Toggle clamps

elesa®

STANDARD MACHINE ELEMENTS WORLDWIDE

Toggle clamps

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Toggle clamps

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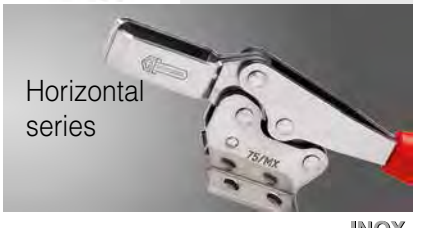

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Toggle joints mechanism features

Thanks to the toggle action principle, quick action clamps offer various advantages:

- Since the clamping arm moves fully away from the working area it leaves unimpeded access to the fixture, which can therefore be taken away or placed very easily (fig. 1).
- A slight movement of the control lever brings the clamping arm near to the work piece.
- The position of the three pivot points (fi g. 2) clearly shows that the force exerted on the clamping arm is monitored by the control lever (fi g.3). The maximun clamping force (Fs) is achieved when the three pivots are aligned (dead point of the lever).

  The intensity of the force Fs exerted on the tool depends upon:

  - the force applied to the handle;
  - the position of the clamping bolt in the hold down bar.

  The manual force applied by the operator cannot be calculated, so the Fs values reported in the tables refer to pneumatic devices. In the most effective position (fi g. 3) the clamping balance is rather unstable, as opposing forces may act on the hold-down bar thus opening the clamp..
- When in the closed position the dead point is exceeded slightly (fi g. 4), and the clamping lever is in an over-center locked position with a steady and irreversible holding capacity.

The force the clamp may absorb in the closed position with no permanent deformation is called the holding force (Fh). Its amount is specifi c to each toggle clamp and varies according to clamp size and form.

Forces are calculated in daN (deca Newton) = 10N (Newton) = 1Kg weight.

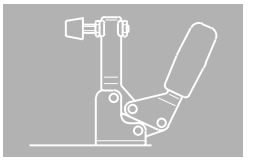


fig. 1

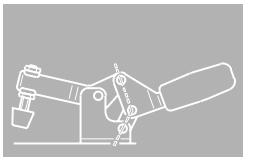


fig. 2

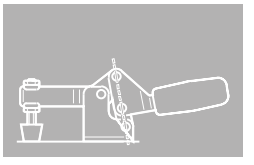


fig. 3

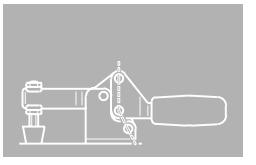


fig. 4

The ELESA full product range






elesa®

MVA.

INOX Stainless Steel

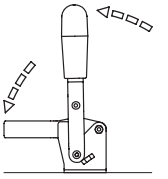
Vertical toggle clamps with folded base

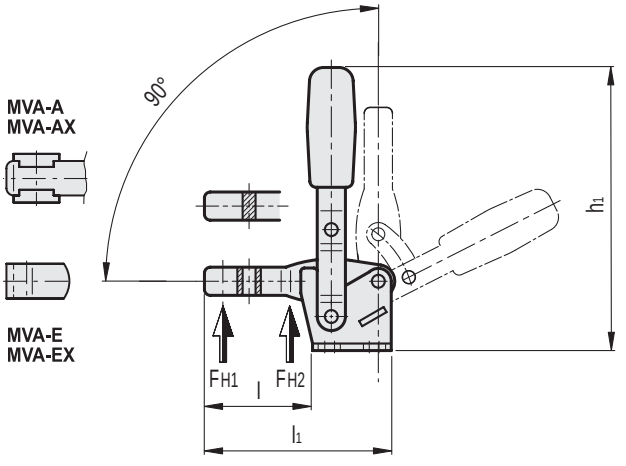
RoHS

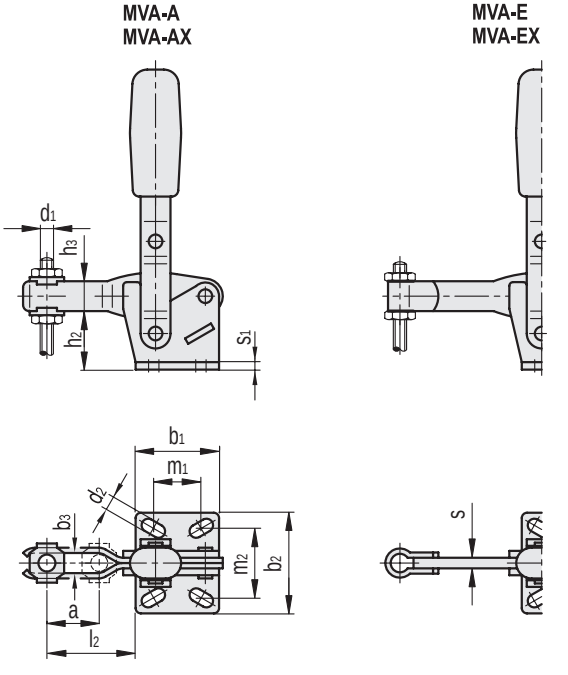
- **Standard executions**
  - **MVA-A**: C10 zinc-plated steel, zinc-plated steel rivets. Open clamping lever and two folded washers.
  - **MVA-E**: C10 zinc-plated steel, zinc-plated steel rivets. Solid clamping lever and bolt retainer.
  - **MVA-AX**: AISI 304 stainless steel. Open clamping lever and two folded washers.
  - **MVA-EX**: AISI 304 stainless steel. Solid clamping lever and bolt retainer.
- **Support bushing**
  Ground and hardened steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Clamping bolts**
  To be ordered separately.

Features and applications

All articulated joints are lubricated with special grease.
During clamping, the lever is controlled to prevent impact on functioning due to side thrust.
The new geometry of MVA vertical toggle clamps gives them additional strength, their lifespan is significantly increased with the addition of hardened steel support bushings as well as several other forms of reinforcement.
Slotted assembly holes for applications in inches.





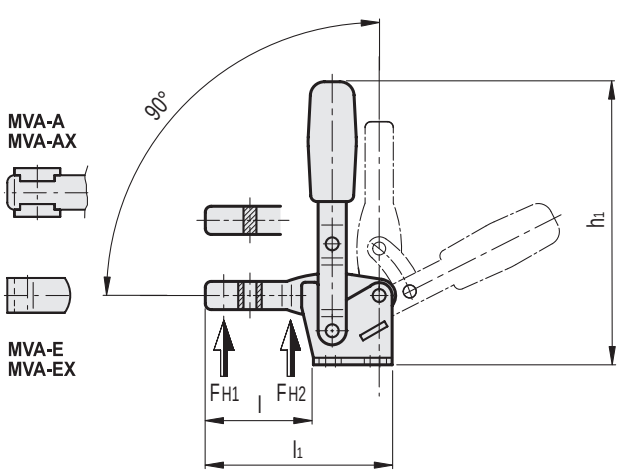


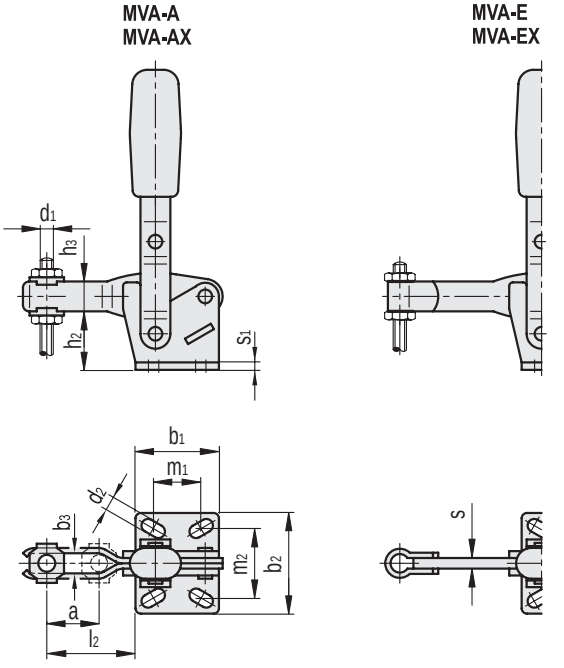
Conversion Table *1 mm = 0.039 inch*			
m1		m2	
mm	**inch**	mm	**inch**
15-16	**0.59-0.63**	24	**0.94**
12.5-19	**0.49-0.75**	27-29	**1.06-1.14**
19-20	**0.75-0.79**	32	**1.26**
29-32	**1.14-1.26**	45-46	**1.77-1.81**
32	**1.26**	45	**1.77**
50-51	**1.97-2.00**	70	**2.75**

MVA-A

Code	Description	a	b_1	b_2	b_3	d_1	d_2	h_1	h_2	h_3	l	l_1	l_2	m_1	m_2	s_1	FH1 [N]*	FH2 [N]*	⚖
GG.AA520	MVA.75-A	20	29	34	5.2	M5	4.5	98	20.5	11	37.5	66.5	31.5	15-16	24	2	750	1600	98
GG.AA530	MVA.130-A	28	35	42	6.2	M6	5.5	142	28	16	50	85	42	12.5-19	27-29	2.5	1050	1750	230
GG.AA540	MVA.230-A	40	43	45	8.5	M8	6.5	168	33.5	18	67.5	110.5	58	19-20	32	3	2000	3200	380
GG.AA550	MVA.330-A	43	50	65	10.5	M10	8.5	195	43	22	79	129	76	29-32	45-46	3.5	2400	4000	604
GG.AA560	MVA.430-A	64	58	65	12.5	M12	8.5	247	55.5	26	106	164	104	32	45	4	2800	5000	1100
GG.AA570	MVA.530-A	90	80	95	12.5	M12	12.5	303	84.5	32	143	223	144	50-51	70	7	4500	8750	2110

* Holding force.





Conversion Table *1 mm = 0.039 inch*			
m1		m2	
mm	**inch**	mm	**inch**
15-16	**0.59-0.63**	24	**0.94**
12.5-19	**0.49-0.75**	27-29	**1.06-1.14**
19-20	**0.75-0.79**	32	**1.26**
29-32	**1.14-1.26**	45-46	**1.77-1.81**
32	**1.26**	45	**1.77**
50-51	**1.97-2.00**	70	**2.75**

MVA-E

Code	Description	b_1	b_2	d_1	d_2	h_1	h_2	h_3	l	l_1	m_1	m_2	s	s_1	FH1 [N]*	FH2 [N]*	⚖
GG.AA524	MVA.75-E	29	34	M5	4.5	98	20.5	11	38	67	15-16	24	4	2	750	1600	100
GG.AA534	MVA.130-E	35	42	M6	5.5	142	28	16	51	86	12.5-19	27-29	5	2.5	1050	1750	235
GG.AA544	MVA.230-E	43	45	M8	6.5	168	33.5	18	69	112	19-20	32	6	3	2000	3200	390
GG.AA554	MVA.330-E	50	65	M10	8.5	195	42	20	80.5	130.5	29-32	45-46	7	3.5	2400	4000	604
GG.AA564	MVA.430-E	58	65	M12	8.5	247	55.5	26	108	166	32	45	10	4	2800	5000	1100
GG.AA574	MVA.530-E	80	95	M12	12.5	303	84.5	32	145	225	50-51	70	10	7	4500	8750	2110

MVA-AX

INOX Stainless Steel

Code	Description	a	b_1	b_2	b_3	d_1	d_2	h_1	h_2	h_3	l	l_1	l_2	m_1	m_2	s_1	FH1 [N]*	FH2 [N]*	⚖
GG.AS095	MVA.75-AX	20	29	34	5.2	M5	4.5	98	20.5	11	37.5	66.5	31.5	15-16	24	2	750	1600	98
GG.AS150	MVA.130-AX	28	35	42	6.5	M6	5.5	142	28	16	50	85	42	12.5-19	27-29	2.5	1050	1750	230
GG.AS180	MVA.230-AX	40	43	45	8.5	M8	6.5	168	33.5	18	67.5	110.5	58	19-20	32	3	2000	3200	380

MVA-EX

INOX Stainless Steel

Code	Description	b_1	b_2	d_1	d_2	h_1	h_2	h_3	l	l_1	m_1	m_2	s	s_1	FH1 [N]*	FH2 [N]*	⚖
GG.AS105	MVA.75-EX	29	34	M5	4.5	98	20.5	11	38	67	15-16	24	4	2	750	1600	100
GG.AS160	MVA.130-EX	35	42	M6	5.5	142	28	16	51	86	12.5-19	27-29	5	2.5	1050	1750	235
GG.AS190	MVA.230-EX	43	45	M8	6.5	168	33.5	18	69	112	19-20	32	6	3	2000	3200	390

* Holding force.

MVB.

INOX Stainless Steel

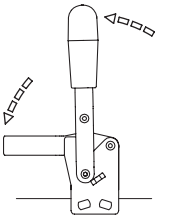
Vertical toggle clamps with straight base

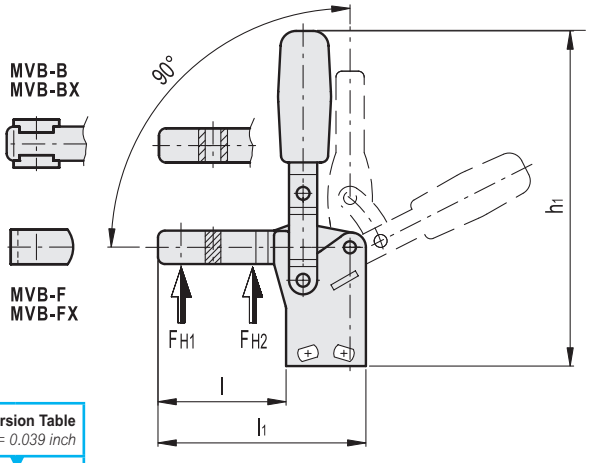
RoHS

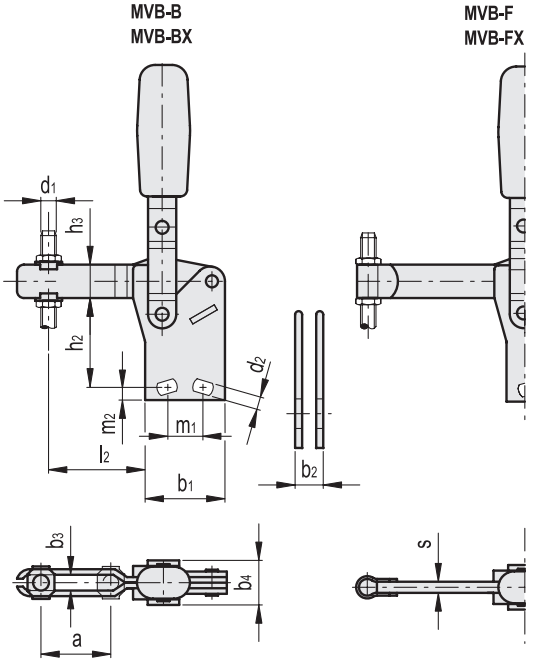
- **Standard executions**
  - **MVB-B**: C10 zinc-plated steel, zinc-plated steel rivets. Open clamping lever and two folded washers.
  - **MVB-F**: C10 zinc-plated steel, zinc-plated steel rivets. Solid clamping lever and bolt retainer.
  - **MVB-BX**: AISI 304 stainless steel. Open clamping lever and two folded washers.
  - **MVB-FX**: AISI 304 stainless steel. Solid clamping lever and bolt retainer.
- **Support bushing**
  Ground and hardened steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Clamping bolts**
  To be ordered separately.

Features and applications

All articulated joints are lubricated with special grease.
During clamping, the lever is controlled to prevent impact on functioning due to side thrust.
The new geometry of MVB vertical toggle clamps gives them additional strength, their lifespan is significantly increased with the addition of hardened steel support bushings as well as several other forms of reinforcement.
Slotted assembly holes for applications in inches.





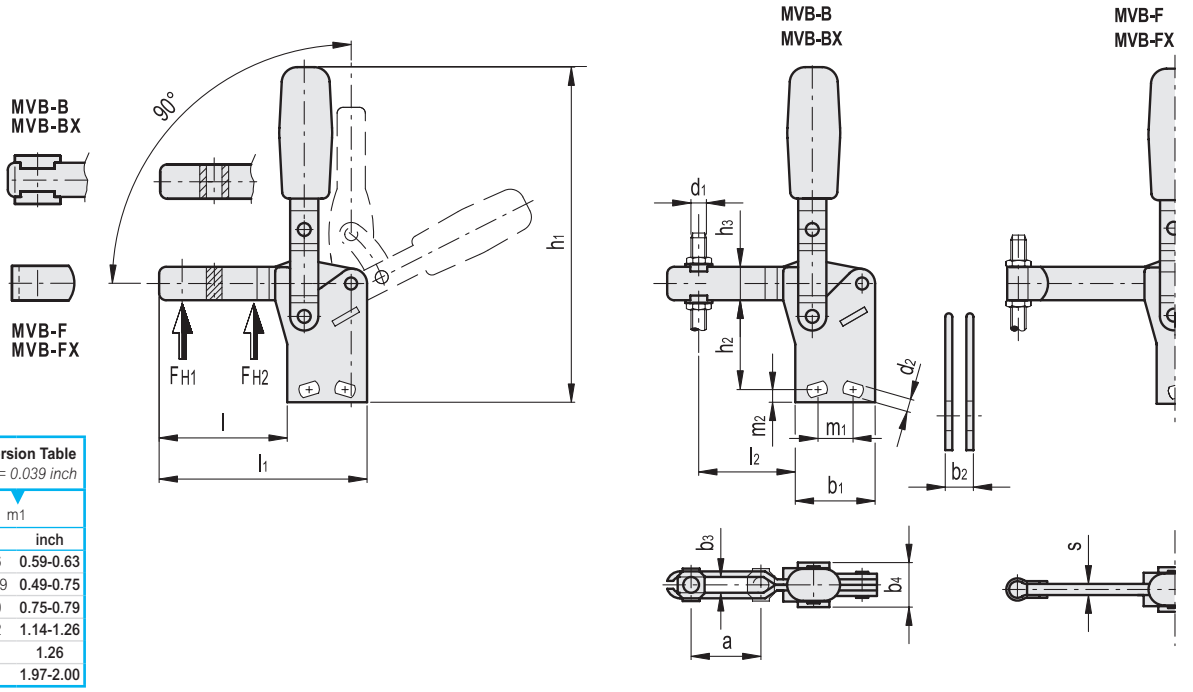


Conversion Table *1 mm = 0.039 inch*	
m1	
mm	inch
15-16	0.59-0.63
12.5-19	0.49-0.75
19-20	0.75-0.79
29-32	1.14-1.26
32	1.26
50-51	1.97-2.00

MVB-B

Code	Description	a	b_1	b_2	b_3	b_4	d_1	d_2	h_1	h_2	h_3	l	l_1	l_2	m_1	m_2	FH1 [N]*	FH2 [N]*	⚖
GG.AA522	MVB.75-B	20	29	8	5.2	16	M5	4.5	109.5	27	11	37.5	66.5	31.5	15-16	5	750	1600	98
GG.AA532	MVB.130-B	28	35	10	6.2	20	M6	5.5	156	35	16	50	85	42	12.5-19	6.5	1050	1750	230
GG.AA542	MVB.230-B	40	43	12	8.5	23	M8	6.5	183	41.5	18	67.5	110.5	58	19-20	6.5	2000	3520	380
GG.AA552	MVB.330-B	43	50	14	10.5	25	M10	8.5	218	56.5	22	79	129	76	29-32	9.5	2400	4000	620
GG.AA562	MVB.430-B	64	58	18	12.5	34	M12	8.5	267.5	67.5	26	106	164	104	32	10	2800	5000	1110
GG.AA572	MVB.530-B	90	77	18	12.5	34	M12	12.5	337	105	32	146	223	144	50-51	12.5	4500	8750	1920

* Holding force.



Conversion Table *1 mm = 0.039 inch*	
m1	
mm	inch
15-16	0.59-0.63
12.5-19	0.49-0.75
19-20	0.75-0.79
29-32	1.14-1.26
32	1.26
50-51	1.97-2.00

MVB-F

Code	Description	b_1	b_2	b_4	d_1	d_2	h_1	h_2	h_3	l	l_1	m_1	m_2	s	FH1 [N]*	FH2 [N]*	⚖
GG.AA526	MVB.75-F	29	8	16	M5	4.5	109.5	27	11	38	67	15-16	5	4	750	1160	100
GG.AA536	MVB.130-F	35	10	20	M6	5.5	156	35	16	51	86	12.5-19	6.5	5	1050	1750	235
GG.AA546	MVB.230-F	43	12	23	M8	6.5	183	41.5	18	69	112	19-20	6.5	6	2000	3200	390
GG.AA556	MVB.330-F	50	14	25	M10	8.5	218	56.5	22	80.5	130.5	29-32	9.5	7	2400	4000	620
GG.AA566	MVB.430-F	58	18	34	M12	8.5	267.5	67.5	26	108	166	32	10	10	2800	5000	1110
GG.AA576	MVB.530-F	77	18	34	M12	12.5	337	105	32	148	225	50-51	12.5	10	4500	8000	1920

MVB-BX

INOX Stainless Steel

Code	Description	a	b_1	b_2	b_3	b_4	d_1	d_2	h_1	h_2	h_3	l	l_1	l_2	m_1	m_2	FH1 [N]*	FH2 [N]*	⚖
GG.AS100	MVB.75-BX	20	29	8	5.2	16	M5	4.5	109.5	27	11	37.5	66.5	31.5	15-16	5	750	1600	98
GG.AS155	MVB.130-BX	28	35	10	6.2	20	M6	5.5	156	35	16	50	85	42	12.5-19	6.5	1050	1750	230
GG.AS185	MVB.230-BX	40	43	12	8.5	23	M8	6.5	183	41.5	18	67.5	110.5	58	19-20	6.5	2000	3200	380

MVB-FX

INOX Stainless Steel

Code	Description	b_1	b_2	b_4	d_1	d_2	h_1	h_2	h_3	l	l_1	m_1	m_2	s	FH1 [N]*	FH2 [N]*	⚖
GG.AS110	MVB.75-FX	29	8	16	M5	4.5	109.5	27	11	38	67	15-16	5	4	750	1600	100
GG.AS165	MVB.130-FX	35	10	20	M6	5.5	156	35	16	51	86	12.5-19	6.5	5	1050	1750	235
GG.AS195	MVB.230-FX	43	12	23	M8	6.5	183	41.5	18	69	112	19-20	6.5	6	2000	3200	390

* Holding force.

MVC.

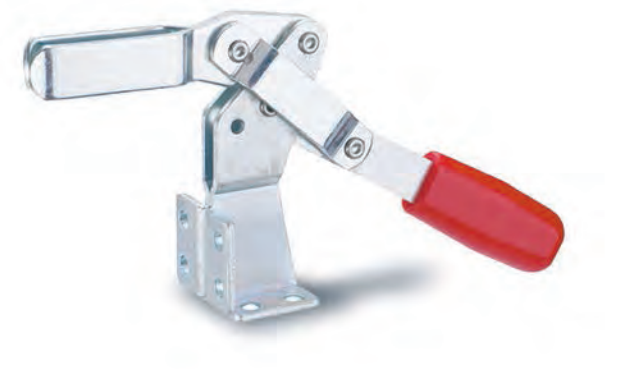
Vertical toggle clamps with double base

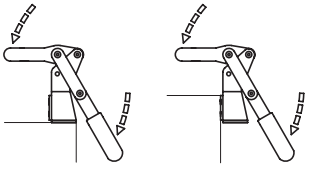
RoHS

- **Material**
  C10 zinc-plated steel.
- **Rivets**
  Zinc-plated steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Standard executions**
  - **MVC-AV**: with open clamping lever and two folded washers.
  - **MVC-EV**: with solid clamping lever and retainer for welding.
- **Clamping bolts**
  To be ordered separately.

Features and applications

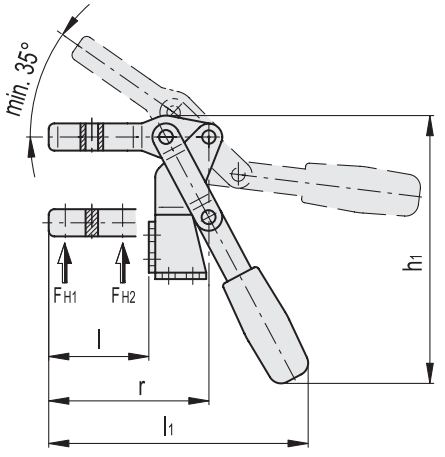
All articulated joints are lubricated with special grease.
MVC. toggle clamps can be mounted on two different surfaces and occupy a limited space for clamping as lever and arm move in two opposite directions.



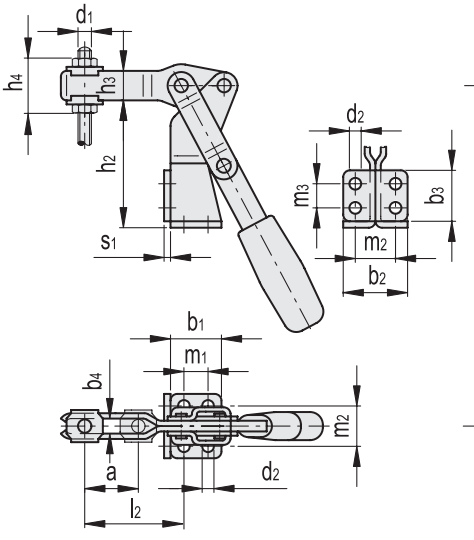


MVC-AV

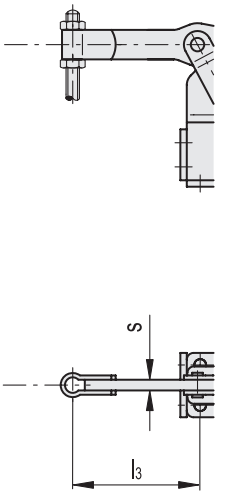
MVC-EV



MVC-AV



MVC-EV



Conversion Table *1 mm = 0.039 inch*					
m1		m2		m3	
mm	**inch**	mm	**inch**	mm	**inch**
16	**0.63**	26	**1.02**	16	**0.63**
28	**1.10**	30	**1.18**	30	**1.18**

MVC-AV

Code	Description	a	b1	b2	b3	b4	d1	d2	h1	h2	h3	h4	l	l1	l2	m1	m2	m3	r	s1	FH1 [N]*	FH2 [N]*	
GG.AA220	MVC.200-AV	34	32	38	32	8.5	M8	6.5	154	74	17	34	58.5	157	59	16	26	16	96	3	1200	2400	430
GG.AA320	MVC.300-AV	42	45	48	48	10.4	M10	8.5	198	108	20	41	76	193	74	28	30	30	122	3	1900	2800	800

MVC-EV

Code	Description	b1	b2	b3	d1	d2	h1	h2	h3	l	l1	l3	m1	m2	m3	r	s	s1	FH1 [N]*	FH2 [N]*	
GG.AA225	MVC.200-EV	32	38	32	M8	6.5	154	74	17	60.5	159	76	16	26	16	96	6	3	1200	2400	430
GG.AA325	MVC.300-EV	45	48	48	M10	8.5	198	108	20	78	195	95	28	30	30	122	8	3	1900	2800	800

* Holding force.

MVD.

Vertical toggle clamps with double base

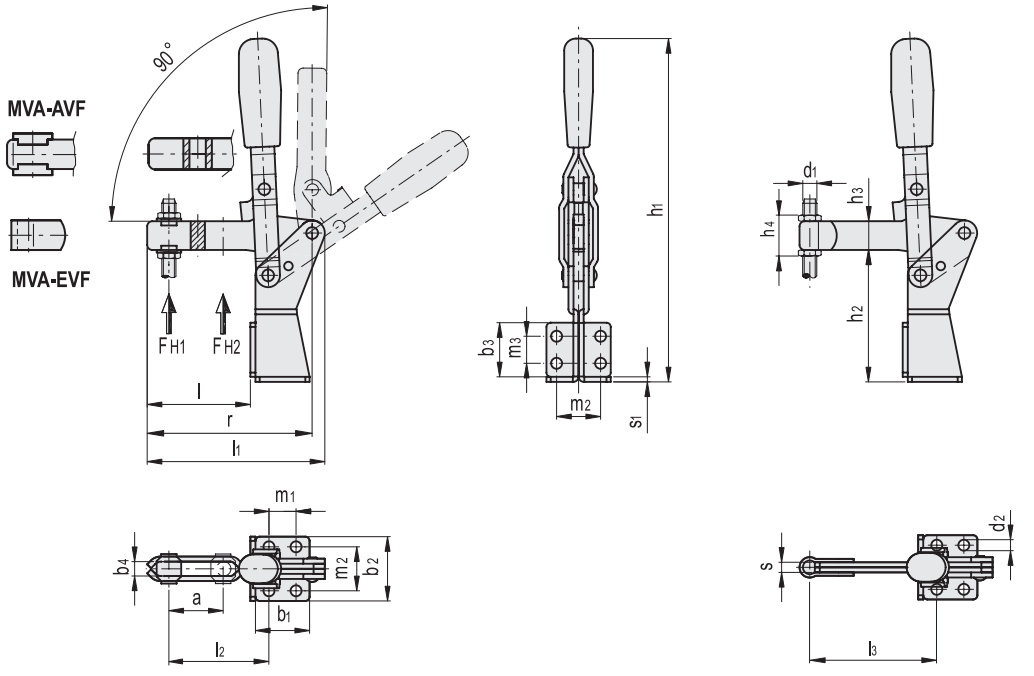
RoHS

- **Material**
  C10 zinc-plated steel.
- **Rivets**
  Zinc-plated steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Standard executions**
  - **MVD-AVF**: with open clamping lever and two folded retainers.
  - **MVD-EVF**: with solid clamping lever and retainer for welding.
- **Clamping bolts**
  To be ordered separately.

Features and applications

All articulated joints are lubricated with special grease.
MVD. toggle clamps can be mounted on two different surfaces and occupy a limited space for clamping as lever and arm move in two opposite directions.

MVD-AVF **MVD-EVF**



Conversion Table *1 mm = 0.039 inch*					
m1		m2		m3	
mm	**inch**	mm	**inch**	mm	**inch**
16	**0.63**	26	**1.02**	16	**0.63**
28	**1.10**	30	**1.18**	30	**1.18**

MVD-AVF

Code	Description	a	b_1	b_2	b_3	b_4	d_1	d_2	h_1	h_2	h_3	h_4	l	l_1	l_2	l_3	m_1	m_2	m_3	r	s_1	FH1 [N]*	FH2 [N]*	⚖
GG.AA221	MVD.200-AVF	36	32	38	32	8.5	M8	6.5	203	77	17	34	59	103	61	-	16	26	16	97	3	1600	2500	390
GG.AA321	MVD.300-AVF	50	45	48	48	10.3	M10	8.5	258	105	20	41	76	130	-	85	28	30	30	121	3	2400	3700	680

MVD-EVF

Code	Description	b_1	b_2	b_3	d_1	d_2	h_1	h_2	h_3	l	l_1	l_2	l_3	m_1	m_2	m_3	r	s	s_1	FH1 [N]*	FH2 [N]*	⚖
GG.AA226	MVD.200-EVF	32	38	32	M8	6.5	203	77	17	61	105	61	-	16	26	16	97	6	3	1600	2500	400
GG.AA326	MVD.300-EVF	45	48	48	M10	8.5	258	105	20	77.5	132	-	100	28	30	30	123	8	3	2400	3700	690

* Holding force.

MPB.

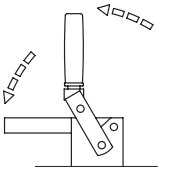
Vertical toggle clamps
Heavy-duty series

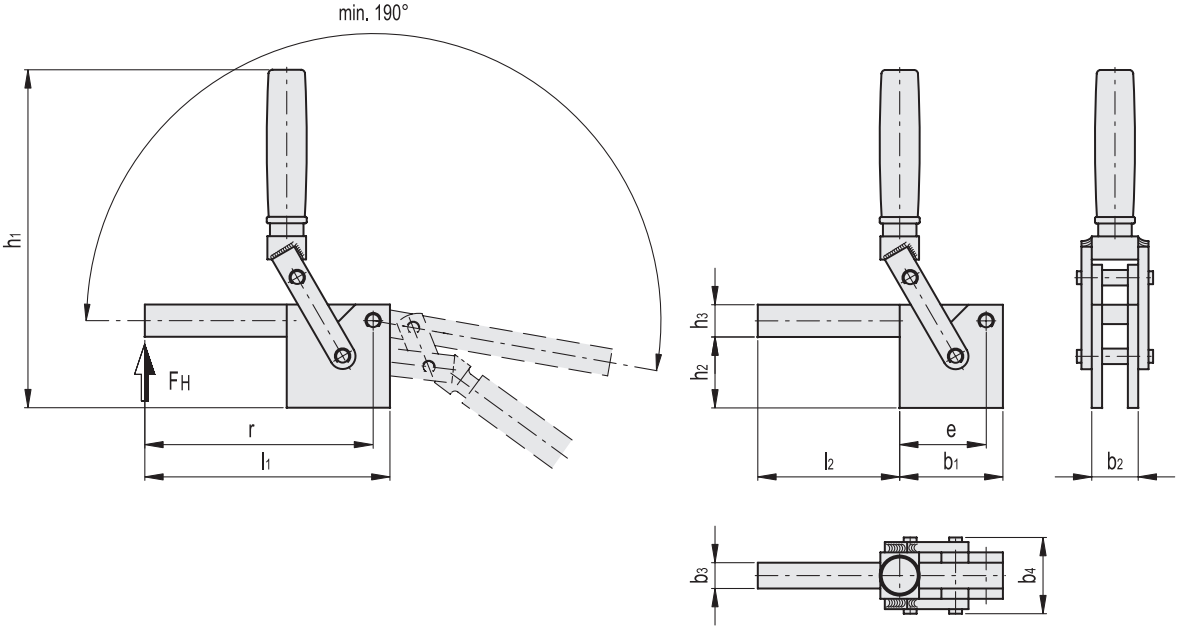
RoHS

- **Material**
  Black-oxide steel.
- **Rotating pins and seeger rings**
  Ground and hardened steel.
- **Support bushing**
  Ground and hardened steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.

Features and applications

MPB. vertical toggle clamps are usually used for applications requiring high clamping force. Easy disassembly allows to re-machine single elements according to application needs.





Code	Description	b_1	b_2	b_3	b_4	h_1	h_2	h_3	l_1	l_2	e	r	FH [N]*	⚖
GG.AA900	MPB.1000-F	80	36	20	57.5	265	55	25	190	110	67	177	10000	2400
GG.AA905	MPB.2000-F	100	36	20	57.5	295	65	35	220	120	82	202	20000	3600
GG.AA910	MPB.3000-F	110	45	25	71	320	80	40	250	140	90	230	30000	5700

* Holding force.

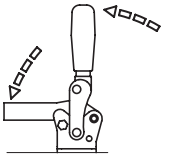
MVA.L

Vertical toggle clamps with folded base Long life series

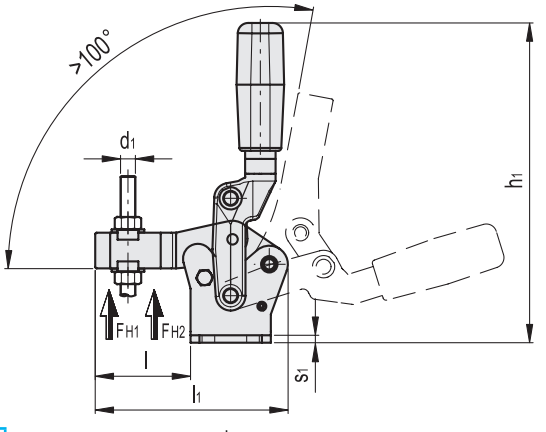
- **Material**
  Black-oxide steel.
- **Rotating pins**
  Hardened, black-oxide and ground steel.
- **Support bushing**
  Hardened, black-oxide and ground steel.
- **Adjusting screw and nut**
  Zinc-plated steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Standard executions**
  - **MVA.LLA**: with open clamping lever and two folded washers.
  - **MVA.LLE**: with solid clamping lever.
- **Clamping bolts**
  To be ordered separately.

Features and applications

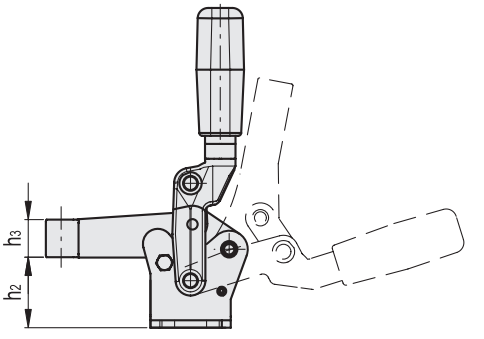
All articulated joints are lubricated with special grease.
During clamping, the lever is controlled to prevent impact on functioning due to side thrust.
High-quality materials make Long Life series toggle clamps suitable for medium to heavy loads on welding jigs, carpentry works, moulds and in general whenever high clamping torque and repetitive movements are required.
Certified for 1.000.000 cycles.

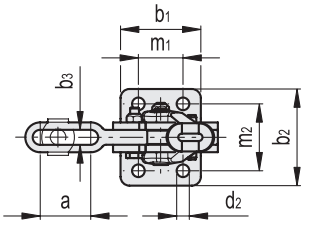


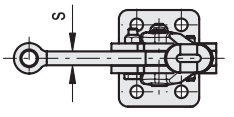
MVA.LLA



MVA.LLE







Conversion Table
1 mm = 0.039 inch

m1		m2	
mm	**inch**	mm	**inch**
20	**0.79**	32	**1.26**
30	**1.18**	45	**1.77**
55	**2.16**	55	**2.16**
65	**2.56**	65	**2.56**

MVA.LLA

Code	Description	a	b1	b2	b3	d1	d2	h1	h2	h3	h4	l	l1	l2	m1	m2	r1	s1	FH1 [N]*	FH2 [N]*	⚖
GG.AA600	MVA.LLA01	32	36	48	6	M6	6.5	136.5	30	16	27	49	91	51	20	32	77	3.5	2200	2800	330
GG.AA630	MVA.LLA02	34	54	65	10	M10	8.5	215	50	24	45	64	129.5	66	30	45	107	5	4400	8200	1200

MVA.LLE

Code	Description	b1	b2	d1	d2	h1	h2	h3	l	l1	l3	m1	m2	r1	s	s1	FH1 [N]*	FH2 [N]*	⚖
GG.AA610	MVA.LLE01	36	48	M6	6.5	136.5	30	16	44	86	46	20	32	77	6	3.5	2200	2800	325
GG.AA640	MVA.LLE02	54	65	M10	8.5	215	50	24	64	129.5	66	30	45	107	10	5	4400	8200	1200
GG.AA660	MVA.LLE03	75	75	M12	10.5	280	67	30	74	161	72	55	55	-	12	6	8500	-	2200
GG.AA681	MVA.LLE05	90	100	M16	12.5	330	76.5	8	96	203	-	65	65	-	16	-	15400	-	4470

* Holding force.

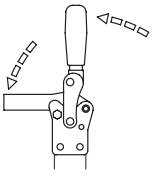
MVB.L

Vertical toggle clamps with straight base Long life series

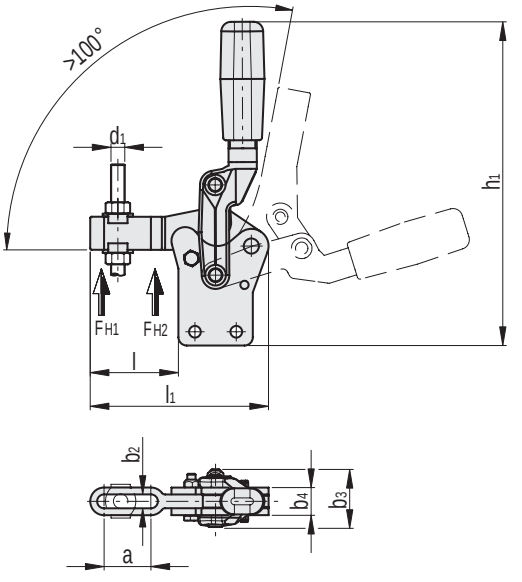
- **Material**
  Black-oxide steel.
- **Rotating pins**
  Hardened, black-oxide and ground steel.
- **Support bushing**
  Hardened, black-oxide and ground steel.
- **Adjusting screw and nut**
  Zinc-plated steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Standard executions**
  - **MVB.LLB**: with open clamping lever and two folded washers.
  - **MVB.LLF**: with solid clamping lever.
- **Clamping bolts**
  To be ordered separately.

Features and applications

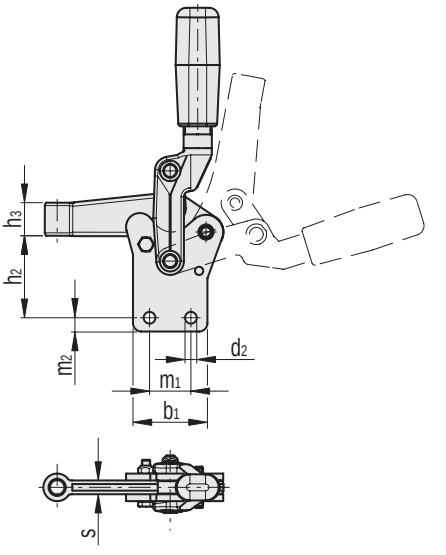
All articulated joints are lubricated with special grease.
During clamping, the lever is controlled to prevent impact on functioning due to side thrust.
High-quality materials make Long Life series toggle clamps suitable for medium to heavy loads on welding jigs, carpentry works, moulds and in general whenever high clamping torque and repetitive movements are required.
Certified for 1.000.000 cycles.



MVB.LLB



MVB.LLF



Conversion Table
1 mm = 0.039 inch

m1		m2	
mm	inch	mm	inch
20	0.79	8	0.31
30	1.18	10	0.39
55	2.16	12.5	0.49
65	2.56		

MVB.LLB

Code	Description	a	b_1	b_2	b_3	b_4	d_1	d_2	h_1	h_2	h_3	h_4	l	l_1	l_2	m_1	m_2	r_1	FH1 [N]*	FH2 [N]*	⚖
GG.AA605	MVB.LLB01	32	36	6	29	13	M6	6.5	152	37.5	16	27	49	91	51	20	8	77	2200	2800	330
GG.AA635	MVB.LLB02	34	54	10	42.5	20	M10	8.5	235	59.5	24	45	64	129.5	66	30	10	107	4400	8200	1200

MVB.LLF

Code	Description	b_1	b_3	b_4	d_1	d_2	h_1	h_2	h_3	l	l_1	l_3	m_1	m_2	r_1	s	FH1 [N]*	FH2 [N]*	⚖
GG.AA615	MVB.LLF01	36	29	13	M6	6.5	152	37.5	16	44	86	46	20	8	77	6	2200	2800	325
GG.AA645	MVB.LLF02	54	42.5	20	M10	8.5	235	59.5	24	64	129.5	66	30	10	107	10	4400	8200	1200
GG.AA665	MVB.LLF03	75	52	24	M12	10.5	301	78	30	74	161	72	55	10	-	12	8500	-	2200
GG.AA686	MVB.LLF05	90	68	32	M16	12.5	344	93.5	35	330	203	-	65	12.5	-	16	15400	-	4470

* Holding force.

MGA.L

Toggle-joint mechanisms

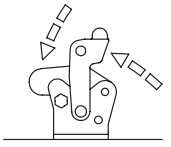
- **Material**
  Weldable black-oxide steel.
- **Rotating pins**
  Hardened, black-oxide and ground steel.
- **Support bushing**
  Hardened, black-oxide and ground steel.
- **Adjusting screw and nut**
  Zinc-plated steel.

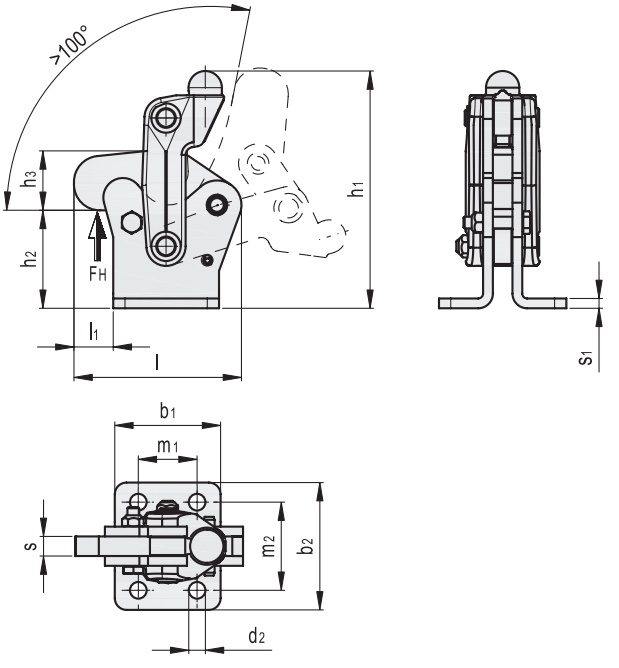
Features and applications

MGA.L toggle-joint mechanisms are suitable for a wide range of applications as different parts and accessories can be welded together to create a customised toggle clamp that is able to satisfy all clamping requirements.
High-quality materials make Long Life series toggle clamps suitable for medium to heavy loads on welding jigs, carpentry works, moulds and in general whenever high clamping torque and repetitive movements are required.
Certified for 1.000.000 cycles.

Accessories on request ALL. (see page 18)

· Handle;
· control lever;
· clamping lever;
· sleeve;
· base.





Conversion Table
1 mm = 0.039 inch

m1		m2	
mm	**inch**	mm	**inch**
20	**0.79**	32	**1.26**
30	**1.18**	45	**1.77**
55	**2.16**	55	**2.16**
65	**2.56**	75	**2.95**

Code	Description	b_1	b_2	d_2	h_1	h_2	h_3	l	l_1	m_1	m_2	s	s_1	FH [N]*	⚖
GG.AA700	MGA.LSC01	36	48	6.5	74	30	17.5	57.5	16	20	32	6	3.5	2200	256
GG.AA725	MGA.LSC02	54	65	8.5	121	50	28	85.5	20	30	45	10	5	4400	967
GG.AA750	MGA.LSC03	75	75	10.5	158	67	35	115	28	55	55	12	6	8500	1900
GG.AA775	MGA.LSC04	90	100	12.5	193	76.5	40	147.5	40.5	65	75	16	8	15400	4185

* Holding force.

MGB.L

Toggle-joint mechanisms

RoHS

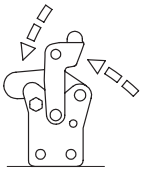
- **Material**
  Weldable black-oxide steel.
- **Rotating pins**
  Hardened, black-oxide and ground steel.
- **Support bushing**
  Hardened, black-oxide and ground steel.
- **Adjusting screw and nut**
  Zinc-plated steel.

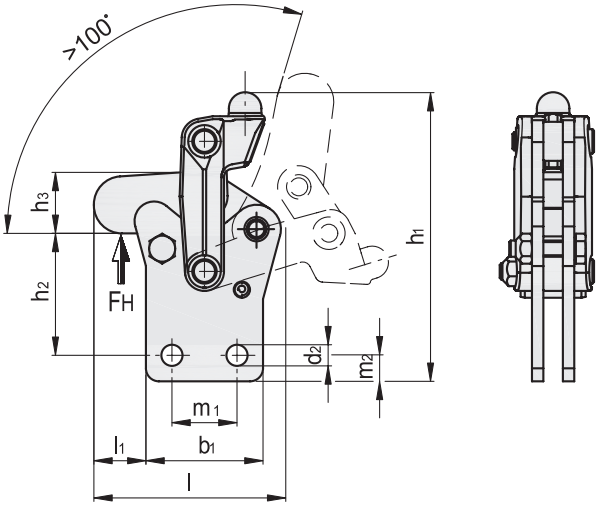
Features and applications

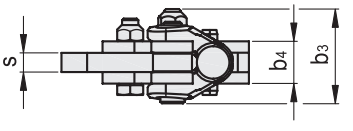
MGB.L toggle-joint mechanisms are suitable for a wide range of applications as different parts and accessories can be welded together to create a customised toggle clamp that is able to satisfy all clamping requirements.
High-quality materials make Long Life series toggle clamps suitable for medium to heavy loads on welding jigs, carpentry works, moulds and in general whenever high clamping torque and repetitive movements are required.
Certified for 1.000.000 cycles.

Accessories on request ALL. (see page 18)

- Handle;
- control lever;
- clamping lever;
- sleeve;
- base.







Conversion Table
1 mm = 0.039 inch

m1		m2	
mm	**inch**	mm	**inch**
20	**0.79**	8	**0.31**
30	**1.18**	10	**0.39**
55	**2.16**	12.5	**0.49**
65	**2.56**		

Code	Description	b_1	b_3	b_4	d_2	h_1	h_2	h_3	l	l_1	m_1	m_2	s	FH [N]*	⚖
GG.AA705	MGB.LSG01	36	29	13	6.5	89	37.5	17.5	57.5	16	20	8	6	2200	256
GG.AA730	MGB.LSG02	54	42.5	20	8.5	140.5	59.5	28	85.5	20	30	10	10	4400	967
GG.AA755	MGB.LSG03	75	52	24	10.5	180	78	35	115	28	55	10	12	8500	1900
GG.AA780	MGB.LSG04	90	68	32	12.5	222	93.5	40	147.5	40.5	65	12.5	16	15400	4185

* Holding force.

MGC.L

Toggle-joint mechanisms

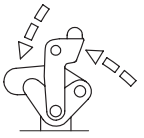
- **Material**
  Weldable black-oxide steel.
- **Rotating pins**
  Hardened, black-oxide and ground steel.
- **Support bushing**
  Hardened, black-oxide and ground steel.

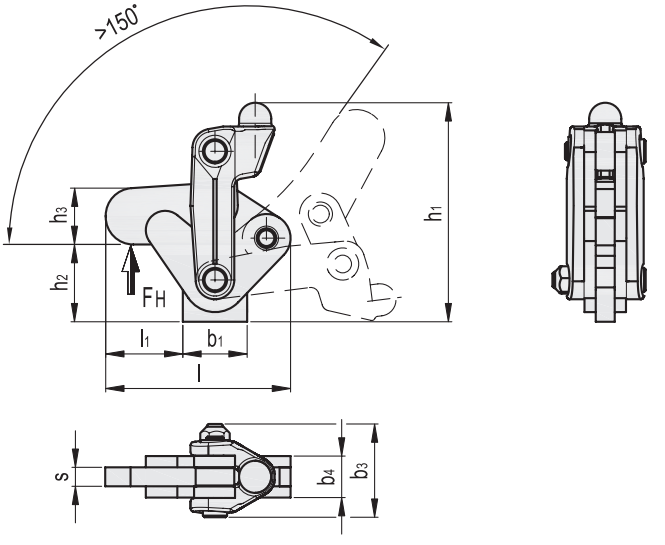
Features and applications

MGC.L toggle-joint mechanisms are suitable for a wide range of applications as different parts and accessories can be welded together to create a customised toggle clamp that is able to satisfy all clamping requirements.
High-quality materials make Long Life series toggle clamps suitable for medium to heavy loads on welding jigs, carpentry works, moulds and in general whenever high clamping torque and repetitive movements are required.
Certified for 1.000.000 cycles.

Accessories on request ALL. (see page 18)

- Handle;
- control lever;
- clamping lever;
- sleeve;
- base.





Code	Description	b_1	b_3	b_4	h_1	h_2	h_3	l	l_1	s	FH [N]*	⚖
GG.AA710	MGC.LSH01	20	29	13	68	24	17.5	57.5	24	6	2200	268
GG.AA735	MGC.LSH02	30	42.5	20	113	42	28	85.5	32	10	4400	820
GG.AA760	MGC.LSH03	50	52	24	148	57	35	115	40.5	12	8500	1600
GG.AA785	MGC.LSH04	60	68	32	183	66.5	40.5	147.5	55.5	16	15400	3065

* Holding force.

LONG LIFE

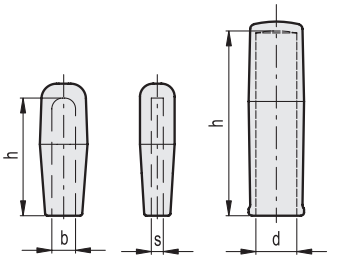
Accessories for toggle-joint mechanisms

RoHS

- **Material**
  Weldable black-oxide steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.

Applications

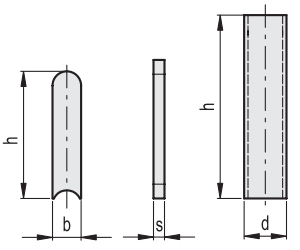
ALL. accessories are designed to optimize use of toggle-joint mechanisms.



SPEEDY BLOCK

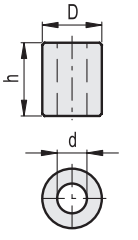
ALL.I

Code	Description	b	d	h	s	⚖
GG.AU151	ALL.I-55	13	-	55	5	12
GG.AU154	ALL.I-77	20	-	77	8	34
GG.AU156	ALL.I-112	-	22	112	-	50
GG.AU157	ALL.I-112/25	-	25	112	-	110



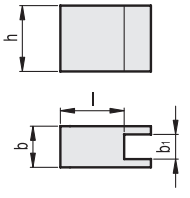
ALL.LC

Code	Description	b	d	h	s	⚖
GG.AU250	ALL.LC01	13	-	63	5	31
GG.AU255	ALL.LC02	20	-	90	8	108
GG.AU260	ALL.LC03	-	22	122	-	122
GG.AU265	ALL.LC04	-	25	138	-	175



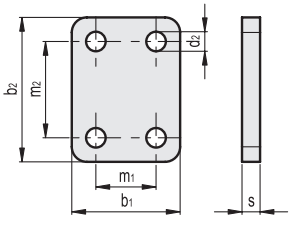
ALL.LM

Code	Description	D	d	h	⚖
GG.AU280	ALL.LM01	13	6.5	16	13
GG.AU285	ALL.LM02	20	10.5	24	42
GG.AU290	ALL.LM03	24	12.5	30	76
GG.AU295	ALL.LM04	32	16.5	35	120



ALL.LS

Code	Description	b	b_1	h	l	⚖
GG.AU230	ALL.LS01	10	6	16	15.5	23
GG.AU235	ALL.LS02	15	10	24	15	75.5
GG.AU240	ALL.LS03	20	12	30	22.1	130
GG.AU245	ALL.LS04	25	16.2	35	23.5	160



Conversion Table
1 mm = 0.039 inch

m1		m2	
mm	**inch**	mm	**inch**
20	**0.79**	32	**1.26**
30	**1.18**	45	**1.77**
55	**2.16**	55	**2.16**
65	**2.56**	65	**2.56**

ALL.PB-

Code	Description	b_1	b_2	d_2	m_1	m_2	s	⚖
GG.AU300	ALL.PB01	36	48	6.5	20	32	6	74
GG.AU305	ALL.PB02	54	65	8.5	30	45	8	205
GG.AU310	ALL.PB03	75	75	10.5	55	55	10	400
GG.AU315	ALL.PB04	90	100	12.5	65	65	10	400

INOX Stainless Steel

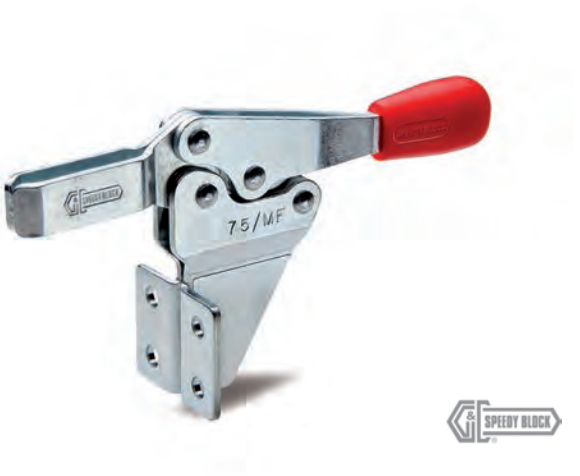
Horizontal toggle clamps with folded base

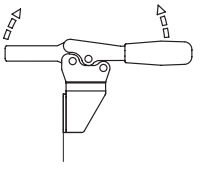
RoHS

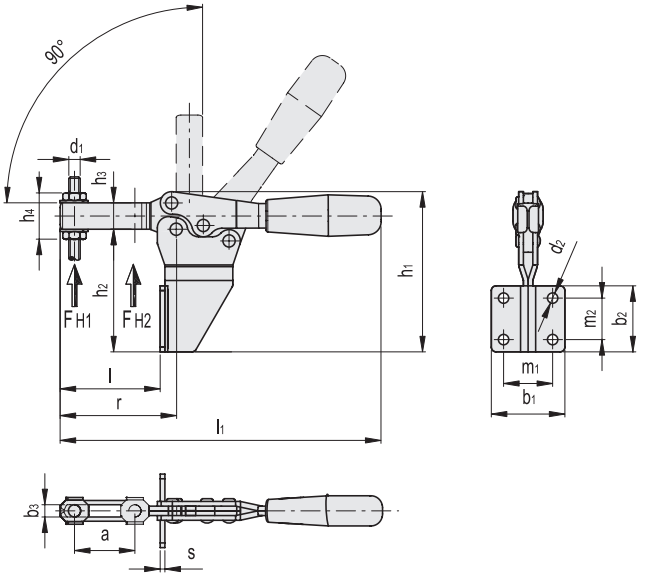
- **Material**
  C10 zinc-plated steel (MOC-MF).
  AISI 304 stainless steel (MOC-MFX).
- **Rivets**
  Zinc-plated steel (MOC-MF).
  AISI 304 stainless steel (MOC-MFX).
- **Support bushing**
  Hardened and ground steel (for sizes ≥355).
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Standard executions**
  - **MOC-MF**: with open clamping lever and two folded washers.
  - **MOC-MFX**: with open clamping lever and two folded washers.
- **Clamping bolts**
  To be ordered separately.

Features and applications

All articulated joints are lubricated with special grease.
All articulated joints are lubricated with special grease. MOC. toggle clamps have been designed for front mounting and to avoid that the operator's fingers may be hit by the lever while opening.
During clamping, the lever is controlled to prevent impact on functioning due to side thrust.







Conversion Table *1 mm = 0.039 inch*			
m1		m2	
mm	inch	mm	inch
18	**0.71**	13.5	**0.53**
26	**1.02**	22	**0.87**
28.5	**1.12**	24	**0.94**
32	**1.26**	32	**1.26**

MOC-MF

Code	Description	a	b1	b2	b3	d1	d2	h1	h2	h3	h4	l	l1	m1	m2	r	s	FH1 [N]*	FH2 [N]*	⚖
GG.AD076	MOC.75-MF	20	30	25.5	5.5	M5	4.5	62	45	11	22.5	36	118	18	13.5	42.5	2	900	1350	105
GG.AD136	MOC.130-MF	32	39	35	6.5	M6	5.5	85	65	14	27	53	170	26	22	61	2.5	1000	2000	240
GG.AD271	MOC.230-MF	37	43	40	8.5	M8	6.5	102	77	18	35	61	195	28.5	24	70	3	1700	3300	400
GG.AD371	MOC.355-MF	58	52	52	10.5	M10	8.5	135	102	22	43	96	270	32	32	108.5	3.5	1800	4000	840

MOC-MFX

INOX Stainless Steel

Code	Description	a	b1	b2	b3	d1	d2	h1	h2	h3	h4	l	l1	m1	m2	r	s	FH1 [N]*	FH2 [N]*	⚖
GG.DS076	MOC.75-MFX	20	30	25.5	5.5	M5	4.5	62	45	11	22.5	36	118	18	13.5	42.5	2	900	1350	105
GG.DS136	MOC.130-MFX	32	39	35	6.5	M6	5.5	85	65	14	27	53	170	26	22	61	2.5	1000	2000	240
GG.DS271	MOC.230-MFX	37	43	40	8.5	M8	6.5	102	77	18	35	61	195	28.5	24	70	3	1700	3300	400

* Holding force.

MOA.

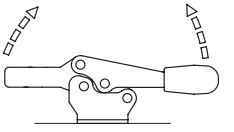
Horizontal toggle clamps with folded base

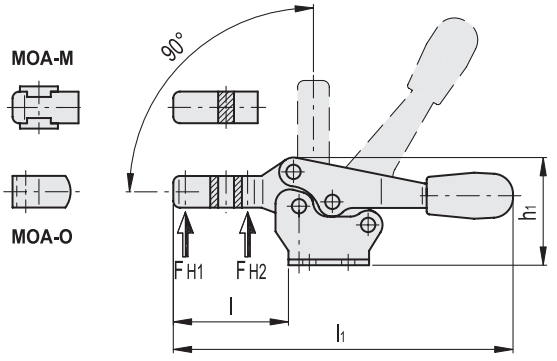
RoHS

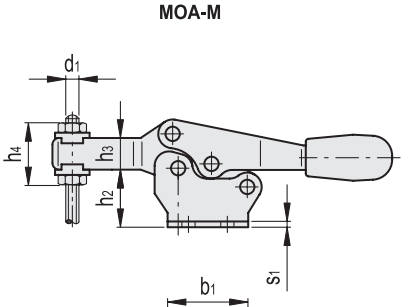
- **Material**
  C10 zinc-plated steel.
- **Rivets**
  Zinc-plated steel.
- **Support bushing**
  Hardened and ground steel (for sizes ≥355).
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Standard executions**
  - **MOA-M**: with open clamping lever and two folded washers.
  - **MOA-O**: with solid clamping lever and bolt retainer.
- **Clamping bolts**
  To be ordered separately (code GG.AD025 included in the supply).

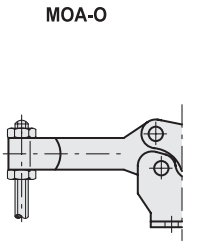
Features and applications

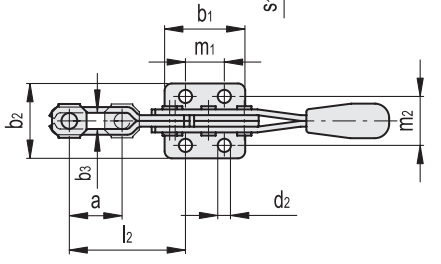
All articulated joints are lubricated with special grease.
Main feature of MOA. toggle clamps is the low clamping profile. These tools are designed to avoid that the operator's fingers may be hit by the lever while opening. During clamping, the lever is controlled to prevent impact on functioning due to side thrust.
During clamping, the lever is controlled to prevent impact on functioning due to side thrust.

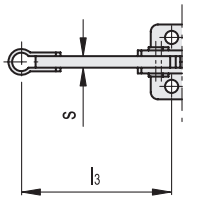












Conversion Table *1 mm = 0.039 inch*			
m1		m2	
mm	**inch**	mm	**inch**
15	**0.59**	16	**0.63**
13.5	**0.53**	17	**0.67**
26	**1.02**	26	**1.02**
41	**1.61**	28.5	**1.12**
41.5	**1.63**	41	**1.61**
		41.5	**1.63**

MOA-M

Code	Description	a	b_1	b_2	b_3	d_1	d_2	h_1	h_2	h_3	h_4	l	l_1	l_2	m_1	m_2	s_1	FH1 [N]*	FH2 [N]*	⚖
GG.AD025	MOA.25-M	10	24	24.5	4.2	M4	4.3	23	12	7	15	19	68	20	15	16	1.2	400	-	25
GG.AD075	MOA.75-M	20	28	26	5.5	M5	4.5	37	20	11	22.5	40	118	40	13.5	17	2	900	1350	88
GG.AD135	MOA.130-M	32	36	40	6.5	M6	5.5	51	29	14	27	56	170	53	26	26	2.5	1000	2000	200
GG.AD270	MOA.230-M	37	44	42	8.5	M8	6.5	61.5	36.5	18	35	65	195	63.5	26	28.5	3	1700	3300	330
GG.AD370	MOA.355-M	58	60	56	10	M10	8.5	83	50	22	43	100	269	96	41	41	3.5	1800	4000	700
GG.AD470	MOA.455-M	65	70	65	12.4	M12	8.5	98.5	60	26	53	115	308	116	41.5	41.5	4	3200	6200	1200

MOA-O

Code	Description	b_1	b_2	d_1	d_2	h_1	h_2	h_3	l	l_1	l_3	m_1	m_2	s	s_1	FH1 [N]*	FH2 [N]*	⚖
GG.AD085	MOA.75-O	28	26	M5	4.5	37	20	11	40.5	118.5	49.5	13.5	17	4	2	900	1350	88
GG.AD145	MOA.130-O	36	40	M6	5.5	51	29	14	57	171	64	26	26	5	2.5	1000	2000	200
GG.AD280	MOA.230-O	44	42	M8	6.5	61.5	36.5	18	67	197	78	26	28.5	6	3	1700	3300	340
GG.AD380	MOA.355-O	60	56	M10	8.5	83	50	22	102	271	115	41	41	7	3.5	1800	4000	720
GG.AD480	MOA.455-O	70	65	M12	8.5	98.5	60	26	117	310	135	41.5	41.5	10	4	3200	6200	1230

* Holding force.

MOA-SST

INOX Stainless Steel

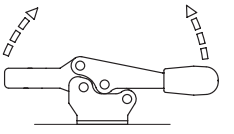
Horizontal toggle clamps with folded base

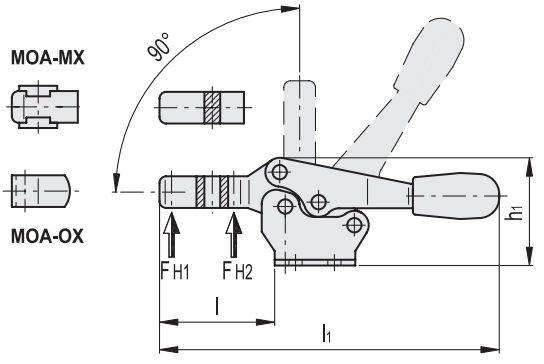
RoHS

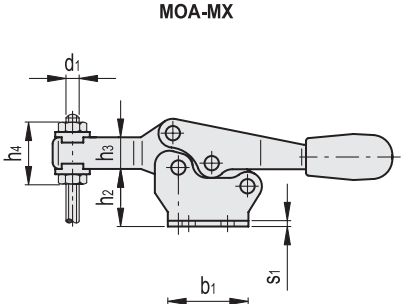
- **Material**
  AISI 304 stainless steel.
- **Rivets**
  AISI 304 stainless steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Standard executions**
  - **MOA-MX**: with open clamping lever and two folded washers.
  - **MOA-OX**: with solid clamping lever and bolt retainer.
- **Clamping bolts**
  To be ordered separately (code GG.DS025 included in the supply).

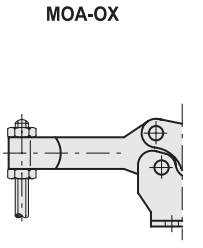
Features and applications

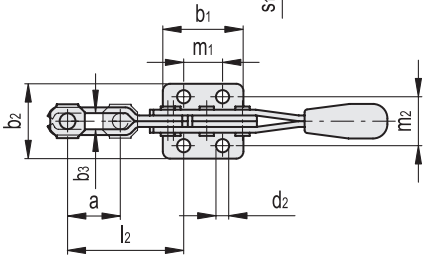
All articulated joints are lubricated with special grease.
Main feature of MOA. toggle clamps is the low clamping profile. These tools are designed to avoid that the operator's fingers may be hit by the lever while opening. During clamping, the lever is controlled to prevent impact on functioning due to side thrust.
During clamping, the lever is controlled to prevent impact on functioning due to side thrust.

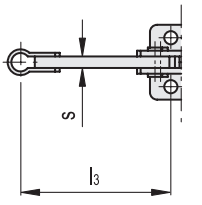












Conversion Table
1 mm = 0.039 inch

m1		m2	
mm	**inch**	mm	**inch**
15	**0.59**	16	**0.63**
13.5	**0.53**	17	**0.67**
26	**1.02**	26	**1.02**
		28.5	**1.12**

INOX Stainless Steel

MOA-MX

Code	Description	a	b1	b2	b3	d1	d2	h1	h2	h3	h4	l	l1	l2	m1	m2	s1	FH1 [N]*	FH2 [N]*	⚖
GG.DS025	MOA.25-MX	10	24	24.5	4.2	M4	4.3	23	12	7	15	19	68	20	15	16	1.2	400	-	25
GG.DS075	MOA.75-MX	20	28	26	5.5	M5	4.5	37	20	11	22.5	40	118	40	13.5	17	2	900	1350	88
GG.DS135	MOA.130-MX	32	36	40	6.5	M6	5.5	51	29	14	27	56	170	53	26	26	2.5	1000	2000	200
GG.DS270	MOA.230-MX	37	44	42	8.5	M8	6.5	61.5	36.5	18	35	65	195	63.5	26	28.5	3	1700	3300	330

INOX Stainless Steel

MOA-OX

Code	Description	b1	b2	d1	d2	h1	h2	h3	l	l1	l3	m1	m2	s	s1	FH1 [N]*	FH2 [N]*	⚖
GG.DS085	MOA.75-OX	28	26	M5	4.5	37	20	11	40.5	118.5	49.5	13.5	17	4	2	900	1350	88
GG.DS145	MOA.130-OX	36	40	M6	5.5	51	29	14	57	171	64	26	26	5	2.5	1000	2000	200
GG.DS280	MOA.230-OX	44	42	M8	6.5	61.5	36.5	18	67	197	78	26	28.5	6	3	1700	3300	340

* Holding force.

MOB.

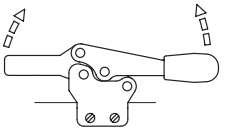
Horizontal toggle clamps with straight base

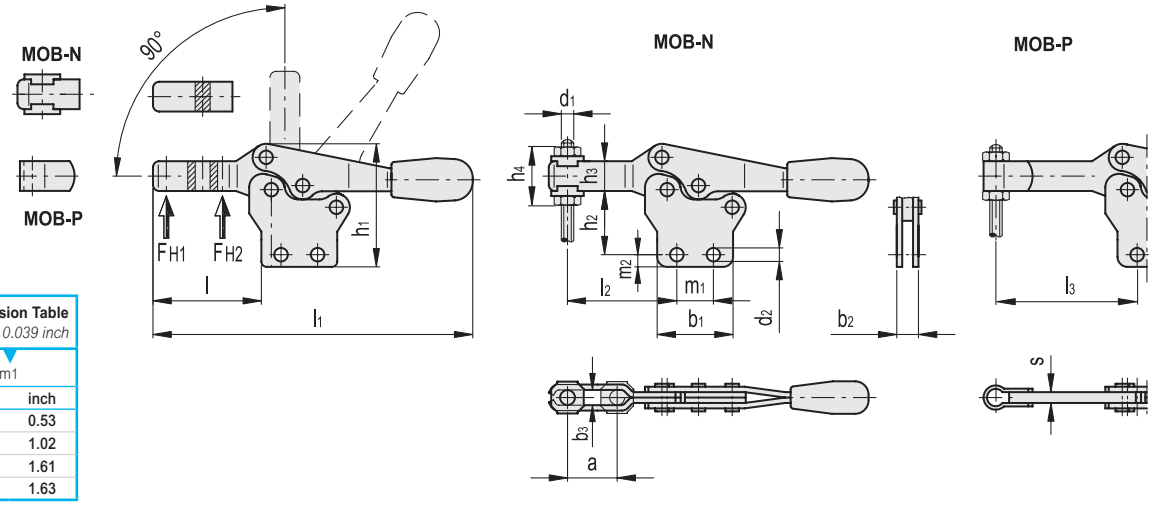
RoHS

- **Material**
  C10 zinc-plated steel.
- **Rivets**
  Zinc-plated steel.
- **Support bushing**
  Hardened and ground steel (for sizes ≥355).
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Standard executions**
  - **MOB-N**: with open clamping lever and two folded washers.
  - **MOB-P**: with solid clamping lever and bolt retainer.
- **Clamping bolts**
  To be ordered separately.

Features and applications

All articulated joints are lubricated with special grease.
Main feature of MOB. toggle clamps is the low closing profile. These tools are designed to avoid that the operator's fingers may be hit by the lever while opening.
During clamping, the lever is controlled to prevent impact on functioning due to side thrust.





Conversion Table *1 mm = 0.039 inch*	
m1	
mm	inch
13.5	0.53
26	1.02
41	1.61
41.5	1.63

MOB-N

Code	Description	a	b_1	b_2	b_3	d_1	d_2	h_1	h_2	h_3	h_4	l	l_1	l_2	m_1	m_2	FH1 [N]*	FH2 [N]*	⚖
GG.AD080	MOB.75-N	20	28	8	5.5	M5	4.5	44.5	28	11	22.5	40	118	40	13.5	4.5	900	1350	88
GG.AD140	MOB.130-N	32	36	10	6.5	M6	5.5	64	43	14	27	56	170	53	26	7	1000	2000	200
GG.AD275	MOB.230-N	37	44	12	8.5	M8	6.5	74.5	50	18	35	65	195	63.5	26	6.8	1700	3300	330
GG.AD375	MOB.355-N	58	60	14	10	M10	8.5	102	69	22	43	100	269	96	41	7.5	1800	4000	700
GG.AD475	MOB.455-N	65	70	18	12.4	M12	8.5	119	80.5	26	53	115	308	116	41.5	11.8	3200	6200	1200

MOB-P

Code	Description	b_1	b_2	d_1	d_2	h_1	h_2	h_3	l	l_1	l_3	m_1	m_2	s	FH1 [N]*	FH2 [N]*	⚖
GG.AD090	MOB.75-P	28	8	M5	4.5	44.5	28	11	40.5	118.5	49.5	13.5	4.5	4	900	1350	88
GG.AD150	MOB.130-P	36	10	M6	5.5	64	43	14	57	171	64	26	7	5	1000	2000	200
GG.AD285	MOB.230-P	44	12	M8	6.5	74.5	50	18	67	197	78	26	6.8	6	1700	3300	340
GG.AD385	MOB.355-P	60	14	M10	8.5	102	69	22	102	271	115	41	7.5	7	1800	4000	720
GG.AD485	MOB.455-P	70	18	M12	8.5	119	80.5	26	117	310	135	41.5	11.8	10	3200	6200	1230

* Holding force.

MOB-SST

INOX Stainless Steel

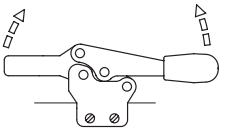
Horizontal toggle clamps with straight base

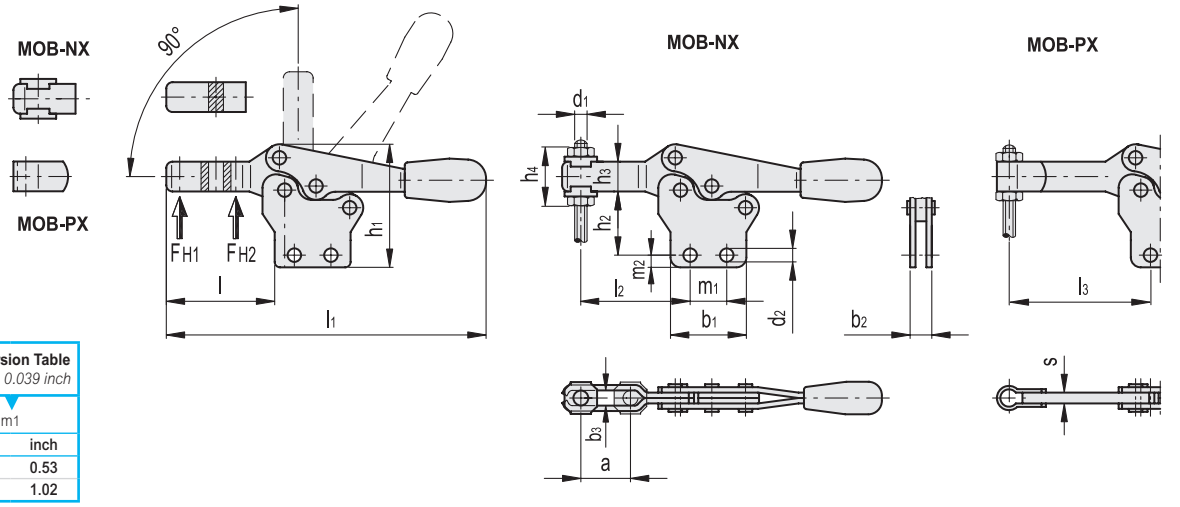
RoHS

- **Material**
  AISI 304 stainless steel.
- **Rivets**
  AISI 304 stainless steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Standard executions**
  - **MOB-NX**: with open clamping lever and two folded washers.
  - **MOB-PX**: with solid clamping lever and bolt retainer.
- **Clamping bolts**
  To be ordered separately.

Features and applications

All articulated joints are lubricated with special grease.
Main feature of MOB. toggle clamps is the low closing profile. These tools are designed to avoid that the operator's fingers may be hit by the lever while opening.
During clamping, the lever is controlled to prevent impact on functioning due to side thrust.





Conversion Table *1 mm = 0.039 inch*	
m1	
mm	inch
13.5	0.53
26	1.02

INOX Stainless Steel

MOB-NX

Code	Description	a	b_1	b_2	b_3	d_1	d_2	h_1	h_2	h_3	h_4	l	l_1	l_2	m_1	m_2	FH1 [N]*	FH2 [N]*	⚖
GG.DS080	MOB.75-NX	20	28	8	5.5	M5	4.5	44.5	28	11	22.5	40	118	40	13.5	4.5	900	1350	88
GG.DS140	MOB.130-NX	32	36	10	6.5	M6	5.5	64	43	14	27	56	170	53	26	7	1000	2000	200
GG.DS275	MOB.230-NX	37	44	12	8.5	M8	6.5	74.5	50	18	35	65	195	63.5	26	6.8	1700	3300	330

INOX Stainless Steel

MOB-PX

Code	Description	b_1	b_2	d_1	d_2	h_1	h_2	h_3	l	l_1	l_3	m_1	m_2	s	FH1 [N]*	FH2 [N]*	⚖
GG.DS090	MOB.75-PX	28	8	M5	4.5	44.5	28	11	40.5	118.5	49.5	13.5	4.5	4	900	1350	88
GG.DS150	MOB.130-PX	36	10	M6	5.5	64	43	14	57	171	64	26	7	5	1000	2000	200
GG.DS285	MOB.230-PX	44	12	M8	6.5	74.5	50	18	67	197	78	26	6.8	6	1700	3300	340

* Holding force.

MLA.

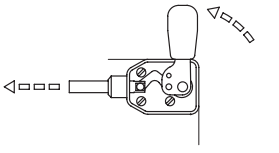
Push-pull clamps

RoHS

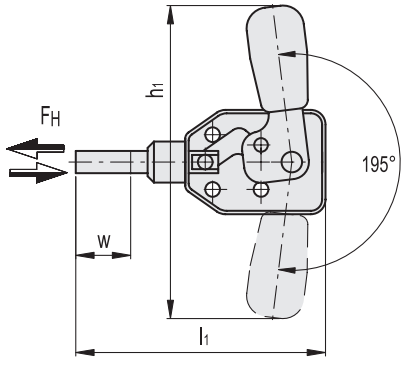
- **Material**
  C10 zinc-plated steel.
- **Rivets**
  Zinc-plated steel.
- **Push lever**
  Zinc-plated steel.
- **Reference bushing**
  Zinc-plated steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Standard executions**
  - **MLA-ASD**: with pressure clamping and right rotation.
  - **MLA-ASS**: with pressure clamping and left rotation.
- **Clamping bolts**
  To be ordered separately.

Features and applications

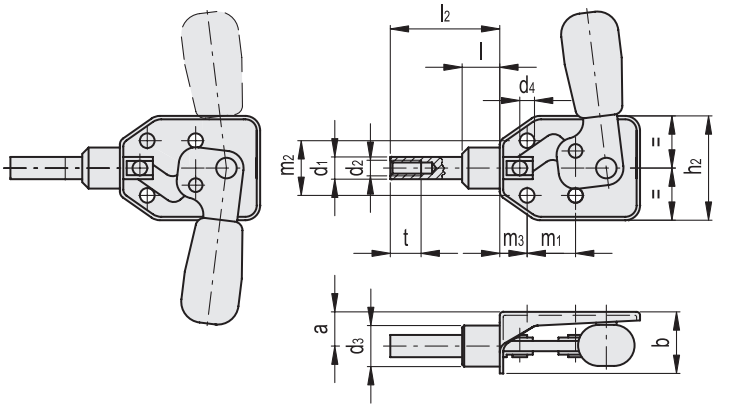
All articulated joints are lubricated with special grease.
Main features of MLA. clamps include the application point that is very close to the mounting surface and a limited space vertically. Both push and pull clamping can be performed effectively.



MLA-ASD



MLA-ASS



Conversion Table *1 mm = 0.039 inch*			
m1		m2	
mm	**inch**	mm	**inch**
16	**0.63**	16	**0.63**

Code	Description	a	b	d_1	d_2	d_3	d_4	h_1	h_2	l	l_1	l_2	m_1	m_2	m_3	t	Stroke w	FH [N]*	⚖
GG.AG050	MLA.50-ASD	10	17.5	6.5	M4	12	4.3	90	30.5	12	73	33	16	16	8	9	16	800	60
GG.AG055	MLA.50-ASS	10	17.5	6.5	M4	12	4.3	90	30.5	12	73	33	16	16	8	9	16	800	60

* Holding force.

MLB.

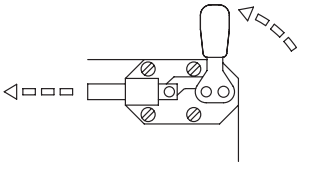
Push-pull clamps

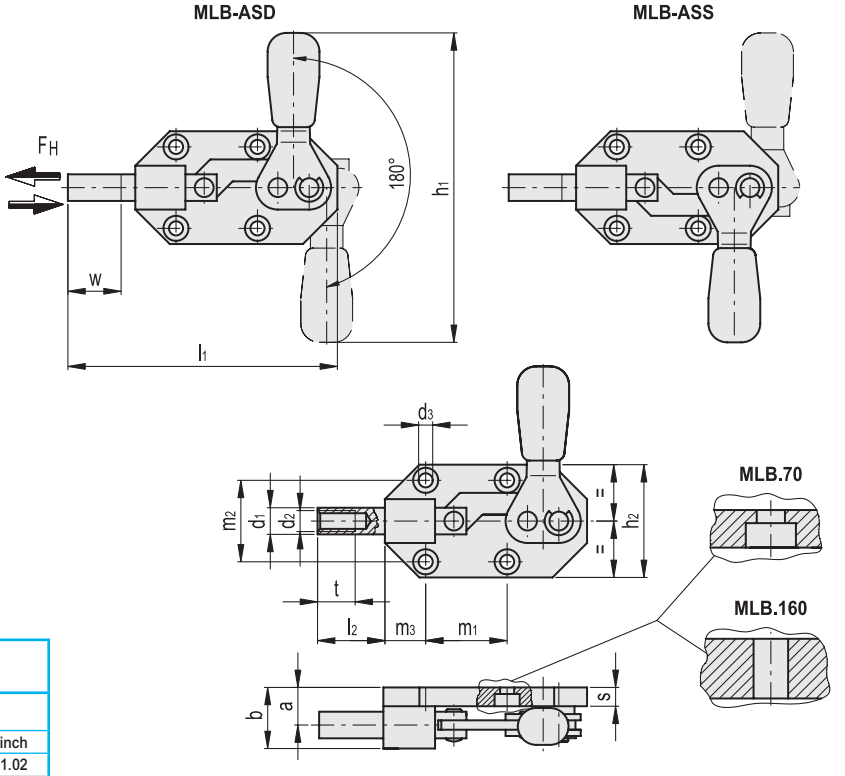
RoHS

- **Material**
  C10 zinc-plated steel.
- **Rivets**
  Zinc-plated steel.
- **Base**
  - MLB.70: black painted brass, pass-through holes for cylindrical head screws.
  - MLB.160: black painted steel, pass-through holes.
- **Push lever**
  Zinc-plated steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Standard executions**
  - **MLB-ASD**: with pressure clamping and right rotation.
  - **MLB-ASS**: with pressure clamping and left rotation.
- **Clamping bolts**
  To be ordered separately.

Features and applications

All articulated joints are lubricated with special grease.
Main features of MLB. clamps include the application point that is very close to the mounting surface and a limited space vertically. Both push and pull clamping can be performed effectively.





Conversion Table *1 mm = 0.039 inch*			
m1		m2	
mm	**inch**	mm	**inch**
26	**1.02**	26	**1.02**
36.5	**1.44**	33.5	**1.32**

Code	Description	a	b	d_1	d_2	d_3	h_1	h_2	l_1	l_2	m_1	m_2	m_3	s	t	Stroke w	FH [N]*	⚖
GG.AG075	MLB.70-ASD	12	19.5	8.5	M6	4.3	98	36	85	22	26	26	13	6	12	20	900	170
GG.AG165	MLB.160-ASD	15	25	11	M6	5.3	150	46	117	32	36.5	33.5	11	10	12	30	1300	400
GG.AG080	MLB.70-ASS	12	19.5	8.5	M6	4.3	98	36	85	22	26	26	13	6	12	20	900	170
GG.AG170	MLB.160-ASS	15	25	11	M6	5.3	150	46	117	32	36.5	33.5	11	10	12	30	1300	400

* Holding force.

MFA.

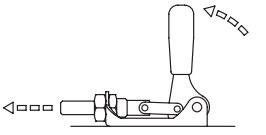
Push-pull clamps

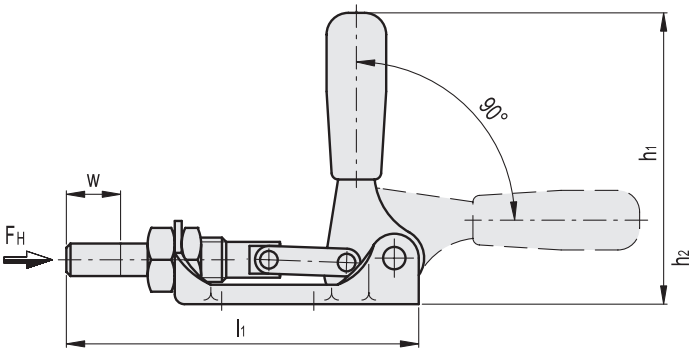
RoHS

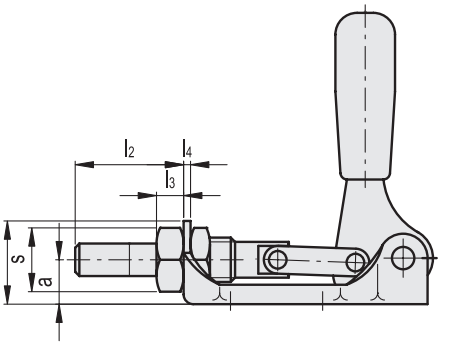
- **Material**
  C10 zinc-plated steel.
- **Rivets**
  Zinc-plated steel.
- **Push lever**
  Zinc-plated steel.
- **Reference bushing**
  Zinc-plated brass.
- **Nut**
  Zinc-plated steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Clamping bolts**
  To be ordered separately.

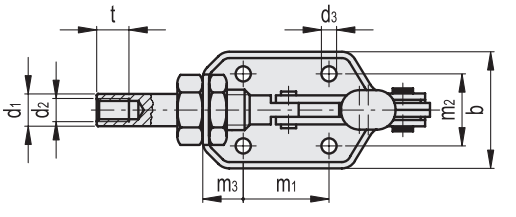
Features and applications
All articulated joints are lubricated with special grease.
MFA. clamps ensure only perfect push clamping.

SPEEDY BLOCK









Conversion Table *1 mm = 0.039 inch*			
m1		m2	
mm	**inch**	mm	**inch**
34	**1.34**	30	**1.18**
50	**1.97**	34	**1.34**

Code	Description	a	b	d_1	d_2	d_3	h_1	h_2	l_1	l_2	l_3	l_4	m_1	m_2	m_3	s	t	Stroke w	FH [N]*	⚖
GG.AG120	MFA.120-AS	17	48	12	M6	5.5	111	32	130	40	10	3	34	30	18	24	12	20	3600	350
GG.AG300	MFA.300-AS	20	58	14	M8	6.5	140	36	167	57	12	3	50	34	18	27	16	33	7200	560

* Holding force.

MFC.

Push-pull clamps

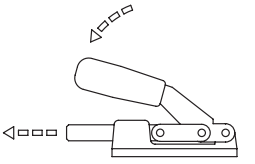
RoHS

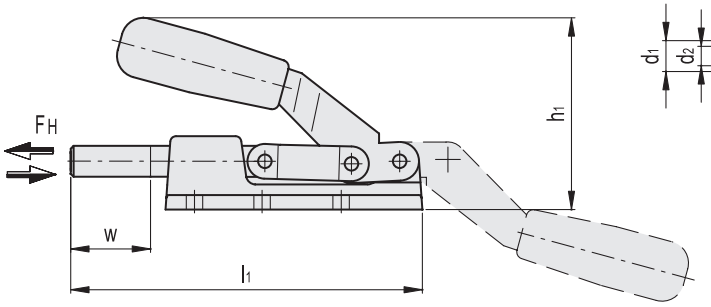
- **Material**
  C10 zinc-plated steel.
- **Rivets**
  Zinc-plated steel.
- **Base**
  · Black coated brass, for size 70 and 160.
  · Black coated pressed steel, for size 360 to 3100.
- **Push lever**
  Zinc-plated steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Clamping bolts**
  To be ordered separately.

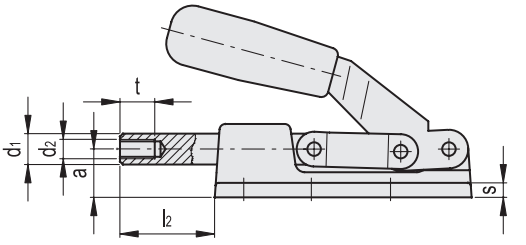
Features and applications

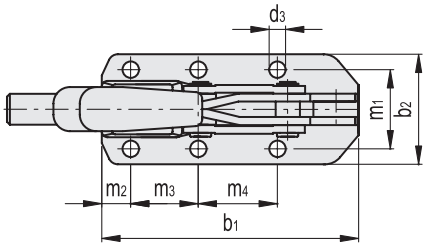
All articulated joints are lubricated with special grease.
MFC. clamps are suitable for use requiring high resistant torque given their solid base body. Both push and pull clamping can be performed effectively.

SPEEDY BLOCK









Conversion Table
1 mm = 0.039 inch

m1		m2		m3		m4	
mm	**inch**	mm	**inch**	mm	**inch**	mm	**inch**
26	**1.02**	13	**0.51**	35	**1.38**	26	**1.02**
33.5	**1.32**	11	**0.43**	50	**1.97**	36.5	**1.43**
41	**1.61**	30	**1.18**	70	**2.75**	41	**1.61**
50	**1.97**	15	**0.59**			50	**1.97**
54	**2.12**	35	**1.38**			70	**2.75**
		40	**1.57**				

Code	Description	a	b_1	b_2	d_1	d_2	d_3	h_1	l_1	l_2	m_1	m_2	m_3	m_4	s	t	Stroke w	FH [N]*	⚖
GG.AG070	MFC.70-AS	12	64	36	8.5	M6	4.3	42.5	86	22	26	13	-	26	6	12	20	1200	170
GG.AG160	MFC.160-AS	15	85	46	11	M6	5.5	56	116	31	33.5	11	-	36.5	10	12	30	2800	400
GG.AG351	MFC.360-AS	25	90	45.5	12	M8	5.5	72	122	32	33.5	30	-	36.5	7	15	32	5600	440
GG.AG355	MFC.550-AS	18	122.5	55	14	M8	7	76	164.5	42	41	15	35	41	6	16	42	8000	700
GG.AG361	MFC.1100-AS	25	133	57	16	M10	8.5	95	182	49	41	15	35	41	7	18	50	16000	1060
GG.AG371	MFC.2100-AS	35	177	70	20	M12	8.5	118.5	238	61	50	35	50	50	9.5	22	60	25000	2280
GG.AG381	MFC.3100-AS	40	216	76	22	M14	11	137	316	100	54	40	70	70	9.5	25	100	45000	3350

* Holding force.

MFE.

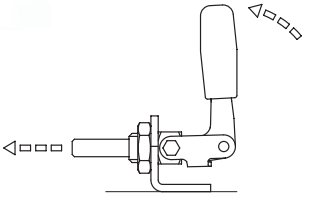
Push-pull clamps

RoHS

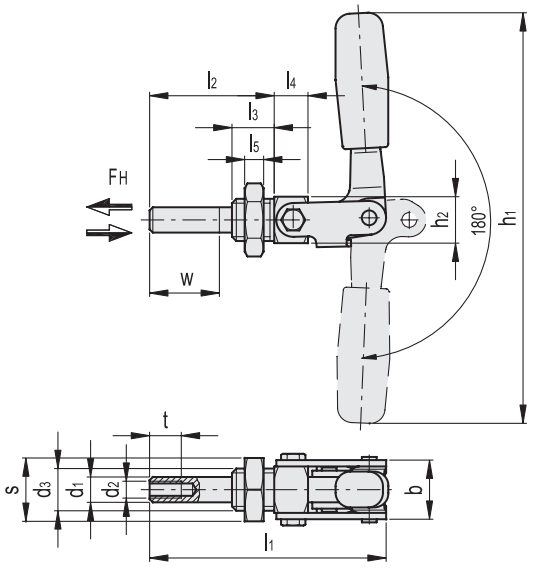
- **Material**
  C10 zinc-plated steel.
- **Rivets**
  Zinc-plated steel.
- **Push lever**
  Zinc-plated steel.
- **Reference bushing**
  Zinc-plated steel.
- **Nut**
  Zinc-plated steel.
- **Bushing fixing screws**
  Zinc-plated steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Fixing square**
  Zinc-plated steel (to be ordered separately).
- **Clamping bolts**
  To be ordered separately.

Features and applications

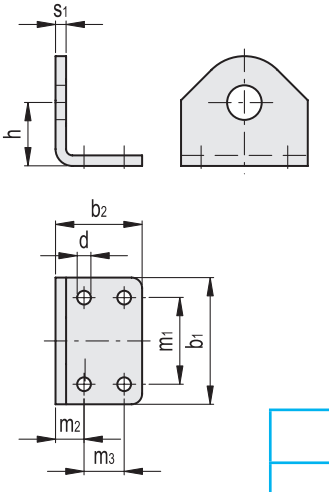
All articulated joints are lubricated with special grease.
Thanks to the front outer thread, MFE. clamps can be mounted in a way that the control lever is conveniently positioned using fixing squares (to be ordered separately), or frontally directly on the equipment. Both push and pull clamping can be performed effectively.



MFE-AS



MFE.
Fixing square



Conversion Table
1 mm = 0.039 inch

m1		m3	
mm	**inch**	mm	**inch**
20	**0.79**	19	**0.75**
41	**1.61**	25	**0.98**
55	**2.16**		

MFE.

Code	Description	b_1	b_2	d	h	m_1	m_2	m_3	s_1
GG.AG416	MFE.30080	35	22	5.5	24	20	8	-	4
GG.AG421	MFE.30165	60	41	6.5	32	41	13.5	19	5
GG.AG426	MFE.30340	75	59	8.5	48	55	19	25	5

MFE-AS

Code	Description	b	d_1	d_2	d_3	h_1	h_2	l_1	l_2	l_3	l_4	l_5	s	t	Stroke w	FH [N]*	⚖
GG.AG401	MFE.80-AS	24	10	M6	M16x1.5	120	19	71	38	15.5	10	8	24	12	21	3000	135
GG.AG406	MFE.165-AS	28	12	M8	M20x1.5	194	22	113	59	20	16	9	30	15	38	5400	335
GG.AG411	MFE.340-AS	38	16	M10	M24x2	256	30	173	90	22	28	10	36	18	66	7000	835

* Holding force.

MFE-SST

INOX Stainless Steel

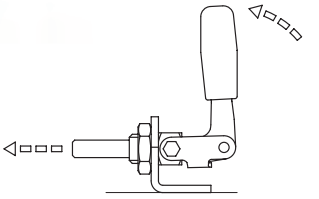
Push-pull clamps

RoHS

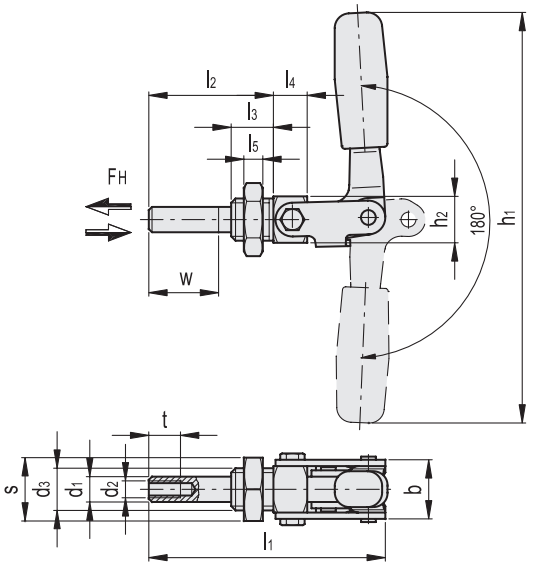
- **Material**
  AISI 304 stainless steel.
- **Rivets**
  AISI 304 stainless steel.
- **Push lever**
  AISI 304 stainless steel.
- **Reference bushing**
  AISI 303 stainless steel.
- **Nut**
  AISI 304 stainless steel.
- **Bushing fixing screws**
  AISI 303 stainless steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Fixing square**
  AISI 304 stainless steel (to be ordered separately).
- **Clamping bolts**
  To be ordered separately.

Features and applications

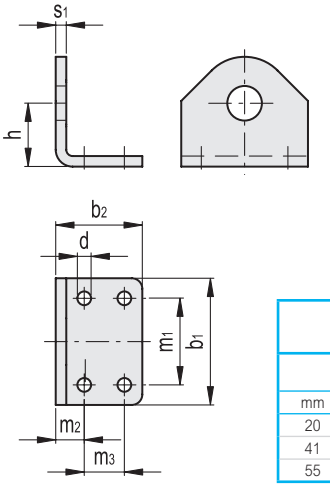
All articulated joints are lubricated with special grease.
Thanks to the front outer thread, MFE. clamps can be mounted in a way that the control lever is conveniently positioned using fixing squares (to be ordered separately), or frontally directly on the equipment. Both push and pull clamping can be performed effectively.



MFE-ASX



MFE-X
Fixing square



Conversion Table *1 mm = 0.039 inch*			
m1		m3	
mm	**inch**	mm	**inch**
20	**0.79**	19	**0.75**
41	**1.61**	25	**0.98**
55	**2.16**		

MFE-X

INOX Stainless Steel

Code	Description	b_1	b_2	d	h	m_1	m_2	m_3	s_1
GG.AS416	MFE.30080X	35	22	5.5	24	20	8	-	4
GG.AS421	MFE.30165X	60	41	6.5	32	41	13.5	19	5
GG.AS426	MFE.30340X	75	59	8.5	48	55	19	25	5

MFE-ASX

INOX Stainless Steel

Code	Description	b	d_1	d_2	d_3	h_1	h_2	l_1	l_2	l_3	l_4	l_5	s	t	Stroke w	FH [N]*	⚖
GG.AS401	MFE.80-ASX	24	10	M6	M16x1.5	120	19	71	38	15.5	10	8	24	12	21	3000	135
GG.AS406	MFE.165-ASX	28	12	M8	M20x1.5	194	22	113	59	20	16	9	30	15	38	5400	335
GG.AS411	MFE.340-ASX	38	16	M10	M24x2	256	30	173	90	22	28	10	36	18	66	7000	835

* Holding force.

MTB.

Latch clamps with safety stop

RoHS

- **Material**
  C10 zinc-plated steel.
- **Rivets**
  Zinc-plated steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Standard executions**
  - **MTB.T5**: without tie rod.
  - **MTB.T5-TG**: with eyelet tie rod.
  - **MTB.T5-TT**: with T tie rod
  - **MTB.T5-TU**: with hook tie rod.

Features and applications

All articulated joints are lubricated with special grease.
MTB. latch clamps are particularly suitable for equipment and applications with strong vibration stresses where it is required to assure the holding of the clamp engagement against accidental opening.
By disengaging the safety device, pushing the slider (fig. 1) and using the handle, the clamp opens (fig. 2). By disengaging the safety device (fig. 3) and moving the control lever in the opposite direction (fig. 4), the result is the complete disengagement of the body of the clamp and the clamping plate.
To re-engage the clamp, it is necessary to proceed in the opposite way.
All these engaging and disengaging operations can be done by using one hand only, since in its movement the eyelet follows the lever.
The engaging position can be length-regulated in order to suit better the application by means of a threaded eyelet, locked in place by a locking nut.

Fig.1

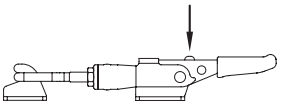
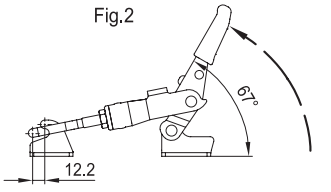


Fig.2



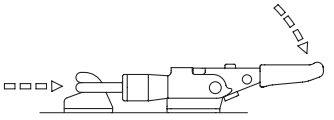


Fig.3

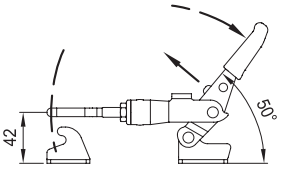
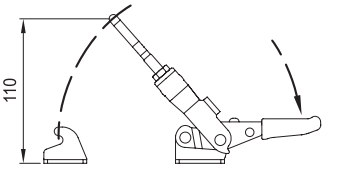
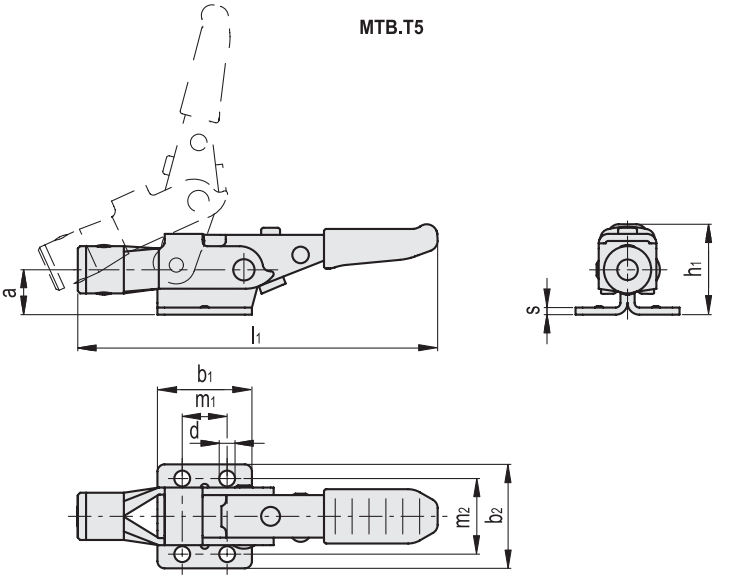


Fig.4



MTB.T5



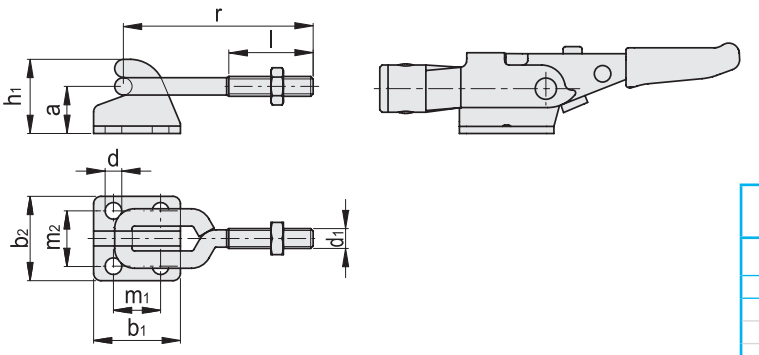
Conversion Table *1 mm = 0.039 inch*			
m1		m2	
mm	**inch**	mm	**inch**
16	**0.63**	19	**0.75**
19	**0.75**	32	**1.26**
41.5	**1.63**	38.1	**1.50**

MTB.T5

Code	Description	a	b_1	b_2	d	h_1	l_1	m_1	m_2	s	FH [N]*	⚖
GG.AL575	MTB.160-T5	13	26	28	4.5	26.8	103	16	19	2	1750	100
GG.AL580	MTB.320-T5	19	40	44	6.7	38.5	153	19	32	3	4000	295
GG.AL585	MTB.700-T5	28	60	54	8.5	53	222	41.5	38.1	3.5	7500	690

* Holding force.

MTB.T5-TG

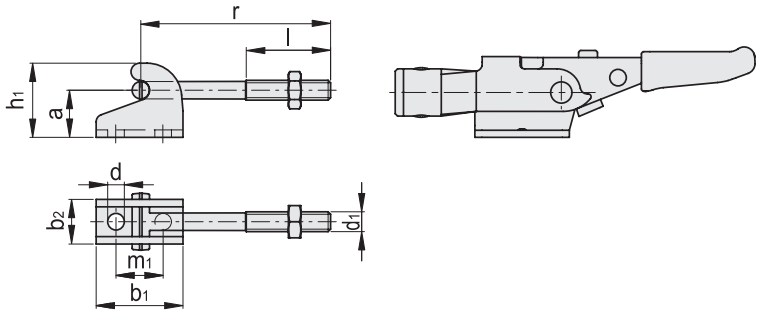


Conversion Table *1 mm = 0.039 inch*			
m1		m2	
mm	**inch**	mm	**inch**
16	**0.63**	14.3	**0.56**
19	**0.75**	22.3	**0.88**
31	**1.22**	25.4	**1.0**
25.4	**1.0**		

MTB.T5-TG

Code	Description	a	b_1	b_2	d	d_1	h_1	l	m_1	m_2	r	⚖
GG.AL576	MTB.160-T5-TG	13	26	23	4.5	M6	19.8	28	16	14.3	55.5	100
GG.AL581	MTB.320-T5-TG	19	35	34	6.7	M8	30	34	19	22.3	76.5	295
GG.AL586	MTB.700-T5-TG	28	50	41	8.5	M10	40.5	42	31	25.4	95.5	690

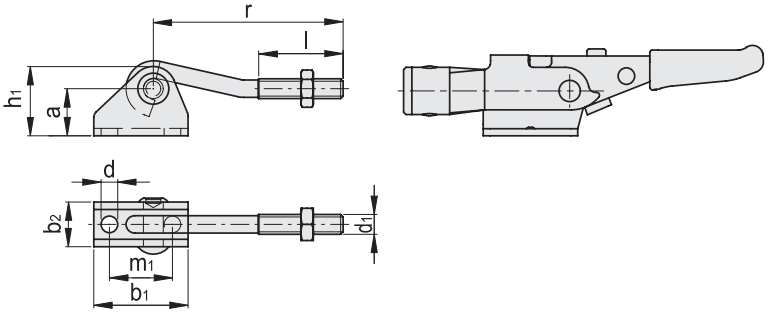
MTB.T5-TT



MTB.T5-TT

Code	Description	a	b_1	b_2	d	d_1	h_1	l	m_1	r
GG.AL578	MTB.160-T5-TT	13	26	14	4.5	M6	20	28	16	55
GG.AL583	MTB.320-T5-TT	19	35	18	6.7	M8	30	34	19	76.5
GG.AL588	MTB.700-T5-TT	28	50	26	8.5	M10	40.5	42	31	93

MTB.T5-TU



MTB.T5-TU

Code	Description	a	b_1	b_2	d	d_1	h_1	l	m_1	r
GG.AL577	MTB.160-T5-TU	13	35	14	4.5	M6	20.4	28	25.4	54.5
GG.AL582	MTB.320-T5-TU	19	38	18	6.7	M8	28	34	25.4	76.25
GG.AL587	MTB.700-T5-TU	28	50	26	8.5	M10	39	42	31	92.75

MTB-SST

INOX Stainless Steel

Latch clamps with safety stop

RoHS

- **Material**
  AISI 304 stainless steel.
- **Rivets**
  AISI 304 stainless steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Standard executions**
  - **MTB.T5X**: without tie rod.
  - **MTB.T5X-TG**: with eyelet tie rod.
  - **MTB.T5X-TT**: with T tie rod.
  - **MTB.T5X-TU**: with hook tie rod.

Features and applications

All articulated joints are lubricated with special grease.
MTB-SST latch clamps and are particularly suitable for equipment and applications with strong vibration stresses where it is required to assure the holding of the clamp engagement against accidental opening.
By disengaging the safety device, pushing the slider (fig. 1) and using the handle, the clamp opens (fig. 2). By disengaging the safety device (fig. 3) and moving the control lever in the opposite direction (fig. 4), the result is the complete disengagement of the body of the clamp and the clamping plate.
To re-engage the clamp, it is necessary to proceed in the opposite way.
All these engaging and disengaging operations can be done by using one hand only, since in its movement the eyelet follows the lever.
The engaging position can be length-regulated in order to suit better the application by means of a threaded eyelet, locked in place by a locking nut.

Fig.1

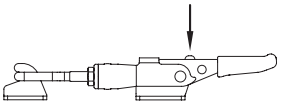


Fig.2

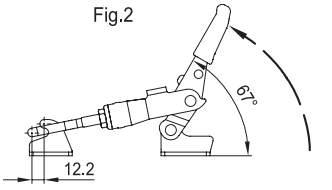


Fig.3

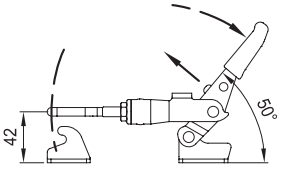
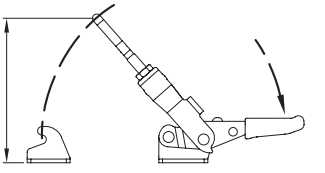
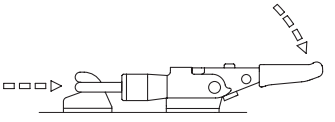
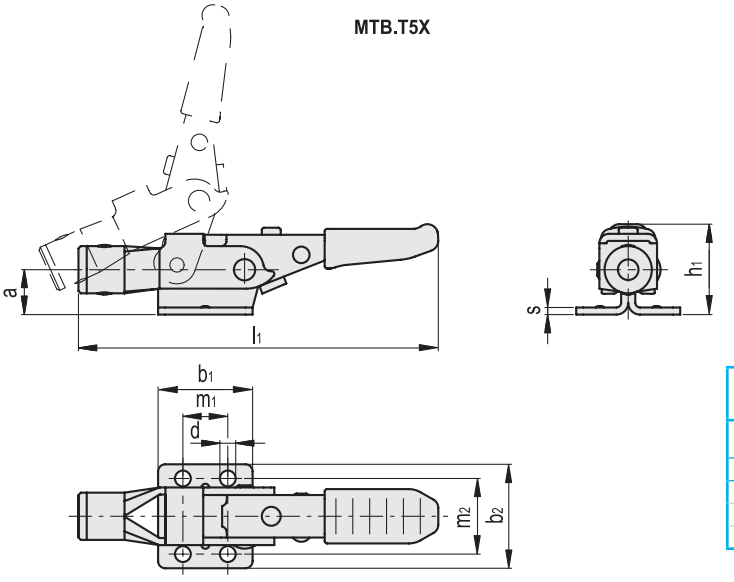


Fig.4





MTB.T5X



Conversion Table *1 mm = 0.039 inch*			
m1		m2	
mm	**inch**	mm	**inch**
16	**0.63**	19	**0.75**
19	**0.75**	32	**1.26**
41.5	**1.63**	38.1	**1.50**

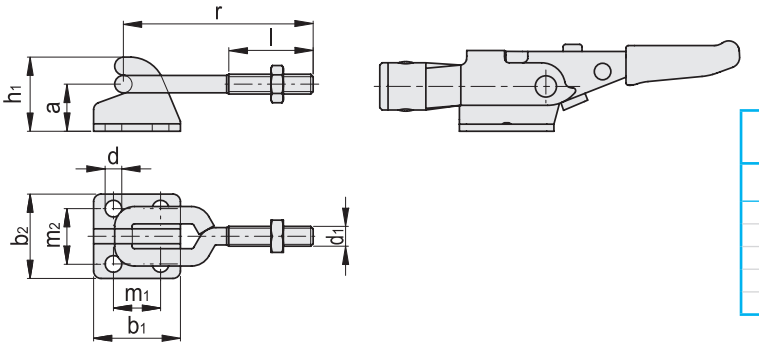
INOX Stainless Steel

MTB.T5X

Code	Description	a	b1	b2	d	h1	l1	m1	m2	s	FH [N]*	⚖
GG.AS545	MTB.160-T5X	13	26	28	4.5	26.8	103	16	19	2	1750	100
GG.AS550	MTB.320-T5X	19	40	44	6.7	38.5	153	19	32	3	4000	295
GG.AS555	MTB.700-T5X	28	60	54	8.5	53	222	41.5	38.1	3.5	7500	690

Holding force.

MTB.T5X-TG



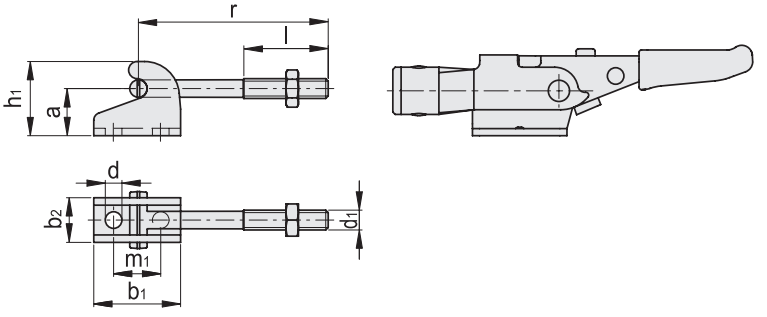
Conversion Table *1 mm = 0.039 inch*			
m1		m2	
mm	**inch**	mm	**inch**
16	**0.63**	14.3	**0.56**
19	**0.75**	22.3	**0.88**
31	**1.22**	25.4	**1.0**
25.4	**1.0**		

INOX Stainless Steel

MTB.T5X-TG

Code	Description	a	b_1	b_2	d	d_1	h_1	l	m_1	m_2	r
GG.AS546	MTB.160-T5X-TG	13	26	23	4.5	M6	19.8	28	16	14.3	55.5
GG.AS551	MTB.320-T5X-TG	19	35	34	6.7	M8	30	34	19	22.3	76.5
GG.AS556	MTB.700-T5X-TG	28	50	41	8.5	M10	40.5	42	31	25.4	95.5

MTB.T5X-TT

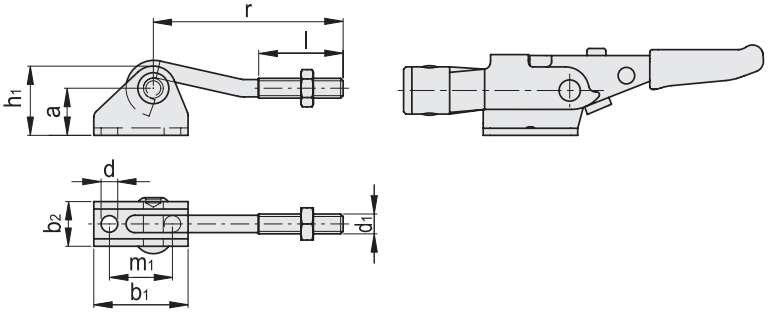


INOX Stainless Steel

MTB.T5X-TT

Code	Description	a	b_1	b_2	d	d_1	h_1	l	m_1	r
GG.AS548	MTB.160-T5X-TT	13	26	14	4.5	M6	20	28	16	55
GG.AS553	MTB.320-T5X-TT	19	35	18	6.7	M8	30	34	19	76.5
GG.AS558	MTB.700-T5X-TT	28	50	26	8.5	M10	40.5	42	31	93

MTB.T5X-TU



INOX Stainless Steel

MTB.T5X-TU

Code	Description	a	b_1	b_2	d	d_1	h_1	l	m_1	r
GG.AS547	MTB.160-T5X-TU	13	35	14	4.5	M6	20.4	28	25.4	54.5
GG.AS552	MTB.320-T5X-TU	19	38	18	6.7	M8	28	34	25.4	76.25
GG.AS557	MTB.700-T5X-TU	28	50	26	8.5	M10	39	42	31	92.75

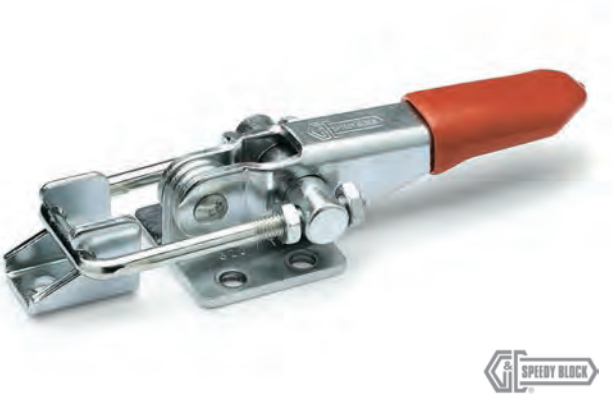
Latch clamps

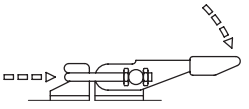
RoHS

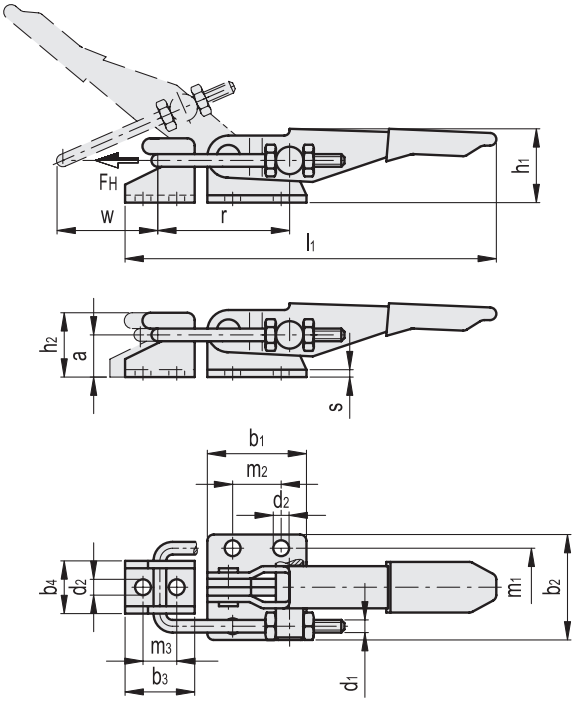
- **Material**
  C10 zinc-plated steel.
- **Rivets**
  Zinc-plated steel.
- **Pulling hook**
  Parallel to clamping arm, zinc-plated steel.
- **Oscillating pin and nuts**
  Zinc-plated steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.

Features and applications

All articulated joints are lubricated with special grease.
MTC. clamps ensure tight closing of any cover.
The position of the pulling hook can be adjusted in length according to the specific applications.







Conversion Table
1 mm = 0.039 inch

m1		m2		m3	
mm	**inch**	mm	**inch**	mm	**inch**
19	**0.75**	16	**0.63**	10	**0.39**
32	**1.26**	19	**0.75**	14.3	**0.56**
38	**1.50**	41.5	**1.63**	19	**0.75**

Code	Description	a	b1	b2	b3	b4	d1	d2	h1	h2	l1	m1	m2	m3	r	s	Stroke w	FH [N]*	⚖
GG.AL500	MTC.160-T2	12	26	28	20	14	M4	4.3	25	18	98	19	16	10	35-44	2	25	1600	85
GG.AL505	MTC.320-T2	16	40	44	28	22	M6	6.5	30	25	152	32	19	14.3	54-63	3	48	3200	250
GG.AL510	MTC.700-T2	24	60	54	38	26	M8	8.5	42	36	220	38	41.5	19	70-90	3.5	58	7000	600

* Holding force.

MTC-SST

INOX Stainless Steel

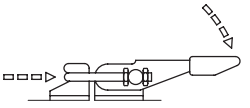
Latch clamps

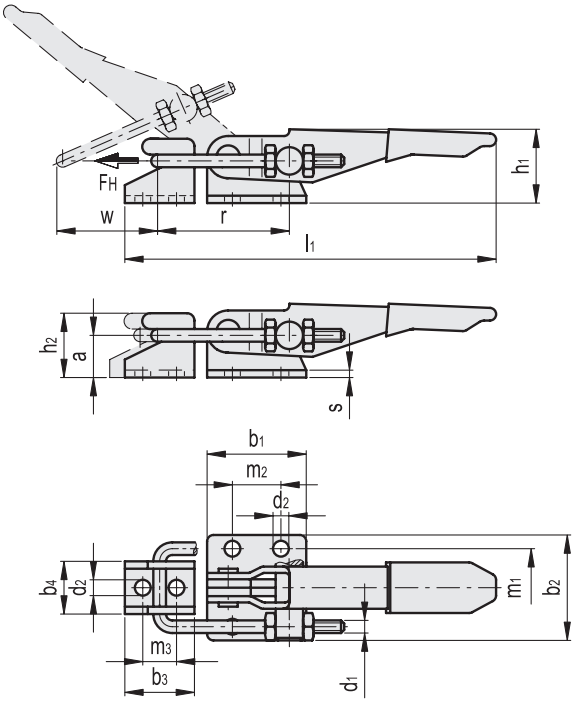
RoHS

- **Material**
  AISI 304 stainless steel.
- **Rivets**
  AISI 304 stainless steel.
- **Pulling hook**
  Parallel to clamping arm, AISI 303 stainless steel.
- **Oscillating pin and nuts**
  AISI 303 stainless steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.

Features and applications

All articulated joints are lubricated with special grease.
MTC. clamps ensure tight closing of any cover.
The position of the pulling hook can be adjusted according to specific applications.





Conversion Table
1 mm = 0.039 inch

m1		m2		m3	
mm	**inch**	mm	**inch**	mm	**inch**
19	**0.75**	16	**0.63**	10	**0.39**
32	**1.26**	19	**0.75**	14.3	**0.56**
38	**1.50**	41.5	**1.63**	19	**0.75**

INOX Stainless Steel

Code	Description	a	b1	b2	b3	b4	d1	d2	h1	h2	l1	m1	m2	m3	r	s	Stroke w	FH [N]*	⚖
GG.AS500	MTC.160-T2X	12	26	28	20	14	M4	4.3	25	18	98	19	16	10	35-44	2	25	1600	85
GG.AS505	MTC.320-T2X	16	40	44	28	22	M6	6.5	30	25	152	32	19	14.3	54-63	3	48	3200	250
GG.AS510	MTC.700-T2X	24	60	54	38	26	M8	8.5	42	36	220	38	41.5	19	70-90	3.5	58	7000	600

* Holding force.

MTD.

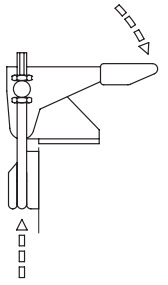
Latch clamps

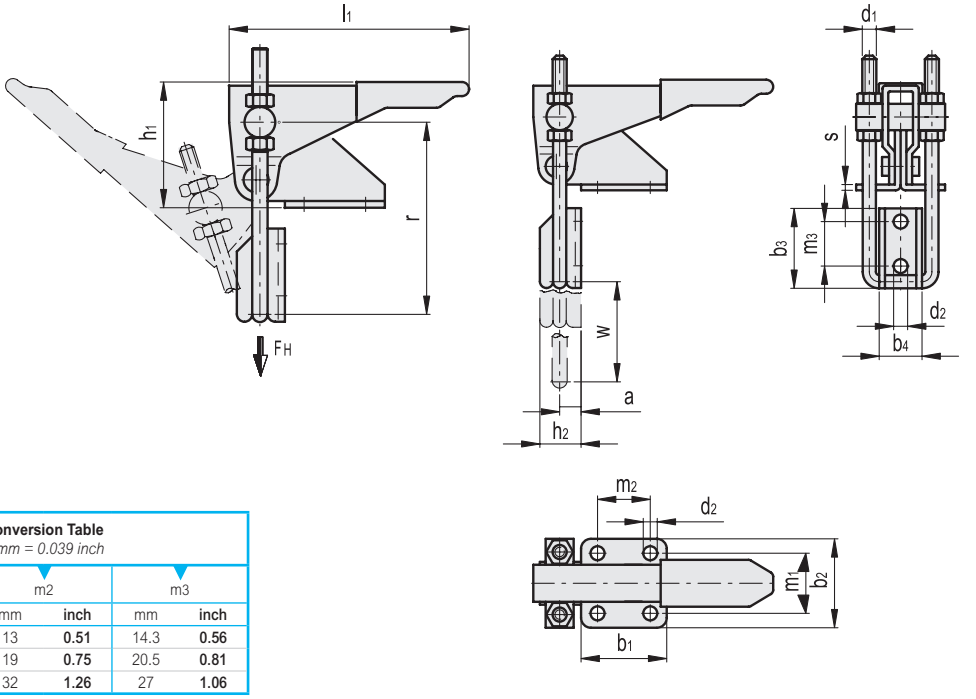
RoHS

- **Material**
  C10 zinc-plated steel.
- **Rivets**
  Zinc-plated steel.
- **Pulling hook**
  Perpendicular to clamping arm, zinc-plated steel.
- **Oscillating pin and nuts**
  Zinc-plated steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.

Features and applications

All articulated joints are lubricated with special grease.
MTD. clamps ensure tight closing of any cover.
The position of the pulling hook can be adjusted in length according to the specific applications.





Conversion Table *1 mm = 0.039 inch*					
m1		m2		m3	
mm	**inch**	mm	**inch**	mm	**inch**
22	**0.87**	13	**0.51**	14.3	**0.56**
25.5	**1.00**	19	**0.75**	20.5	**0.81**
36.5	**1.43**	32	**1.26**	27	**1.06**

Code	Description	a	b_1	b_2	b_3	b_4	d_1	d_2	h_1	h_2	l_1	m_1	m_2	m_3	r	s	Stroke w	FH [N]*	⚖
GG.AL530	MTD.160-T3	5	26	35	25.5	14	M4	4.3	36	10	68	22	13	14.3	48-58	2	34.5	1600	100
GG.AL535	MTD.320-T3	8	36	44	37	22	M6	6.5	52.5	15	106	25.5	19	20.5	75-95	3	53	3200	320
GG.AL540	MTD.700-T3	13	52	54	48.5	26	M8	8.5	66	23	147	36.5	32	27	98-122	3.5	64	7500	680

* Holding force.

MTD-SST

INOX Stainless Steel

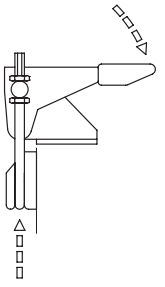
Latch clamps

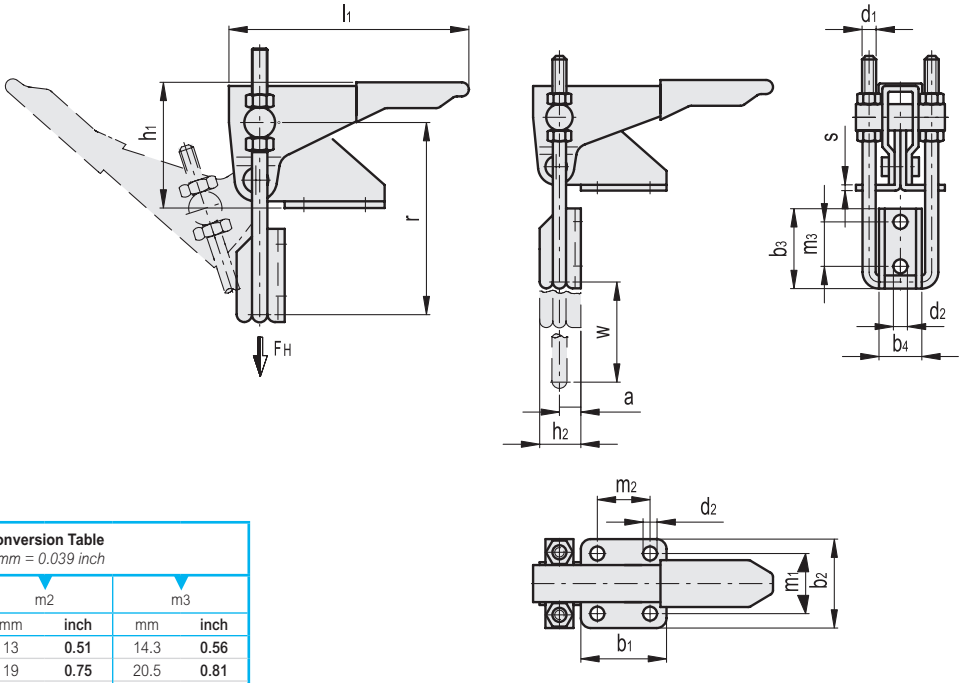
RoHS

- **Material**
  AISI 304 stainless steel.
- **Rivets**
  AISI 304 stainless steel.
- **Pulling hook**
  Perpendicular to clamping arm, AISI 303 stainless steel.
- **Oscillating pin and nuts**
  AISI 303 stainless steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.

Features and applications

All articulated joints are lubricated with special grease.
MTD. clamps ensure tight closing of any cover.
The position of the pulling hook can be adjusted in length according to the specific applications.





Conversion Table
1 mm = 0.039 inch

m1		m2		m3	
mm	**inch**	mm	**inch**	mm	**inch**
22	**0.87**	13	**0.51**	14.3	**0.56**
25.5	**1.00**	19	**0.75**	20.5	**0.81**
36.5	**1.43**	32	**1.26**	27	**1.06**

INOX Stainless Steel

Code	Description	a	b_1	b_2	b_3	b_4	d_1	d_2	h_1	h_2	l_1	m_1	m_2	m_3	r	s	Stroke w	FH [N]*	⚖
GG.AS530	MTD.160-T3X	5	26	35	25.5	14	M4	4.3	36	10	68	22	13	14.3	48-58	2	34.5	1600	100
GG.AS535	MTD.320-T3X	8	36	44	37	22	M6	6.5	52.5	15	106	25.5	19	20.5	75-95	3	53	3200	320
GG.AS540	MTD.700-T3X	13	52	54	48.5	26	M8	8.5	66	23	147	36.5	32	27	98-122	3.5	64	7500	680

* Holding force.

MTE.

Latch clamps

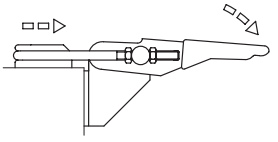
RoHS

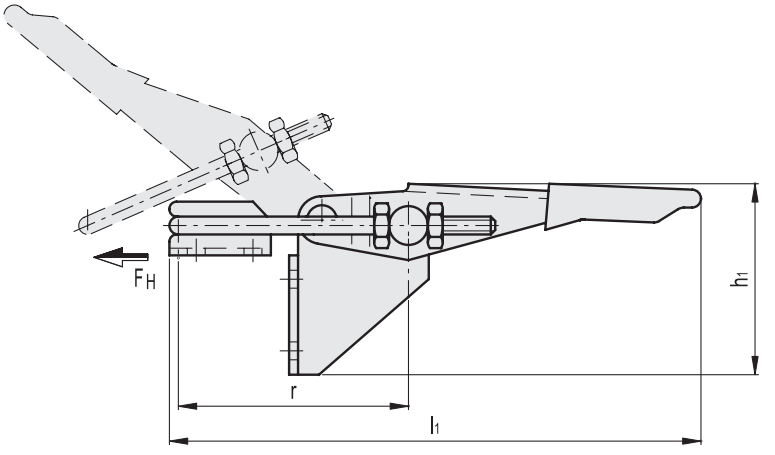
- **Material**
  C10 zinc-plated steel.
- **Rivets**
  Zinc-plated steel.
- **Pulling hook**
  Parallel to clamping arm, zinc-plated steel.
- **Oscillating pin and nuts**
  Zinc-plated steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.

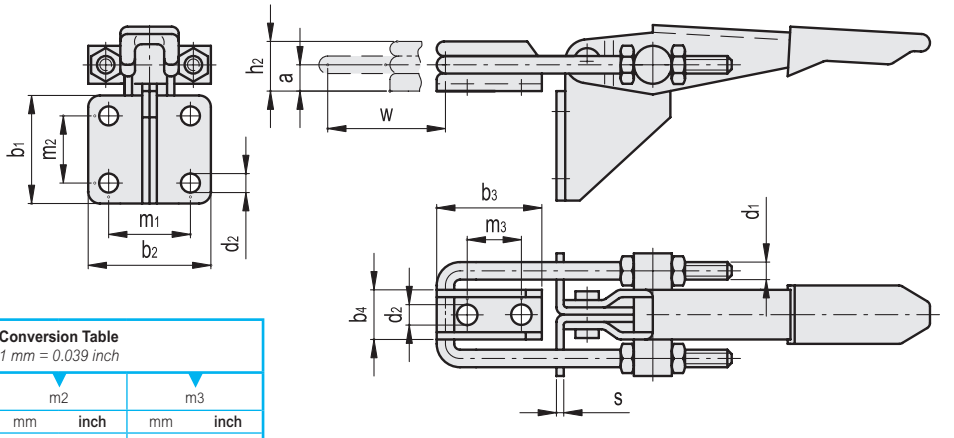
Features and applications

All articulated joints are lubricated with special grease.
MTE. clamps ensure tight closing of any cover.
The position of the pulling hook can be adjusted in length according to the specific applications.

SPEEDY BLOCK







Conversion Table
1 mm = 0.039 inch

m1		m2		m3	
mm	**inch**	mm	**inch**	mm	**inch**
22	**0.87**	13	**0.51**	14.3	**0.56**
25.5	**1.00**	19	**0.75**	20.5	**0.81**
36.5	**1.43**	32	**1.26**	27	**1.06**

Code	Description	a	b1	b2	b3	b4	d1	d2	h1	h2	l1	m1	m2	m3	r	s	Stroke w	FH [N]*	⚖
GG.AL560	MTE.160-T4	5	26	35	25.5	14	M4	4.3	40	10	99	22	13	14.3	48-58	2	32	1600	95
GG.AL565	MTE.320-T4	8	36	44	37	22	M6	6.5	57.5	15	152	25.5	19	20.5	75-95	3	53	3200	295
GG.AL570	MTE.700-T4	13	52	54	48.5	26	M8	8.5	82	23	225	36.5	32	27	98-122	3.5	64	7500	655

* Holding force.

MTA.

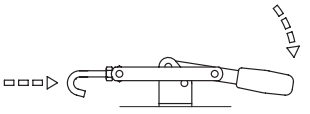
Latch clamps

RoHS

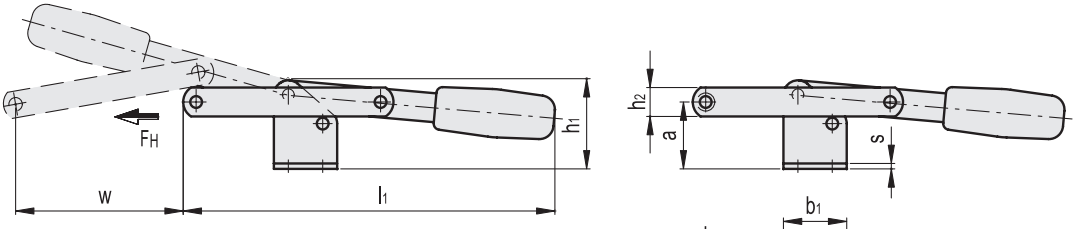
- **Material**
  C10 zinc-plated steel.
- **Rivets**
  Zinc-plated steel.
- **Pulling pin and hook**
  Zinc-plated steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.
- **Standard executions**
  - **MTA-T**: with pulling pin.
  - **MTA-TF**: with pulling hook.

Features and applications

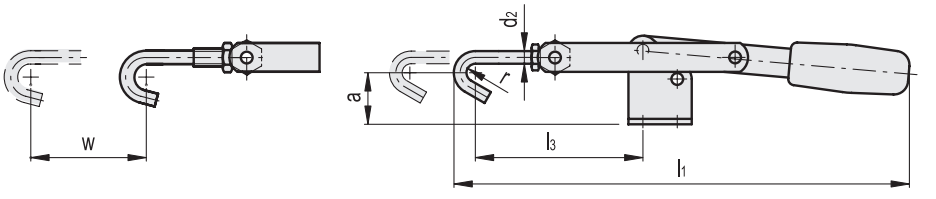
All articulated joints are lubricated with special grease.
MTA. clamps ensure tight closing of any cover.
The position of the pulling hook (MTA-TF) can be adjusted according to specific applications.



MTA-T



MTA-TF



Conversion Table *1 mm = 0.039 inch*			
m1		m2	
mm	**inch**	mm	**inch**
32	**1.26**	19	**0.75**
45	**1.77**	32	**1.26**
60.5	**2.38**	28.5	**1.12**

MTA-T

Code	Description	a	b_1	b_2	b_3	d_1	d_3	h_1	h_2	l_1	l_2	m_1	m_2	s	Stroke w	FH [N]*	⚖
GG.AL200	MTA.200-T	37	35	45	18	10	6.5	49	16	203	51	32	19	3	100	2000	300
GG.AL300	MTA.300-T	35	48	60	21	10	8.3	49	18	226	51	45	32	3	104	3000	460
GG.AL400	MTA.400-T	43	54	84	26	14	10.5	60.5	25	278	58	60.5	28.5	5	160	4000	1000

MTA-TF

Code	Description	a	b_1	b_2	d_2	d_3	h_1	h_2	l_1	l_3	m_1	m_2	r	s	Stroke w	FH [N]*	⚖
GG.AL205	MTA.200-TF	29	35	45	8	6.5	49	16	250	93	32	19	5	3	100	2000	380
GG.AL305	MTA.300-TF	25	48	60	10	8.5	49	18	305	98	45	32	6	3	104	3000	560
GG.AL405	MTA.400-TF	30	54	84	11	10.5	60.5	25	343	117.5	60.5	28.5	7	5	160	4000	1200

* Holding force.

MTP.

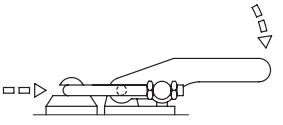
Latch clamps
Heavy-duty series

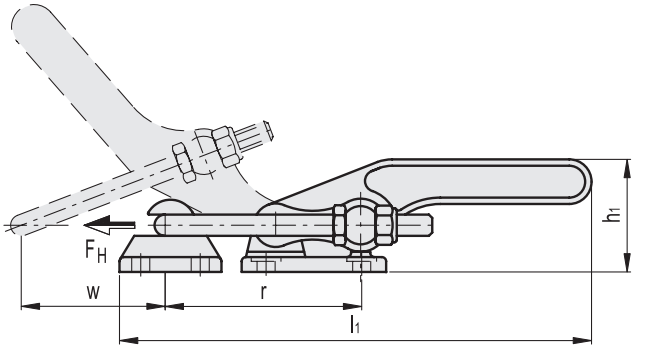
RoHS

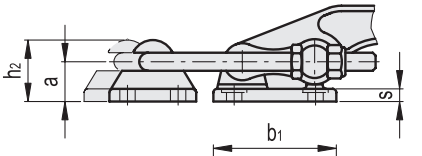
- **Material**
  Black coated weldable steel.
- **Shank**
  Ground and hardened steel.
- **Pulling hook**
  Zinc-plated steel.
- **Oscillating pin and nuts**
  Zinc-plated steel.

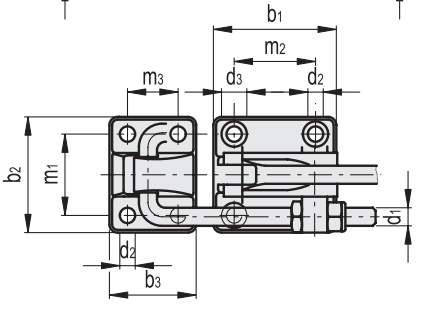
Features and applications

All articulated joints are lubricated with special grease.
MTP. clamps ensure tight closing of any cover; they are suitable for use with high resistant torque thanks to high mechanical resistance of materials.
The position of the pulling hook can be adjusted in length according to the specific applications.









Conversion Table
1 mm = 0.039 inch

m1		m2		m3	
mm	**inch**	mm	**inch**	mm	**inch**
45	**1.77**	45	**1.77**	28	**1.10**
57	**2.24**	57	**2.24**	35	**1.38**

Code	Description	a	b_1	b_2	b_3	d_1	d_2	d_3	h_1	h_2	l_1	m_1	m_2	m_3	r	s	Stroke w	FH [N]*	⚖
GG.AL600	MTP.1400-T2	21	68	64	48	M10	8.5	14	52	34	220	45	45	28	93-105	7	63	17000	1110
GG.AL610	MTP.2800-T2	27	85	80	60	M12	10.5	16	65	42	273	57	57	35	113-123	9	78	40000	2070

* Holding force.

MTP-SST

INOX Stainless Steel

Latch clamps
Heavy-duty series

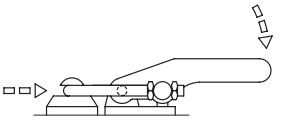
RoHS

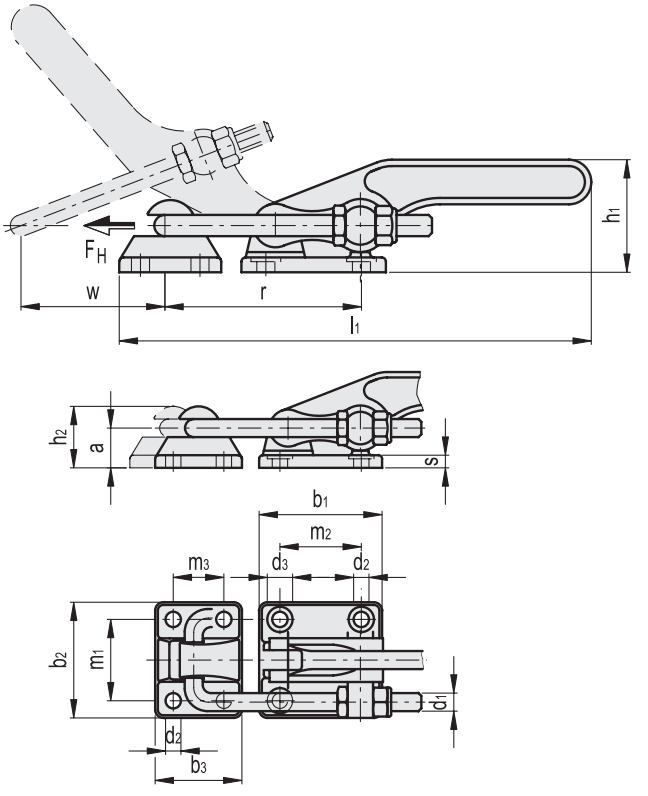
- **Material**
  AISI 304 stainless steel.
- **Shank**
  AISI 303 stainless steel.
- **Pulling hook**
  AISI 303 stainless steel.
- **Oscillating pin and nuts**
  AISI 303 stainless steel.

Features and applications

All articulated joints are lubricated with special grease.
MTP. clamps ensure tight closing of any cover; they are suitable for use with high resistant torque thanks to high mechanical resistance of materials.
The position of the pulling hook can be adjusted in length according to the specific applications.

SPEEDY BLOCK





Conversion Table
1 mm = 0.039 inch

m1		m2		m3	
mm	**inch**	mm	**inch**	mm	**inch**
45	**1.77**	45	**1.77**	28	**1.10**
57	**2.24**	57	**2.24**	35	**1.38**

INOX Stainless Steel

Code	Description	a	b_1	b_2	b_3	d_1	d_2	d_3	h_1	h_2	l_1	m_1	m_2	m_3	r	s	Stroke w	FH [N]*	⚖
GG.AS580	MTP.1400-T2X	21	68	64	48	M10	8.5	14	52	34	220	45	45	28	93-105	7	63	14000	1110
GG.AS585	MTP.2800-T2X	27	85	80	60	M12	10.5	16	65	42	273	57	57	35	113-123	9	78	30000	2070

* Holding force.

elesa

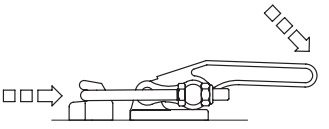
Weldable latch clamps
Heavy-duty series

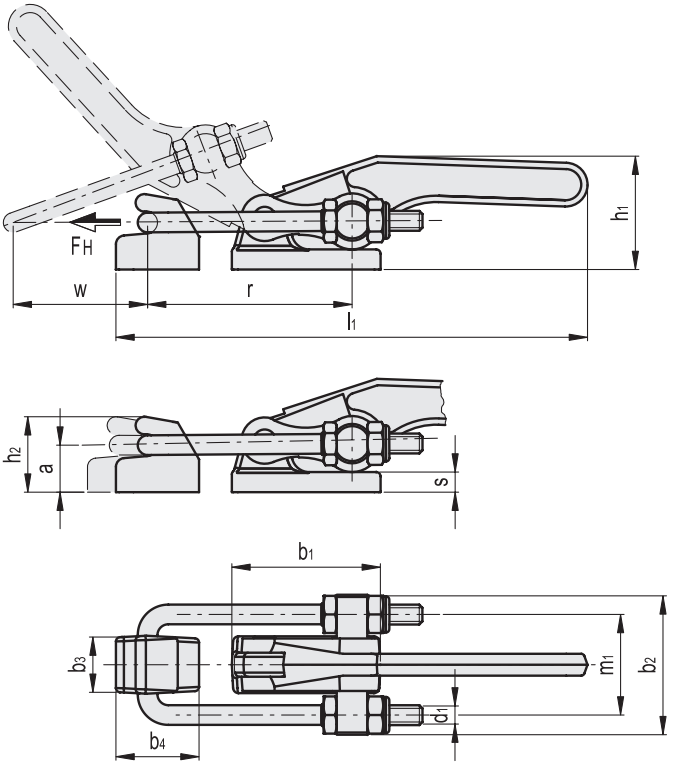
RoHS

- **Material**
  Weldable black-oxide steel.
- **Shank**
  Ground and hardened steel.
- **Pulling hook**
  Zinc-plated steel.
- **Oscillating pin and nuts**
  Zinc-plated steel.

Features and applications

All articulated joints are lubricated with special grease.
MTS. clamps ensure tight closing of any cover; they are suitable for use with high resistant torque thanks to high mechanical resistance of materials.
The position of the pulling hook can be adjusted in length according to the specific applications.





Code	Description	a	b_1	b_2	b_3	b_4	d_1	h_1	h_2	l_1	m_1	r	s	Stroke w	FH [N]*	⚖
GG.AL620	MTS.1400-T2S	21	68	64	26.5	38	M10	52	34.5	216	46	93-105	9.2	63	17000	930
GG.AL630	MTS.2800-T2S	27	80	80	32	50	M12	65	43	257	55	102-123	12.7	78	40000	1708

* Holding force.

MTS-SST

INOX Stainless Steel

Weldable latch clamps
Heavy-duty series

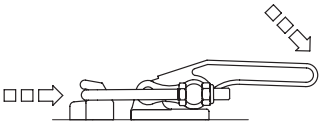
RoHS

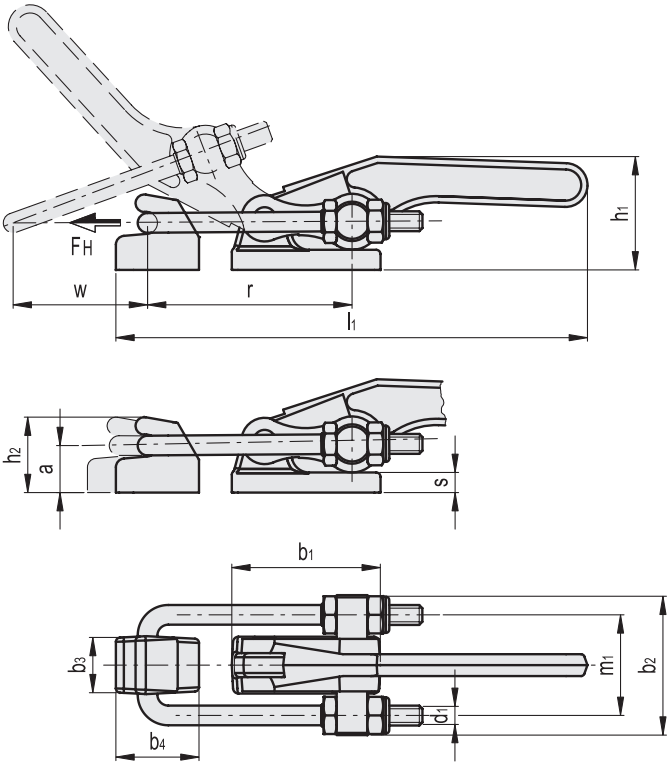
- **Material**
  AISI 304 stainless steel.
- **Shank**
  AISI 303 stainless steel.
- **Pulling hook**
  AISI 303 stainless steel.
- **Oscillating pin and nuts**
  AISI 303 stainless steel.

Features and applications

All articulated joints are lubricated with special grease.
MTS. clamps ensure tight closing of any cover; they are suitable for use with high resistant torque thanks to high mechanical resistance of materials.
The position of the pulling hook can be adjusted in length according to the specific applications.

SPEEDY BLOCK





INOX Stainless Steel

Code	Description	a	b1	b2	b3	b4	d1	h1	h2	l1	m1	r	s	Stroke w	FH [N]*	⚖
GG.AS590	MTS.1400-T2SX	21	68	64	26.5	38	M10	52	34.5	216	46	93-105	9.2	63	14000	930
GG.AS595	MTS.2800-T2SX	27	80	80	32	50	M12	65	43	257	55	102-123	12.7	78	30000	1708

* Holding force.

elesa

Latch clamps with safety device
Heavy-duty series

RoHS

- **Material**
  Weldable black-oxide steel.
- **Pins**
  Ground and hardened steel.
- **Handle**
  Polyurethan, red colour.
  Resistant to solvents, oils, greases and other chemical agents.

Features and applications

All articulated joints are lubricated with special grease.
MTL. clamps ensure tight closing and are particularly suitable for applications where it is required to exert a high resistance force with a further assurance of the holding of the clamp engagement, very useful in case of strong vibration stresses.
By disengaging the safety device, pushing the slider (fig. 1) and using the handle, the clamp opens (fig. 2). By disengaging the safety device (fig. 3) and moving the control lever in the opposite direction (fig. 4), the result is the complete disengagement of the body of the clamp and the clamping plate.
To re-engage the clamp, it is necessary to proceed in the opposite way.
All these engaging and disengaging operations can be done by using one hand only, since in its movement the eyelet follows the lever.
The engaging position can be length-regulated in order to suit better the application by means of a threaded eyelet, locked in place by a grub screw.

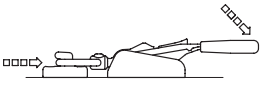


Fig.1

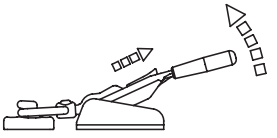
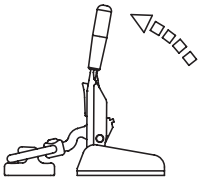
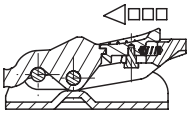


Fig.2



Locked eyelet



Unlocked eyelet

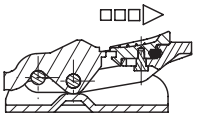


Fig.3

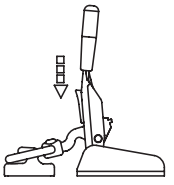
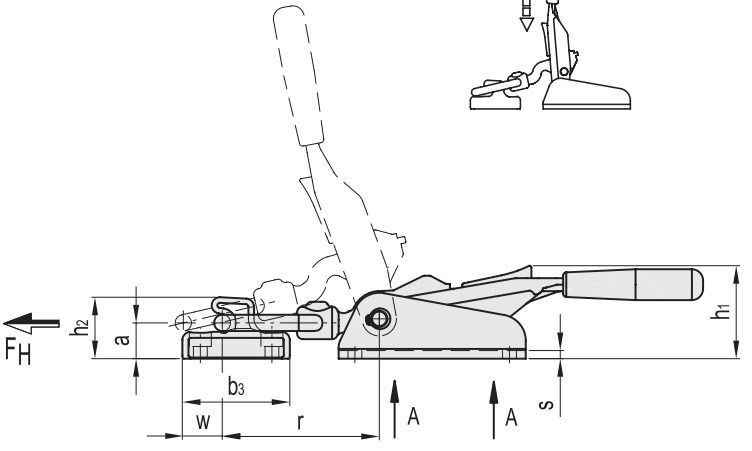
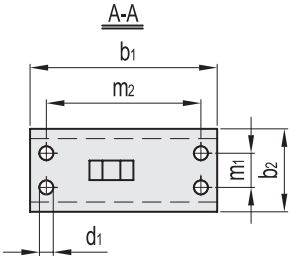
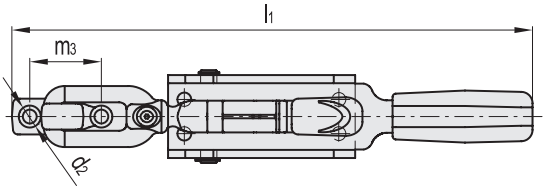


Fig.4







Conversion Table *1 mm = 0.039 inch*					
m1		m2		m3	
mm	**inch**	mm	**inch**	mm	**inch**
21	**0.83**	95	**3.74**	44	**1.73**

Code	Description	a	b_1	b_2	b_3	d_1	d_2	h_1	h_2	l_1	m_1	m_2	m_3	r	s	Stroke w	FH [N]*	⚖
GG.AL590	MTL.1400-T5	22	115	51	66	8.5	13	57	38	318	21	95	44	95-105	5	24	15000	1600

* Holding force.

MTP-D

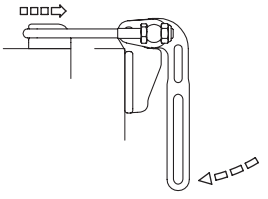
Latch clamps
Heavy-duty series

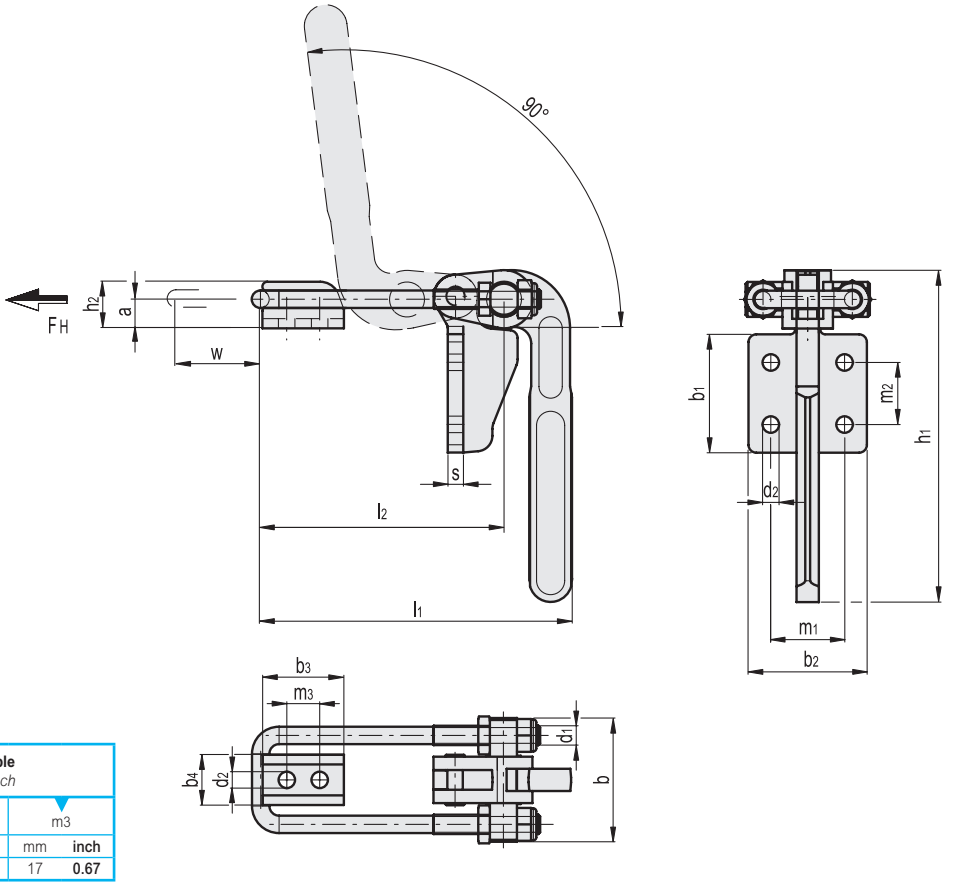
RoHS

- **Material**
  Black coated weldable steel.
- **Shank**
  Ground and hardened steel.
- **Pulling hook**
  Zinc-plated steel.
- **Oscillating pin and nuts**
  Zinc-plated steel.

Features and applications

All articulated joints are lubricated with special grease.
Tight closing of any cover.
they are suitable for use with high resistant torque thanks to high mechanical resistance of materials.
The position of the pulling hook can be adjusted in length according to the specific applications.





Conversion Table *1 mm = 0.039 inch*					
m1		m2		m3	
mm	**inch**	mm	**inch**	mm	**inch**
38	**1.50**	32	**1.26**	17	**0.67**

Code	Description	a	b	b_1	b_2	b_3	b_4	d_1	d_2	h_1	h_2	l_1	l_2	m_1	m_2	m_3	s	Stroke w	FH [N]*	⚖
GG.AL551	MTP-D-1400-T4	15	64	61	61	42	26	M10	8.5	171	24	159.5	125.5	38	32	17	8	50	12000	1235

* Holding force.

MTS-D

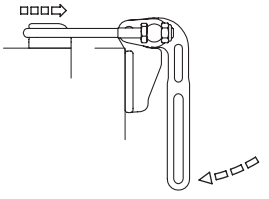
Weldable latch clamps
Heavy-duty series

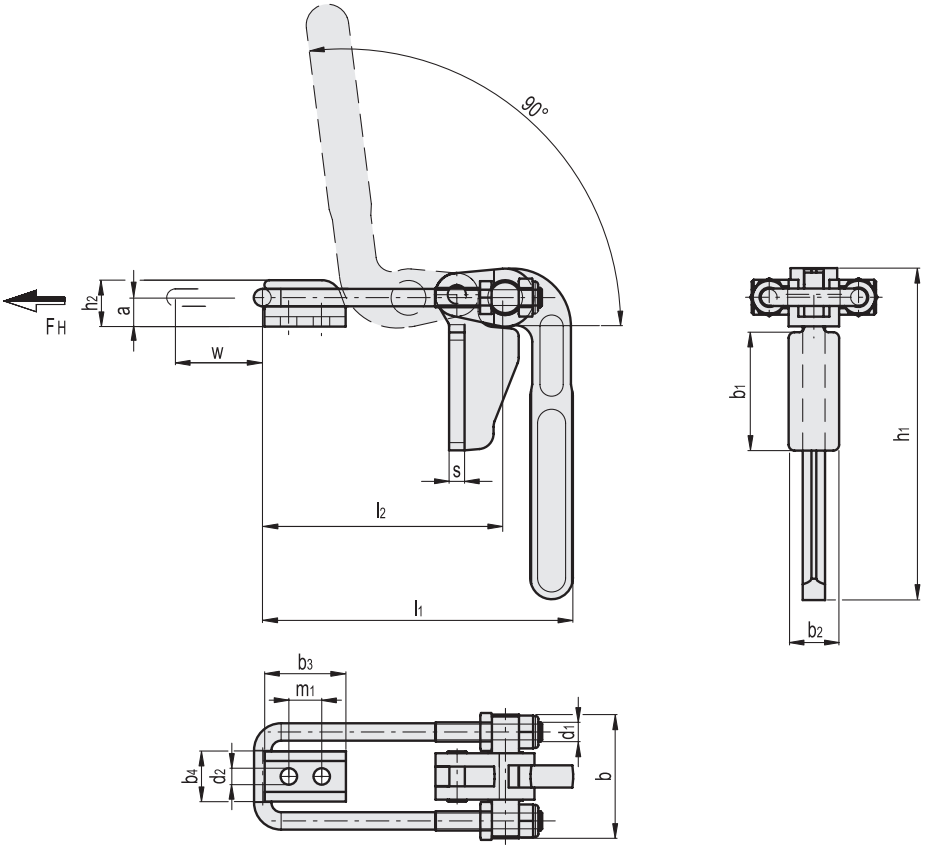
RoHS

- **Material**
  Weldable black-oxide steel.
- **Shank**
  Ground and hardened steel.
- **Pulling hook**
  Zinc-plated steel.
- **Oscillating pin and nuts**
  Zinc-plated steel.

Features and applications

All articulated joints are lubricated with special grease.
Tight closing of any cover.
they are suitable for use with high resistant torque thanks to high mechanical resistance of materials.
The position of the pulling hook can be adjusted in length according to the specific applications.





Conversion Table *1 mm = 0.039 inch*	
m1	
mm	**inch**
17	**0.67**

Code	Description	a	b	b_1	b_2	b_3	b_4	d_1	d_2	h_1	h_2	l	l_2	m_1	s	Stroke w	FH [N]*	⚖
GG.AL552	MTS-D-1400-T3S	15	64	61	26	42	26	M10	8.5	171	24	159.5	125.5	17	8	50	12000	1115

* Holding force.

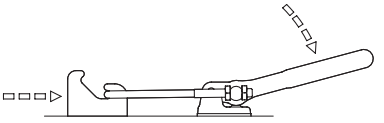
MTR.

Weldable latch clamps

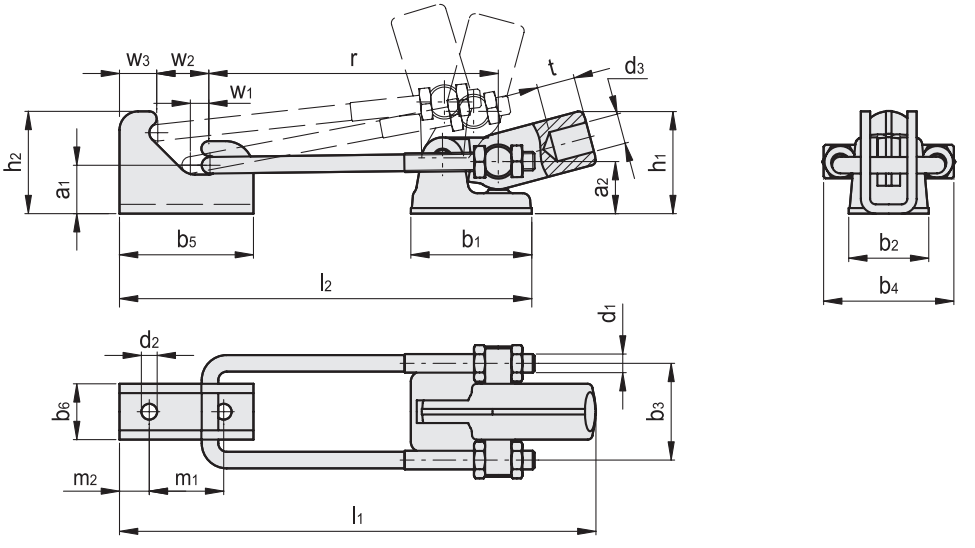
- **Material**
  Black coated weldable steel.
- **Shank**
  Ground and hardened steel.
- **Pulling hook**
  Natural steel.
- **Oscillating pin and nuts**
  Natural steel.
- **Standard executions**
  - **MTR.1500**: with clamping hole by removable tube.
  - **MTR.1510**: with clamping lever.

Features and applications

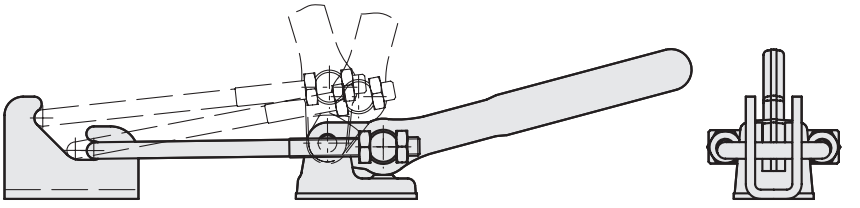
All articulated joints are lubricated with special grease.
MTR. latch clamps are particularly suitable for applications on moulds of plastic products and rotational.
The small dimensions of MTR.1500 execution greatly reduces the possibility of accidental damage. In addition, this execution allows the operability of the locking through a removable tube always cold, even when the mould on which the tool is used is just out of the oven.
The position of the pulling hook can be adjusted in length according to the specific applications.



MTR.1500



MTR.1510



Conversion Table *1 mm = 0.039 inch*	
m1	
mm	**inch**
40	**1.57**

Code	Description	a_1	a_2	b_1	b_2	b_3	b_4	b_5	b_6	d_1	d_2	d_3	h_1	h_2	l_1	l_2	m_1	m_2	r	t	w_1	w_2	Stroke w_3	FH [N]*	⚖
GG.AL750	MTR.1500-T2S	26	28	65	43	52	70	72	30	M10	8.5	18	55	55	220	186	40	16	120	30	10.5	28	25	13000	1234
GG.AL755	MTR.1510-T2S	26	28	65	43	52	70	72	30	M10	8.5	-	81	55	334	186	40	16	120	-	10.5	28	25	13000	1320

Holding force.

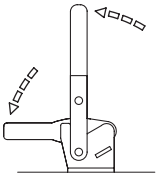
MVA-R

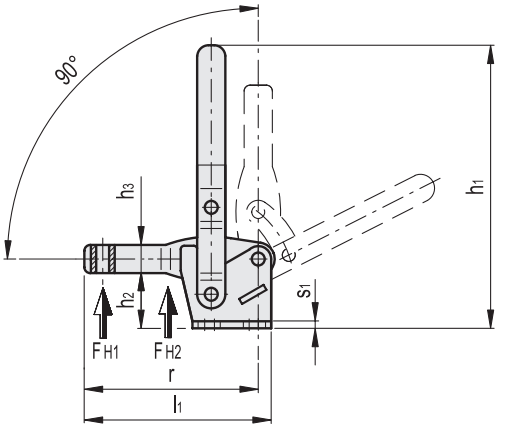
Vertical toggle clamps with folded base

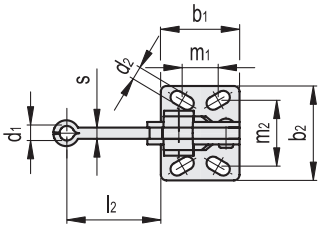
- **Material**
  Weldable black-oxide steel.
- **Rivets**
  Black-oxide steel.
- **Clamping bolts**
  To be ordered separately.

Features and applications

All articulated joints are lubricated with special grease resistant to high temperatures.
During clamping, the lever is controlled to prevent impact on functioning due to side thrust.
MVA-R toggle clamps are particularly suitable for applications on moulds for plastic materials and in rotational moulding.
Slotted assembly holes for applications in inches.







Conversion Table
1 mm = 0.039 inch

m1		m2	
mm	**inch**	mm	**inch**
12.5-19	**0.49-0.75**	27-29	**1.06-1.14**
19-20	**0.75-0.79**	32	**1.26**
29-32	**1.14-1.26**	45-46	**1.77-1.81**

Code	Description	b1	b2	d1	d2	h1	h2	h3	l1	l2	m1	m2	r	s	s1	FH1 [N]*	FH2 [N]*	
GG.AR530	MVA-R-130-ER	35	42	6.5	5.5	136	28	11	85	44	12.5-19	27-29	75	5	2.5	1600	3000	210
GG.AR540	MVA-R-230-ER	43	45	8	6.5	164	33.5	18	110	60	19-20	32	103	3	6	2000	3200	330
GG.AR551	MVA-R-330-ER	50	65	10.5	8.5	162	43	22	128	69	29-32	45-46	120.5	7	3.5	2400	4000	519

* Holding force.

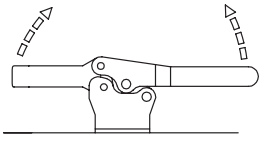
MOA-R

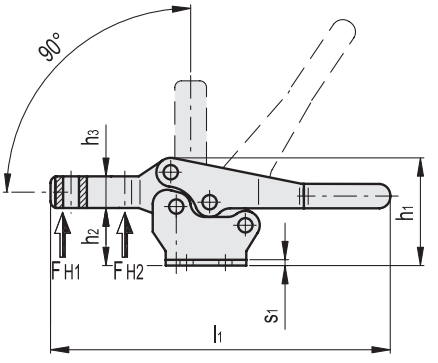
Horizontal toggle clamps with folded base

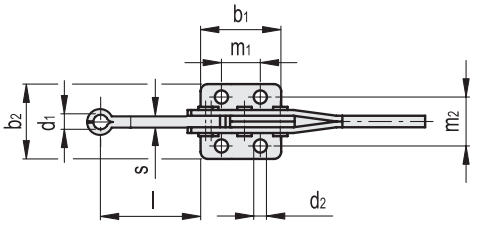
- **Material**
  Weldable black-oxide steel.
- **Rivets**
  Black-oxide steel.
- **Clamping bolts**
  To be ordered separately.

Features and applications

All articulated joints are lubricated with special grease resistant to high temperatures.
A special feature of MOA-R toggle clamps is their low closure profile. During clamping, the lever is controlled to prevent impact on functioning due to side thrust.
MOA-R toggle clamps are particularly suitable for applications on moulds for plastic materials and in rotational moulding.
Slotted assembly holes for applications in inches.







Conversion Table
1 mm = 0.039 inch

m1		m2	
mm	**inch**	mm	**inch**
26	**1.02**	26	**1.02**
41	**1.61**	28.5	**1.12**
		41	**1.61**

Code	Description	b_1	b_2	d_1	d_2	h_1	h_2	h_3	l	l_1	m_1	m_2	s	s_1	FH1 [N]*	FH2 [N]*	⚖
GG.AR145	MOA-R-130-OR	36	40	5.5	6.5	51	29	14	48	162	26	26	5	2.5	1000	2000	185
GG.AR280	MOA-R-230-OR	44	42	8.5	6.5	61.5	36.5	18	56	190	26	28.5	6	3	1700	3300	300
GG.AR381	MOA-R-355-OR	60	56	10.5	8.5	83	50	22	89.5	260.5	41	41	7	3.5	1800	4000	700

* Holding force.

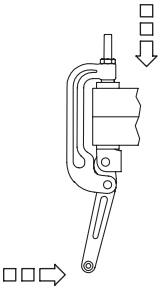
MCR

Weldable latch clamps

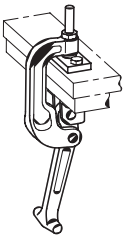
- **Material**
  Weldable black-oxide steel.
- **Pins**
  Ground and hardened steel.

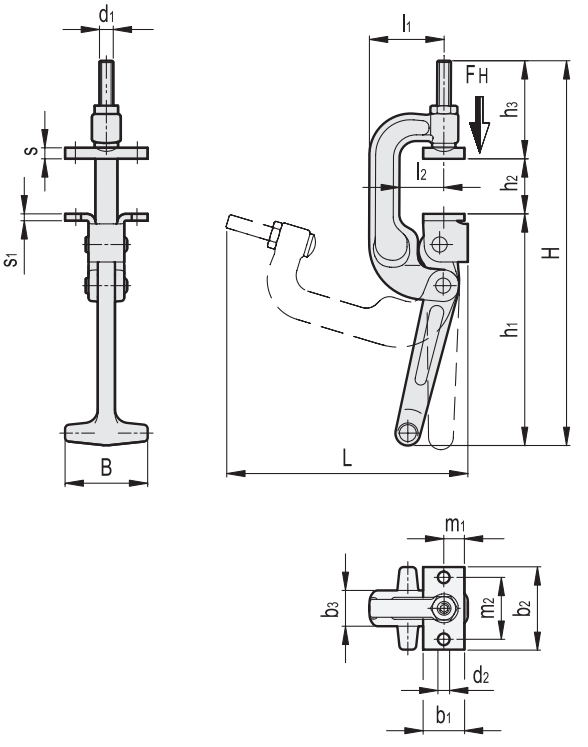
Features and applications

All articulated joints are lubricated with special grease resistant to high temperatures.
MCR toggle clamps are particularly suitable for applications on moulds for plastic materials and in rotational moulding.
The position of the threaded screw can be adjusted according to specific applications.



Application example





Conversion Table *1 mm = 0.039 inch*	
m2	
mm	**inch**
45	**1.77**

Code	Description	B	b_1	b_2	b_3	d_1	d_2	H	h_1	h_2	h_3	L	l_1	l_2	m_1	m_2	s	s_1	FH [N]*	⚖
GG.AL758	MCR.1540	60	30	60	26	M10	8.5	280	168	40	71	173	54	32	15	45	8	5	1500	1110
GG.AL761	MCR.1576	60	30	60	26	M10	8.5	315	168	75	71	207	54	32	15	45	8	5	1500	1190

* Holding force.

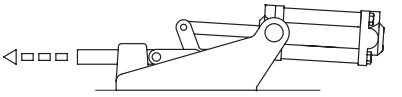
PFA.

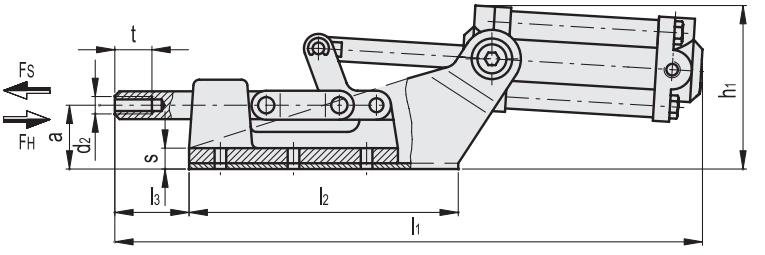
Pneumatic clamps with push lever

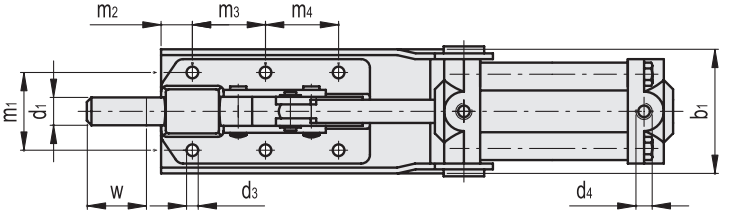
- **Material**
  C10 zinc-plated steel.
- **Base**
  · Black coated brass, for size 70.
  · Black coated pressed steel, for sizes ≥360.
- **Rivets**
  Zinc-plated steel.
- **Hexagon-socket head screws with countersink for cylinder support**
  Black-oxide steel.
- **Cylinder support bushing**
  Hardened steel.
- **Push lever**
  Zinc-plated steel.
- **Rotating pin and seeger rings**
  Hardened and ground steel (for sizes ≥360).
- **Standard executions**
  · **PFA-SP3**: with normal cylinder.
  · **PFA-SPM**: with magnetic cylinder.
- **Maximum working pressure**
  6 bars.
- **Max working temperature**
  80°C.
- **Clamping bolts**
  To be ordered separately.

Features and applications

All articulated joints are lubricated with special grease.
Execution PFA-SPM (with magnetic cylinder), equipped with limit switches type PSW. (see page 56) (to be ordered separately) gives drive and/or control impulses while active.
Using a lubrication filter assembly is necessary for the cylinder to work properly for a long time, whereas flow regulators are recommended to guarantee long life of mechanical components.







Conversion Table
1 mm = 0.039 inch

m1		m3		m4	
mm	**inch**	mm	**inch**	mm	**inch**
26	**1.02**	35	**1.38**	26	**1.02**
33.5	**1.32**	50	**1.97**	36.5	**1.44**
41	**1.61**			41	**1.61**
50	**1.97**			50	**1.97**

PFA-SP3

Code	Description	a	b1	d1	d2	d3	d4	h1	l1	l2	l3	m1	m2	m3	m4	s	t	Stroke w	FH [N]*	FS [N]#	⚖
GG.AO350	PFA.70-SP3	14	42	8.5	M6	4.3	G1/8	51	171	64	20	26	13	-	26	8	12	12	1200	500	550
GG.AO361	PFA.360-SP3	27.5	55	12	M8	5.5	G1/8	72.5	260	116	32	33.5	30	-	36.5	9.5	15	22	5600	3100	1300
GG.AO371	PFA.1100-SP3	28	66	16	M10	8.5	G1/4	89	355	167	49	41	15	35	41	12	18	32	16000	4100	2400
GG.AO381	PFA.2100-SP3	38.5	81	20	M12	8.5	G1/4	100	461.5	232	61.5	50	35	50	50	13	22	45	25000	6070	5000

PFA-SPM

Code	Description	a	b1	d1	d2	d3	d4	h1	l1	l2	l3	m1	m2	m3	m4	s	t	Stroke w	FH [N]*	FS [N]#	⚖
GG.AO362	PFA.360-SPM	27.5	55	12	M8	5.5	G1/8	72.5	260	116	32	33.5	30	-	36.5	9.5	15	22	5600	3100	1300
GG.AO372	PFA.1100-SPM	28	66	16	M10	8.5	G1/4	89	355	167	49	41	15	35	41	12	18	32	16000	4100	2400
GG.AO382	PFA.2100-SPM	38.5	81	20	M12	8.5	G1/4	100	461.5	232	61.5	50	35	50	50	13	22	45	25000	6070	5000

* Holding force.
# Clamping force ~4 bar

PVA.

Pneumatic clamps

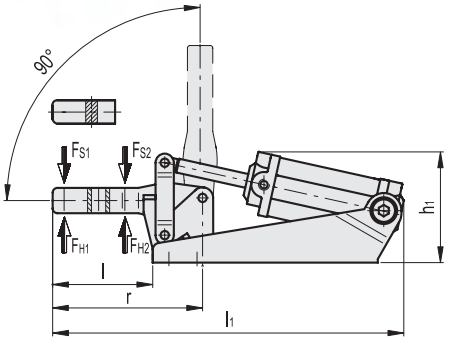
RoHS +80° -30°

- **Material**
  C10 zinc-plated steel.
- **Rivets and pins**
  Zinc-plated steel.
- **Hexagon-socket head screws with countersink for cylinder support**
  Black-oxide steel.
- **Cylinder support bushings**
  Hardened steel.
- **Rotating pin and seeger rings**
  Hardened and ground steel (for sizes ≥200).
- **Standard executions**
  - **PVA-AP3**: with open clamping lever and two folded washers.
  - **PVA-APM**: with magnetic cylinder, open clamping lever and two folded washers.
  - **PVA-EP3**: with solid clamping lever and retainer for welding.
  - **PVA-EPM**: with magnetic cylinder, solid clamping lever and retainer for welding.
- **Maximum working pressure**
  6 bars.
- **Max working temperature**
  80°C.
- **Clamping bolts**
  To be ordered separately.

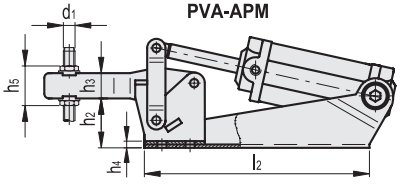
Features and applications

All articulated joints are lubricated with special grease.
Functioning principles of PVA. pneumatic clamps are the same as MVA. manual toggle clamps.
Executions PVA-APM and PVA-EPM (with magnetic cylinder), equipped with limit switches type PSW. (see page 56) (to be ordered separately) gives drive and/or control impulses while active.
Using a lubrication filter assembly is necessary for the cylinder to work properly for a long time, whereas flow regulators are recommended to guarantee long life of mechanical components.

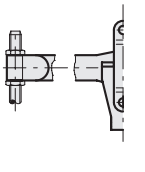
SPEEDY BLOCK

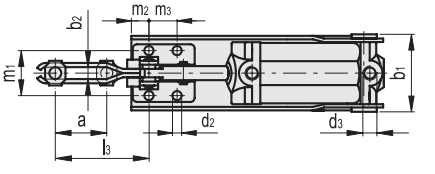


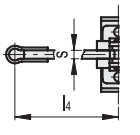
PVA-AP3
PVA-APM



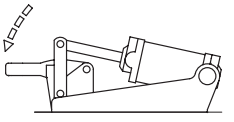
PVA-EP3
PVA-EPM







Conversion Table *1 mm = 0.039 inch*			
m1		m3	
mm	inch	mm	inch
24	**0.94**	15	**0.60**
29	**1.14**	19	**0.75**
32	**1.26**	20	**0.79**
46	**1.81**	29	**1.14**
45	**1.77**	32	**1.26**



PVA-AP3

Code	Description	a	b_1	b_2	d_1	d_2	d_3	h_1	h_2	h_3	h_4	h_5	l	l_1	l_2	l_3	m_1	m_2	m_3	r	FH1 [N]*	FH2 [N]*	FS1 [N]#	FS2 [N]#	⚖
GG.AO020	PVA.70-AP3	20	42	5.2	M5	4.5	G1/8	51.5	21	11	4	21	38	163	92	40	24	7	15	62.5	700	1450	500	750	500
GG.AO041	PVA.125-AP3	23	47.5	6.2	M6	5.5	G1/8	70.5	30	14	4.5	27	50	200	150	48	29	8	19	79	1600	3000	700	1200	700
GG.AO161	PVA.200-AP3	40	53	8.5	M8	6.5	G1/8	79	36	18	5.5	35	67.5	246	160	70	32	11	20	104	2200	3500	900	1500	1070
GG.AO201	PVA.300-AP3	42	74	10.5	M10	8.5	G1/4	98	48	20	8.5	41	78.5	304.5	195.5	76	46	11	29	122	2700	4500	1200	2400	2100
GG.AO301	PVA.400-AP3	66	74	12.5	M12	8.5	G1/4	107.5	51	22	10	48	110	360	216	104	45	10	32	156	3000	6400	1400	2600	3100

PVA-APM

GG.AO162	PVA.200-APM	40	53	8.5	M8	6.5	G1/8	79	36	18	5.5	35	67.5	246	160	70	32	11	20	104	2200	3500	900	1500	1070
GG.AO202	PVA.300-APM	42	74	10.5	M10	8.5	G1/4	98	48	20	8.5	41	78.5	304.5	195.5	76	46	11	29	122	2700	4500	1200	2400	2100
GG.AO302	PVA.400-APM	66	74	12.5	M12	8.5	G1/4	107.5	51	22	10	48	110	360	216	104	45	10	32	156	3000	6400	1400	2600	3100

PVA-EP3

Code	Description	b_1	d_1	d_2	d_3	h_1	h_2	h_3	h_4	l	l_1	l_2	l_4	m_1	m_2	m_3	r	s	FH1 [N]*	FH2 [N]*	FS1 [N]#	FS2 [N]#	⚖
GG.AO025	PVA.70-EP3	42	M5	4.5	G1/8	51.5	21	11	4	38	163	92	48	24	7	15	62.5	4	700	1450	500	750	500
GG.AO046	PVA.125-EP3	47.5	M6	5.5	G1/8	70.5	30	14	4.5	51	201	150	62	29	8	19	79	5	1600	3000	700	1200	700
GG.AO166	PVA.200-EP3	53	M8	6.5	G1/8	79	36	18	5.5	69.5	248	160	86	32	11	20	104	6	2200	3500	900	1500	1070
GG.AO206	PVA.300-EP3	74	M10	8.5	G1/4	98	48	20	8.5	80	306	195.5	95	46	11	29	122	8	2700	4500	1200	2400	2100
GG.AO306	PVA.400-EP3	74	M12	8.5	G1/4	107.5	51	22	10	112	362	216	130	45	10	32	156	10	3000	6400	1400	2600	3100

PVA-EPM

GG.AO167	PVA.200-EPM	53	M8	6.5	G1/8	79	36	18	5.5	69.5	248	160	86	32	11	20	104	6	2200	3500	900	1500	1070
GG.AO207	PVA.300-EPM	74	M10	8.5	G1/4	98	48	20	8.5	80	306	195.5	95	46	11	29	122	8	2700	4500	1200	2400	2100
GG.AO307	PVA.400-EPM	74	M12	8.5	G1/4	107.5	51	22	10	112	362	216	130	45	10	32	156	10	3000	6400	1400	2600	3100

* Holding force.
\# Clamping force ~4 bar

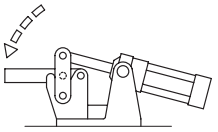
PPC.

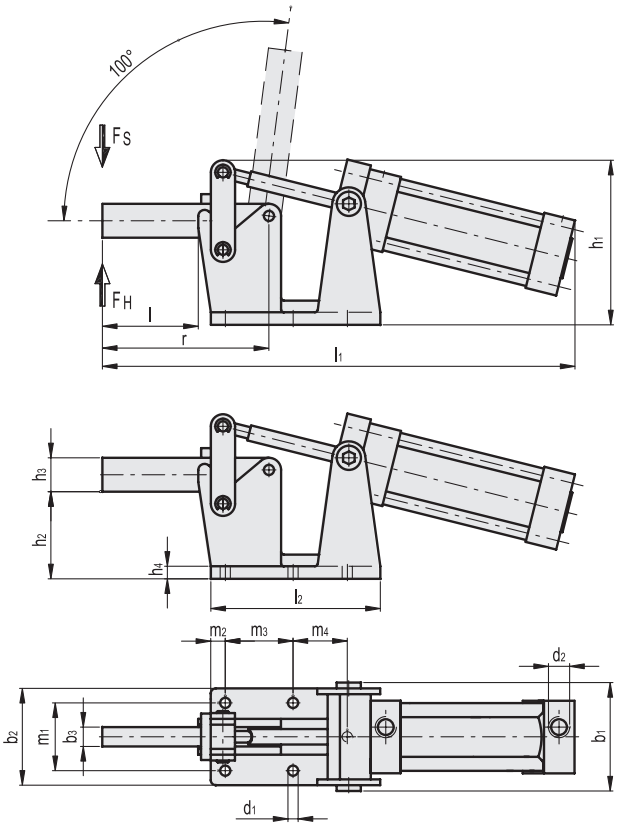
Pneumatic clamps
Heavy-duty series

- **Material**
  Weldable zinc-plated steel.
- **Body**
  Black coated spheroidal cast iron.
- **Hexagon-socket head screws with countersink for cylinder support**
  Black-oxide steel.
- **Cylinder support bushings**
  Hardened steel.
- **Rotating pins and seeger rings**
  Ground and hardened steel.
- **Maximum working pressure**
  6 bars.
- **Max working temperature**
  80°C.

Features and applications

All articulated joints are lubricated with special grease.
PPC. pneumatic clamps are designed for easy disassembly. Indeed, rotation pins are fixed through seeger rings, which allows to disassemble and change the clamping lever to satisfy specific application requirements. The magnetic cylinder, equipped with limit switches type PSW. (see page 56) (to be ordered separately) gives drive and/or control impulses while active. Using a lubrication filter assembly is necessary for the cylinder to work properly for a long time, whereas flow regulators are recommended to guarantee long life of mechanical components.





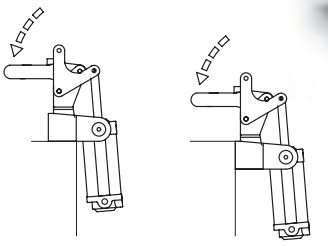
Conversion Table *1 mm = 0.039 inch*			
m1		m3	
mm	**inch**	mm	**inch**
65	**2.56**	65	**2.56**
70	**2.75**	70	**2.75**

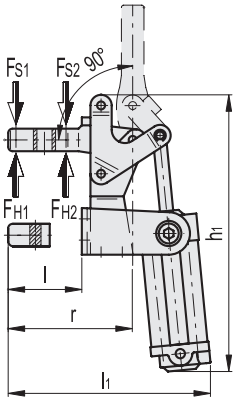
Code	Description	b_1	b_2	b_3	d_1	d_2	h_1	h_2	h_3	h_4	l	l_1	l_2	m_1	m_2	m_3	m_4	r	FH [N]*	FS [N]#	⚖
GG.AO600	PPC.1000-EPM	102	90	20	10.5	G1/4	146.5	80	25	13	80	410	155	65	12.5	65	48	140	10000	3200	6500
GG.AO620	PPC.2000-EPM	112	100	20	10.5	G3/8	171.5	90	35	13	100	487	176	70	15	70	56	172	20000	3800	9500

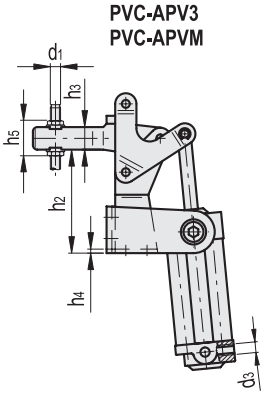
* Holding force.
\# Clamping force ~4 bar

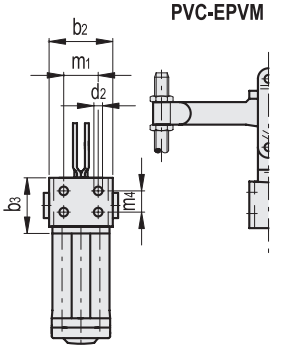
PVC.

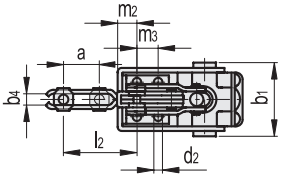
Pneumatic clamps with toggle-joint support

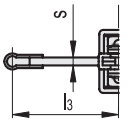












- **Material**
  C10 zinc-plated steel.
- **Rivets and pins**
  Zinc-plated steel.
- **Hexagon-socket head screws with countersink for cylinder support**
  Black-oxide steel.
- **Cylinder support bushing**
  Hardened steel.
- **Rotating pin and seeger rings**
  Hardened steel.
- **Standard executions**
  - **PVC-APV3**: with open clamping lever and two folded washers.
  - **PVC-APVM**: with magnetic cylinder, open clamping lever and two folded washers.
  - **PVC-EPV3**: with solid clamping lever retainer for welding.
  - **PVC-EPVM**: with magnetic cylinder, solid clamping lever and retainer for welding.
- **Maximum working pressure**
  6 bars.
- **Max working temperature**
  80°C.
- **Clamping bolts**
  To be ordered separately.

Features and applications

All articulated joints are lubricated with special grease.
PVC. pneumatic clamps can be installed on two different fixing surfaces.
Executions PVC-APVM and PVC-EPVM (with magnetic cylinder), equipped with limit switches type PSW. (see page 56) (to be ordered separately) gives drive and/or control impulses while active.
Using a lubrication filter assembly is necessary for the cylinder to work properly for a long time, whereas flow regulators are recommended to guarantee long life of mechanical components.

PVC-APV3
PVC-APVM

PVC-EPV3
PVC-EPVM

Conversion Table
1 mm = 0.039 inch

m1		m3		m4	
mm	inch	mm	inch	mm	inch
26	1.02	16	0.63	16	0.63
30	1.18	28	1.10	30	1.18

PVC-APV3

Code	Description	a	b_1	b_2	b_3	b_4	d_1	d_2	d_3	h_1	h_2	h_3	h_4	h_5	l	l_1	l_2	m_1	m_2	m_3	m_4	r	FH1 [N]*	FH2 [N]*	FS1 [N]#	FS2 [N]#	⚖
GG.AO181	PVC.200-APV3	34	59.5	51	35	8.5	M8	6.5	G1/8	210	78	17	3	35	55	149	59	26	14.5	16	16	98	1200	2400	900	1500	1200
GG.AO221	PVC.300-APV3	42	68.5	60.5	50	10.3	M10	8.5	G1/4	258	108	20	3	41	71	186	74	30	16.5	28	30	122	1900	2000	1200	2400	2450

PVC-APVM

Code	Description	a	b_1	b_2	b_3	b_4	d_1	d_2	d_3	h_1	h_2	h_3	h_4	h_5	l	l_1	l_2	m_1	m_2	m_3	m_4	r	FH1 [N]*	FH2 [N]*	FS1 [N]#	FS2 [N]#	⚖
GG.AO182	PVC.200-APVM	34	59.5	51	35	8.5	M8	6.5	G1/8	210	78	17	3	35	55	149	59	26	14.5	16	16	98	1200	2400	900	1500	1200
GG.AO222	PVC.300-APVM	42	68.5	60.5	50	10.3	M10	8.5	G1/4	258	108	20	3	41	71	186	74	30	16.5	28	30	122	1900	2000	1200	2400	2450

PVC-EPV3

Code	Description	b_1	b_2	b_3	d_1	d_2	d_3	h_1	h_2	h_3	h_4	l	l_1	l_3	m_1	m_2	m_3	m_4	r	s	FH1 [N]*	FH2 [N]*	FS1 [N]#	FS2 [N]#	⚖
GG.AO186	PVC.200-EPV3	59.5	51	35	M8	6.5	G1/8	210	78	17	3	57	151	80	26	14.5	16	16	98	6	1200	2400	900	1500	1200
GG.AO226	PVC.300-EPV3	68.5	60.5	50	M10	8.5	G1/4	258	108	20	3	72.5	187.5	104	30	16.5	28	30	122	8	1900	2000	1200	2400	2450

PVC-EPVM

Code	Description	b_1	b_2	b_3	d_1	d_2	d_3	h_1	h_2	h_3	h_4	l	l_1	l_3	m_1	m_2	m_3	m_4	r	s	FH1 [N]*	FH2 [N]*	FS1 [N]#	FS2 [N]#	⚖
GG.AO187	PVC.200-EPVM	59.5	51	35	M8	6.5	G1/8	210	78	17	3	57	151	80	26	14.5	16	16	98	6	1200	2400	900	1500	1200
GG.AO227	PVC.300-EPVM	68.5	60.5	50	M10	8.5	G1/4	258	108	20	3	72.5	187.5	104	30	16.5	28	30	122	8	1900	2000	1200	2400	2450

* Holding force.
\# Clamping force ~4 bar

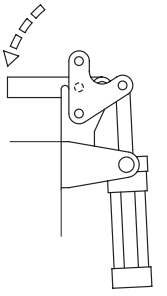
PPD.

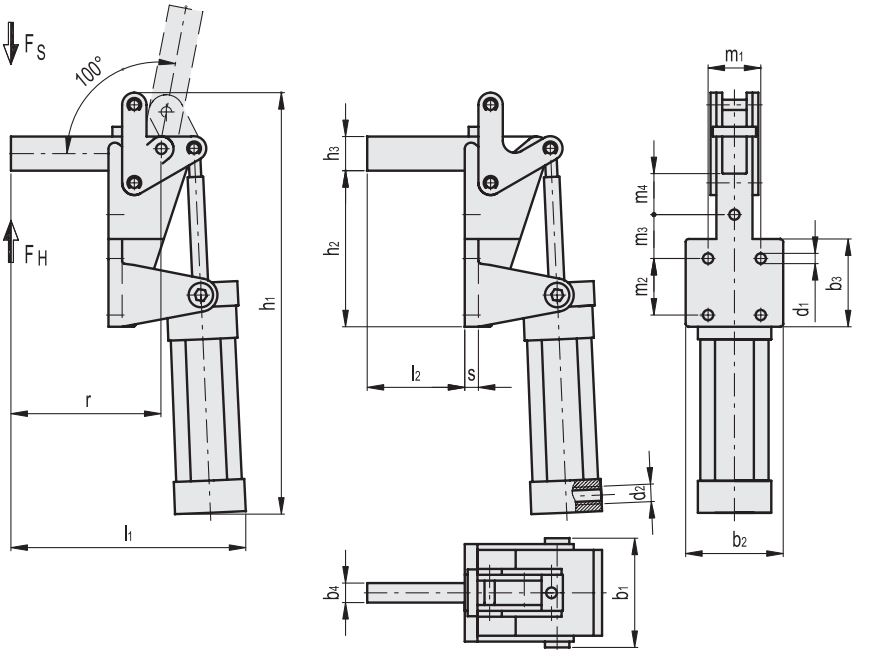
Pneumatic clamps
Heavy-duty series

- **Material**
  Weldable zinc-plated steel.
- **Body**
  Black coated spheroidal cast iron.
- **Hexagon-socket head screws with countersink for cylinder support**
  Hardened steel.
- **Cylinder support bushings**
  Hardened steel.
- **Rotating pins and seeger rings**
  Ground and hardened steel.
- **Maximum working pressure**
  6 bars.
- **Max working temperature**
  80°C.

Features and applications

All articulated joints are lubricated with special grease.
PPD. pneumatic clamps are designed for easy disassembly. Indeed, rotation pins are fixed through seeger rings, which allows to disassemble and change the clamping lever to satisfy specific application requirements. The magnetic cylinder, equipped with limit switches type PSW. (see page 56) (to be ordered separately) gives drive and/or control impulses while active. Using a lubrication filter assembly is necessary for the cylinder to work properly for a long time, whereas flow regulators are recommended to guarantee long life of mechanical components.





Conversion Table *1 mm = 0.039 inch*							
m1		m2		m3		m4	
mm	**inch**	mm	**inch**	mm	**inch**	mm	**inch**
50	**1.97**	50	**1.97**	45	**1.77**	45	**1.77**
54	**2.12**	58	**2.28**				

Code	Description	b_1	b_2	b_3	b_4	d_1	d_2	h_1	h_2	h_3	l_1	l_2	m_1	m_2	m_3	m_4	r	s	FH [N]*	FS [N]#	⚖
GG.AO605	PPD.1000-EPVM	102	90	80	20	10.5	G1/4	355	130	25	215	80	50	50	-	-	144	13	10000	3400	6500
GG.AO625	PPD.2000-EPVM	112	100	90	20	13	G3/8	424	157	35	246.5	100	54	58	45	45	168.5	14	20000	4320	9000

* Holding force.
# Clamping force ~4 bar

PSW.

Limit switches with holding bracket

RoHS IP67

- **Electrical features**
  - Voltage range: 3÷110 V AC/DC
  - Voltage drop LED: 3 V
  - Temperature range: -20°C +85°C
  - Life expectancy: (operations) 10^7
  - Protection classification: IP 67
  - Cable length: 2.5 mt

Features and applications

PSW. limit switches detect magnetic fields through electrical impulses. The pneumatic magnetic series features tools equipped with magnetic cylinders that deliver drive and/or control electrical impulses with the limit switches provided. As they feature luminous leds, the min. use voltage is 3V and voltage drop will be 3V each if they are series connected.

Using a very long connection cable (over 5 m) could impact proper functioning of the sensor due to the high capacity value which is directly proportional to the cable length. In such conditions, it is recommended to use an inductor to eliminate the effects of cable capacity.

In direct current circuits, always connect the brown wire to the positive pole.

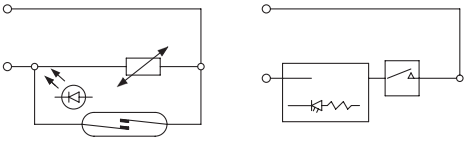
It is recommended to keep electrical cables and large ferrous masses at due distance as the latter could disturb the sensor due to the effects of mutual induction.

Sensors can detect signals at a speed of 1 m/s.

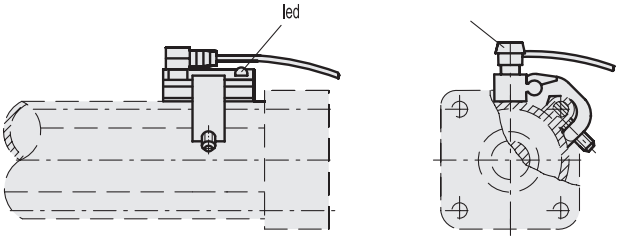
Using a holding bracket, they can be positioned all along the cylinder stroke.

Proximity switch

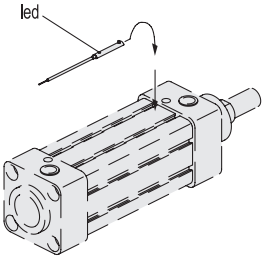
PSW.32-40 PSW.50 PSW.50-63-MW



PSW.32-40 / PSW.50



PSW.50-63-MW



Code	Description	Current on contact	Switch capacity	Slew rate	⚖	PVA	PVC	PPC	PPD	PFA
GG.AU460	PSW.32-40	0.3 A	10 VA	1.97 ft/s (0.6 ms)	90	PVA.200-APM/EPM PVA.300-APM/EPM	PVC.200-APVM/EPVM PVC.300-APVM/EPVM	-	-	PFA.360-SPM PFA.1100-SPM
GG.AU450	PSW.50	0.3 A	10 VA	1.97 ft/s (0.6 ms)	85	PVA.400-APM/EPM	-	-	-	PFA.2100-SPM
GG.AU470	PSW.50-63-MW	0.2 A	6 VA	1.64 ft/s (0.5 ms)	40	-	-	PPC.1000-EPM PPC.2000-EPM	PPD.1000-EPVM PPD.2000-EPVM	-

SAH.

Clamping bolts

RoHS

- **Base**
  Zinc-plated steel.
- **Threaded stem**
  Zinc-plated steel.
- **Nuts**
  Zinc-plated steel.

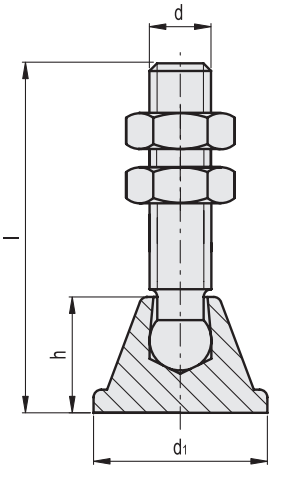
SAH-SST

INOX Stainless Steel

Clamping bolts

RoHS

- **Base**
  AISI 304 stainless steel.
- **Threaded stem**
  AISI 304 stainless steel.
- **Nuts**
  AISI 304 stainless steel.



Code	Description	d	d_1	h	l	⚖
GG.AU120	SAH.M5x36	M5	14	9.5	36	10
GG.AU121	SAH.M6x45	M6	16	10	45	17
GG.AU122	SAH.M8x65	M8	18	12	65	30
GG.AU123	SAH.M10x75	M10	20	14	75	56
GG.AU124	SAH.M12x85	M12	24	16	85	47
GG.AU125	SAH.M12x125	M12	24	16	125	95

INOX Stainless Steel

Code	Description	d	d_1	h	l	⚖
GG.AU520	SAH-SST-M5x36	M5	14	9.5	36	10
GG.AU521	SAH-SST-M6x45	M6	16	10	45	17
GG.AU522	SAH-SST-M8x65	M8	18	12	65	30

SRH.

Clamping bolts

RoHS

- **Material**
  Zinc-plated steel.
- **Base**
  Black neoprene, hardness 85 Shore A.
- **Nuts**
  Zinc-plated steel.

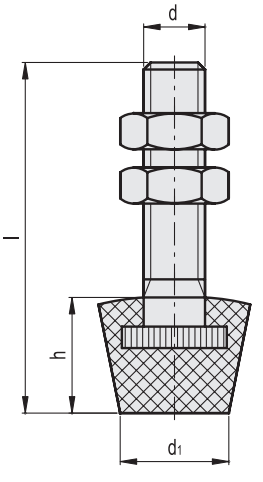
SRH-SST

INOX Stainless Steel

Clamping bolts

RoHS

- **Material**
  AISI 304 stainless steel.
- **Base**
  Black neoprene, hardness 85 Shore A.
- **Nuts**
  AISI 304 stainless steel.



Code	Description	d	d_1	h	l	⚖
GG.AU140	SRH.M5x45	M5	10	11	45	9
GG.AU141	SRH.M6x55	M6	13	12	55	16
GG.AU142	SRH.M8x68	M8	16	16	68	33
GG.AU143	SRH.M10x80	M10	20	20	80	64

INOX Stainless Steel

Code	Description	d	d_1	h	l	⚖
GG.AU540	SRH-SST-M5x45	M5	10	11	45	9
GG.AU541	SRH-SST-M6x55	M6	13	12	55	16
GG.AU542	SRH-SST-M8x68	M8	16	16	68	33

SSH.

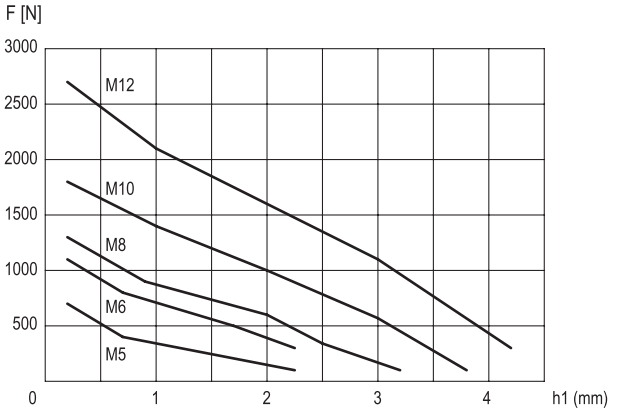
Clamping bolts with spring

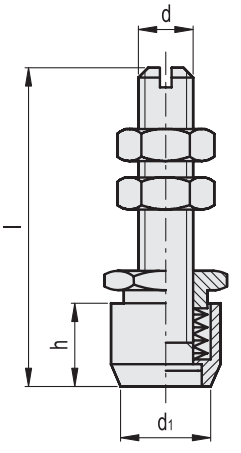
RoHS

- **Base and flange**
  Nitrided steel.
- **Stem**
  Zinc-plated steel with screwdriver slotted head for adjustment.
- **Spring**
  Hardened harmonic steel.
- **Nuts**
  Zinc-plated steel.

Features and applications

SSH. clamping bolts with spring are suitable for applications requiring to compensate the clamping force of levers on a machined piece by acting on the flange or stem to adjust spring compression.





Code	Description	d	d_1	h	l	⚖
GG.AU128	SSH.M5x45	M5	10	13	45	15
GG.AU129	SSH.M6x50	M6	13	15	50	27
GG.AU130	SSH.M8x70	M8	15	17	70	58
GG.AU131	SSH.M10x85	M10	18	20	85	123
GG.AU132	SSH.M12x106	M12	21	24	106	196

SHH.

Clamping bolts

RoHS

- **Material**
  Zinc-plated steel.
- **Nuts**
  Zinc-plated steel.

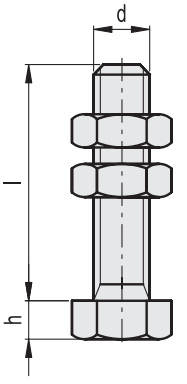
SHH-SST

INOX Stainless Steel

Clamping bolts

RoHS

- **Material**
  AISI 304 stainless steel.
- **Nuts**
  AISI 304 stainless steel.



Code	Description	d	h	l	⚖
GG.AU099	SHH.M4x20	M4	3	20	5
GG.AU100	SHH.M5x35	M5	3	35	9
GG.AU101	SHH.M6x45	M6	3.5	45	15
GG.AU102	SHH.M8x55	M8	4	55	30
GG.AU103	SHH.M10x65	M10	5.5	65	48
GG.AU104	SHH.M12x80	M12	7	80	80
GG.AU105	SHH.M12x120	M12	8	120	115

INOX Stainless Steel

Code	Description	d	h	l	⚖
GG.AU509	SHH.SST-M4x20	M4	3	20	5
GG.AU510	SHH.SST-M5x35	M5	3	35	9
GG.AU511	SHH.SST-M6x45	M6	3.5	45	15
GG.AU512	SHH.SST-M8x55	M8	4	55	30

NCH.

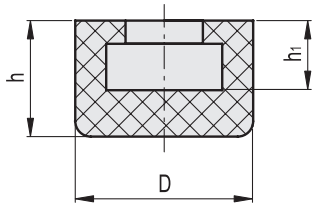
Caps for clamping bolts

RoHS

- **Material**
  Black neoprene, hardness 85 Shore A.

Applications

NCH. caps are designed to optimize use of clamping bolts.



Code	Description	D	h	h1	⚖	For plunger
GG.AU109	NCH.11-M4	11	6.5	4	1	SHH.M4
GG.AU110	NCH.12-M5	12	8	5.5	1	SHH.M5
GG.AU111	NCH.15-M6	15	10	6	2	SHH.M6
GG.AU112	NCH.19-M8	19	13	7.5	4	SHH.M8
GG.AU113	NCH.24-M10	24	16	9	7	SHH.M10
GG.AU114	NCH.26-M12	26	19	10.5	9	SHH.M12

NCN.

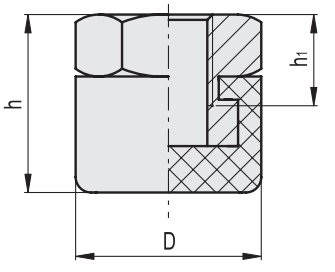
Caps for clamping bolts with threaded insert

RoHS

- **Material**
  Black neoprene, hardness 85 Shore A.
- **Threaded insert**
  Zinc-plated steel.

Applications

NCN. caps with threaded insert are designed to optimize use of clamping bolts.



Code	Description	D	h	h1	⚖	For plunger
GG.AU200	NCN.12-M5	12	11	8.5	4	M5
GG.AU201	NCN.15-M6	15	14	10	8	M6
GG.AU202	NCN.19-M8	19	18	12.3	17	M8
GG.AU203	NCN.24-M10	24	23.5	16.5	20	M10
GG.AU204	NCN.26-M12	26	26	17.5	25	M12

NUMERICAL INDEX

ALPHABETICAL INDEX

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