	42	18	M12	25	30	54	59	15	28	61	40	100	5	1022	23310.0034
with clamping screw – picture 2															
44	42	18	M12	25	30	54	59	15	13	61	40	–	5	708	23310.0035

APPLICATION EXAMPLE



Down-Thrust Clamps • swivelling, size 60

EH 23310.

PRODUCT DESCRIPTION

Universal mechanical clamping element for fast and comfortable changing and clamping of workpieces by means of manually swivelling clamping claw.
Clamps provide the following advantages:

- Rapid manual clamping by means of a threaded spindle or eccentric lever
- Easy and rapid changing of workpieces by swinging away the clamping claw
- Compact construction, thus little space taken-up for clamping
- Simple adaption even to extreme clamping heights, using height adjusting cylinders

Material

- Case-hardened steel, case-hardened, blackened and ground

Assembly

Down-thrust clamps can be attached in two ways:

1. In a T-slot, using a nut for T-slots DIN 508 (EH 23010.)
2. With the set screw directly in the mounting plate of, for example, a fixture

The cylinder must make contact over the whole surface.
The clamping height h_1 must not be exceeded.

MORE INFORMATION

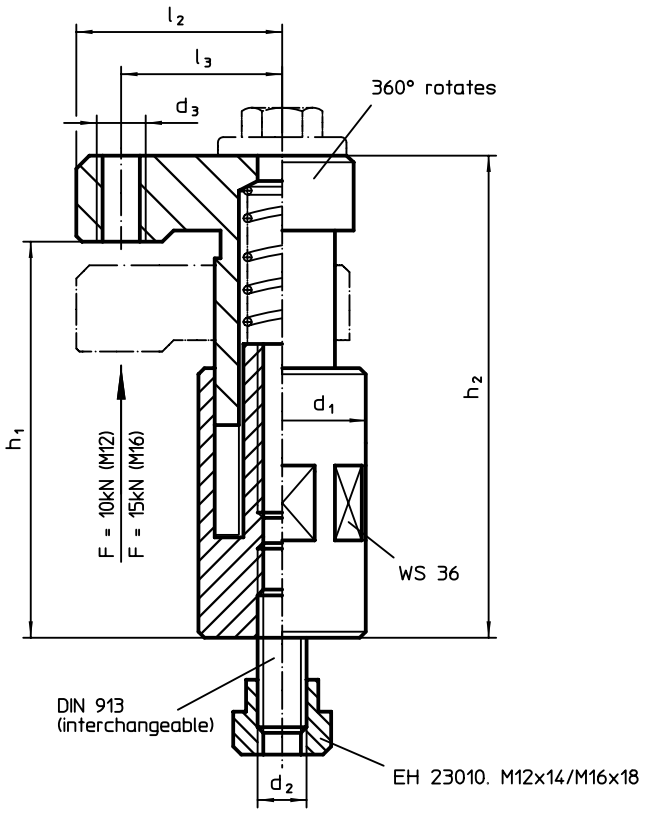
References

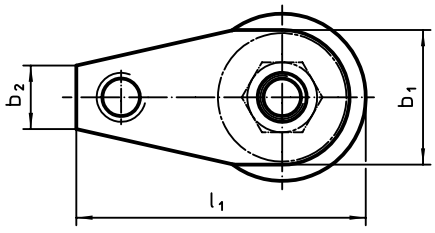
The clamping height can be increased by using height adjusting cylinders EH 23310. and disks EH 1107., EH 1108. and EH 1617. It can be reduced by using clamping inserts.

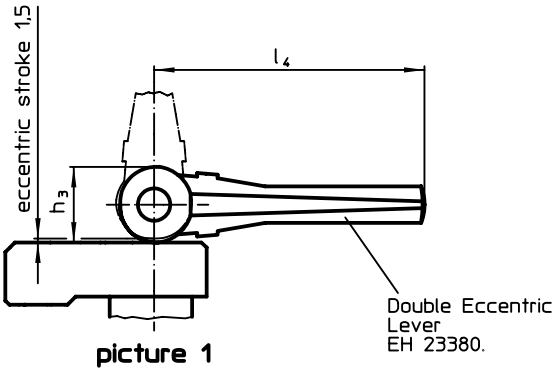
Further products

Height Adjusting Cylinders . . . . . → p. 505
Spacers . . . . . → p. 725
Wrenches . . . . . → p. 748
Spacers . . . . . → p. 781

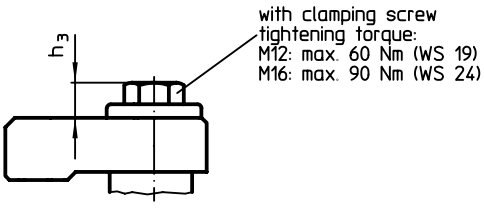
DRAWING







picture 1

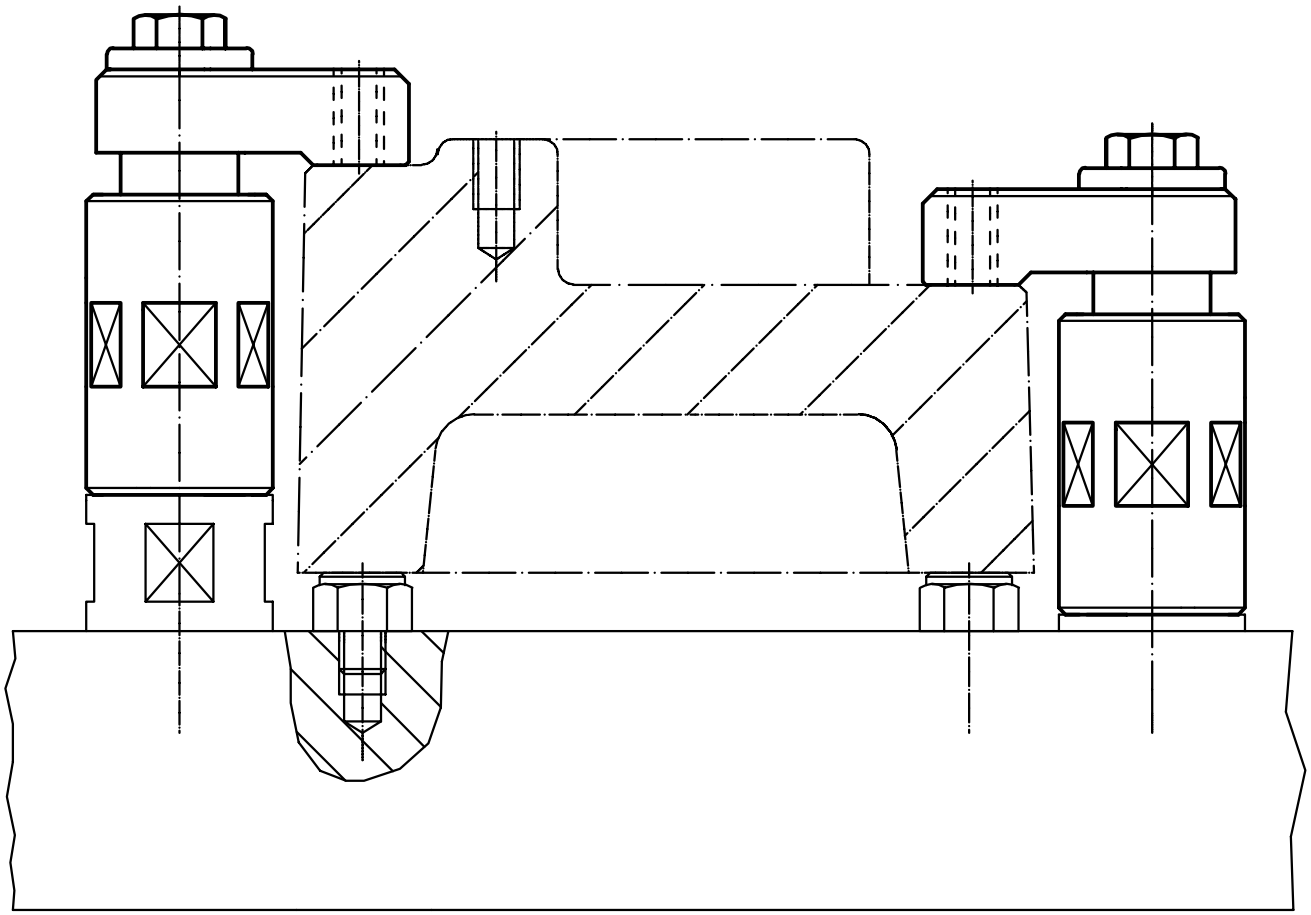


picture 2

ORDER INFORMATION

Dimensions [mm]														Stroke [mm]	[g]	Art. No.
d_1	d_2	b_1	b_2	d_3	h_1 min.	h_1 max.	h_2 min.	h_2 max.	h_3	l_1	l_2	l_3	l_4			
with eccentric clamping lever – picture 1																
60	**M12**	44	17	M12	100	135	123	158	28	95	65	53	100	35	3015	23310.0060
with clamping screw – picture 2																
60	**M12**	44	17	M12	100	135	123	158	13	95	65	53	–	35	2695	23310.0061
	M16	53	24	M16	100	135	123	158	16	99	69	53	–	35	2939	23310.0063

APPLICATION EXAMPLE



Down-Thrust Clamps • swivelling, size 82.5

EH 23310.

PRODUCT DESCRIPTION

The down-thrust clamp is a universal mechanical clamp that allows fast and easy exchange and clamping of workpieces - as the clamping claw can be easily manually swivelled to clear the workpiece.

The down-thrust clamps provide the following advantages:

- Compact design
- Clamping force of up to max. 30 kN via a clamping screw WS 36
- Clamping head swivels 360°
- Clamping stroke 30 mm
- Clamping height max. 250 mm
- Integrated clamping height stop for safe use
- Fixture via 4 cap screws M 24, quality 8.8 (tightening torque 600 Nm) with a hole spacing of 100 x 100 mm

Material

- Case-hardened steel, case-hardened, blackened and ground

Assembly

Fixture via 4 cap screws M 24, quality 8.8 (tightening torque 600 Nm) with a hole spacing 100 x 100 mm

MORE INFORMATION

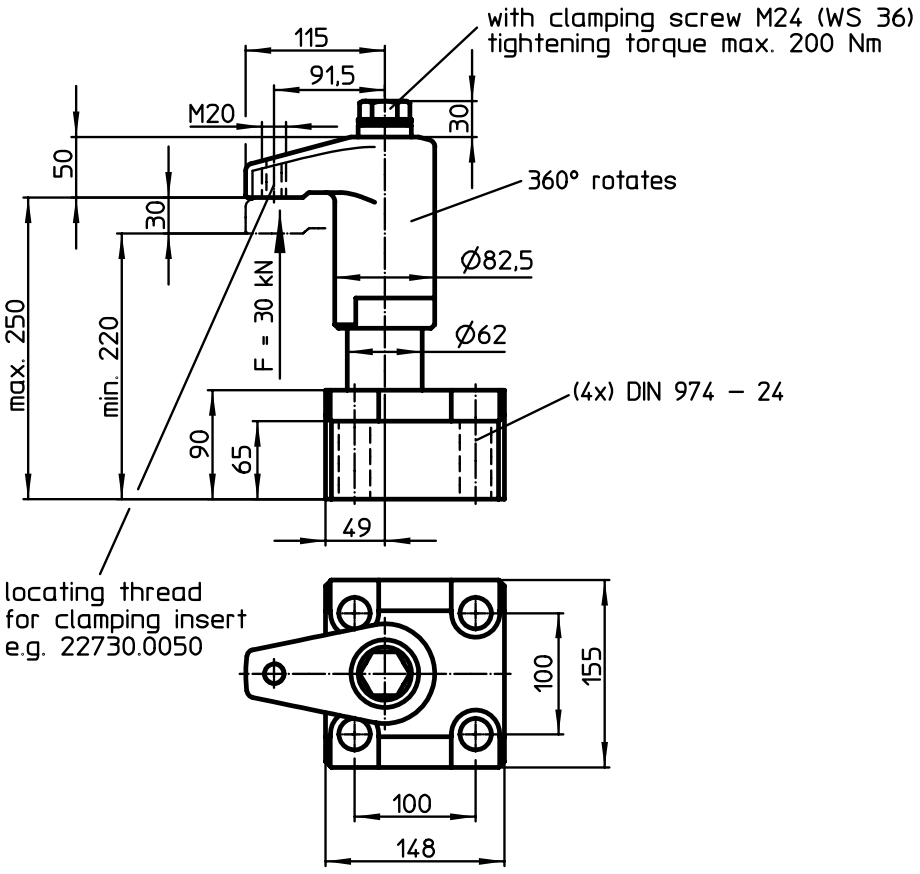
References

The positioning ring 23310.0351 ensures a repeatable precise clamping.

Further products

Positioning Rings, for down-thrust clamp . . . . . → p. 504
Wrenches . . . . . → p. 748

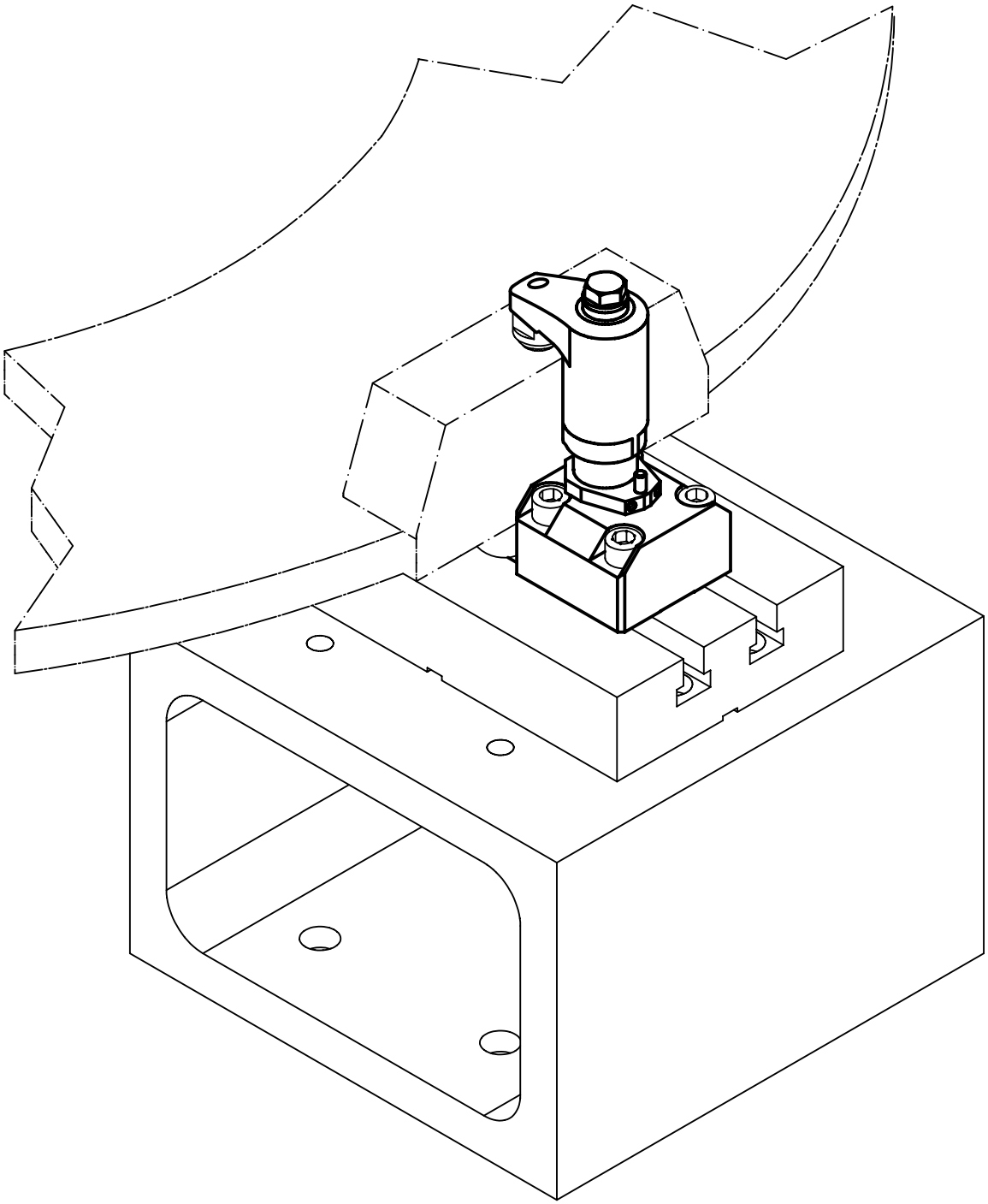
DRAWING



ORDER INFORMATION

Dimensions										Stroke s	Clamping force max.	Tightening torque max.		Art. No.
h_1 max.	h_1 min.	b_1	d_1	d_2	d_3	h_2	l_1	l_2	l_3					
[mm]										[mm]	[kN]	[Nm]	[kg]	
250	220	155	82,5	M20	62	30	115	148	49	30	30	200	20	23310.0070

APPLICATION EXAMPLE



Down-Thrust Clamps • moveable, size 40

EH 23310.

PRODUCT DESCRIPTION

The moveable downthrust clamps are used, amongst other things, when swivel movements are not possible because of the workpiece.
The clamps provide the following advantages:

- Easier and quicker workpiece change by moving the clamping claws forwards or backwards.
- The clamping range in horizontal direction is between l_1 min. and l_1 max..
- To change the workpiece, the clamping claw can be pushed back from l_1 max. by dimension l_2.
- Rapid manual clamping by means of the clamping screw, the adjustable clamping lever, or the double eccentric clamping lever.
- The use of positioning ring 23310.0350 allows the clamping position to be fixed. Here h_1 min. increases by at least 7 mm (stroke minus 7 mm).
- Compact design, therefore less space requirement when clamping.
- Easily adjustable even to large clamping heights, using the height adjusting cylinders.

Material

- Case-hardened steel, case-hardened, blackened and ground

Assembly

Down-thrust clamps can be attached in two ways:

1. In a T-slot, using a nut for T-slots DIN 508 (EH 23010.)
2. With the set screw directly in the mounting plate of, for example, a fixture

The cylinder must make contact over the whole surface.

Operation

1. Push clamping claw backwards.
2. Insert workpiece.
3. Push clamping claw forwards.
4. Adjust clamping position of clamping claw using the knurled screw.
5. Secure / lock the clamping position using the knurled nut.

MORE INFORMATION

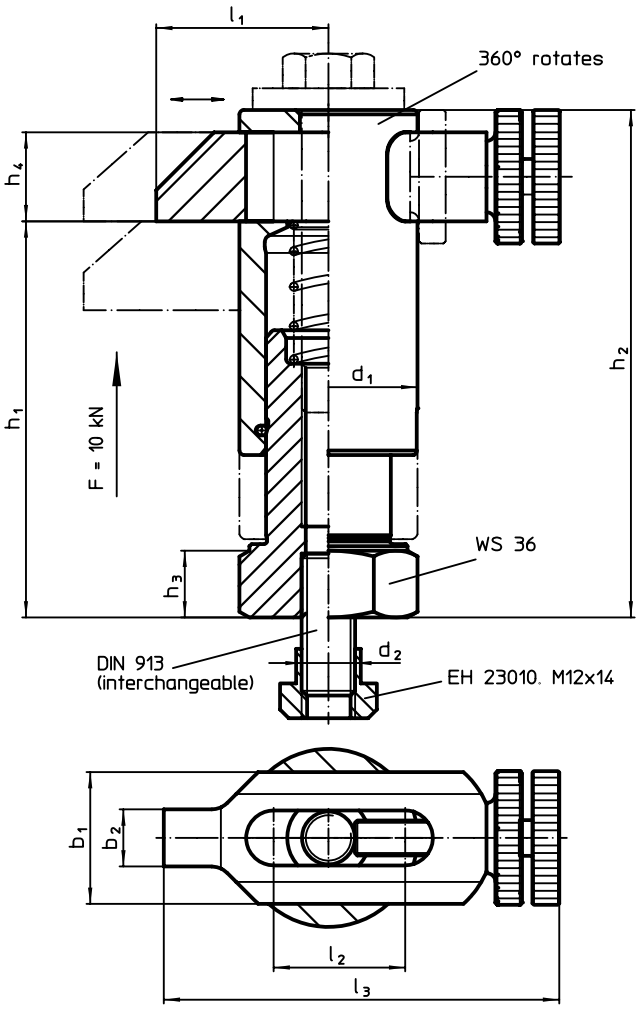
References

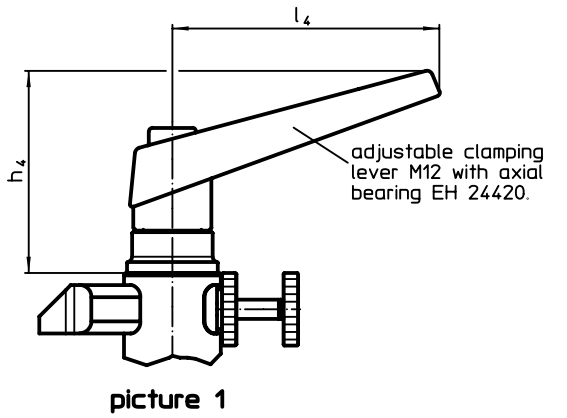
The clamping height can be increased by using height adjusting cylinders EH 23310. and disks EH 1107. and EH 1108. It can be reduced by employing clamping inserts, e.g. EH 22730.

Further products

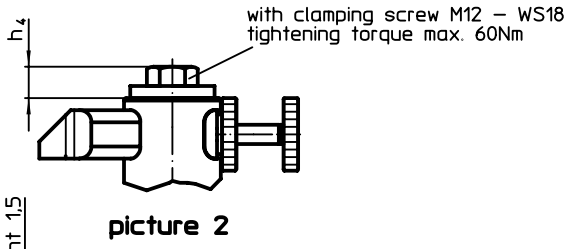
Positioning Rings, for down-thrust clamp . . . . . → p. 504

DRAWING

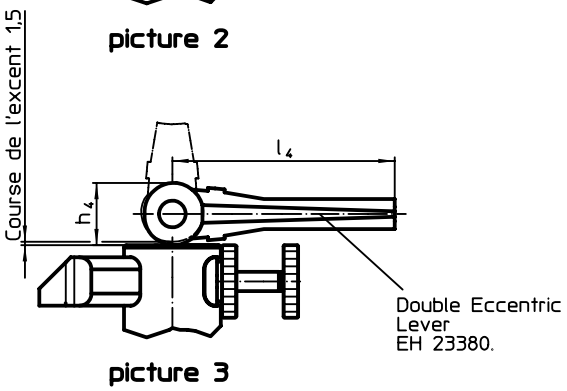




picture 1



picture 2

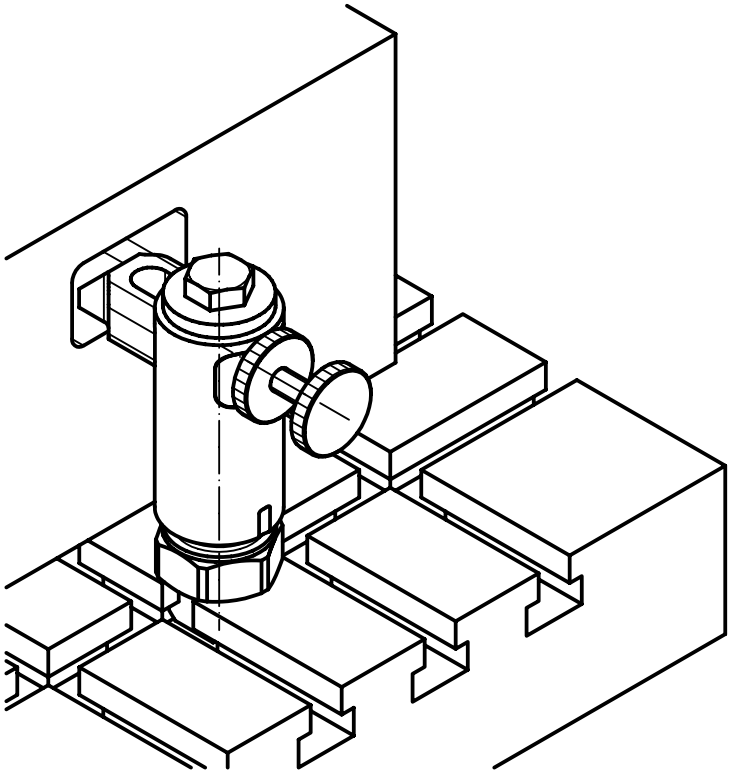


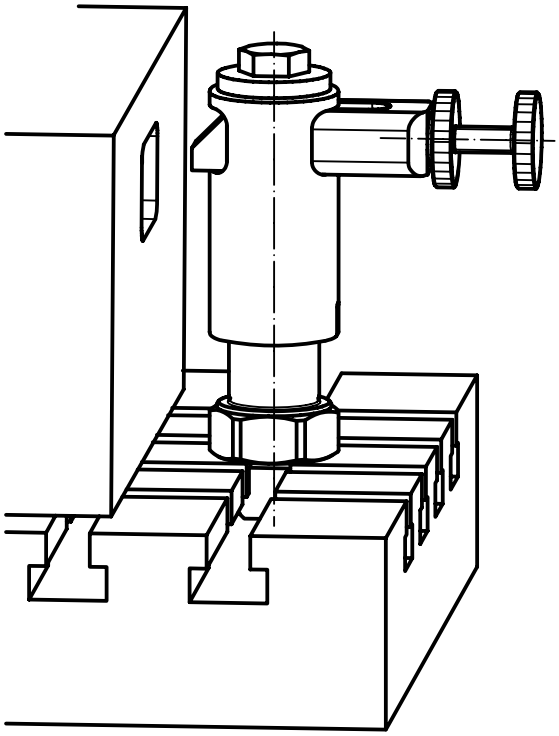
picture 3

ORDER INFORMATION

Dimensions															Stroke		Art. No.
d_1	b_1	b_2	d_2	h_1 min.	h_1 max.	h_2 min.	h_2 max.	h_3	h_4	l_1 min.	l_1 max.	l_2	l_3 min.	l_3 max.			
[mm]															[mm]	[g]	
with adjustable clamping lever with axial bearing – picture 1																	
40	30	13	M12	70	90	95	115	15	82	38	55	30	90	107	20	1300	23310.0083
				88	118	113	143	15	82	38	55	30	90	107	30	1205	23310.0086
with clamping screw – picture 2																	
40	30	13	M12	70	90	95	115	15	13	38	55	30	90	107	30	1480	23310.0084
				88	118	113	143	15	13	38	55	30	90	107	20	1370	23310.0087
with eccentric clamping lever – picture 3																	
40	30	13	M12	70	90	95	115	15	28	38	55	30	90	107	20	1040	23310.0085
				88	118	113	143	15	28	38	55	30	90	107	30	1540	23310.0088

APPLICATION EXAMPLE





Positioning Rings • for down-thrust clamp

EH 23310.

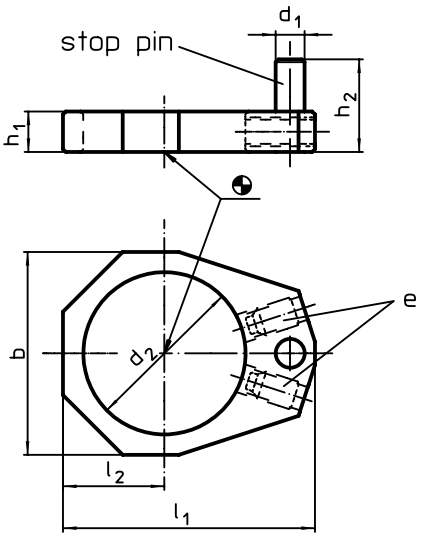
PRODUCT DESCRIPTION

The positioning ring is an accessory to down-thrust clamps 23310.0050 - .0058, 23310.0083 -.0088 and 23310.0070.
After aligning, the clamp positioning ring is fitted on the spindle with the effect, that repeated clamping is always exactly on the same point. The positioning ring is rotating by 360° on down-thrust clamp. After mounting, the clamping claw can swing 110° to the left or right (only for the swiveling versions).

Material
- Steel, blackened

Assembly
Before mounting the positioning ring, pull-off the clamping claw of down-thrust clamp.

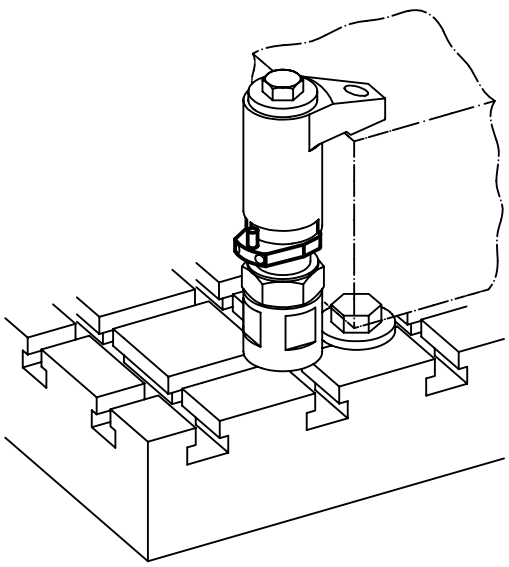
DRAWING



ORDER INFORMATION

Dimensions [mm]								For down-thrust clamp	[g]	Art. No.
h_1	h_2	d_1	d_2	l_1	l_2	b	e			
7	16	5	28	43,5	17,5	35	22760.0052	23310.0050-.0058/23310.0083-.0088	32	23310.0350
15	40	10	62	93,0	39,0	78	22760.0104	23310.0070	340	23310.0351

APPLICATION EXAMPLE



Height Adjusting Cylinders

EH 23310.

PRODUCT DESCRIPTION

The height adjusting cylinders can be used for increasing the clamping height of down-thrust clamps EH 23310. They are also used in combination with seating pins (EH 22680.), pins (EH 22690.) and self-aligning pads (EH 22730. - EH 22741.).

Material

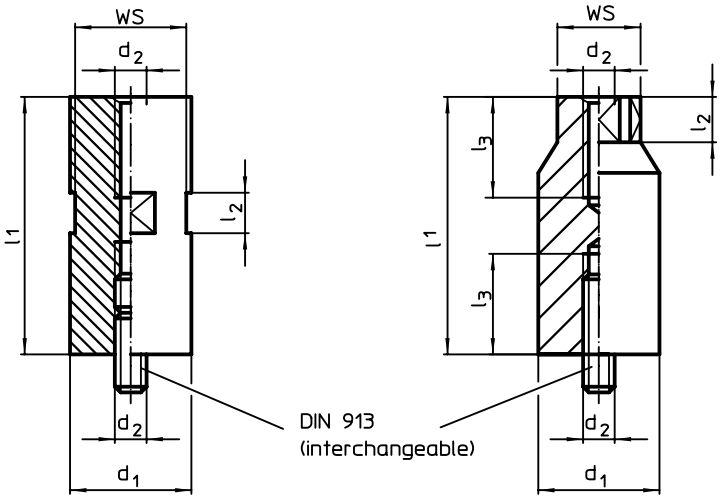
- Steel, case-hardened, blackened, ground

MORE INFORMATION

Further products

Seating Pins, ribbed or pointed . . . . . → p. 286
Seating Pins, pin shape. . . . . → p. 287
Pins . . . . . → p. 288
Seating Pins, adjustable . . . . . → p. 291
Self-Aligning Pads . . . . . → p. 315
Self-Aligning Pads, with hard metal ball, ribbed. . . . . → p. 316
Self-Aligning Pads, self-resetting. . . . . → p. 317
Self-Aligning Pads, with hard metal ball, ribbed and self-resetting . . . . . → p. 319
Self-Aligning Pads, adjustable. . . . . → p. 320
Self-Aligning Pads, adjustable with self-resetting . . . . . → p. 321

DRAWING



picture 1 picture 2

ORDER INFORMATION

Dimensions					WS		Art. No.
d_1 h9	l_1	d_2	l_2	l_3	[mm]	[g]	
picture 1							
25	**20 ±0,01**	**M 8**	10	–	22	71	23310.0125
	40 ±0,01	**M 8**	20	–	22	139	23310.0126
	80 ±0,01	**M 8**	20	–	22	292	23310.0127
40	**35 ±0,01**	**M12**	20	–	36	319	23310.0140
	70 ±0,01	**M12**	20	–	36	644	23310.0141
	140 ±0,01	**M12**	20	–	36	1325	23310.0142
	35 ±0,01	**M16**	20	–	36	318	23310.0145
	70 ±0,01	**M16**	20	–	36	634	23310.0146
	140 ±0,01	**M16**	20	–	36	1307	23310.0147
60	**35 ±0,01**	**M12**	20	–	55	755	23310.0160
	70 ±0,01	**M12**	20	–	55	1460	23310.0161
	140 ±0,01	**M12**	20	–	55	3034	23310.0162
	35 ±0,01	**M16**	20	–	55	760	23310.0165
	70 ±0,01	**M16**	20	–	55	1493	23310.0166
	140 ±0,01	**M16**	20	–	55	3016	23310.0167
	50 ±0,01	**M20**	20	–	55	1087	23310.0170
	100 ±0,01	**M20**	20	–	55	2126	23310.0171
	200 ±0,01	**M20**	20	–	55	3623	23310.0172
70	**50 ±0,01**	**M24**	25	–	65	1310	23310.0241
	100 ±0,01	**M24**	25	–	65	2682	23310.0242
picture 2							
90	**200 ±0,02**	**M24**	35	50	65	8655	23310.0243
	300 ±0,02	**M24**	35	50	65	13617	23310.0244

Clamping Claws

EH 23370.

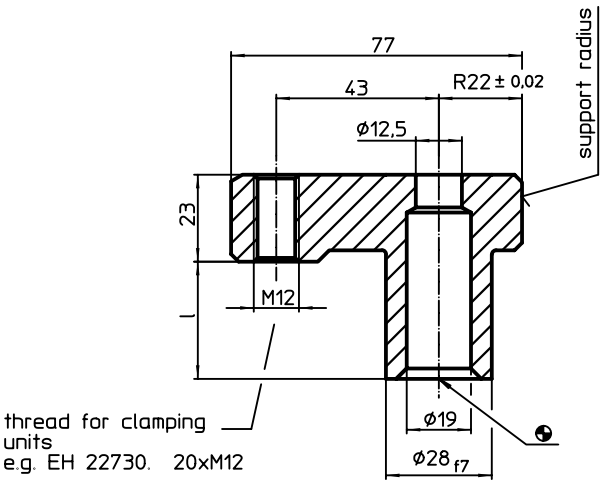
PRODUCT DESCRIPTION

Used as clamps in conventional fixtures. A reamed hole is provided in the body of the fixture. The hole depth has to be adapted to the desired clamping height. To provide a counter force, a support can be placed against the rounded end of the clamp (radius 22). This support can be flat, half-rounded or V-shaped. Clamping is achieved by means of a DIN 933 hexagon screw.

Material

- Steel, case-hardened, blackened, ground

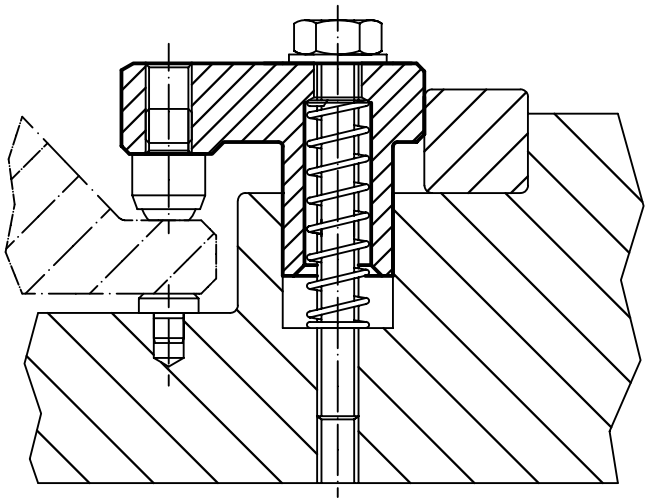
DRAWING



ORDER INFORMATION

Dimensions l [mm]	Clamp length [mm]	Location hole H7 [mm]	 [g]	Art. No.
31	77	28	433	23370.0031
53	77	28	462	23370.0053
83	77	28	577	23370.0083

APPLICATION EXAMPLE



TOGGLE CLAMPS

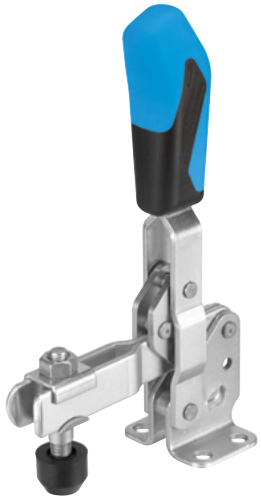
FULL CLAMPING FORCE, EXTRA EASY

CLAMP PARTS SECURELY AND WITH NO EFFORT.

Short set-up times are paramount for an economical production process. Even a minor cog in the production machinery - like a clamping system - can increase cost significantly. Aside from precise and secure clamping of the workpieces, the toggle clamps engineered by Erwin Halder KG afford the user superior ease of use and let them exchange the parts they need to process with unsurpassed speed and ease. The Halder toggle clamp sets itself apart further by its ergonomic handle combined with the sturdy and long-lasting design and a safety clamping piece.

Vertical Toggle Clamps • with horizontal base

EH 23330.



PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action the toggle clamps are versatile applicable for a wide rang of uses.
These toggle clamps can be used in the metal working industry when drilling, welding, bending, grinding, testing and fitting as well as in the wood and plastic industry in glueing, drilling, cutting and milling jigs.
The "toggle" principle of the toggle clamp allows a large and quick opening of the clamp. If unclamped, the workpieces are completely cleared for unimpeded removal. The large power transmission results maximum clamping force by low hand force. The clamps are self-arresting they remain locked, resisting the force produced when machining components.
The toggle clamps are manufactured from high quality components and are designed for continuous use.
An oil resistant ergonomic 2-component handle, with increased grip area with soft surface for high ease of use.
The quickly adjustable clamping screws are provided by a retainer.

Material

Clamp
- Steel, zinc-plated by galvanization, passivated
- Stainless steel

Rivet
- Stainless steel
- Steel

Handle
- Plastic

Clamping screw
- Steel, tempered, zinc-plated by galvanization
- stainless steel

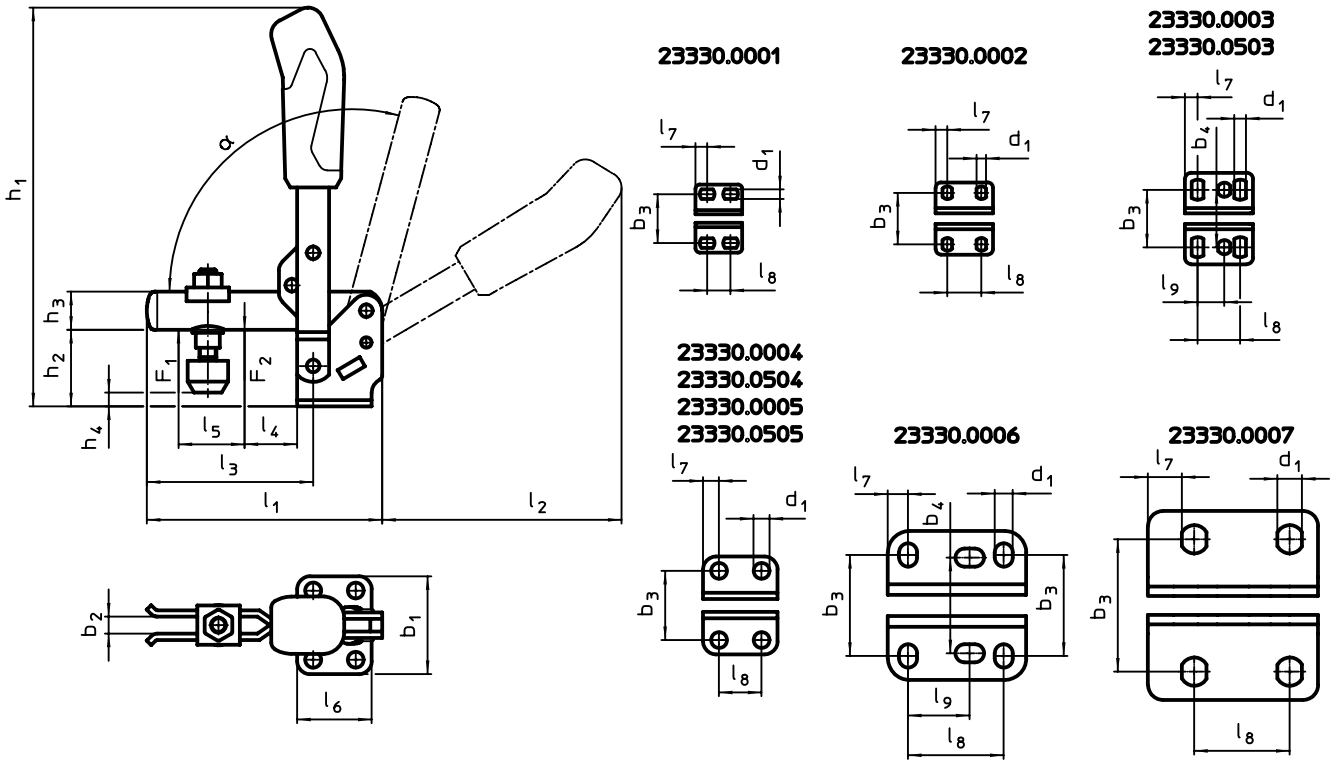
Clamping cap
- Rubber, black

MORE INFORMATION

References

Replacement clamping screws are available as accessories in the online shop.

DRAWING

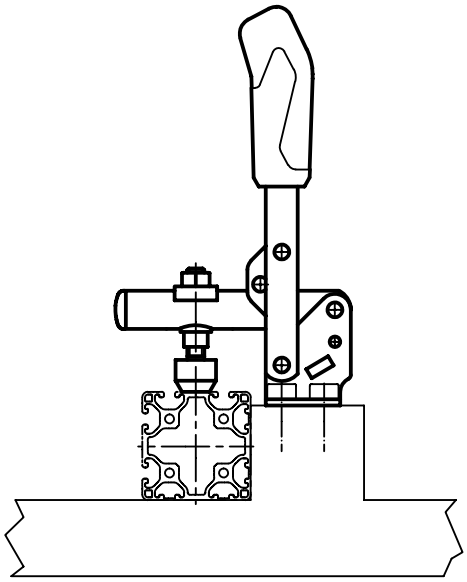


ORDER INFORMATION

Nominal size	Dimensions																			Holding force		α				Art. No.
	Clamping screw	d_1	b_1	b_2	b_3	b_4	h_1	h_2	h_3	h_4 min.	h_4 max.	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	F_1	F_2		min.	max.		
	[mm]																				[kN]			[°C]		[g]	
steel																											
1	M 4 x 25	4,5	32	4	23,0	–	81,0	18,0	8	-1,5	3,5	49	50	31,0	5,5	14	22	5,5	8,5 – 13,5	–	0,5	0,7	95°	-10	80	65	23330.0001
2	M 5 x 30	4,5	34	5	22,5 – 26,0	–	98,5	19,0	10	-4,0	2,0	61	59	39,0	6,0	18	27	5,5	16,0	–	0,6	1,1	95°	-10	80	114	23330.0002
3	M 6 x 35	5,5	43	6	23,0 – 31,0	27	129,5	23,0	12	-3,0	4,5	78	80	52,0	11,0	25	32	6,0	20,0	12,5	0,8	1,2	105°[1)]	-10	80	192	23330.0003
4	M 8 x 45	7,5	46	8	32,5	–	186,0	33,0	18	2,0	11,0	112	112	79,0	19,0	37	35	7,5	20,0	–	1,2	2,5	105°[1)]	-10	80	410	23330.0004
5	M 8 x 65	8,6	64	10	43,5 – 46,5	–	221,0	42,5	20	-6,0	22,5	141	130	101,0	16,0	54	53	13,0	32,0	–	1,7	3,0	105°[1)]	-10	80	687	23330.0005
6	M12 x 80	8,5	70	14	45,0 – 50,0	45	281,0	55,8	25	-3,0	27,5	195	185	140,0	34,0	73	65	9,5	45,0	26,5 – 31,5	3,0	5,0	115°[1)]	-10	80	1492	23330.0006
7	M12 x 110	13,0	100	14	37,5 – 72,5	–	333,0	81,0	30	-2,5	55,0	231	206	165,5	28,0	89	90	24,5	50,5	–	3,4	5,5	140°[1)]	-10	80	2421	23330.0007
stainless steel																											
3	M 6 x 35	5,5	43	6	23,0 – 31,0	27	139,5	23,0	12	-3,0	4,5	78	89	52,0	11,0	25	32	6,0	20,0	12,5	0,8	1,2	105°[1)]	-10	80	195	23330.0503
4	M 8 x 45	7,5	46	8	32,5	–	186,0	33,0	18	2,0	11,0	112	112	79,0	19,0	37	35	7,5	20,0	–	1,2	2,5	105°[1)]	-10	80	430	23330.0504
5	M 8 x 65	8,6	64	10	43,5 – 46,5	–	221,0	42,5	20	-6,0	22,5	141	130	101,0	16,0	54	53	13,0	32,0	–	1,7	3,0	105°[1)]	-10	80	697	23330.0505

[1)] The opening angle of the handle can be changed to 60° by pressing in a stop pin.

APPLICATION EXAMPLE



3

Vertical Toggle Clamps • with vertical base

EH 23330.

PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action the toggle clamps are versatile applicable for a wide rang of uses.
These toggle clamps can be used in the metal working industry when drilling, welding, bending, grinding, testing and fitting as well as in the wood and plastic industry in glueing, drilling, cutting and milling jigs.
The "toggle" principle of the toggle clamp allows a large and quick opening of the clamp. If unclamped, the workpieces are completely cleared for unimpeded removal. The large power transmission results maximum clamping force by low hand force. The clamps are self-arresting they remain locked, resisting the force produced when machining components.
The toggle clamps are manufactured from high quality components and are designed for continuous use.
A oil resistant ergonomic 2-component handle, with increased grip area with soft surface for high ease of use.
The quickly adjustable clamping screws are provided by a retainer.

Material

Clamp
- Steel, zinc-plated by galvanization, passivated

Rivet
- Stainless steel

Handle
- Plastic

Clamping screw
- Steel, tempered, zinc-plated by galvanization

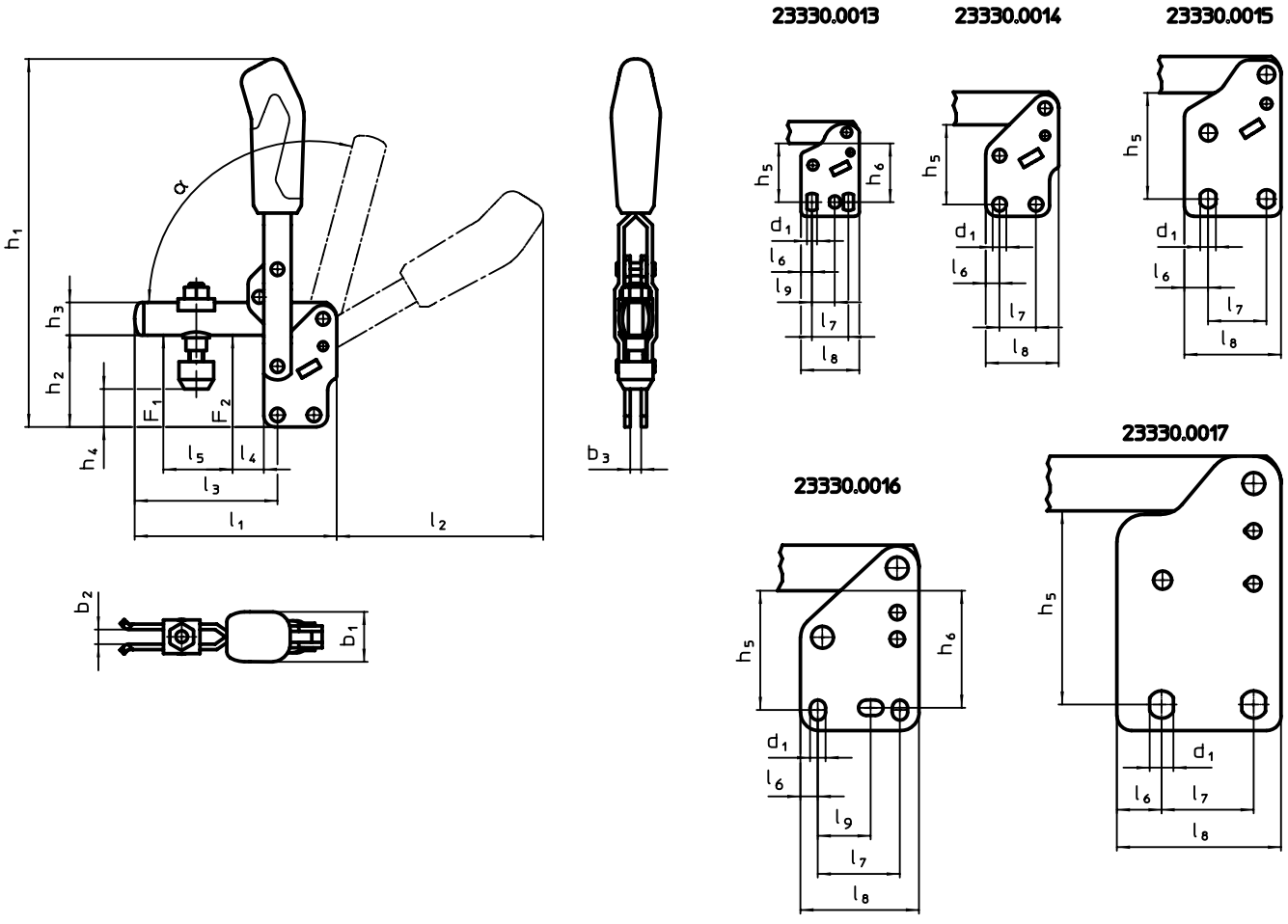
Clamping cap
- Rubber, black

MORE INFORMATION

References

Replacement clamping screws are available as accessories in the online shop.

DRAWING



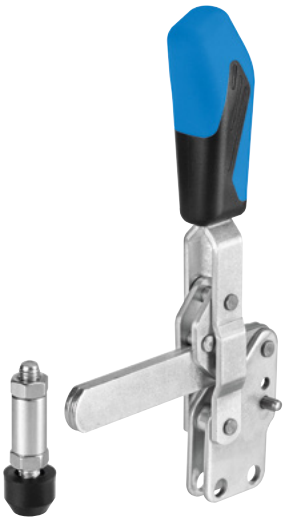
ORDER INFORMATION

Nominal size	Dimensions																				Holding force		α				Art. No.
	d_1	Clamping screw	b_1	b_2	b_3	h_1	h_2	h_3	h_4 min.	h_4 max.	h_5	h_6	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	F_1	F_2		min.	max.		
	[mm]																				[kN]			[°C]		[g]	
3	5,5	M 6 x 35	21	6	5	144,5	38	12	11,5	19,5	28,5 – 32	30	78	80	52	11	25	6,0	20,0	32	0,8	1,2	60°	-10	80	197	23330.0013
4	7,5	M 8 x 45	27	8	6	200,0	48	18	16,5	25,0	41,0	–	112	114	79	19	36	7,5	20,0	40	1,2	2,5	60°	-10	80	417	23330.0014
5	8,6	M 8 x 65	35	10	8	244,0	65	20	16,5	45,5	55,5	–	141	130	101	16	54	13,0	32,0	53	1,7	3,0	60°	-10	80	689	23330.0015
6	8,5	M12 x 80	45	14	10	301,0	77	25	18,0	49,0	66,0	64	195	183	140	35	72	9,5	45,0	65	3,0	5,0	60°	-10	80	1511	23330.0016
7	13,0	M12 x 110	45	14	10	369,0	117	30	33,0	90,5	102,0	–	231	206	165	28	89	24,5	50,5	90	3,4	5,5	60°	-10	80	2420	23330.0017

3

Vertical Toggle Clamps • with vertical base and solid support arm

EH 23330.



PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action the toggle clamps are versatile applicable for a wide rang of uses.
These toggle clamps can be used in the metal working industry when drilling, welding, bending, grinding, testing and fitting as well as in the wood and plastic industry in glueing, drilling, cutting and milling jigs.
The "toggle" principle of the toggle clamp allows a large and quick opening of the clamp. If unclamped, the workpieces are completely cleared for unimpeded removal. The large power transmission results maximum clamping force by low hand force. The clamps are self-arresting they remain locked, resisting the force produced when machining components.
The toggle clamps are manufactured from high quality components and are designed for maintenance-free continuous use.
An oil resistant ergonomic 2-component handle, with slip-proof, soft surface and large grip area for high ease of use.

Material

Clamp
- Steel, zinc-plated by galvanization, passivated

Rivet
- Stainless steel

Handle
- Plastic

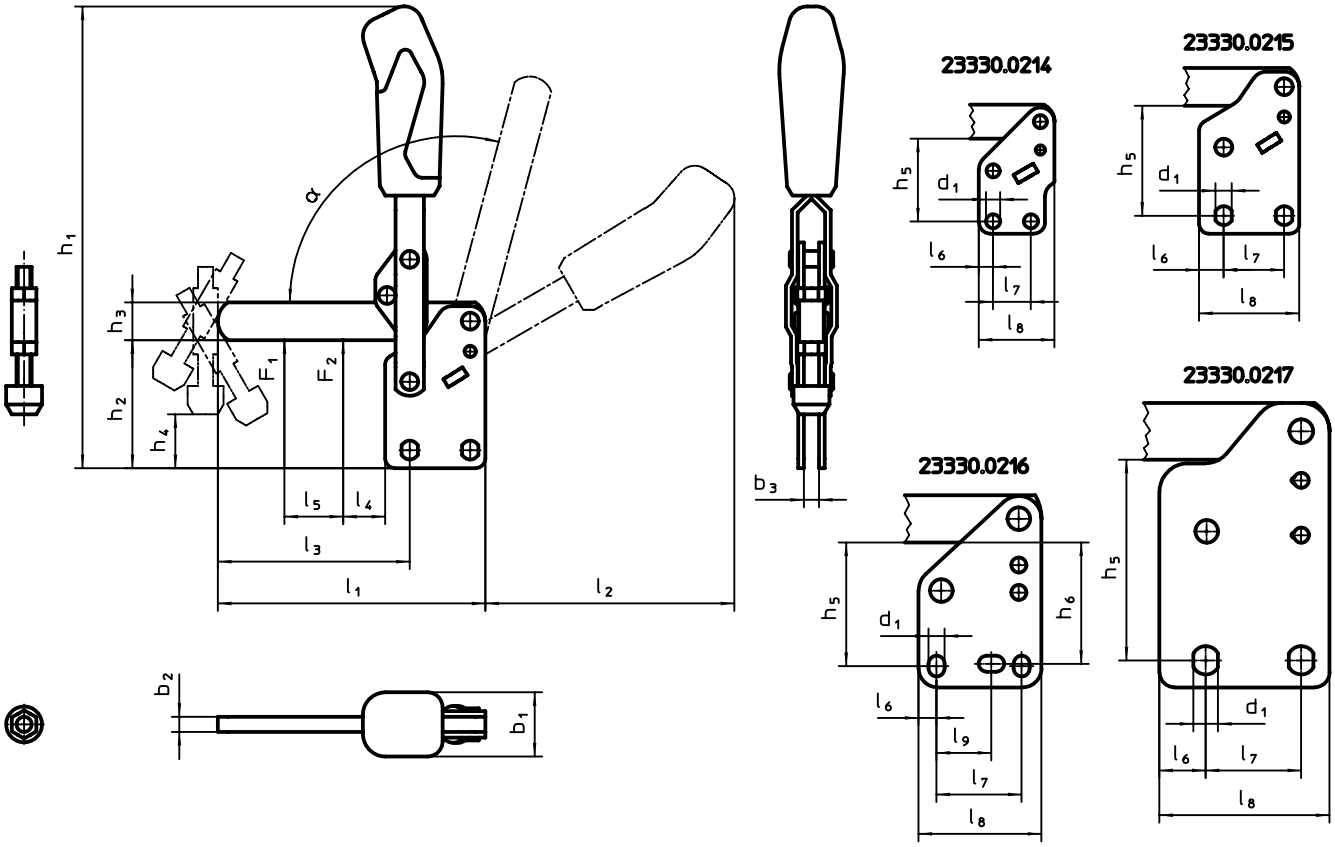
Clamping screw
- Steel, tempered, zinc-plated by galvanization

Clamping cap
- Rubber, black

Assembly

The clamping screw must be welded to the support arm in the desired position.

DRAWING



ORDER INFORMATION

Nominal size	Dimensions																					Holding force		α				Art. No.
	d_1	d_2	b_1	b_2	b_3	h_1	h_2	h_3	h_4 min.	h_4 max.	h_5	h_6	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	F_1	F_2		min.	max.		
	[mm]																					[kN]			[°C]		[g]	
4	7,5	M 8 x 45	27	6	6	200	48	18	14,5	26,0	41,0	–	108,5	116,0	81,0	19,5	43	7,5	20,0	35	–	1,4	2,5	105°	-10	80	426	23330.0214
5	8,6	M 8 x 65	34	8	8	244	65	20	13,0	44,0	55,5	–	141,5	129,5	101,0	17,0	61	13,0	32,0	53	–	2,0	3,0	105°	-10	80	679	23330.0215
6	8,5	M12 x 80	36	10	10	302	77	25	15,0	47,0	66,0	64	196,5	184,0	141,0	30,5	88	9,5	45,0	65	16,5 – 31,5	3,0	5,0	115°	-10	80	1506	23330.0216
7	13,0	M12 x 110	39	10	10	369	117	30	28,5	86,5	102,0	–	232,0	206,0	165,5	20,5	90	24,5	50,5	90	–	3,5	5,5	140°	-10	80	2408	23330.0217

3

Vertical Toggle Clamps • with vertical base and safety lock

EH 23330.

PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action the toggle clamps are versatile applicable for a wide rang of uses.
These toggle clamps can be used in the metal working industry when drilling, welding, bending, grinding, testing and fitting as well as in the wood and plastic industry in glueing, drilling, cutting and milling jigs.
The "toggle" principle of the toggle clamp allows a large and quick opening of the clamp. If unclamped, the workpieces are completely cleared for unimpeded removal. The large power transmission results maximum clamping force by low hand force. The clamps are self-arresting they remain locked, resisting the force produced when machining components.
The toggle clamps are manufactured from high quality components and are designed for continuous use.
An oil resistant ergonomic 2-component handle, with increased grip area with soft surface for high ease of use.
The quickly adjustable clamping screws are provided by a retainer.

Material

Clamp
- Steel, zinc-plated by galvanization, passivated

Rivet
- Stainless steel

Handle
- Plastic

Clamping screw
- Steel, tempered, zinc-plated by galvanization

Clamping cap
- Rubber, black

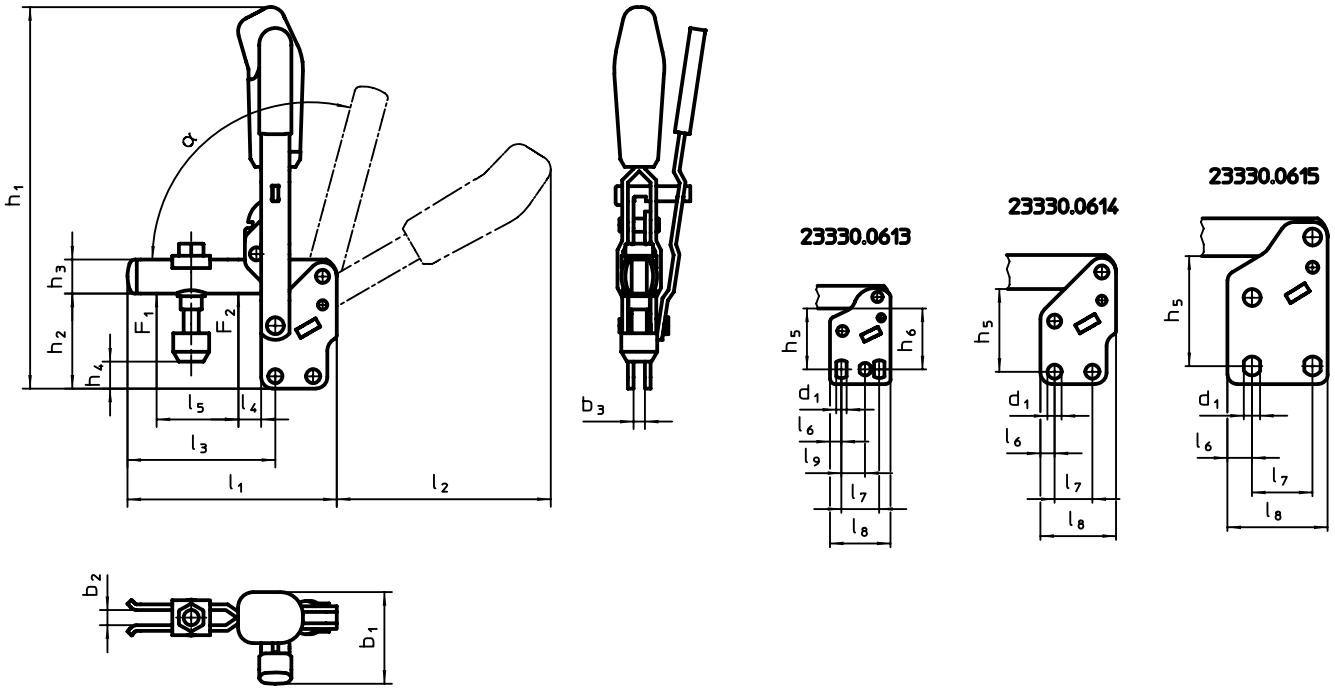
Plastic cap
- PVC, black

MORE INFORMATION

References

Replacement clamping screws are available as accessories in the online shop.

DRAWING

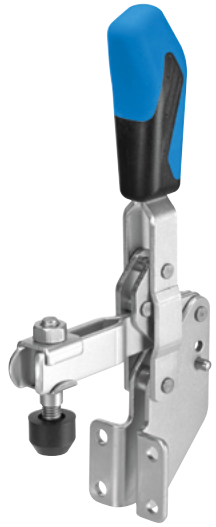


ORDER INFORMATION

Nominal size	Dimensions																					Holding force		α	Temperature		Weight	Art. No.
	d_1	d_2	b_1	b_2	b_3	h_1	h_2	h_3	h_4 min.	h_4 max.	h_5	h_6	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	F_1	F_2		min.	max.		
	[mm]																					[kN]			[°C]		[g]	
3	5,5	M6 x 35	38	6	5	154	38	12	11,5	19,5	28,5 – 32	30	78	89	52	11	25	6,0	20	32	12,5	1,0	1,2	95°	-10	80	237	23330.0613
4	7,5	M8 x 45	48	8	6	200	48	18	10,0	18,5	41,0	–	111	114	79	19	37	7,5	20	40	–	1,4	2,5	105°	-10	80	484	23330.0614
5	8,6	M8 x 65	53	10	8	244	65	20	16,5	45,5	55,5	–	141	130	101	16	54	13,0	32	53	–	2,0	3,0	105°	-10	80	776	23330.0615

Vertical Toggle Clamps • with angle base

EH 23330.



PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action the toggle clamps are versatile applicable for a wide rang of uses.
These toggle clamps can be used in the metal working industry when drilling, welding, bending, grinding, testing and fitting as well as in the wood and plastic industry in glueing, drilling, cutting and milling jigs.
The "toggle" principle of the toggle clamp allows a large and quick opening of the clamp. If unclamped, the workpieces are completely cleared for unimpeded removal. The large power transmission results maximum clamping force by low hand force. The clamps are self-arresting they remain locked, resisting the force produced when machining components.
The toggle clamps are manufactured from high quality components and are designed for continuous use.
An oil resistant ergonomic 2-component handle, with increased grip area with soft surface for high ease of use.
The quickly adjustable clamping screws are provided by a retainer.

Material

Clamp
- Steel, zinc-plated by galvanization, passivated

Rivet
- Stainless steel

Handle
- Plastic

Clamping screw
- Steel, tempered, zinc-plated by galvanization

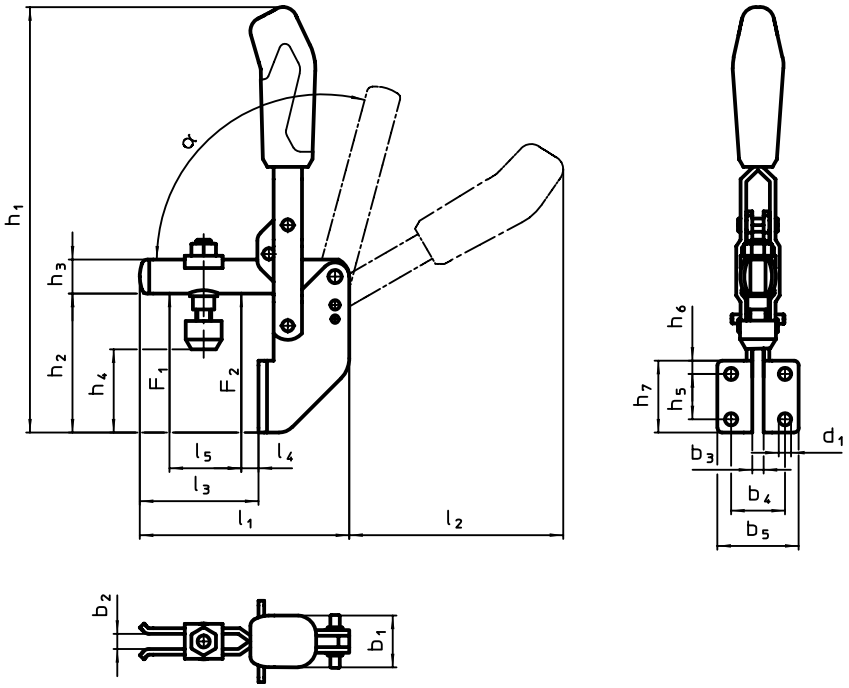
Clamping cap
- Rubber, black

MORE INFORMATION

References

Replacement clamping screws are available as accessories in the online shop.

DRAWING



ORDER INFORMATION

Nominal size	Dimensions [mm]																					Holding force [kN]		α	Temperature [°C]		Weight [g]	Art. No.
	d_1	Clamping screw	b_1	b_2	b_3	b_4	b_5	h_1	h_2	h_3	h_4 min.	h_4 max.	h_5	h_6	h_7	l_1	l_2	l_3	l_4	l_5	F_1	F_2		min.	max.		
3	6,1	M6 x 35	21	6	5	25,5	37,0	167	60	12	7,5	15,5	20	6	32	77	81	41	6	25	1,0	1,2	60°	-10	80	231	23330.0023
4	6,5	M8 x 45	27	8	6	28,5	42,5	223	71	18	9,0	17,5	24	7	38	111	112	63	11	37	1,4	2,5	60°	-10	80	483	23330.0024
5	8,5	M8 x 65	35	10	8	32,0	52,0	280	102	20	11,0	40,0	32	54	96	141	129	84	11	54	2,0	3,0	60°	-10	80	802	23330.0025

Vertical Toggle Clamps • with angle base and safety lock

EH 23330.

PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action the toggle clamps are versatile applicable for a wide rang of uses.
These toggle clamps can be used in the metal working industry when drilling, welding, bending, grinding, testing and fitting as well as in the wood and plastic industry in glueing, drilling, cutting and milling jigs.
The "toggle" principle of the toggle clamp allows a large and quick opening of the clamp. If unclamped, the workpieces are completely cleared for unimpeded removal. The large power transmission results maximum clamping force by low hand force. The clamps are self-arresting they remain locked, resisting the force produced when machining components.
The toggle clamps are manufactured from high quality components and are designed for continuous use.
An oil resistant ergonomic 2-component handle, with increased grip area with soft surface for high ease of use.
The quickly adjustable clamping screws are provided by a retainer.

Material

Clamp
- Steel, zinc-plated by galvanization, passivated

Rivet
- Stainless steel

Handle
- Plastic

Clamping screw
- Steel, tempered, zinc-plated by galvanization

Clamping cap
- Rubber, black

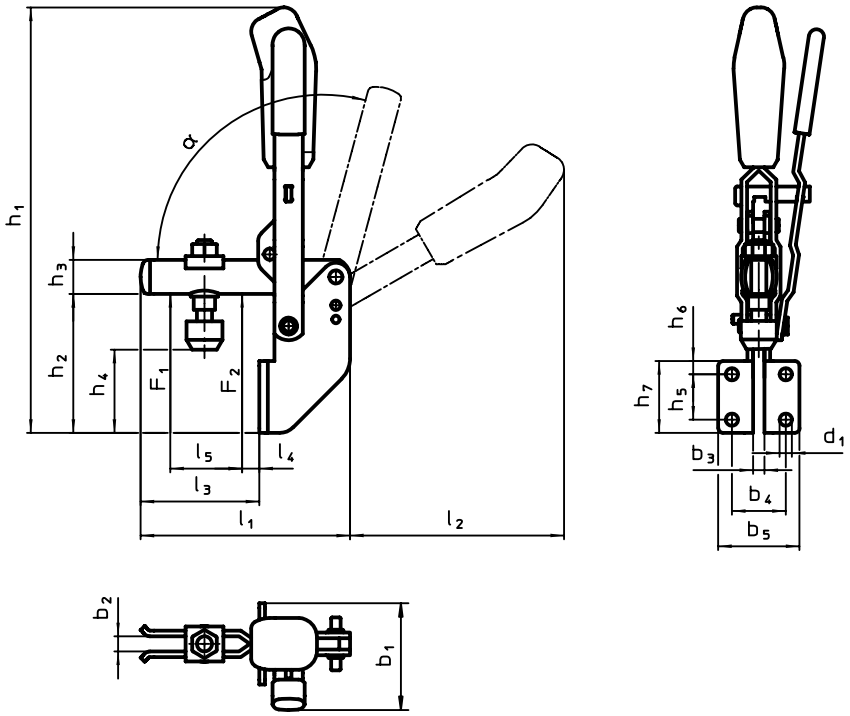
Plastic cap
- PVC, black

MORE INFORMATION

References

Replacement clamping screws are available as accessories in the online shop.

DRAWING



ORDER INFORMATION

Nominal size	Dimensions																				Holding force		α			Art. No.
	d_1	d_2	b_1	b_2	b_3	b_4	b_5	h_1	h_2	h_3	h_4 min.	h_4 max.	h_5	h_6	h_7	l_1	l_2	l_3	l_4	l_5	F_1	F_2		min.	max.		
	[mm]																				[kN]			[°C]		[g]	
3	5,5	M6 x 35	22	6	5	25,5	38	180	61	12	2	11	20	6	32	7	63	40	9	25	1,0	1,2	105°	-10	80	272	23330.0623
4	6,5	M8 x 45	29	8	6	28,5	43	243	71	18	6	18	24	7	38	112	111	65	11	43	1,4	2,5	105°	-10	80	551	23330.0624
5	8,5	M8 x 65	31	10	8	32,0	52	280	102	20	11	40	32	54	96	140	129	84	17	50	2,0	3,0	105°	-10	80	885	23330.0625

Vertical Toggle Clamps • with horizontal base and solid support arm

EH 23330.

PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action the toggle clamps are versatile applicable for a wide rang of uses.
These toggle clamps can be used in the metal working industry when drilling, welding, bending, grinding, testing and fitting as well as in the wood and plastic industry in glueing, drilling, cutting and milling jigs.
The "toggle" principle of the toggle clamp allows a large and quick opening of the clamp. If unclamped, the workpieces are completely cleared for unimpeded removal. The large power transmission results maximum clamping force by low hand force. The clamps are self-arresting they remain locked, resisting the force produced when machining components.
The toggle clamps are manufactured from high quality components and are designed for maintenance-free continuous use.
An oil resistant ergonomic 2-component handle, with slip-proof, soft surface and large grip area for high ease of use.

Material

Clamp
- Steel, zinc-plated by galvanization, passivated

Rivet
- Stainless steel

Handle
- Plastic

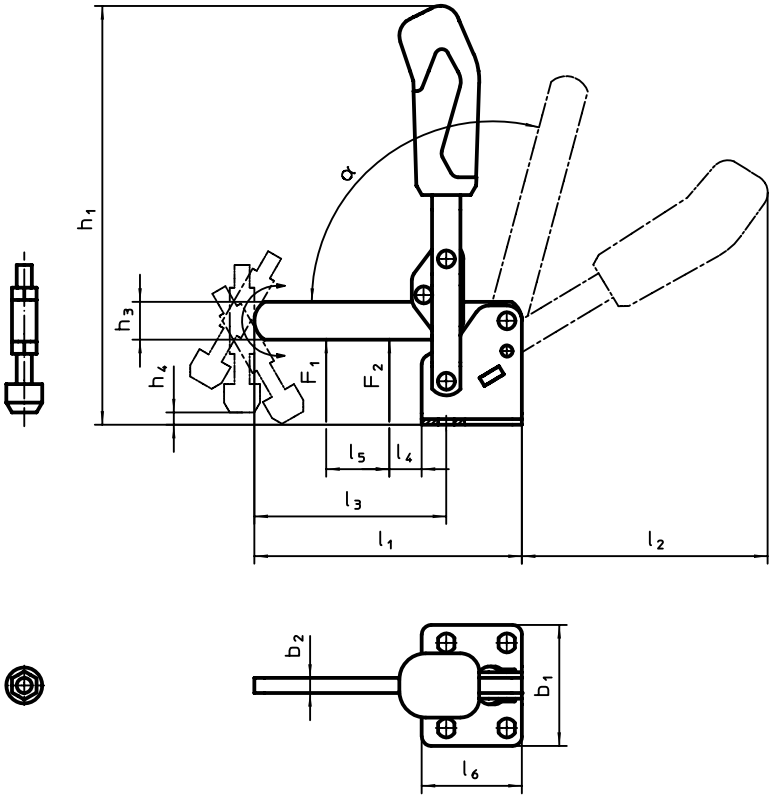
Clamping screw
- Steel, tempered, zinc-plated by galvanization

Clamping cap
- Rubber, black

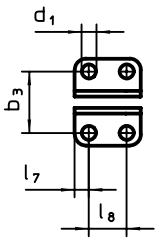
Assembly

The clamping screw must be welded to the support arm in the desired position.

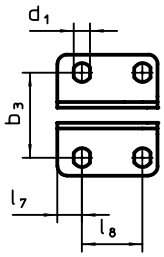
DRAWING



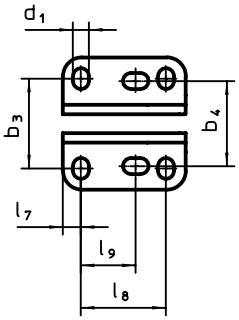
23330.0204



23330.0205
23330.0207



23330.0206



ORDER INFORMATION

Nominal size	Dimensions																			Holding force		α	Temperature		Weight	Art. No.
	d_1	Clamping screw	b_1	b_2	b_4	h_1	h_2	h_3	h_4 min.	h_4 max.	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	F_1	F_2		min.	max.		
	[mm]																			[kN]			[°C]		[g]	
4	7,5	M 8 x 45	46	6	–	186	33,5	18	0	12,0	108,5	116,5	81,0	19,5	43	35	7,5	20,0	–	1,4	2,5	105°	-10	80	426	23330.0204
5	8,6	M 8 x 65	64	8	–	221	42,5	20	-8	21,0	141,5	129,5	101,0	17,0	61	53	13,0	32,0	–	2,0	3,0	105°	-10	80	686	23330.0205
6	8,5	M12 x 80	70	10	45	281	55,5	25	-6	25,5	196,5	184,0	141,0	30,5	88	65	9,5	45,0	45	3,0	5,0	105°	-10	80	1503	23330.0206
7	13,0	M12 x 110	100	10	–	331	81,0	30	-5	51,0	232,0	206,0	166,5	20,5	90	90	24,5	50,5	–	3,5	5,5	105°	-10	80	2420	23330.0207

Vertical Toggle Clamps • with horizontal base and safety lock

EH 23330.

PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action the toggle clamps are versatile applicable for a wide rang of uses.
These toggle clamps can be used in the metal working industry when drilling, welding, bending, grinding, testing and fitting as well as in the wood and plastic industry in glueing, drilling, cutting and milling jigs.
The "toggle" principle of the toggle clamp allows a large and quick opening of the clamp. If unclamped, the workpieces are completely cleared for unimpeded removal. The large power transmission results maximum clamping force by low hand force. The clamps are self-arresting they remain locked, resisting the force produced when machining components.
The toggle clamps are manufactured from high quality components and are designed for continuous use.
An oil resistant ergonomic 2-component handle, with increased grip area with soft surface for high ease of use.
The quickly adjustable clamping screws are provided by a retainer.

Material

Clamp
- Steel, zinc-plated by galvanization, passivated

Rivet
- Stainless steel

Handle
- Plastic

Clamping screw
- Steel, tempered, zinc-plated by galvanization

Clamping cap
- Rubber, black

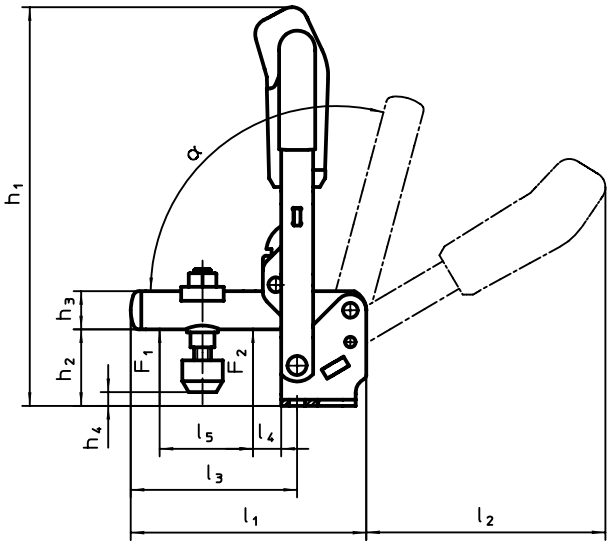
Plastic cap
- PVC, black

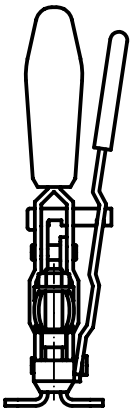
MORE INFORMATION

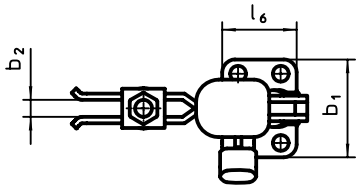
References

Replacement clamping screws are available as accessories in the online shop.

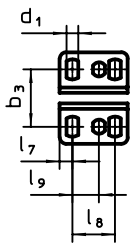
DRAWING



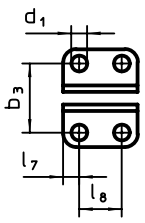




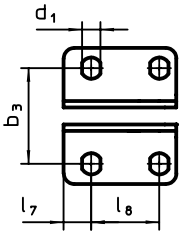
23330.0603



23330.0604



23330.0605

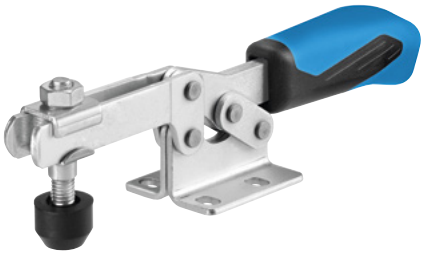


ORDER INFORMATION

Nominal size	Dimensions																			Holding force		α				Art. No.
	d_1	d_2	b_1	b_2	b_3	h_1	h_2	h_3	h_4 min.	h_4 max.	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	F_1	F_2		min.	max.		
	[mm]																			[kN]			[°C]		[g]	
3	5,5	M6 x 35	43	6	23,0 – 31	139,5	23,0	12	-3	4,5	78	89	52	11	25	32	6,0	20	12,5	1,0	1,2	105°	-10	80	238	23330.0603
4	7,5	M8 x 45	46	8	32,5	186,0	33,0	18	2	11,0	112	112	79	19	36	35	7,5	20	–	1,4	2,5	105°	-10	80	484	23330.0604
5	8,6	M8 x 65	64	10	45,0	221,0	42,5	20	-6	22,5	141	130	101	16	54	53	13,0	32	–	2,0	3,0	105°	-10	80	775	23330.0605

Horizontal Toggle Clamps • with horizontal base

EH 23330.



PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action the toggle clamps are versatile applicable for a wide rang of uses.
These toggle clamps can be used in the metal working industry when drilling, welding, bending, grinding, testing and fitting as well as in the wood and plastic industry in glueing, drilling, cutting and milling jigs.
The "toggle" principle of the toggle clamp allows a large and quick opening of the clamp. If unclamped, the workpieces are completely cleared for unimpeded removal. The large power transmission results maximum clamping force by low hand force. The clamps are self-arresting they remain locked, resisting the force produced when machining components.
The toggle clamps are manufactured from high quality components and are designed for continuous use.
An oil resistant ergonomic 2-component handle, with increased grip area with soft surface for high ease of use.
The quickly adjustable clamping screws are provided by a retainer.

Material

Clamp
- Steel, zinc-plated by galvanization, passivated
- Stainless steel

Rivet
- Stainless steel
- Steel

Handle
- Plastic

Clamping screw
- Steel, tempered, zinc-plated by galvanization
- stainless steel

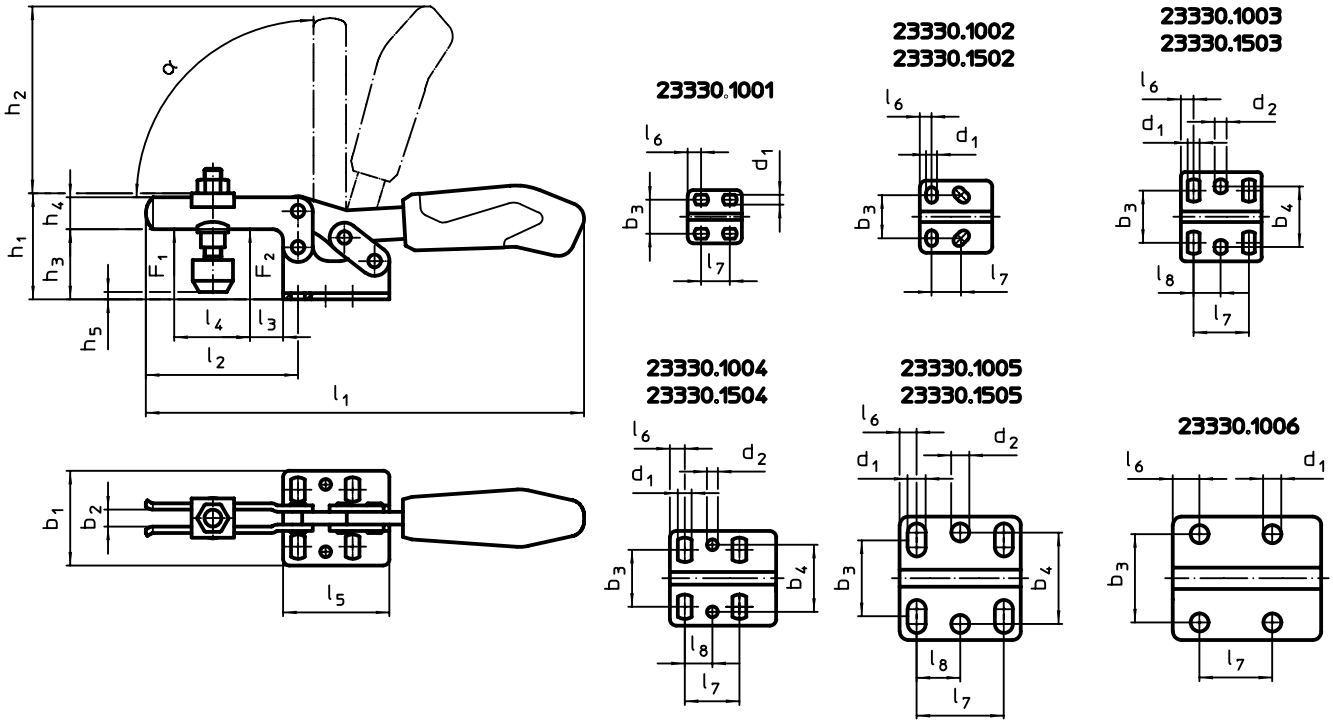
Clamping cap
- Rubber, black

MORE INFORMATION

References

Replacement clamping screws are available as accessories in the online shop.

DRAWING



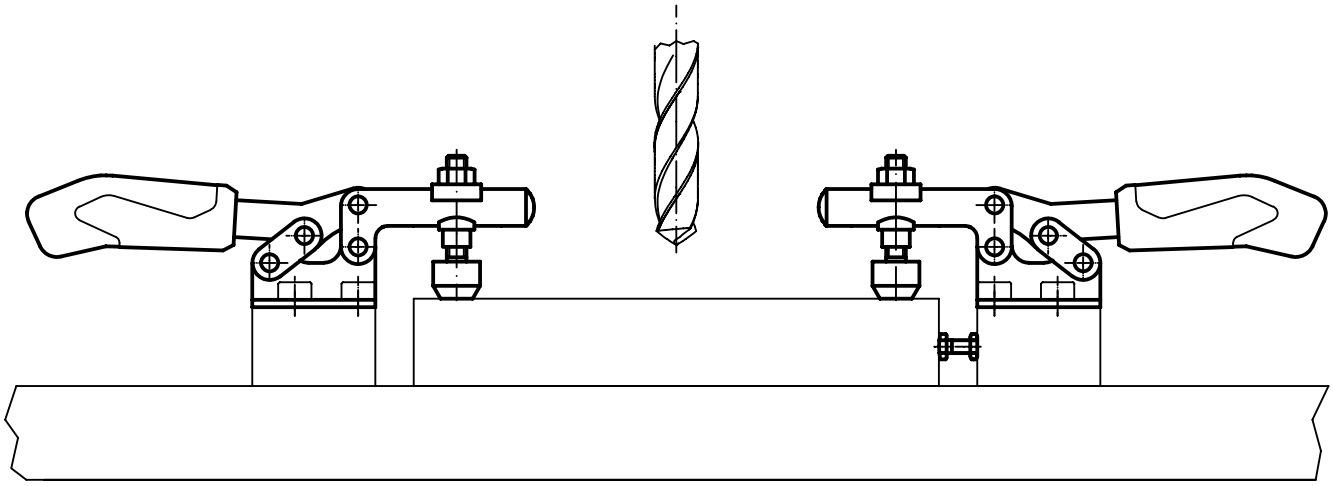
ORDER INFORMATION

Nominal size	Clamping screw	Dimensions [mm]																				Holding force [kN]		α	Temperature [°C]		Weight [g]	Art. No.
		d_1	d_2	b_1	b_2	b_3	b_4	h_1	h_2	h_3	h_4	h_5 min.	h_5 max.	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	F_1	F_2		min.	max.		
steel																												
1	M 4 x 25	4,6	–	25,0	4	16,0	–	23,0	34	14,5	7,5	-5,5	0,0	79	28	5,5	9,0	25,5	6,3	11,5 – 15,5	–	0,25	0,4	90°	-10	80	38	23330.1001
2	M 5 x 30	5,2	–	34,0	5	18,0 – 21,5	–	30,0	49	19,0	10,0	-3,0	2,5	120	42	8,0	18,7	34,0	5,5	13,0 – 14,5	–	0,80	1,1	90°	-10	80	110	23330.1002
3	M 6 x 35	5,6	5,6	42,0	6	19,5 – 29,5	28,5	45,0	68	24,0	13,2	-1,5	5,0	162	64	16,0	32,0	38,0	6,0	26,0	12,7	1,00	1,2	90°	-10	80	190	23330.1003
4	M 8 x 45	6,5	5,1	45,5	8	22,0 – 31,8	31,6	48,5	86	32,0	15,0	-2,0	9,0	206	73	14,0	38,0	50,0	7,0	25,7	13,0	1,80	2,5	90°	-10	80	337	23330.1004
5	M 8 x 65	8,5	8,5	58,0	10	29,0 – 43,0	43,0	75,0	126	45,0	20,0	-4,0	24,0	287	113	27,0	63,0	57,0	8,0	41,0	20,5	2,00	3,0	90°	-10	80	726	23330.1005
6	M12 x 80	8,5	–	58,0	10	41,5	–	73,0	128	46,0	25,0	1,7	25,0	321	123	16,0	78,0	77,0	12,5	41,5	–	3,00	5,0	90°	-10	80	1112	23330.1006

→

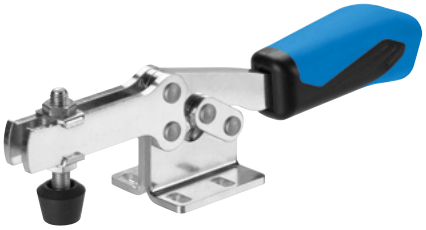
Nominal size	Clamping screw	Dimensions [mm]																				Holding force [kN]		α	[°C]		[g]	Art. No.
		d_1	d_2	b_1	b_2	b_3	b_4	h_1	h_2	h_3	h_4	h_5 min.	h_5 max.	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	F_1	F_2		min.	max.		
stainless steel																												
2	M 5 x 30	5,2	–	34,0	5	18,0 – 21,5	–	30,0	49	19,0	10,0	-3,0	2,5	120	42	8,0	18,7	34,0	5,5	13,0 – 14,5	–	0,80	1,1	90°	-10	80	113	23330.1502
3	M 6 x 35	5,6	5,6	42,0	6	19,5 – 29,5	28,5	45,0	68	24,0	13,2	-1,5	5,0	162	64	16,0	32,0	38,0	6,0	26,0	12,7	1,00	1,2	90°	-10	80	189	23330.1503
4	M 8 x 45	6,5	5,1	45,5	8	22,0 – 31,8	31,6	48,5	86	32,0	15,0	-2,0	9,0	206	73	14,0	38,0	50,0	7,0	25,7	13,0	1,80	2,5	90°	-10	80	341	23330.1504
5	M 8 x 65	8,5	8,5	58,0	10	29,0 – 43,0	43,0	75,0	126	45,0	20,0	-4,0	24,0	287	113	27,0	63,0	57,0	8,0	41,0	20,5	2,00	3,0	90°	-10	80	744	23330.1505

APPLICATION EXAMPLE



Horizontal Toggle Clamps • with horizontal base / increased holding force

EH 23330.



PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action the toggle clamps are versatile applicable for a wide rang of uses.
These toggle clamps can be used in the metal working industry when drilling, welding, bending, grinding, testing and fitting as well as in the wood and plastic industry in glueing, drilling, cutting and milling jigs.
The "toggle" principle of the toggle clamp allows a large and quick opening of the clamp. If unclamped, the workpieces are completely cleared for unimpeded removal. The large power transmission results maximum clamping force by low hand force. The clamps are self-arresting they remain locked, resisting the force produced when machining components.
The toggle clamps are manufactured from high quality components and are designed for continuous use.
An oil resistant ergonomic 2-component handle, with increased grip area with soft surface for high ease of use.
The quickly adjustable clamping screws are provided by a retainer.

Material

Clamp
- Steel, zinc-plated by galvanization, passivated

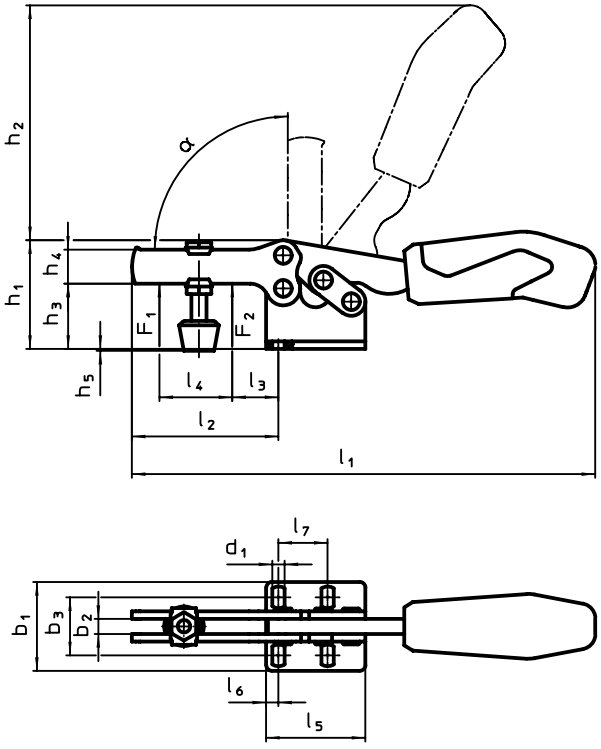
Rivet
- Stainless steel

Handle
- Plastic

Clamping screw
- Steel, tempered, zinc-plated by galvanization

Clamping cap
- Rubber, black

DRAWING

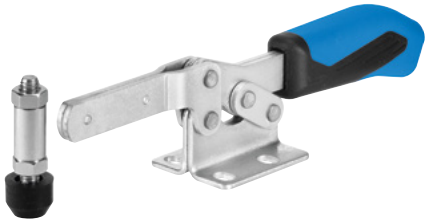


ORDER INFORMATION

Nominal size	Dimensions [mm]																		Holding force [kN]		α	Temperature [°C]		Weight [g]	Art. No.
	d_1	Clamping screw	b_1	b_2	h_1	h_2	h_3	h_4	h_5 min.	h_5 max.	l_1	l_2	l_3	l_4	l_5	l_6	l_7	F_1	F_2		min.	max.		
2	4,3	M5 x 35	27,5	5	35	46	19,0	12	0	10,0	126	46	16,5	20	34,0	6,0	13,5	1,1	1,7	90°	-10	80	136	23330.1302
4	6,5	M8 x 58	47,0	8	58	112	33,5	18	-1	13,0	242	78	22,0	43	52,5	6,5	26,0	2,5	4,0	90°	-10	80	557	23330.1304
5	8,6	–	60,0	10	77	135	41,0	24	-2	16,5	329	120	23,0	69	76,0	10,5	41,5	3,5	8,0	90°	-10	80	1261	23330.1305

Horizontal Toggle Clamps • with horizontal base and solid support arm

EH 23330.



PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action the toggle clamps are versatile applicable for a wide rang of uses.
These toggle clamps can be used in the metal working industry when drilling, welding, bending, grinding, testing and fitting as well as in the wood and plastic industry in glueing, drilling, cutting and milling jigs.
The "toggle" principle of the toggle clamp allows a large and quick opening of the clamp. If unclamped, the workpieces are completely cleared for unimpeded removal. The large power transmission results maximum clamping force by low hand force. The clamps are self-arresting they remain locked, resisting the force produced when machining components.
The toggle clamps are manufactured from high quality components and are designed for maintenance-free continuous use.
An oil resistant ergonomic 2-component handle, with slip-proof, soft surface and large grip area for high ease of use.

Material

Clamp
- Steel, zinc-plated by galvanization, passivated

Rivet
- Stainless steel

Handle
- Plastic

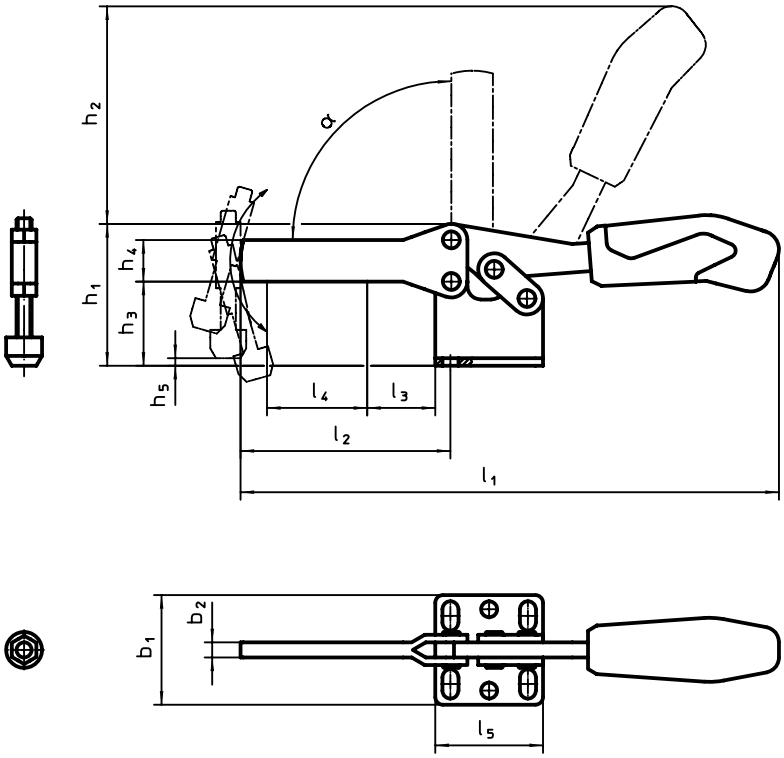
Clamping screw
- Steel, tempered, zinc-plated by galvanization

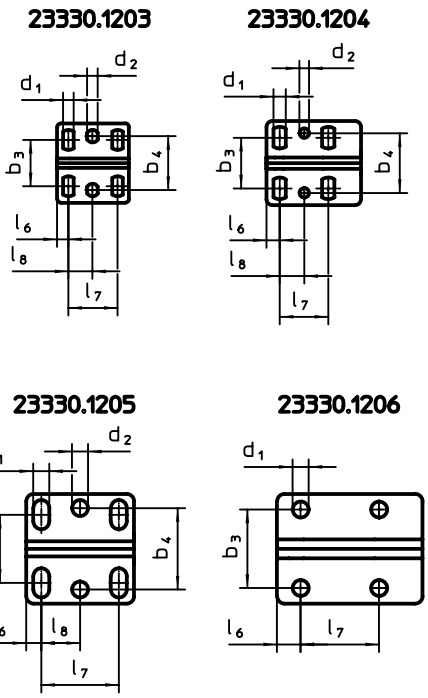
Clamping cap
- Rubber, black

Assembly

The clamping screw must be welded to the support arm in the desired position.

DRAWING



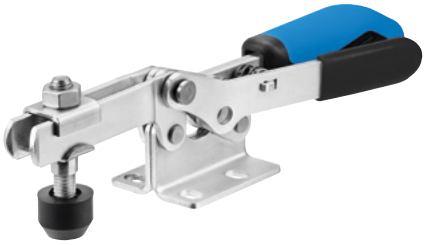


ORDER INFORMATION

Nominal size	Dimensions [mm]																						Holding force [kN]		α	[°C]		[g]	Art. No.
	d_1	d_2	d_3	b_1	b_2	b_3	b_4	h_1	h_2	h_3	h_4	h_5 min.	h_5 max.	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	F_1	F_2		min.	max.		
3	5,6	5,6	M 6 x 35	42,0	5	19,5 – 29,5	28,5	45,0	66	24	13	-2,0	7,5	161	63	24	35	38	6,0	26,0	13	1,0	1,2	90°	-10	80	196	23330.1203
4	6,5	5,1	M 8 x 45	45,5	6	22,0 – 31,8	32,0	48,5	86	32	15	-3,5	11,0	205	72	32	44	50	7,0	26,0	13	1,8	2,5	90°	-10	80	400	23330.1204
5	8,5	8,5	M 8 x 65	58,0	8	29,0 – 43,0	43,0	75,0	114	45	20	-6,0	22,0	280	111	45	66	57	8,0	41,0	21	2,0	3,0	90°	-10	80	716	23330.1205
6	8,5	–	M12 x 80	58,0	10	41,5	–	73,0	128	46	25	-13,0	12,5	320	121	46	78	77	12,5	41,5	–	3,0	5,0	90°	-10	80	1222	23330.1206

Horizontal Toggle Clamps • with horizontal base and safety lock

EH 23330.



PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action the toggle clamps are versatile applicable for a wide rang of uses.
These toggle clamps can be used in the metal working industry when drilling, welding, bending, grinding, testing and fitting as well as in the wood and plastic industry in glueing, drilling, cutting and milling jigs.
The "toggle" principle of the toggle clamp allows a large and quick opening of the clamp. If unclamped, the workpieces are completely cleared for unimpeded removal. The large power transmission results maximum clamping force by low hand force. The clamps are self-arresting they remain locked, resisting the force produced when machining components.
The toggle clamps are manufactured from high quality components and are designed for continuous use.
An oil resistant ergonomic 2-component handle, with increased grip area with soft surface for high ease of use.
The quickly adjustable clamping screws are provided by a retainer.

Material

Clamp
- Steel, zinc-plated by galvanization, passivated

Rivet
- Stainless steel

Handle
- Plastic

Clamping screw
- Steel, tempered, zinc-plated by galvanization

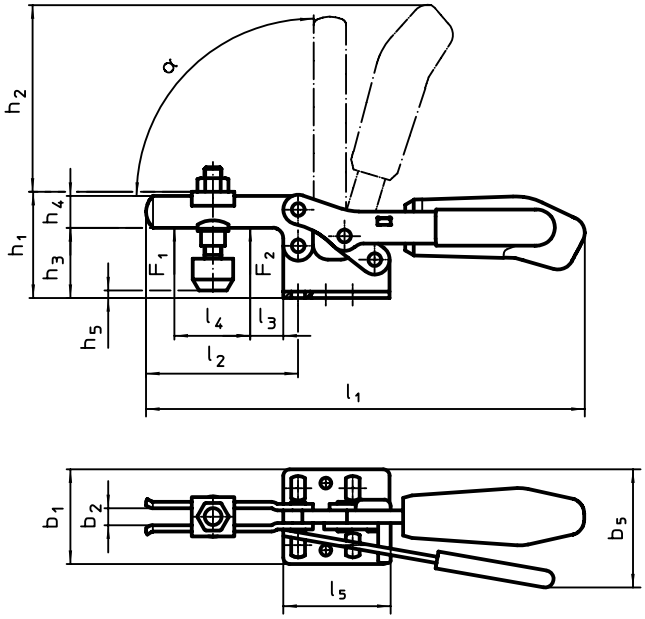
Clamping cap
- Rubber, black

Plastic cap
- PVC, black

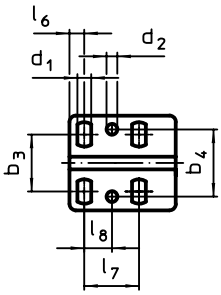
MORE INFORMATION

References
Replacement clamping screws are available as accessories in the online shop.

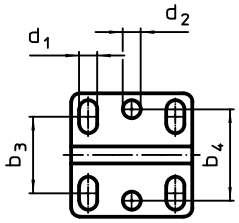
DRAWING



23330.1604



23330.1605

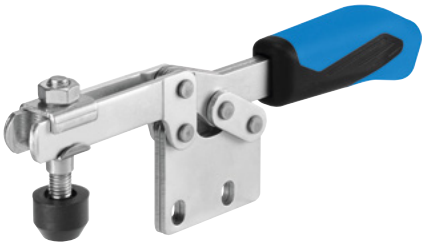


ORDER INFORMATION

Nominal size	Dimensions																			Holding force		α				Art. No.
	d_1	d_2	d_3	b_1	b_2	b_3	b_4	h_1	h_2	h_3	h_4	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	F_1	F_2		min.	max.		
	[mm]																			[kN]			[°C]		[g]	
4	6,5	5,1	M8 x 45	45,5	8	22 – 31,8	31,6	48,5	86,0	32	15	206	73	14	38	50	7	25,7	13	1,8	2,5	90°	-10	80	400	23330.1604
5	8,5	8,5	M8 x 65	58,0	10	29 – 43,0	43,0	75,0	126,5	45	20	287	113	27	63	57	8	41,0	21	2,0	3,0	90°	-10	80	833	23330.1605

Horizontal Toggle Clamps • with vertical base

EH 23330.



PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action the toggle clamps are versatile applicable for a wide rang of uses.
These toggle clamps can be used in the metal working industry when drilling, welding, bending, grinding, testing and fitting as well as in the wood and plastic industry in glueing, drilling, cutting and milling jigs.
The "toggle" principle of the toggle clamp allows a large and quick opening of the clamp. If unclamped, the workpieces are completely cleared for unimpeded removal. The large power transmission results maximum clamping force by low hand force. The clamps are self-arresting they remain locked, resisting the force produced when machining components.
The toggle clamps are manufactured from high quality components and are designed for continuous use.
An oil resistant ergonomic 2-component handle, with increased grip area with soft surface for high ease of use.
The quickly adjustable clamping screws are provided by a retainer.

Material

Clamp
- Steel, zinc-plated by galvanization, passivated

Rivet
- Stainless steel

Handle
- Plastic

Clamping screw
- Steel, tempered, zinc-plated by galvanization

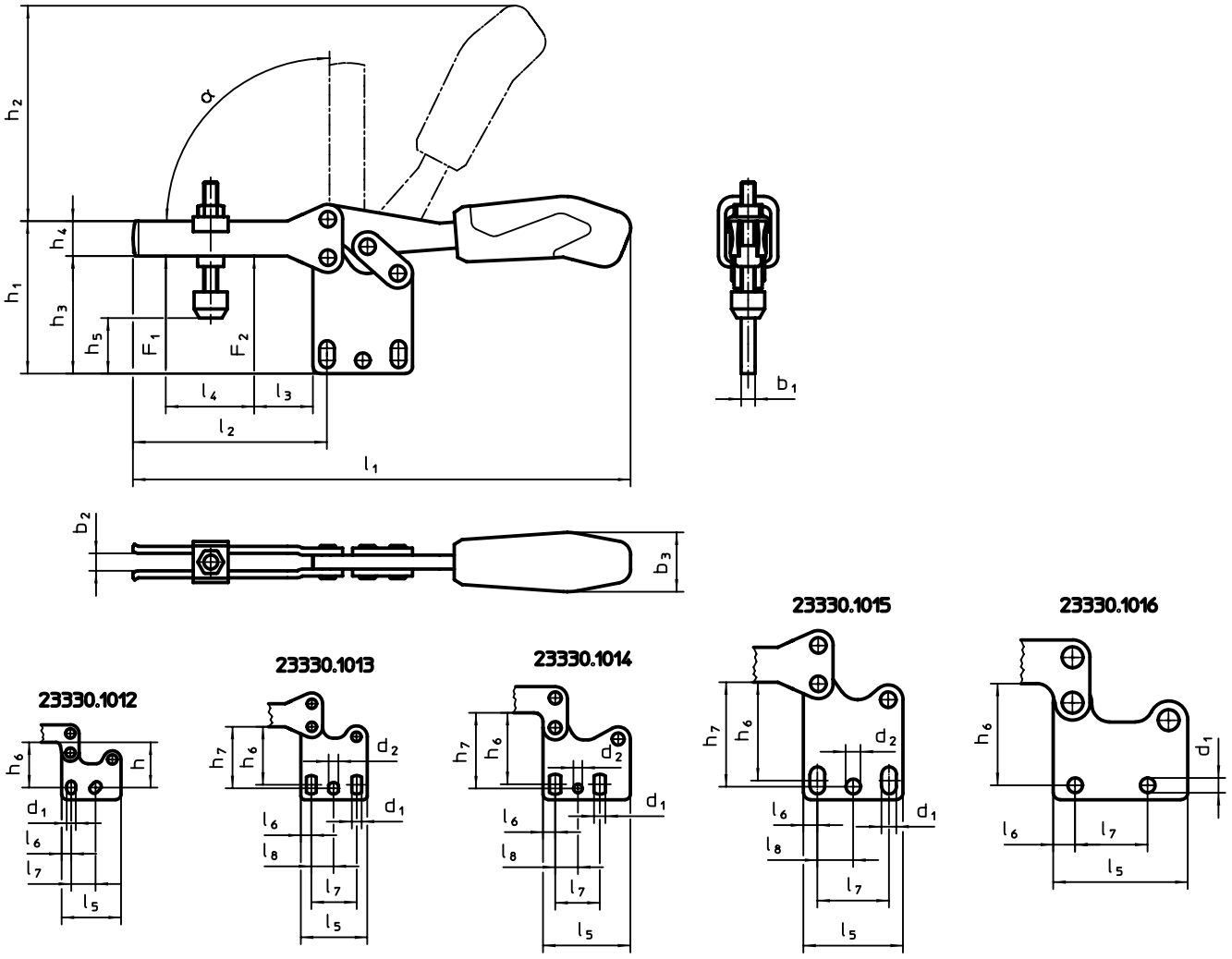
Clamping cap
- Rubber, black

MORE INFORMATION

References

Replacement clamping screws are available as accessories in the online shop.

DRAWING



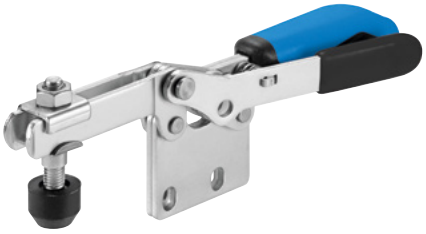
ORDER INFORMATION

Nominal size	Dimensions																				Holding force		α				Art. No.
	d_1	d_2	Clamping screw	b_1	b_2	b_3	h_1	h_2	h_3	h_4	h_5 min.	h_5 max.	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	F_1	F_2		min.	max.		
	[mm]																				[kN]			[°C]		[g]	
2	5,2	–	M5 x 30	5	5	18	43,0	49	31,5	10,0	8,0	15	120	42	8	18,5	34	5,5	13,0 – 14,5	–	0,8	1,1	90°	-10	80	112	23330.1012
3	5,6	5,6	M6 x 35	5	6	21	61,0	68	40,0	13,2	15,0	22	164	64	16	32,0	38	6,0	26,0	12,7	1,0	1,2	90°	-10	80	194	23330.1013
4	6,5	5,1	M8 x 45	6	8	27	65,0	86	49,0	5,0	14,5	26	206	73	14	38,5	50	7,0	25,7	13,0	1,8	2,5	90°	-10	80	341	23330.1014
5	8,5	8,5	M8 x 65	8	10	34	97,0	115	66,5	20,0	17,5	46	287	113	27	63,0	57	8,0	41,0	20,5	2,0	3,0	90°	-10	80	726	23330.1015
6	8,5	–	M8 x 65	10	10	35	92,5	128	65,0	25,0	21,5	45	321	123	16	78,0	77	12,5	41,5	–	3,0	5,0	90°	-10	80	1132	23330.1016

3

Horizontal Toggle Clamps • with vertical base and safety lock

EH 23330.



PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action the toggle clamps are versatile applicable for a wide rang of uses.
These toggle clamps can be used in the metal working industry when drilling, welding, bending, grinding, testing and fitting as well as in the wood and plastic industry in glueing, drilling, cutting and milling jigs.
The "toggle" principle of the toggle clamp allows a large and quick opening of the clamp. If unclamped, the workpieces are completely cleared for unimpeded removal. The large power transmission results maximum clamping force by low hand force. The clamps are self-arresting they remain locked, resisting the force produced when machining components.
The toggle clamps are manufactured from high quality components and are designed for continuous use.
An oil resistant ergonomic 2-component handle, with increased grip area with soft surface for high ease of use.
The quickly adjustable clamping screws are provided by a retainer.

Material

Clamp
- Steel, zinc-plated by galvanization, passivated

Rivet
- Stainless steel

Handle
- Plastic

Clamping screw
- Steel, tempered, zinc-plated by galvanization

Clamping cap
- Rubber, black

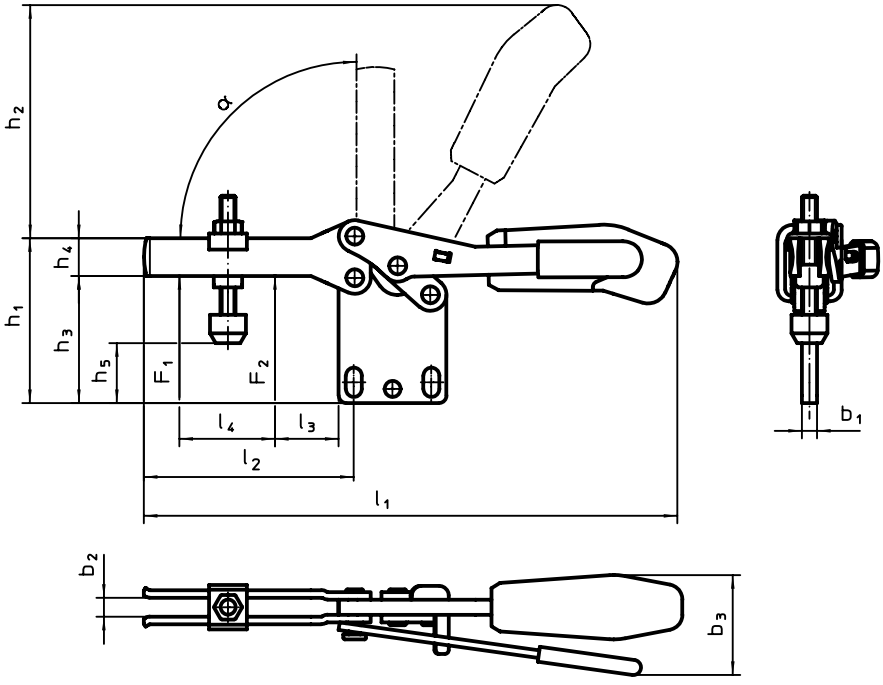
Plastic cap
- PVC, black

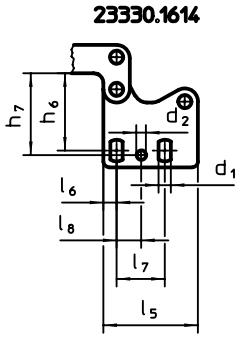
MORE INFORMATION

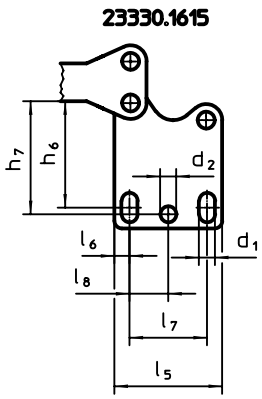
References

Replacement clamping screws are available as accessories in the online shop.

DRAWING





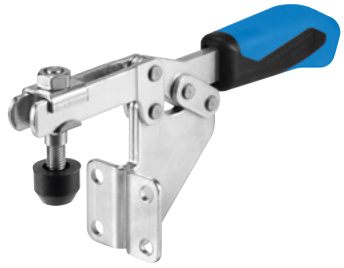


ORDER INFORMATION

Nominal size	Dimensions																						Holding force		α				Art. No.
	d_1	d_2	d_3	b_1	b_2	b_3	h_1	h_2	h_3	h_4	h_5 min.	h_5 max.	h_6	h_7	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	F_1	F_2		min.	max.		
	[mm]																						[kN]			[°C]		[g]	
4	6,5	5,1	M8 x 45	6	8	48	65	86	49,0	15	14,5	26	37,5 – 42,5	42	206	73	14	38	50	7	25,7	13,0	1,8	2,5	90°	-10	80	401	23330.1614
5	8,5	8,5	M8 x 65	8	10	51	97	115	66,5	20	17,5	46	52,0 – 59,0	59	287	113	27	63	57	8	41,0	20,5	2,0	3,0	90°	-10	80	834	23330.1615

Horizontal Toggle Clamps • with angle base

EH 23330.



PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action the toggle clamps are versatile applicable for a wide rang of uses.
These toggle clamps can be used in the metal working industry when drilling, welding, bending, grinding, testing and fitting as well as in the wood and plastic industry in glueing, drilling, cutting and milling jigs.
The "toggle" principle of the toggle clamp allows a large and quick opening of the clamp. If unclamped, the workpieces are completely cleared for unimpeded removal. The large power transmission results maximum clamping force by low hand force. The clamps are self-arresting they remain locked, resisting the force produced when machining components.
The toggle clamps are manufactured from high quality components and are designed for continuous use.
An oil resistant ergonomic 2-component handle, with increased grip area with soft surface for high ease of use.
The quickly adjustable clamping screws are provided by a retainer.

Material

Clamp
- Steel, zinc-plated by galvanization, passivated

Rivet
- Stainless steel

Handle
- Plastic

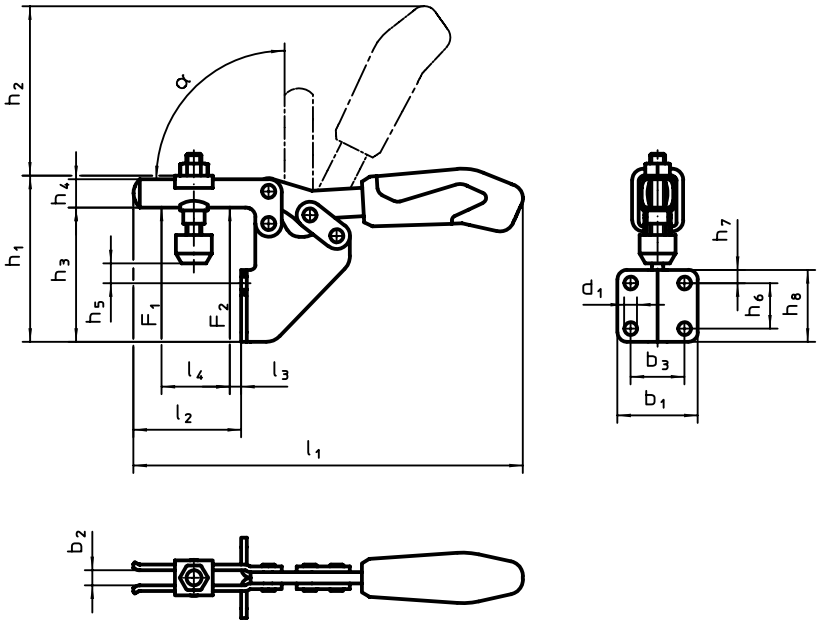
Clamping screw
- Steel, tempered, zinc-plated by galvanization

Clamping cap
- Rubber, black

MORE INFORMATION

References
Replacement clamping screws are available as accessories in the online shop.

DRAWING



ORDER INFORMATION

Nominal size	Dimensions																			Holding force		α	Temperature		Weight	Art. No.
	d_1	Clamping screw	b_1	b_2	b_3	h_1	h_2	h_3	h_4	h_5 min.	h_5 max.	h_6	h_7	h_8	l_1	l_2	l_3	l_4	F_1	F_2		min.	max.		
	[mm]																		[kN]			[°C]		[g]	
2	5,2	M5 x 30	31,0	5,0	19,0	68,0	49	57	10,0	14	20,0	13,5	8	28	120	32	4,0	18,5	0,8	1,1	90°	-10	80	154	23330.1022
3	5,6	M6 x 35	37,0	6,2	25,5	94,0	68	73	13,2	22	29,5	20,0	6	32	162	52	10,5	32,0	1,0	1,2	90°	-10	80	247	23330.1023
4	6,8	M8 x 45	42,5	8,0	28,5	86,5	86	70	15,0	5	16,0	24,0	7	38	206	59	6,5	37,0	1,8	2,5	90°	-10	80	400	23330.1024
5	8,5	M8 x 65	52,0	10,0	32,0	133,0	120	102	20,0	11	40,0	32,0	40	82	282	93	15,0	63,0	2,0	3,0	90°	-10	80	901	23330.1025

3

Toggle Clamps Push-Pull Type • with angle base

EH 23330.

PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action the toggle clamps are versatile applicable for a wide rang of uses.
These toggle clamps can be used in the metal working industry when drilling, welding, bending, grinding, testing and fitting as well as in the wood and plastic industry in glueing, drilling, cutting and milling jigs.
The "toggle" principle of the toggle clamp allows a large and quick opening of the clamp. If unclamped, the workpieces are completely cleared for unimpeded removal. The large power transmission results maximum clamping force by low hand force. The clamps are self-arresting they remain locked, resisting the force produced when machining components.
The toggle clamps are manufactured from high quality components and are designed for maintenance-free continuous use.
An oil resistant ergonomic 2-component handle, with slip-proof, soft surface and large grip area for high ease of use.

Material

Clamp
- Steel, zinc-plated by galvanization, passivated

Rivet
- Stainless steel
- Steel

Handle
- Plastic

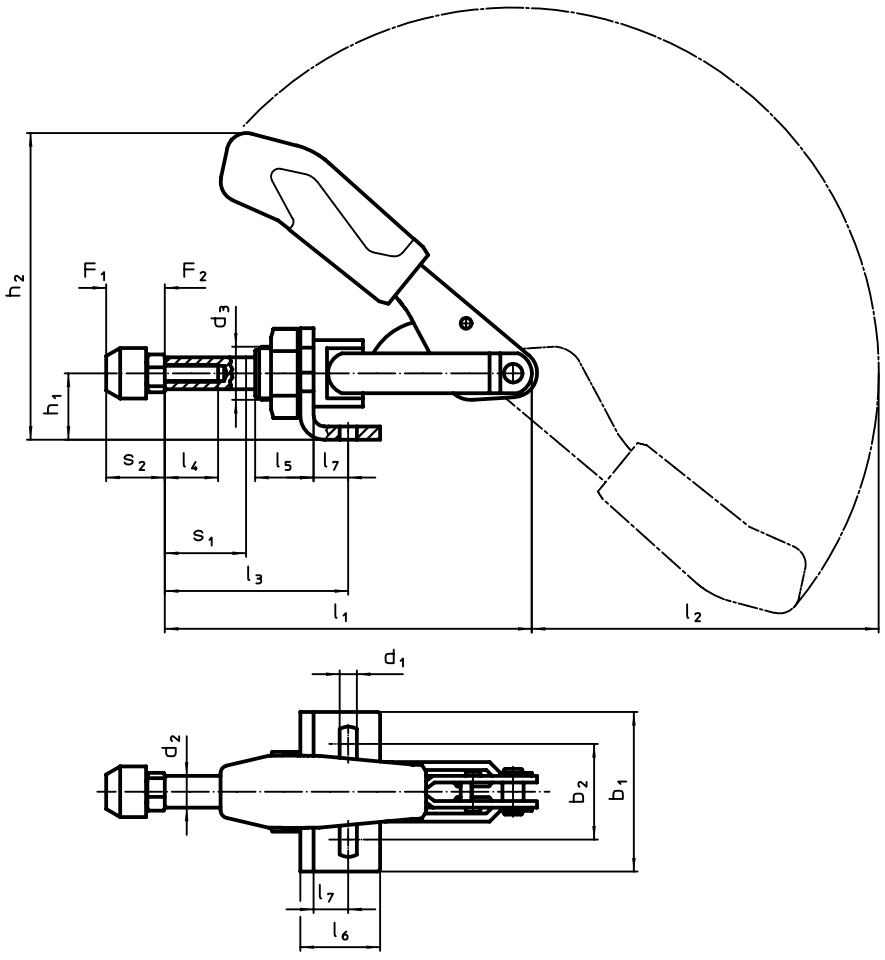
Clamping screw
- Steel, tempered, zinc-plated by galvanization

Clamping cap
- Rubber, black

MORE INFORMATION

References
Replacement clamping screws are available as accessories in the online shop.

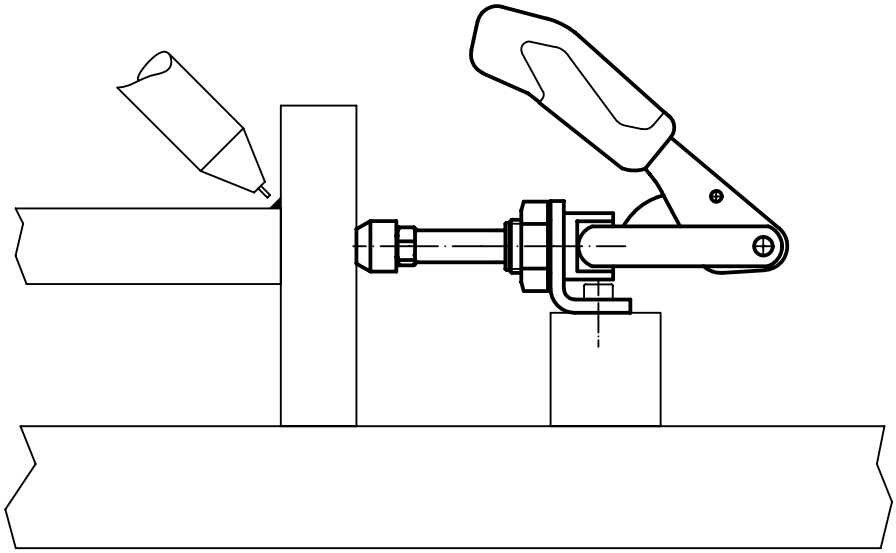
DRAWING



ORDER INFORMATION

Nominal size	Dimensions																		Stroke s_1	Holding force					Art. No.
	Clamping screw	d_1	d_2	d_3	b_1	b_2	h_1	h_2	l_1	l_2	l_3 min.	l_3 max.	l_4	l_5	l_6	l_7	s_2 min.	s_2 max.		F_1	F_2	min.	max.		
	[mm]																		[mm]	[kN]		[°C]		[g]	
1	M 4 x 20	4,5	6,5	M10 x 1	25	16,0	12	49,3	66,5	54,0	17,0	33,0	13	10	16	6,5	12	20	16	0,8	0,8	-10	80	73	23330.2001
2	M 4 x 20	4,5	8,0	M12 x 1,5	30	16,0 – 19,5	15	60,5	91,0	74,0	24,5	44,5	20	16	20	7,0	12	20	20	1,0	1,0	-10	80	124	23330.2002
3	M 6 x 25	5,6	10,0	M16 x 1,5	50	31,8 – 36,0	20	85,5	114,0	105,0	32,5	58,5	20	19	34	12,5	17	25	26	2,0	2,0	-10	80	323	23330.2003
4	M 8 x 35	6,5	12,0	M20 x 1,5	60	29,5 – 42,5	25	108,0	140,0	127,5	37,0	69,0	30	22	30	13,0	22	35	32	2,5	2,5	-10	80	505	23330.2004
6	M12 x 50	8,5	16,0	M24 x 1,5	65	29,0 – 46,0	30	129,5	171,5	158,0	41,5	81,5	50	25	35	15,5	30	50	40	4,5	4,5	-10	80	929	23330.2006

APPLICATION EXAMPLE



Toggle Clamps Push-Pull Type • with fastening thread

EH 23330.

PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action the toggle clamps are versatile applicable for a wide rang of uses.
These toggle clamps can be used in the metal working industry when drilling, welding, bending, grinding, testing and fitting as well as in the wood and plastic industry in glueing, drilling, cutting and milling jigs.
The "toggle" principle of the toggle clamp allows a large and quick opening of the clamp. If unclamped, the workpieces are completely cleared for unimpeded removal. The large power transmission results maximum clamping force by low hand force. The clamps are self-arresting they remain locked, resisting the force produced when machining components.
The toggle clamps are manufactured from high quality components and are designed for maintenance-free continuous use.
An oil resistant ergonomic 2-component handle, with slip-proof, soft surface and large grip area for high ease of use.

Material

Clamp
- Steel, zinc-plated by galvanization, passivated

Rivet
- Stainless steel

Handle
- Plastic

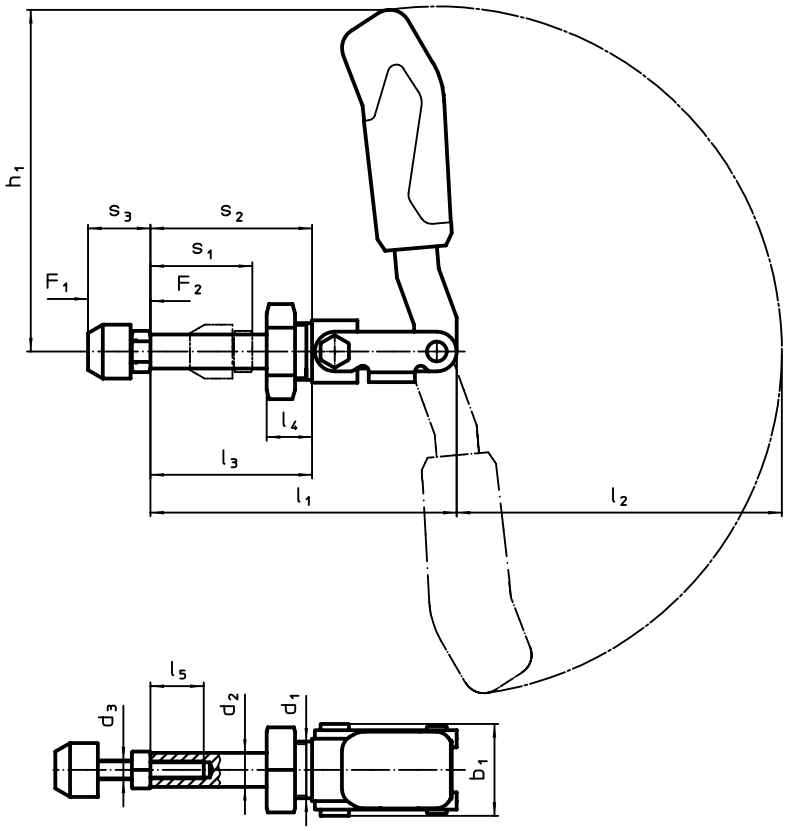
Clamping screw
- Steel, tempered, zinc-plated by galvanization

Clamping cap
- Rubber, black

MORE INFORMATION

References
Replacement clamping screws are available as accessories in the online shop.

DRAWING

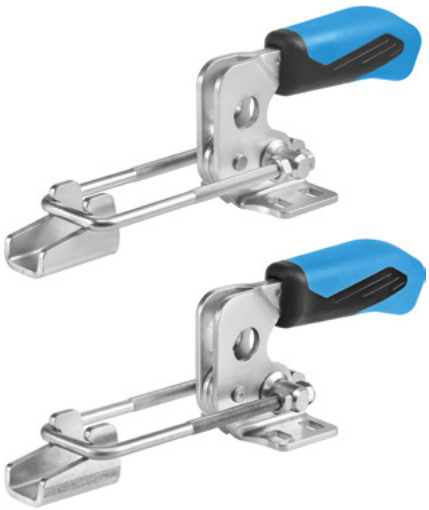


ORDER INFORMATION

Nominal size	Dimensions														Stroke s_1	Holding force					Art. No.
	Clamping screw	d_1	d_2	d_3	b_1	h_1	l_1	l_2	l_3	l_4	l_5	s_2	s_3 min.	s_3 max.		F_1	F_2	min.	max.		
	[mm]														[mm]	[kN]		[°C]		[g]	
3	M 6 x 25	M16 x 1,5	10	M 6	30,5	73	68,5	68	36	13	15	36	17	25	21,5	1,0	1,0	-10	80	152	23330.2103
4	M 8 x 35	M20 x 1,5	12	M 8	33,0	123	108,0	115	57	16	25	57	22	35	40,0	2,5	2,5	-10	80	327	23330.2104
6	M12 x 50	M24 x 1,5	16	M12	49,0	149	175,0	139	92	24	45	92	30	50	67,0	4,0	4,0	-10	80	920	23330.2106

Toggle Clamps Hook Type • with horizontal base

EH 23330.



PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action, the toggle clamps are versatile applicable for a wide rang of uses.
The toggle clamps are manufactured from high quality components and are designed for maintenance-free continuous use.
An oil resistant ergonomic 2-component handle, with slip-proof, soft surface and large grip area for high ease of use.

Material

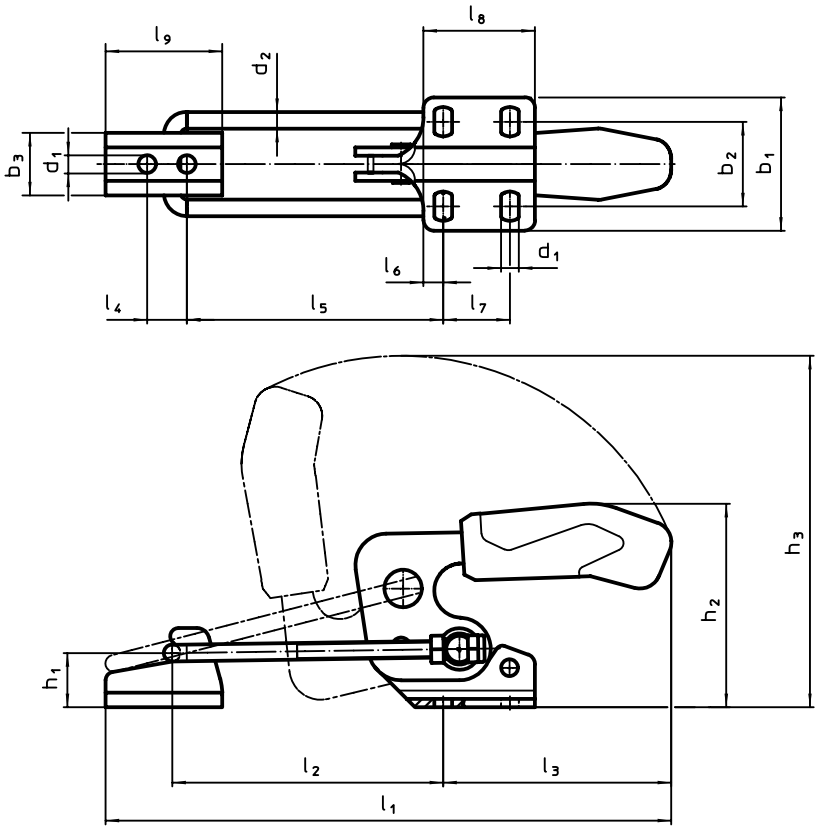
Clamp
- Steel, zinc-plated by galvanization, passivated
- Stainless steel

Rivet
- Stainless steel

Handle
- Plastic

Counter catch
- Steel, zinc-plated by galvanization, passivated
- Stainless steel

DRAWING



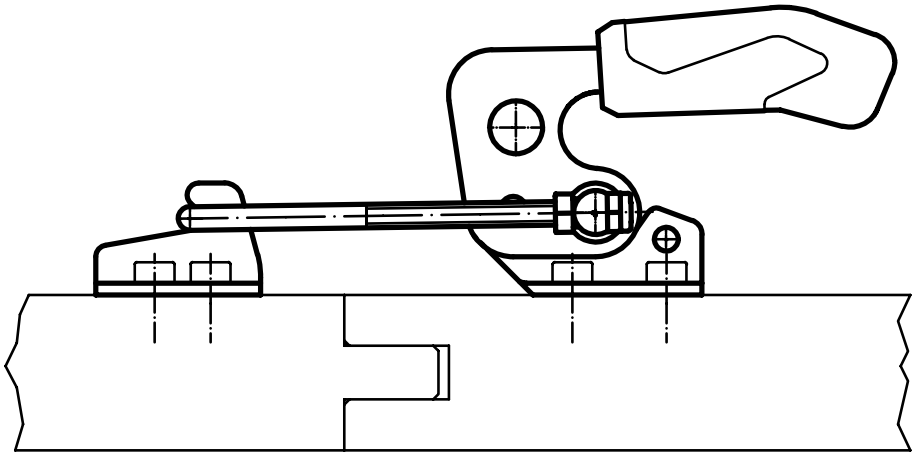
ORDER INFORMATION

Nominal size	Dimensions																				Holding force				Art. No.
	d_1	d_2	b_1	b_2	b_3	h_1	h_2	h_3	l_1 min.	l_1 max.	l_2 min.	l_2 max.	l_3	l_4	l_5 min.	l_5 max.	l_6	l_7	l_8	l_9	F_1	min.	max.		
	[mm]																				[kN]	[°C]		[g]	
steel																									
3	5,2	4	38,0	19,5 – 23,5	18	12	47,0	99,0	125	159	42,0	76	69	11	38,0	72	6,4	13	26,0	26	1,6	-10	80	143	23330.3003
4	6,5	6	48,0	24,5 – 32,0	23	19	70,0	135,5	169	216	53,5	101	93	14	48,6	96	8,0	19	35,0	39	3,2	-10	80	365	23330.3004
5	8,5	8	64,3	35,0 – 46,0	30	26	94,5	171,5	209	273	66,0	130	111	19	59,0	123	9,5	32	53,5	56	7,0	-10	80	821	23330.3005
stainless steel																									
3	5,2	4	38,0	19,5 – 23,5	18	12	47,0	99,0	125	159	42,0	76	69	11	38,0	72	6,4	13	26,0	26	1,6	-10	80	144	23330.3103
4	6,5	6	48,0	24,5 – 32,0	23	19	70,0	135,5	169	216	53,5	101	93	14	48,6	96	8,0	19	35,0	39	3,2	-10	80	365	23330.3104
5	8,5	8	64,3	35,0 – 46,0	30	26	94,5	171,5	209	273	66,0	130	111	19	59,0	123	9,5	32	53,5	56	7,0	-10	80	821	23330.3105

ACCESSORIES

Nominal size	[g]	Art. No. steel	Art. No. stainless steel
counter catch			
3	15	23330.9023	23330.9523
4	42	23330.9024	23330.9524
5	108	23330.9025	23330.9525

APPLICATION EXAMPLE



Toggle Clamps Hook Type • vertical, with horizontal base

EH 23330.

PRODUCT DESCRIPTION

Due to their favourable power to movement ratio and their easy action, the toggle clamps are versatile applicable for a wide rang of uses.
The toggle clamps are manufactured from high quality components and are designed for maintenance-free continuous use.
An oil resistant ergonomic 2-component handle, with slip-proof, soft surface and large grip area for high ease of use.

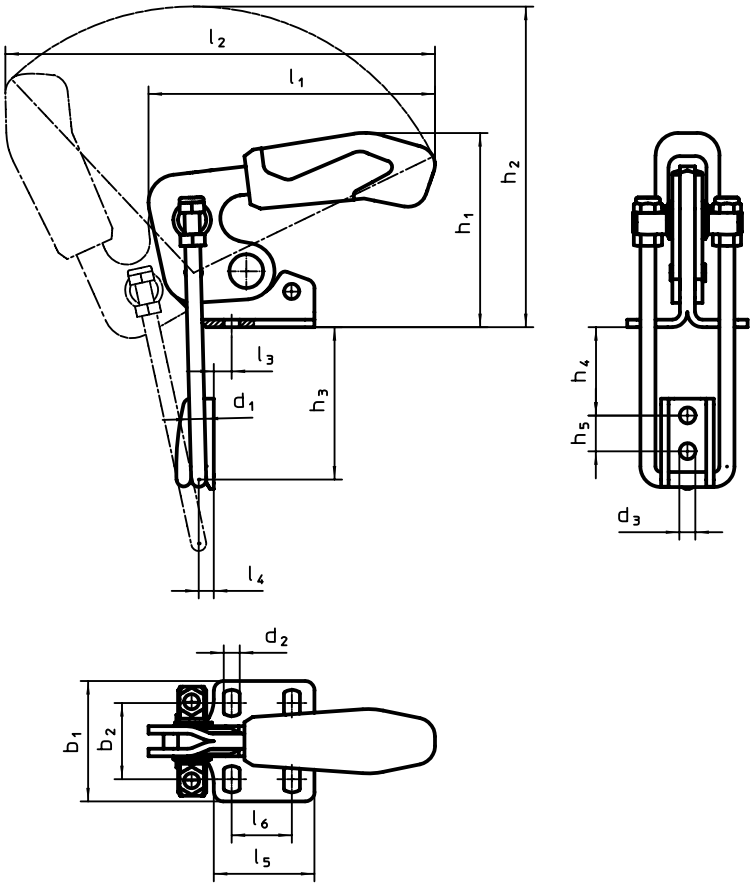
Material

Clamp
- Steel, zinc-plated by galvanization, passivated

Rivet
- Stainless steel

Handle
- Plastic

DRAWING



ORDER INFORMATION

Nominal size	Dimensions																		Holding force				Art. No.
	d_1	d_2	d_3	b_1	b_2	h_1	h_2	h_3 min.	h_3 max.	h_4 min.	h_4 max.	h_5	l_1	l_2	l_3	l_4	l_5	l_6	F_1	min.	max.		
	[mm]																		[kN]	[°C]		[g]	
3	4	5,2	5,2	38	19,5 – 23,5	47,0	99	24,0	49	5	30	11	91	158	6,4	5	26	13	1,6	-10	80	149	23330.5003
4	6	6,5	6,5	48	24,5 – 32,0	70,0	136	34,5	64	7	36	14	125	190	8,0	6	35	19	3,2	-10	80	358	23330.5004
5	8	8,5	8,5	65	35,0 – 46,0	94,5	168	43,0	81	9	47	19	151	239	9,5	8	54	32	7,0	-10	80	791	23330.5005

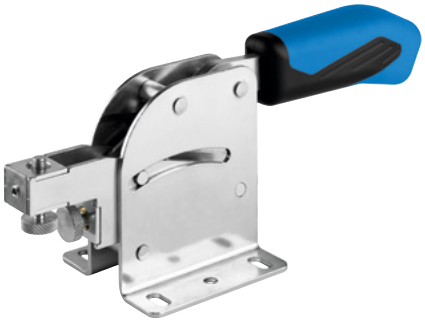
ACCESSORIES

Nominal size	[g]	Art. No. steel
counter catch		
3	15	23330.9023
4	42	23330.9024
5	108	23330.9025

3

Combination Clamps • with horizontal base

EH 23330.



PRODUCT DESCRIPTION

The combination clamp combines a toggle clamp push-pull type and a vertical toggle clamp in one clamp. Thus the use of different toggle clamps is not necessary. The horizontal and vertical clamping movement is achieved by simple operation using an ergonomic handle. Simultaneous exact positioning and secure clamping of the component is guaranteed.
The toggle clamps are manufactured from high quality components and are designed for maintenance-free continuous use.
An oil resistant ergonomic 2-component handle, with slip-proof, soft surface and large grip area for high ease of use.

Material

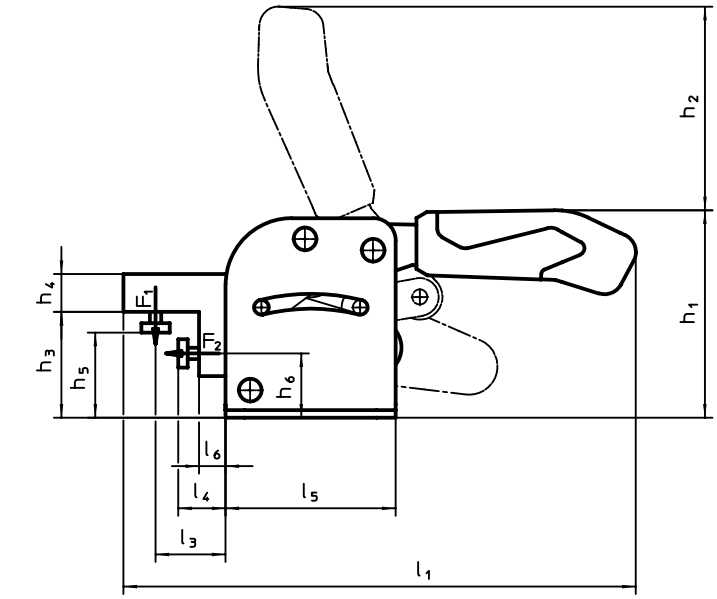
Clamp
- Steel, zinc-plated by galvanization, passivated

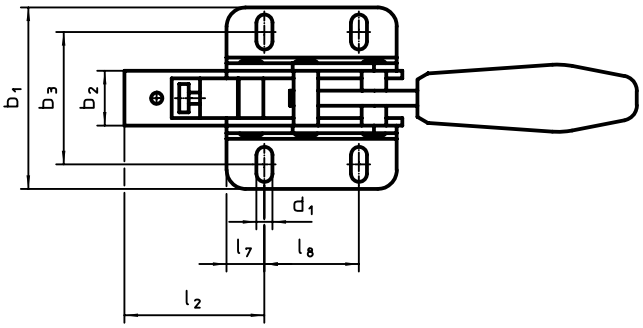
Rivet
- Stainless steel

Handle
- Plastic

Clamping screw
- Steel, tempered, zinc-plated by galvanization

DRAWING





ORDER INFORMATION

Nominal size	Dimensions																				Holding force				Art. No.
	d_1	b_1	b_2	b_3	h_1	h_2	h_3	h_4	h_5 min.	h_5 max.	h_6	l_1	l_2	l_3	l_4 min.	l_4 max.	l_5	l_6	l_7	l_8	F_1	F_2	min.	max.		
	[mm]																				[kN]		[°C]		[g]	
2	5,5	53	17,0	0,0 – 39,5	74	62	36,0	12	25	32	22	150	33	15	5	10	55	0,5	7,5	40	1	1	-10	80	330	23330.4002
3	6,5	75	19,5	48,5 – 61,5	94	87	46,0	16	30	40	28	219	56	32	14	24	75	9,0	12,5	50	2	2	-10	80	714	23330.4003
4	8,5	96	29,0	60,0 – 80,0	110	106	55,5	20	40	50	34	270	74	37	20	30	90	14,0	20,0	50	3	3	-10	80	1618	23330.4004

COMPACT CLAMPS

PRECISE IN ANY POSITION

Our compact clamps are suitable for use as all-purpose clamping elements on machined and non-machined parts. Their self-locking clamping lever makes it possible to use the clamps in both vertical and horizontal position.

FEATURES

- Exact clamping with pin-point accuracy.
- Simple and universal handling.
- High clamping force at low tightening torque levels and abrasion-resistant thanks to clamping lever with bearings.
- Large and continuous clamping area.
- Clamping lever entirely retractable for hindrance-free exchange of workpieces.
- Threaded clamping lever can be used with many clamping elements, e.g. ball-ended thrust screws (EH 22700. - EH 22720.), self-aligning pads (EH 22730./EH 22740.) etc.
- Large adjusting range at constant clamping force.
- Continuous height adjustment by height adapters 23690.0112/.0116.
- Simple and versatile attachment options.
- Corrosion-resistant.
- Resistant to dirt and chips.

Compact Clamps

EH 23690.

PRODUCT DESCRIPTION

The compact clamps are all purpose clamping elements. Due to the self-locking clamping lever application can either take place in horizontal or vertical position in both, machined and raw workpieces.

Features:

- Exact and position precise clamping
- Easy, universal handling
- High clamping force at low tightening torques, abrasion-resistant due to clamping lever with bearings
- Continuous, large clamping area
- Clamping lever entirely retractable for hindrance-free exchange of workpieces
- Clamping lever with mounting thread for various clamping elements, e.g. ball-ended thrust screws (EH 22700. - EH 22720.), self-aligning pads (EH 22730. / EH 22740.) etc.
- Large adjusting range at constant clamping force
- Continuous increase of the clamping range by height adapters 23690.0112/.0116
- Easy and flexible mounting options
- Corrosion-resistant
- Resistant to dirt and chips

Material

Body

- Heat-treated steel, black coated

Clamping lever

- Heat-treated steel, tempered, silver coated

Assembly

Assembly and set-Up:

1. Take out stop pin ISO 4762-M 6 x 10.
2. Move back and take out clamping lever.
3. Tightening by 2 screws with internal hexagon (included in supply volume).
4. Place clamping lever in sliding rail and then insert.
5. Tighten stop pin ISO 4762 - M 6 x 10.

Operation

Clamping Process:

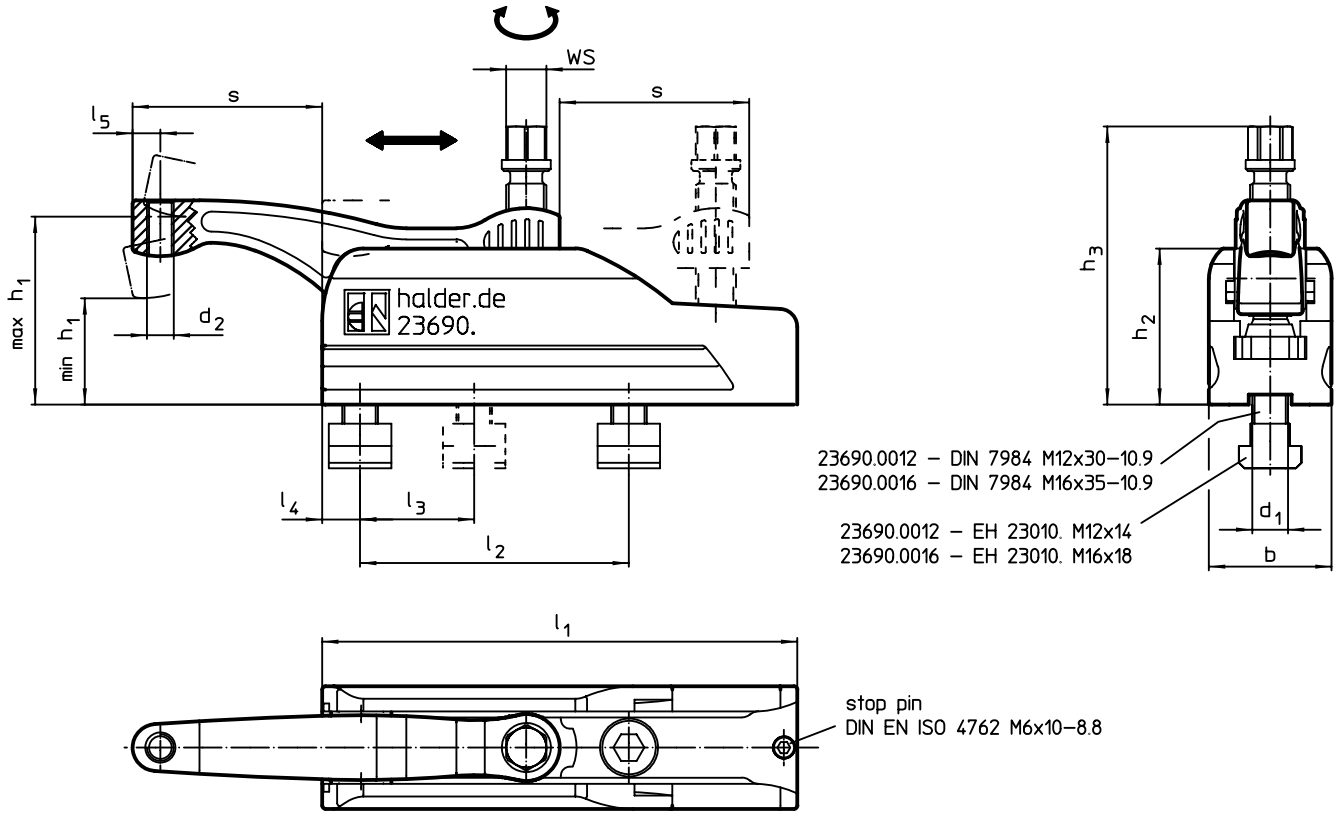
1. Slide clamping lever to clamping position.
2. Clamping is made via a hexagon collar screw.
3. Releasing is done in reverse order.

MORE INFORMATION

Further products

Height Adapters, for compact clamp . . → p. 538

DRAWING

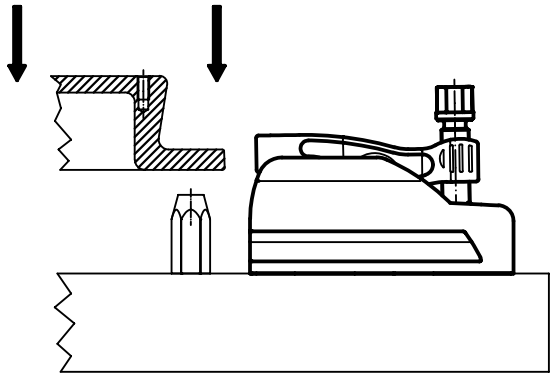


ORDER INFORMATION

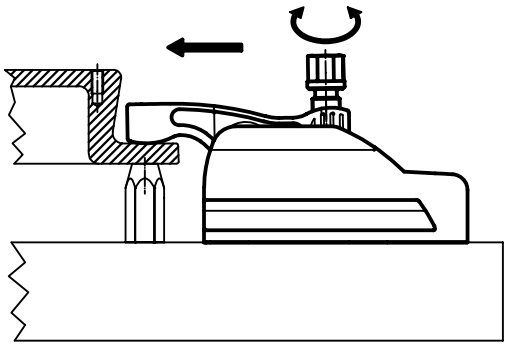
Dimensions													WS	Clamping force max.	Tightening torque max.		Art. No.
d_1	d_2	h_1 min.	h_1 max.	h_2	h_3	s max.	l_1	l_2 +1	l_3	l_4	l_5	b					
[mm]													[mm]	[kN]	[Nm]	[g]	
M12	M 8	40	60	59	95	43	134	70	50	13	10,0	45	16	15	45	1813	23690.0012
M16	M12	47	85	70	126	85	213	120	50	17	12,5	55	18	25	75	4274	23690.0016

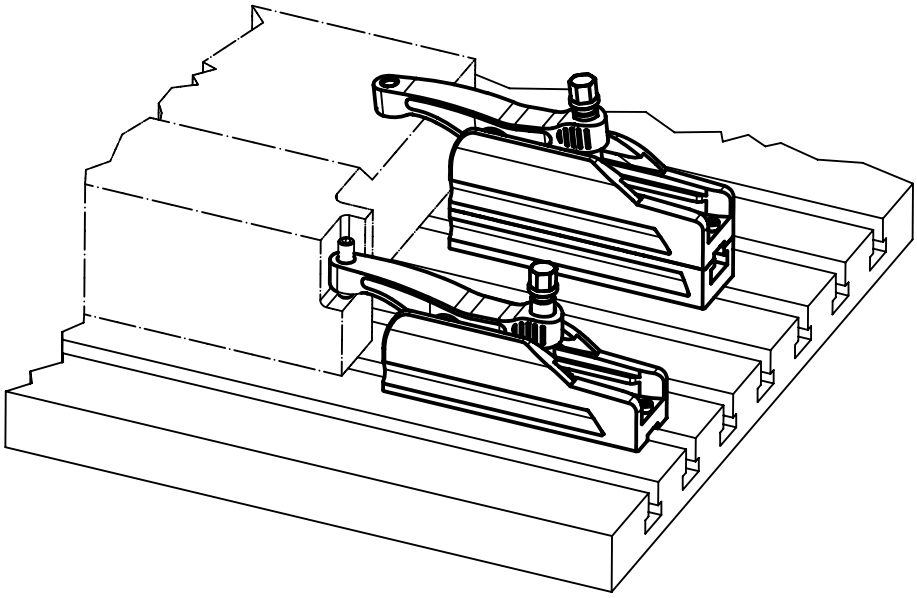
APPLICATION EXAMPLE

Ⅰ



Ⅱ





3

Height Adapters • for compact clamp

EH 23690.

PRODUCT DESCRIPTION

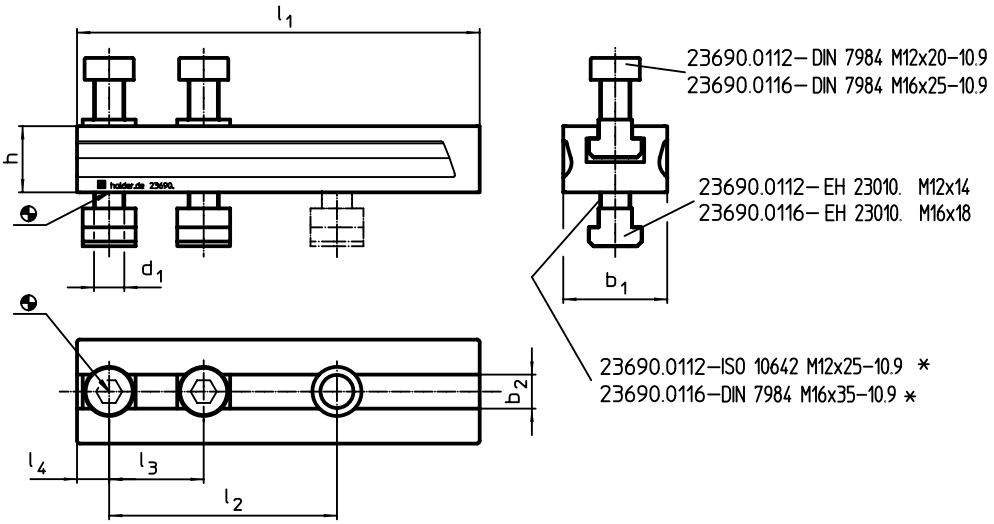
The height adapter for compact clamps allows a clamping height increase and has the following characteristics:

- Continuous covering of clamping height
- T-slot in the height adapter allows exact positioning by moving the compact clamp at specified grid spacings
- Height can be expanded user-defined

Material

- Heat-treated steel, black coated

DRAWING

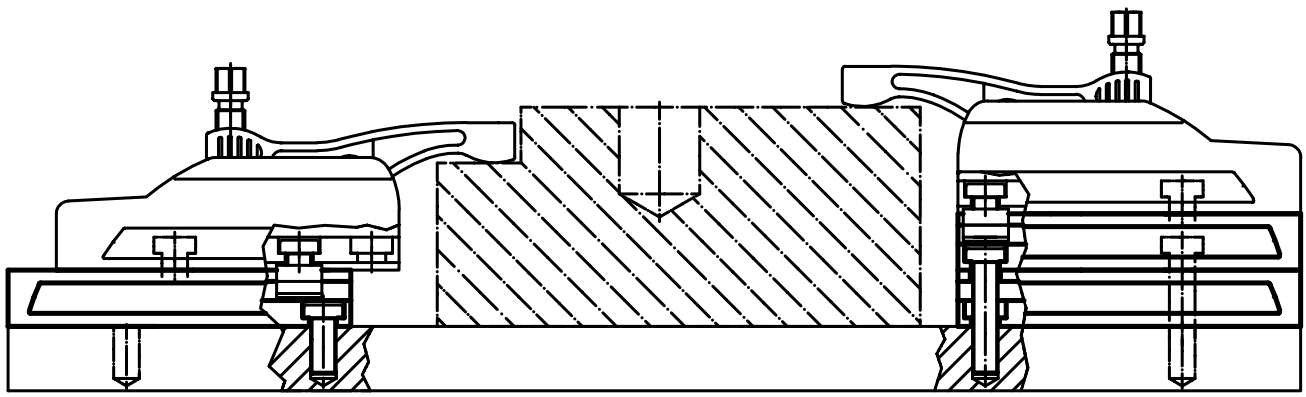


* When using more height adapters, the screws ISO 10642 or DIN 7984 have to be replaced by screws extended by the dimension h.

ORDER INFORMATION

Dimensions									Art. No.
d_1	l_1	l_2 +1	l_3	l_4	h	b_1	b_2 H12	[g]	
			[mm]						
M12	134	70	50	13	20	45	14	874	23690.0112
M16	213	120	50	17	35	55	18	2534	23690.0116

APPLICATION EXAMPLE

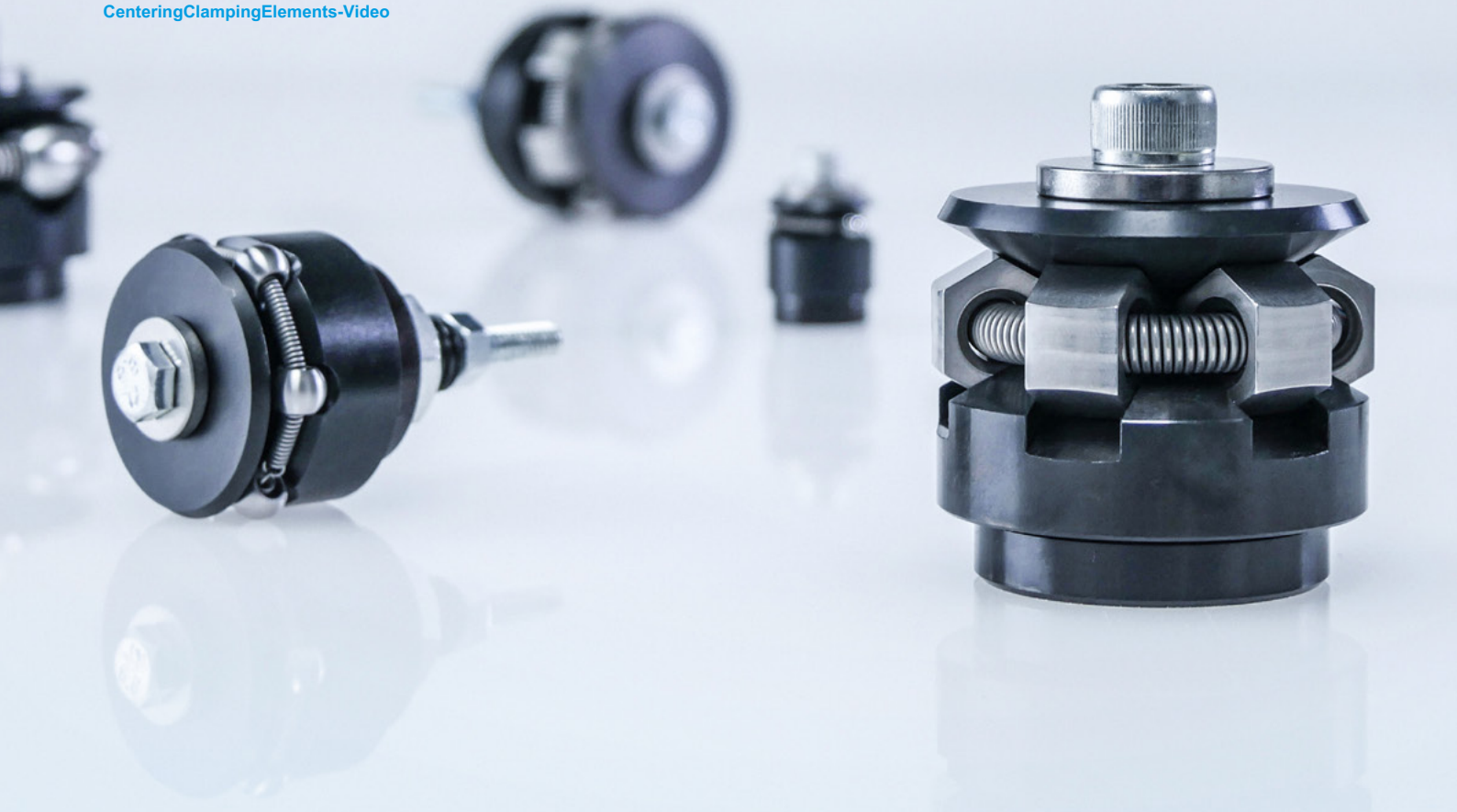


CENTERING CLAMPING ELEMENTS

THE FORCE LIES AT THE CENTRE

Centering clamping elements are used to centre and clamp parts that come with a location hole. Precise self-centring with an accuracy of ± 0.025 mm. The ground clamping segments make it possible to achieve force closure when centring parts with a rough or machined surface and pull the parts down to fixture plates. The centering clamping element is distinguished by its long adjustment travel and low construction height. Can be screwed on at the top and the bottom.

www.halder.com/
CenteringClampingElements-Video



Centering Clamping Elements • with clamping segments

EH 23340.

PRODUCT DESCRIPTION

For clamping and centering of workpieces with internal bore. Exact self centering with a precision of ±0,025 mm. Due to the clamping segments being ground, workpieces with raw and/or machined surfaces can be frictionally connected, centered and held down at the seats. Large adjustment stroke and a low building height are a feature of the centering clamping element.

Mounting from either top or bottom.

Material

Body
- Tool steel, hardened, blackened

Spring
- Stainless steel

Clamping segments
- Stainless steel 1.4112, hardened and ground

Assembly

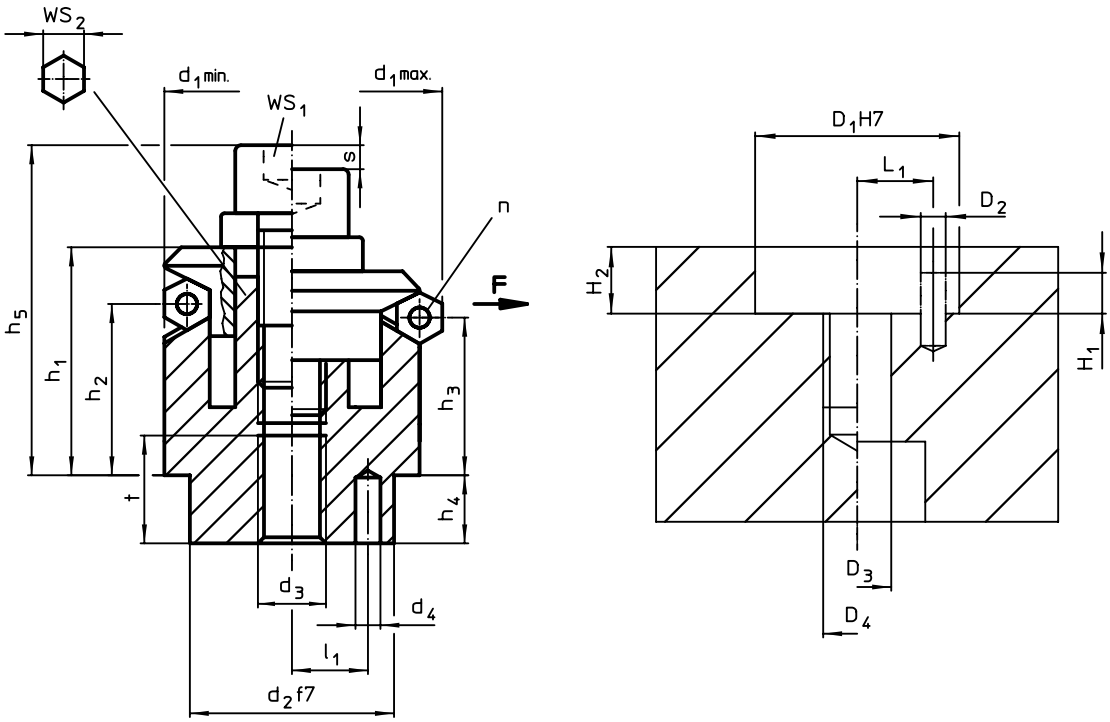
Assembly instructions for mounting from above: remove clamping plate and screw. Screw in threaded pin from below, and tighten from above using female WS_2.

MORE INFORMATION

Further products

Centering Clamping Elements, with clamping balls . . . . . → p. 542

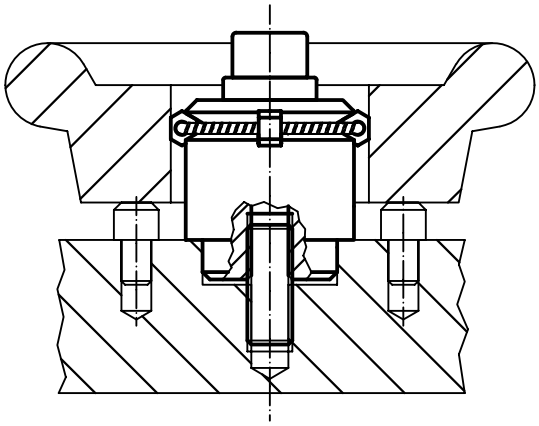
DRAWING

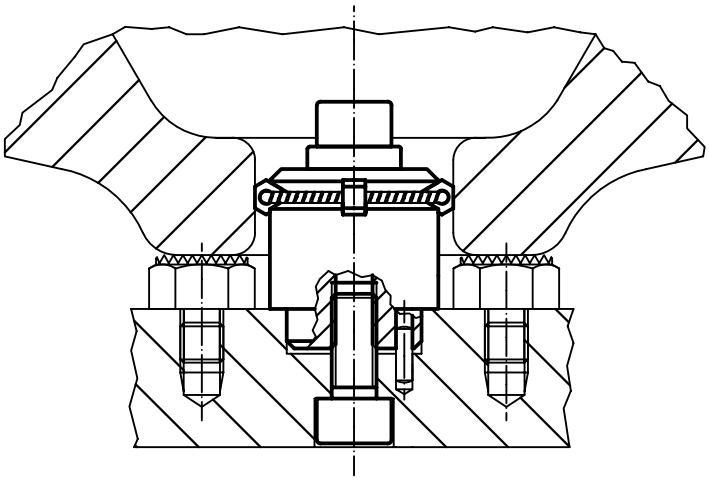


ORDER INFORMATION

Dimensions												Number of segments n	Stroke s	WS		Clamping force F max.	Tightening torque max.	Location hole								Art. No.
d_1 min.	d_1 max.	d_2 f7	d_3	d_4 +0,3	h_1 -1	h_2	h_3	h_4	h_5 -2	l_1 ±0,1	t			WS_1	WS_2			D_1 H7	D_2	D_3	D_4	H_1	H_2 +0,5	L_1 ±0,1		
[mm]													[mm]	[mm]		[kN]	[Nm]	[mm]							[g]	
14,5	18,5	12	M 4	2,0	14,3	9,8	8,6	5,5	19,3	4,5	6	3	2,3	3	5	3,5	5	12	2,0	4	M 4	2,0	5,5	4,5	19	23340.0014
18,5	22,5	15	M 5	2,5	16,6	11,5	10,4	7,5	22,8	5,5	7	3	2,3	4	5	4,5	10	15	2,5	5	M 5	2,5	7,5	5,5	38	23340.0018
22,5	26,5	20	M 6	3,0	19,7	14,1	13,0	6,0	28,7	7,0	8	3	2,3	5	6	5,0	17	20	3,0	6	M 6	3,0	6,0	7,0	62	23340.0022
26,5	30,5	20	M 6	3,0	19,9	14,2	13,0	6,0	28,9	7,0	8	3	2,3	5	6	5,0	17	20	3,0	6	M 6	3,0	6,0	7,0	87	23340.0026
30,5	38,5	25	M 6	4,0	23,2	14,0	11,7	7,0	32,2	9,0	8	3	4,6	5	6	5,0	17	25	4,0	6	M 6	4,0	7,0	9,0	133	23340.0030
38,5	46,5	30	M 8	4,0	27,2	18,0	15,5	7,5	39,2	11,0	10	6	4,6	6	8	6,5	43	30	4,0	8	M 8	4,0	7,5	11,0	238	23340.0038
46,5	54,5	30	M 8	4,0	27,2	18,0	15,7	7,5	39,2	11,0	10	6	4,6	6	8	6,5	43	30	4,0	8	M 8	4,0	7,5	11,0	327	23340.0046
54,5	70,5	45	M10	5,0	40,7	23,7	19,1	9,0	54,7	15,0	12	6	9,2	8	10	8,0	79	45	5,0	10	M10	5,0	9,0	15,0	658	23340.0054
70,5	86,5	60	M12	5,0	46,0	28,3	23,6	10,0	63,0	17,0	15	6	9,2	10	12	10,0	141	60	5,0	12	M12	5,0	10,0	17,0	1286	23340.0070
86,5	102,5	60	M16	5,0	51,1	30,3	25,6	10,0	72,1	25,0	15	6	9,2	14	17	10,0	354	60	5,0	16	M16	5,0	10,0	25,0	1778	23340.0086

APPLICATION EXAMPLE





Centering Clamping Elements • with clamping balls

EH 23340.

PRODUCT DESCRIPTION

To be used for accurate centering and clamping of workpieces with locating hole on which light spherical marks are acceptable. Exact self-centering with a precision of ±0,025 mm. The clamping balls frictionally center and hold workpieces with raw or pre-machined surfaces down to the bearing points. Large adjustment stroke and a small building height are a feature of this center clamping element.
Mounting from either top or bottom.

Material

Body
- Tool steel, hardened, blackened

Spring
- Stainless steel

Clamping balls
- Stainless steel 1.4112, hardened and ground

Assembly

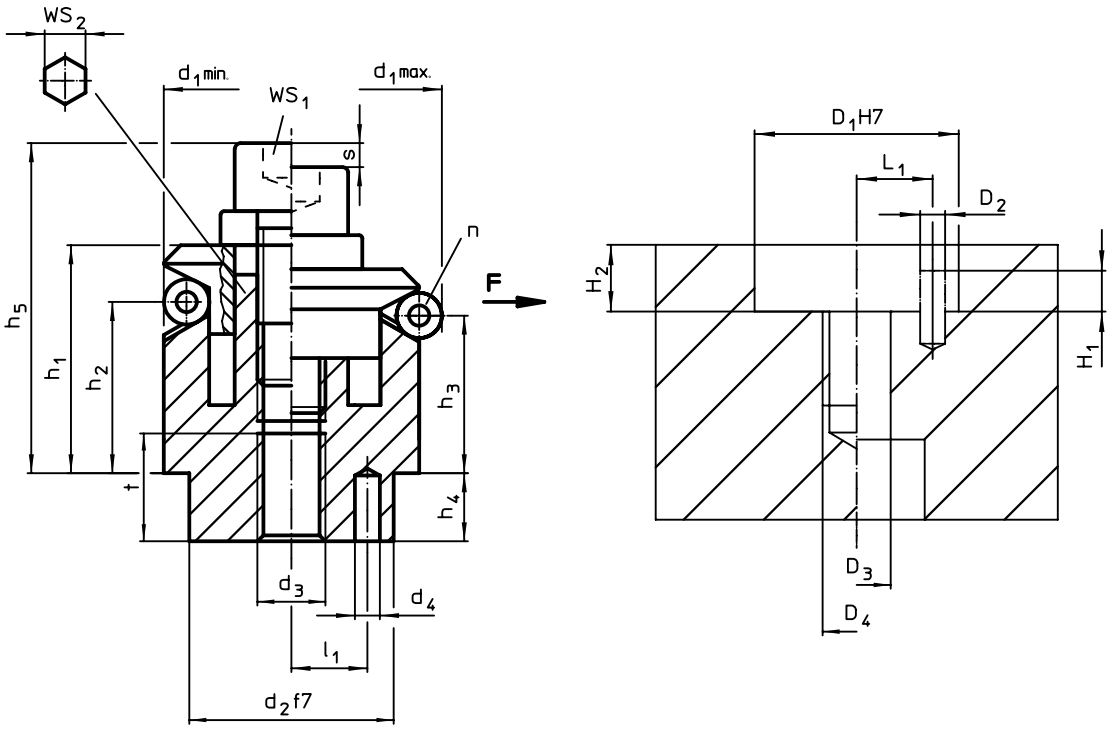
Assembly instructions for mounting from above: remove clamping plate and screw. Screw in threaded pin from below, and tighten from above using female WS_2.

MORE INFORMATION

Further products

Centering Clamping Elements, with clamping segments . . . . . → p. 540

DRAWING

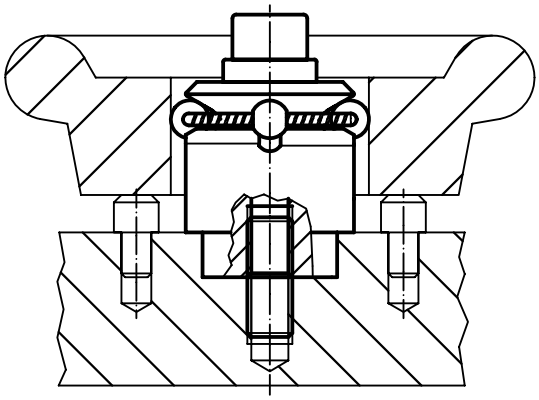


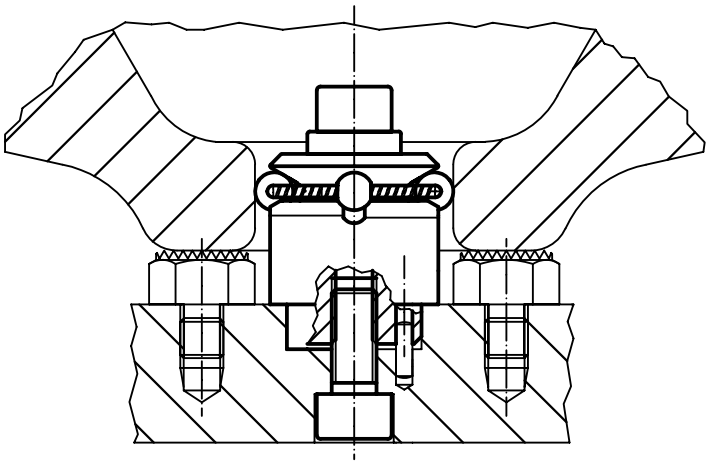
ORDER INFORMATION

Dimensions													Number of balls n	Stroke s	WS		Clamping force F max.	Tightening torque max.	Location hole								Art. No.
d_1 min.	d_1 max.	d_2 f7	d_3	d_4 +0,3	h_1 -1	h_2	h_3	h_4	h_5 -2	l_1 ±0,1	Ball Ø	t			WS_1	WS_2			D_1 H7	D_2	D_3	D_4	H_1	H_2 +0,5	L_1 ±0,1		
[mm]														[mm]	[mm]		[kN]	[Nm]	[mm]							[g]	
11,7	**14,2**	10	M 4	1,5	8,6	3,9	3,2	3,5	14,7	3,5	2,5	4	3	1,3	3	–	0,5	5	10	1,5	4	M 4	2,0	3,5	3,5	9	23340.0212[1]
14,5	**18,5**	12	M 4	2,0	14,2	9,8	8,6	5,5	19,2	4,5	4,0	6	3	2,3	3	5	3,5	5	12	2,0	4	M 4	2,5	5,5	4,5	20	23340.0214
18,5	**22,5**	15	M 5	2,5	16,5	11,6	10,4	7,5	22,7	5,5	4,0	7	3	2,3	4	5	4,5	10	15	2,5	5	M 5	3,5	7,5	5,5	39	23340.0218
22,5	**26,5**	20	M 6	3,0	19,6	14,1	12,9	6,0	28,6	7,0	4,0	8	3	2,3	5	6	5,0	17	20	3,0	6	M 6	3,5	6,0	7,0	60	23340.0222
26,5	**30,5**	20	M 6	3,0	19,8	14,1	13,0	6,0	28,8	7,0	4,0	8	3	2,3	5	6	5,0	17	20	3,0	6	M 6	3,5	6,0	7,0	86	23340.0226
30,5	**38,5**	25	M 6	4,0	23,2	14,1	11,8	7,0	32,2	9,0	8,0	8	3	4,6	5	6	5,0	17	25	4,0	6	M 6	3,5	7,0	9,0	125	23340.0230
38,5	**46,5**	30	M 8	4,0	27,2	18,0	15,7	7,5	39,2	11,0	8,0	10	6	4,6	6	8	6,5	43	30	4,0	8	M 8	4,5	7,5	11,0	233	23340.0238
46,5	**54,5**	30	M 8	4,0	27,1	18,0	15,7	7,5	39,2	11,0	8,0	10	6	4,6	6	8	6,5	43	30	4,0	8	M 8	6,5	7,5	11,0	323	23340.0246
54,5	**70,5**	45	M10	5,0	40,6	23,7	19,1	9,0	54,6	15,0	16,0	12	6	9,2	8	10	8,0	79	45	5,0	10	M10	6,5	9,0	15,0	653	23340.0254
70,5	**86,5**	60	M12	5,0	46,1	28,3	23,7	10,0	63,1	17,0	16,0	15	6	9,2	10	12	10,0	141	60	5,0	12	M12	6,5	10,0	17,0	1271	23340.0270
86,5	**102,5**	60	M16	5,0	51,2	30,3	25,6	10,0	72,2	25,0	16,0	15	6	9,2	14	17	10,0	354	60	5,0	16	M16	6,5	10,0	25,0	1783	23340.0286

[1] no WS_2 clamping screw and threaded pin to be mounted from top

APPLICATION EXAMPLE





3

Centering Clamping Elements • with clamping segments, operation from the bottom

EH 23340.

PRODUCT DESCRIPTION

For centering and clamping in blind holes of workpieces with locating hole. Exact self-centering with a precision of ±0,025 mm. Components with raw or machined surface can be centered positively and are pulled down on the contact points due to the ground clamping elements. The centering clamping element is characterised by large setting ranges and a compact construction height.
Mounting from either top or bottom.

Material

Body
- Tool steel, hardened, blackened

Spring
- Stainless steel

Clamping segments
- Stainless steel 1.4112, hardened and ground

Assembly

Assembly instructions for mounting from above: remove clamping plate and screw. Screw in threaded pin from below, and tighten from above using female WS_2.

Operation

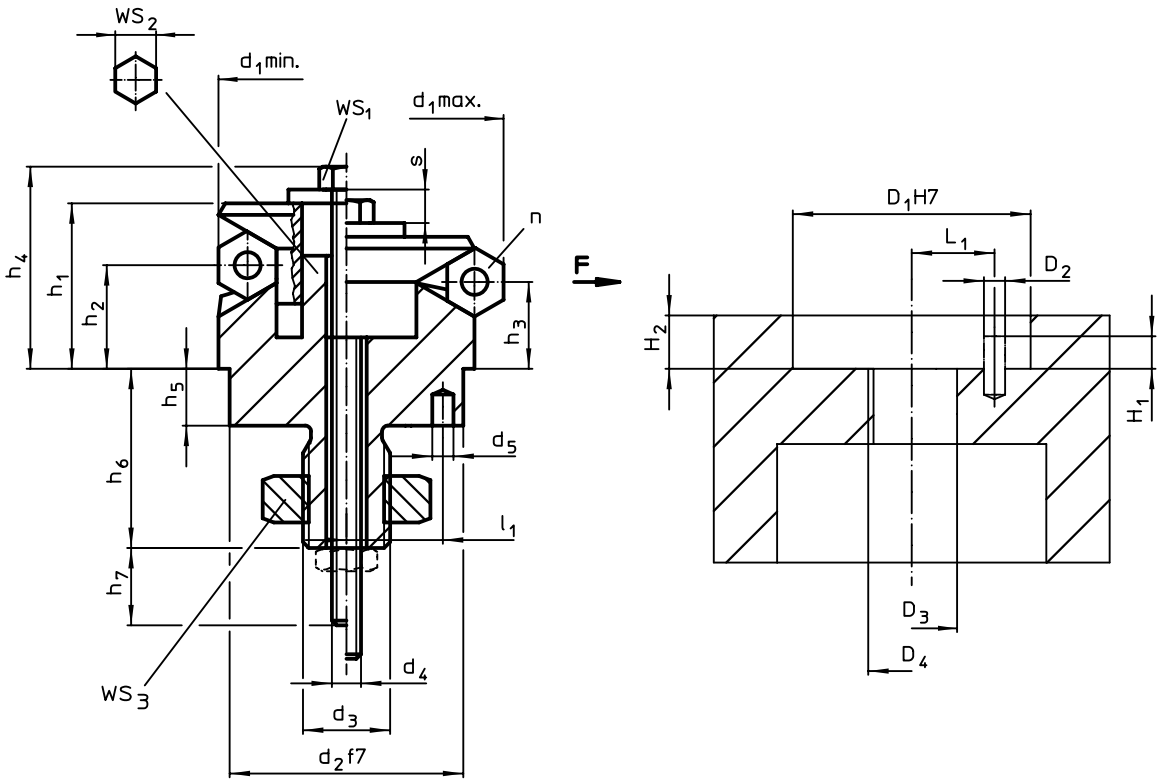
Operation from bottom manually or automatically with either pneumatic or hydraulic actuation.

MORE INFORMATION

Further products

Centering Clamping Elements, with clamping balls, operation from the bottom . . . . . → p. 546

DRAWING



ORDER INFORMATION

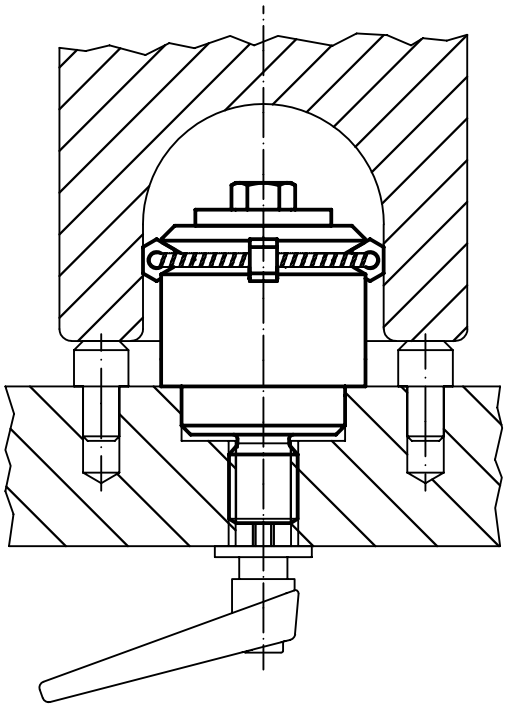
Dimensions														Number of segments	Stroke	WS			Clamping force	Tightening torque	Location hole								Art. No.
d_1 min.	d_1 max.	d_2 f7	d_3	d_4	d_5 +0,3	h_1	h_2	h_3	h_4 -2	h_5	h_6 +1	h_7 ~	l_1 ±0,1	n	s	WS_1	WS_2	WS_3	F max.	max.	D_1 H7	D_2	D_3	D_4	H_1	H_2 +0,5	L_1 ±0,1		
[mm]															[mm]	[mm]			[kN]	[Nm]	[mm]							[g]	
14,5	**18,5**	12	M 6	M 3	2,0	14,2	9,8	8,6	17,0	5,5	14,1	12	4,5	3	2,3	5,5	3	10	3,5	2	12	2,0	6	M 6	2,5	5,5	4,5	21	23340.0114
18,5	**22,5**	15	M 8	M 4	2,5	16,6	11,5	10,4	20,5	7,5	18,2	14	5,5	3	2,3	7,0	5	13	4,0	5	15	2,5	8	M 8	3,5	7,5	5,5	46	23340.0120
22,5	**26,5**	20	M10	M 5	3,0	19,7	14,1	13,0	24,4	6,0	17,4	15	7,0	3	2,3	8,0	6	16	4,5	10	20	3,0	10	M10	3,5	6,0	7,0	78	23340.0122
26,5	**30,5**	20	M10	M 5	3,0	19,9	14,2	13,0	24,6	6,0	17,4	15	7,0	3	2,3	8,0	6	16	4,5	10	20	3,0	10	M10	3,5	6,0	7,0	96	23340.0126
30,5	**38,5**	25	M12	M 6	4,0	23,2	14,0	11,7	28,8	7,0	21,9	20	9,0	3	4,6	10,0	6	18	4,5	17	25	4,0	12	M12	3,5	7,0	9,0	143	23340.0130

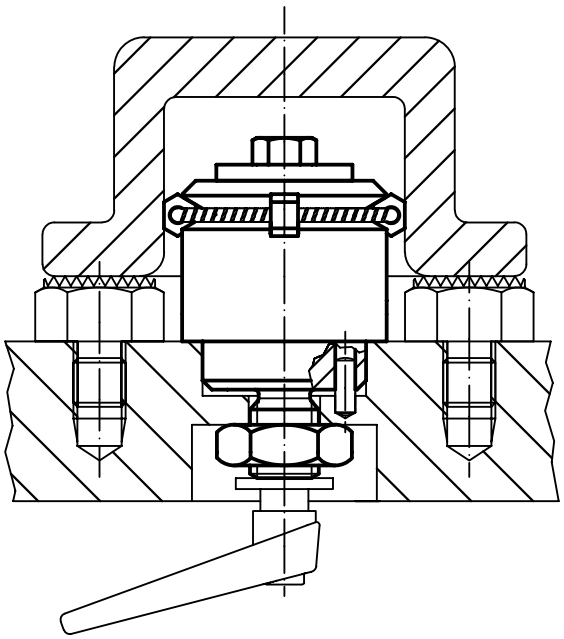
→

Dimensions														Number of segments n	Stroke s	WS			Clamping force F max.	Tightening torque max.	Location hole								Art. No.
d_1 min.	d_1 max.	d_2 f7	d_3	d_4	d_5 +0,3	h_1	h_2	h_3	h_4 -2	h_5	h_6 +1	h_7 ~	l_1 ±0,1			WS_1	WS_2	WS_3			D_1 H7	D_2	D_3	D_4	H_1	H_2 +0,5	L_1 ±0,1		
[mm]															[mm]	[mm]			[kN]	[Nm]	[mm]							[g]	
38,5	**46,5**	30	M12	M 6	4,0	27,2	18,0	15,5	33,1	7,5	22,5	20	11,0	6	4,6	10,0	8	18	6,5	17	30	4,0	12	M12	4,5	7,5	11,0	250	23340.0138
46,5	**54,5**	30	M12	M 6	4,0	27,2	18,0	15,7	33,1	7,5	22,5	20	11,0	6	4,6	10,0	8	18	6,5	17	30	4,0	12	M12	6,5	7,5	11,0	340	23340.0146
54,5	**70,5**	45	M14 x 1,5	M 8	5,0	40,7	23,7	19,1	50,0	9,0	24,5	32	15,0	6	9,2	13,0	10	21	8,0	43	45	5,0	14	M14 x 1,5	6,5	9,0	15,0	680	23340.0154
70,5	**86,5**	60	M16 x 1,5	M 8	5,0	46,0	28,1	23,5	55,3	10,0	29,4	20	17,0	6	9,2	13,0	12	24	10,0	43	60	5,0	16	M16 x 1,5	6,5	10,0	17,0	1300	23340.0170
86,5	**102,5**	60	M16 x 1,5	M10	5,0	51,1	30,1	25,5	61,5	10,0	29,4	25	25,0	6	9,2	16,0	12	24	12,5	79	60	5,0	16	M16 x 1,5	6,5	10,0	25,0	2060	23340.0186

3

APPLICATION EXAMPLE





Centering Clamping Elements • with clamping balls, operation from the bottom

EH 23340.

PRODUCT DESCRIPTION

To be used for accurate centering and clamping in blind holes of workpieces with locating hole. Exact self-centering with a precision of ±0,025 mm. The clamping balls frictionally center and hold workpieces with raw or pre-machined surfaces down to the bearing points. Large adjustment stroke and a small building height are a feature of this center clamping element.

Mounting from either top or bottom.

Material

Body
- Tool steel, hardened, blackened

Spring
- Stainless steel

Clamping balls
- Stainless steel 1.4112, hardened and ground

Assembly

Assembly instructions for mounting from above: remove clamping plate and screw. Screw in threaded pin from below, and tighten from above using female WS_2.

Operation

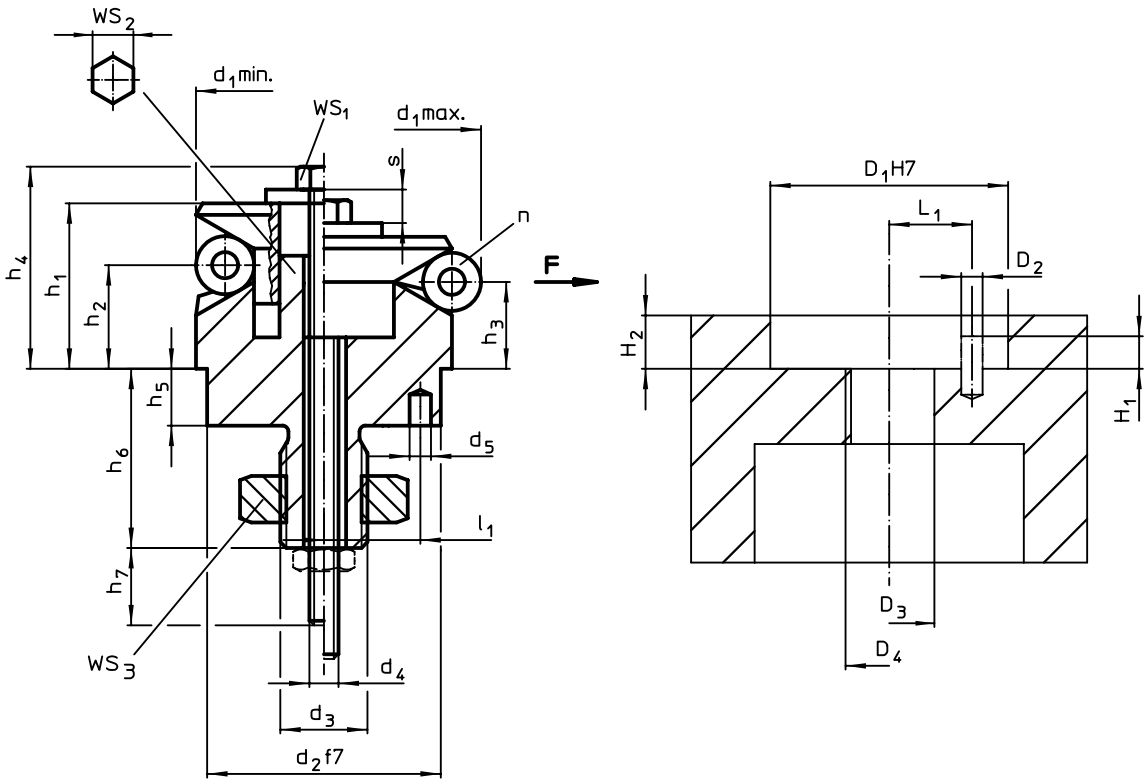
Operation from bottom manually or automatically with either pneumatic or hydraulic actuation.

MORE INFORMATION

Further products

Centering Clamping Elements, with clamping segments, operation from the bottom → p. 544

DRAWING



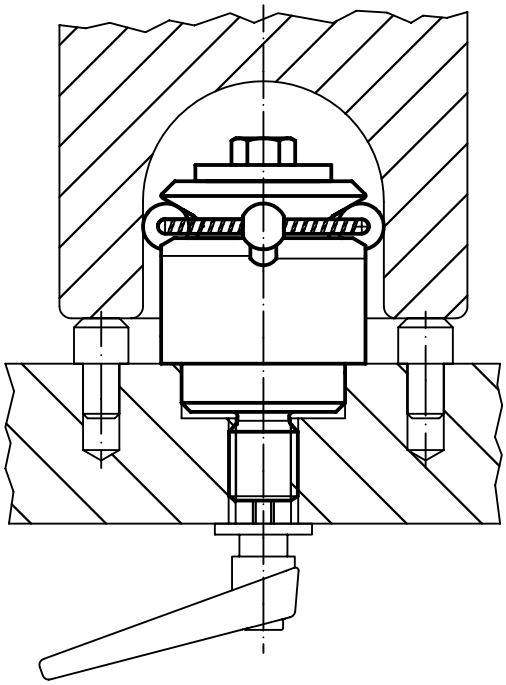
ORDER INFORMATION

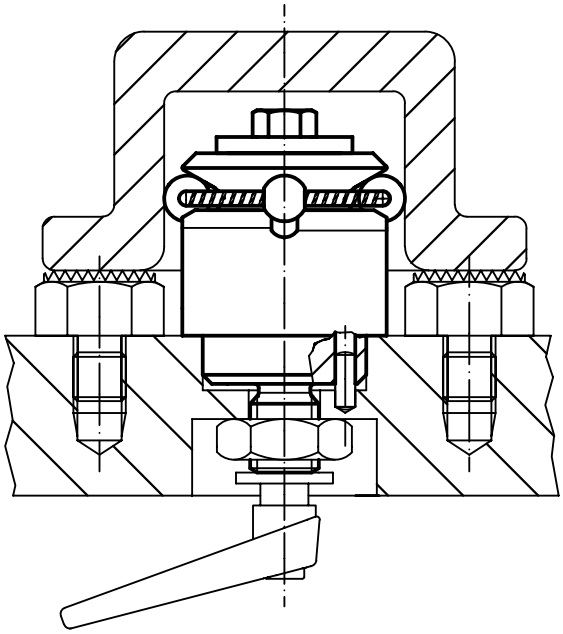
Dimensions															Number of balls n	Stroke s	WS			Clamping force F max.	Tightening torque max.	Location hole								Art. No.
d_1 min.	d_1 max.	d_2 f7	d_3	d_4	d_5 +0,3	h_1	h_2	h_3	h_4 -2	h_5	h_6 +1	h_7 ~	l_1 ±0,1	Ball Ø			WS_1	WS_2	WS_3			D_1 H7	D_2	D_3	D_4	H_1	H_2 +0,5	L_1 ±0,1		
[mm]																[mm]	[mm]			[kN]	[Nm]	[mm]							[g]	
11,7	**14,2**	10	M 5	M 3	1,5	9,9	3,9	3,2	12,7	3,5	11,0	10	3,5	2,5	3	1,3	5,5	4	8	0,5	2	10	1,5	5	M 5	2,0	3,5	3,5	12	23340.0312
14,5	**18,5**	12	M 6	M 3	2,0	14,2	9,8	8,6	17,0	5,5	14,1	12	4,5	4,0	3	2,3	5,5	3	10	3,5	2	12	2,0	6	M 6	2,5	5,5	4,5	21	23340.0314
18,5	**22,5**	15	M 8	M 4	2,5	16,5	11,6	10,4	20,4	7,5	18,2	14	5,5	4,0	3	2,3	7,0	5	13	4,0	5	15	2,5	8	M 8	3,5	7,5	5,5	45	23340.0318
22,5	**26,5**	20	M10	M 5	3,0	19,6	14,1	12,9	24,3	6,0	17,4	15	7,0	4,0	3	2,3	8,0	6	16	4,5	10	20	3,0	10	M10	3,5	6,0	7,0	77	23340.0322
26,5	**30,5**	20	M10	M 5	3,0	19,8	14,1	13,0	24,5	6,0	17,4	15	7,0	4,0	3	2,3	8,0	6	16	4,5	10	20	3,0	10	M10	3,5	6,0	7,0	96	23340.0326
30,5	**38,5**	25	M12	M 6	4,0	23,2	14,1	11,8	28,8	7,0	21,9	20	9,0	8,0	3	4,6	10,0	6	18	4,5	17	25	4,0	12	M12	3,5	7,0	9,0	140	23340.0330

→

Dimensions																Number of balls n	Stroke s	WS			Clamping force F max.	Tightening torque max.	Location hole								Art. No.
d_1 min.	d_1 max.	d_2 f7	d_3	d_4	d_5 +0,3	h_1	h_2	h_3	h_4 -2	h_5	h_6 +1	h_7 ~	l_1 ±0,1	Ball Ø			WS_1	WS_2	WS_3			D_1 H7	D_2	D_3	D_4	H_1	H_2 +0,5	L_1 ±0,1		
[mm]																	[mm]			[kN]	[Nm]	[mm]							[g]	
38,5	**46,5**	30	M12	M 6	4,0	27,1	18,0	15,5	33,0	7,5	22,5	20	11,0	8,0	6	4,6	10,0	8	18	6,5	17	30	4,0	12	M12	4,5	7,5	11,0	246	23340.0338
46,5	**54,5**	30	M12	M 6	4,0	27,2	18,0	15,7	33,1	7,5	22,5	20	11,0	8,0	6	4,6	10,0	8	18	6,5	17	30	4,0	12	M12	6,5	7,5	11,0	327	23340.0346
54,5	**70,5**	45	M14 x 1,5	M 8	5,0	40,6	23,7	19,1	49,9	9,0	24,5	32	15,0	16,0	6	9,2	13,0	10	21	8,0	43	45	5,0	14	M14 x 1,5	6,5	9,0	15,0	650	23340.0354
70,5	**86,5**	60	M16 x 1,5	M 8	5,0	46,1	28,3	23,7	55,4	10,0	29,4	20	17,0	16,0	6	9,2	13,0	12	24	10,0	43	60	5,0	16	M16 x 1,5	6,5	10,0	17,0	1272	23340.0370
86,5	**102,5**	60	M16 x 1,5	M10	5,0	51,2	30,3	25,7	61,6	10,0	29,4	25	25,0	16,0	6	9,2	16,0	12	24	12,5	79	60	5,0	16	M16 x 1,5	6,5	10,0	25,0	2042	23340.0386

APPLICATION EXAMPLE





Centering Clamping Mandrels

EH 23340.

PRODUCT DESCRIPTION

For clamping and centering of workpieces with internal bore.

Material

Body
- Steel, blackened

Clamping screw
- Case-hardened steel, case hardened

Assembly

The centering clamping mandrel can be machined to the required seating diameter (e.g. by turning/milling). It must be noticed that before machining the centering clamping mandrel, it will be expanded approx. 0.1 mm over the clamping diameter. To machine the mandrel, a nut will be provided.

MORE INFORMATION

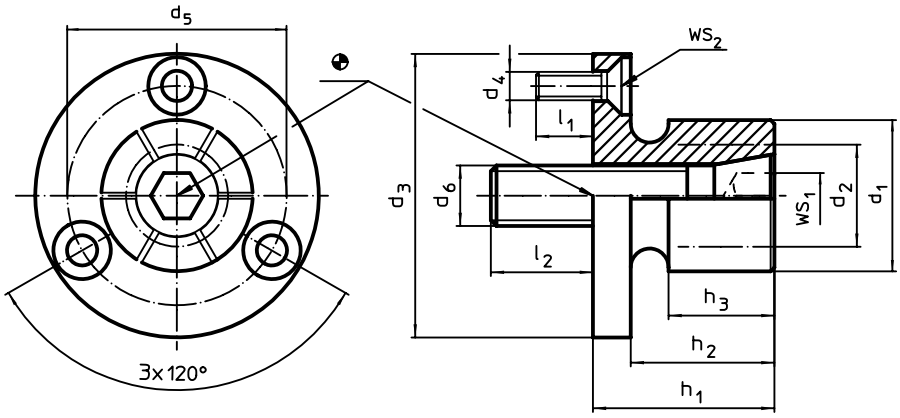
Notes

Special types on request.

Further products

Centering Clamping Mandrels, with lateral handling . . . . . → p. 549

DRAWING

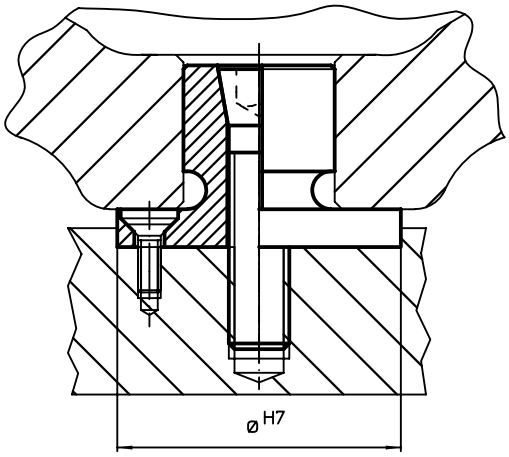


ORDER INFORMATION

Dimensions											Number of segments	WS		Clamping force max.	Tightening torque max.	Location hole H7		Art. No.
d_1	d_2 min.	d_3 -0,05	d_4	d_5	d_6	h_1	h_2	h_3	l_1 ~	l_2		WS_1	WS_2					
[mm]												[mm]		[kN]	[Nm]	[mm]	[g]	
12,4	**8,0**	29,72	M3	21,0	M 4	21,8	16,0	15,0	6	8	4	3	2,0	3	3,5	29,72	55	23340.0104
14,2	**12,2**	31,50	M3	23,1	M 6	24,9	19,0	15,0	6	12	4	5	2,0	6	12,0	31,50	68	23340.0106
20,0	**13,5**	37,50	M3	29,0	M 8	24,9	19,0	15,0	6	14	6	6	2,0	8	24,0	37,50	104	23340.0108
27,0	**18,0**	50,00	M4	39,4	M10	28,6	22,2	17,5	7	17	6	8	2,5	13	42,0	50,00	197	23340.0111
35,3	**25,4**	56,00	M4	45,5	M12	31,8	25,4	20,6	7	21	6	10	2,5	15	105,0	56,00	322	23340.0112
51,0	**30,0**	75,50	M5	63,9	M16	39,6	31,8	27,0	11	22	6	14	3,0	26	200,0	75,50	809	23340.0116
77,0	**30,0**	107,50	M6	92,5	M16	45,5	37,6	32,3	12	20	8	14	4,0	26	200,0	107,50	1832	23340.0118[1)]

[1)] including clamping nut and clamping ring to enable machining as described in note

APPLICATION EXAMPLE



Centering Clamping Mandrels • with lateral handling

EH 23340.

PRODUCT DESCRIPTION

For clamping and centering of workpieces with internal bore.

Material

Body
- Steel, blackened

Clamping screw
- Heat-treated steel

Assembly

The centering clamping mandrel can be machined to the required seating diameter (e.g. by turning/milling). It must be noticed that before machining the centering clamping mandrel, it will be expanded approx. 0,1 mm over the clamping diameter. To machine the mandrel, a locking ring will be provided.

Operation

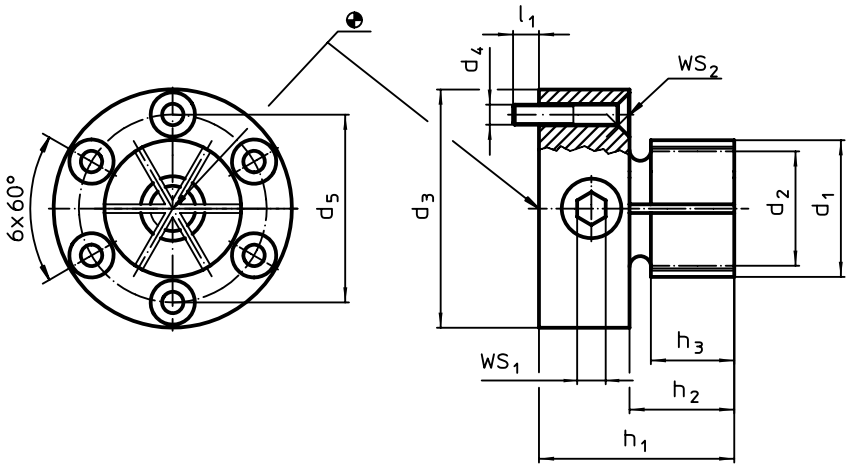
Thanks to the lateral handling it can also be used for blind hole drilling.

MORE INFORMATION

Further products

Centering Clamping Mandrels . . . . . → p. 548

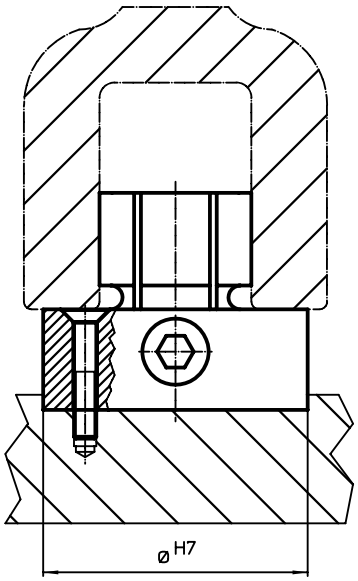
DRAWING



ORDER INFORMATION

Dimensions									WS		Clamping force max.	Tightening torque max.	Location hole H7		Art. No.
d_1	d_2 min.	d_3 -0,05	d_4	d_5	h_1	h_2	h_3	l_1 ~	WS_1	WS_2					
[mm]									[mm]		[kN]	[Nm]	[mm]	[g]	
28,7	17,8	50	M4	39,4	41	22	17,5	7	6	2,5	20	66	50	380	23340.0125

APPLICATION EXAMPLE



Shaft Clamps

EH 23341.

PRODUCT DESCRIPTION

Shaft clamps are used to clamp round workpieces, e.g. shafts, axels, tubes or rods voth axially and radially.

Material

Body
- Steel, blackened

Clamping screw
- Steel, zinc-plated (DIN 912)

Assembly

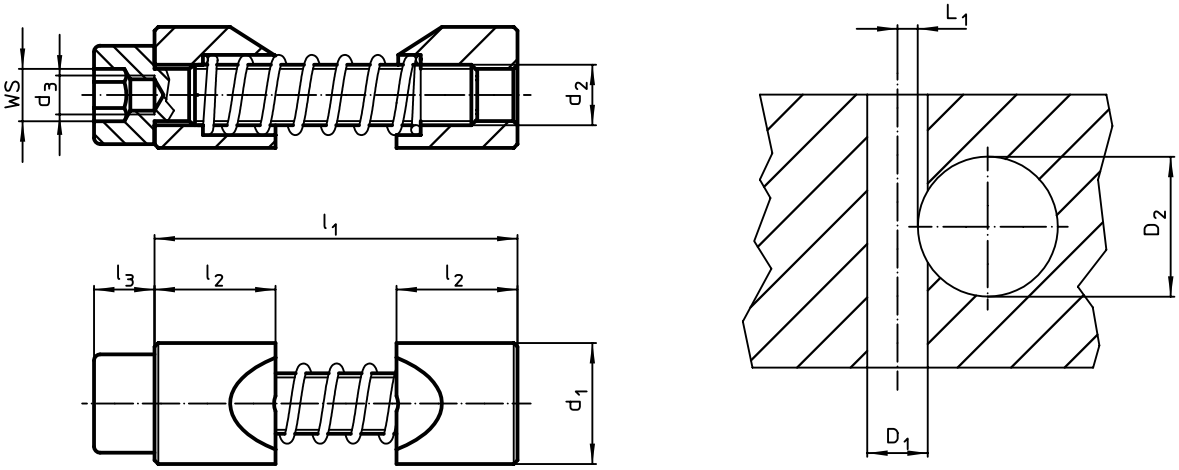
1. Expand the clamping jaws to the diameter of the shaft to be clamped.
2. Insert shaft clamp into hole using the assembly tool.
3. Insert and position the shaft.
4. Clamp using cylinder screw WS (observe tightening torque).

MORE INFORMATION

Notes

The thread d_3 serves to hold the assembly tool (optional).

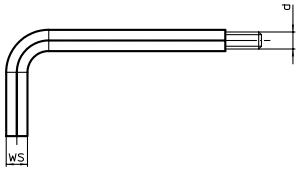
DRAWING



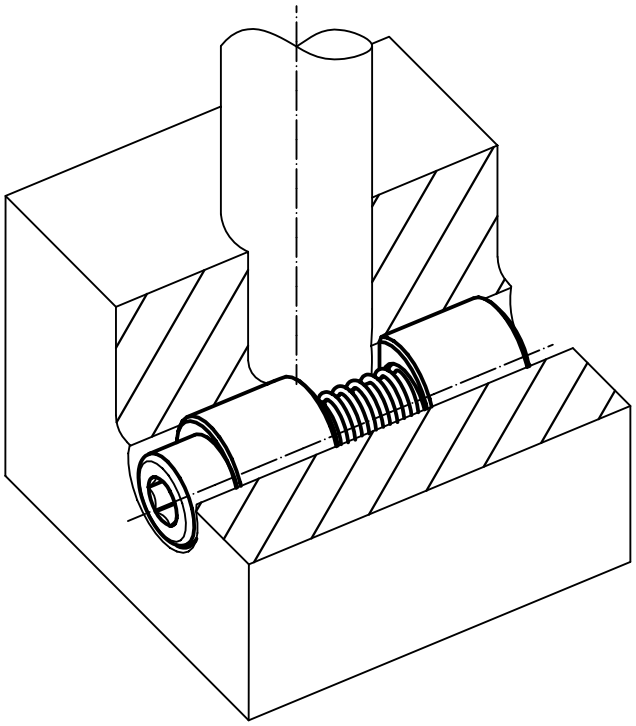
ORDER INFORMATION

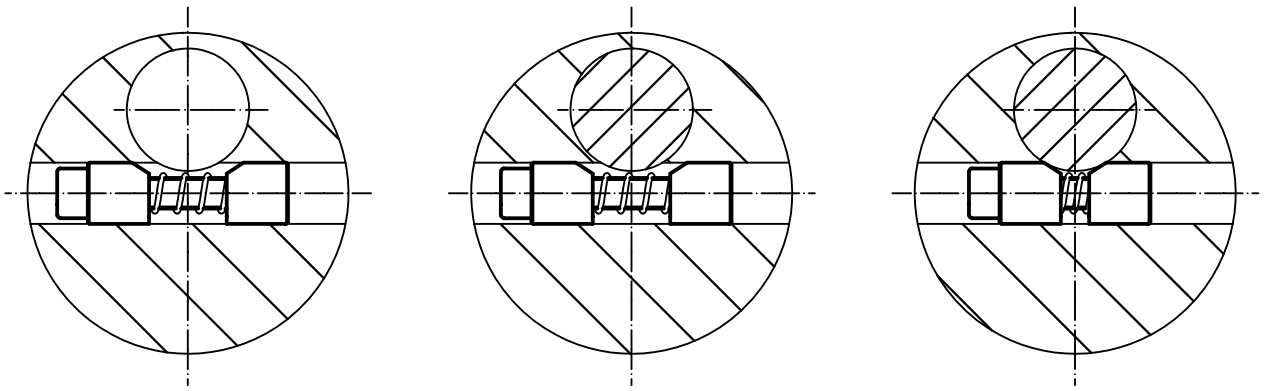
Dimensions						WS	Tightening torque max.	Location hole				Art. No.
d_1 h11	d_2	d_3	l_1 max.	l_2	l_3			Hub bore D_1 H7	shaft diameter D_2	L_1 +0,2		
[mm]						[mm]	[Nm]	[mm]			[g]	
8	M 4	M 2,5	27	8	4	3	2,9	8	6 – 10	2,8	7	23341.0008
10	M 5	M 3	33	10	5	4	6,0	10	10 – 15	3,3	13	23341.0010
12	M 6	M 4	39	12	6	5	10,0	12	15 – 20	3,5	22	23341.0012
16	M 8	M 5	46	16	8	6	25,0	16	20 – 30	4,0	52	23341.0016
20	M10	M 6	53	20	10	8	46,0	20	30 – 40	4,8	104	23341.0020
25	M12	M 8	70	25	12	10	82,0	25	40 – 60	5,6	189	23341.0025
30	M16	M10	81	30	16	14	206,0	30	60 – 125	7,9	346	23341.0030

ACCESSORIES

	WS [mm]	d [mm]	[g]	Art. No.
special hexagon key				
	**3**	**M 2,5**	5	23341.1008
	4	**M 3**	10	23341.1010
	5	**M 4**	18	23341.1012
	6	**M 5**	28	23341.1016
	8	**M 6**	57	23341.1020
	10	**M 8**	95	23341.1025
	14	**M10**	248	23341.1030

APPLICATION EXAMPLE





3

Screw Jacks

EH 23470.

PRODUCT DESCRIPTION

Trapezoidal self-locking thread, spindle with final safety device. The holders, which can be secured by means of the T-slots, make it possible to tighten the jacks so that they will not slip out of position when a workpiece is changed. They also allow to fit screw jacks to vertical clamping surfaces. Screw jacks are frequently used for supporting workpieces. Use of the self-aligning cap ensures a correctly aligned bearing surface. Using the centering plate as an intermediate element, it is possible to fit a number of screw jacks sizes 52, 70 and 100 together one above the other.

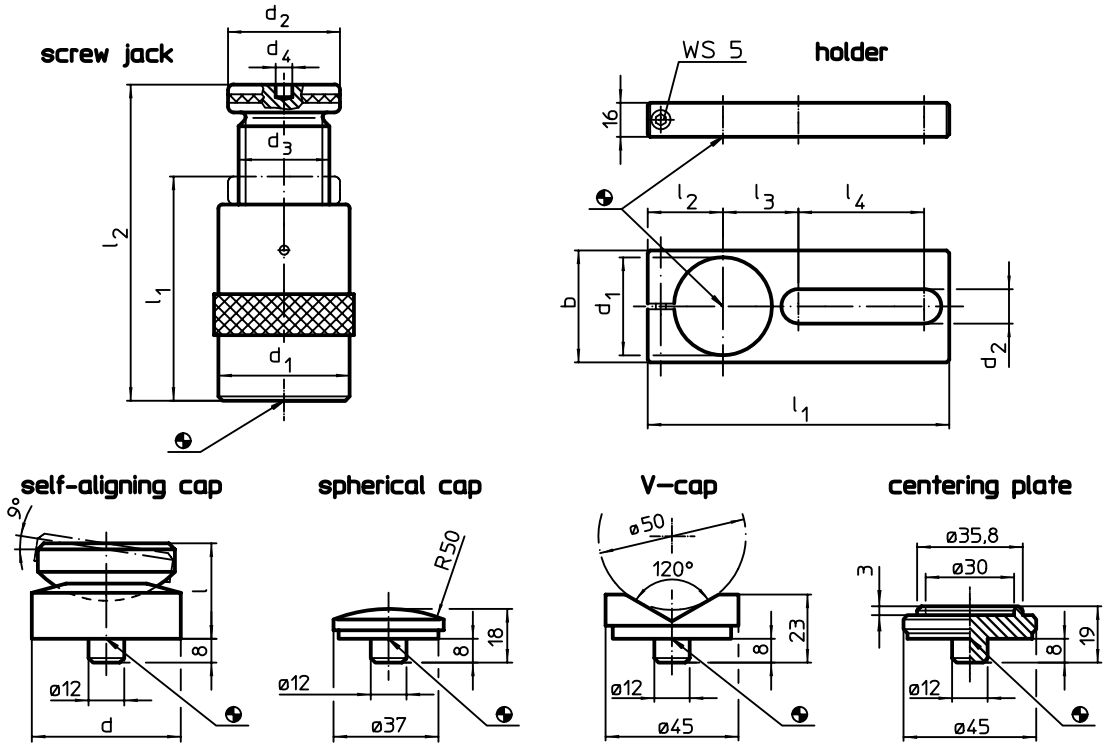
Material

Caps
- Stel, case-hardened, blackened

Holder
- Steel, blackened

Screw jack
- Steel 1.0503 varnished

DRAWING



ORDER INFORMATION

l_2 Clamping height max.	Dimensions					Carrying force		Art. No.
	l_1 min.	d_1	d_2	d_3	d_4			
[mm]	[mm]				[mm]	[kN]	[g]	
screw jack								
50	38	31	31	Tr 20 x 4	–	15	191	23470.0005
52	42	50	50	Tr 30 x 4	12	60	539	23470.0006
70	50	50	50	Tr 30 x 4	12	60	645	23470.0007
100	70	50	50	Tr 30 x 4	12	60	900	23470.0010
140	100	69	69	Tr 40 x 7	12	100	2614	23470.0014
210	140	80	70	Tr 50 x 8	12	170	4336	23470.0021
300	190	100	80	Tr 65 x 10	12	350	9680	23470.0030

ACCESSORIES

	Dimensions									For screw jacks		Art. No.
	d	d_1	b	d_2	l	l_1	l_2	l_3	l_4			
	[mm]									[mm]	[g]	
holder												
	–	31	40	18,5	–	175	30	35	90	50	518	23470.0232
		50	60	20,5	–	190	38	46	90	52/ 70/100	891	23470.0250
		69	80	24,5	–	210	48	54	90	140	1300	23470.0270
self-aligning cap												
	50	–	–	–	32	–	–	–	–	52/ 70/100	399	23470.0350
	65	–	–	–	35	–	–	–	–	140/210	715	23470.0365
spherical cap												
	–	–	–	–	–	–	–	–	–	52/ 70/100/140/210/300	74	23470.0171
V-cap												
	–	–	–	–	–	–	–	–	–	52/ 70/100/140/210/300	138	23470.0172
centering plate												
	–	–	–	–	–	–	–	–	–	52/ 70/100	107	23470.0170

3