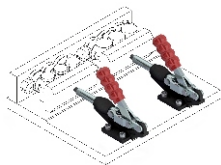




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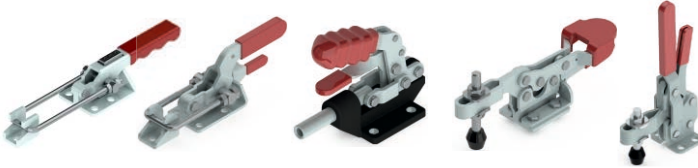
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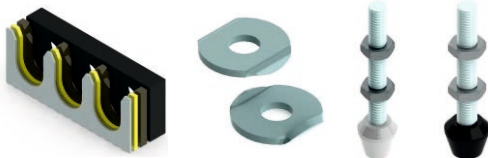
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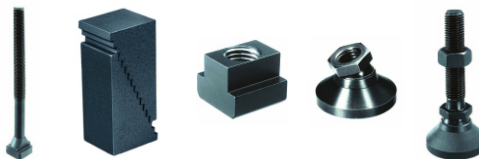
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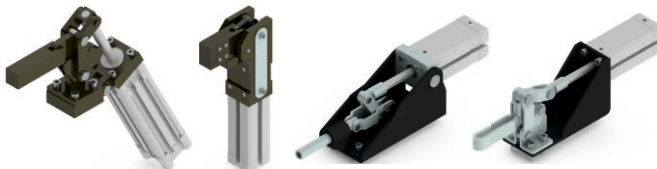
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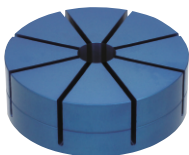
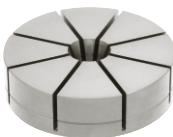
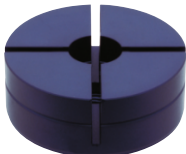
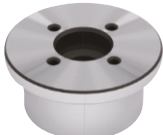
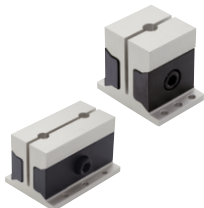


All dimensions in this catalogue are specified in "mm"
For the betterment of the products,
we reserve the right to change the design and dimensions
without prior intimation.

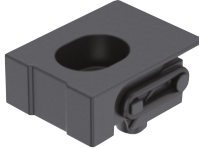
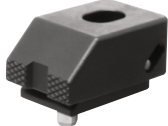
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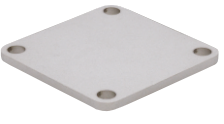
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What is a Toggle Clamp?

Toggle clamp is a simple Mechanism which holds instantly. The Toggle Clamps Consist of a handle to operate, a Clamping Arm to Reach the work piece, linkages for multiplying the applied force, and a base for mounting at the workplace on it's base. The handle is operated which thereby moves the clamping arm to hold the work piece. A required clamping force is achieved and exerted on the work piece. Under this action the Toggle Clamp Holds the work piece firmly and positively.

Toggle Action Force Factors:

Holding Capacity:

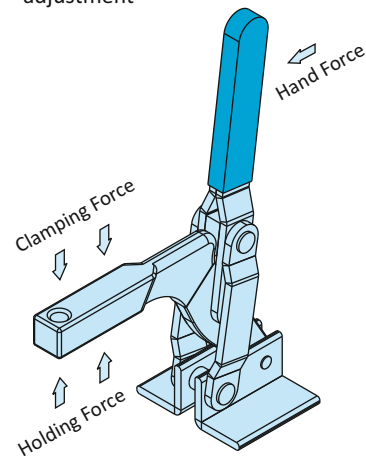
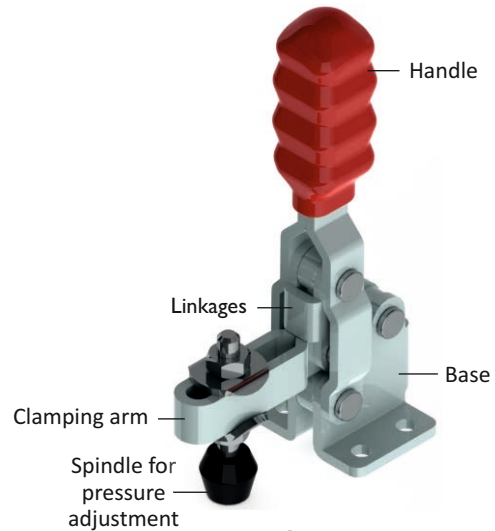
The holding capacity mentioned for each clamp refers to the maximum force, which the clamp can withstand after being over-centered without damage to the clamp and without the toggle unlocking due to distortion of the clamp.

The over-center dimension is carefully chosen in relation to the elasticity of the clamp to maximize clamping force while ensuring that the clamp locks closed even under vibration or intermittent loading.

For Hold Down Clamps, holding capacity is measured with the spindle at the farthest end of the clamping arm and will increase as the spindle goes closer to the clamping arm.

Clamping Force:

Clamping Force, the amount of force actually applied to the work piece by closing and locking the clamp, is generally less than the stated holding capacity. Actual clamping force depends on many factors including; spindle position, proper spindle height adjustment, spindle cushioning, work piece material and the clamps mechanical advantage. In most cases, roughly $\frac{1}{3}^{\text{rd}}$ of the stated holding capacity can be applied by hand with medium effort.

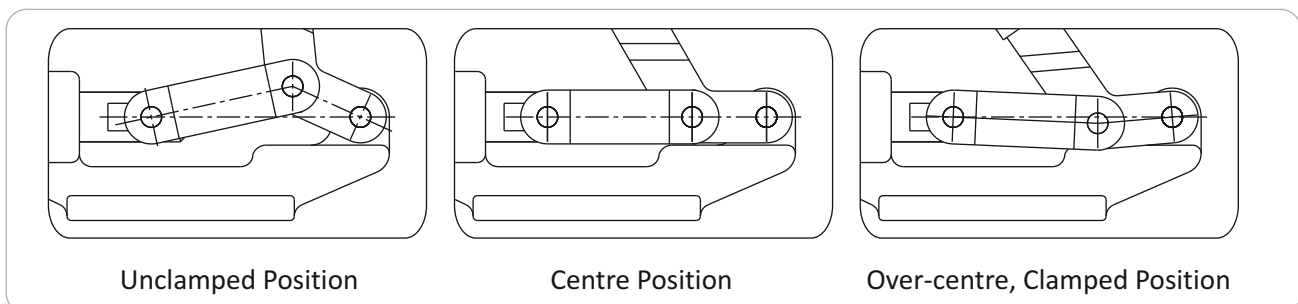


Toggle Principle:

Toggle action clamps operate through a linkage system of levers and pivots. The fixed length levers, connected by pivot pins supply the action and clamping force. Toggle action has an over centre lock point which is a fixed stop and linkage. Once in the over centre position, the clamp cannot move or unlock unless the linkage is moved. All types of toggle clamps have same action, just oriented differently.

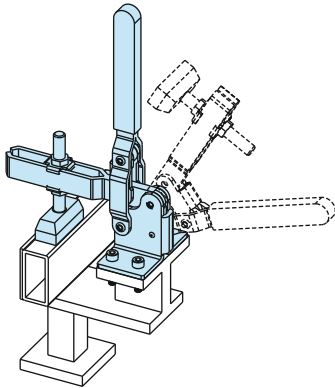
The Toggle Mechanism in a clamp has three functions.

- 1) To multiply applied load at the handle into a high clamping force to hold the work piece.
- 2) To create an over - centre lock to prevent the clamp from opening & releasing the work piece until opened by the operator.
- 3) To rapidly open & close the clamp giving a maximum clearance in which to load & unload the work piece.



Types Of Toggle Actions

This catalogue contains about 300 different standard toggle clamps & clamping systems. Steel-Smith has developed its range of clamps & clamping equipments for infinite applications, considering the different shapes, sizes, holding capacity, operator's position & strength, frequency of operation etc. Most of the Toggle Clamps belong to one of the following five main actions groups, which are:

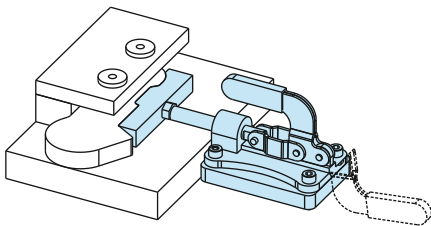
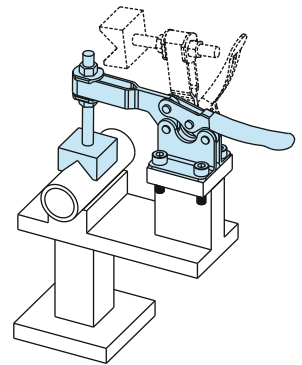


Vertical Hold Down Action : (VTC- Series)

As the name implies clamps of this type hold the work piece with a downward clamping action. These clamps are manufactured with a holding capacity up to 3000 kgs. The clamping exhibits a minimum of 90° opening angle giving full clearance for loading & unloading of workpiece. Clamping arm can be solid bar, U shaped or fixed hole to suit individual requirements.

Horizontal Hold Down Action :(H-Series)

The holding action in these types of Toggle Clamps is same as VTC-Series clamp. The outstanding characteristic is the low height design. Unlike the handle & the clamping bar of the VTC-Series, these of the H-Series clamps move in opposite direction. The holding capacities range upto 1,000 kgs. The clamping arm can be solid bar, U shaped or fixed hole type.

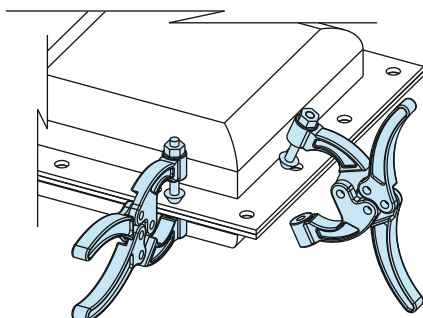
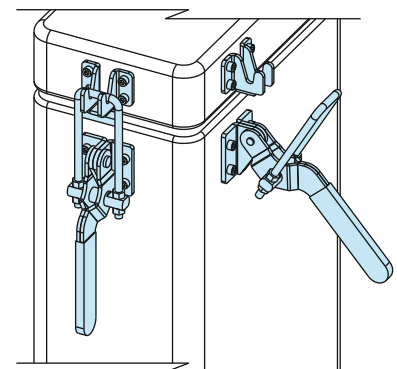


Straight Line Action :(HTC-Series)

The straight line action toggle clamps design uses a straight-line or push/pull, Toggle clamping action. The push/pull handle is easy to operate & moves the plungers of the clamp in and out along its axis. Most of these clamps can be locked in two positions, allowing you to use them as either push or pull clamps. These clamps are manufactured in a variety of models to accommodate a wide range of load ratings.(45 kgs - 4,500 kgs)

Pull Action Clamps : (PAH-Series)

Steel-Smith's Pull Action Clamps are designed for sealing chambers, doors, mould closures or other such applications requiring closure mechanisms. The handle can be moved to place the clamping U - Bolt Bar hook around the opposing latch & pull down to reach the lock position. The threaded "hook" or "U-bolt" type bar offer an adjustment feature. The clamps can withstand pressures from 150 kgs. to 3000 kgs.



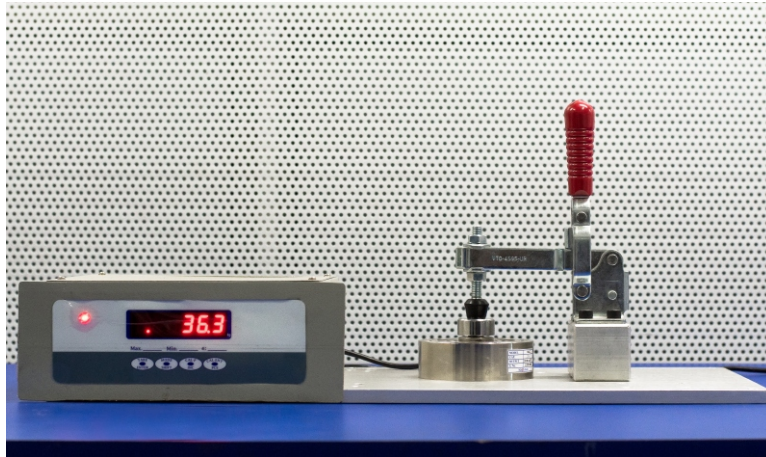
Squeeze Action Clamps :(TP-Series)

Squeeze Action Toggle Clamps hold parts with a pinching or squeezing action between two clamping jaws. The jaws are locking automatically when closing as one or both handle are Squeeze against the central position. The Squeezing action of the clamps makes them well suited for applications where they can replace 'C' clamps. The arms are drop-forged in steel & hence can withstand heat without deformation.

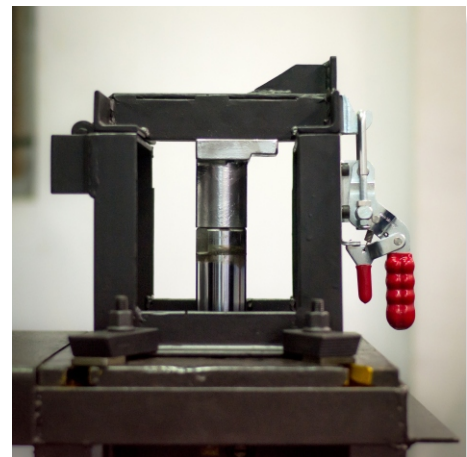
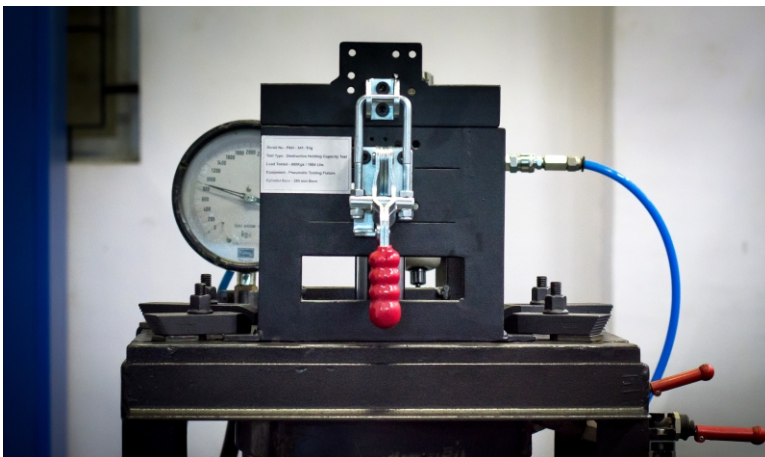
Testing Facilities

Testing Facilities at Steel-Smith

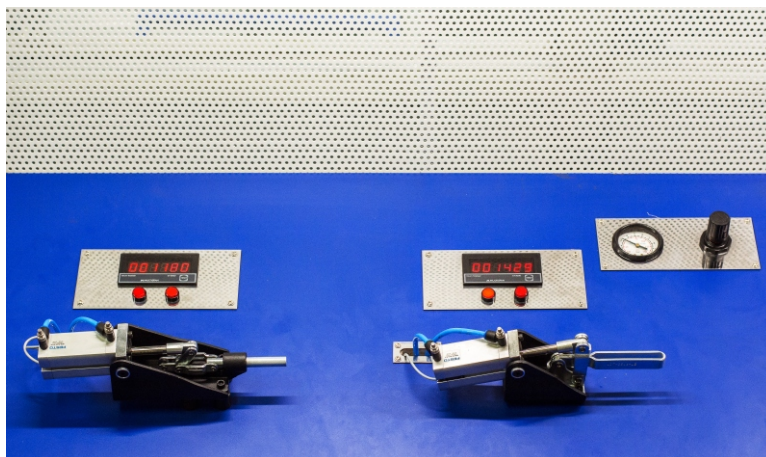
At Steel-Smith all the clamps are tested for Holding Capacities, Clamping Force and Life cycle at state-of-the-art testing facilities. If a particular application demands a certain Holding Capacity we design and re-inforce the clamp accordingly. All the clamps displayed in this catalogue are rated as per these tests and results.



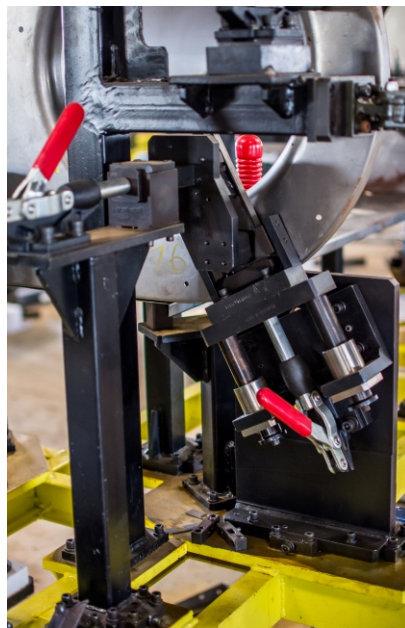
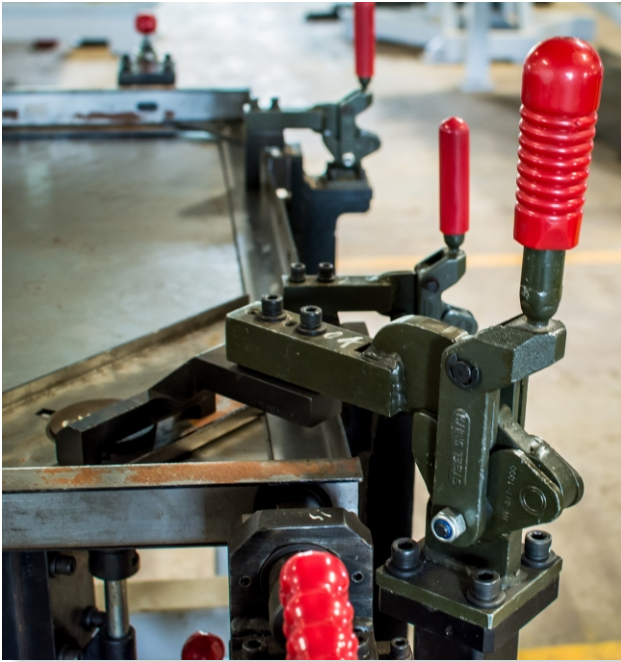
Clamping Force Testing



Holding Capacity Testing

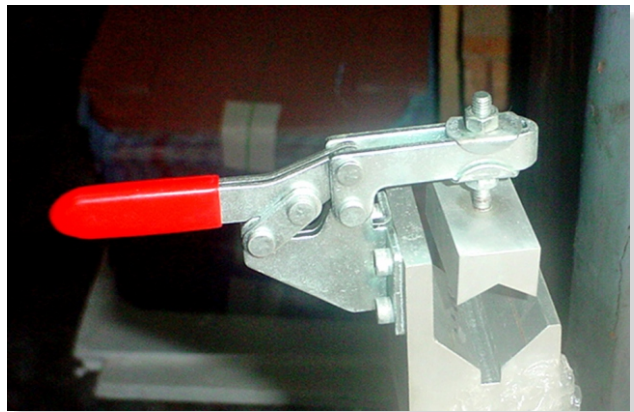


Life-Cycle Testing

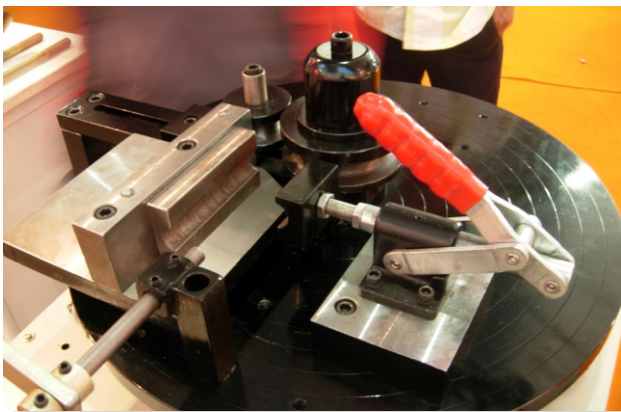




H-45105-UB on Co2 Welding fixture



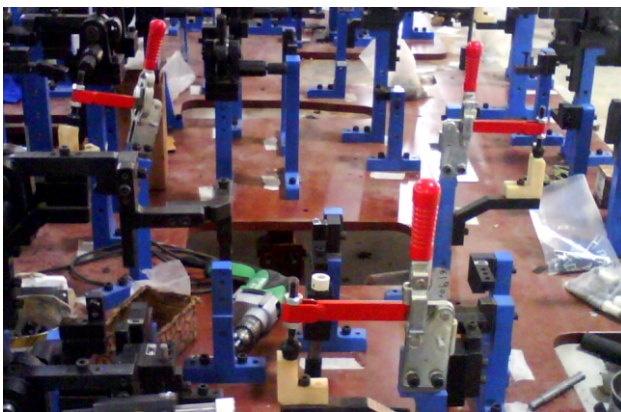
H-4835-UB/FM in gauge checking fixture



HTC - 5065 used in a pipe bending machine



PAH - 1210 in a Vibro- finishing machine



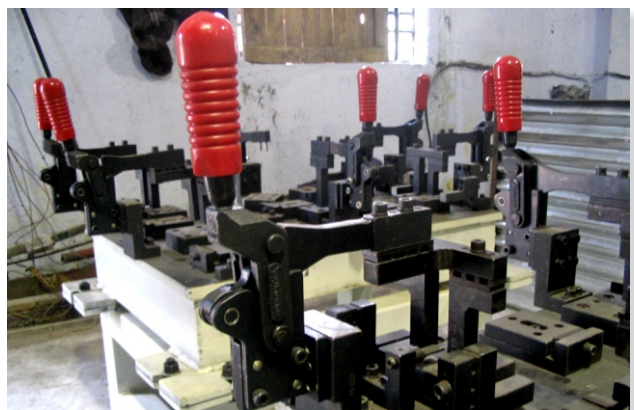
VTC - 4595 - SB/BS on a checking gauge



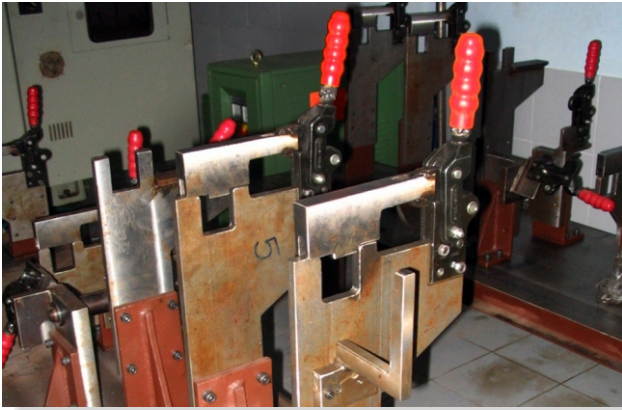
H - 1330 - UB in a unique paper pad



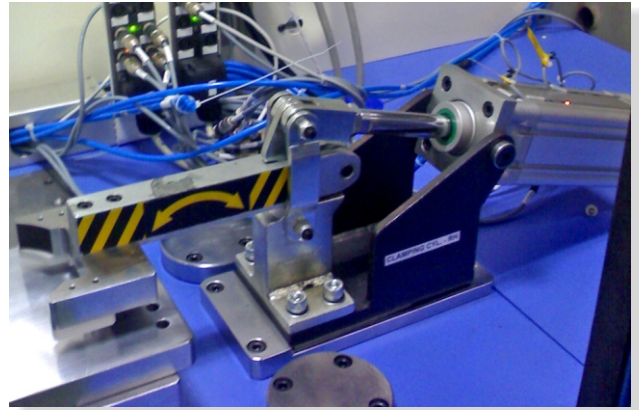
HV Series Clamp in a BIW fixture



HV Series in a fixture used with standard shims



HV Series with modified Arm



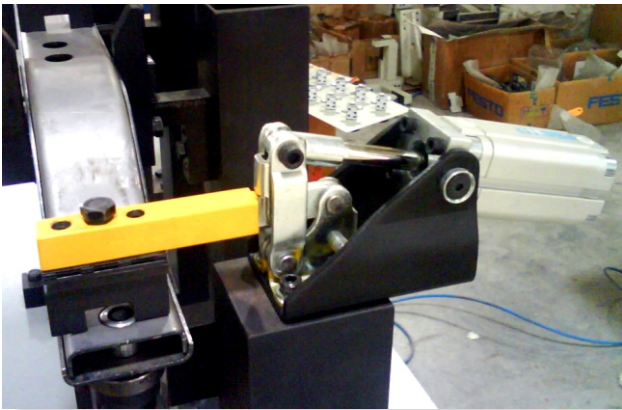
AOT-98125-SB used in a SPM



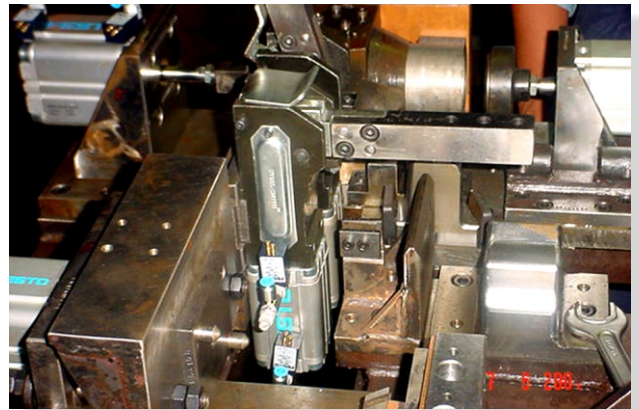
Numerous HV Series used in a Spot welding fixture



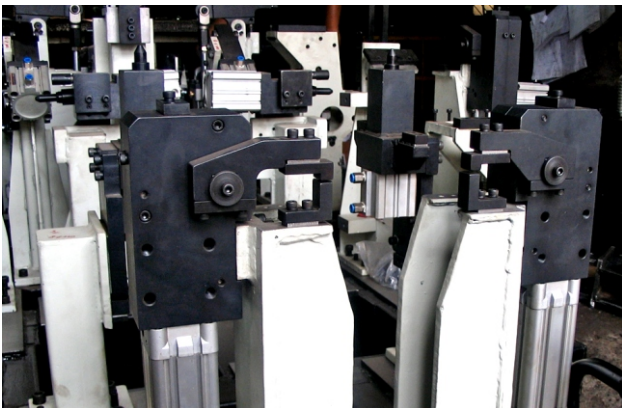
AOT-2530-HTC used to hold cylindrical w/p in tapping process



AOT-3586-SB used in a checking fixture



SSC-2550 used in a SPM



DCTC Series clamps on a Welding Fixture



H - Series Clamps used for Ladder Assembly

Vertical Hold Down Action

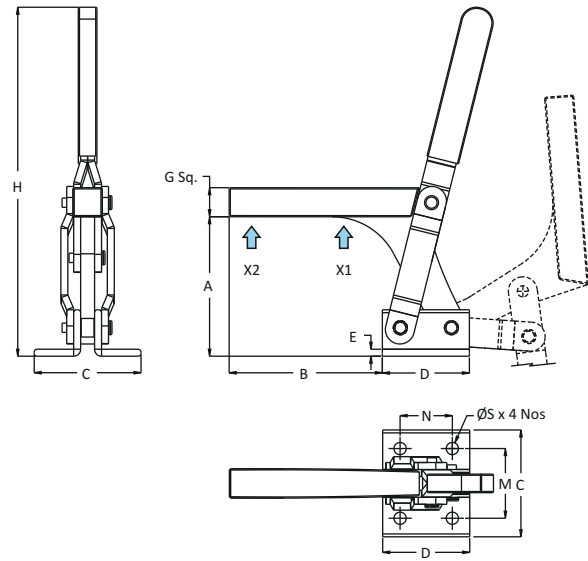
VTC Series Heavy Duty Clamps - Angle Base



Model No.VTC-6561 A



Model No.VTC-120132 A



Supplied with suitable spindle

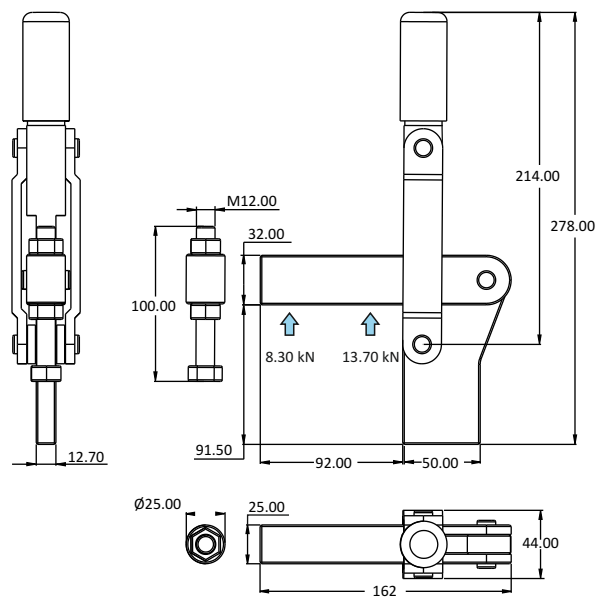
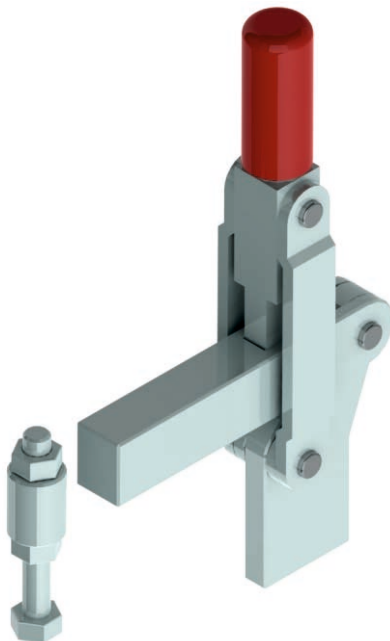
Model No.	A	B	Mounting Base			G	H	Mounting Dimensions			L	Wt. in Kgs	Handle Moves	Bar Opens	Holding Capacity	
			C	D	E			M	N	ØS					X2	X1
VTC-6561 A	65	60	85	45	5.5	20 x 20	179	55	25	6.5	M10 Bolt	1.000	135°	80°	3.40 kN	4.90 kN
VTC-120132 A	120	130	92	75	6	25 x 25	300	60	45	10.5	M12 Bolt	2.400	140°	85°	6.40 kN	9.80 kN

Model No: VTC - 9092 - HV - SP

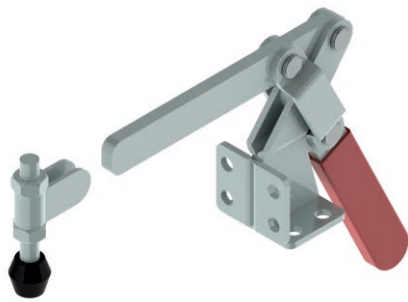
Weight: 2.600 Kgs.

Handle Moves : 140°

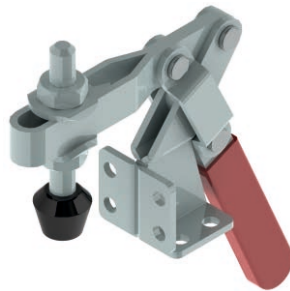
Bar Opens : 125°



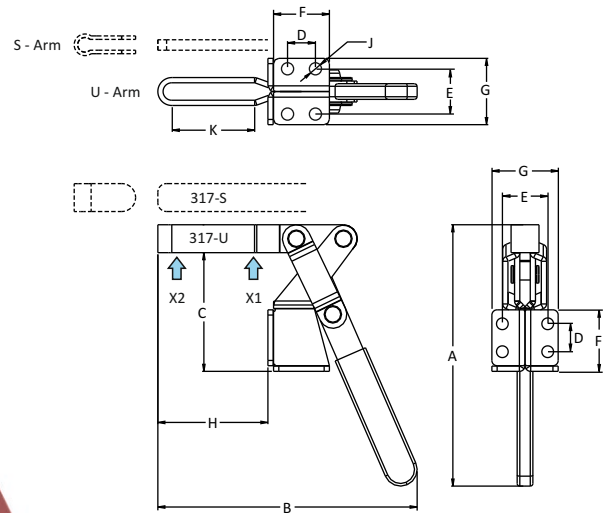
VTC 317 Series



Model No.VTC-317-S



Model No.VTC-317-U



Model No.	A	B	C	D	E	F	G	H	ØJ	K	L	Wt. in Kgs	Handle Moves	Bar Open	Holding Capacity	
															X2	X1
VTC-317-U	138	150	68	16	25.4	35	38	64	6.7	52	M8 Bolt	0.360	60°	185°	0.70 kN	1.70 kN
VTC-317-S	138	167	68	16	25.4	35	38	81	6.7	--	M8 Bolt	0.350	60°	185°	0.70 kN	1.70 kN

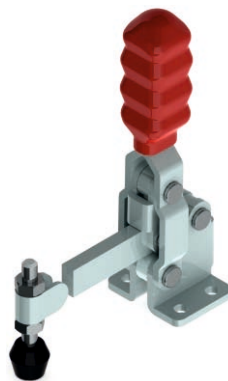
VTC Series Medium Duty Clamps Flanged Base



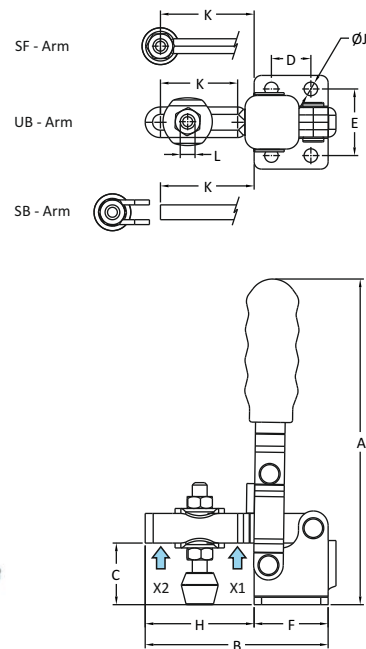
Model No.VTC-2535 UB



Model No.VTC-2535 SF



Model No.VTC-2535 SB

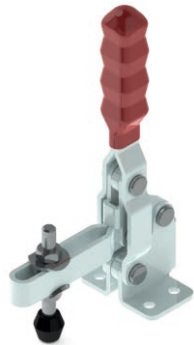


Also Available
in Stainless Steel
VTC-1625-UB-SS
VTC-2535-UB-SS

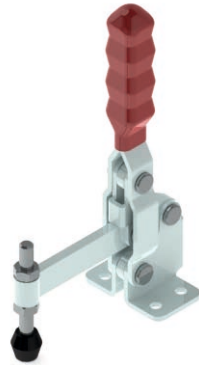
Model No.	Weight Kgs	Handle Moves	Bar Opens	Dimensions											Holding Capacity	
				A	B	C	D	E	F	G	H	J	K	L	X2	X1
VTC - 1625 - UB	0.090	65°	104°	81	56	16	16	24	25	33	31	4.4	25	M5 Bolt	0.20 kN	0.50 kN
VTC - 1625 - SF	0.090	65°	104°	81	56	16	16	24	25	33	32	4.4	25	M5 Bolt	0.20 kN	0.50 kN
VTC - 2535 - UB	0.180	65°	104°	125	75	25	16	27	30	38	45	5.5	32	M6 Bolt	0.50 kN	1.00 kN
VTC - 2535 - SF	0.180	65°	104°	125	75	25	16	27	30	38	45	5.5	36	M6 Bolt	0.50 kN	1.00 kN
VTC - 2535 - SB	0.180	65°	104°	125	73	25	16	27	30	38	43	5.5	43	M6 Bolt	0.50 kN	1.00 kN

Vertical Hold Down Action

VTC Series Medium Duty Clamps Flanged Base

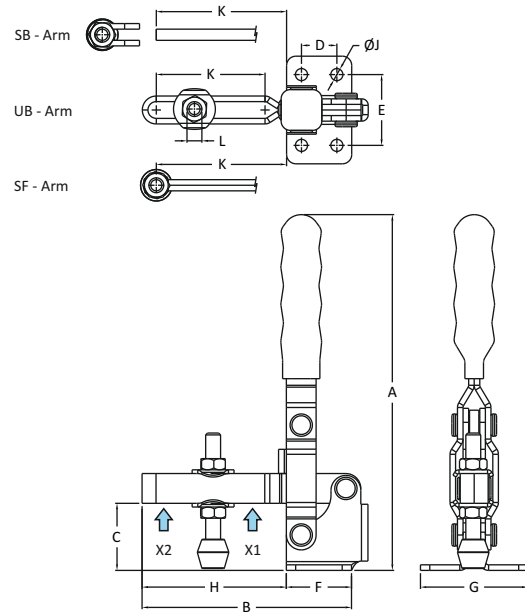


Model No. VTC-3670 UB

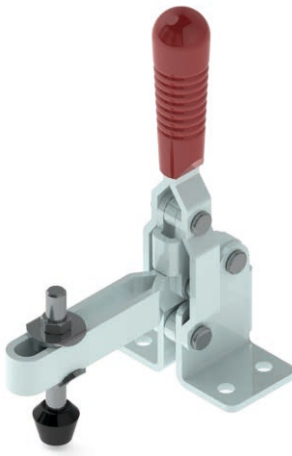


Model No. VTC-3670 SF

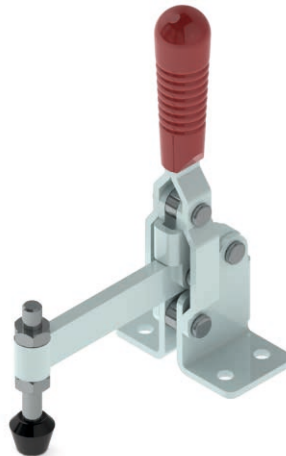
Also Available
in Stainless Steel
VTC-3670-UB-SS
VTC-4595-UB-SS



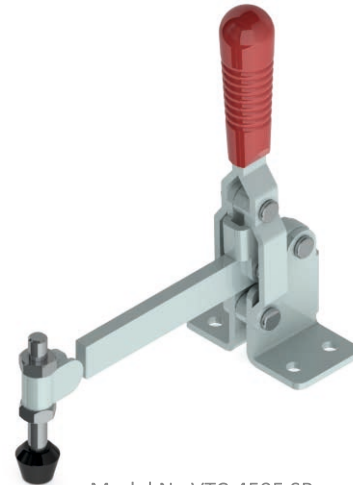
The **SF Series** have a solid hold down bar which has a fixed guide bush at its end for the spindle assembly.
The **SB Series** have a solid bar onto which the bolt retainer can be welded at any desired angle.
The **UB Series** have a 'U' bar arm which enables one or more spindles to be moved into any desired position along the arm.



Model No. VTC-4595 UB



Model No. VTC-4595 SF

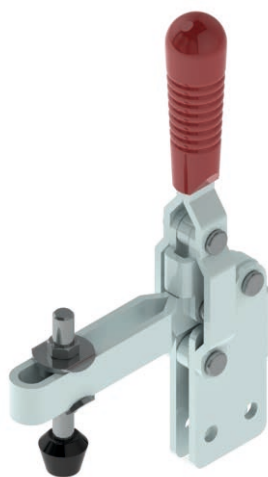
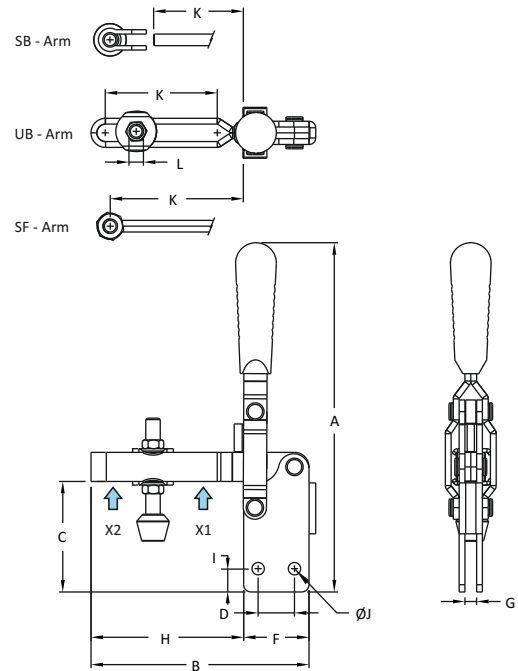


Model No. VTC-4595 SB

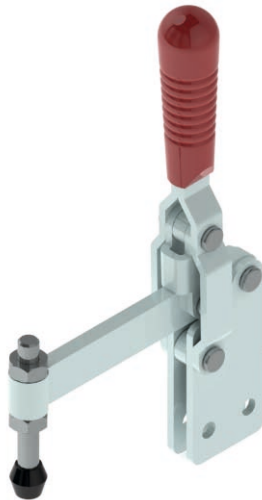
Model No.	Weight Kgs	Handle Moves	Bar Opens	Dimensions											Holding Capacity	
				A	B	C	D	E	F	G	H	J	K	L	X2	X1
VTC-3670 UB	0.450	60°	110°	178	115	36	19	38	35	58	80	6.5	61	M8 Bolt	1.00 kN	2.00 kN
VTC-3670 SF	0.450	60°	110°	178	115	36	19	38	35	58	80	6.5	72	M8 Bolt	1.00 kN	2.00 kN
VTC-3670 SB	0.450	60°	110°	178	102	36	19	38	35	58	67	6.5	67	M8 Bolt	1.00 kN	2.00 kN
VTC-4595 UB	0.650	60°	120°	205	150	45	25	55	45	82	105	8.5	80	M10 Bolt	2.00 kN	3.90 kN
VTC-4595 SF	0.650	60°	120°	205	151	45	25	55	45	82	106	8.5	95	M10 Bolt	2.00 kN	3.90 kN
VTC-4595 SB	0.650	60°	120°	205	141	45	25	55	45	82	96	8.5	96	M10 Bolt	2.00 kN	3.90 kN
VTC-5040 SF	0.600	60°	120°	210	99	50	25	45	45	72	54	8.5	44	M10 Bolt	3.50 kN	4.90 kN
VTC-50125 UB	0.700	60°	120°	210	181	50	25	45	45	72	136	8.5	114	M12 Bolt	1.60 kN	3.40 kN
VTC-50125 SF	0.700	60°	120°	210	182	50	25	45	45	72	137	8.5	125	M12 Bolt	1.60 kN	3.40 kN
VTC-50125 SB	0.700	60°	120°	210	175	50	25	45	45	72	130	8.5	130	M12 Bolt	1.60 kN	3.40 kN
VTC-85150 UB	2.100	107°	96°	350	238	85	45	60	76	90	162	8.5	108	M16 Bolt	3.50 kN	5.90 kN
VTC-85150 SF	2.100	107°	96°	350	241	85	45	60	76	90	165	8.5	150	M16 Bolt	3.50 kN	5.90 kN
VTC-85150 SB	2.100	107°	96°	350	218	85	45	60	76	90	142	8.5	142	M16 Bolt	3.50 kN	5.90 kN
VTC-10088 SF	1.800	80°	83°	290	182	105	45	60	75	90	106	8.5	91	M12 Bolt	4.50 kN	7.80 kN

VTC Series Medium Duty Clamps Straight Base

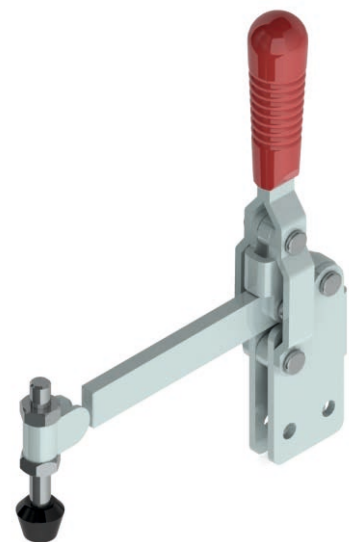
The **SF Series** have a solid hold down bar which has a fixed guide bush at its end for the spindle assembly.
The **SB Series** have a solid bar onto which the bolt retainer can be welded at any desired angle.
The **UB Series** have a 'U' bar arm which enables one or more spindles to be moved into any desired position along the arm.



Model No. VTC-4595 UB/BS



Model No. VTC-4595 SF/BS



Model No. VTC-4595 SB/BS

Model No.	Weight Kgs	Handle Moves	Bar Opens	Dimensions											Holding Capacity	
				A	B	C	D	F	G	H	I	J	K	L	X2	X1
VTC-2535-UB/BS	0.180	65°	104°	137	75	36	15	30	6	45	7	5.5	32	M6 Bolt	0.50 kN	1.00 kN
VTC-2535-SF/BS	0.180	65°	104°	137	74	36	15	30	6	44	7	5.5	38	M6 Bolt	0.50 kN	1.00 kN
VTC-2535-SB/BS	0.180	65°	104°	137	72	36	15	30	6	42	7	5.5	42	M6 Bolt	0.50 kN	1.00 kN
VTC-8154-SB/BS	0.300	60°	114°	232	98	79	-	40	6	58	-	-	58	M8 Bolt	1.00 kN	2.00 kN
VTC-3670 UB/BS	0.450	60°	120°	198	115	57	19	35	6	80	8	6.5	61	M8 Bolt	1.00 kN	2.00 kN
VTC-3670 SF/BS	0.450	60°	120°	198	115	57	19	35	6	80	8	6.5	72	M8 Bolt	1.00 kN	2.00 kN
VTC-3670 SB/BS	0.450	60°	120°	198	102	57	19	35	6	67	8	6.5	67	M8 Bolt	1.00 kN	2.00 kN
VTC-4595 UB/BS	0.650	60°	120°	232	150	75	25	45	8	105	11	8.5	80	M10 Bolt	2.00 kN	3.90 kN
VTC-4595 SF/BS	0.650	60°	120°	232	150	75	25	45	8	105	11	8.5	95	M10 Bolt	2.00 kN	3.90 kN
VTC-4595 SB/BS	0.650	60°	120°	232	142	75	25	45	8	97	11	8.5	97	M10 Bolt	2.00 kN	3.90 kN
VTC-50125 UB/BS	0.700	60°	120°	232	181	75	25	45	8	136	11	8.5	114	M12 Bolt	1.60 kN	3.40 kN
VTC-50125 SF/BS	0.700	60°	120°	232	182	75	25	45	8	137	11	8.5	125	M10 Bolt	1.60 kN	3.40 kN
VTC-50125 SB/BS	0.700	60°	120°	232	175	75	25	45	8	130	11	8.5	130	M12 Bolt	1.60 kN	3.40 kN
VTC-85150 UB/BS	2.100	107°	96°	375	238	116	45	76	10	162	15	8.5	108	M16 Bolt	3.50 kN	5.90 kN
VTC-85150 SF/BS	2.100	107°	96°	375	241	116	45	76	10	165	15	8.5	150	M16 Bolt	3.50 kN	5.90 kN
VTC-85150 SB/BS	2.100	107°	96°	375	218	116	45	76	10	142	15	8.5	142	M16 Bolt	3.50 kN	5.90 kN

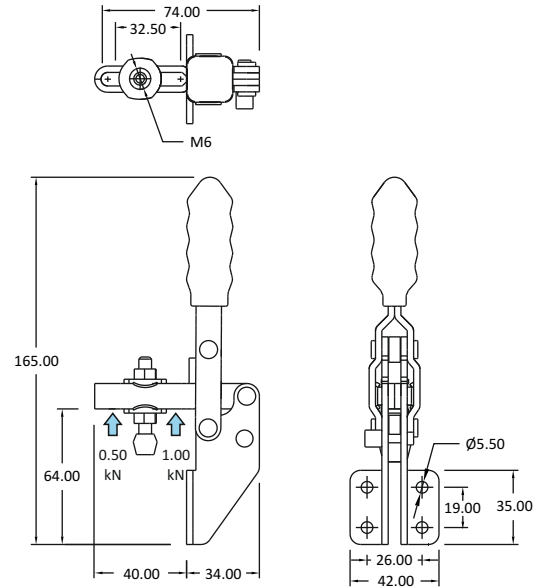
Vertical Hold Down Action

Model No: VTC - 6440 - UB/FM

Arm: Adjustable Arm
Base: Front Mounting
Weight: 0.200 Kgs.
Handle Moves: 65°
Bar Opens: 104°

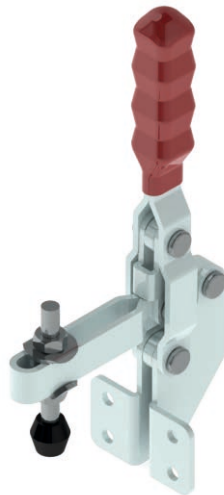


Also Available
in Stainless Steel
VTC-6440-UB/FM-SS

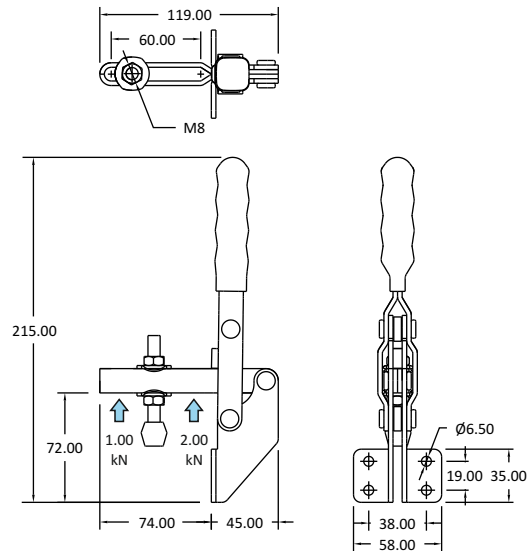


Model No: VTC - 7273 - UB/FM

Arm: Adjustable Arm
Base: Front Mounting
Weight: 0.500 Kgs.
Handle Moves: 60°
Bar Opens: 120°

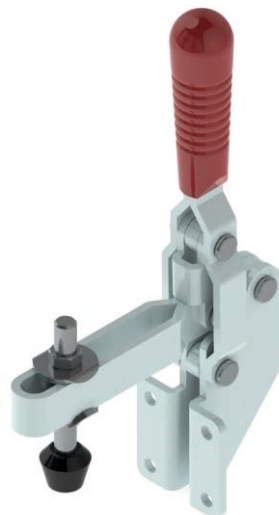


Also Available
in Stainless Steel
VTC-7273-UB/FM-SS

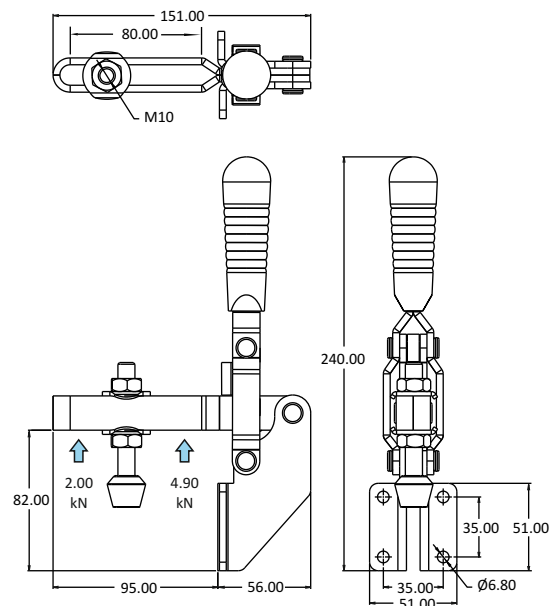


Model No: VTC - 8296 - UB/FM

Arm: Adjustable Arm
Base: Front Mounting
Weight: 0.700 Kgs.
Handle Moves: 60°
Bar Opens: 120°

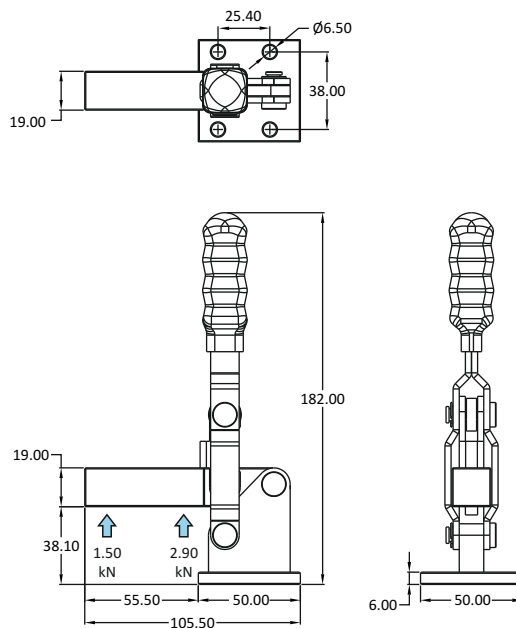
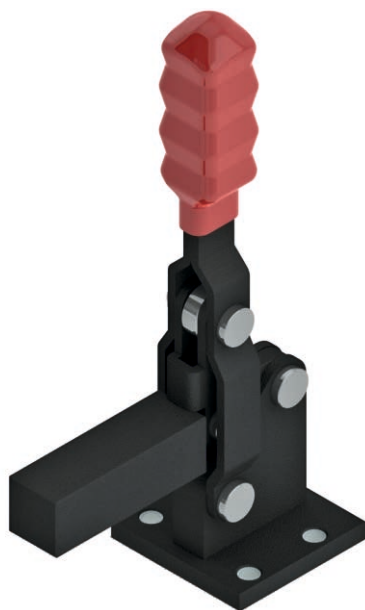


Also Available
in Stainless Steel
VTC-8296-UB/FM-SS



Model No: VTC - 516 - SB

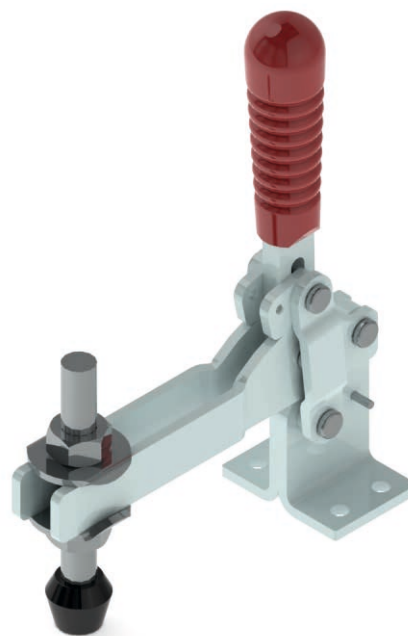
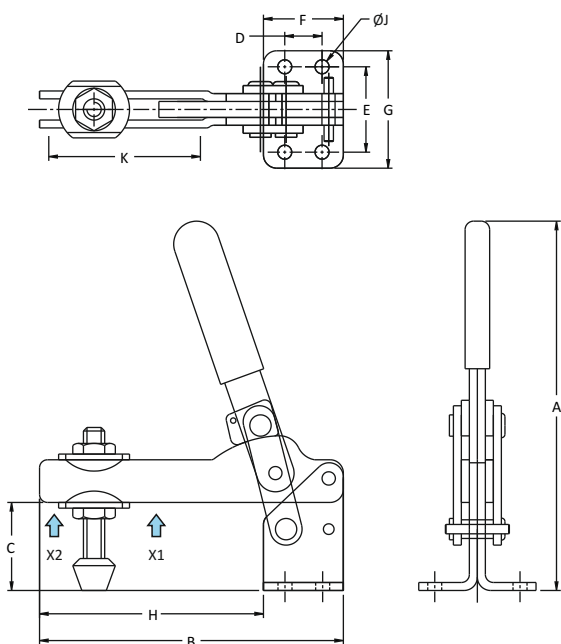
Arm: Solid Arm
Base: Flange Mounting
Weight: 0.570 Kgs.



Model No. VTC - 516 - SB

CAM ACTION CLAMPS

Built in clamping range automatically compensates for variations in part thickness. Cam Clamps are similar to Vertical clamps but the clamping force is generated not by a toggle linkage but by the action of a roller on a cam. The Cam Clamps have a high to low limit clamping range that automatically compensates for part thickness variation & therefore eliminates time consuming readjustments. Cam Clamps are available in three sizes offering part variation thickness allowance from 3 mm to 5 mm. These clamps are ideal for fixtures designed for clamping of castings & forgings. The pivots pins, cam & its roller are hardened for higher efficiency of clamps.



Model No. CAM - 219

Model No.	Weight Kgs	Handle Moves	Bar Opens	Dimensions											Holding Capacity	
				A	B	C	D	E	F	G	H	J	K	L	X2	X1
CAM - 219	0.800	180	115	190.5	150.0	46.0	19.1	38.1	38.1	53.0	112.0	6.5	63.5	M12 Bolt	0.70 kN	1.50 kN
CAM - 229	1.100	180	115	230.0	183.0	52.3	22.4	50.8	47.8	70.0	135.0	8.5	69.9	M12 Bolt	2.00 kN	4.40 kN

Vertical Hold Down Action

Vertical Hold Down Action - International Range

The all new international equivalent range of toggle clamps from Steel-Smith. Now all the leading international toggle clamps have their equivalents in this range. What's more, these quality clamps come with hardened bushes for enhanced life, several safety features and slicker finish.



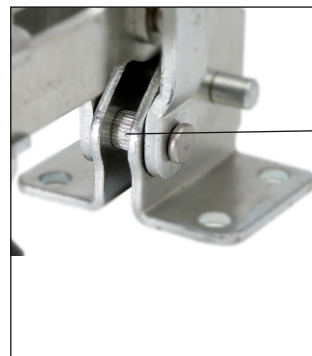
'Safety Cover' on the clamp link

This feature protects the user's finger from accidentally entering the clamp linking and getting injured during clamping operations.



Hardened Bushes

Hardened Bushes increase the life of the clamp, thereby multiplying the productivity.



Hardened Bushes

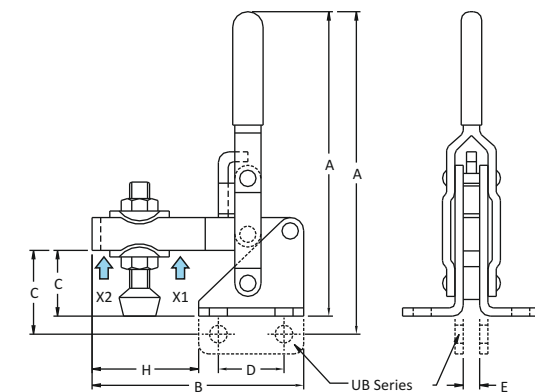
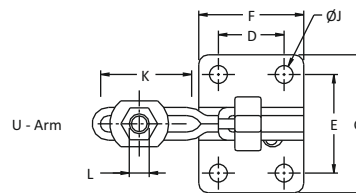
Vertical Hold Down Action VTC - 201 Series



Model No. VTC-201-U



Model No. VTC-201-UB

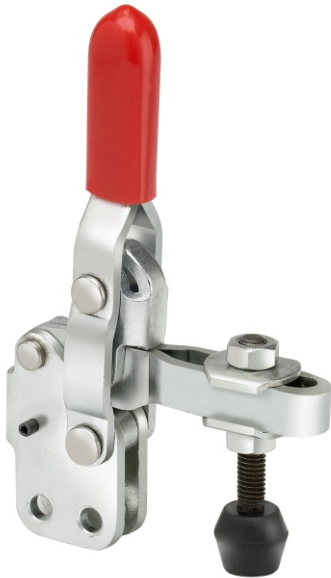


Also Available
in Stainless Steel
VTC-201-U-SS
VTC-201-UB-SS

Model No.	Arm Type	Base Type
VTC-201-U	Adjustable Arm	Flanged
VTC-201-UB	Adjustable Arm	Straight

Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions										
	X2	X1				A	B	C	D	E	F	G	H	J	K	L
VTC-201-U	0.24 kN	0.50 kN	0.090	60°	110°	83.3	50.7	16.0	16.0	23.9	25.0	33.0	25.5	4.4	18.3	M5 Bolt
VTC-201-UB	0.24 kN	0.50 kN	0.090	60°	110°	91.0	50.7	21.5	16.0	4.0	25.0	—	25.5	4.4	18.3	M5 Bolt

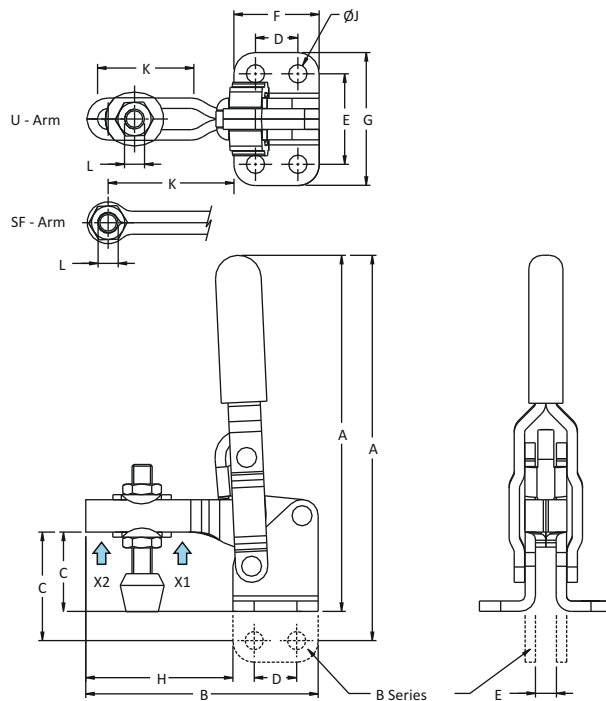
Vertical Hold Down Action VTC - 202 Series



Model No. VTC-202-UB



Model No. VTC-202-U



Also Available
in Stainless Steel
VTC-202-U-SS
VTC-202-UB-SS

Model No.	Arm Type	Base Type
VTC-202-SF	Spindle Fixed	Flanged
VTC-202-SFB	Spindle Fixed	Straight
VTC-202-U	Adjustable Arm	Flanged
VTC-202-UB	Adjustable Arm	Straight
VTC-202-UL	Adjustable Arm	Flanged

Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions										
	X2	X1				A	B	C	D	E	F	G	H	J	K	L
VTC-202-SF	0.62 kN	1.00 kN	0.150	64°	104°	106.0	62.6	24.0	12.7	26.9	25.5	39.3	33.3	5.5	26.5	M6 Bolt
VTC-202-SFB	0.62 kN	1.00 kN	0.150	64°	104°	115.0	62.6	28.3	12.7	6.0	25.5	—	33.3	5.5	26.5	M6 Bolt
VTC-202-U	0.62 kN	1.00 kN	0.160	64°	104°	106.0	75.2	23.9	12.7	26.9	25.5	39.3	45.8	5.5	25.4	M6 Bolt
VTC-202-UB	0.62 kN	1.00 kN	0.160	64°	104°	115.0	75.2	28.3	12.7	6.0	25.5	—	45.8	5.5	25.4	M6 Bolt
VTC-202-UL	0.62 kN	1.00 kN	0.160	64°	104°	106.0	86.0	23.9	12.7	26.9	25.5	39.3	60.5	5.5	40.0	M6 Bolt

Vertical Hold Down Action

Vertical Hold Down Action VTC - 207 Series



Model No. VTC-207-U



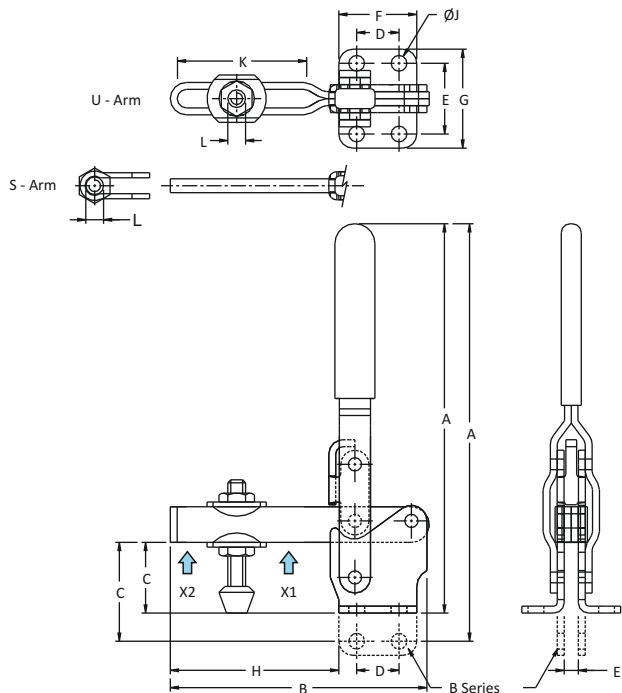
Model No. VTC-207-UB



Model No. VTC-207-S



Model No. VTC-207-SB



Also Available
in Stainless Steel
VTC-207-U-SS
VTC-207-UB-SS

Model No.	Arm Type	Base Type
VTC-207-L	Solid Arm	Flanged
VTC-207-LB	Solid Arm	Straight
VTC-207-S	Solid Arm	Flanged
VTC-207-SB	Solid Arm	Straight
VTC-207-U	Adjustable Arm	Flanged
VTC-207-UB	Adjustable Arm	Straight
VTC-207-UL	Adjustable Arm	Flanged
VTC-207-ULB	Adjustable Arm	Straight

Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions										
	X2	X1				A	B	C	D	E	F	G	H	J	K	L
VTC-207-L	1.00 kN	2.00 kN	0.340	62°	115°	174.0	130.0	31.0	19.1	31.8	35.1	44.6	86.5	7.1	—	M8 Bolt
VTC-207-LB	1.00 kN	2.00 kN	0.340	62°	115°	189.0	130.0	40.0	19.1	6.0	35.1	—	86.5	7.1	—	M8 Bolt
VTC-207-S	1.50 kN	2.10 kN	0.315	62°	115°	174.0	98.0	31.0	19.1	31.8	35.1	44.6	54.5	7.1	—	M8 Bolt
VTC-207-SB	1.50 kN	2.10 kN	0.300	62°	115°	189.0	98.0	40.0	19.1	6.0	35.1	—	54.5	7.1	—	M8 Bolt
VTC-207-U	1.00 kN	1.70 kN	0.300	62°	115°	174.0	100.0	31.0	19.1	31.8	35.1	44.6	57.5	7.1	32.0	M8 Bolt
VTC-207-UB	1.00 kN	1.70 kN	0.300	62°	115°	189.0	100.0	40.0	19.1	6.0	35.1	—	57.5	7.1	32.0	M8 Bolt
VTC-207-UL	0.70 kN	1.50 kN	0.340	62°	115°	174.0	146.5	31.0	19.1	31.8	35.1	44.6	104.0	7.1	78.5	M8 Bolt
VTC-207-ULB	0.70 kN	1.50 kN	0.340	62°	115°	189.0	146.5	40.0	19.1	6.0	35.1	—	104.0	7.1	78.5	M8 Bolt

Vertical Hold Down Action VTC - 210 Series



Model No. VTC-210-U



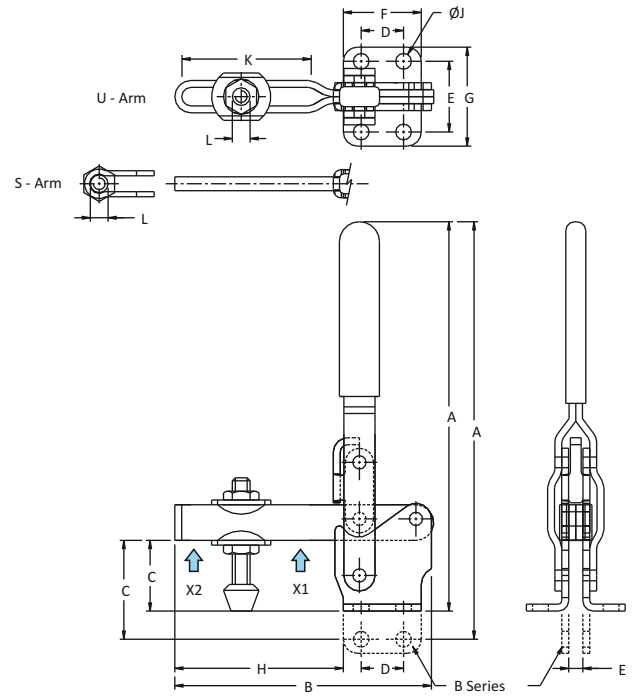
Model No. VTC-210-UB



Model No. VTC-210-S



Model No. VTC-210-SB



Also Available
in Stainless Steel
VTC-210-U-SS
VTC-210-UB-SS

Model No.	Arm Type	Base Type
VTC-210-S	Solid Arm	Flanged
VTC-210-SB	Solid Arm	Straight
VTC-210-U	Adjustable Arm	Flanged
VTC-210-UB	Adjustable Arm	Straight

Model No.	HoldingCapacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions										
	X2	X1				A	B	C	D	E	F	G	H	J	K	L
VTC-210-S	2.20 kN	3.40 kN	0.590	58°	106°	195.0	144.0	42.0	31.8	45.2	48.6	64.4	91.0	8.3	—	M10 Bolt
VTC-210-SB	2.20 kN	3.40 kN	0.590	58°	106°	219.0	144.0	56.5	31.8	8.0	48.6	—	90.0	8.3	—	M10 Bolt
VTC-210-U	1.40 kN	2.70 kN	0.590	58°	106°	195.0	144.0	42.0	31.8	45.2	48.6	64.4	91.0	8.3	60.0	M10 Bolt
VTC-210-UB	1.40 kN	2.70 kN	0.590	58°	106°	219.0	144.0	56.5	31.8	8.0	48.6	—	90.0	8.3	60.0	M10 Bolt

Vertical Hold Down Action

Vertical Hold Down Action VTC - 247 & VTC - 267 Series



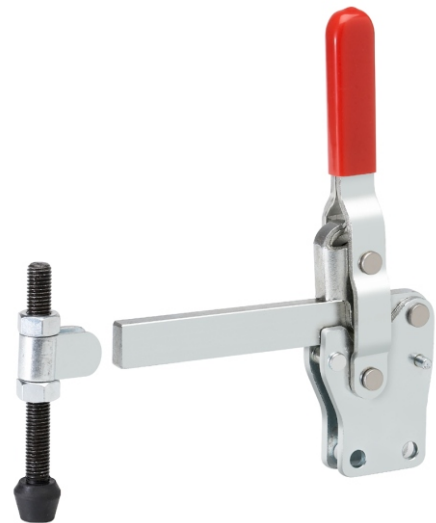
Model No. VTC-247-U



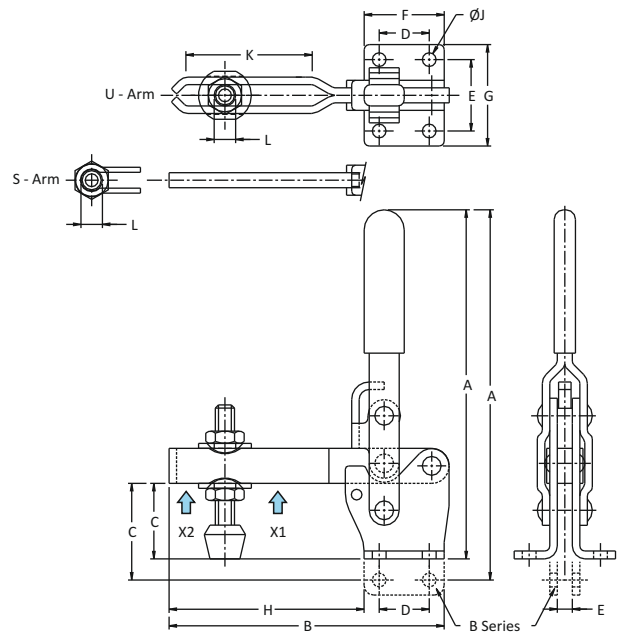
Model No. VTC-247-S



Model No. VTC-267-U



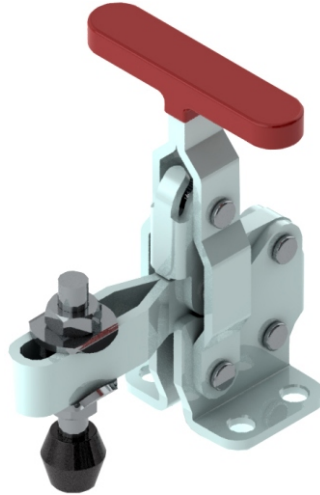
Model No. VTC-247-SB



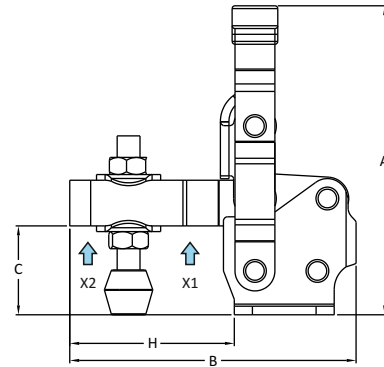
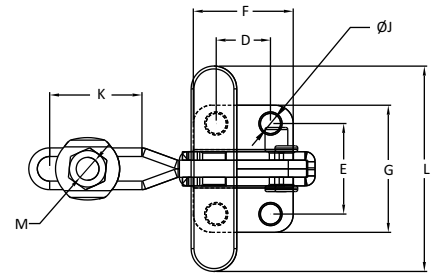
Model No.	Arm Type	Base Type
VTC-247-S	Solid Arm	Flanged
VTC-247-SB	Solid Arm	Straight
VTC-247-U	Adjustable Arm	Flanged
VTC-247-UB	Adjustable Arm	Straight
VTC-267-S	Solid Arm	Flanged
VTC-267-U	Adjustable Arm	Flanged

Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions										
	X2	X1				A	B	C	D	E	F	G	H	J	K	L
VTC-247-S	2.20 kN	4.40 kN	1.000	75°	136°	220.0	177.0	50.8	31.8	45.0	50.8	64.3	124.0	8.6	—	M12 Bolt
VTC-247-SB	2.20 kN	4.40 kN	1.000	75°	136°	245.0	177.0	61.0	31.8	10.0	50.8	—	124.0	8.6	—	M12 Bolt
VTC-247-U	2.00 kN	4.40 kN	1.100	75°	136°	220.0	177.0	50.8	31.8	45.0	50.8	64.3	124.0	8.6	71.4	M12 Bolt
VTC-247-UB	2.00 kN	4.40 kN	1.100	75°	136°	245.0	177.0	61.0	31.8	10.0	50.8	—	124.0	8.6	71.4	M12 Bolt
VTC-267-S	2.60 kN	5.40 kN	2.000	70°	140°	328.0	230.0	82.0	50.8	69.9	76.2	95.0	156.8	12.5	—	M16 Bolt
VTC-267-U	2.60 kN	5.40 kN	2.200	70°	140°	328.0	230.0	82.0	50.8	69.9	76.2	95.0	156.8	12.5	108.0	M16 Bolt

Vertical Hold Down Action Flanged Base T - Handle Clamps



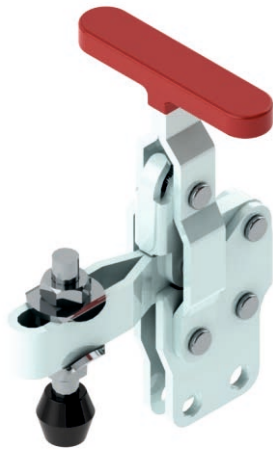
Model No. VTC-207-TU



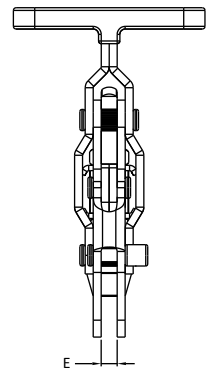
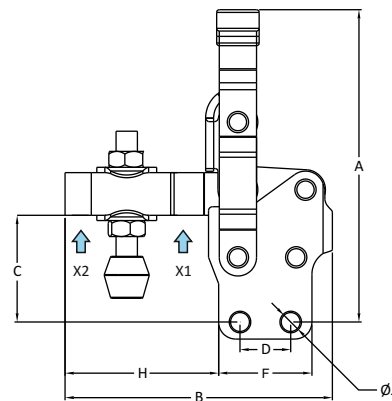
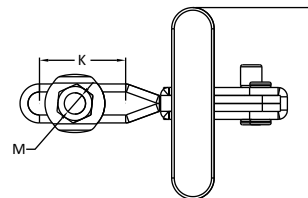
Also Available in Stainless Steel
VTC-201-TU-SS
VTC-202-TU-SS
VTC-202-TUL-SS
VTC-207-TU-SS
VTC-207-TUL-SS
VTC-210-TU-SS

Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions											
	X2	X1				A	B	C	D	E	F	G	H	J	K	L	M
VTC-201-TU	0.24 kN	0.50 kN	0.090	60°	110°	65.0	50.7	16.0	16.0	23.9	25.0	33.0	25.5	4.4	18.3	48.0	M5 Bolt
VTC-202-TU	0.62 kN	1.00 kN	0.160	64°	104°	80.0	75.2	23.9	12.7	26.9	25.5	39.3	45.8	5.5	25.4	66.0	M6 Bolt
VTC-202-TUL	0.62 kN	1.00 kN	0.160	64°	104°	80.0	86.0	23.9	12.7	26.9	25.5	39.3	60.5	5.5	40.0	66.0	M6 Bolt
VTC-207-TU	1.00 kN	1.70 kN	0.300	62°	115°	114.0	100.0	31.0	19.1	31.8	35.1	44.6	57.5	7.1	32.0	80.0	M8 Bolt
VTC-207-TUL	0.70 kN	1.50 kN	0.340	62°	115°	114.0	146.5	31.0	19.1	31.8	35.1	44.6	104.0	7.1	78.5	80.0	M8 Bolt
VTC-210-TU	1.40 kN	2.70 kN	0.590	58°	106°	137.0	144.0	42.0	31.8	45.2	48.6	64.4	91.0	8.3	60.0	140.0	M10 Bolt

Vertical Hold Down Action Straight Base T - Handle Clamps



Model No. VTC-207-TUB



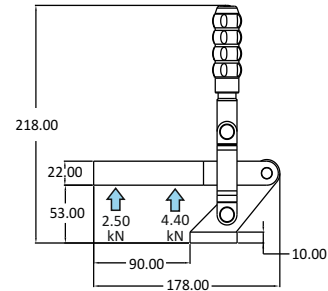
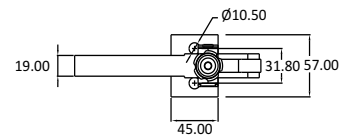
Also Available in Stainless Steel
VTC-201-TUB-SS
VTC-202-TUB-SS
VTC-202-TULB-SS
VTC-207-TUB-SS
VTC-207-TULB-SS
VTC-210-TUB-SS

Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions										
	X2	X1				A	B	C	D	E	F	H	J	K	L	M
VTC-201-TUB	0.24 kN	0.50 kN	0.090	60°	110°	70.5	50.7	21.5	16.0	4.0	25.0	25.5	4.4	18.3	48.0	M5 Bolt
VTC-202-TUB	0.62 kN	1.00 kN	0.160	64°	104°	84.5	75.2	28.3	12.7	6.0	25.5	45.8	5.5	25.4	66.0	M6 Bolt
VTC-202-TULB	0.62 kN	1.00 kN	0.160	64°	104°	84.5	86.0	28.3	12.7	6.0	25.5	60.5	5.5	40.0	66.0	M6 Bolt
VTC-207-TUB	1.00 kN	1.70 kN	0.300	62°	115°	124.0	100.0	40.0	19.1	6.0	35.1	57.5	7.1	32.0	80.0	M8 Bolt
VTC-207-TULB	0.70 kN	1.50 kN	0.340	62°	115°	124.0	146.5	40.0	19.1	6.0	35.1	104.0	7.1	78.5	80.0	M8 Bolt
VTC-210-TUB	1.40 kN	2.70 kN	0.590	58°	106°	151.5	144.0	56.5	31.8	8.0	48.6	91.0	8.3	60.0	140.0	M10 Bolt

Vertical Hold Down Action

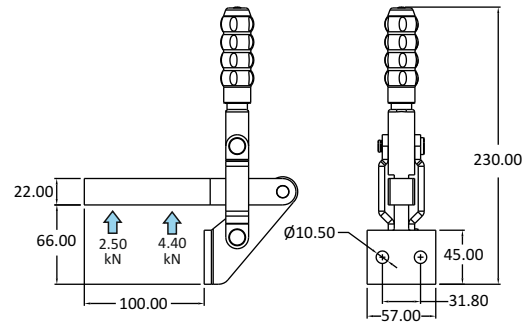
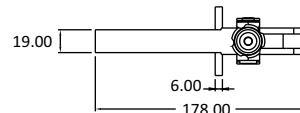
Model No: VTC - 528 - SB

Weight: 1.300 Kgs.
Handle Moves: 177°
Bar Opens: 180°



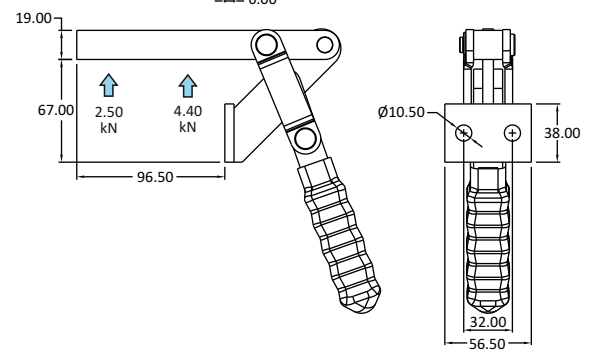
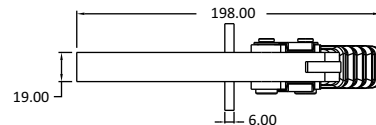
Model No: VTC - 528 - SB/FM

Weight: 1.300 Kgs.
Handle Moves: 177°
Bar Opens: 180°



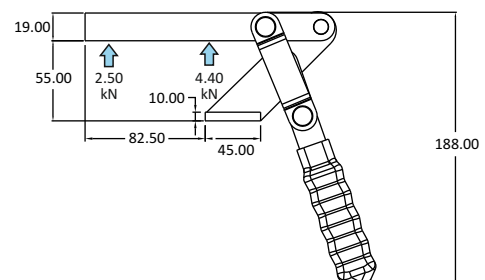
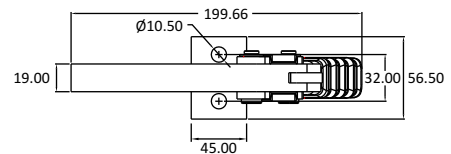
Model No: VTC - 527 - SB/FM

Weight: 1.200 Kgs.
Handle Moves: 65°
Bar Opens: 195°



Model No: VTC - 527 - SB

Weight: 1.200 Kgs.
Handle Moves: 65°
Bar Opens: 195°



Modular Clamps - LH

Compact heavy duty modular clamps with a very low clamping arm height. The unique feature of these clamps is the arm/handle configurations can be change into 8 different types of clamps as shown in the below table



Model No. HV - 25 - LH

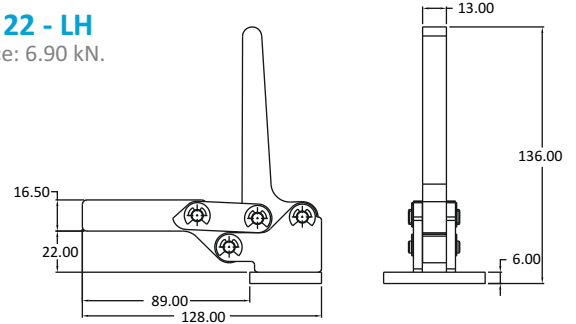
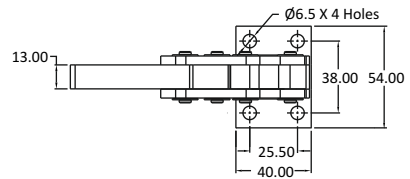
Model No: HV - 22 - LH

Nominal Holding Force: 6.90 kN.

Weight: 0.900 Kgs.

Arm Opens: 83°

Handle Opens:83°



Anatomy of a Modular Clamp
Mounting Plate will be supplied separately

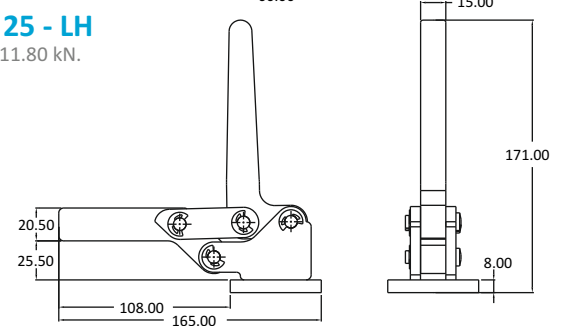
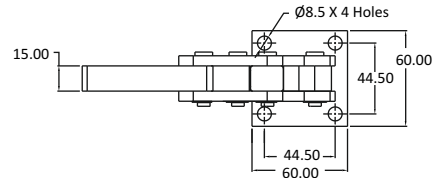
Model No: HV - 25 - LH

Nominal Holding Force: 11.80 kN.

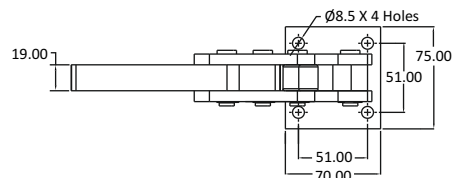
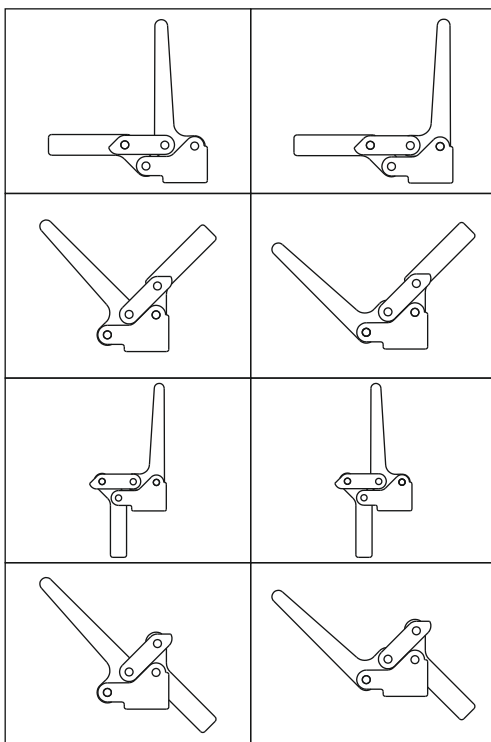
Weight: 1.200 Kgs.

Arm Opens: 83°

Handle Opens:83°



8 Different Configuration of Modular Clamps



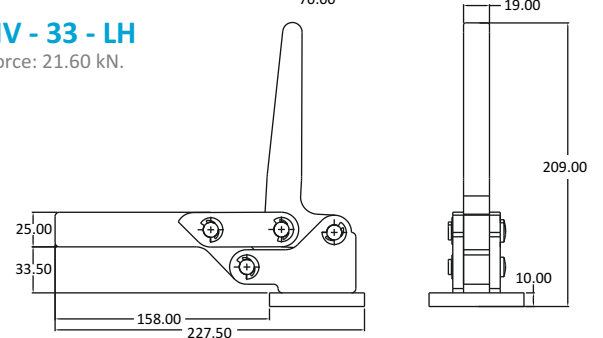
Model No: HV - 33 - LH

Nominal Holding Force: 21.60 kN.

Weight: 2.300 Kgs.

Arm Opens: 83°

Handle Opens:83°



Vertical Hold Down Action

Modular Clamps - HA

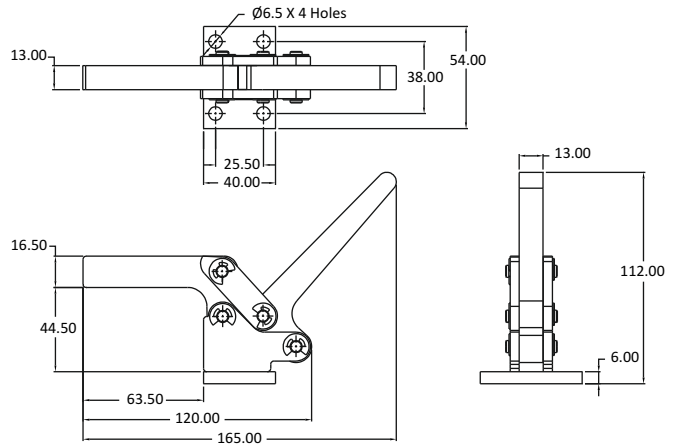
Compact heavy duty modular clamps with a very low clamping arm height. The unique feature of these clamps is the arm/handle configurations can be change into 8 different types of clamps as shown in the below table

Model No: HV - 44 - HA

Nominal Holding Force: 6.90 kN.
Weight: 0.900 Kgs.
Arm Opens: 83°
Handle Opens: 83°



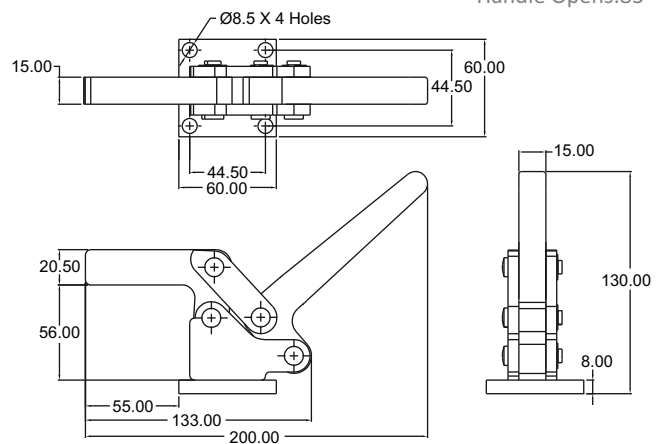
Model No. HV - 44 - HA



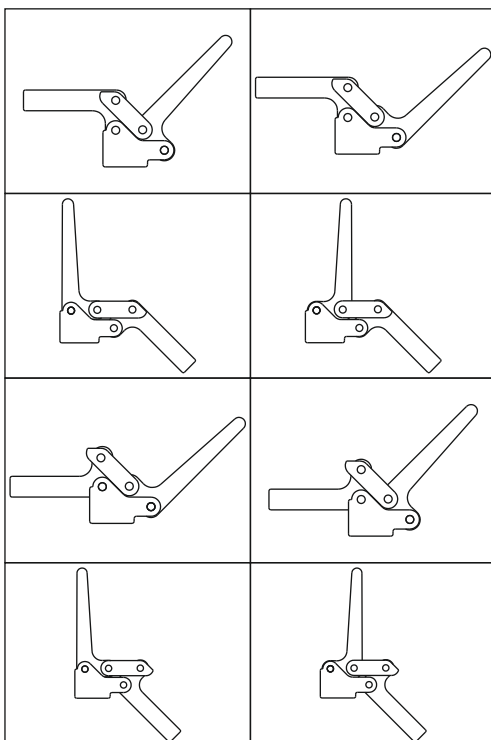
Anatomy of a Modular Clamp
Mounting Plate will be supplied separately

Model No: HV - 65 - HA

Nominal Holding Force: 11.80 kN
Weight: 1.200 Kgs.
Arm Opens: 83°
Handle Opens: 83°

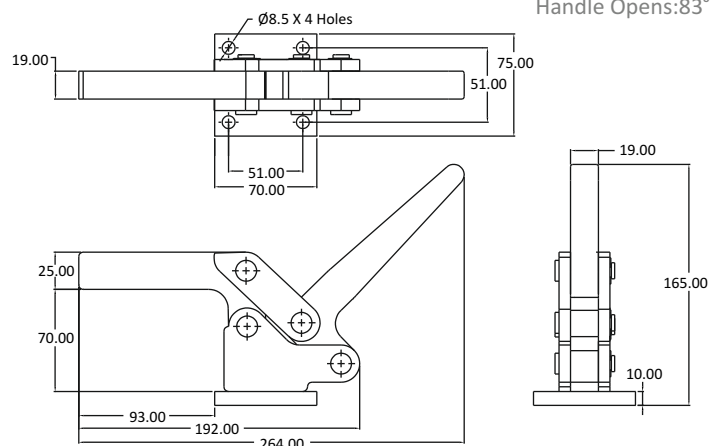


8 Different Configuration of Modular Clamps



Model No: HV - 70 - HA

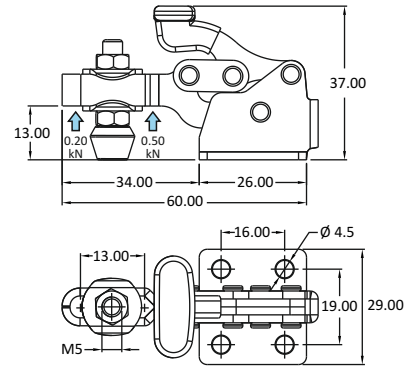
Nominal Holding Force: 21.60 kN.
Weight: 2.300 Kgs.
Arm Opens: 83°
Handle Opens: 83°



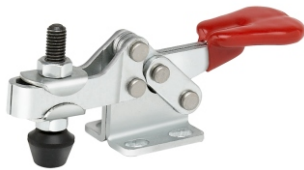
Model No: H - 1330 UB

Weight: 0.070 Kgs.
Handle Moves: 170°
Bar Opens: 95°

Also Available
in Stainless Steel
H - 1330 - UB - SS



H - Series Miniature Clamps



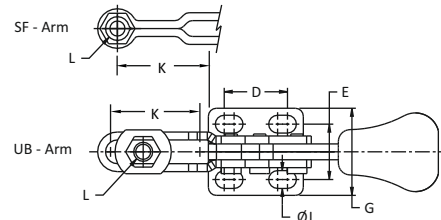
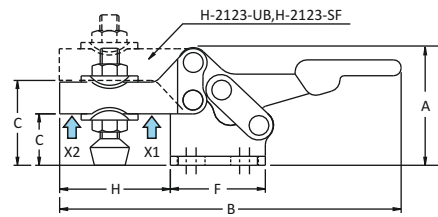
Model No. H - 1323 - UB



Model No. H - 1323 - SF



Model No. H - 2123 - UB



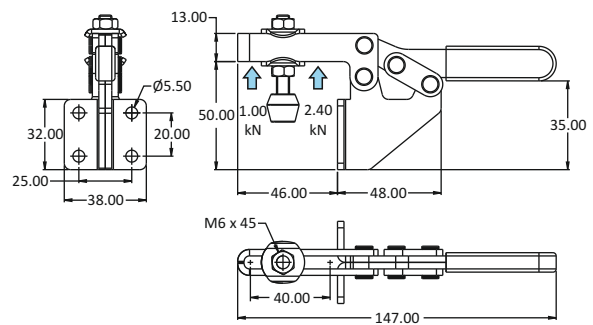
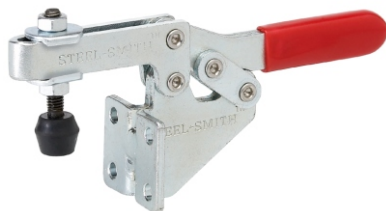
Also Available
in Stainless Steel
H - 1323 - UB - SS
H - 2123 - UB - SS

Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions										
	X2	X1				A	B	C	D	E	F	G	H	J	K	L
H - 1323 - UB	0.20 kN	0.50 kN	0.040	90°	90°	30	85	14	11-16	14	24	22	28.5	4.5	18	M5 Bolt
H - 1323 - SF	0.20 kN	0.50 kN	0.040	90°	90°	30	85	14	11-16	14	24	22	28.5	4.5	24	M5 Bolt
H - 2123 - UB	0.20 kN	0.50 kN	0.040	90°	90°	30	85	21	11-16	14	24	22	28.5	4.5	18	M5 Bolt
H - 2123 - SF	0.20 kN	0.50 kN	0.040	90°	90°	30	85	21	11-16	14	24	22	28.5	4.5	24	M5 Bolt

Model No: H - 4835 UB/FM

Weight: 0.260 Kgs.

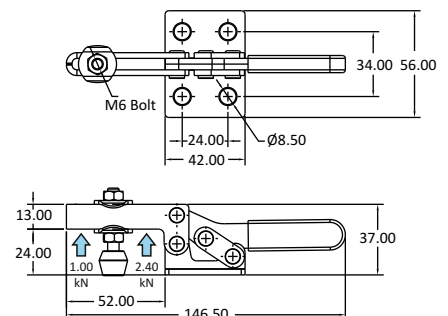
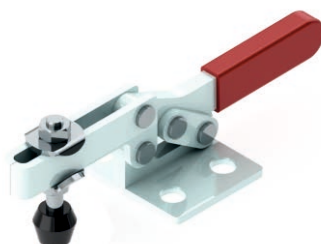
Also Available
in Stainless Steel
H-4835-UB/FM-SS



Model No: H - 2452 UB

Weight: 0.250 Kgs.

Also Available
in Stainless Steel
H 2452-UB-SS



Horizontal Hold Down Action

H - Series Medium Duty Clamps



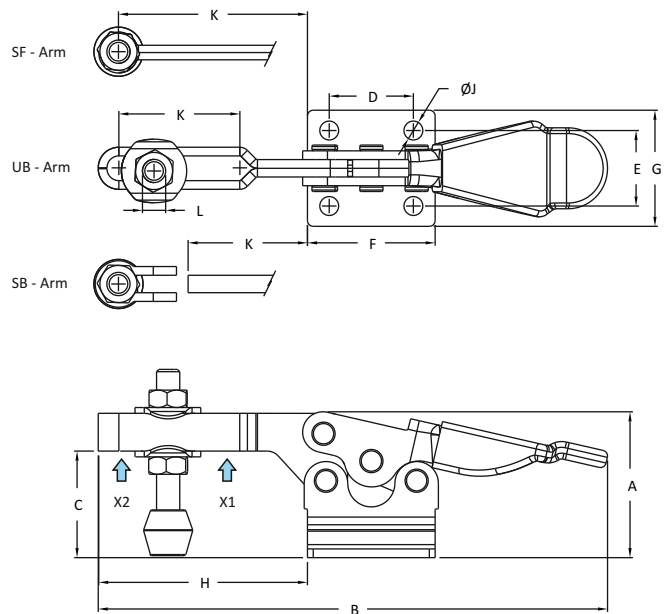
Model No. H - 2655 SF



Model No. H - 2655 UB



Model No. H - 3665 SF



The **SF Series** have a solid hold down bar which has a fixed guide bush its end for the spindle assembly.
The **SB Series** have a solid bar onto which the bolt retainer can be welded at any desired angle.
The **UB Series** have a 'U' bar arm which enables one or more spindles to be moved onto any desired position along the arm.



Model No. H - 3665 UB



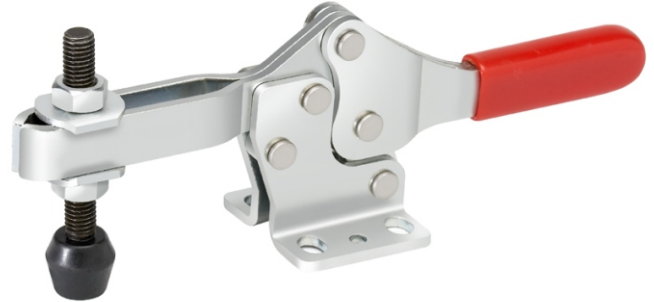
Model No. H - 45105 UB

Also Available
in Stainless Steel
H-2655-UB-SS
H-3665-UB-SS

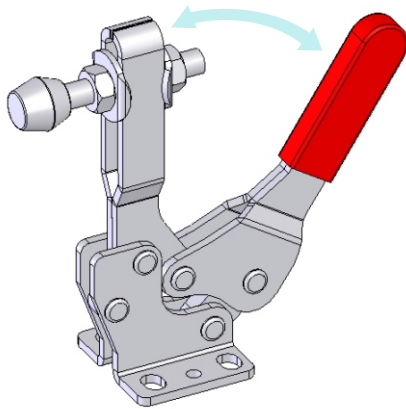
Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions										
	X2	X1				A	B	C	D	E	F	G	H	J	K	L
H-2655 UB	0.50 kN	1.40 kN	0.150	70°	90°	39	148	27	24	22	35	33	64	4.5	33	M6 Bolt
H-2655 SF	0.50 kN	1.40 kN	0.150	70°	90°	39	148	27	24	22	35	33	64	4.5	58	M6 Bolt
H-3665 UB	1.10 kN	2.40 kN	0.260	70°	90°	50	175	36	29	26	44	40	70	6.5	31	M8 Bolt
H-3665 SF	1.10 kN	2.40 kN	0.260	70°	90°	50	175	36	29	26	44	40	70	6.5	62	M8 Bolt
H-3665 SB	1.10 kN	2.40 kN	0.260	70°	90°	50	175	36	29	26	44	40	55	6.5	55	M8 Bolt
H-45105 UB	1.30 kN	3.40 kN	0.560	60°	85°	68	275	45	40	38	57	55	112	8.3	75	M10 Bolt
H-45105 SF	1.30 kN	3.40 kN	0.560	60°	85°	68	275	45	40	38	57	55	112	8.3	105	M10 Bolt
H-45105 SB	1.30 kN	3.40 kN	0.560	60°	85°	68	275	45	40	38	57	55	95	8.3	95	M10 Bolt
H-57126 UB	2.00 kN	4.90 kN	0.880	60°	85°	82	320	60	45	40	65	62	147	8.5	100	M12 Bolt
H-57126 SF	2.00 kN	4.90 kN	0.880	60°	85°	82	320	60	45	40	65	62	147	8.5	110	M12 Bolt
H-57126 SB	2.00 kN	4.90 kN	0.880	60°	85°	82	320	60	45	40	65	62	150	8.5	120	M12 Bolt

Horizontal Hold Down Action - International Range

The all new international equivalent range of toggle clamps from Steel-Smith. Now all the leading international toggle clamps have their equivalents in this range. What's more, these quality clamps come with hardened bushes for enhanced life, several safety features and slicker finish.

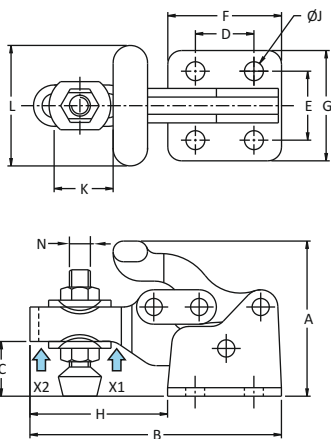


Extra distance for safety



New improved design includes increased distance between the handle and the clamping arm. This ensures maximum safety during the clamp's fully open position.

Horizontal Hold Down Action H - 305, 307, 309 Series



Model No. H-305-U



Model No. H-307-U

Also Available in Stainless Steel
H-305-U-SS
H-307-U-SS
H-309-U-SS

Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions											
	X2	X1				A	B	C	D	E	F	G	H	J	K	L	N
H-305-U	0.20 kN	0.50 kN	0.070	175°	92°	38.0	59.0	13.5	13.5	16.0	26.1	25.4	30.0	4.5	8.0	32.0	M5 Bolt
H-307-U	1.10 kN	1.40 kN	0.250	175°	92°	62.0	93.0	23.5	23.0	29.4	43.6	46.6	46.0	7.0	17.0	51.0	M8 Bolt
H-309-U	2.30 kN	3.40 kN	0.600	160°	88°	91.2	131.8	33.3	35.1	38.1	64.0	62.7	67.6	8.4	26.9	78.0	M10 Bolt

Horizontal Hold Down Action

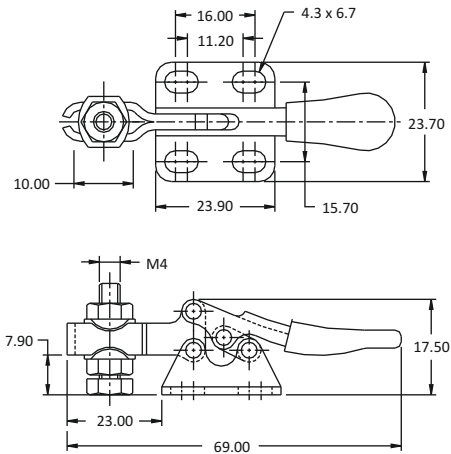
Horizontal Hold Down Action

Arm: Adjustable Arm
 Base: Flanged Mounting
 Holding Capacity: 0.30 kN.
 Weight: 0.030 Kgs.
 Handle Moves: 60°
 Bar Opens: 85°

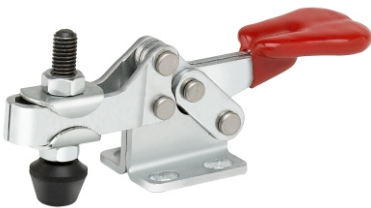
Also Available
 in Stainless Steel
 H - 205 - U - SS



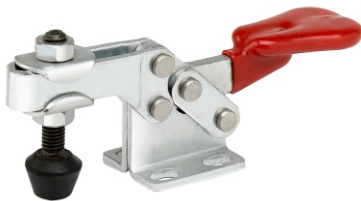
Model No. H - 205 U



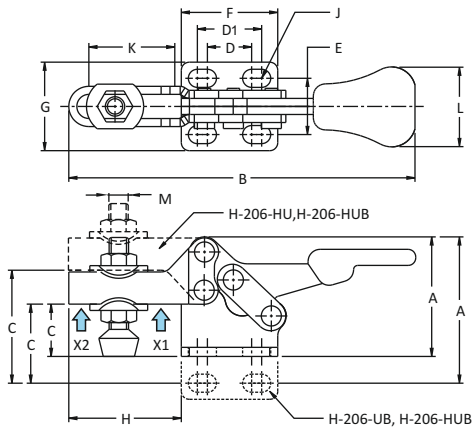
Horizontal Hold Down Action H - 206 Series



Model No. H-206-U



Model No. H-206-HU



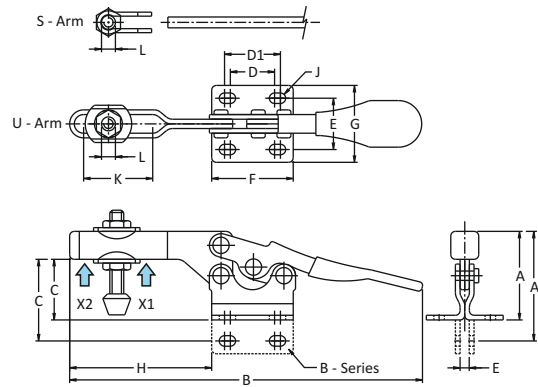
Model No.	Arm Type	Base Type
H-206-U	Adjustable Arm	Flanged
H-206-UB	Adjustable Arm	Straight
H-206-HU	High Adjustable Arm	Flanged
H-206-HUB	High Adjustable Arm	Straight

Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions												
	X2	X1				A	B	C	D	D1	E	F	G	H	J/Slot	K	L	M
H-206-U	0.20 kN	0.50 kN	0.040	90°	90°	29.0	86.0	12.5	11.1	15.8	15.9	24.2	24.3	29.0	4.3 x 6.8	12	20.0	M5 Bolt
H-206-UB	0.20 kN	0.50 kN	0.040	90°	90°	33.5	86.0	17.0	11.1	15.8	--	24.2	--	29.0	4.3 x 6.8	12	20.0	M5 Bolt
H-206-HU	0.20 kN	0.50 kN	0.040	90°	90°	29.0	86.0	20.5	11.1	15.8	15.9	24.2	24.3	29.0	4.3 x 6.8	12	20.0	M5 Bolt
H-206-HUB	0.20 kN	0.50 kN	0.040	90°	90°	33.5	86.0	24.9	11.1	15.8	--	24.2	--	29.0	4.3 x 6.8	12	20.0	M5 Bolt

Horizontal Hold Down Action H - 215 Series



Model No. H-215-U



Also Available
in Stainless Steel
H-215-U-SS
H-215-UB-SS

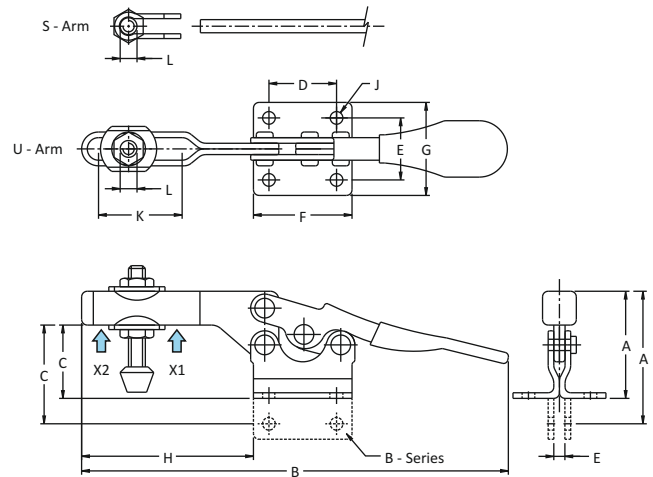
Model No.	Arm Type	Base Type
H-215-S	Solid Arm	Flanged
H-215-SB	Solid Arm	Straight
H-215-U	Adjustable Arm	Flanged
H-215-UB	Adjustable Arm	Straight

Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions											
	X2	X1				A	B	C	D	D1	E	F	G	H	J/slot	K	L
H-215-S	0.50 kN	1.00 kN	0.150	70°	90°	39.0	148.0	27.0	25.4	27.0	22.0	35.6	35.0	63.0	5x5.8	—	M6 Bolt
H-215-SB	0.50 kN	1.00 kN	0.150	70°	90°	47.0	148.0	35.0	25.4	26.9	5.0	35.0	—	63.0	5x5.8	—	M6 Bolt
H-215-U	0.50 kN	1.00 kN	0.150	70°	90°	39.0	148.0	27.0	25.4	27.0	22.0	35.6	35.0	63.0	5x5.8	35.0	M6 Bolt
H-215-UB	0.50 kN	1.00 kN	0.150	70°	90°	47.0	148.0	35.0	25.4	26.9	5.0	35.0	—	63.0	5x5.8	35.0	M6 Bolt

Horizontal Hold Down Action H - 225 Series



Model No. H-225-U



Also Available
in Stainless Steel
H-225-U-SS
H-225-UB-SS

Model No.	Arm Type	Base Type
H-225-S	Solid Arm	Flanged
H-225-SB	Solid Arm	Straight
H-225-U	Adjustable Arm	Flanged
H-225-UB	Adjustable Arm	Straight

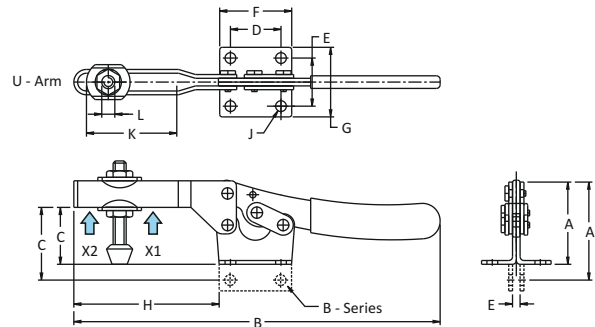
Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions											
	X2	X1				A	B	C	D	E	F	G	H	J	K	L	
H-225-U	1.10 kN	2.20 kN	0.260	70°	90°	47.0	178.0	34.0	25.4	22.4	38.1	35.0	73.5	6.8	33.0	M8 Bolt	
H-225-UB	1.10 kN	2.20 kN	0.260	70°	90°	53.0	178.0	40.0	25.4	6	38.1	—	73.5	6.8	38.0	M8 Bolt	

Horizontal Hold Down Action

Horizontal Hold Down Action H - 235 Series



Model No.H-235-U



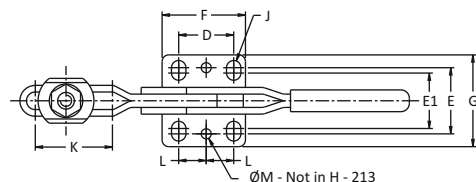
Model No.	Arm Type	Base Type
H-235-U	Adjustable Arm	Flanged
H-235-UB	Adjustable Arm	Straight

Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions										
	X2	X1				A	B	C	D	E	F	G	H	J	K	L
H-235-U	1.30 kN	3.40 kN	0.560	60°	85°	68.0	290.0	45.0	41.4	41.4	57.2	57.2	113.0	8.5	70.0	M10 Bolt
H-235-UB	1.30 kN	3.40 kN	0.560	60°	85°	81.0	290.0	61.0	41.4	8.0	57.2	—	113.0	8.5	70.0	M10 Bolt

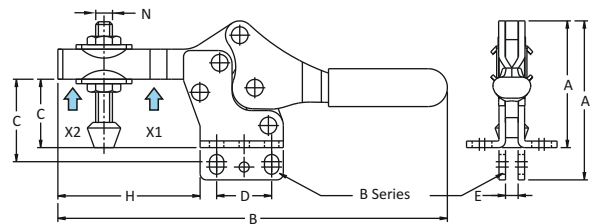
Horizontal Hold Down Action H - 213, 217 Series



Model No. H-213-U



Model No. H-217-UB



Model No. H-217-U

Also Available in Stainless Steel
H-213-U-SS
H-213-UB-SS
H-217-U-SS
H-217-UB-SS

Model No.	Arm Type	Base Type
H-213-U	Adjustable Arm	Flanged
H-213-UB	Adjustable Arm	Straight
H-217-U	Adjustable Arm	Flanged
H-217-UB	Adjustable Arm	Straight

Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions											
	X2	X1				A	B	C	D	E	E1	F	G	H	J	K	M
H-213-U	0.30 kN	0.70 kN	0.070	60°	90°	36.0	109.0	19.5	13.5	19.0	17.6	25.5	28.0	35.5	4.3 x 5.0	24.0	—
H-213-UB	0.30 kN	0.70 kN	0.070	60°	90°	44.7	109.0	27.0	13.5	4.0	—	25.5	—	35.5	4.3 x 5.0	24.0	—
H-217-U	0.36 kN	1.00 kN	0.190	76°	92°	52.0	166.0	27.0	26.2	29.5	23.7	37.6	41.1	63.0	5.5 x 8.5	42.0	4.7
H-217-UB	0.36 kN	1.00 kN	0.190	76°	92°	63.5	166.0	34.0	26.2	6.0	—	37.6	—	63.0	5.5 x 8.5	42.0	4.7

Horizontal Hold Down Action H - 227, 237, 245 Series



Model No. H-227-U



Model No. H-237-U



Model No. H-245-U



Model No. H-227-UB



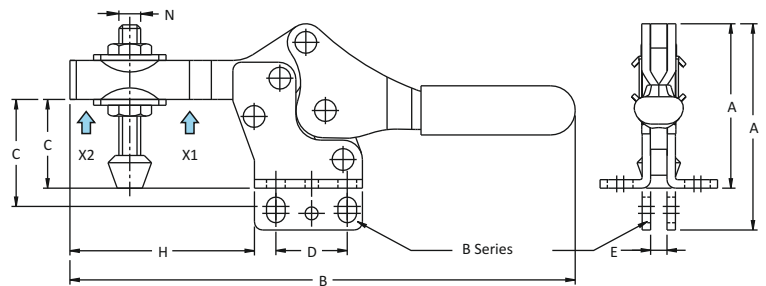
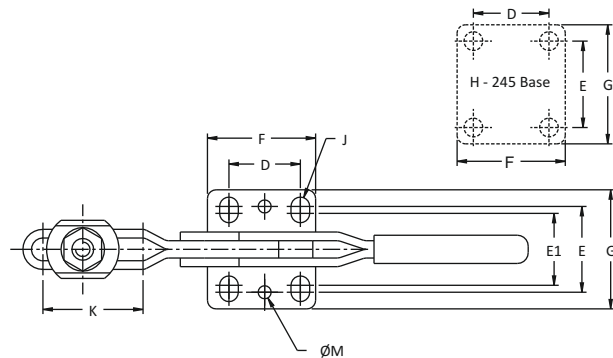
Model No. H-237-UB



Model No. H-245-UB



Model No. H-245-S



Also Available
in Stainless Steel

H-227-U-SS

H-227-UB-SS

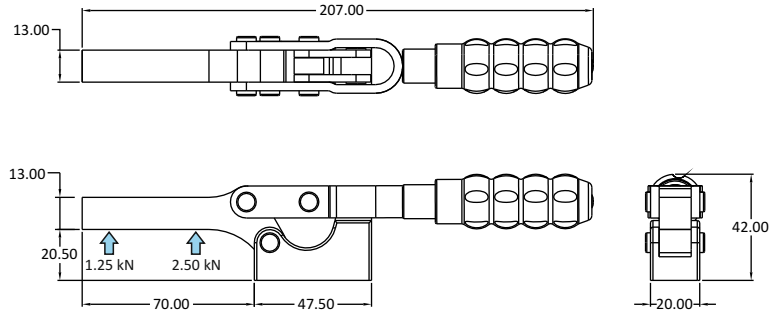
Model No.	Arm Type	Base Type
H-227-U	Adjustable Arm	Flanged
H-227-UB	Adjustable Arm	Straight
H-237-U	Adjustable Arm	Flanged
H-237-UB	Adjustable Arm	Straight
H-245-S	Solid Arm	Flanged
H-245-SB	Solid Arm	Straight
H-245-U	Adjustable Arm	Flanged
H-245-UB	Adjustable Arm	Straight

Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions												
	X2	X1				A	B	C	D	E	E1	F	G	H	J	K	M	N
H-227-U	1.00 kN	2.20 kN	0.300	62°	92°	62.0	190.0	34.0	26.2	31.6	26.6	39.6	44.0	72.0	6.8 x 9.4	41.1	4.7	M8 Bolt
H-227-UB	1.00 kN	2.20 kN	0.300	62°	92°	76.0	190.0	40.0	26.2	6.0	—	39.6	—	72.0	6.8 x 9.4	41.1	4.7	M8 Bolt
H-237-U	1.30 kN	3.40 kN	0.750	63°	92°	80.0	275.0	44.0	41.4	43.0	39.0	57.2	58.0	106.5	8.5 x 10.5	80.0	5.7	M10 Bolt
H-237-UB	1.30 kN	3.40 kN	0.750	63°	92°	99.0	275.0	51.6	41.4	8.0	—	57.2	—	106.0	8.5 x 10.5	80.0	5.7	M10 Bolt
H-245-S	1.80 kN	4.40 kN	1.400	67°	105°	109.5	325.0	58.0	41.4	41.4	—	66.8	68.6	130.0	8.7	—	—	M12 Bolt
H-245-SB	1.80 kN	4.40 kN	1.400	67°	105°	117.0	325.0	65.4	41.4	10.0	—	66.8	—	130.0	8.7	—	—	M12 Bolt
H-245-U	1.80 kN	4.40 kN	1.400	67°	105°	109.5	325.0	58.0	41.4	41.4	—	66.8	68.6	130.0	8.7	80.0	—	M12 Bolt
H-245-UB	1.80 kN	4.40 kN	1.400	67°	105°	117.0	325.0	65.4	41.4	10.0	—	66.8	—	130.0	8.7	80.0	—	M12 Bolt

Horizontal Hold Down Action

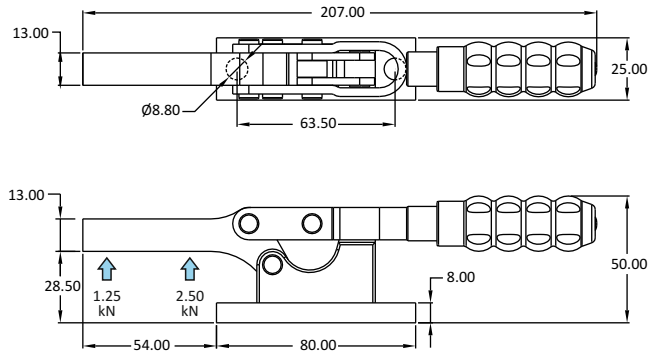
Model No: H - 5305 - B/SB - HV

Weight: 0.370 Kgs.
Handle Moves: 69°
Bar Opens: 90°



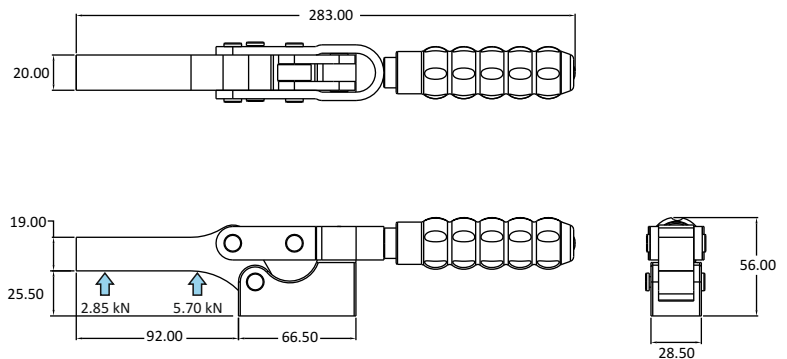
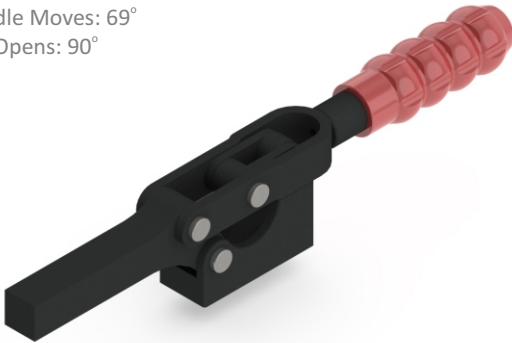
Model No: H - 5305 - SB - HV

Weight: 0.490 Kgs.
Handle Moves: 69°
Bar Opens: 90°



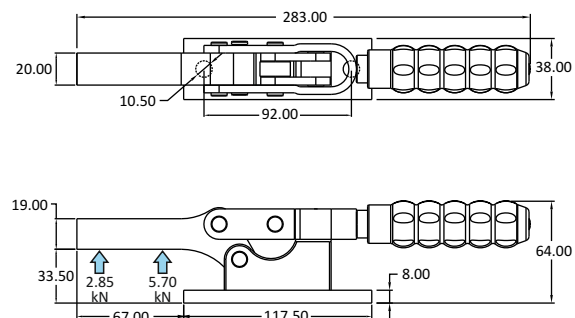
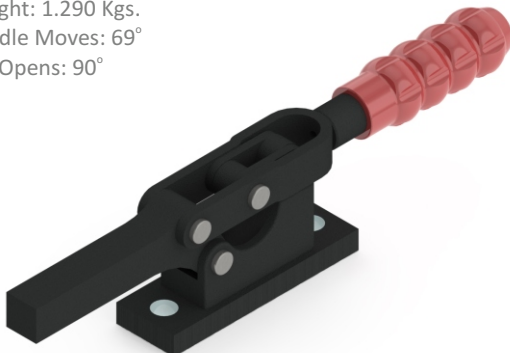
Model No: H - 5310 - B/SB - HV

Weight: 1.020 Kgs.
Handle Moves: 69°
Bar Opens: 90°

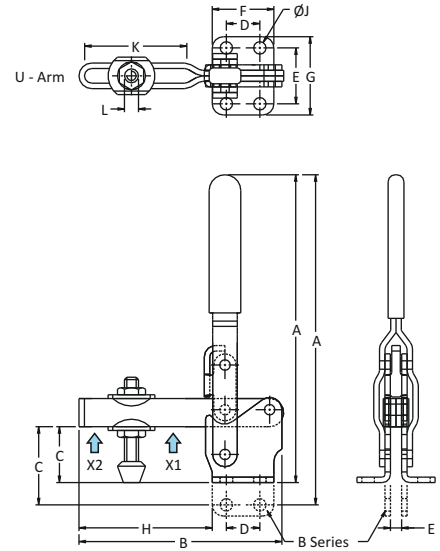


Model No: H - 5310 - SB - HV

Weight: 1.290 Kgs.
Handle Moves: 69°
Bar Opens: 90°

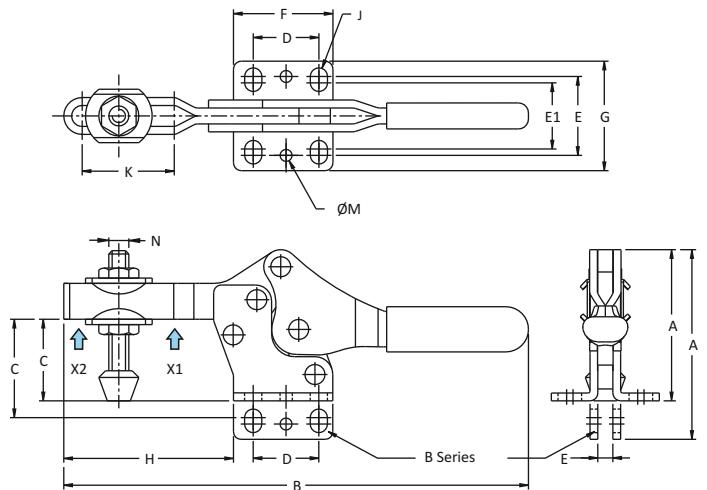


Vertical Hold Down Action VTC Series - All Black Clamps



Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions										
	X2	X1				A	B	C	D	E	F	G	H	J	K	L
VTC-201-U-AB	0.24 kN	0.50 kN	0.090	60°	110°	83.3	50.7	16.0	16.0	23.9	25.0	33.0	25.5	4.4	18.3	M5 Bolt
VTC-201-UB-AB	0.24 kN	0.50 kN	0.090	60°	110°	91.0	50.7	21.5	16.0	4.0	25.0	—	25.5	4.4	18.3	M5 Bolt
VTC-202-U-AB	0.62 kN	1.00 kN	0.160	64°	104°	106.0	75.2	23.9	12.7	26.9	25.5	39.3	45.8	5.5	25.4	M6 Bolt
VTC-202-UB-AB	0.62 kN	1.00 kN	0.160	64°	104°	115.0	75.2	28.3	12.7	6.0	25.5	—	45.8	5.5	25.4	M6 Bolt
VTC-202-UL-AB	0.62 kN	1.00 kN	0.160	64°	104°	106.0	86.0	23.9	12.7	26.9	25.5	39.3	60.5	5.5	40.0	M6 Bolt
VTC-207-U-AB	1.00 kN	1.70 kN	0.300	62°	115°	174.0	100.0	31.0	19.1	31.8	35.1	44.6	57.5	7.1	32.0	M8 Bolt
VTC-207-UB-AB	1.00 kN	1.70 kN	0.300	62°	115°	189.0	100.0	40.0	19.1	6.0	35.1	—	57.5	7.1	32.0	M8 Bolt
VTC-207-UL-AB	0.70 kN	1.50 kN	0.340	62°	115°	174.0	146.5	31.0	19.1	31.8	35.1	44.6	104.0	7.1	78.5	M8 Bolt
VTC-207-ULB-AB	0.70 kN	1.50 kN	0.340	62°	115°	189.0	146.5	40.0	19.1	6.0	35.1	—	104.0	7.1	78.5	M8 Bolt
VTC-210-U-AB	1.40 kN	2.70 kN	0.590	58°	106°	195.0	144.0	42.0	31.8	45.2	48.6	64.4	91.0	8.3	60.0	M10 Bolt
VTC-210-UB-AB	1.40 kN	2.70 kN	0.590	58°	106°	219.0	144.0	56.5	31.8	8.0	48.6	—	90.0	8.3	60.0	M10 Bolt

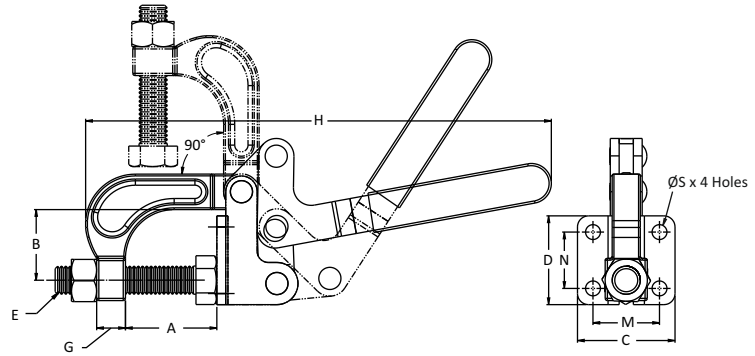
Horizontal Hold Down Action H Series - All Black Clamps



Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions											
	X2	X1				A	B	C	D	E	E1	F	G	H	J	K	M
H-213-U-AB	0.30 kN	0.70 kN	0.070	60°	90°	36.0	109.0	19.5	13.5	19.0	17.6	25.5	28.0	35.5	4.3 x 5.0	24.0	—
H-213-UB-AB	0.30 kN	0.70 kN	0.070	60°	90°	44.7	109.0	27.0	13.5	4.0	—	25.5	—	35.5	4.3 x 5.0	24.0	—
H-217-U-AB	0.36 kN	1.00 kN	0.190	76°	92°	52.0	166.0	27.0	26.2	29.5	23.7	37.6	41.1	63.0	5.5 x 8.5	42.0	4.7
H-217-UB-AB	0.36 kN	1.00 kN	0.190	76°	92°	63.5	166.0	34.0	26.2	6.0	—	37.6	—	63.0	5.5 x 8.5	42.0	4.7
H-227-U-AB	1.00 kN	2.20 kN	0.300	62°	92°	62.0	190.0	34.0	26.2	31.6	26.6	39.6	44.0	72.0	6.8 x 9.4	41.1	4.7
H-227-UB-AB	1.00 kN	2.20 kN	0.300	62°	92°	76.0	190.0	40.0	26.2	6.0	—	39.6	—	72.0	6.8 x 9.4	41.1	4.7
H-237-U-AB	1.30 kN	3.40 kN	0.750	63°	92°	80.0	275.0	44.0	41.4	43.0	39.0	57.2	58.0	106.5	8.5 x 10.5	80.0	5.7
H-237-UB-AB	1.30 kN	3.40 kN	0.750	63°	92°	99.0	275.0	51.6	41.4	8.0	—	57.2	—	106.0	8.5 x 10.5	80.0	5.7

Pull Back Action

Model No: GH – 80379

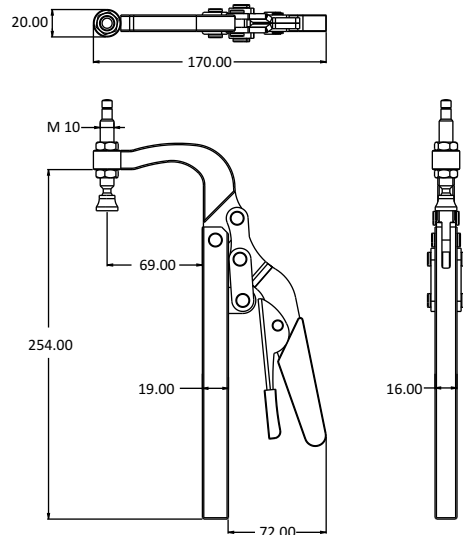


Also Available
in Stainless Steel
GH – 80379 - SS

Model No.	A	B	Mounting Base		E	G	H	M	N	S	Holding Capacity	Wt. in Kgs
			C	D								
GH – 80379	41	32	44	40	M 12	13	210	30	25.4	6.70	3.90 kN	0.640

Model No: PB - 345

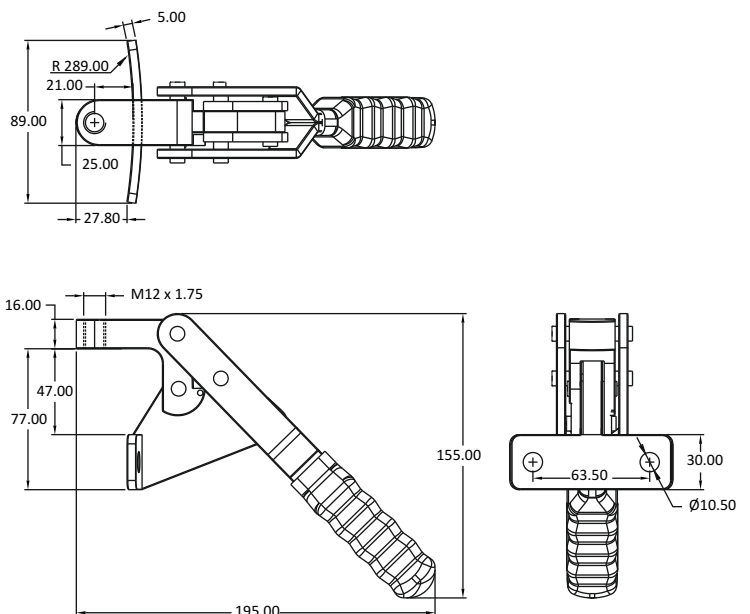
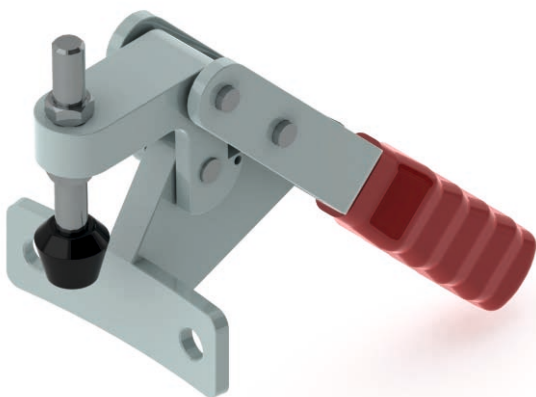
Holding Capacity: 3.40 kN.
Weight: 3.000 Kgs.



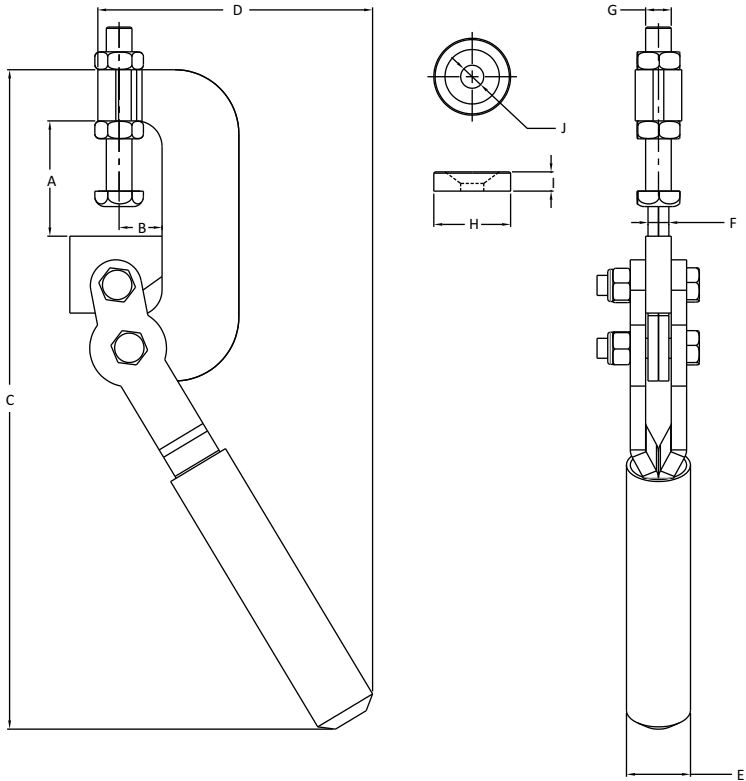
Model No: PB - 4727 - SB

Holding Capacity: 7.40 kN.
Weight: 1.100 Kgs.

Also Available
in Stainless Steel
PB - 4727 - SB - SS



Pull Back Clamps

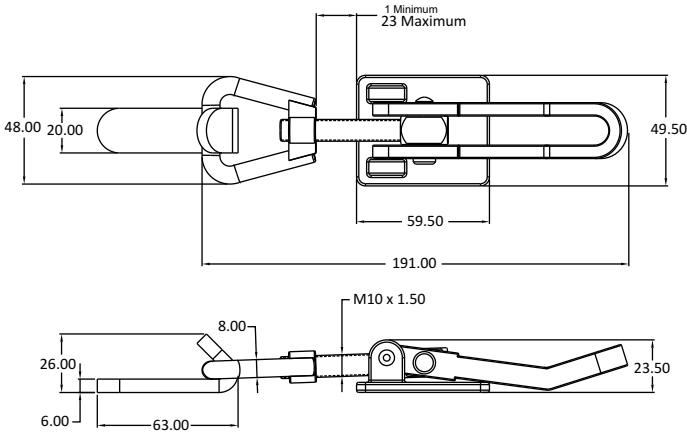
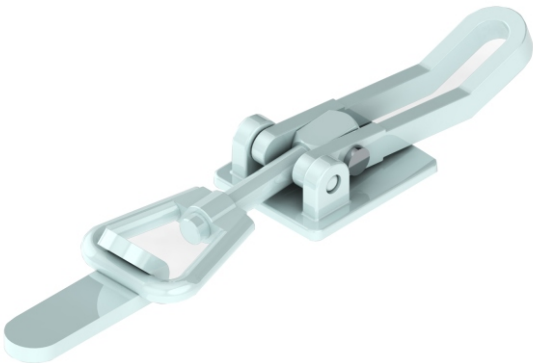


Roto-Moulding Clamps

Model No.	A	B	C	D	E	F	Thread G	Holding Pressure	Weight Kgs
PB - 3518	35	18	195	85	Ø 20	6	M8 x 50	1.00 kN	0.250
PB - 4522	45	22	270	115	Ø 25	8	M10 x 60	2.00 kN	0.890
PB - 5025 - 10	50	25	290	115	Ø 25	10	M10 x 75	2.90 kN	1.100
PB - 5025 - 12	50	25	305	115	Ø 25	12	M12 x 75	4.90 kN	1.280

Model No: PAH - 2816 -HV

Holding Capacity: 2.90 kN.
Weight: 0.350 Kgs.



Roto-Moulding Clamps

Model No: PB - 4032 - SF

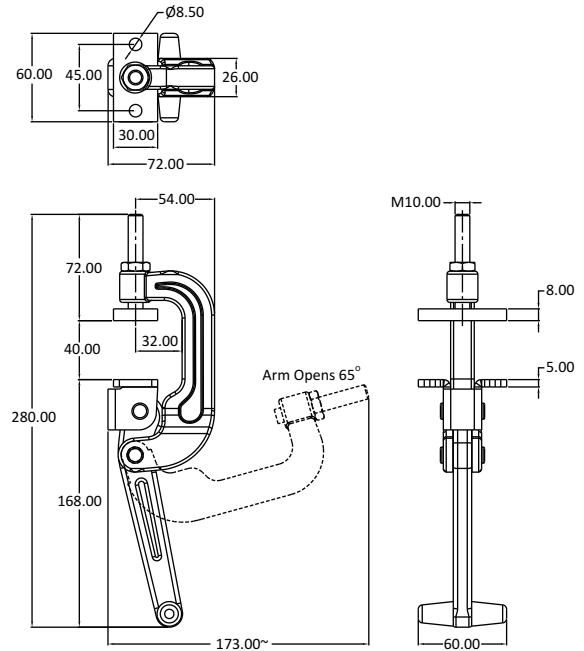
Holding Capacity: 15.00 kN.

Weight: 1.110 Kgs.

Opening Angle: 66°

Also Available
in Stainless Steel

PB - 4032 - SF - SS



Model No: PB - 7532 - SF

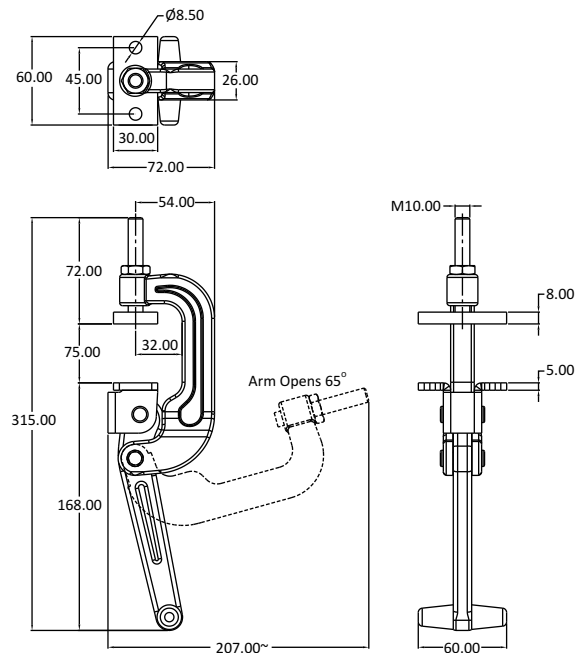
Holding Capacity: 15.00 kN.

Weight: 1.190 Kgs.

Opening Angle: 66°

Also Available
in Stainless Steel

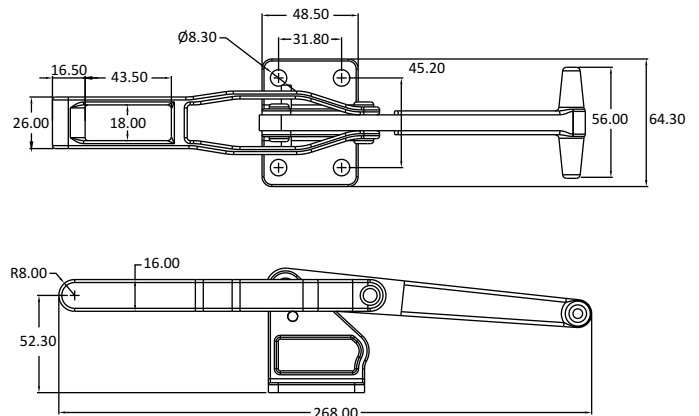
PB - 7532 - SF - SS



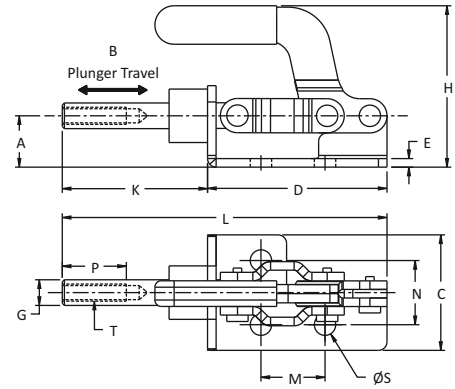
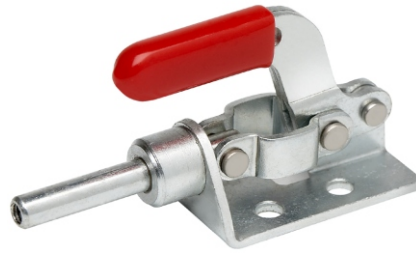
Model No: PAH - 3011 - HV

Holding Capacity: 8.90 kN.

Weight: 1.00 Kgs.



Model No: HTC - 1220



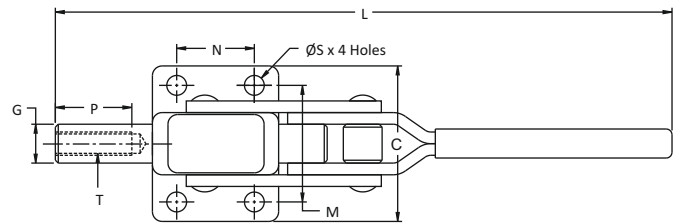
Also Available
in Stainless Steel
HTC-1220-SS

Model No.	A	Plunger Travel B	Mounting Base					ØS	Plunger Dia. G	H	K	L	Hole Depth P	Tapped Hole TØ	Holding Capacity	Wt. in Kgs
			C	D	E	M	N									
HTC-1220	12	20	27	42	2	15	15	5	6	38	34	76	20	M 4 x 0.70	0.50 kN	0.050

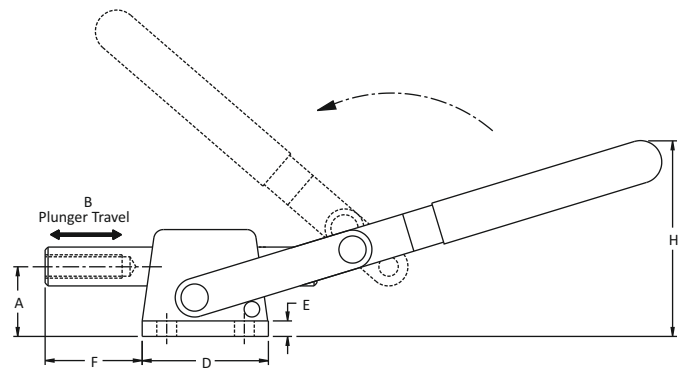
HTC - Series Clamps Forged Base



Model No. HTC - 3025



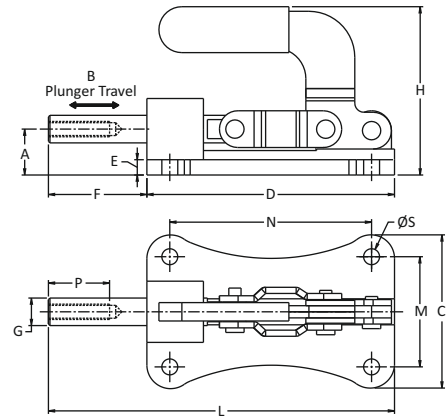
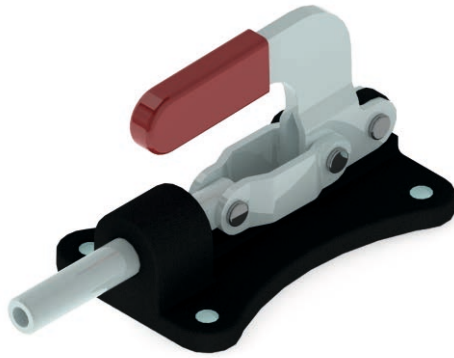
Model No. HTC - 5065



Model No.	A	Plunger Travel B	Mounting Base				Plunger Dia. G	H	L	Hole Depth P	Mounting Dimensions			Tapped Hole TØ	Holding Capacity	Wt. in Kgs
			C	D	E	F					M	N	ØS			
HTC-2326	23	23	54	28	6	23	9.5	58	168	20	42	16	5.5	M6 x 1.00	2.90 kN	0.400
HTC-3025	30	25	75	50	6	25	12	70	255	25	55	30	6.5	M 8 x 1.25	10.80 kN	0.870
HTC-3545	35	45	78	68	9	46	20	90	310	30	60	45	8.5	M 12 x 1.75	25.50 kN	1.750
HTC-5065	50	70	100	75	10	85	25	123	375	35	75	50	10.5	M 16 x 2.00	44.10 kN	3.150

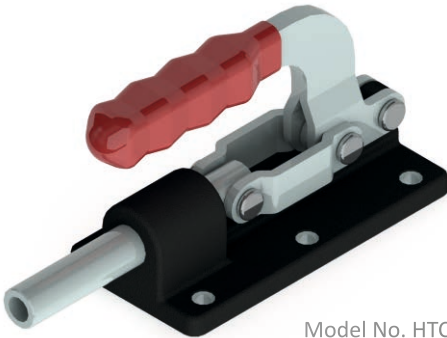
Straight Line Action

Model No: HTC - 1530 LH

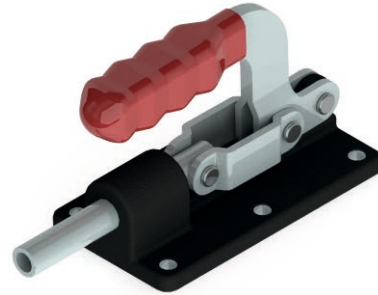


Model No.	A	Plunger Travel B	Mounting Base			F	Plunger Dia. G	H	L	Hole Depth P	Mounting Dimensions			Tapped Hole TØ	Holding Capacity	Wt. in Kgs
			C	D	E						M	N	ØS			
HTC-1530LH	15	30	51	81	5	32	9	55	112	20	36	66	5.2	M 5 x 0.80	2.00 kN	0.400

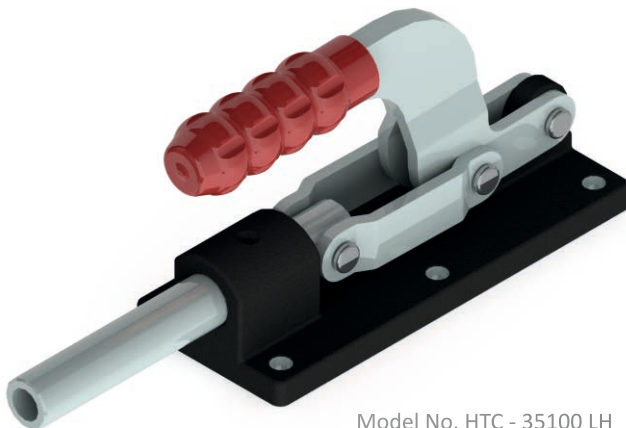
HTC - Series Clamps - Low Height



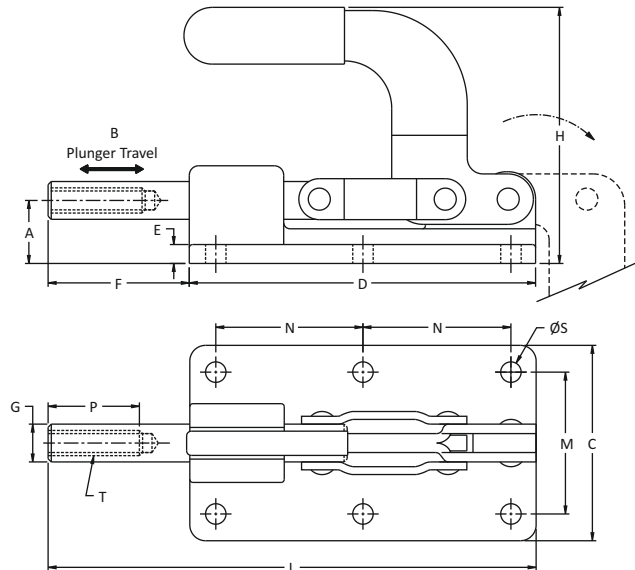
Model No. HTC - 2550 LH



Model No. HTC - 2040 LH



Model No. HTC - 35100 LH

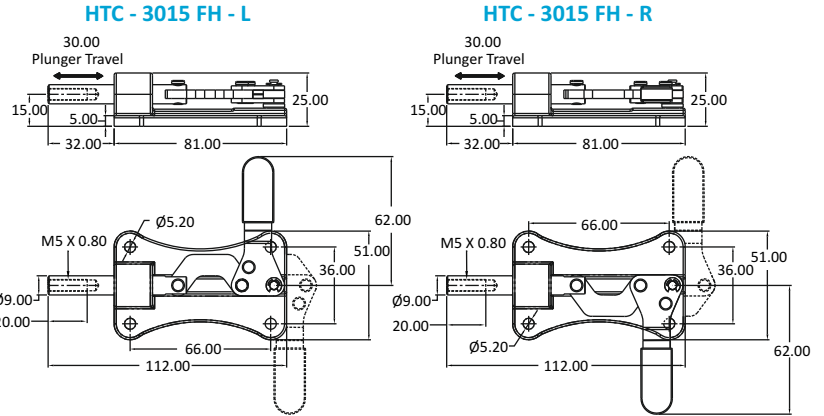
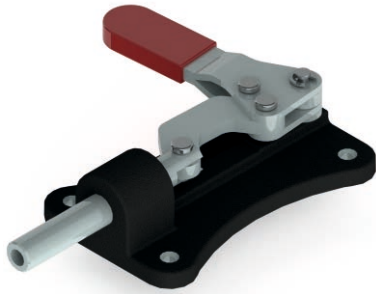


Model No.	A	Plunger Travel B	Mounting Base			F	Plunger Dia. G	H	L	Hole Depth P	Mounting Dimensions			Tapped Hole TØ	Holding Capacity	Wt. in Kgs
			C	D	E						M	N	ØS			
HTC-2040 LH	20	40	60	110	6	41	12	80	151	25	45	47	6.5	M 8 x 1.25	5.90 kN	0.850
HTC-2550 LH	25	50	65	130	8	56	16	87	186	30	48	52	8.5	M 10 x 1.50	7.80 kN	1.200
HTC-3075 LH	30	75	75	185	10	91	20	100	276	30	55	82.5	8.5	M 12 x 1.75	11.80 kN	2.000
HTC-35100 LH	35	100	90	215	12.5	111	25	133	326	35	66	95	10.5	M 16 x 2.00	19.60 kN	3.600
HTC-45150-LH	45	150	80	250	12	155	25	138	466	35	50	75	10.5	M 16 x 2.00	40.00 kN	5.500

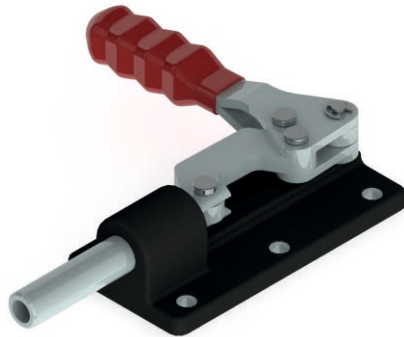
Model No: HTC - 3015 FH - R/L

Holding capacity - 1.00 kN.

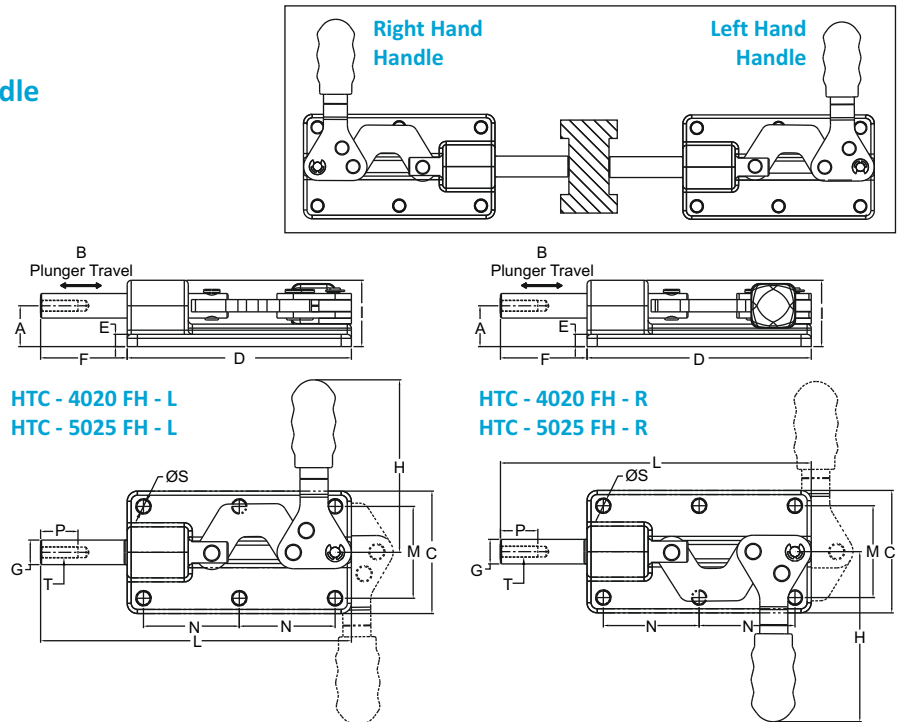
Weight of clamp - 0.400 kgs.



HTC - Series Clamps - Flat Handle



Model No. HTC - 5025 FH

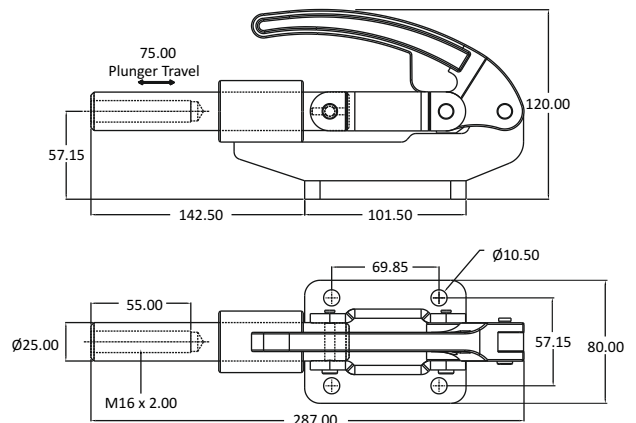


Model No.	A	Plunger Travel B	Mounting Base			F	Plunger Dia. G	H	I	L	Hole Depth P	Mounting Dimensions			Tapped Hole TØ	Holding Capacity	Wt. in Kgs
			C	D	E							M	N	ØS			
HTC-4020 FH - L HTC-4020 FH - R	20	40	60	110	6	41	12	84	32	151	25	45	47	6.5	M 8 x 1.25	5.90 kN	0.850
HTC-5025 FH - L HTC-5025 FH - R	25	50	65	130	8	56	16	108	40	186	30	48	52	8.5	M 10 x 1.50	7.80 kN	1.200

Model No: HTC - 650 - PS

Holding capacity - 34.30 kN.

Weight of clamp - 2.500 kgs.

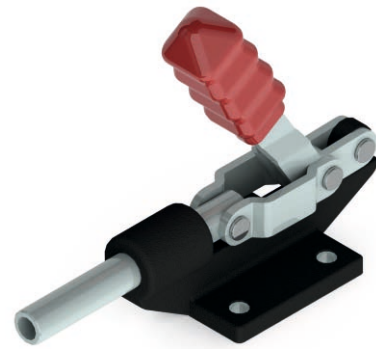


Straight Line Action

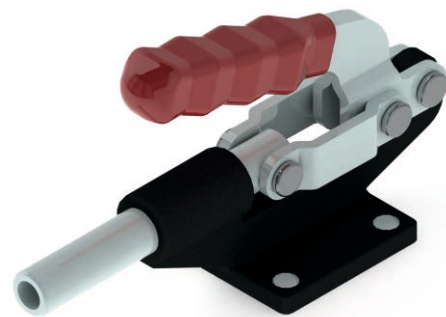
HTC - Series Clamps - Package Size



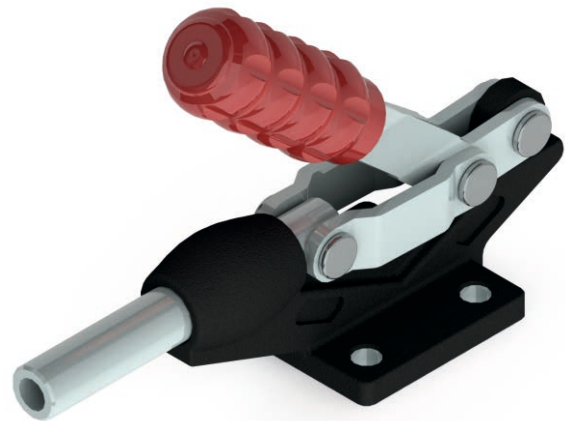
Model No. HTC - 2530 PS/BS



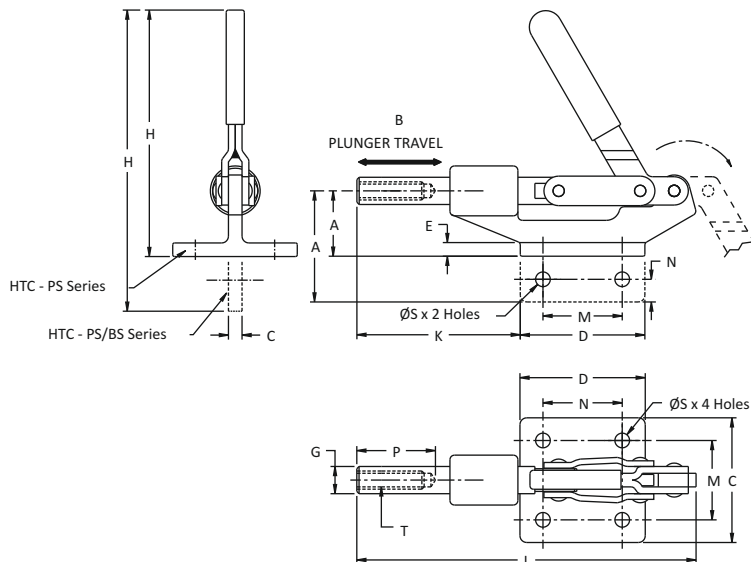
Model No. HTC - 2530 PS



Model No. HTC - 3540 PS

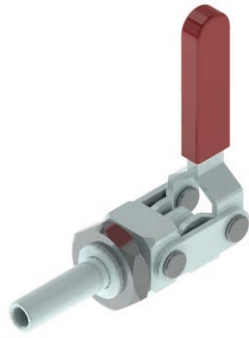


Model No. HTC - 4560 PS

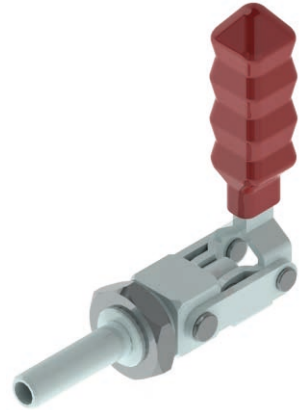


Model No.	A	Plunger Travel B	Mounting Base						Plunger Dia. G	H	K	L	Hole Depth P	Tapped Hole TØ	Holding Capacity	Wt. in Kgs
			C	D	E	M	N	ØS								
HTC-1825 PS	18	25	40	40	5	28	28	5.5	9	68	45	105	20	M5 x 0.80	1.00 kN	0.200
HTC-2530 PS	25	34	55	55	6	38	38	6.5	12	104	65	147	25	M 8 x 1.25	2.90 kN	0.400
HTC-3540 PS	35	40	61	61	6	42	42	6.5	16	115	86	180	30	M 10 x 1.50	3.90 kN	0.880
HTC-4560 PS	45	60	75	75	9	50	50	10.5	20	150	115	235	30	M 12 x 1.75	6.90 kN	1.750
HTC-2530 PS/BS	49	34	6.5	55	—	35	10	6.5	12	130	68	147	25	M 8 x 1.25	2.90 kN	0.375
HTC-3540 PS/BS	61	40	8	61	—	40	10	8	16	145	90	183	30	M 10 x 1.50	3.90 kN	0.850
HTC-4560 PS/BS	75	60	8	75	—	50	12.5	10	20	185	122	235	30	M 12 x 1.75	6.90 kN	1.650

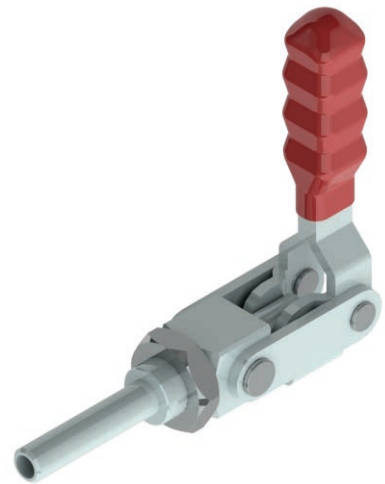
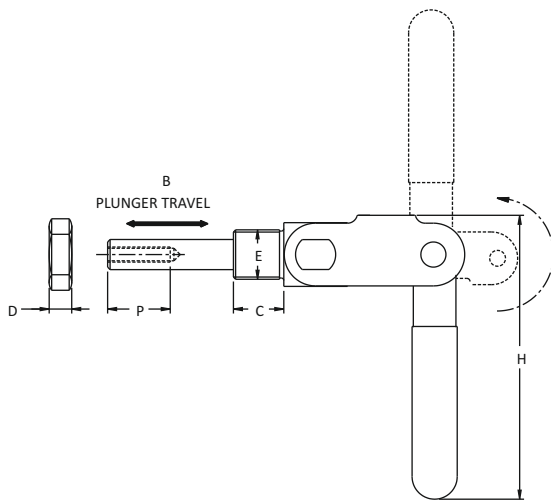
HTC - Series Clamps - Front Mounting



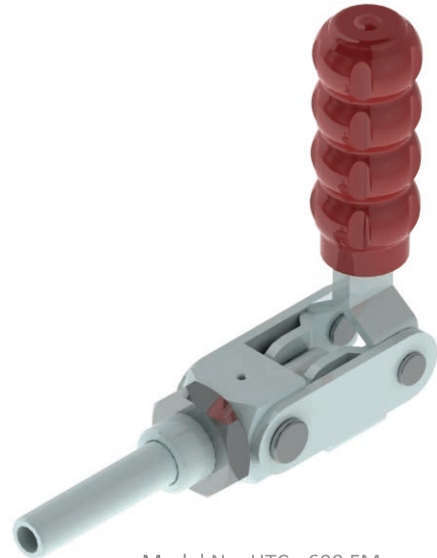
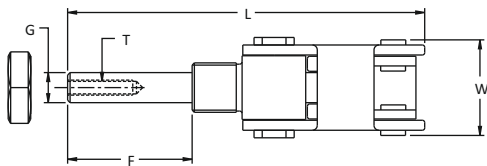
Model No. HTC -190 FM



Model No. HTC -350 FM



Model No. HTC - 500 FM



Model No. HTC - 600 FM

Model No.	Plunger Travel B	C	D	Mounting Thread Size E	F	Plunger Dia. G	H	L	P	W	Tapped Hole T	Holding Capacity	Wt. in Kgs
HTC-190 FM	24	11	6	M 16 x 2.0	30	9.5	78	77	28	25	M 6 x 1.0	0.50 kN	0.130
HTC-350 FM	36	15	6	M 20 x 1.5	42	12	103	110	30	31	M 8 x 1.25	1.00 kN	0.260
HTC-500 FM	39	18	9	M 20 x 1.5	53	12	120	120	30	36	M 8 x 1.25	1.50 kN	0.550
HTC-600 FM	60	24	10	M 24 x 2.0	62	16	155	175	30	43	M 10 x 1.5	3.40 kN	0.850

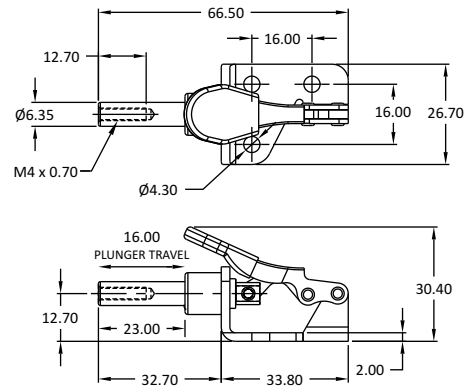
Straight Line Action

HTC - 601

Holding Capacity: 0.50 kN.
Weight: 0.040 Kgs.

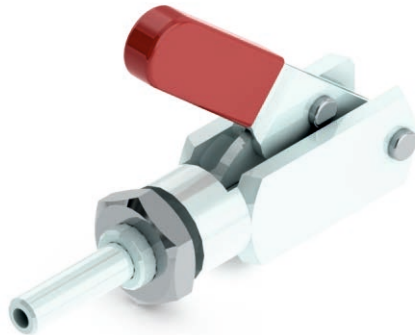


Also Available
in Stainless Steel
HTC - 601 - SS

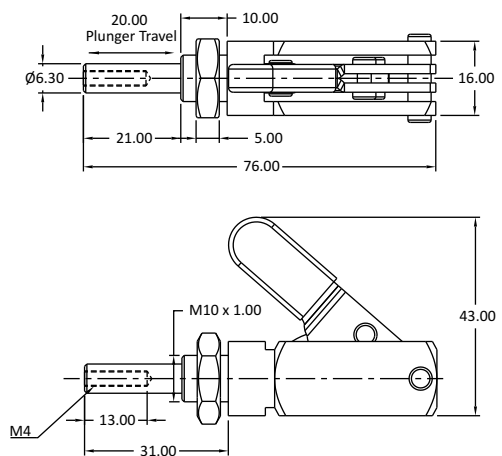


HTC - 200 - FM

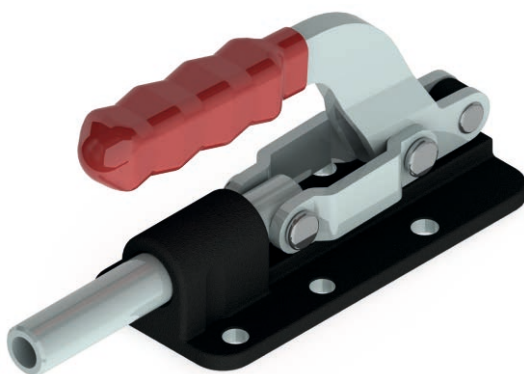
Holding Capacity: 0.80 kN.
Weight: 0.060 Kgs.



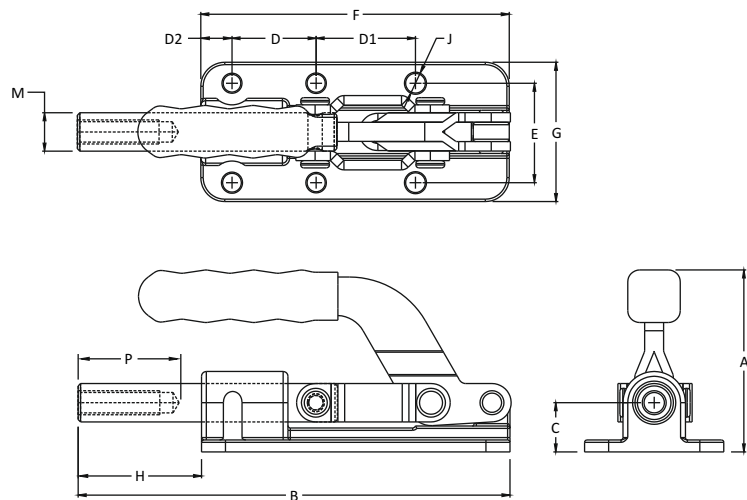
Also Available
in Stainless Steel
HTC - 200 - FM - SS



HTC Series Clamps - LH Series

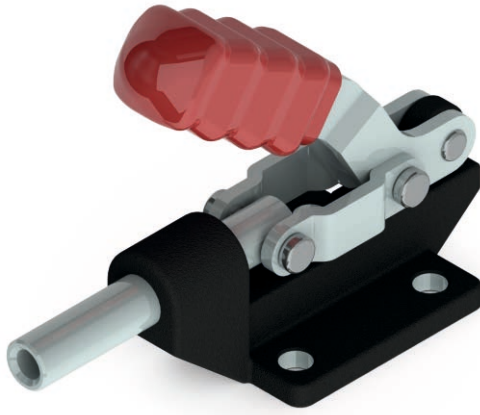


Model No. HTC - 630 - LH

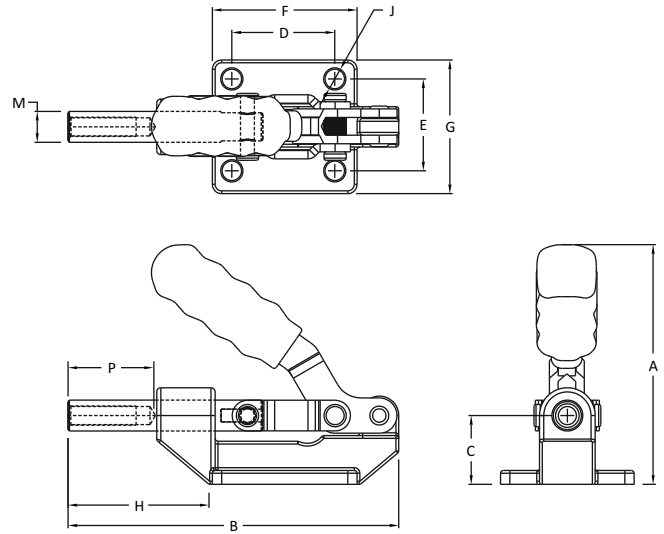


Model No.	Holding Capacity	Weight Kgs	Plunger Travel	Plunger Thread	Dimensions												
					A	B	C	D	D1	D2	E	F	G	H	J	M	P
HTC - 607 - LH	5.90 kN	0.740	41.40	M8 x 1.25	91	153	17.5	35	41.4	16	41.4	108	56	45	7.0	12.7	25
HTC - 630 - LH	7.80 kN	0.890	50.80	M10 x 1.50	82	179	20.5	35	41.4	13	41.4	128.5	58	51	8.5	15.7	32

HTC Series Clamps - PS Series

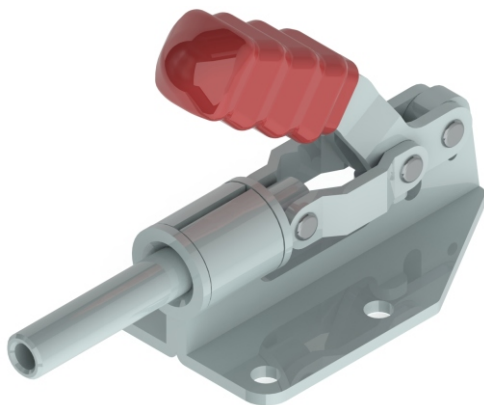


Model No. HTC - 603 - PS

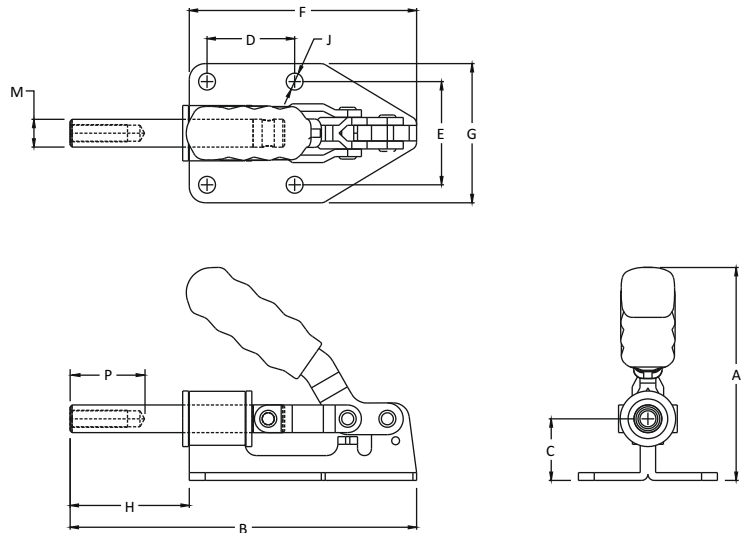


Model No.	Holding Capacity	Weight Kgs	Plunger Travel	Plunger Thread	Dimensions										
					A	B	C	D	E	F	G	H	J	M	P
HTC - 603 - PS	2.90 kN	0.380	31.75	M8 x 1.25	85.5	125	24	36.5	33	52.1	48	52	6.7	11	25
HTC - 608 - PS	3.90 kN	0.570	41.40	M10 x 1.50	106	153	32	41.4	41.4	57	57	76.8	8.5	15.7	32
HTC - 610 - PS	3.90 kN	0.870	41.00	M10 x 1.50	121	173	43.2	41.4	41.4	57	57	101	8.5	15.7	32

HTC Series Clamps - 609



Model No. HTC - 609 - PS



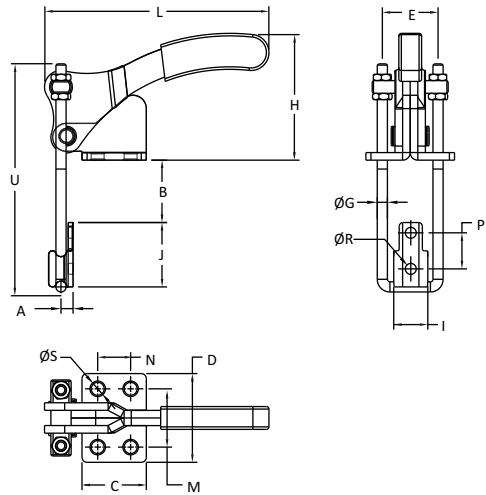
Model No.	Holding Capacity	Weight Kgs	Plunger Travel	Plunger Thread	Dimensions										
					A	B	C	D	E	F	G	H	J	M	P
HTC - 609 - PS	1.50 kN	0.360	32.00	M8 x 1.25	90	139	26	35	41.2	91.5	55.5	47.5	5.2	11.1	25

Pull Action Clamps

Pull Action Clamps - PAV Series



Model No. PAV - 620



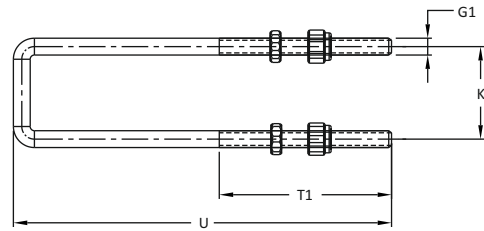
Also Available
in Stainless Steel
PAV-620-SS
PAV-850-SS

Model No.	A	B		Mounting Base		E	G	H	Latch Plate		L	Mounting Dimensions					Thread Adjustment	Holding Capacity	Wt. in Kgs
		Min	Max	C	D				I	J		M	N	P	ØS	ØR			
PAV-620	5	1	28	25.4	35	21	4	44	13.5	25	85	23	13	14.2	5.1	4.2	28	1.00 kN	0.130
PAV-850	9	1	35	35	55	34	6	65	17.5	38	114	40	20	20.5	6.5	5.5	35	4.90 kN	0.650

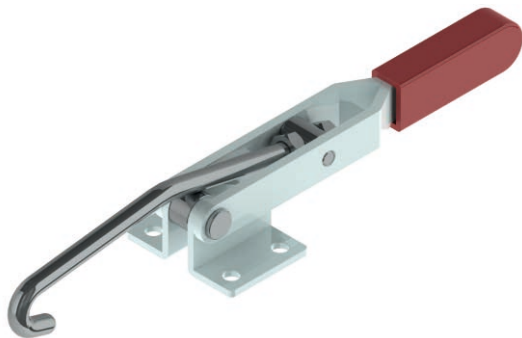
Optional U-Bolt Configuration

Use the below number for additional long U-Bolts

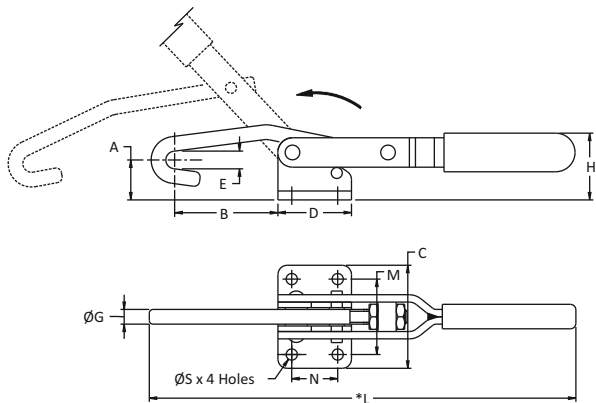
Model No	U Bolt Part Number	SS - U Bolt Part Number	U	T1	G1	K
PAV - 620	M49045	M49045 - SS	90			
PAV - 620 - M25	M411545	M411545 - SS	115	45	M4	21
PAV - 620 - M50	M414045	M414045 - SS	140			
PAV - 850	M613055	M613055 - SS	130			
PAV - 850 - M25	M615555	M615555 - SS	155	55	M6	33
PAV - 850 - M50	M618055	M618055 - SS	180			



Pull Action Clamps - PA Series



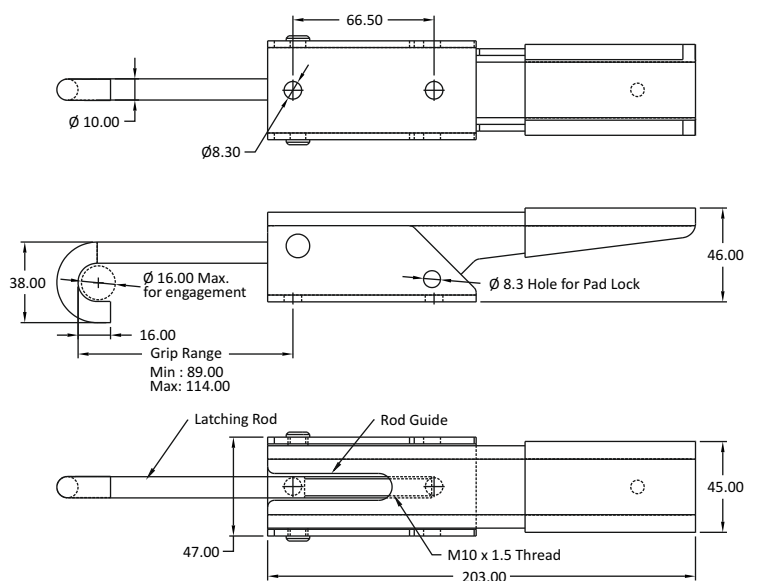
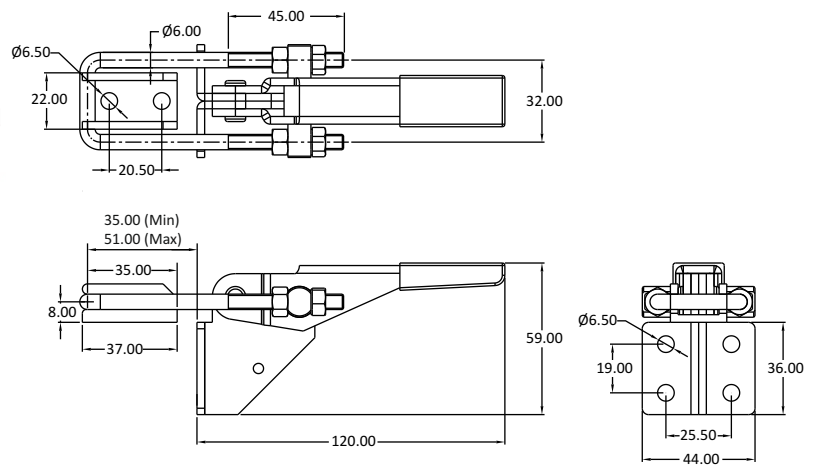
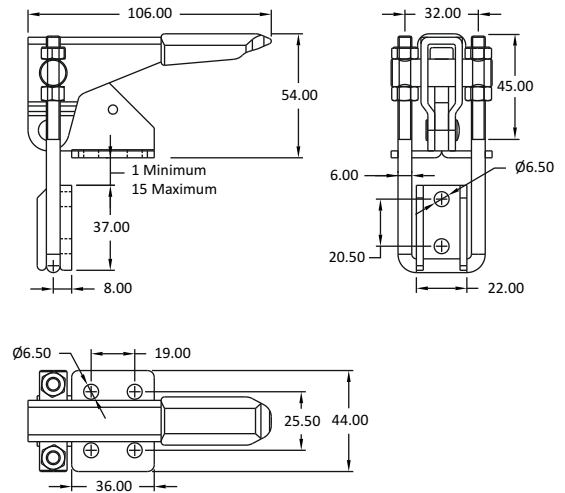
Model No. PA - 4575



* Maximum Dimension

Model No.	A	B		Mounting Base		E	G	H	L*	Mounting Dimensions			Thread Adjustment	Holding Capacity	Wt. in Kgs
		Min	Max	C	D					M	N	ØS			
PA-1010	12	18	30	38	26	8	6	26	150	27	16	4.5	15	0.70 kN	0.120
PA-2056	20	40	55	55	40	10	8	37	245	40	25	6.5	13	2.00 kN	0.380
PA-3580	35	90	115	67	49	12	10	60	365	48	30	6.5	25	3.90 kN	0.650
PA-4575	45	61	90	85	54	16	12	68	374	60	29	10.5	29	4.90 kN	0.950

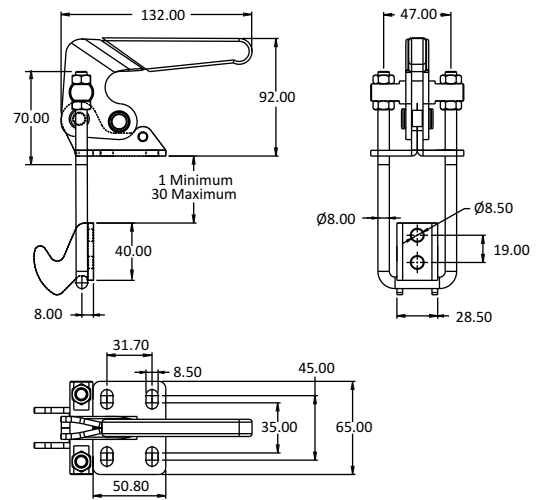
Pull Action clamps



Pull Action Clamps

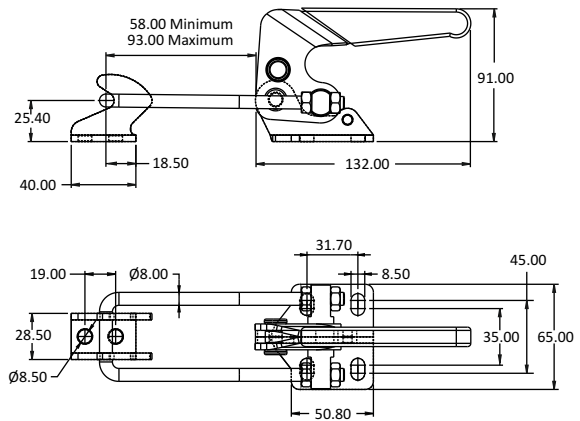
Model No: PAV - 1065

Holding Capacity: 9.80 kN
Weight: 0.800 Kgs.



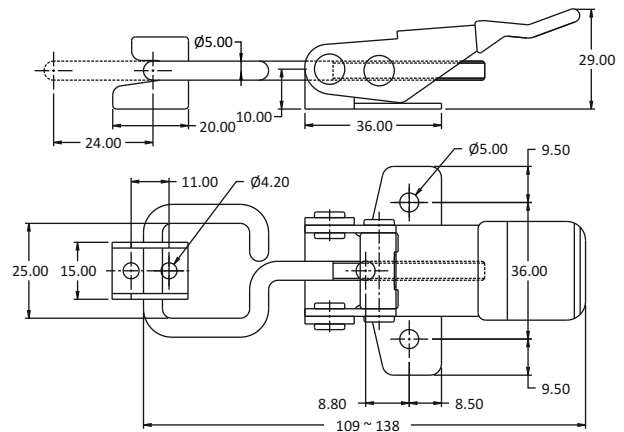
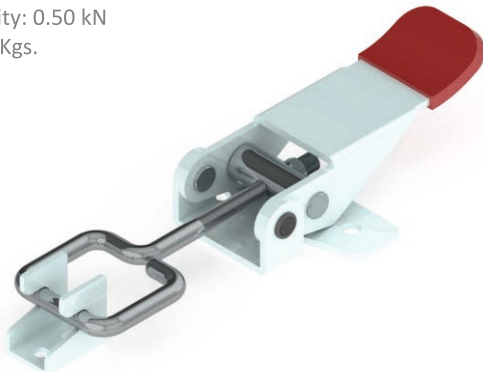
Model No: PAH - 5601

Holding Capacity: 9.80 kN
Weight: 0.800 Kgs.



Model: PAH - 2801

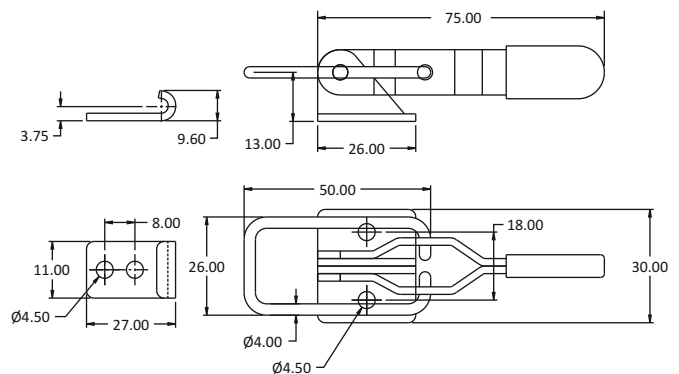
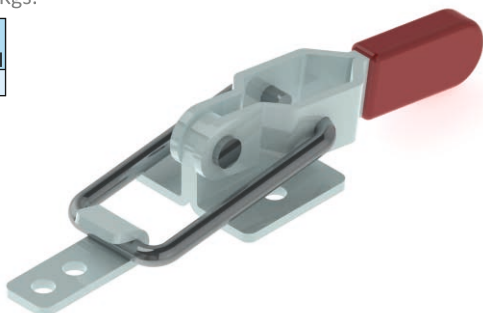
Holding Capacity: 0.50 kN
Weight: 0.100 Kgs.



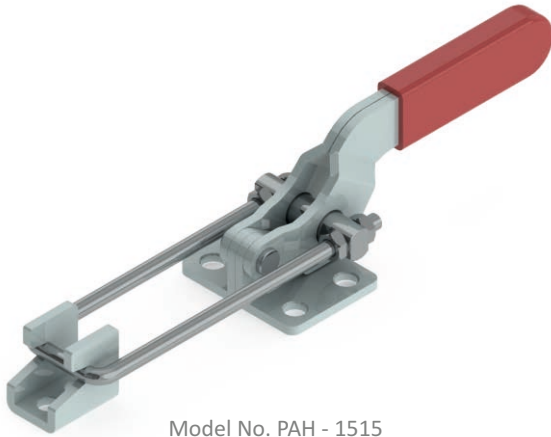
Model: PA - 325

Holding Capacity: 0.50 kN
Weight: 0.060 Kgs.

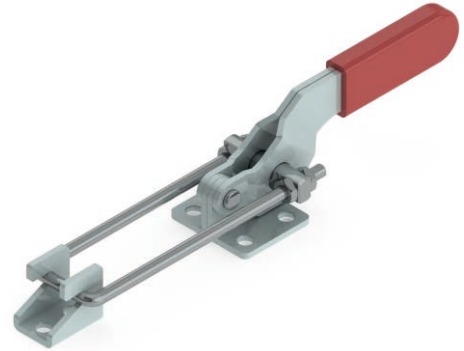
Also Available in Stainless Steel
PA - 325 - SS



Pull Action Clamps - PAH Series



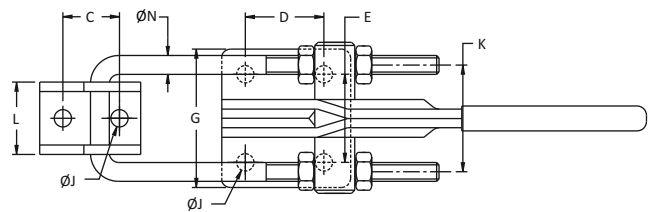
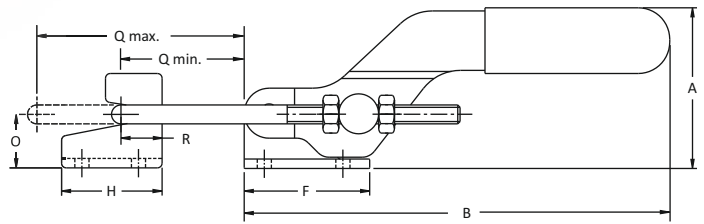
Model No. PAH - 1515



Model No. PAH - 1210



Model No. PAH - 1725



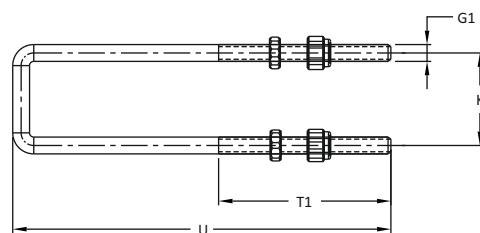
Also Available
in Stainless Steel
PAH - 1210 - SS
PAH - 1515 - SS
PAH - 1725 - SS

Model No.	Holding Capacity	Weight Kgs	Drawing Movement	Dimensions															
				A	B	C	D	E	F	G	H	ØJ	K	L	ØN	O	Q Min	Q Max	R
PAH - 1210	1.00 kN	0.100	46.0	32	96	11	16	20	26	30	20	4.5	21	15	4	12	23.0	56.0	9
PAH - 1515	2.00 kN	0.220	44.0	45	123	11	20	32	35	45	25	6.5	28	19	5	15	38.0	70.0	13
PAH - 1725	3.40 kN	0.350	50.0	52	148	18	25	28	40	45	33.5	6.5	33	23	6	16.5	40	76.0	16.5

Optional U-Bolt Configuration

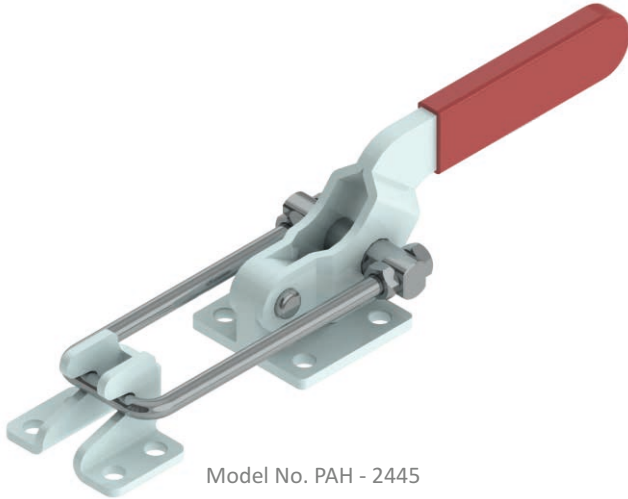
Use the below number for additional long U-Bolts

Model No	U Bolt Part Number	SS - U Bolt Part Number	U	T1	G1	K
PAH - 1210	M49045	M49045 - SS	90	45	M4	21
PAH - 1210 - M25	M411545	M411545 - SS	115			
PAH - 1210 - M50	M414045	M414045 - SS	140			
PAH - 1515	M511045	M511045 - SS	110	45	M5	28
PAH - 1515 - M25	M513545	M513545 - SS	135			
PAH - 1515 - M50	M516045	M516045 - SS	160			
PAH - 1725	M613055	M613055 - SS	130	55	M6	33
PAH - 1725 - M25	M615555	M615555 - SS	155			
PAH - 1725 - M50	M618055	M618055 - SS	180			



Pull Action Clamps

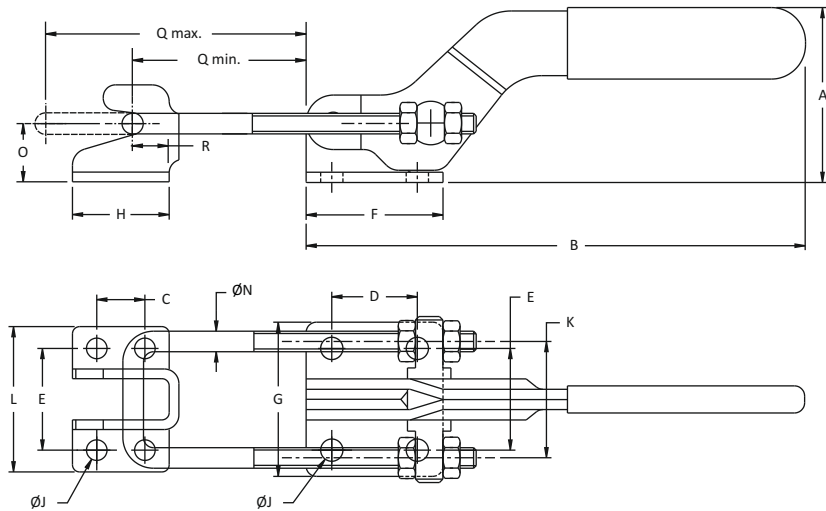
Pull Action Clamps - PAH Series



Model No. PAH - 2445



Model No. PAH - 3062



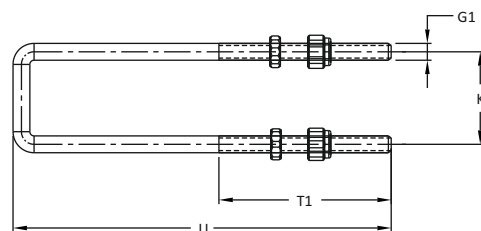
Also Available
in Stainless Steel
PAH - 2445 - SS

Model No.	Holding Capacity	Weight Kgs	Drawing Movement	Dimensions															
				A	B	C	D	E	F	G	H	ØJ	K	L	ØN	O	Q Min	Q Max	R
PAH-2445	9.30 kN	0.900	88.0	61	192	22	40	42	60	60	40	8.5	47	60	8	23.5	30	67.5	15.5
PAH-3062	29.40 kN	2.250	89.0	88	218	35	57.15	57.15	85	80	56	10.5	48	81	11	31.50	30	62	24

Optional U-Bolt Configuration

Use the below number for additional long U-Bolts

Model No	U Bolt Part Number	SS - U Bolt Part Number	U	T1	G1	K
PAH - 2445	M814570	M814570 - SS	145			
PAH - 2445 - M25	M817070	M817070 - SS	170	70	M8	47
PAH - 2445 - M50	M819570	M819570 - SS	195			
PAH - 3062	M1216585	M1216585 - SS	165			
PAH - 3062 - M25	M1219085	M1219085 - SS	190	85	M12	48
PAH - 3062 - M50	M1221585	M1221585 - SS	215			

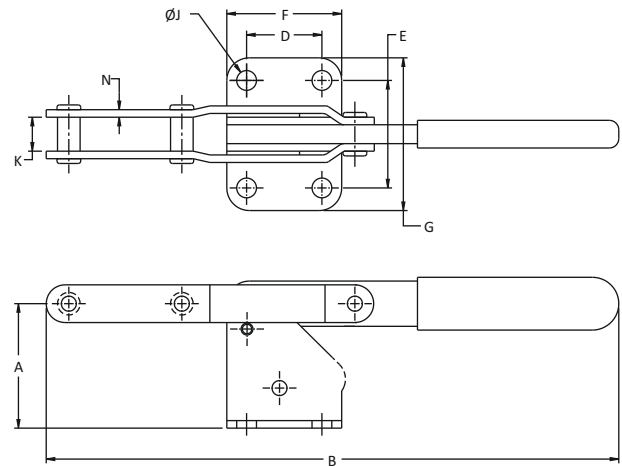


PAH - 301, 311 Series



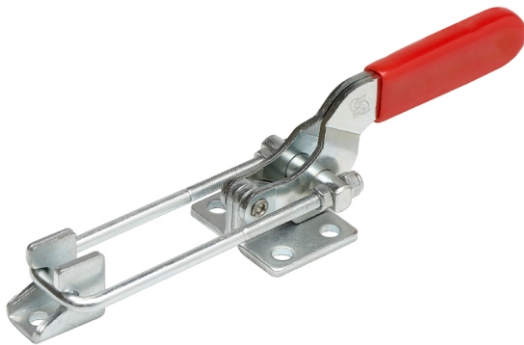
Model No. PAH - 311

Also Available in Stainless Steel
PAH - 301 - SS
PAH - 311 - SS



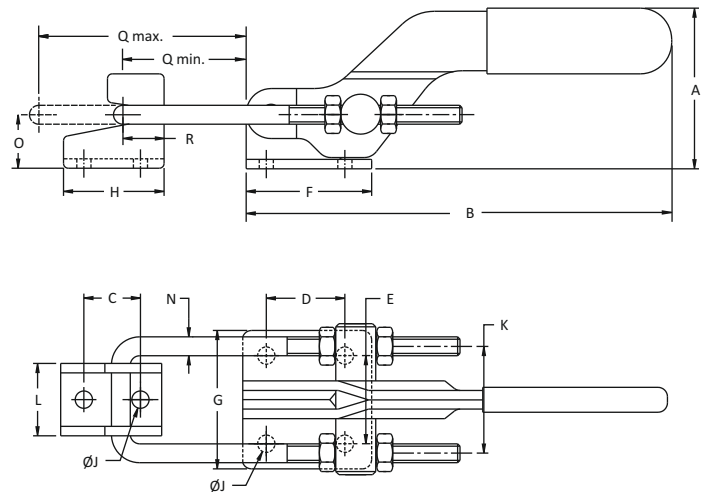
Model No.	Holding Capacity	Weight Kgs	Drawing Movement	Dimensions								
				A	B	D	E	F	G	J	K	N
PAH-301	1.70 kN	0.300	101.0	41.4	212.3	19.1	31.8	35.1	44.5	7.1	14.2	3.3
PAH-311	5.40 kN	0.550	85.0	52.3	244.6	31.8	45.2	48.5	64.3	8.3	14.2	3.3

PAH - 323, 331, 341 Series



Model No. PAH - 331

Also Available in Stainless Steel
PAH-323-SS
PAH-331-SS
PAH-341-SS

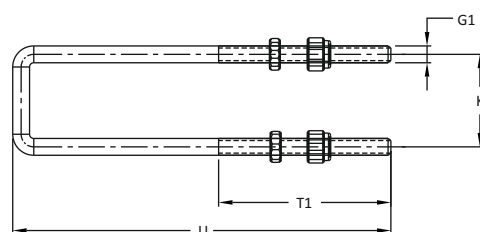


Model No.	Holding Capacity	Weight Kgs	Drawing Movement	Dimensions															
				A	B	C	D	E	F	G	H	ØJ	K	L	ØN	O	Q Min	Q Max	R
PAH-323	1.50 kN	0.100	27.0	32	79.5	10	16	19	26	28	20.3	4.2	19	13.2	4	12	14	27	11
PAH-331	2.50 kN	0.220	44.0	45	123	14.6	19.1	31.8	35.1	45	25.4	6.7	28	17.5	5	16	15.5	45	13
PAH-341	8.80 kN	1.000	63.0	74	168.5	19.1	41.4	38.1	60.6	54.1	38	8.5	44.5	31.2	8	23.7	22	42	19

Optional U-Bolt Configuration

Use the below number for additional long U-Bolts

Model No	U Bolt Part Number	SS - U Bolt Part Number	U	T1	G1	K
PAH - 323	M45725	M45725 - SS	57	25	M4	19.1
PAH - 323 - M25	M48225	M48225 - SS	82			
PAH - 331	M58545	M58545 - SS	85	45	M5	28
PAH - 331 - M25	M511045	M511045 - SS	110			
PAH - 331 - M50	M513545	M513545 - SS	135			
PAH - 341	M811552	M811552 - SS	115			
PAH - 341 - M25	M814052	M814052 - SS	140	52	M8	44.5
PAH - 341 - M50	M816552	M816552 - SS	165			



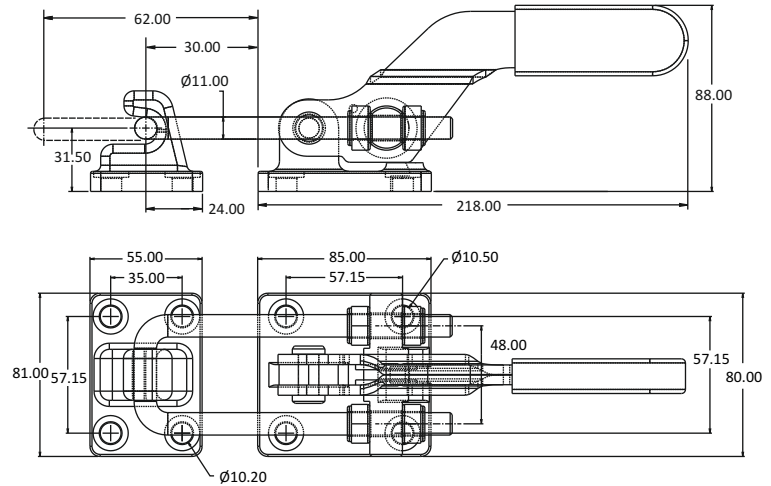
Pull Action Clamps

Model No: PAH-375

Holding Capacity - 17.60 kN
Weight - 2.270 kgs



Model No. PAH - 375

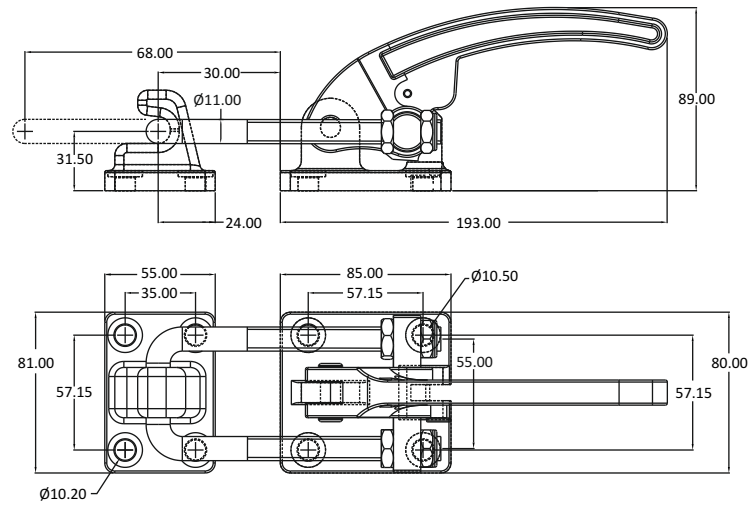


Model No: PAH-385

Holding Capacity - 34.30 kN
Weight - 2.500 kgs



Model No. PAH - 385

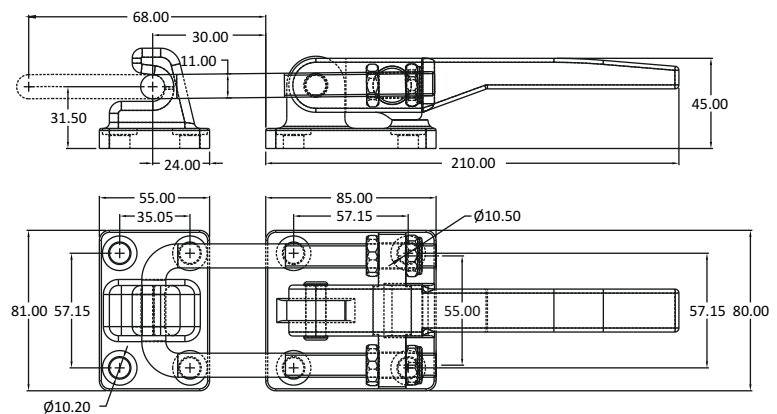


Model No: PAH-385-L

Holding Capacity - 34.30 kN
Weight - 1.650 kgs



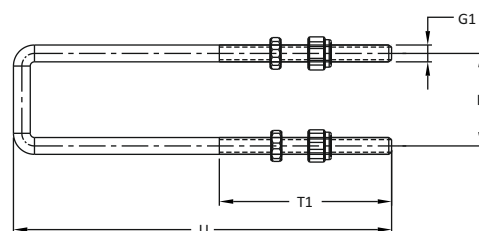
Model No. PAH - 385 - L



Optional U-Bolt Configuration

Use the below number for additional long U-Bolts

Model No	U Bolt Part Number	U	T1	G1	K
PAH - 375	M1216585	165	85	M12	48
PAH - 375 - M50	M1221585	215			
PAH - 385	M1216585-55	165	85	M12	55
PAH - 385 - M50	M1221585-55	215			
PAH - 385-L	M1216585-55	165			
PAH - 385-L - M50	M1221585-55	215			

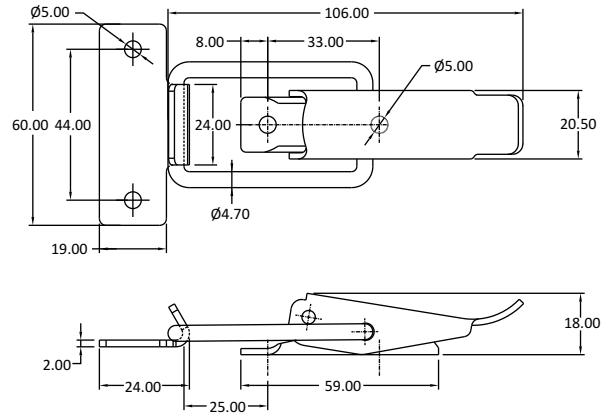


Model No: PAH-30-502

Holding Capacity - 4.40 kN

Weight - 0.070 kgs

Also Available
in Stainless Steel
PAH-30-502-SS

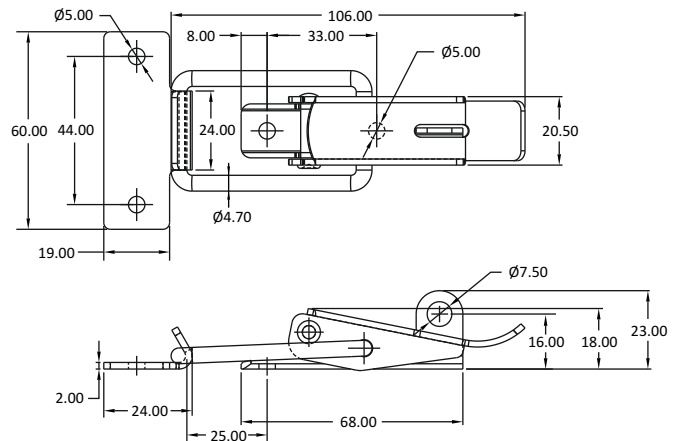
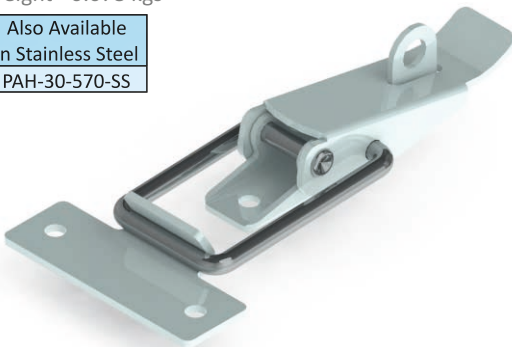


Model No: PAH-30-570

Holding Capacity - 4.40 kN

Weight - 0.078 kgs

Also Available
in Stainless Steel
PAH-30-570-SS

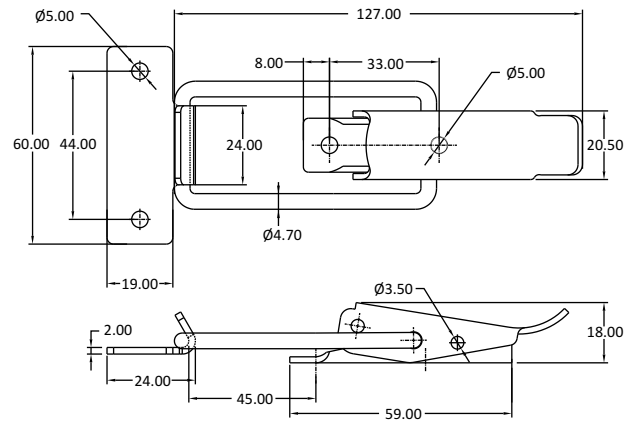
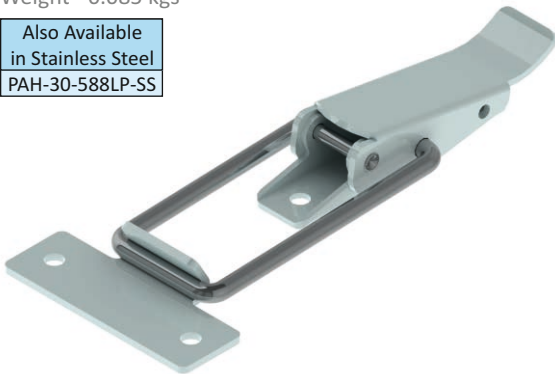


Model No: PAH-30-588LP

Holding Capacity - 4.40 kN

Weight - 0.085 kgs

Also Available
in Stainless Steel
PAH-30-588LP-SS

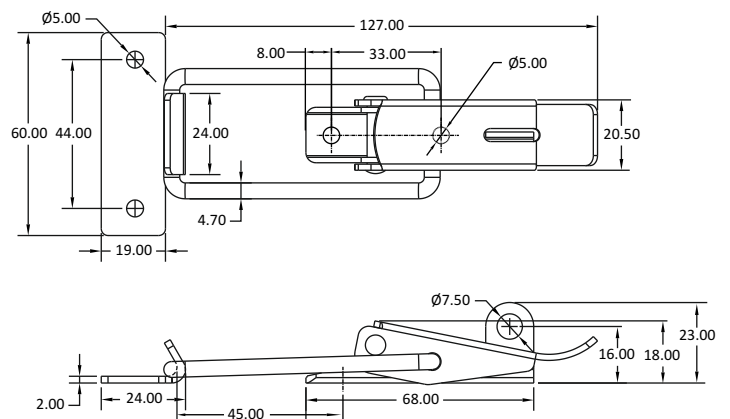


Model No: PAH-30-590

Holding Capacity - 4.40 kN

Weight - 0.085 kgs

Also Available
in Stainless Steel
PAH-30-590-SS



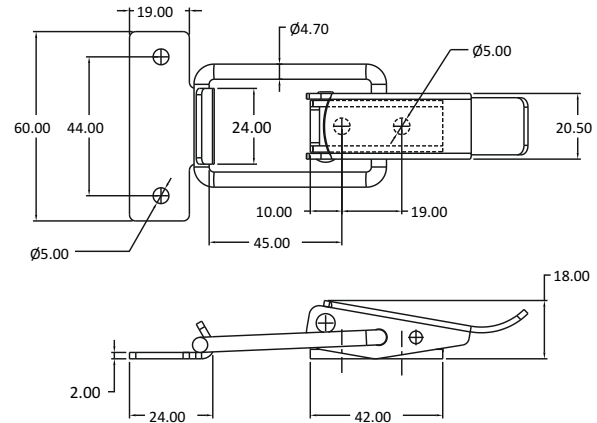
Latch Clamps

Model No: PAH-30-500

Holding Capacity - 4.40 kN

Weight - 0.060 kgs

Also Available
in Stainless Steel
PAH-30-500-SS

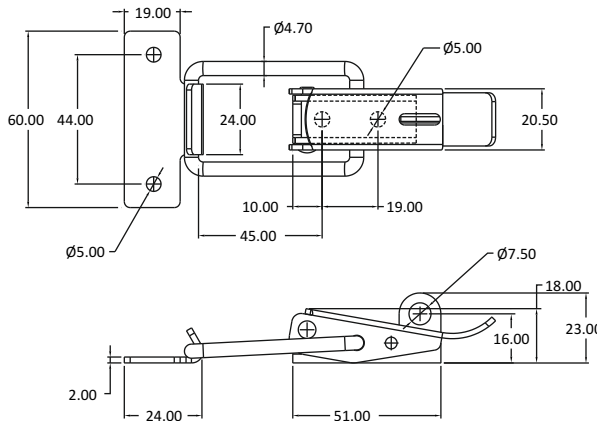


Model No: PAH-30-550

Holding Capacity - 4.40 kN

Weight - 0.068 kgs

Also Available
in Stainless Steel
PAH-30-550-SS

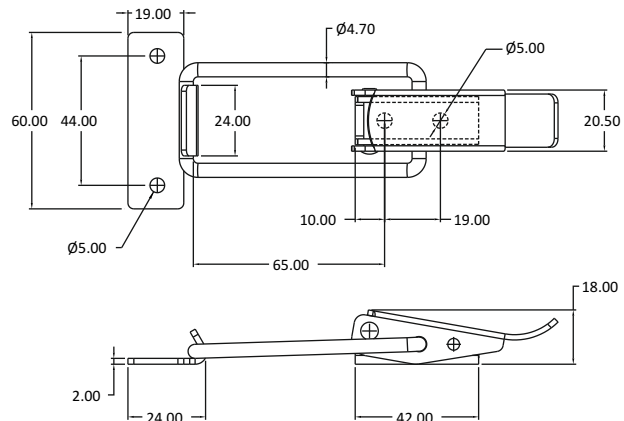


Model No: PAH-30-800

Holding Capacity - 4.40 kN

Weight - 0.075 kgs

Also Available
in Stainless Steel
PAH-30-800-SS

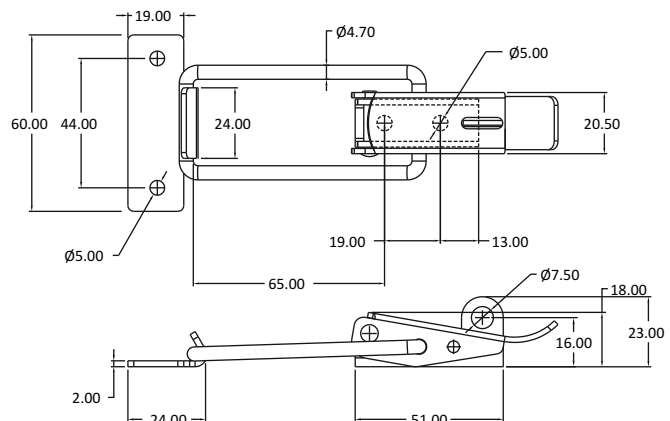


Model No: PAH-30-850

Holding Capacity - 4.40 kN

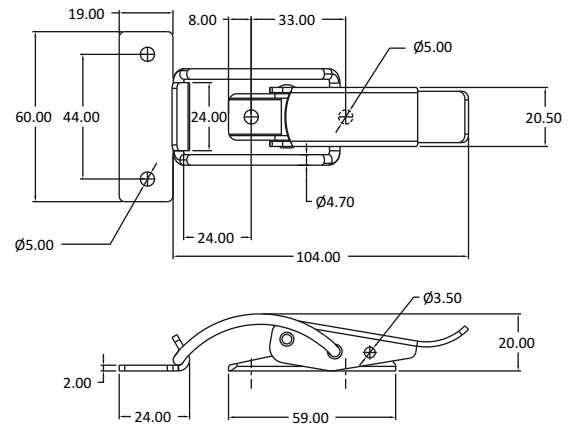
Weight - 0.080 kgs

Also Available
in Stainless Steel
PAH-30-850-SS

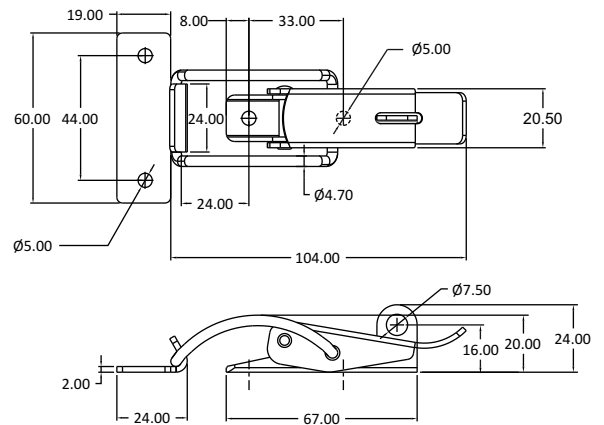


Latch - Clamps

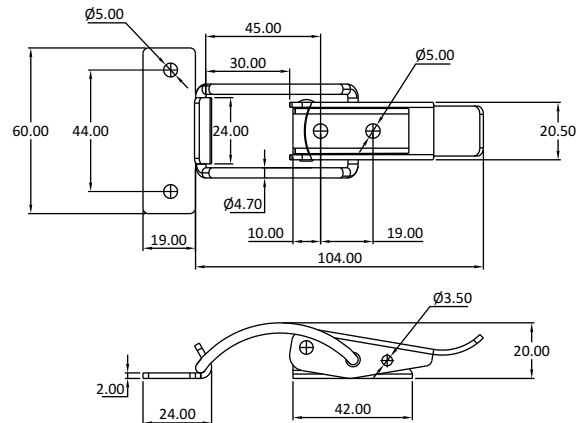
Also Available in Stainless Steel
PAH-30-602-SS



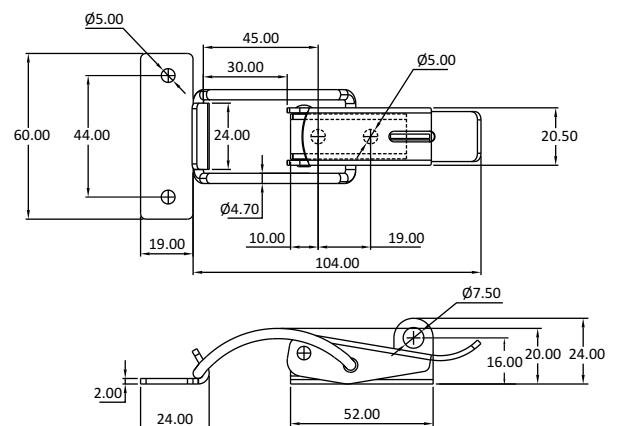
Also Available
in Stainless Steel
PAH-30-670-SS



Also Available
in Stainless Steel
PAH-30-625-SS



Also Available
in Stainless Steel
PAH-30-675-SS

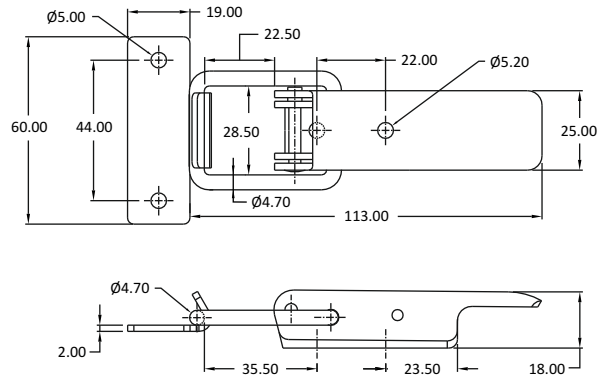


Latch Clamps

Model No: PAH-33-1260

Holding Capacity - 4.40 kN
Weight - 0.110 kgs

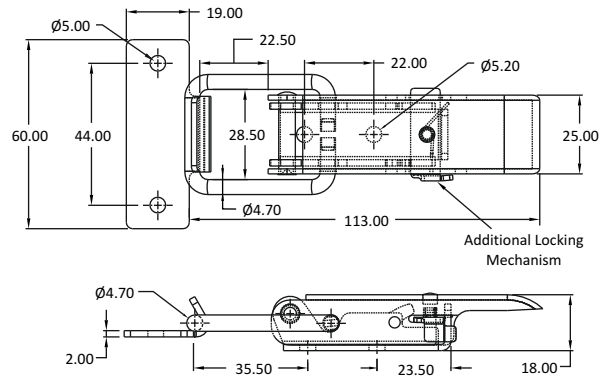
Also Available
in Stainless Steel
PAH-33-1260-SS



Model No: PAH-38-1260-TRIG with Additional Locking Mechanism

Holding Capacity - 4.40 kN
Weight - 0.120 kgs

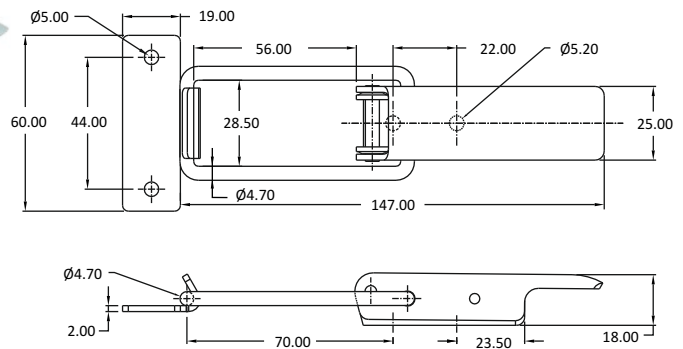
Also Available
in Stainless Steel
PAH-38-1260-TRIG-SS



Model No: PAH-33-5880

Holding Capacity - 4.40 kN
Weight - 0.120 kgs

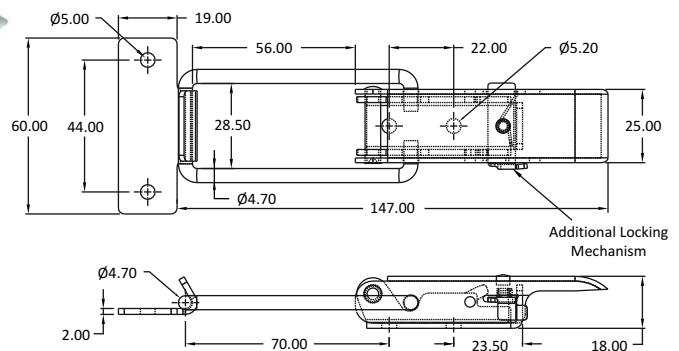
Also Available
in Stainless Steel
PAH-33-5880-SS



Model No: PAH-38-5880-TRIG with Additional Locking Mechanism

Holding Capacity - 4.40 kN
Weight - 0.130 kgs

Also Available
in Stainless Steel
PAH-38-5880-TRIG-SS

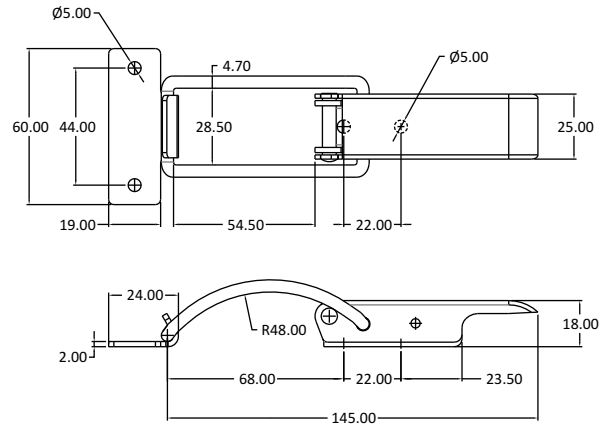


Model No: PAH-33-2556

Holding Capacity - 4.40 kN

Weight - 0.120 kgs

Also Available
in Stainless Steel
PAH-33-2556-SS

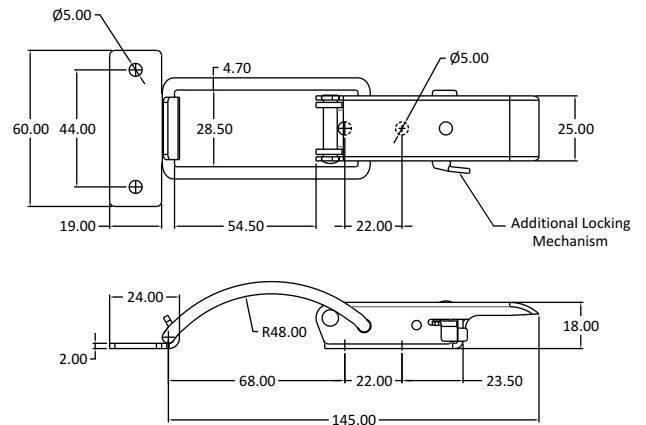


Model No: PAH-38-2556

Holding Capacity - 4.40 kN

Weight - 0.130 kgs

Also Available
in Stainless Steel
PAH-38-2556-SS

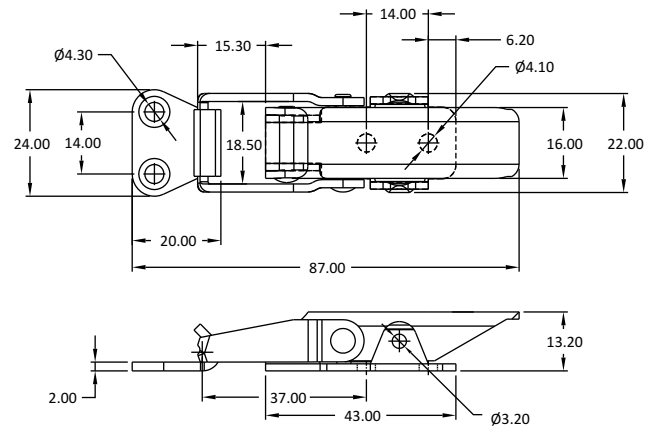


Model No: PAH-27-1123

Holding Capacity - 2.00 kN

Weight - 0.045 kgs

Also Available
in Stainless Steel
PAH-27-1123-SS

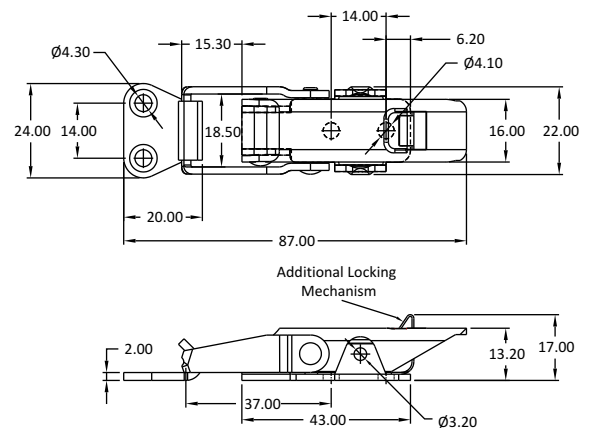
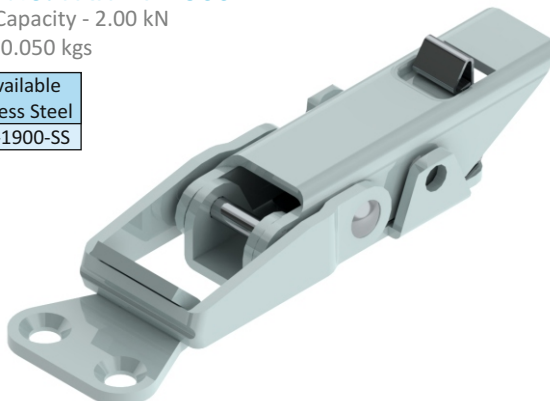


Model No: PAH-27-1900

Holding Capacity - 2.00 kN

Weight - 0.050 kgs

Also Available
in Stainless Steel
PAH-27-1900-SS



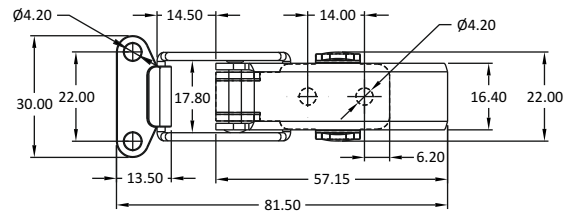
Latch Clamps

Model No: PAH-27-633

Holding Capacity - 0.90 kN

Weight - 0.035 kgs

Also Available
in Stainless Steel
PAH-27-633-SS

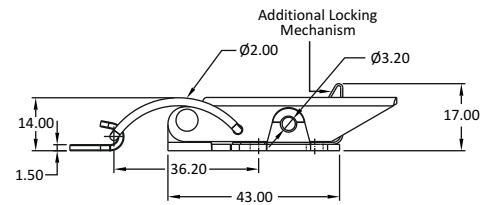
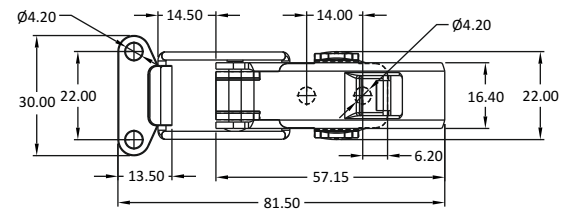
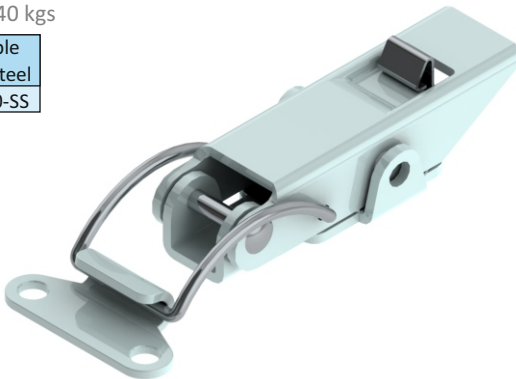


Model No: PAH-27-1570

Holding Capacity - 0.90 kN

Weight - 0.040 kgs

Also Available
in Stainless Steel
PAH-27-1570-SS

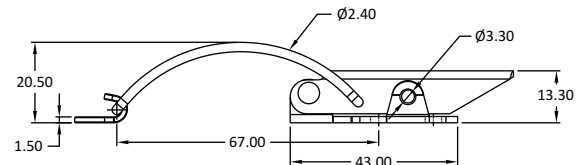
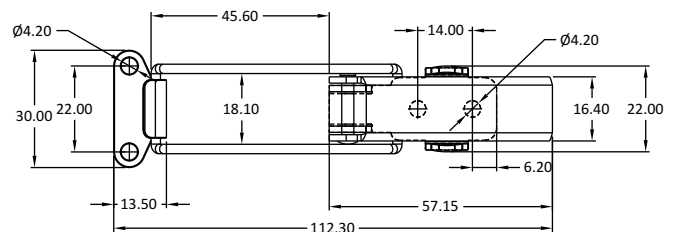


Model No: PAH-27-1620

Holding Capacity - 0.90 kN

Weight - 0.040 kgs

Also Available
in Stainless Steel
PAH-27-1620-SS

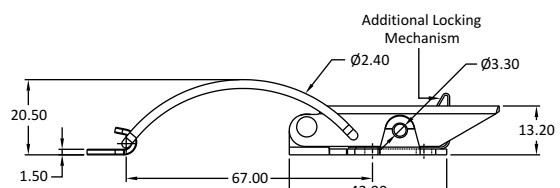
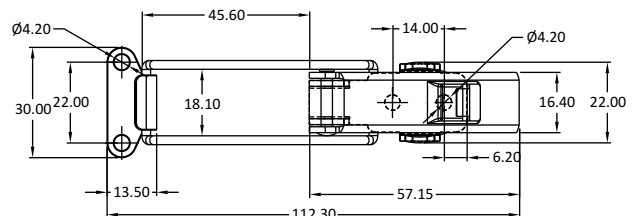
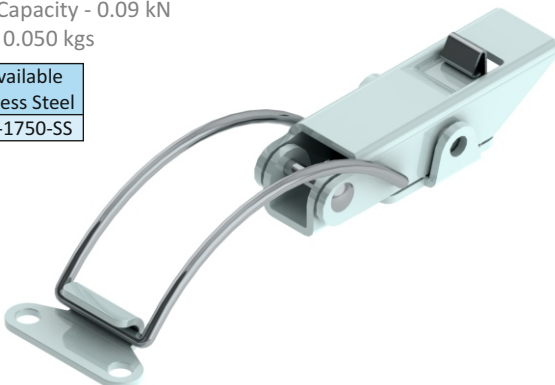


Model No: PAH-27-1750

Holding Capacity - 0.09 kN

Weight - 0.050 kgs

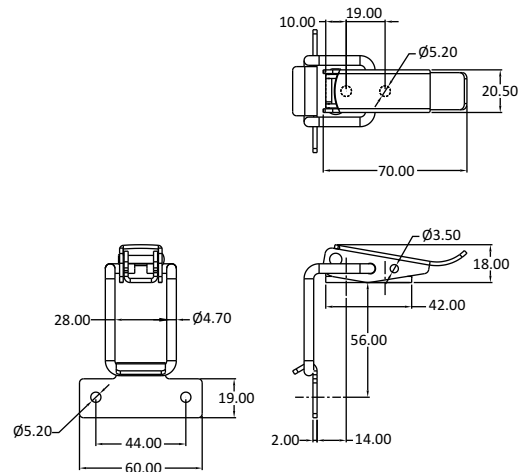
Also Available
in Stainless Steel
PAH-27-1750-SS



Model No: PAH-20-588

Holding Capacity - 4.40 kN
Weight - 0.085 kgs

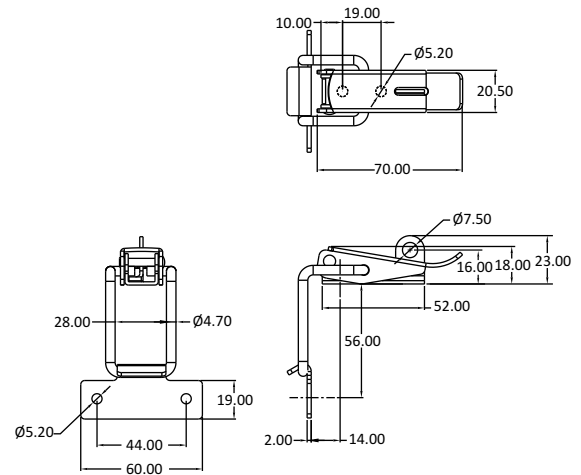
Also Available
in Stainless Steel
PAH-20-588-SS



Model No: PAH-20-590

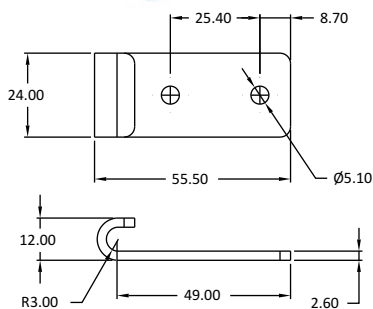
Holding Capacity - 4.40 kN
Weight - 0.085 kgs

Also Available
in Stainless Steel
PAH-20-590-SS



Model No: FH-02-502

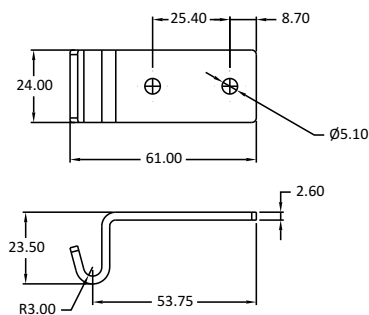
Weight - 0.020 kgs



Suitable for Model Number
PAH-30-502
PAH-30-570
PAH-30-588LP
PAH-30-590
PAH-33-1260
PAH-38-1260-TRIG
PAH-33-5880
PAH-38-5880-TRIG
PAH-20-508
PAH-20-590

Model No: FH-03-1692

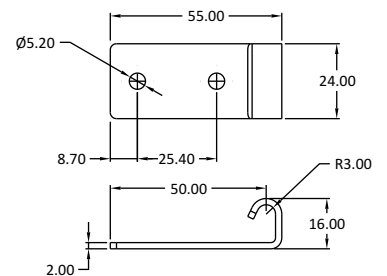
Weight - 0.030 kgs



Suitable for Model Number
PAH-30-502
PAH-30-570
PAH-30-588LP
PAH-30-590
PAH-33-1260
PAH-38-1260-TRIG
PAH-33-5880
PAH-38-5880-TRIG
PAH-20-508
PAH-20-590

Model No: FH-07-613

Weight - 0.025 kgs



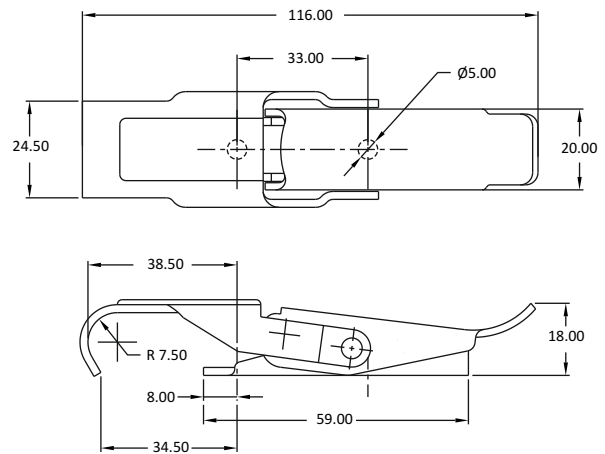
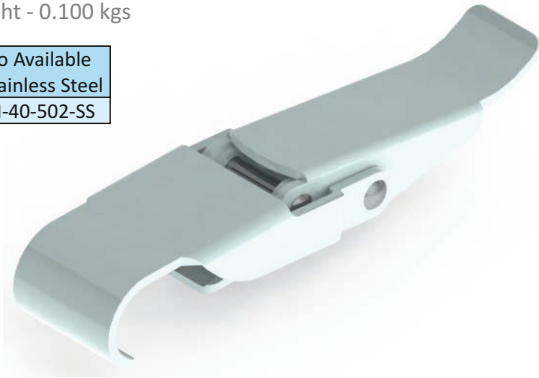
Suitable for Model Number
PAH-30-502
PAH-30-570
PAH-30-588LP
PAH-30-590
PAH-33-1260
PAH-38-1260-TRIG
PAH-33-5880
PAH-38-5880-TRIG
PAH-20-508
PAH-20-590

Latch Clamps

Model No: PAH-40-502

Holding Capacity - 2.40 kN
Weight - 0.100 kgs

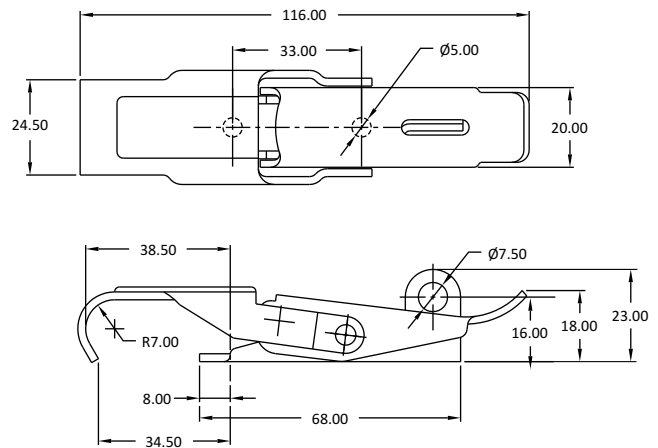
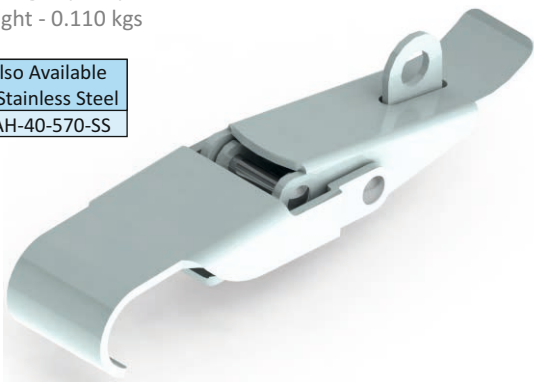
Also Available
in Stainless Steel
PAH-40-502-SS



Model No: PAH-40-570

Holding Capacity - 2.40 kN
Weight - 0.110 kgs

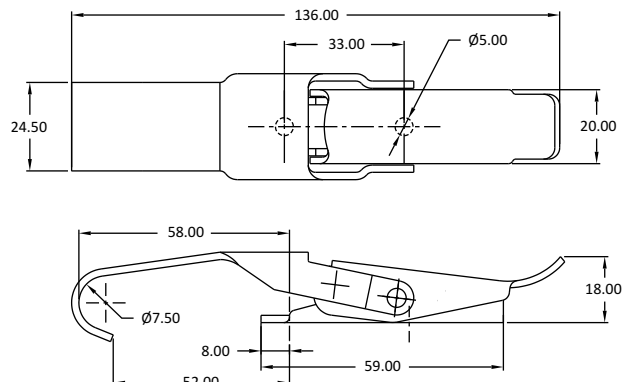
Also Available
in Stainless Steel
PAH-40-570-SS



Model No: PAH-50-502

Holding Capacity - 2.40 kN
Weight - 0.120 kgs

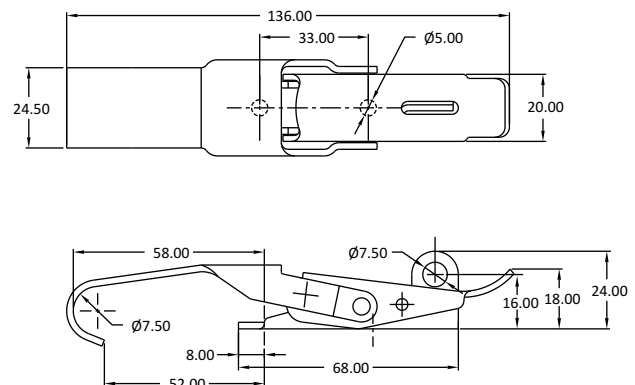
Also Available
in Stainless Steel
PAH-50-502-SS



Model No: PAH-50-570

Holding Capacity - 2.40 kN
Weight - 0.125 kgs

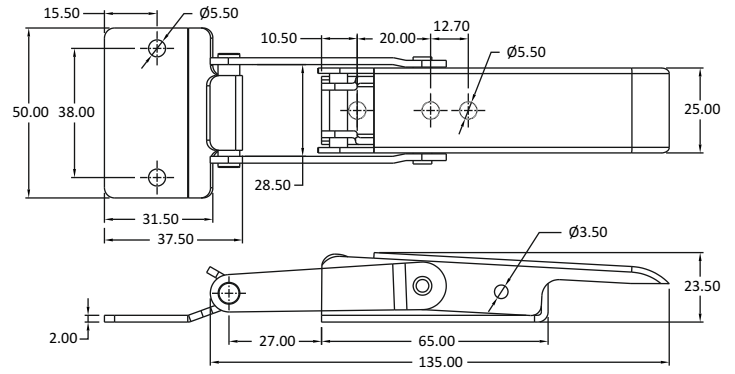
Also Available
in Stainless Steel
PAH-50-570-SS



Model No: PAH-60-2600

Holding Capacity - 2.90 kN
Weight - 0.150 kgs

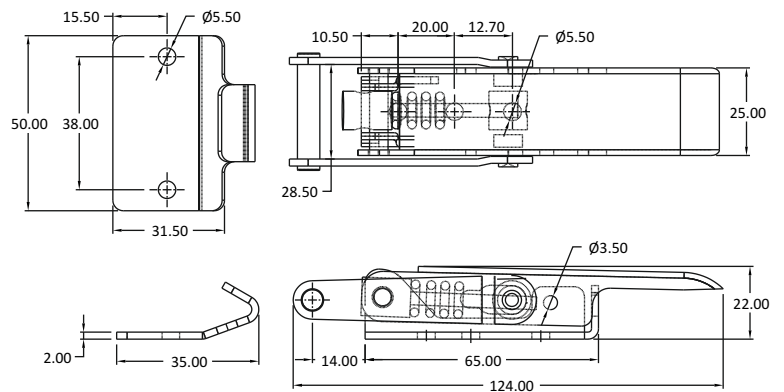
Also Available
in Stainless Steel
PAH-60-2600-SS



Model No: PAH-70-2600

Holding Capacity - 1.50 kN
Weight - 0.170 kgs

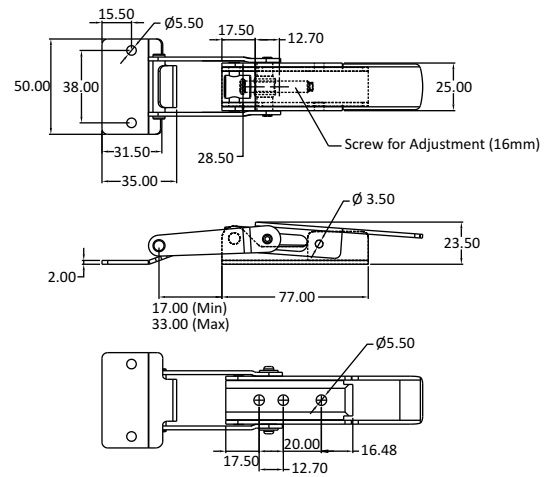
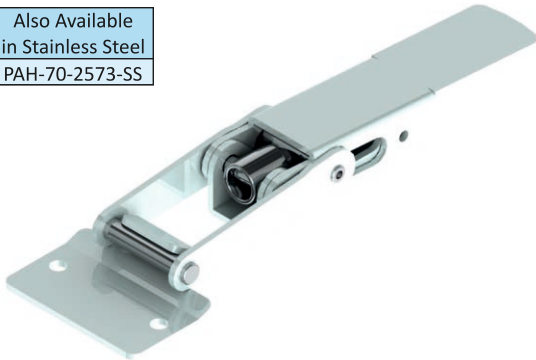
Also Available
in Stainless Steel
PAH-70-2600-SS



Model No: PAH-70-2573

Holding Capacity - 7.40 kN
Weight - 0.150 kgs

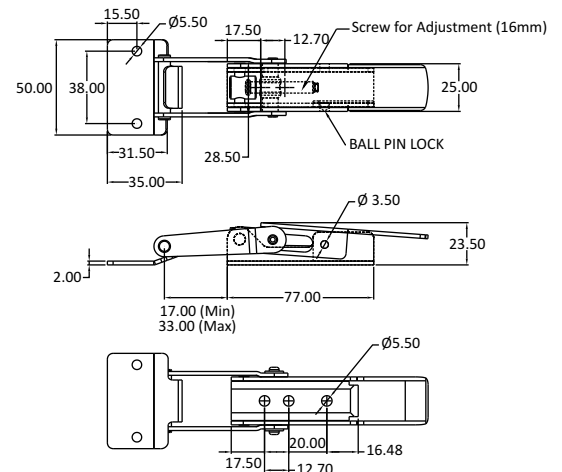
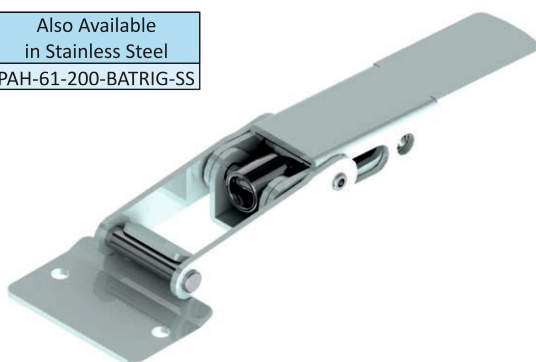
Also Available
in Stainless Steel
PAH-70-2573-SS



Model No: PAH-61-200-BATRIG

Holding Capacity - 7.40 kN
Weight - 0.150 kgs

Also Available
in Stainless Steel
PAH-61-200-BATRIG-SS



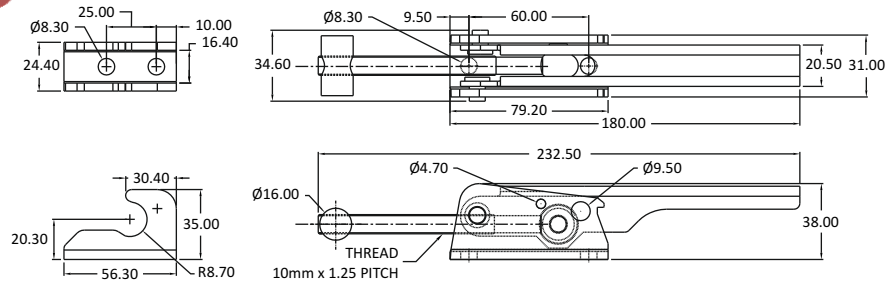
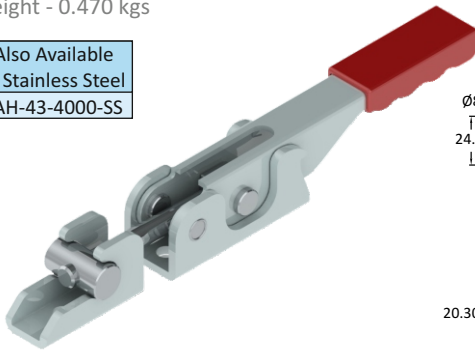
Latch Clamps

Model No: PAH-43-4000

Holding Capacity - 19.60 kN

Weight - 0.470 kgs

Also Available
in Stainless Steel
PAH-43-4000-SS

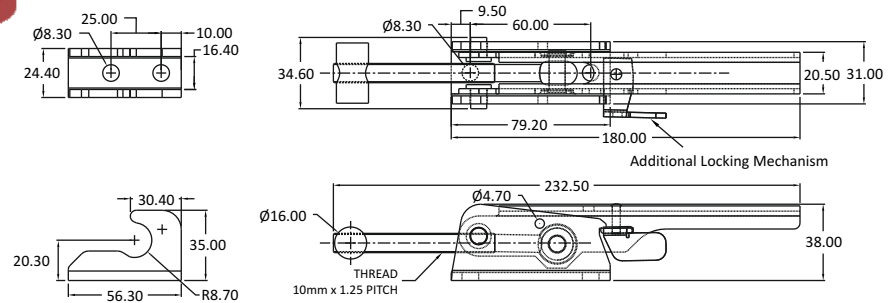
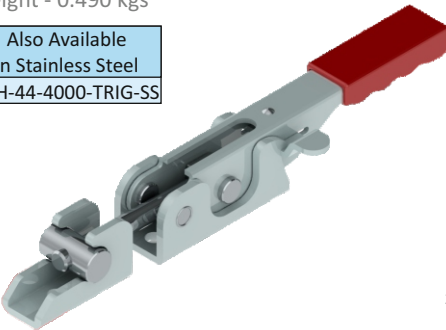


Model No: PAH-44-4000-TRIG with Additional Locking Mechanism

Holding Capacity - 19.60 kN

Weight - 0.490 kgs

Also Available
in Stainless Steel
PAH-44-4000-TRIG-SS

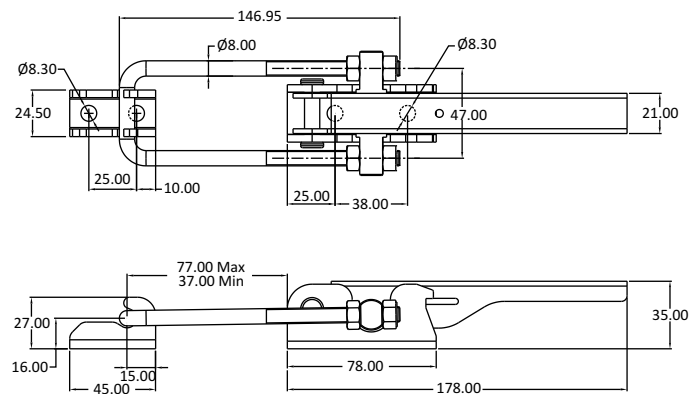
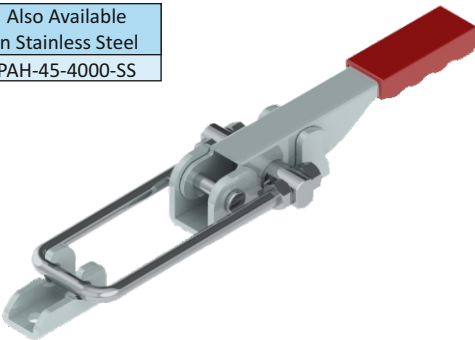


Model No: PAH-45-4000

Holding Capacity - 19.60 kN

Weight - 0.500 kgs

Also Available
in Stainless Steel
PAH-45-4000-SS

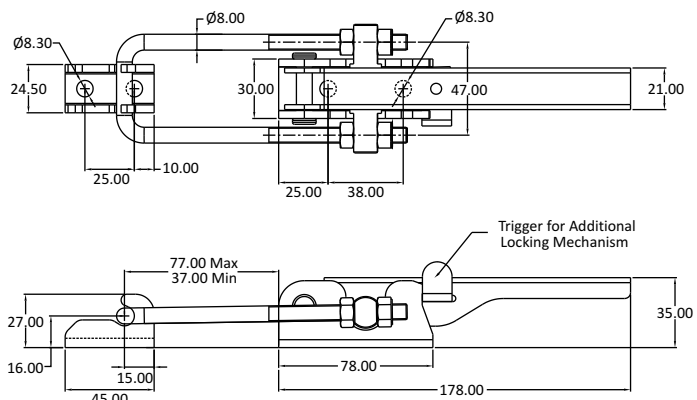
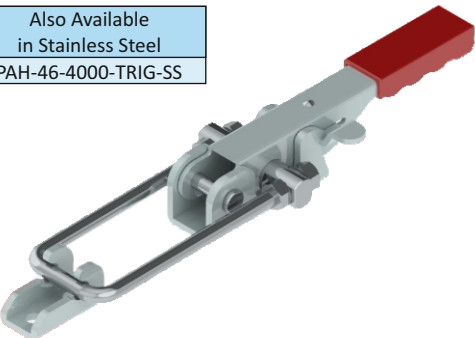


Model No: PAH-46-4000-TRIG with Additional Locking Mechanism

Holding Capacity - 19.60 kN

Weight - 0.520 kgs

Also Available
in Stainless Steel
PAH-46-4000-TRIG-SS

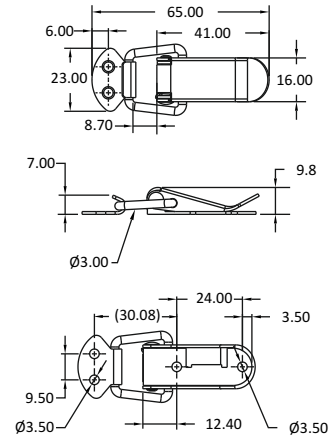
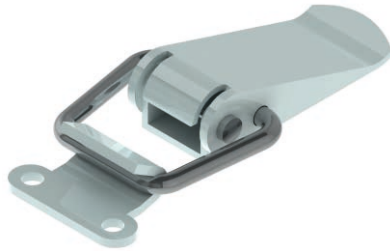


Model No: PAH-CT-0313

Holding Capacity - 0.10 kN

Weight - 0.017 kgs

Also Available in Stainless Steel
PAH-CS-0313-SS

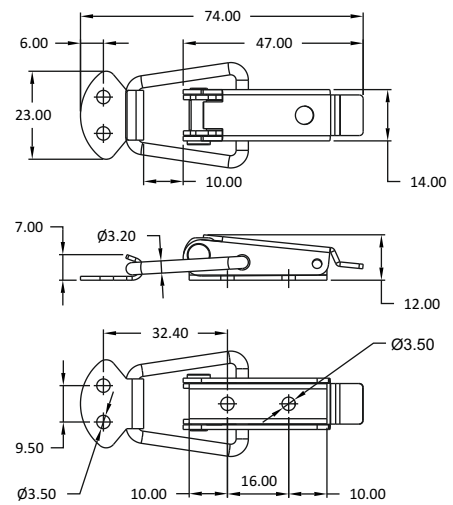


Model No: PAH - 4813

Holding Capacity - 0.50 kN

Weight - 0.030 kgs

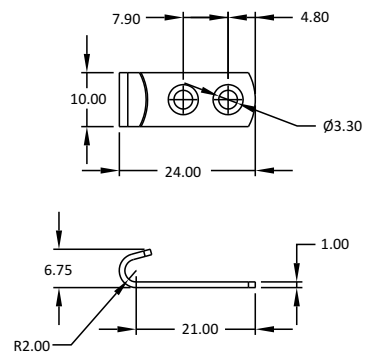
Also Available in Stainless Steel
PAH-4813-SS



Model No: FH-02-531

Weight - 0.002 kgs

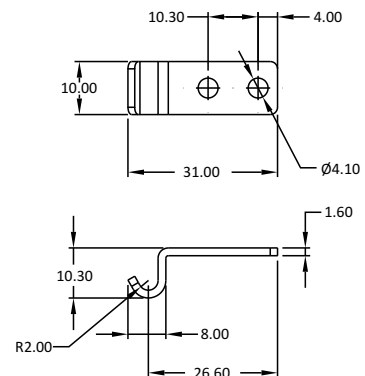
Suitable for Model Number
PAH-0313
PAH -4813
PAH - CT-10103
PAH - CT-10104
PAH - CT-10105



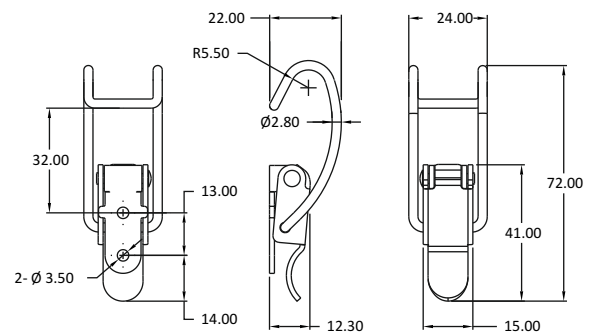
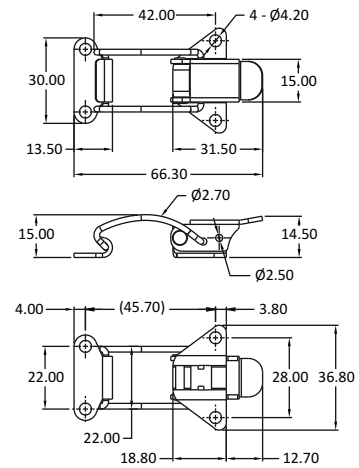
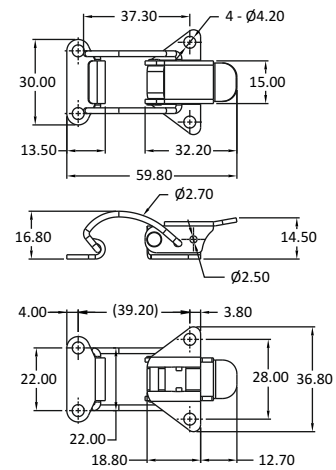
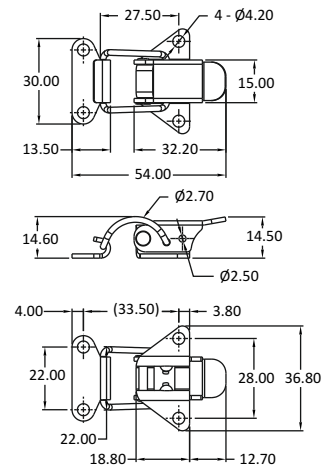
Model No: FH-03-613

Weight - 0.030 kgs

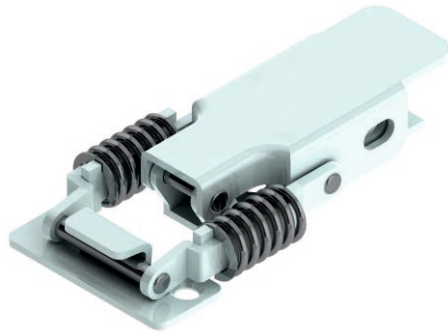
Suitable for Model Number
PAH-0313
PAH -4813
PAH - CT-10103
PAH - CT-10104
PAH - CT-10105



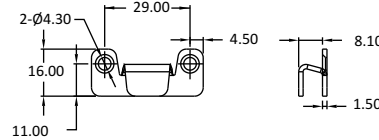
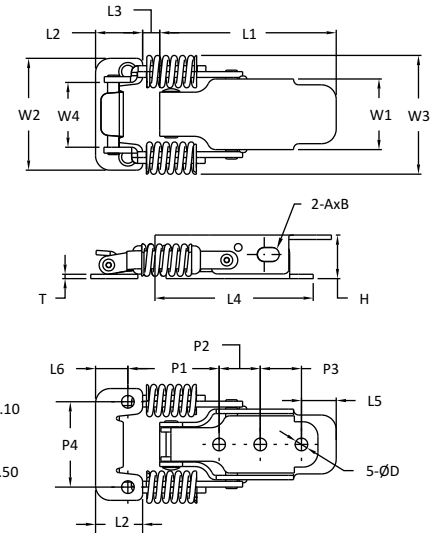
Latch - Clamps



Spring Loaded Pull Action Clamps



Model No. PAH - CT - 0120



Also Available in Stainless Steel
PAH - CS - 0120 - SS
PAH - CS - 0130 - SS

Model No.	Holding Capacity	Weight Kgs	Dimensions																	
			L1	L2	L3	L4	L5	L6	W1	W2	W3	W4	H	T	P1	P2	P3	P4	D	A x B
PAH - CT - 0120	0.50 kN	0.070	60	16	5 - 8	54	11.8	11	24	38	40	22	15	1.5	31-34	14	14	29	4.3	7.5 x 4.7
PAH - CT - 0130	0.50 kN	0.140	80	19	6 - 9	68.5	18.5	13	32	50	50	28	18	2.0	38-41	18	18	38	5.3	10 x 6.5

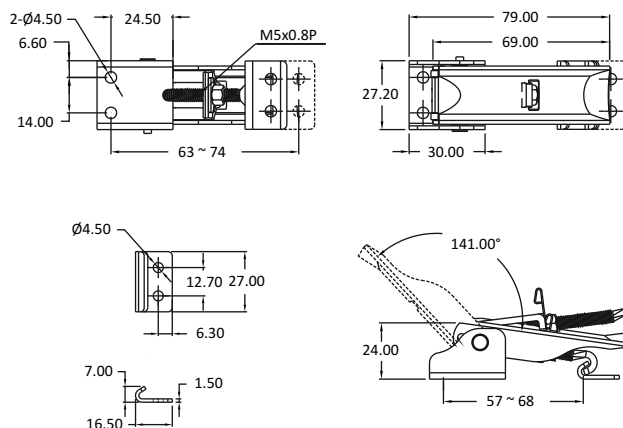
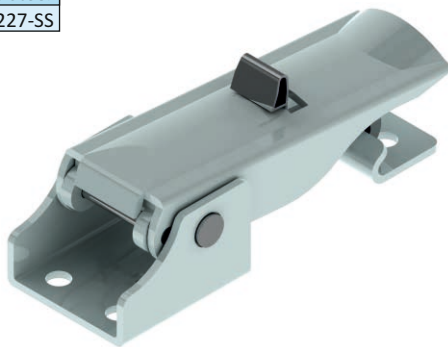
Model No: PAH-CT-21227

Holding Capacity - 0.80 kN

Weight - 0.080 kgs

Feature: Additional Locking Mechanism

Also Available in Stainless Steel
PAH-CS-21227-SS



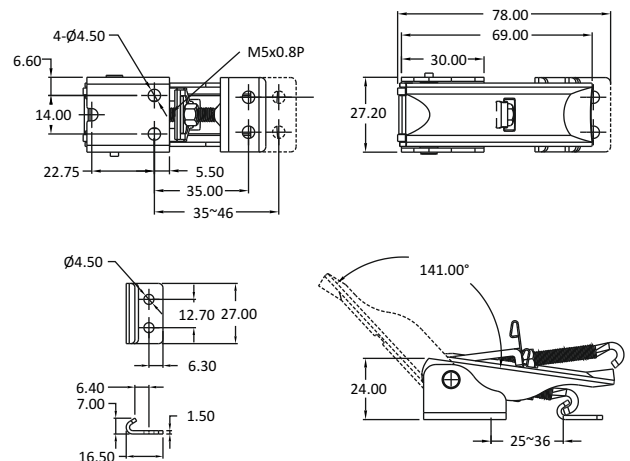
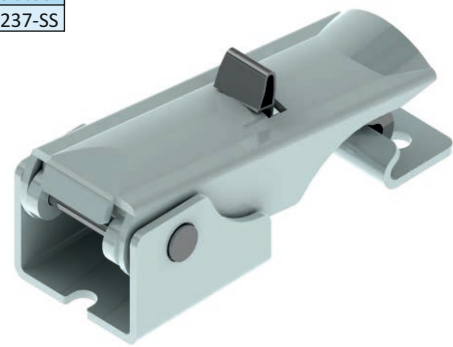
Model No: PAH-CT-21237

Holding Capacity - 0.80 kN

Weight - 0.080 kgs

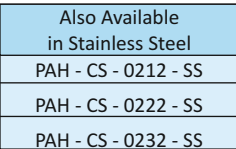
Feature: Additional Locking Mechanism

Also Available in Stainless Steel
PAH-CS-21237-SS

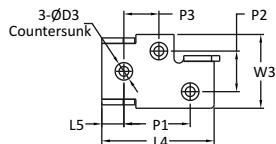


STEEL-SMITH

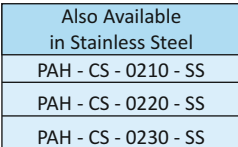
www.steelsmith.com



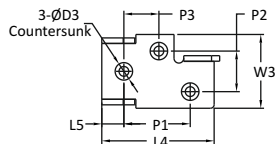
Model No. PAH - CT - 0220



Model No.	Holding Capacity	Weight Kgs	Dimensions																							
			L1	L2	L3	L4	L5	L6	L7	L8	W1	W2	W3	W4	W5	W6	H	P1	P2	P3	P4	D1	D2	D3	D4	T
PAH - CT - 0210	0.70 kN	0.050	22 - 42	47	55	38	8	20	5	11	18.2	16	30	15	24	10.6	17	20	16	11	14	4.4	4.3	4.3	6	2
PAH - CT - 0220	0.90 kN	0.100	41 - 65	53	67	50	14	22	6	12	21.4	20	32	17	30	13.3	19	27	18	11	17	5.3	5.3	5.3	6	2.5
PAH - CT - 0230	1.00 kN	0.225	46 - 70	85	98	61	12	29	7.5	15	34	30	40	22	45	17	24.5	36	22	19	22	7.0	5.3	5.3	10	3



Model No. PAH - CT - 0220



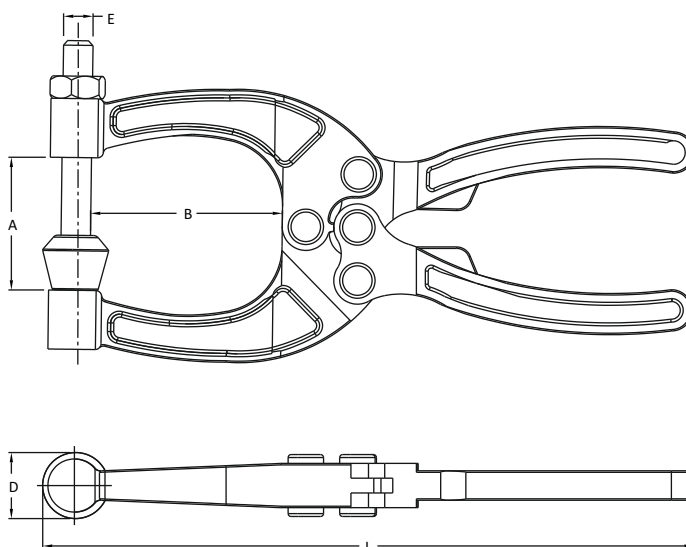
Model No.	Holding Capacity	Weight Kgs	Dimensions																							
			L1	L2	L3	L4	L5	L6	L7	L8	W1	W2	W3	W4	W5	W6	H	P1	P2	P3	P4	D1	D2	D3	D4	T
PAH - CT - 0210	0.70 kN	0.050	22 - 42	47	55	38	8	20	5	11	18.2	16	30	15	24	10.6	17	20	16	11	14	4.4	4.3	4.3	6	2
PAH - CT - 0220	0.90 kN	0.100	41 - 65	53	67	50	14	22	6	12	21.4	20	32	17	30	13.3	19	27	18	11	17	5.3	5.3	5.3	6	2.5
PAH - CT - 0230	1.00 kN	0.225	46 - 70	85	98	61	12	29	7.5	15	34	30	40	22	45	17	24.5	36	22	19	22	7.0	5.3	5.3	10	3

Squeeze Action Clamps

Toggle Pliers - TP Series



Model No. TP - 4570



Model No. TP - 2528



Model No. TP - 3245

MODEL	A	B	DØ	E	L	HOLDING CAPACITY	WT. IN KGS.
TP - 2528	25	28	13	M 6 X 1.00	128	1.00 kN	0.220
TP - 3245	32	45	15	M 8 x 1.25	195	2.00 kN	0.570
TP - 4570	45	70	18	M 10 x 1.50	220	3.90 kN	0.640

VG Series

Steel-Smith introduces the all new VG Plier series. This new generation plier series expands the wide portfolio of toggle clamps and clamping equipments. Designed and developed for easy, single hand operation, the VG Plier series come as a great aid in tool room and fixturing applications.

The 11 member strong family of VG Pliers can take on multiple tasks with remarkable ease. Be it delicate wood work or the extreme welding applications. Each plier comes with a spindle assembly which enables the adjustment of pressure. The spring-loaded mechanism provided at one end of the plier ensures quick release at just a touch of finger.

What's more, with an ever innovative team at the helm of our relentless R & D department, you can always expect newer additions. And If you have a specialised application area, we are equipped to deliver customised design solutions.

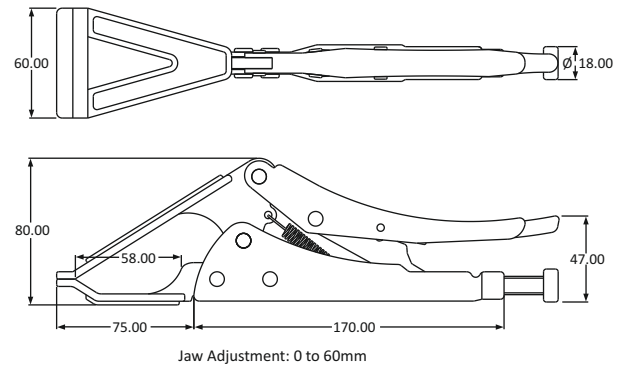


VG-3070 Flat Jaw Plier

Holding Capacity: 2.00 kN
Weight: 0.970 Kgs.



Model No. VG-3070

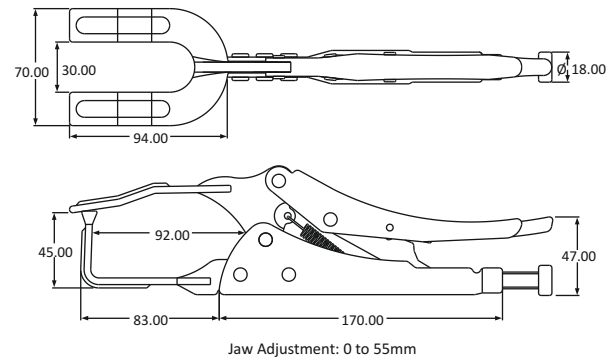


VG-3060 U Jaw Deep Throat Plier

Holding Capacity: 2.00 kN
Weight: 0.910 Kgs.



Model No. VG-3060 U

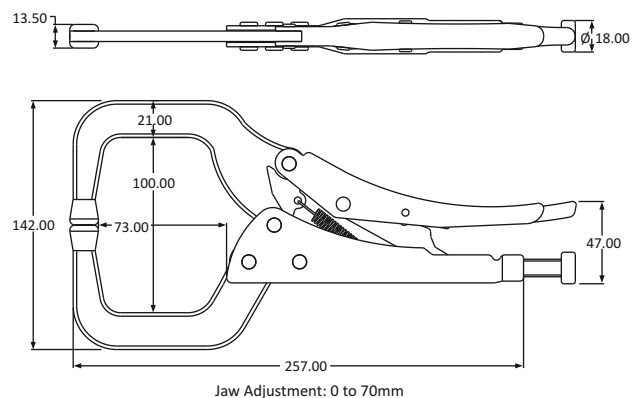


VG-8070 C Jaw Plier

Holding Capacity: 3.00 kN
Weight: 0.850 Kgs.



Model No. VG-8070 C

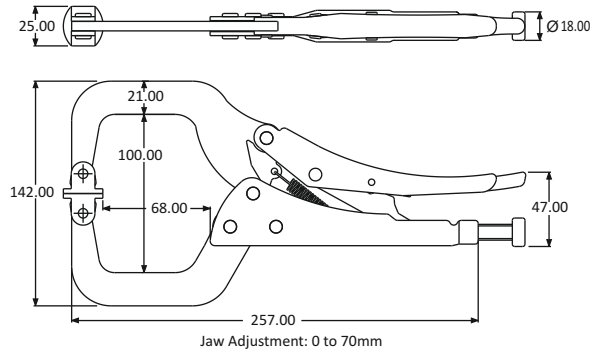


VG-10764 C Jaw Plier

Holding Capacity: 3.90 kN
Weight: 0.950 Kgs.



Model No. VG-10764 C

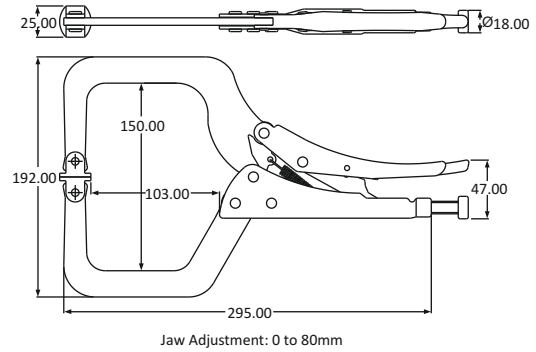


VG-150100 C Jaw Plier

Holding Capacity: 2.00 kN
Weight: 1.210 Kgs.



Model No. VG-150100 C

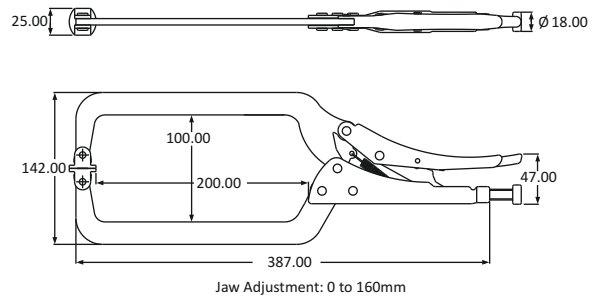


VG-80200 C Jaw Plier

Holding Capacity: 2.00 kN
Weight: 1.290 Kgs.

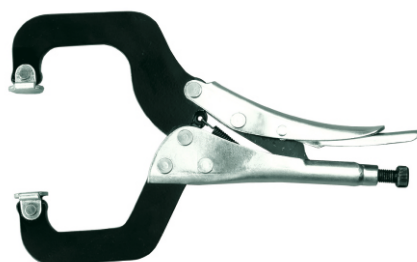


Model No. VG-80200 C

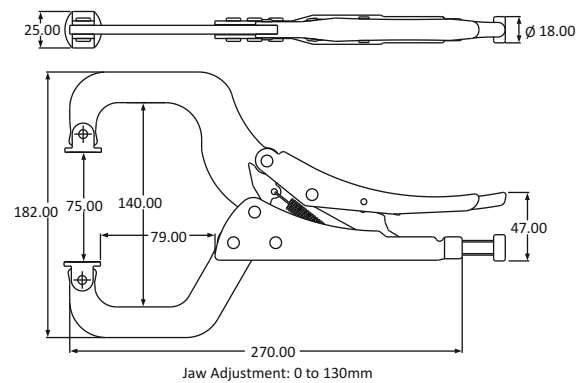


VG-14075 C Jaw Plier

Holding Capacity: 3.90 kN
Weight: 1.030 Kgs.



Model No. VG-14075 C

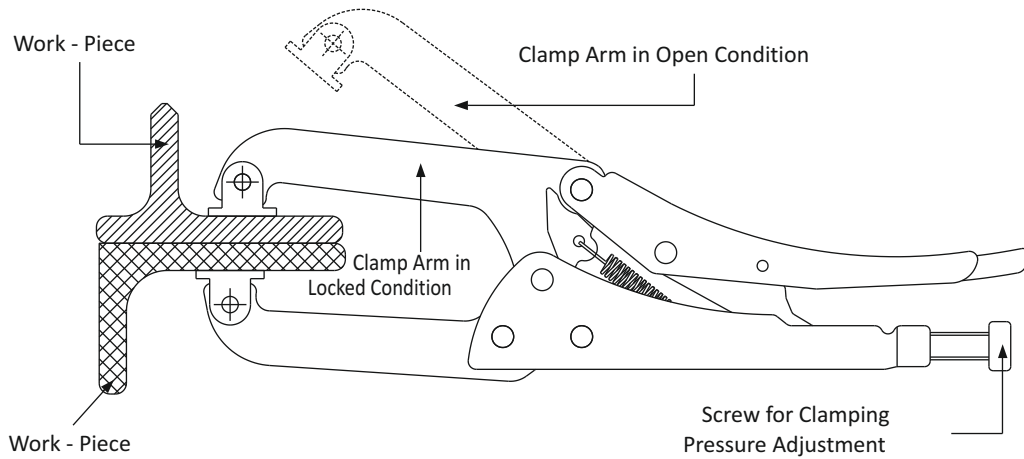
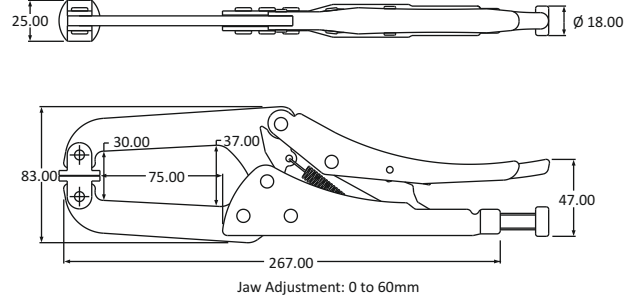


VG-3075

Holding Capacity: 3.90 kN
Weight: 0.860 Kgs.



Model No. VG-3075

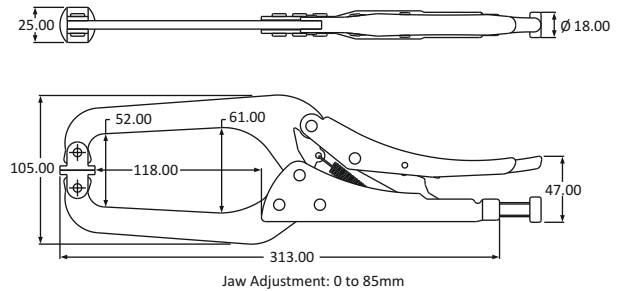


VG-50125

Holding Capacity: 2.90 kN
Weight: 1.010 Kgs.



Model No. VG-50125



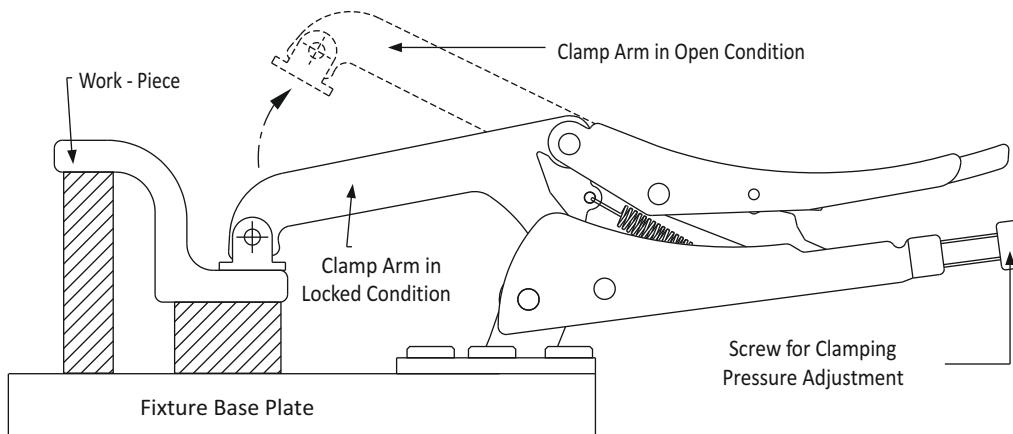
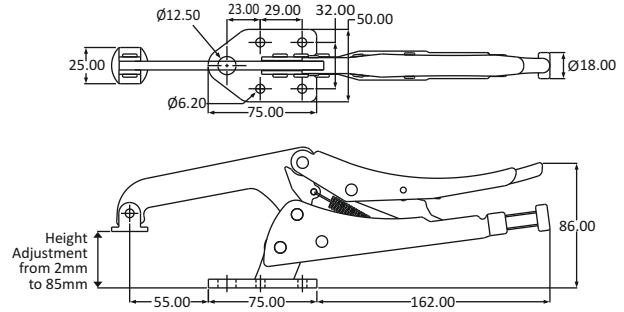
VG-5090 OA

Holding Capacity: 3.90 kN

Weight: 0.910 Kgs.



Model No. VG-5090 OA



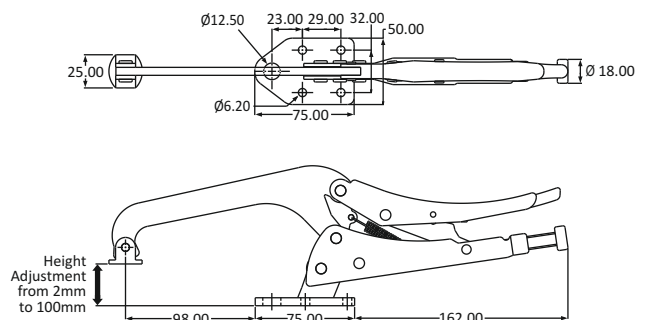
VG-95100 OA

Holding Capacity: 2.90 kN

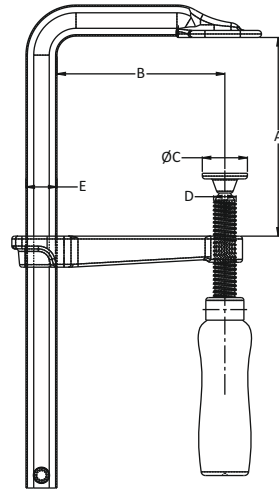
Weight: 0.970 Kgs.



Model No. VG-95100 OA



F Clamps

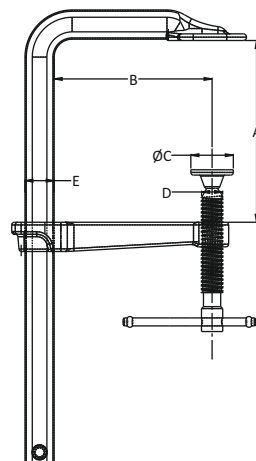


G-C Series F Clamps with Wooden Handle

MODEL NO	A MAX JAW OPENING	B THROAT DEPTH	C SWIVEL PAD	D ACME SCREW	E RAIL SIZE	WEIGHT IN KGS.
G12C	120	60	22	12	13.5 x 6.5	0.30
G16C	160	80	25	14	16.0 x 7.5	0.50
G20C	200	100	32	16	19.5 x 7.5	0.88
G25C	250	120	32	16	22.0 x 10.5	1.23
G30C	300	140	38	18	25.0 x 12.0	1.85
G40C	400	175	38	18	27.0 x 13.0	2.57
G60C	600	175	38	18	27.0 x 13.0	3.06
G80C	800	175	38	18	27.0 x 13.0	3.55

SG-C Series F Clamps with Wooden Handle

MODEL NO	A MAX JAW OPENING	B THROAT DEPTH	C SWIVEL PAD	D ACME SCREW	E RAIL SIZE	WEIGHT IN KGS.
SG40C	400	120	38	18	25 x 12	1.91
SG50C	500	120	38	18	25 x 12	2.12
SG60C	600	120	38	18	25 x 12	2.33
SG80C	800	120	38	18	27 x 13	3.26
SG100C	1000	120	38	18	27 x 13	3.75
SG125C	1250	120	38	18	27 x 13	4.36
SG150C	1500	120	38	18	27 x 13	4.98



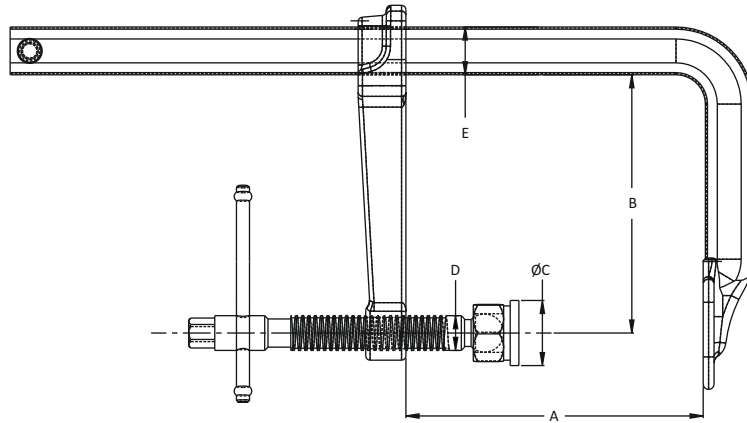
G-C Series F Clamps with Tommy Bar Handle

MODEL NO	A MAX JAW OPENING	B THROAT DEPTH	C SWIVEL PAD	D ACME SCREW	E RAIL SIZE	WEIGHT IN KGS.
G16CS	160	80	25	14	16.0 x 7.5	0.50
G20CS	200	100	32	16	19.5 x 7.5	0.88
G25CS	250	120	32	16	22.0 x 10.5	1.23
G30CS	300	140	38	18	25.0 x 12.0	1.85
G40CS	400	175	38	18	27.0 x 13.0	2.57
G60CS	600	175	38	18	27.0 x 13.0	3.06
G80CS	800	175	38	18	27.0 x 13.0	3.55

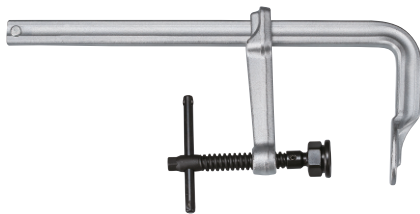
SG-C Series F Clamps with Tommy Bar Handle

MODEL NO	A MAX JAW OPENING	B THROAT DEPTH	C SWIVEL PAD	D ACME SCREW	E RAIL SIZE	WEIGHT IN KGS.
SG40CS	400	120	38	18	25 x 12	1.91
SG50CS	500	120	38	18	25 x 12	2.12
SG60CS	600	120	38	18	25 x 12	2.33
SG80CS	800	120	38	18	27 x 13	3.26
SG100CS	1000	120	38	18	27 x 13	3.75
SG125CS	1250	120	38	18	27 x 13	4.36
SG150CS	1500	120	38	18	27 x 13	4.98

F Clamps

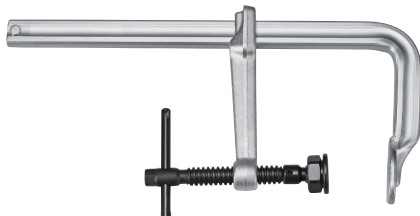


SG-C12 Series F Clamps with Tommy Bar Handle & Removable Adapter



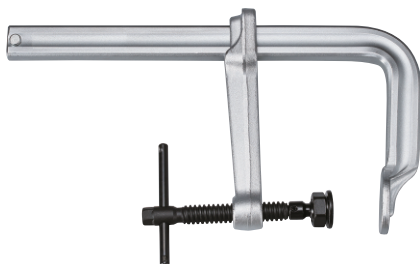
MODEL NO	A MAX JAW OPENING	B THROAT DEPTH	C SWIVEL PAD	D ACME SCREW	E RAIL SIZE	WEIGHT IN KGS.
S20C12	200	120	38	18	27 x 13	1.97
S25C12	250	120	38	18	27 x 13	2.09
S30C12	300	120	38	18	27 x 13	2.21
S40C12	400	120	38	18	27 x 13	2.46
S50C12	500	120	38	18	27 x 13	2.71
S60C12	600	120	38	18	27 x 13	2.96
S100C12	1000	120	38	18	27 x 13	3.88

GS-C Series Heavy Duty F Clamps with Tommy Bar Handle & Removable Adapter



MODEL NO	A MAX JAW OPENING	B THROAT DEPTH	C SWIVEL PAD	D ACME SCREW	E RAIL SIZE	WEIGHT IN KGS.
GS25C	250	120	41	20	30 x 15	2.76
GS30C	300	140	41	20	30 x 15	3.03
GS40C	400	120	41	20	30 x 15	3.24
GS50C	500	140	41	20	30 x 15	3.66
GS60C	600	120	41	20	30 x 15	3.87
GS80C	800	140	41	20	30 x 15	4.62
GS100C	1000	120	41	20	30 x 15	5.15
GS125C	1250	120	41	20	30 x 15	5.94
GS150C	1500	120	41	20	30 x 15	6.65

SS-C Series Extra Heavy Duty F Clamps with Tommy Bar Handle & Removable Adapter

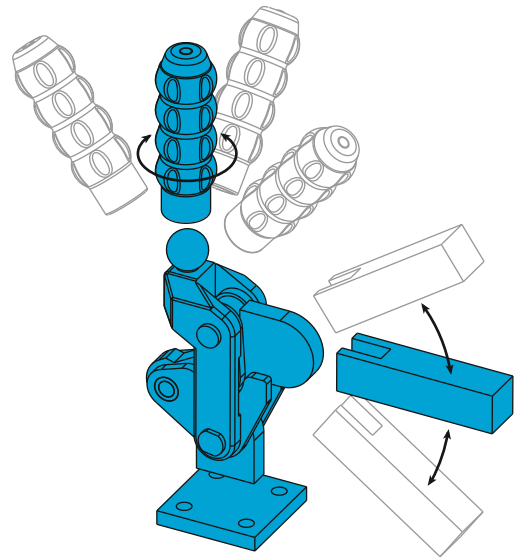


MODEL NO	A MAX JAW OPENING	B THROAT DEPTH	C SWIVEL PAD	D ACME SCREW	E RAIL SIZE	WEIGHT IN KGS.
SS30C	300	175	41	22	40 x 20	5.50
SS40C	400	175	41	22	40 x 20	6.06
SS50C	500	175	41	22	40 x 20	6.62
SS60C	600	175	41	22	40 x 20	7.18
SS80C	800	175	41	22	40 x 20	8.30
SS100C	1000	175	41	22	40 x 20	9.43
SS125C	1250	175	41	22	40 x 20	10.83
SS150C	1500	175	41	22	40 x 20	12.07

AUTOMOTIVE CLAMPS

Steel-Smith has designed the Automotive clamps to be adaptable & durable, and to withstand abuse in heavy duty applications. They are ideally used in automotive manufacturing & other production environment which require high clamping forces & long service life. These clamps have a unique design that offers the designer both complete design flexibility & clamping force. These clamps comprise of a very strong & rugged toggle mechanism. The clamping arm & handle which are provided with the clamp can be welded at the desired angle to suit the individual requirements of work pieces. All components are of first grade steel & the axles are hardened running in either hardened bushes or directly in close tolerance holes. The clamps are finished olive green passivation

The Versatility of Steel- Smith Clamps allows handle positioning of 120° maximum angular positioning arc through 360° orbital arc. The clamping arm has 120° maximum angular positioning arc. These exceptional features make Steel-Smith H.V. Series clamps ideal for many job requirements otherwise requiring special designed clamps.

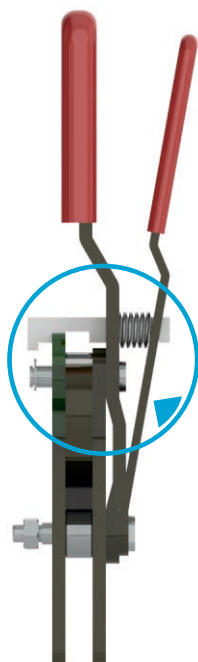


Automotive Clamps with Additional Locking Mechanism

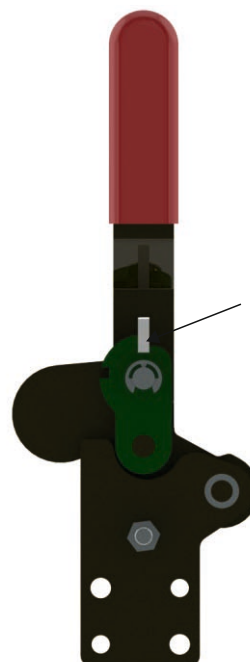
Steel-Smith introduces its latest range of Automotive clamps with Additional Locking Mechanism, this mechanism ensures that the clamp remains locked in any condition.

In order to unclamp, the mechanism must be first released.

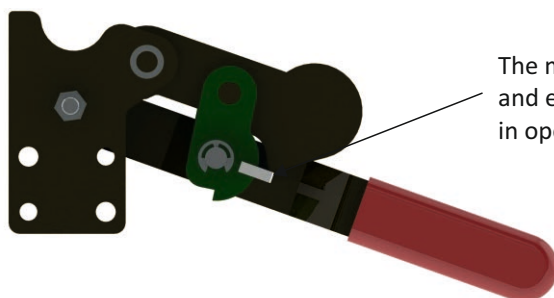
In this Series this mechanism will hold the clamping arm in both the closed and open positions, so that it is protected against unintentional opening or closing through vibration or if the clamp is mounted overhead.



Additional Locking Mechanism



The additional locking Mechanism ensures that the clamp remains locked



The mechanism engages in the base and ensures that the clamp remains in open position

Automotive Clamps

H.V. SERIES TOGGLE CLAMPS - SWIVEL BASE

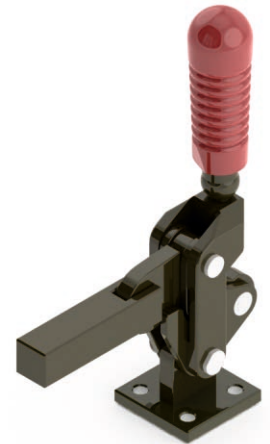
The H.V. Series Toggle Clamps comprise of a basic toggle mechanism onto which can be welded at a desired angle, the clamping arm and handle which are supplied with the clamp. These models feature a swivel base which is welded at the desired angle to the mechanism, then welded either directly to the fixture or alternatively to a base which is offered as an accessory for bolt mounting. The clamping arm exhibits 180 degree opening angle which enables easy unloading of workpiece. Accurately machined steel components are equipped with hardened bushes & pivot pins. Three sizes basic linkages are available which allows the designer complete flexibility to position the base, clamp arm handle and weld them to suit the application.

Installation:

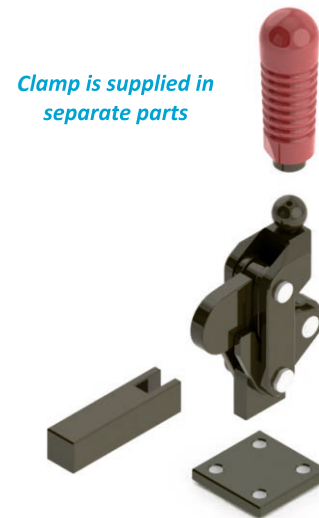
When welding the swivel base of the clamp mechanism ensure that the full length of the adjoining surfaces are welded. Ensure that the welding splatters do not enter the slots which form the forward stop of the mechanism.



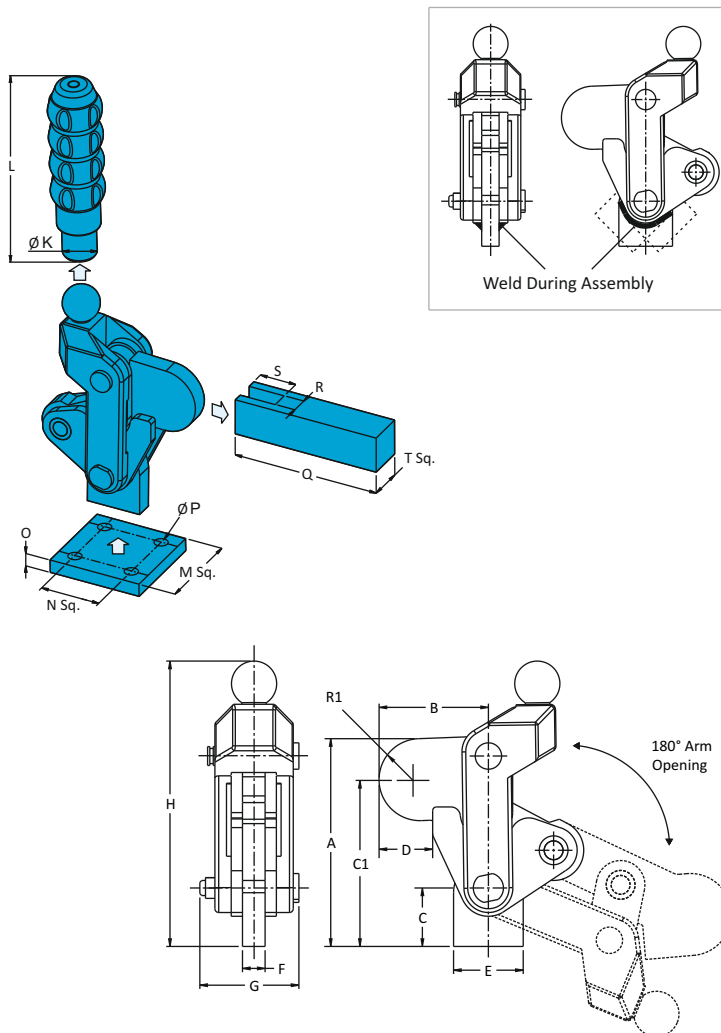
Model No.HV - BII - 500



Assembled Swivel Base Clamp



Anatomy of Swivel Base Clamp



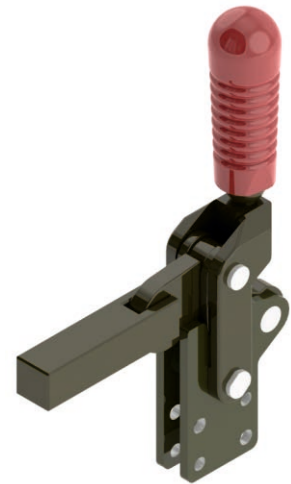
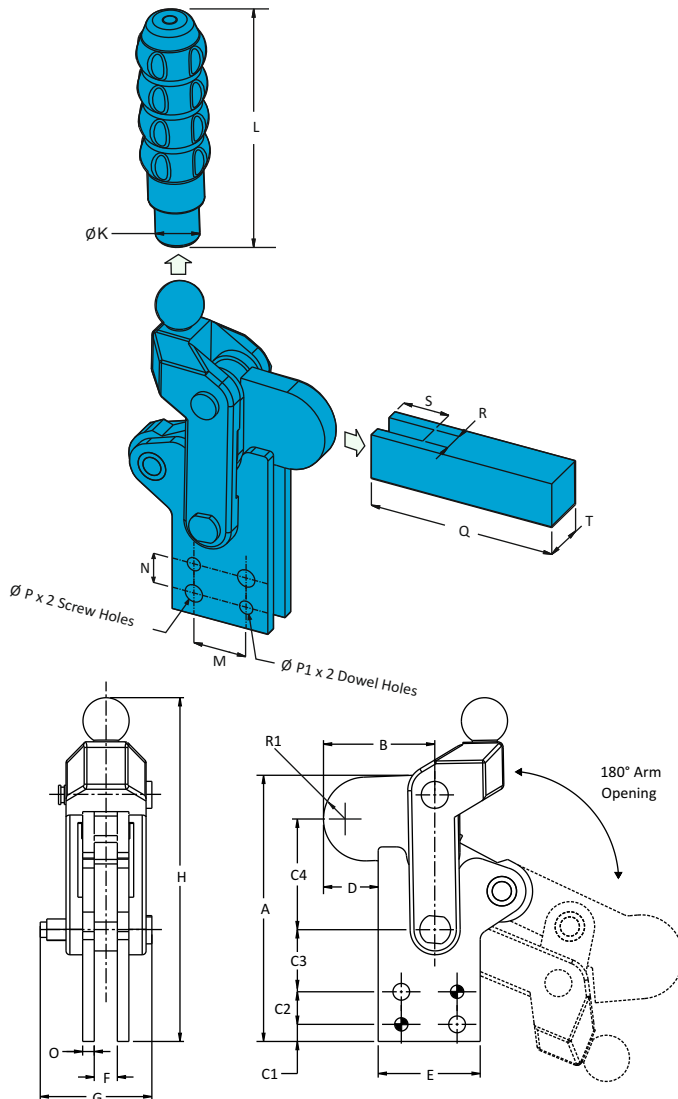
Model No.	A	B	C	C1	D	E	F	G	H	K	L	M Sq.	N Sq.	O	P	Q	R	S	T Sq.	R1	Holding Capacity	Wt. In Kgs
HV-BII-100	59	30	19	48	15	20	6	29	85	12	50	35	20	6	5.5	50	6	13	12	11	2.00 kN	0.330
HV-BII-200	76	40	22	60	16	24	8	41	106	16	75	45	29	6	6.5	75	8	15	20	16	4.90 kN	0.810
HV-BII-300	90	50	26	73	24	29	10	45	127	22	90	50	30	8	6.5	90	10	21	22	17	6.90 kN	1.370
HV-BII-500	110	58	31	89	30	37	12	58	152	22	100	63	40	10	8.7	100	12	25	25	22	11.80 kN	2.300
HV-BII-1000	136	77	37	109	42	58	15	61	182	22	125	80	55	10	10.5	125	15	32	30	27	24.50 kN	3.700

H.V. SERIES TOGGLE CLAMPS - BASE STRAIGHT

The Base Straight Series is identical to the Swivel Base Series with the exception of the base design. For situations where a vertical surface is used to mount the clamp a straight base can be used. The B.S. series clamps have more height under the clamping bar in the closed position. The clamp opens a full 180° to completely clear the work area. The handle and the clamping arm supplied with the clamp can be welded at a desired angle. Similar to the Swivel Base Series clamps the bushes and pivot pins are hardened for higher efficiency of the clamp. The clamps are available in five sizes.



Model No. HV - BII - 500 BS



Assembled Base Straight Clamp



Clamp is supplied in separate parts

Anatomy of a Base Straight Clamp

Model No.	A	B	C1	C2	C3	C4	D	E	F	G	H	K	L	M	N	O	P	P1	Q	R	R1	S	T	Holding Capacity	Wt. In Kgs
HV-BII-100 BS	70	30	8.5	12	10	28	14.5	30	6	28	98	12	50	15	12	3	5.5	5	50	6	11	13	12	2.00 kN	0.290
HV-BII-200 BS	99	41	9	16	21	37	18	46	8	41	130	16	75	26	16	4	6.3	6	75	8	16	15	20	4.90 kN	0.810
HV-BII-300 BS	120	50.5	12	25	20	46	24	51	10	45	158	22	90	30	25	5	9.0	8	90	10	17	21	22	6.90 kN	1.350
HV-BII-500 BS	136	58	11	25	23	57	30	54	12	58	180	22	100	35	25	6	9.0	8	100	12	21	25	25	11.80 kN	2.150
HV-BII-1000 BS	177	77	15	30	30	75	42	66	15	60	217	22	125	35	30	6	10.5	10	125	15	27	32	30	24.50 kN	3.400

Automotive Clamps

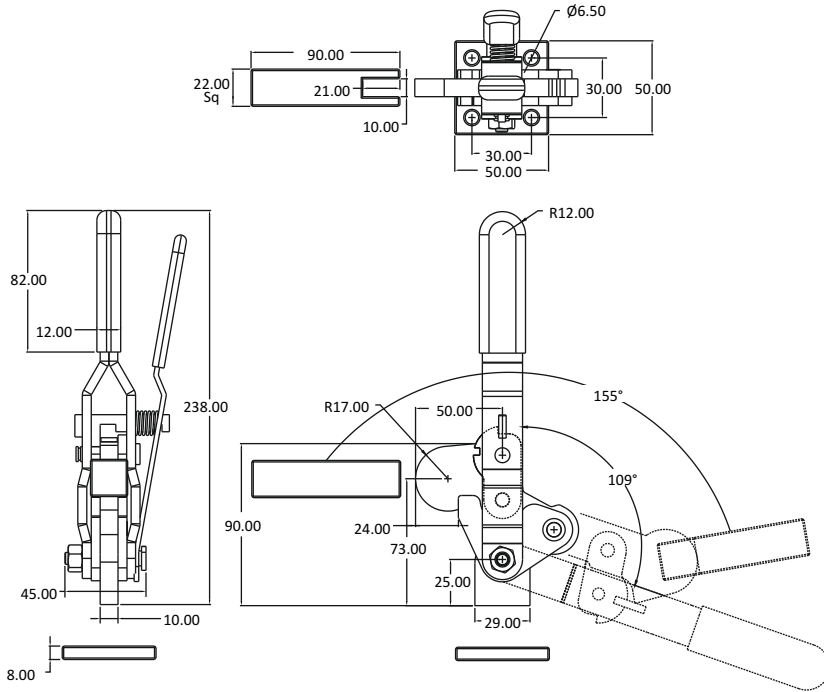
Model No: HV - BII - 300 - TRIG

Arm: Stub nose for welded extensions.

Base: Swivel for welding in the desired position.

Nominal Holding Force: 6.90 kN

Weight: 1.400 Kgs



Model No.HV - BII - 500 - TRIG



Assembled Swivel Base Clamp

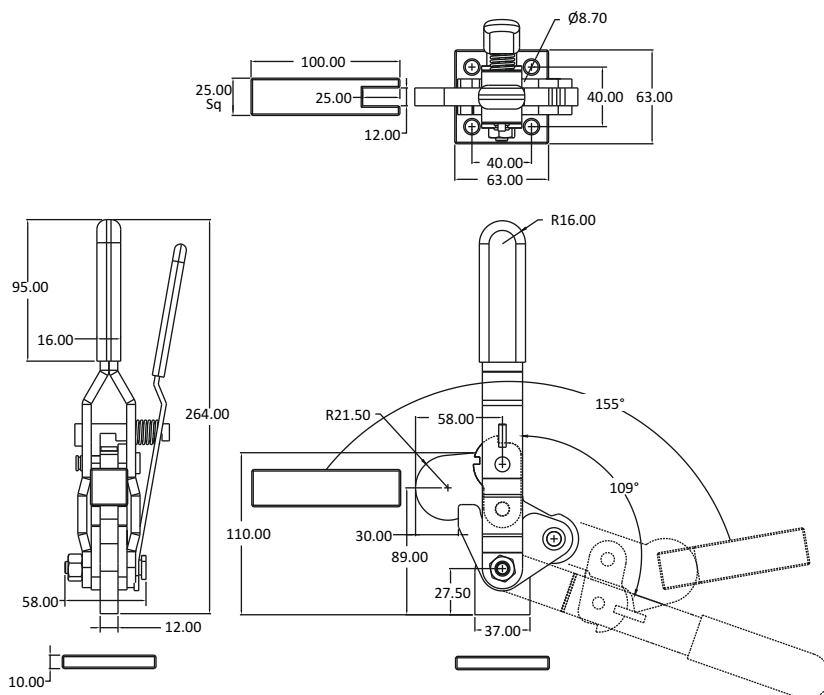
Model No: HV - BII - 500 - TRIG

Arm: Stub nose for welded extensions.

Base: Swivel for welding in the desired position.

Nominal Holding Force: 11.80 kN

Weight: 2.500 Kgs



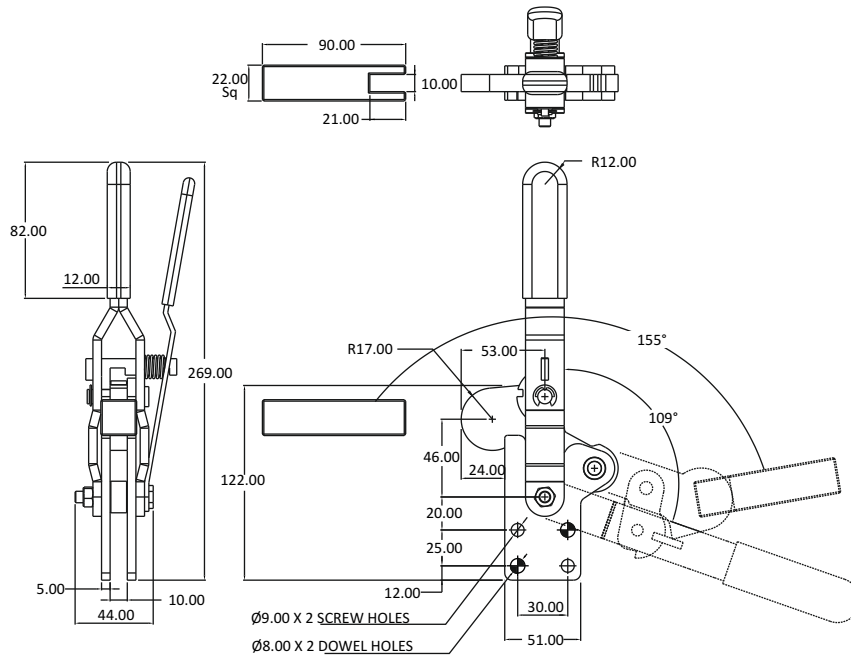
Clamp is supplied in separate parts



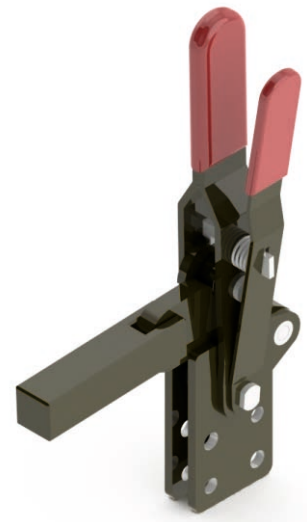
Anatomy of Swivel Base Clamp

Model No: HV - BII - 300 BS - TRIG

Arm: Stub nose for welded extensions.
Base: Straight
Nominal Holding Force: 6.90 kN
Weight: 1. 00 Kgs

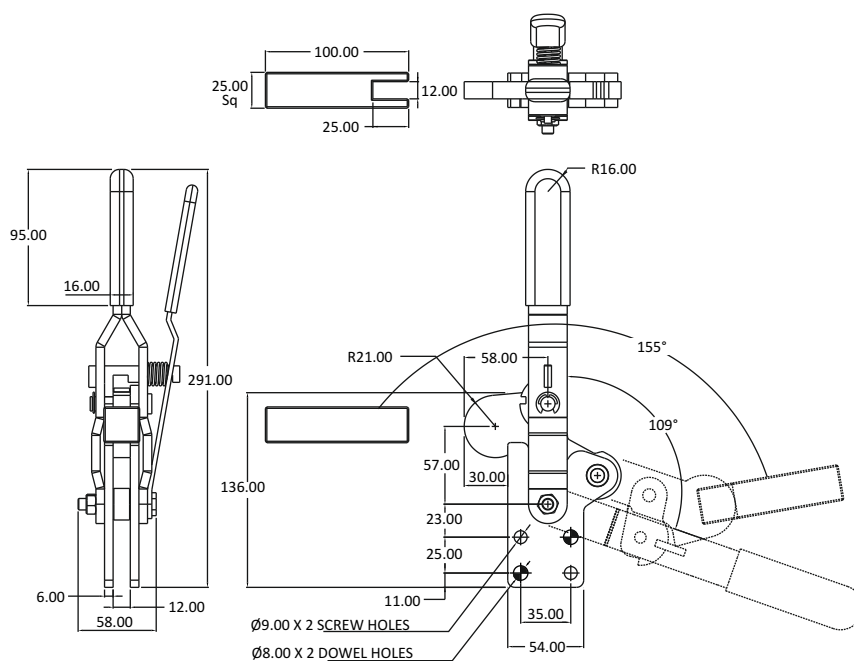


Model No. HV - BII - 500 BS - TRIG



Model No: HV - BII - 500 BS - TRIG

Arm: Stub nose for welded extensions.
Base: Straight
Nominal Holding Force: 11.80 kN
Weight: 2.300 Kgs



Assembled Base Straight Clamp

Clamp is supplied in separate parts

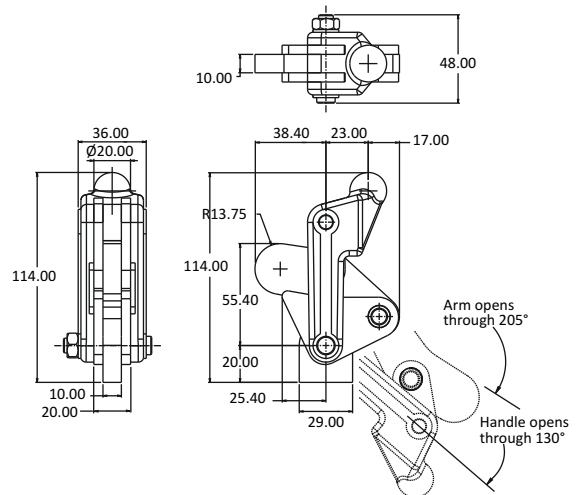


Anatomy of a Base Straight Clamp

Automotive Clamps

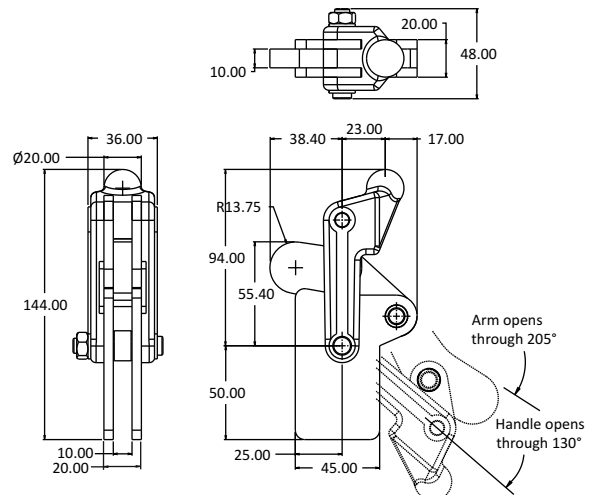
Model No: HV - 700 - S

Arm: Stub nose for welded extensions.
Base: Swivel for welding in the desired position.
Nominal Holding Force: 6.90 kN
Weight: 0.700 Kgs
See "Accessories" for other items.



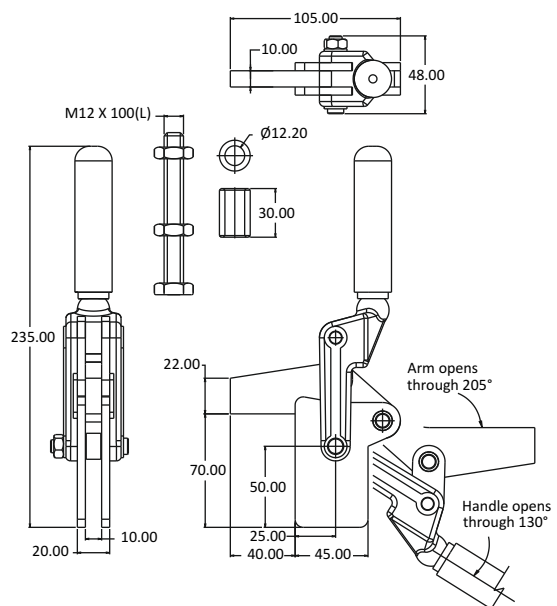
Model No: HV - 700 - T

Arm: Stub nose for welded extensions.
Base: Straight.
Nominal Holding Force: 6.90 kN
Weight: 0.800 Kgs.
See "Accessories" for other items.



Model No: HV - 700 - 1A

Arm: Solid Arm with weldable bush.
Base: Straight
Nominal Holding Force: 6.90 kN
Weight: 1.100 Kgs.



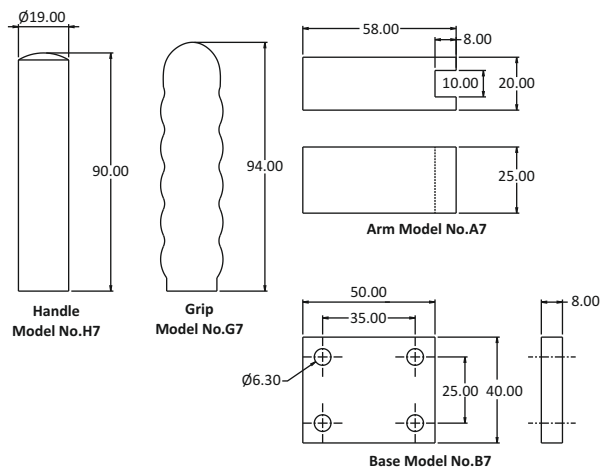
Accessories for HV - 700

Model H7 Handle: For welding at the desired angle.

Model G7 Grip: To fit H7 handle.

Model A7 Arm: Clamping Arm.

Model B7 Base: For bolt mounting



Model No: HV - 1200 - S

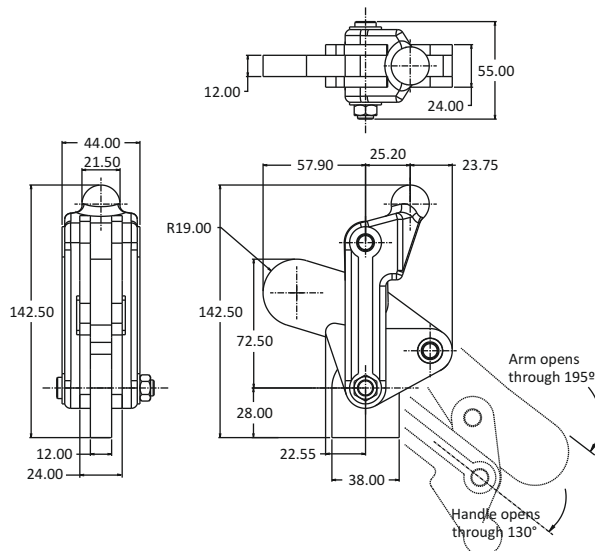
Arm: Stub nose for welded extensions.

Base: Swivel for welding in the desired position.

Nominal Holding Force: 11.80 kN

Weight: 1.300 Kgs

See "Accessories" for other items.



Model No: HV - 1200 - T

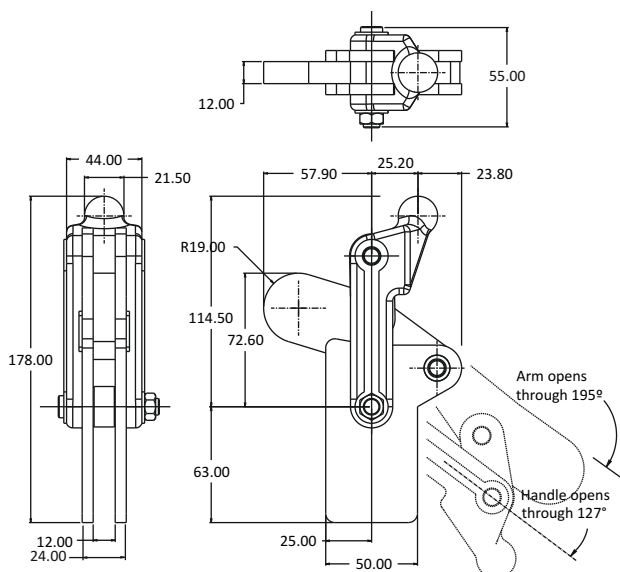
Arm: Stub nose for welded extensions.

Base: Straight.

Nominal Holding Force: 11.80 kN

Weight: 1.450 Kgs.

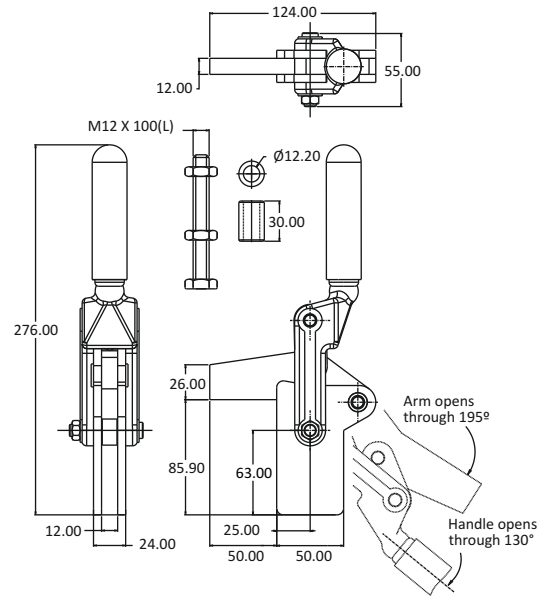
See "Accessories" for other items.



Automotive Clamps

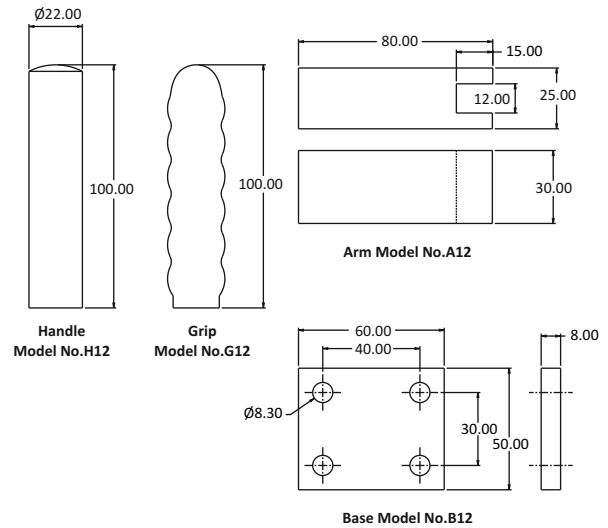
Model No: HV - 1200 - 1A

Arm: Solid Arm with weldable bush.
Base: Straight
Nominal Holding Force: 11.80 kN
Weight: 1.800 Kgs.



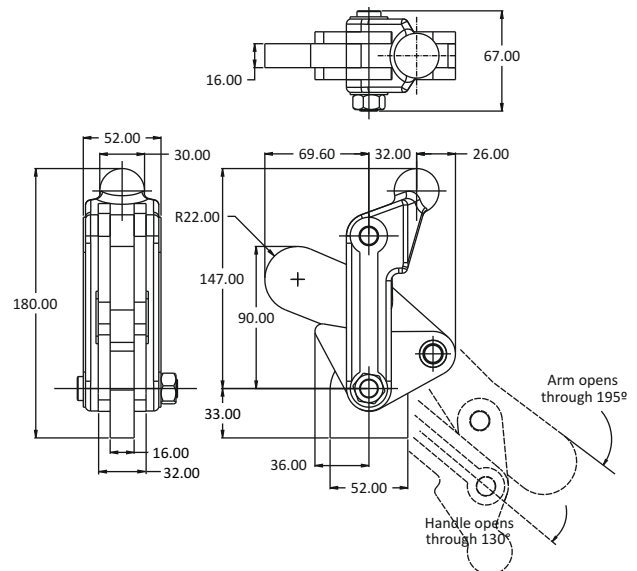
Accessories for HV - 1200

Model H12 Handle: For welding at the desired angle.
Model G12 Grip: To fit H7 handle.
Model A12 Arm: Clamping Arm.
Model B12 Base: For bolt mounting



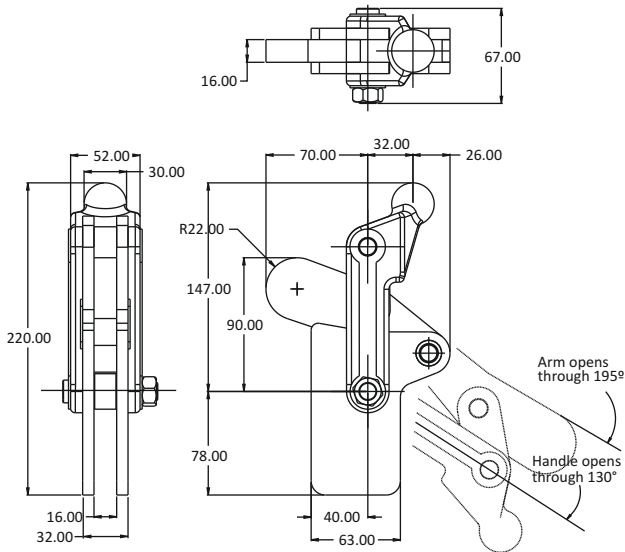
Model No: HV - 2400 - S

Arm: Stub nose for welded extensions.
Base: Swivel for welding in the desired position.
Nominal Holding Force: 23.50 kN
Weight: 2.900 Kgs
See "Accessories" for other items.



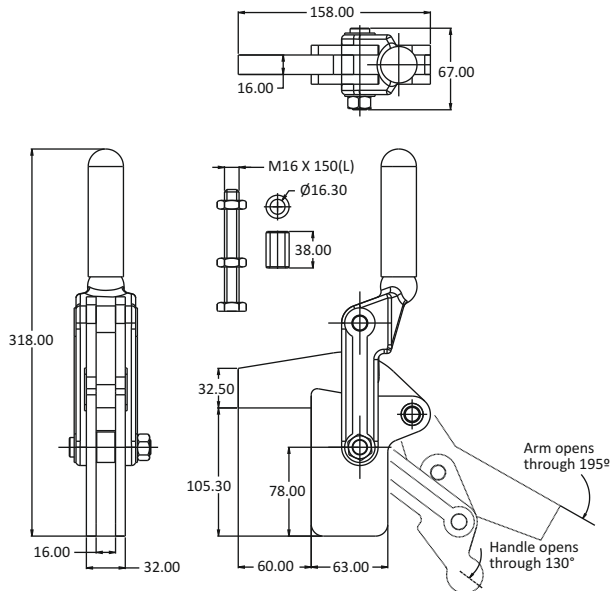
Model No: HV - 2400 - T

Arm: Stub nose for welded extensions.
Base: Straight.
Nominal Holding Force: 23.50 kN
Weight: 3.200 Kgs.
See "Accessories" for other items.



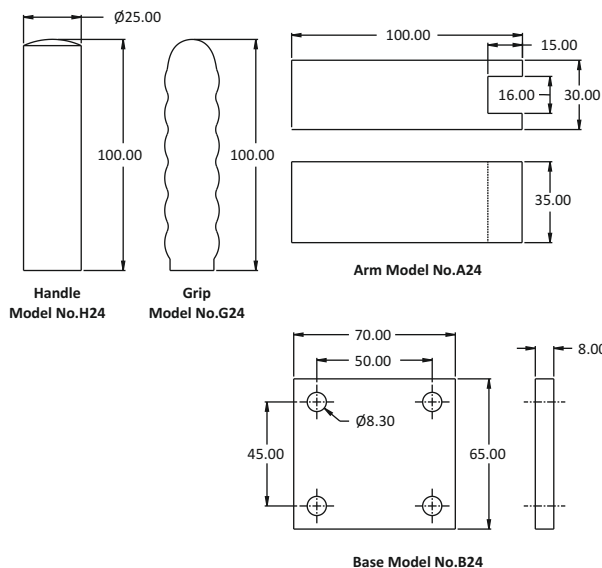
Model No: HV - 2400 - 1A

Arm: Solid Arm with weldable bush.
Base: Straight
Nominal Holding Force: 23.50 kN
Weight: 3.7500 Kgs.



Accessories for HV - 2400

Model H24 Handle: For welding at the desired angle.
Model G24 Grip: To fit H7 handle.
Model A24 Arm: Clamping Arm.
Model B24 Base: For bolt mounting



Automotive Clamps

Horizontal Arm

Model No: HV - 700 - H

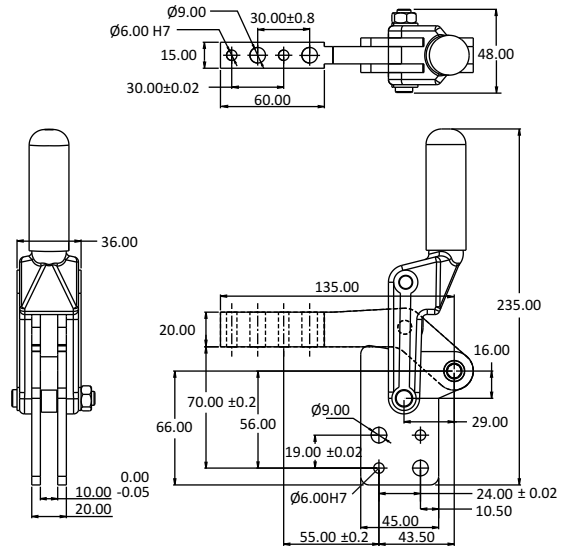
Arm: Horizontal Clamping Arm

Base: Straight with Dowel & Bolt Holes

Weight: 1.200 Kgs.

Nominal Holding Capacity: 6.90 kN

[Refer Next Page for
Clamping Forces & Holding Capacity.](#)



Model No: HV - 1200 - H - TM - TU

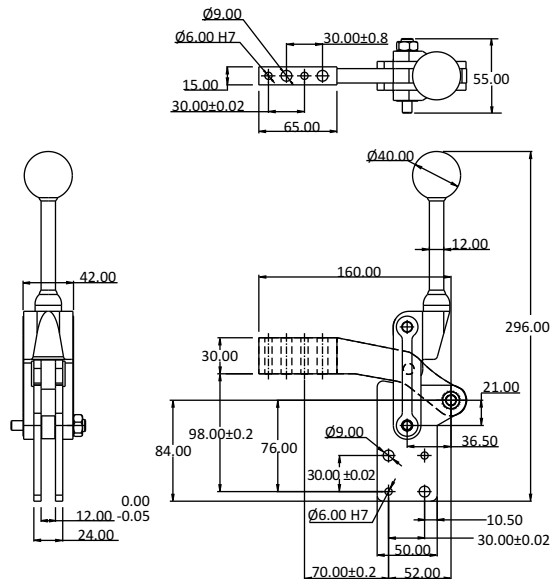
Arm: Horizontal Clamping Arm

Base: Straight with Dowel & Bolt Holes

Weight: 2.100 Kgs.

Nominal Holding Capacity: 11.80 kN

[Refer Next Page for
Clamping Forces & Holding Capacity.](#)



Model No: HV - 2400 - H - TM - TU

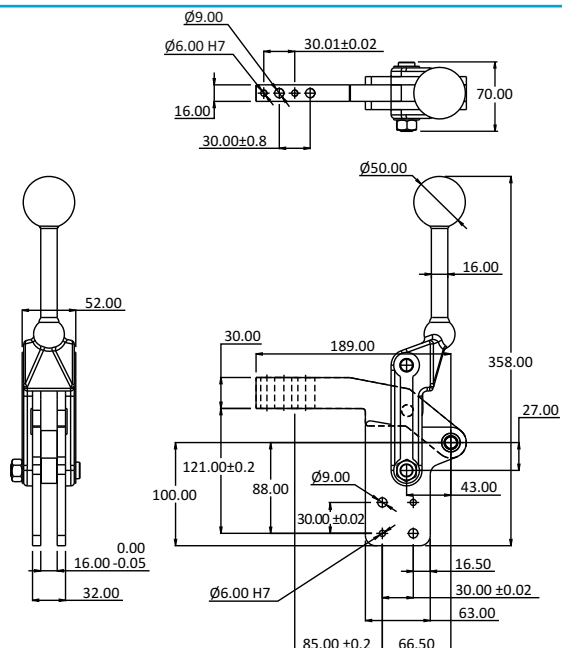
Arm: Horizontal Clamping Arm

Base: Straight with Dowel & Bolt Holes

Weight: 3.100 Kgs

Nominal Holding Capacity: 23.50 kN

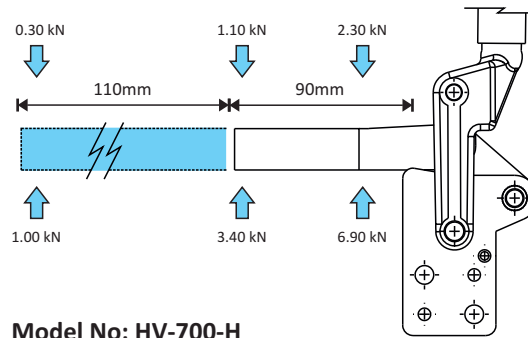
[Refer Next Page for
Clamping Forces & Holding Capacity.](#)



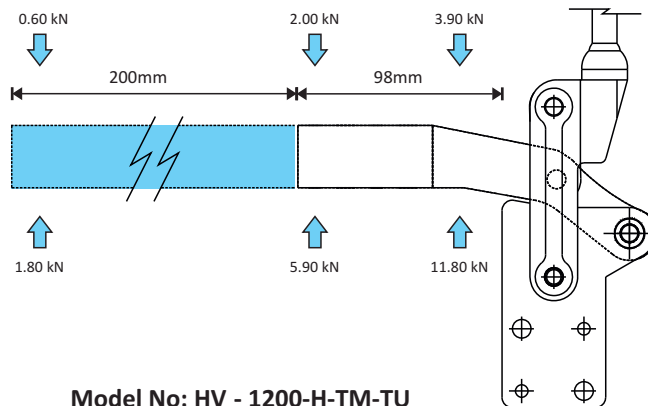
Clamping Force / Holding Capacity: Arm Lengths

The construction of the Automotive Clamps enables mounting of Clamping Arms/Adapters onto the clamp. There are limitations to the length and weight of the arm that can be mounted on the clamp. Longer the arm lesser the holding/clamping capacity. Refer the data below to for different capacities at different lengths.

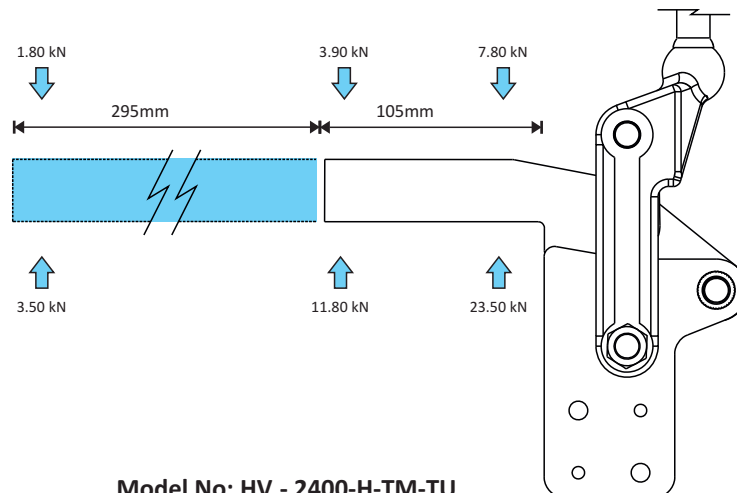
Model No.	Maximum Permissible Arm Length	Maximum Permissible Weight of Clamping Arm
HV - 700 - H	200 mm	3 Kgs
HV - 1200 - H - TM - TU	300 mm	5 Kgs
HV - 2400 - H - TM - TU	400 mm	7 Kgs



Model No: HV-700-H



Model No: HV - 1200-H-TM-TU



Model No: HV - 2400-H-TM-TU

Automotive Clamps

Vertical Arm

Model No: HV - 700 - V

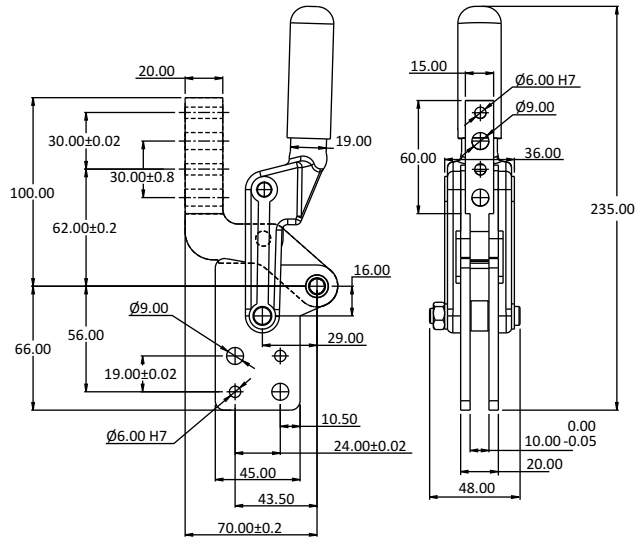
Arm: Vertical Clamping Arm

Base: Straight with Dowel & Bolt Holes

Weight: 1.200 Kgs

Nominal Holding Capacity: 6.90 kN

[Refer Next Page for
Clamping Forces & Holding Capacity.](#)



Model No: HV - 1200 - V - TM - TU

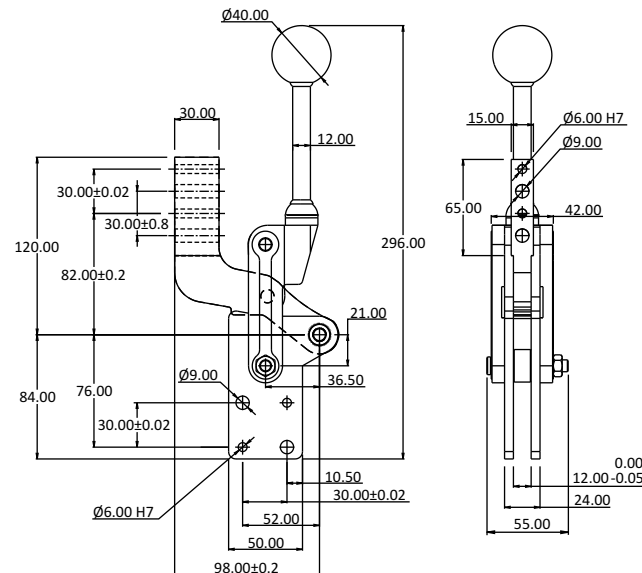
Arm: Vertical Clamping Arm

Base: Straight with Dowel & Bolt Holes

Weight: 2.100 Kgs

Nominal Holding Capacity: 11.80 kN

[Refer Next Page for
Clamping Forces & Holding Capacity.](#)



Model No: HV - 2400 - V - TM - TU

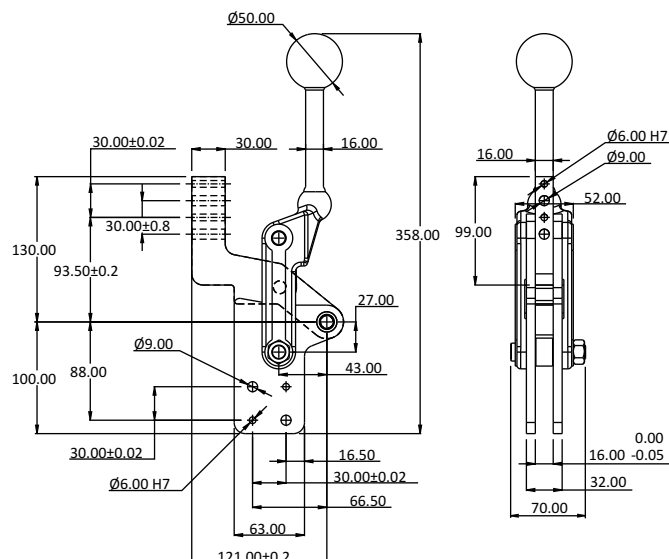
Arm: Vertical Clamping Arm

Base: Straight with Dowel & Bolt Holes

Weight: 3.100 Kgs.

Nominal Holding Capacity: 23.50 kN

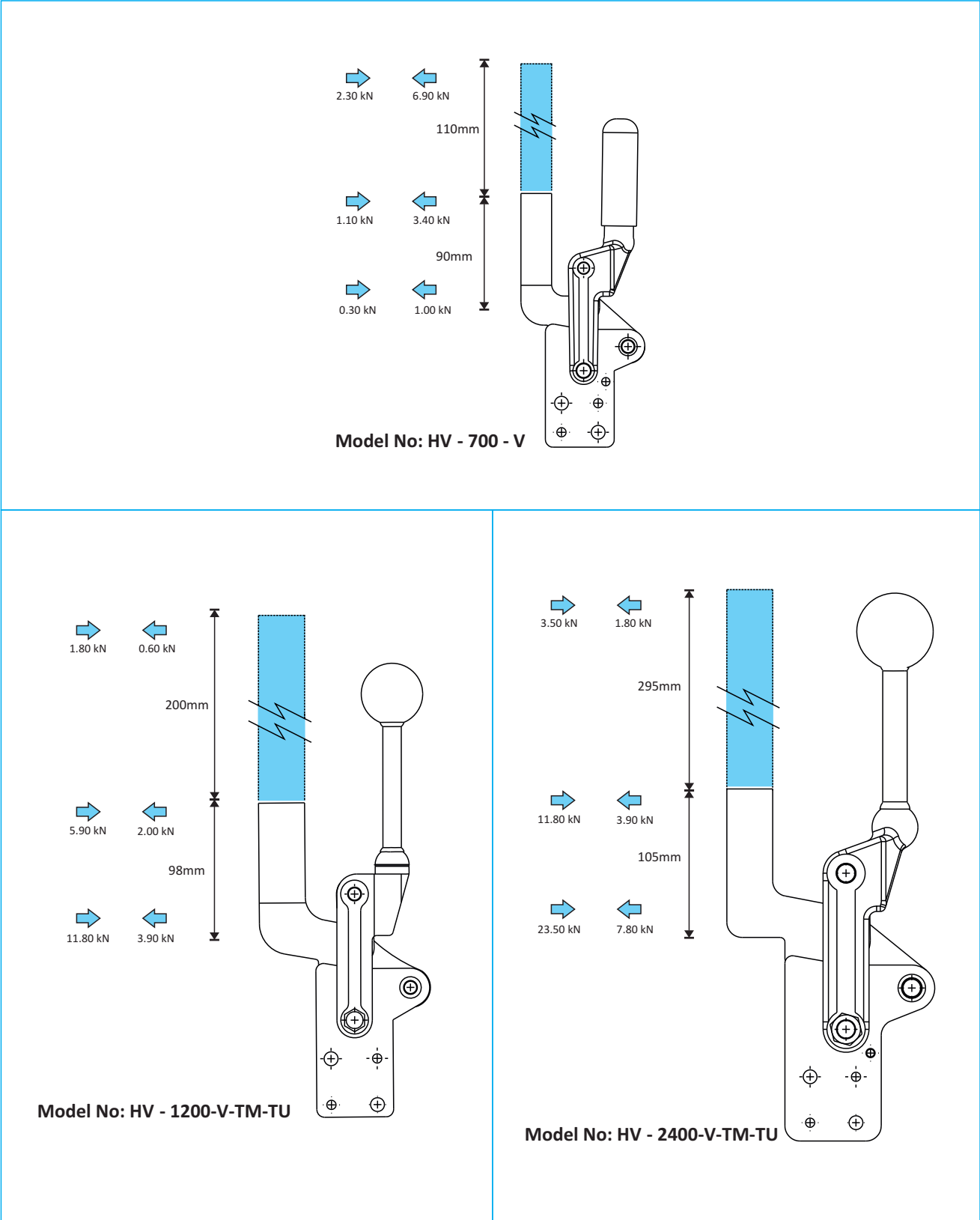
[Refer Next Page for
Clamping Forces & Holding Capacity.](#)



Clamping Force / Holding Capacity: Arm Lengths

The construction of the Automotive Clamps enables mounting of Clamping Arms/Adapters onto the clamp. There are limitations to the length and weight of the arm that can be mounted on the clamp. Longer the arm lesser the holding/clamping capacity. Refer the data below to for different capacities at different lengths.

Model No.	Maximum Permissible Arm Length	Maximum Permissible Weight of Clamping Arm
HV - 700 - V	200 mm	3 Kgs
HV - 1200 - V - TM -TU	300 mm	5 Kgs
HV - 2400 - V - TM -TU	400 mm	7 Kgs



Automotive Clamps

Horizontal Arm - TP

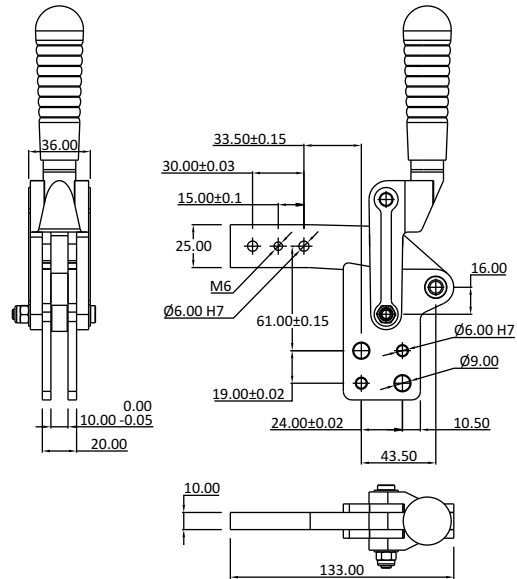
Model No: HV - 700 - TP

Arm: Horizontal Clamping Arm

Base: Straight with Dowel & Bolt Holes

Weight: 1.200 Kgs.

Nominal Holding Capacity: 6.90 kN



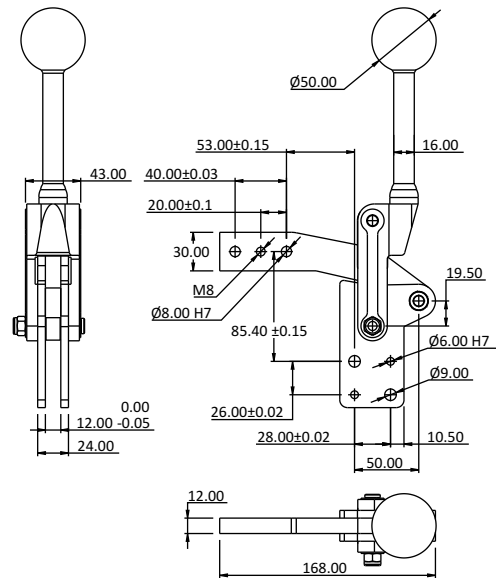
Model No: HV - 1200 - TP

Arm: Horizontal Clamping Arm

Base: Straight with Dowel & Bolt Holes

Weight: 2.100 Kgs.

Nominal Holding Capacity: 11.80 kN



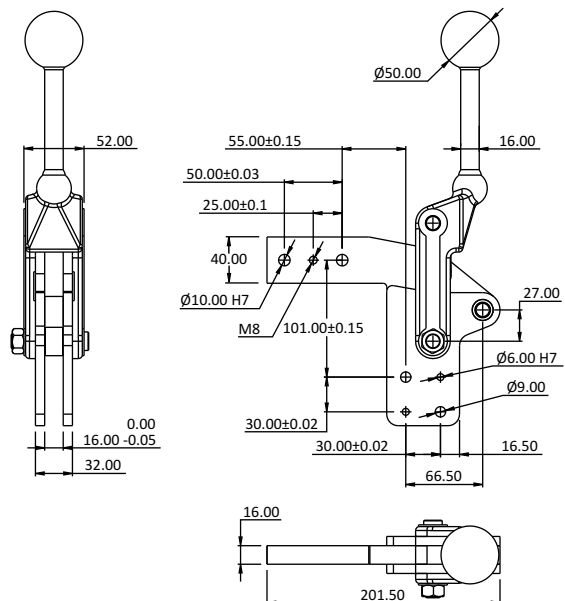
Model No: HV - 2400 - TP

Arm: Horizontal Clamping Arm

Base: Straight with Dowel & Bolt Holes

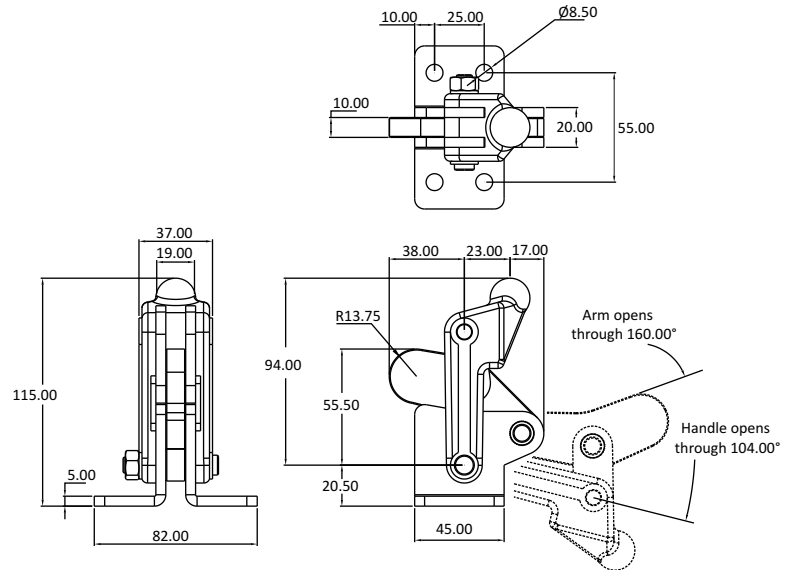
Weight: 3.100 Kgs.

Nominal Holding Capacity: 23.50 kN



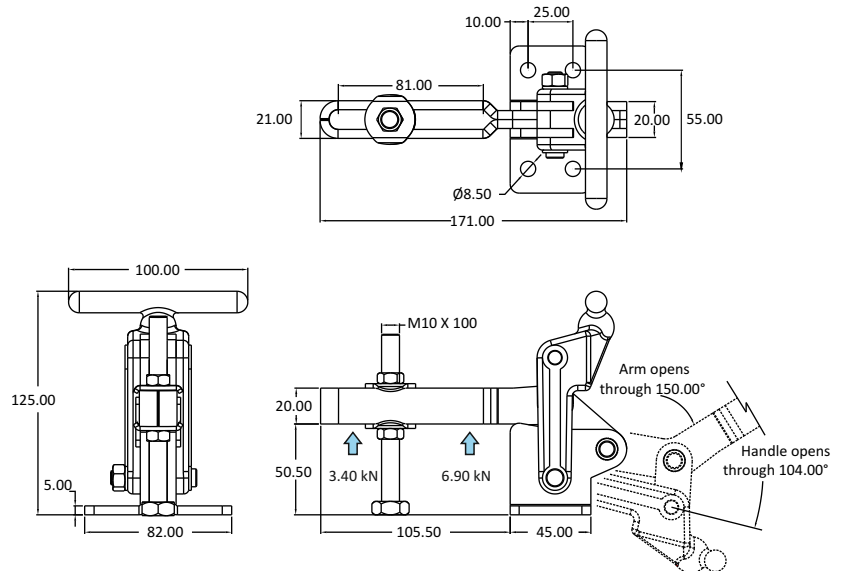
Model No: HV - 700 - FS

Arm: Stub nose for welded extensions.
Base: Flanged Base
Weight: 0.800 Kgs.
Nominal Holding Force: 6.90 kN



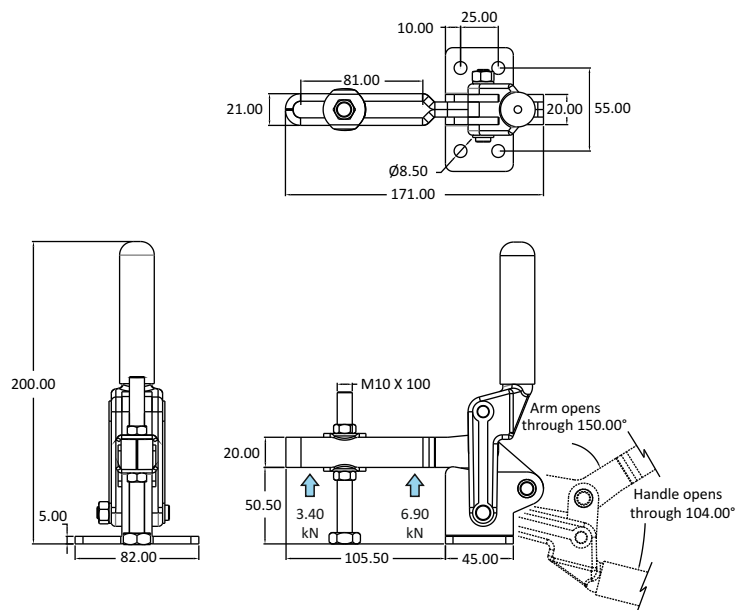
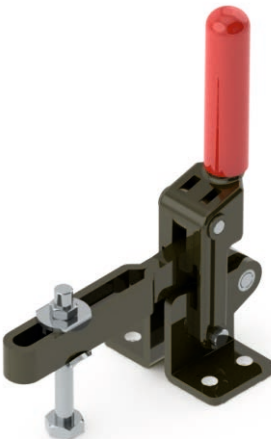
Model No: HV - 700 - FUT

Arm: U-Adjustable Clamping Arm
Base: Flanged Base
Handle: T- Handle
Weight: 1.00 Kgs.
Nominal Holding Force: Refer Drawing



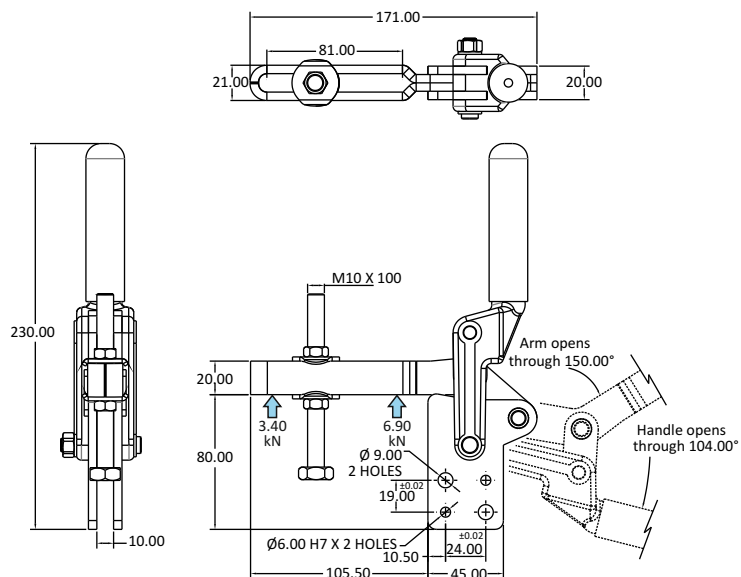
Model No: HV - 700 - FUV

Arm: U-Adjustable Clamping Arm
Base: Flanged Base
Weight: 1.00 Kgs.
Nominal Holding Force: Refer Drawing

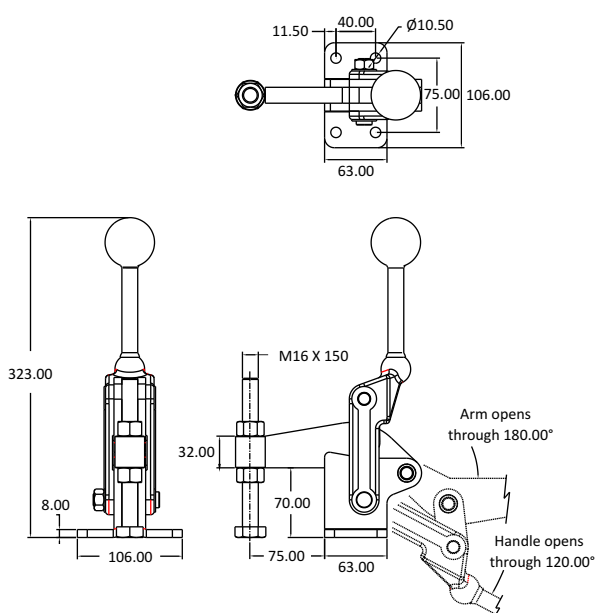
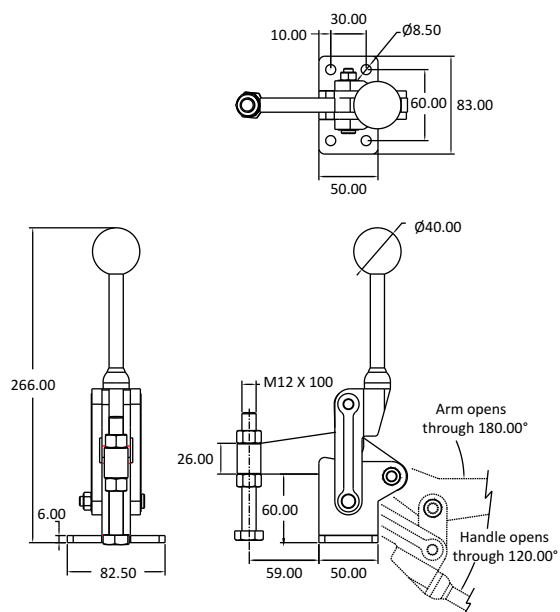


Automotive Clamps

Refer Drawing

A 3D CAD model of a mechanical assembly. It features a dark grey, L-shaped base with a vertical section on the right and a horizontal section on the left. The vertical section has a red, cylindrical handle attached to its top. The horizontal section has a grey, cylindrical component attached to its end. The assembly is shown from a perspective view.

50 kN

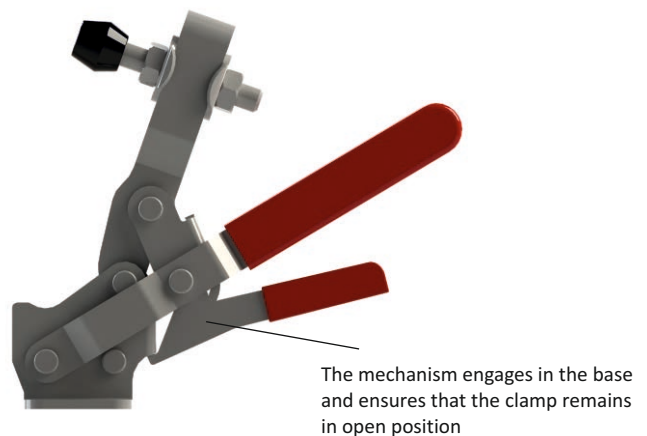
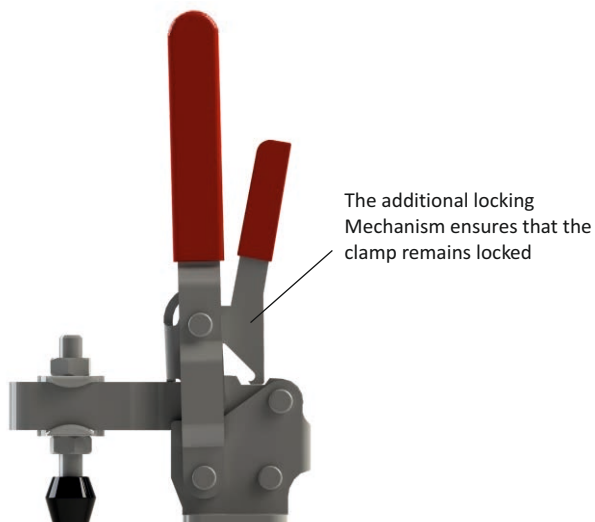
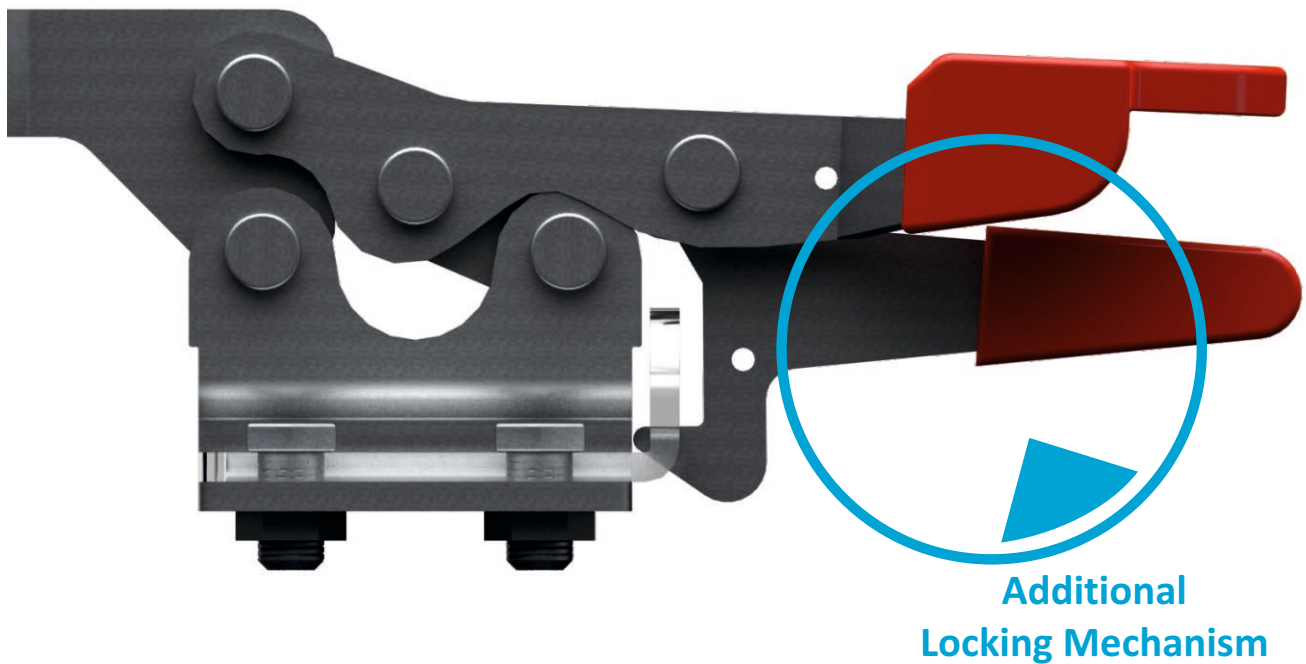


Toggle Clamps with Additional Locking Mechanism

Steel-Smith introduces its latest range of clamps with Additional Locking Mechanism, this mechanism ensures that the clamp remains locked in any condition.

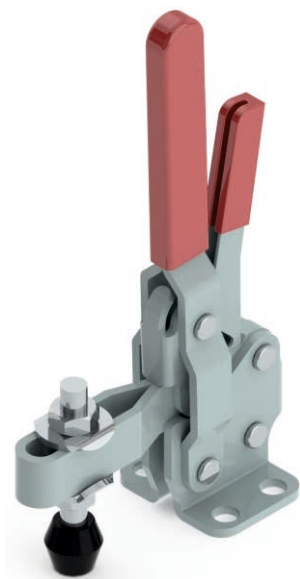
In order to unclamp, the mechanism must be first released.

In the Vertical Series this mechanism will hold the clamping arm in both the closed and open positions, so that it is protected against unintentional opening or closing through vibration or if the clamp is mounted overhead.

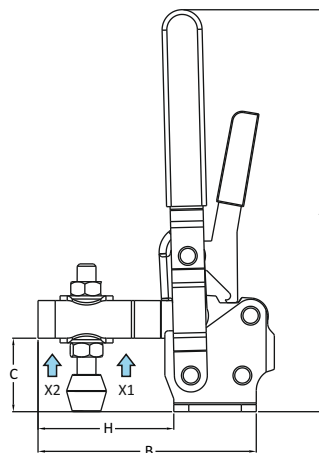
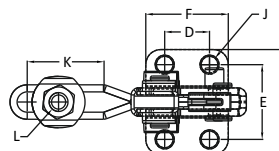


Additional Locking Mechanism

Vertical Hold Down Action With Additional Locking Mechanism

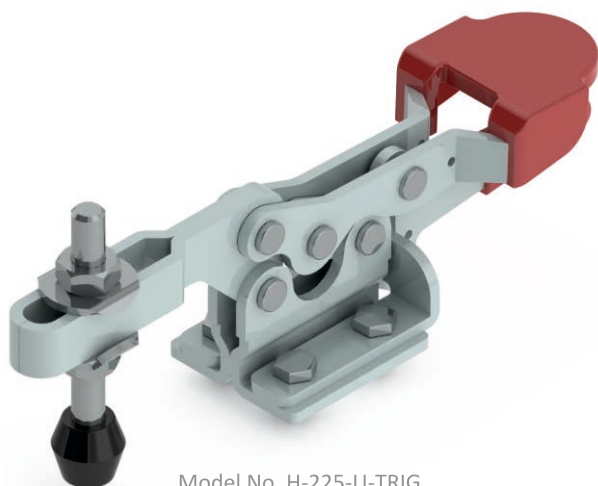


Model No. VTC-207-U-TRIG

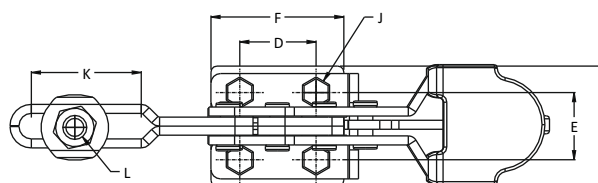
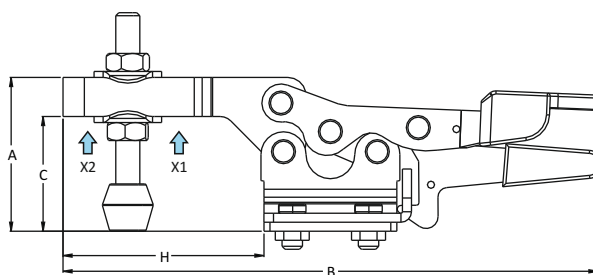


Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions										
	X2	X1				A	B	C	D	E	F	G	H	J	K	L
VTC-207-U-TRIG	1.00 kN	1.70 kN	0.300	62°	115°	174.0	100.0	31.0	19.1	31.8	35.1	44.6	57.5	7.1	32.0	M8 Bolt
VTC-210-U-TRIG	1.40 kN	2.70 kN	0.590	58°	106°	195.0	144.0	42.0	31.8	45.2	48.6	64.4	91.0	8.3	60.0	M10 Bolt

Horizontal Hold Down Action With Additional Locking Mechanism

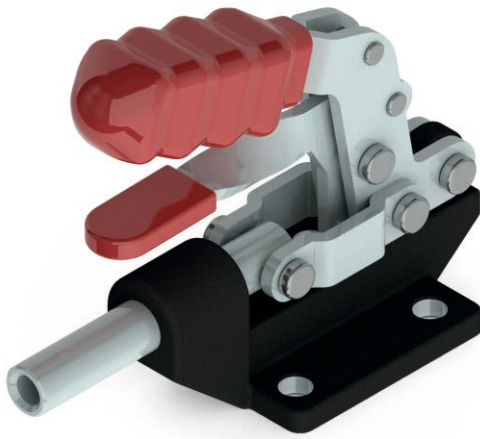


Model No. H-225-U-TRIG

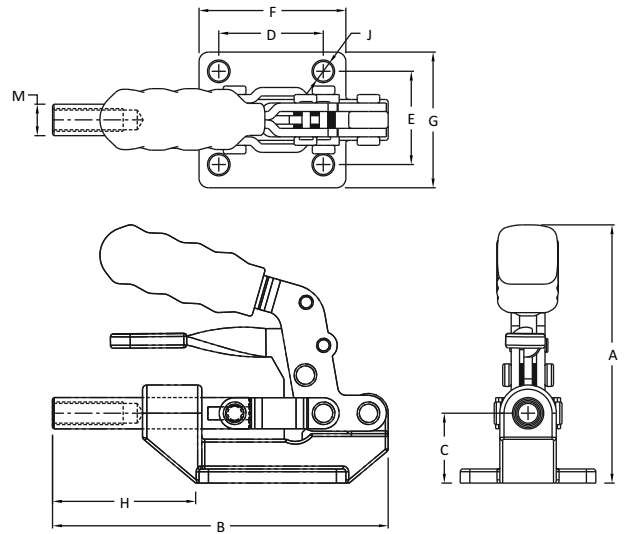


Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions										
	X2	X1				A	B	C	D	E	F	G	H	J	K	L
H-225-U-TRIG	1.10 kN	2.20 kN	0.315	70°	90°	47.0	178.5	34.0	25.4	22.4	38.2	35.0	73.5	M6	33.0	M8 Bolt
H-235-U-TRIG	1.30 kN	3.40 kN	0.560	60°	85°	71.0	290.0	48.0	41.4	41.4	57.2	57.2	113.0	M8	70.0	M10 Bolt

HTC Series Clamps - PS Series With Additional Locking Mechanism

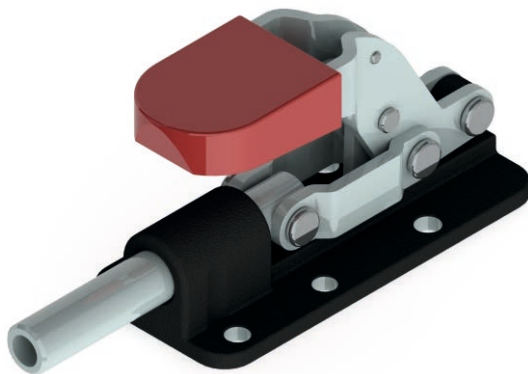


Model No. HTC-603-TRIG

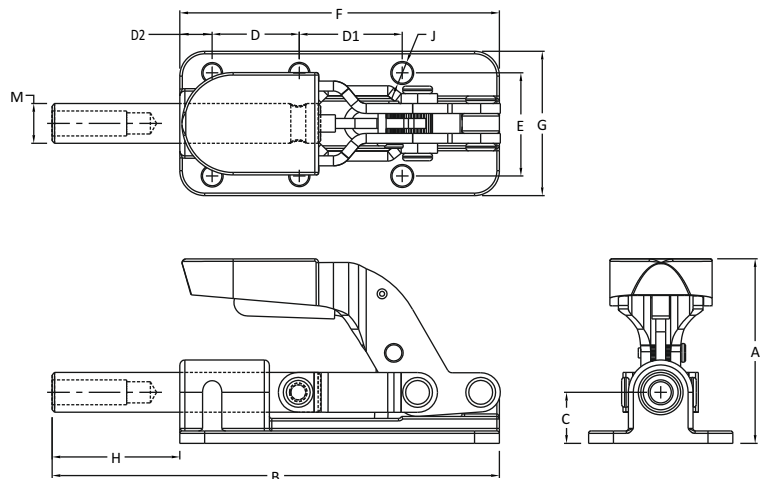


Model No.	Holding Capacity	Weight Kgs	Plunger Travel	Plunger Thread	Dimensions									
					A	B	C	D	E	F	G	H	J	M
HTC - 603 - TRIG	2.90 kN	0.380	31.75	M8 x 1.25	87	121	24	36.5	33.0	52	48	52	6.7	11
HTC - 608 - TRIG	3.90 kN	0.570	41.40	M10 x 1.50	106	153	32	41.4	41.4	57	57	76.8	8.5	15.7

HTC Series Clamps - LH Series With Additional Locking Mechanism



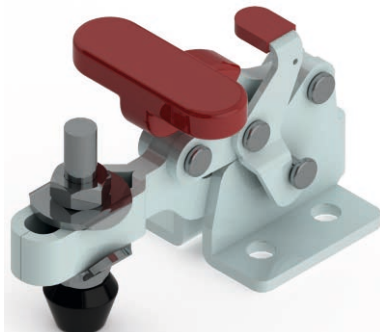
Model No. HTC-630-TRIG



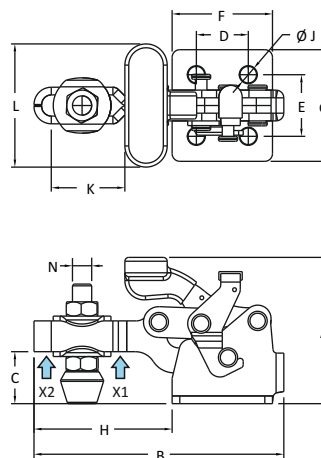
Model No.	Holding Capacity	Weight Kgs	Plunger Travel	Plunger Thread	Dimensions											
					A	B	C	D	D1	D2	E	F	G	H	J	M
HTC - 607 - TRIG	5.90 kN	0.740	41.40	M8 x 1.25	91	153	17.5	35	41.4	16	41.4	108	56	45	7.0	12.7
HTC - 630 - TRIG	7.80 kN	0.890	50.80	M10 x 1.50	82	179	20.5	35	41.4	13	41.4	128.5	58	51	8.5	15.7

Additional Locking Mechanism

Horizontal Hold Down Action With Additional Locking Mechanism



Model No. H - 305 - U - TRIG



Also Available
in Stainless Steel

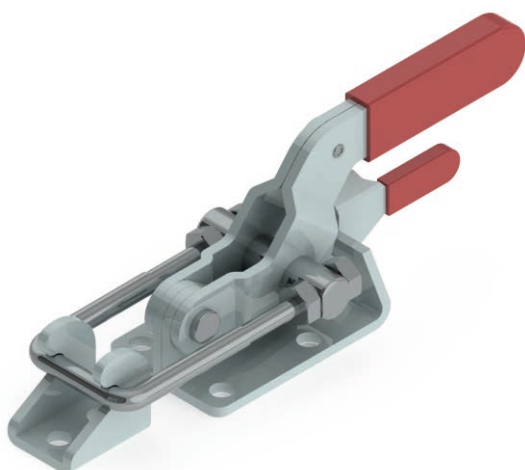
H-305-U-TRIG-SS

H-307-U-TRIG-SS

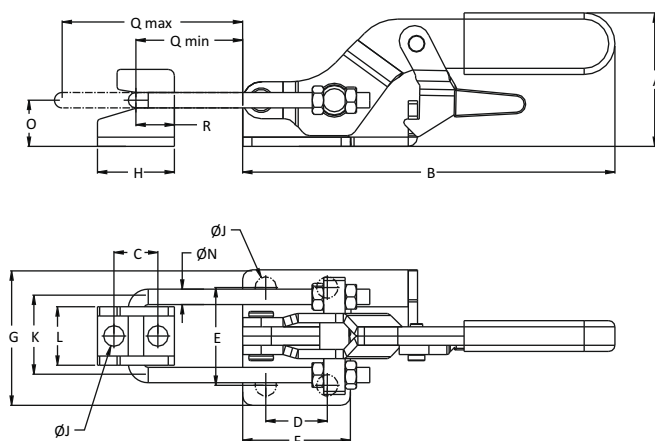
H-309-U-TRIG-SS

Model No.	Holding Capacity		Weight Kgs	Handle Moves	Bar Opens	Dimensions											
	X2	X1				A	B	C	D	E	F	G	H	J	K	L	N
H-305-U-TRIG	0.20 kN	0.50 kN	0.070	175°	92°	38.0	59.0	13.5	13.5	16.0	26.1	25.4	30.0	4.5	8.0	32.0	M5 Bolt
H-307-U-TRIG	1.10 kN	1.50 kN	0.250	175°	92°	62.0	93.0	23.5	23.0	29.4	43.6	46.6	46.0	7.0	17.0	51.0	M8 Bolt
H-309-U-TRIG	2.30 kN	3.40 kN	0.600	160°	88°	91.2	131.8	33.3	35.1	38.1	64.0	62.7	67.6	8.4	26.9	78.0	M10 Bolt

Pull Action Clamps With Additional Locking Mechanism



Model No. PAH-341-TRIG



Also Available
in Stainless Steel

PAH-331-TRIG-SS

PAH-341-TRIG-SS

Model No.	Holding Capacity	Weight Kgs	Drawing Movement	Dimensions															
				A	B	C	D	E	F	G	H	ØJ	K	L	ØN	O	Q Min	Q Max	R
PAH-331-TRIG	3.20 kN	0.250	44.0	45	123	14.6	19.1	31.8	35.1	45	25.4	6.7	28	17.5	5.0	16	15.5	45	13
PAH-341-TRIG	8.80 kN	0.710	63.0	74	168.5	19.1	41.4	38.1	60.6	54.1	38	8.5	44.5	31.2	8.0	23.7	22	42	19

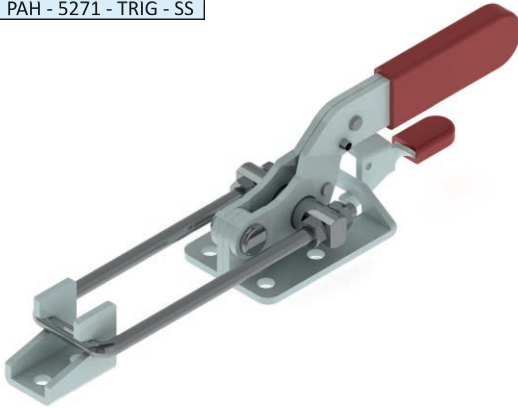
Model No: PAH-5271-TRIG

Holding Capacity - 3.40 kN

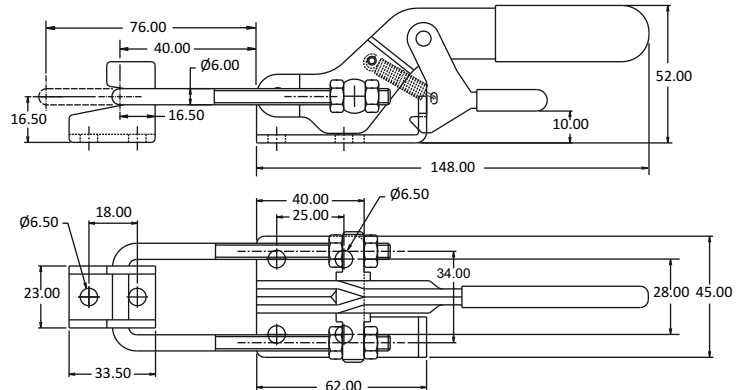
Weight - 0.370 kgs

Also Available
in Stainless Steel

PAH - 5271 - TRIG - SS



Model No. PAH-5271-TRIG-SS



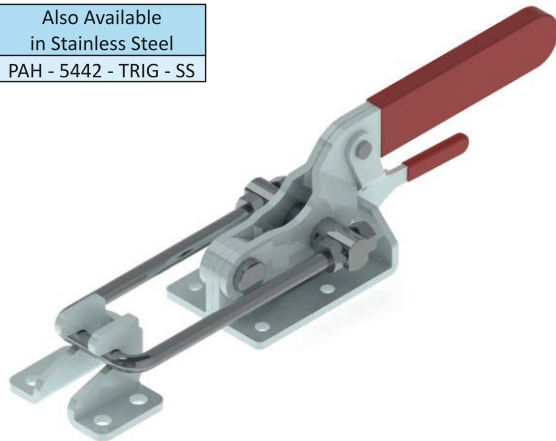
Model No: PAH-5442-TRIG

Holding Capacity - 9.30 kN

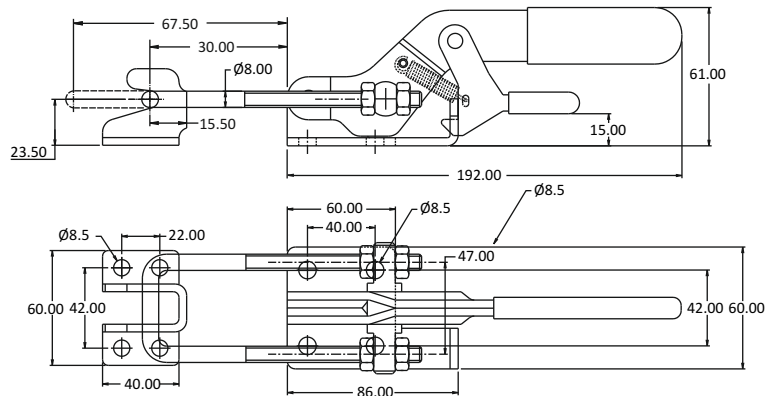
Weight - 0.920 kgs

Also Available
in Stainless Steel

PAH - 5442 - TRIG - SS



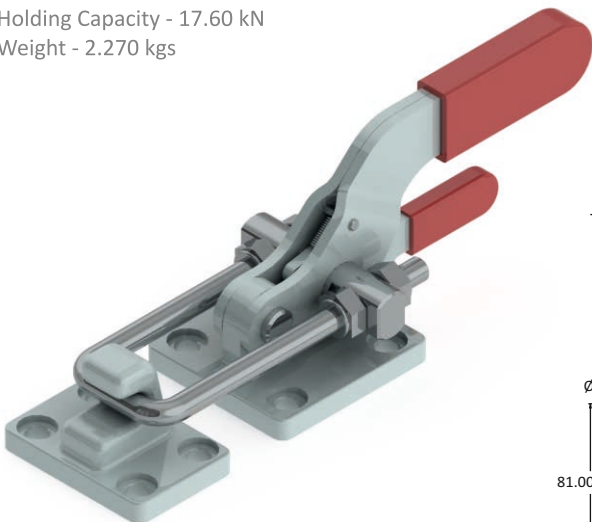
Model No. PAH-5442-TRIG-SS



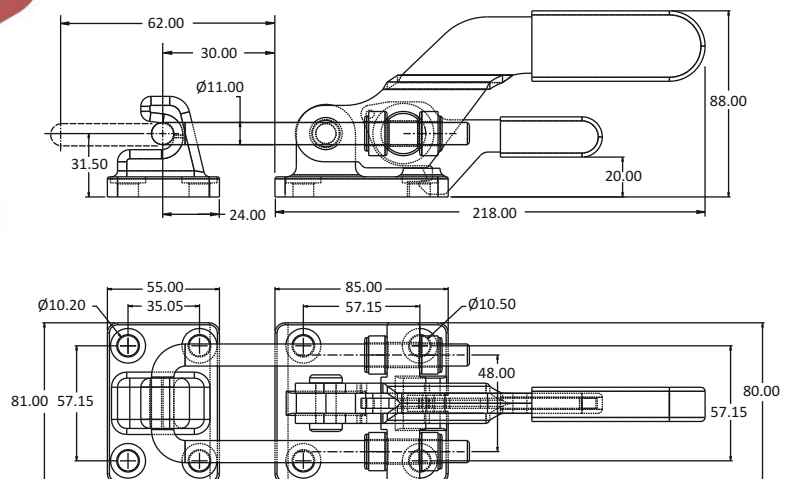
Model No: PAH-2603-TRIG

Holding Capacity - 17.60 kN

Weight - 2.270 kgs



Model No. PAH-2603-TRIG



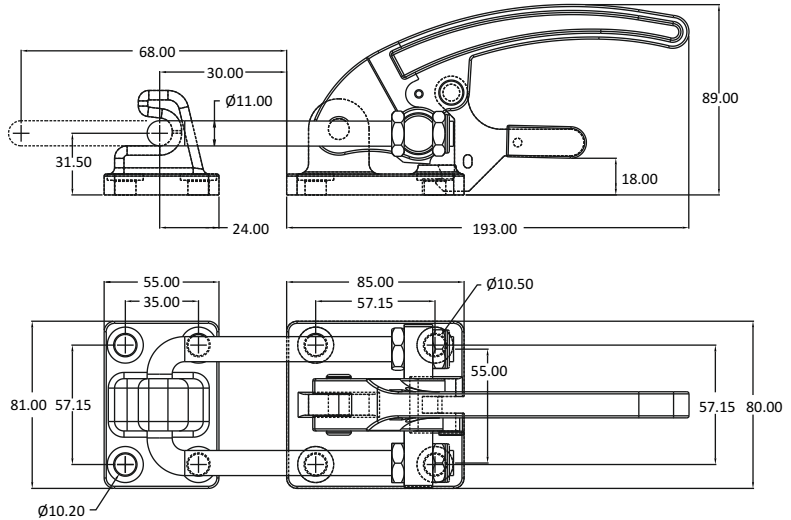
Additional Locking Mechanism

Model No: PAH-385-TRIG

Holding Capacity - 34.30 kN
Weight - 2.500 kgs

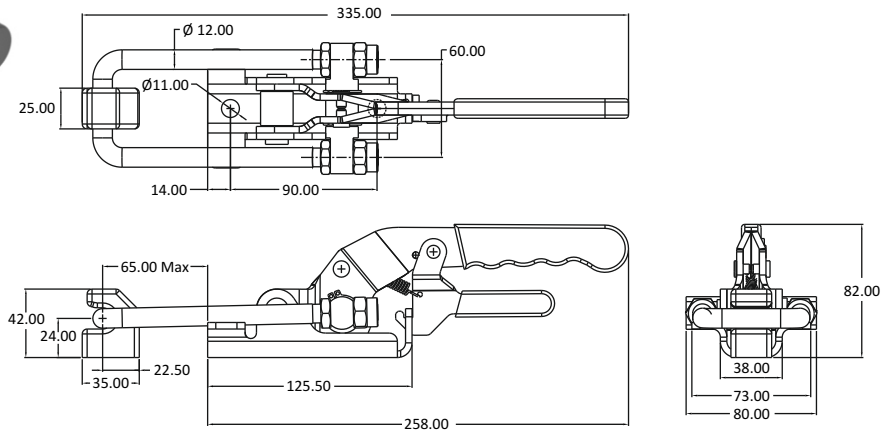


Model No. PAH - 385 - TRIG



Model No: PAH-8001-TRIG

Holding Capacity - 40.00 kN
Weight - 1.500 kgs

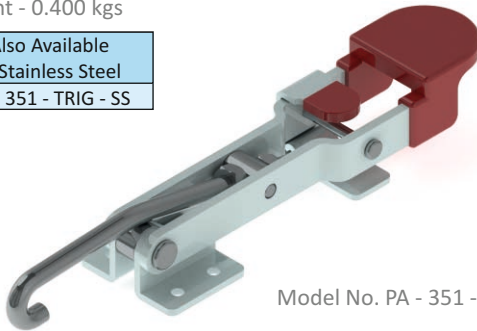


Model No: PA-351-TRIG

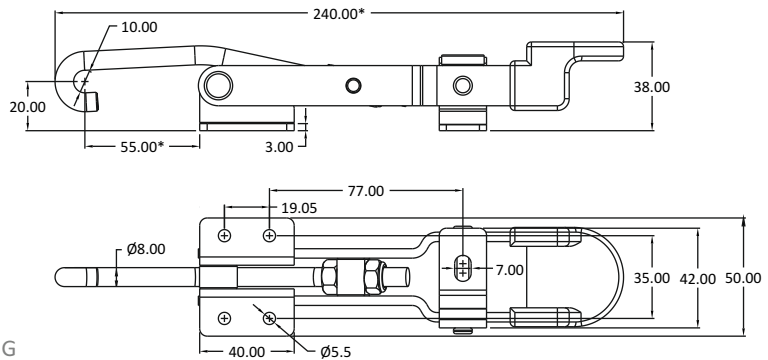
Holding Capacity - 2.00 kN
Weight - 0.400 kgs

Also Available

PA - 351 - TRIG - SS



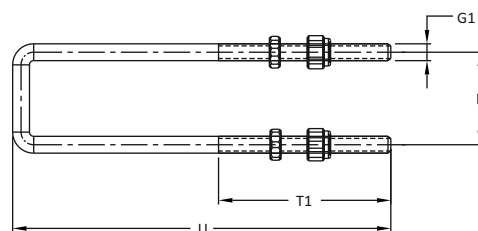
Model No. PA - 351 - TRIG



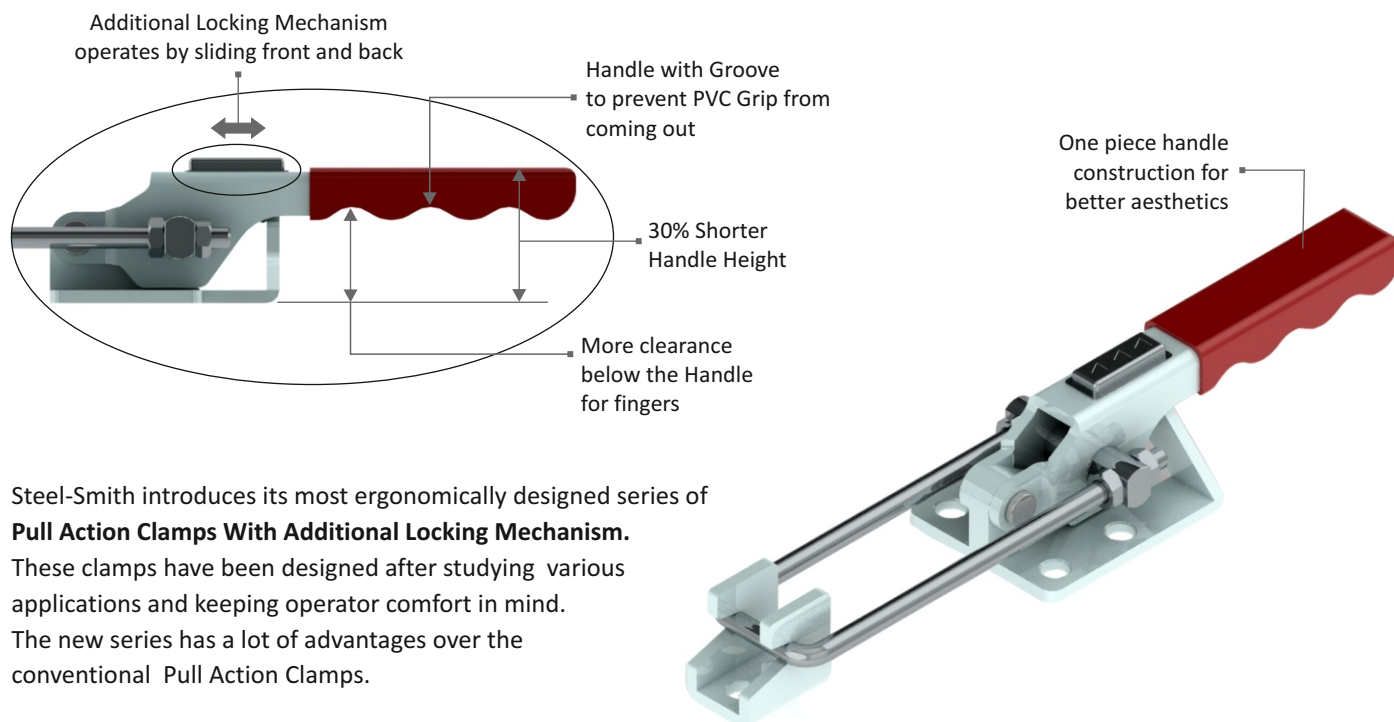
Optional U-Bolt Configuration

Use the below number for additional long U-Bolts

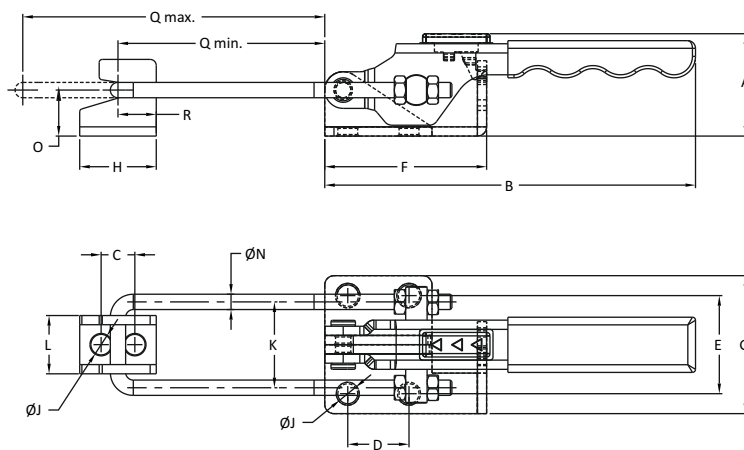
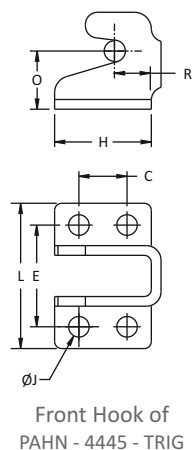
Model No	U Bolt Part Number	SS - U Bolt Part Number	U	T1	G1	K
PAH - 5271-TRIG	M613055	M613055 - SS	130	55	M6	34
PAH - 5271-TRIG - M25	M615555	M615555 - SS	155			
PAH - 5271-TRIG - M50	M618055	M618055 - SS	180			
PAH - 5442-TRIG	M814570	M814570 - SS	145	70	M8	47
PAH - 5442-TRIG - M25	M817070	M817070 - SS	170			
PAH - 5442-TRIG - M50	M819570	M819570 - SS	195			
PAH - 2603-TRIG	M1216585	M1216585 - SS	165	85	M12	48
PAH - 2603-TRIG - M25	M1219085	M1219085 - SS	190			
PAH - 2603-TRIG - M50	M1221585	M1221585 - SS	215			
PAH - 385 - TRIG	M1216585-SS	--	165	85	M12	55
PAH - 385 - TRIG - M50	M1221585-SS	--	215			



The All NEW Pull Action Clamps with Additional Locking Mechanism



Steel-Smith introduces its most ergonomically designed series of **Pull Action Clamps With Additional Locking Mechanism**. These clamps have been designed after studying various applications and keeping operator comfort in mind. The new series has a lot of advantages over the conventional Pull Action Clamps.



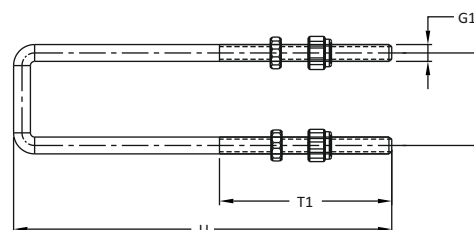
Also Available in Stainless Steel
PAHN - 2210 - TRIG - SS
PAHN - 2515 - TRIG - SS
PAHN - 2725 - TRIG - SS
PAHN - 4445 - TRIG - SS

Model No.	Holding Capacity	Weight Kgs	Drawing Movement	Dimensions															
				A	B	C	D	E	F	G	H	ØJ	K	L	ØN	O	Q Min	Q Max	R
PAHN - 2210 - TRIG	1.00 kN	0.085	46.0	25	96	11	16	20	26	30	20	4.5	21	15	4	12	23.0	56.0	9
PAHN - 2515 - TRIG	2.00 kN	0.180	44.0	30	123	11	20	32	35	45	25	6.5	28	19	5	15	38.0	70.0	13
PAHN - 2725 - TRIG	3.40 kN	0.300	50.0	35	148	18	25	28	40	45	33.5	6.5	33	23	6	16.5	40.0	76.0	16.5
PAHN - 4445 - TRIG	9.30 kN	0.850	88.0	50	192	22	40	42	60	60	40	8.5	47	60	8	23.5	30.0	67.5	15.5

Optional U-Bolt Configuration

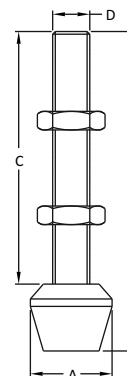
Use the below number for additional long U-Bolts

Model No	U Bolt Part Number	SS - U Bolt Part Number	U	T1	G1	K
PAHN - 2210 - TRIG	M49045	M49045 - SS	90	45	M4	21
PAHN - 2210 - TRIG - M25	M411545	M411545 - SS	115			
PAHN - 2515 - TRIG	M511045	M511045 - SS	110	45	M5	28
PAHN - 2515 - TRIG - M25	M513545	M513545 - SS	135			
PAHN - 2515 - TRIG - M50	M516045	M516045 - SS	160			
PAHN - 2725 - TRIG	M613055	M613055 - SS	130	55	M6	33
PAHN - 2725 - TRIG - M25	M615555	M615555 - SS	155			
PAHN - 2725 - TRIG - M50	M618055	M618055 - SS	180			
PAHN - 4445 - TRIG	M814570	M814570 - SS	145	70	M8	47
PAHN - 4445 - TRIG - M25	M817070	M817070 - SS	170			
PAHN - 4445 - TRIG - M50	M819570	M819570 - SS	195			



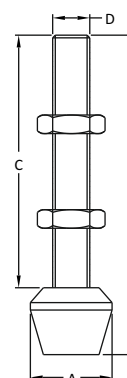
RUBBER TIP SPINDLES - RT

Model No.	A	B	C	D
RT-420	9	24	19	M 4
RT-529	11	29	24	M 5
RT-533	12	33	24	M 5
RT-539	12	39	30	M 5
RT-645	15	46	33	M 6
RT-655	15	55	42	M 6
RT-865	18	66	50	M 8
RT-1085	23	86	66	M 10
RT-12115	23	116	97	M 12
RT-12155	23	163	144	M 12
RT-16170	32	173	147	M 16



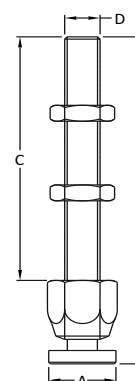
NYLON TIP SPINDLES - NT

Model No.	A	B	C	D
NT-645	15	48	35	M 6
NT-865	18	72	55	M 8
NT-1085	24	90	70	M 10
NT-12115	24	120	102	M 12
NT-12155	24	160	142	M 12
NT-16170	32	173	147	M 16



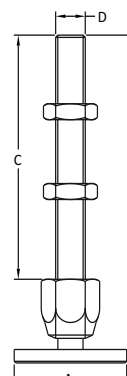
SWIVEL FOOT SPINDLES - SW

Model No.	A	B	C	D
SW-645	12.5	60	36	M 6
SW-865	16	85	63	M 8
SW-1085	19	102	75	M 10
SW-12115	19	133	105	M 12
SW-12155	19	173	144	M 12
SW-16170	50	190	155	M 16



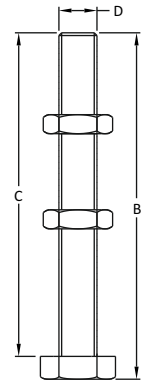
LARGE DIAMETER SWIVEL FOOT SPINDLES - SW

Model No.	A	B	C	D
LDSW-645	25	60	36	M 6
LDSW-865	32	85	63	M 8
LDSW-1085	38	102	75	M 10
LDSW-12115	38	133	105	M 12
LDSW-12155	38	173	144	M 12
LDSW-16170	100	190	155	M 16



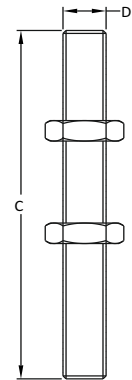
STANDARD HEX SPINDLES - SH

Model No.	B	C	D
SH-645	49	45	M 6
SH-865	70	64	M 8
SH-1085	97	90	M 10
SH-12115	132	124	M 12
SH-12155	150	142	M 12
SH-16170	192	181	M 16



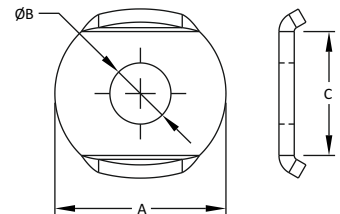
PLAIN SPINDLES - PS

Model No.	C	D
PS-645	46	M 6
PS-865	69	M 8
PS-1085	85	M 10
PS-12115	116	M 12
PS-16170	172	M 16



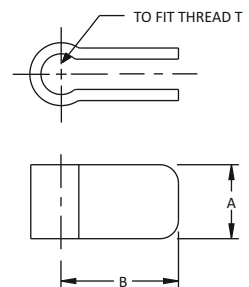
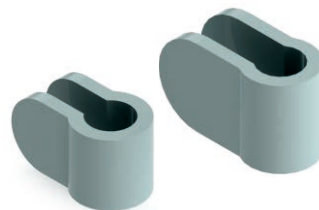
WASHERS

Model No.	A	B	C
M4-WSHR	9	4.2	—
M5-WSHR	15	5.2	9.5
M6-WSHR	19.5	6.2	13.5
M8-WSHR	22.5	8.2	16.5
M10-WSHR	25	10.2	19.5
M12-WSHR	27.5	12.2	21.5
M16-WSHR	31	16.2	29.5



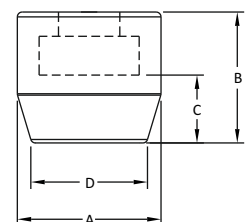
BOLT RETAINER - BR

Model No.	A	B	TØ
BR-1	10	20	6
BR-2	20	27	10
BR-3	20	30	12
BR-4	25	32	16
BR-5	12	23	8
BR-6	20	27	10
BR-7	25	30	12

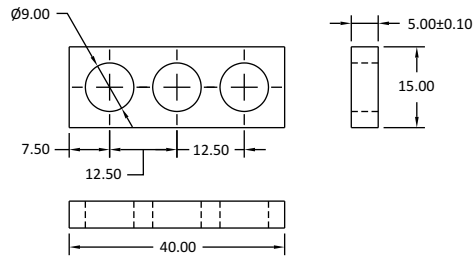
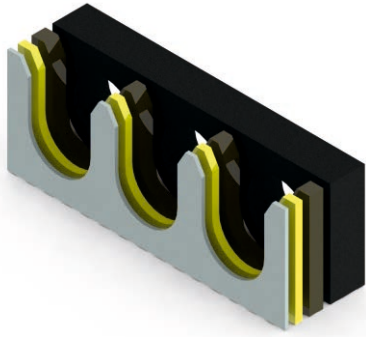


RUBBER CAPS - RC

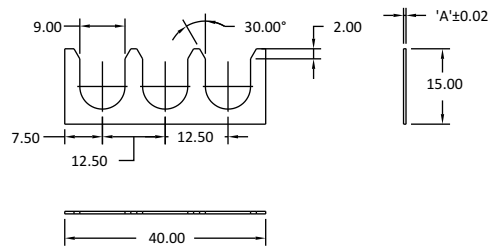
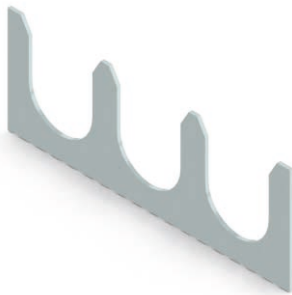
Model No.	A	B	C	D	For Hex Bolt Size
RC - 512	12.5	10	5	8	M 5
RC - 615	15	12	6	10	M 6
RC - 819	19	15	7.5	13	M 8
RC - 1022	22	17.5	8.5	15	M 10



SHIMPACKS SERIES 4015- TML

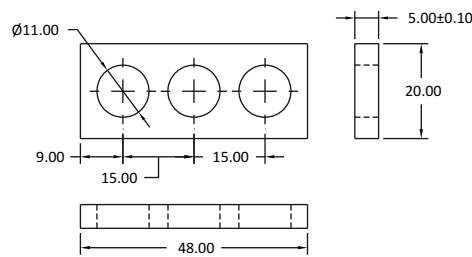
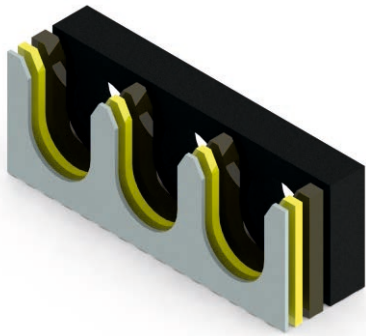


Model No. NX4015-TML-4

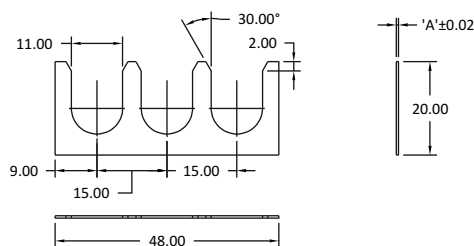
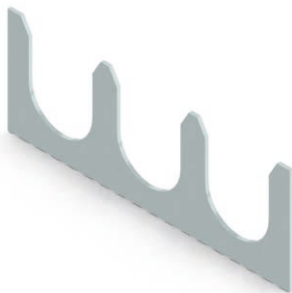


Model No.	Dim 'A'
NX4015-TML-1	0.50 ± 0.02
NX4015-TML-2	1.00 ± 0.02
NX4015-TML-3	2.00 ± 0.02

SHIMPACKS SERIES 4820- TML

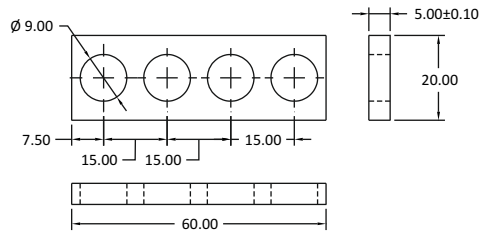
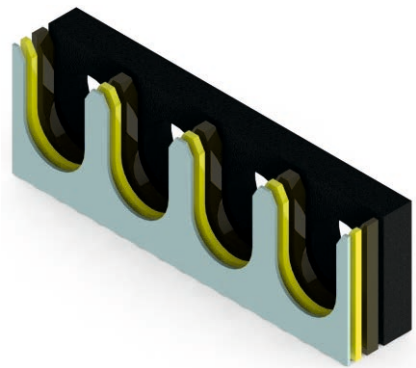


Model No. NX4820-TML-4

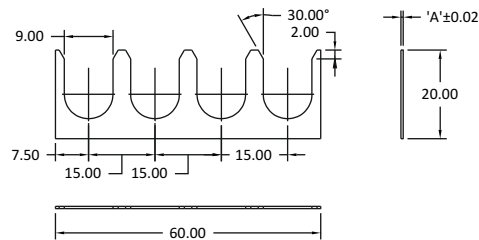
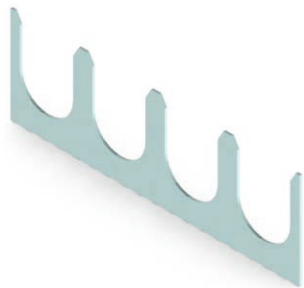


Model No.	Dim 'A'
NX4820-TML-1	0.50 ± 0.02
NX4820-TML-2	1.00 ± 0.02
NX4820-TML-3	2.00 ± 0.02

SHIMPACKS SERIES 6020- TML

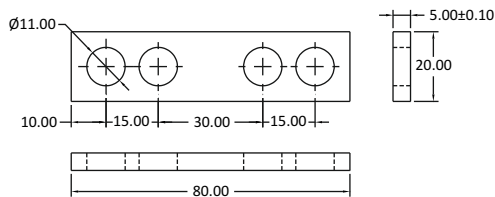
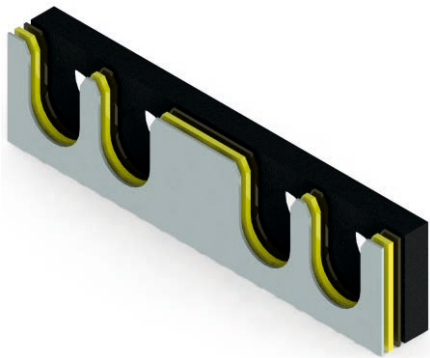


Model No. NX6020-TML-4

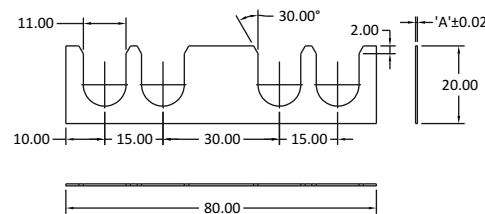
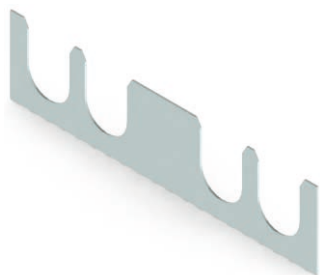


Model No.	Dim 'A'
NX6020-TML-1	0.50 ± 0.02
NX6020-TML-2	1.00 ± 0.02
NX6020-TML-3	2.00 ± 0.02

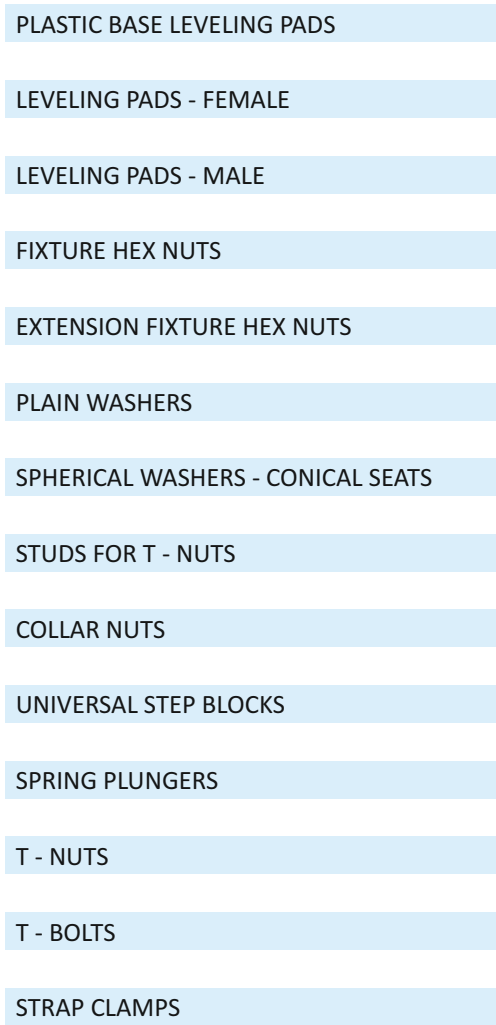
SHIMPACKS SERIES 8020- TML



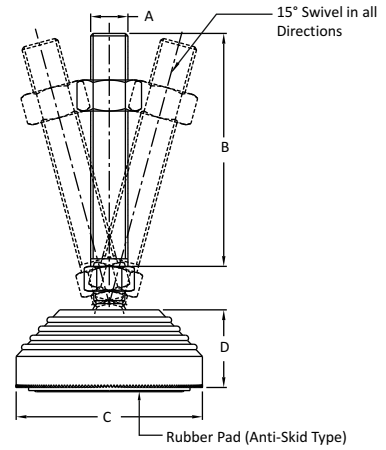
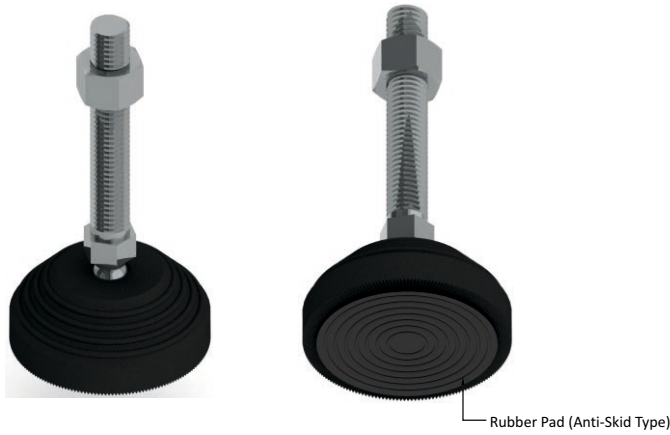
Model No. NX8020-TML-4



Model No.	Dim 'A'
NX8020-TML-1	0.50 ± 0.02
NX8020-TML-2	1.00 ± 0.02
NX8020-TML-3	2.00 ± 0.02



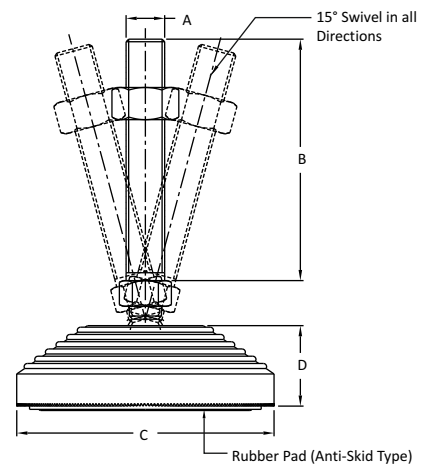
TECHNOPOLYMER PLASTIC BASE LEVELING PADS With Rubber Bottom for Anti-Skid (60mm Base)



Model No.	A	B	C	D	Max. Load Capacity
TPLP - 1075 - 60	M 10	75	60	24	1.00 kN
TPLP - 10100 - 60	M 10	100	60	24	1.00 kN
TPLP - 10125 - 60	M 10	125	60	24	1.00 kN
TPLP - 1275 - 60	M 12	75	60	24	1.00 kN
TPLP - 12100 - 60	M 12	100	60	24	1.00 kN
TPLP - 12125 - 60	M 12	125	60	24	1.00 kN

Model No.	A	B	C	D	Max. Load Capacity
TPLP - 1675 - 60	M 16	75	60	24	1.00 kN
TPLP - 16100 - 60	M 16	100	60	24	1.00 kN
TPLP - 16125 - 60	M 16	125	60	24	1.00 kN

TECHNOPOLYMER PLASTIC BASE LEVELING PADS With Rubber Bottom for Anti-Skid (80mm Base)



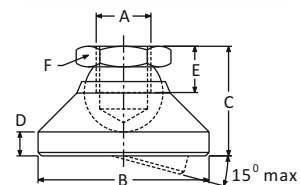
Model No.	A	B	C	D	Max. Load Capacity
TPLP - 1075 - 80	M 10	75	80	22	1.40 kN
TPLP - 10100 - 80	M 10	100	80	22	1.40 kN
TPLP - 10125 - 80	M 10	125	80	22	1.40 kN
TPLP - 1275 - 80	M 12	75	80	22	1.40 kN
TPLP - 12100 - 80	M 12	100	80	22	1.40 kN
TPLP - 12125 - 80	M 12	125	80	22	1.40 kN

Model No.	A	B	C	D	Max. Load Capacity
TPLP - 1675 - 80	M 16	75	80	22	1.40 kN
TPLP - 16100 - 80	M 16	100	80	22	1.40 kN
TPLP - 16125 - 80	M 16	125	80	22	1.40 kN

Fixture Elements

LEVELING PADS - FEMALE

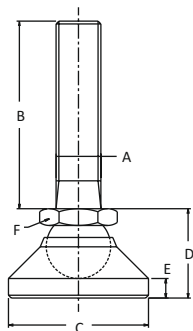
Model No.	A	B	C	D	E	F	Wt. in Kgs	Max. load capacity for static load kN max.
SLPF-624	M 6	20	14	2.5	5	10	0.017	10
SLPF-825	M 8	25	18	4.0	7.0	13	0.036	18
SLPF-1032	M 10	32	22	5.0	9.0	17	0.077	20
SLPF-1240	M 12	40	26	6.0	11.0	19	0.125	35
SLPF-1650	M 16	50	32	7.0	13.5	24	0.250	45
SLPF-2060	M 20	60	42	8.0	17.0	30	0.480	55
SLPF-2460	M 24	60	45	9.5	19.0	36	0.665	65



FEATURES:

Material: Steel Quality - Heat Treated
Finish: Black Oxide

LEVELING PADS - MALE

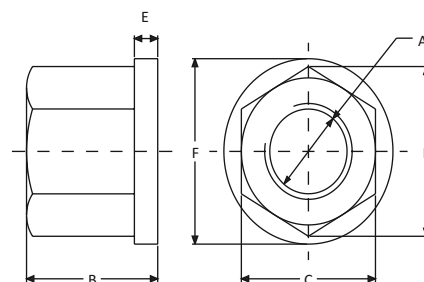


FEATURES:

Material: Steel Quality - Heat Treated
Finish: Black Oxide

Model No.	A	B	C	D	E	F	Wt. in Kgs	Max. load capacity for static load kN max.
SLPM-660	M 6	60	20	14	2.5	10	0.032	10
SLPM-880	M 8	80	25	18	4.0	13	0.064	18
SLPM-10100	M 10	100	32	22	5.0	17	0.130	20
SLPM-10150	M 10	150	32	22	5.0	17	0.155	20
SLPM-12100	M 12	100	40	26	6.0	19	0.210	35
SLPM-12150	M 12	150	40	26	6.0	19	0.255	35
SLPM-16100	M 16	100	50	32	7.0	24	0.400	45
SLPM-16200	M 16	200	50	32	7.0	24	0.540	45
SLPM-20100	M 20	100	60	42	8.0	30	0.740	55
SLPM-20200	M 20	200	60	42	8.0	30	0.950	55
SLPM-24100	M 24	100	60	45	9.5	36	0.850	65
SLPM-24200	M 24	200	60	45	9.5	36	1.145	65

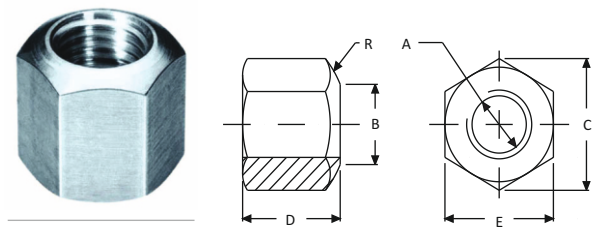
COLLAR NUTS DIN - 6331



Model No.	A	B	C	D	E	F	Wt. in Kgs
DCCN-812	M 8	12	13	15.0	3.5	18	0.012
DCCN-1015	M 10	15	16	18.5	4.0	22	0.022
DCCN-1218	M 12	18	18	20.8	4.0	25	0.031
DCCN-1624	M 16	24	24	27.7	5.0	31	0.069
DCCN-2030	M 20	30	30	34.6	6.0	37	0.127
DCCN-2436	M 24	36	36	41.6	6.0	45	0.215

FIXTURE HEX NUTS

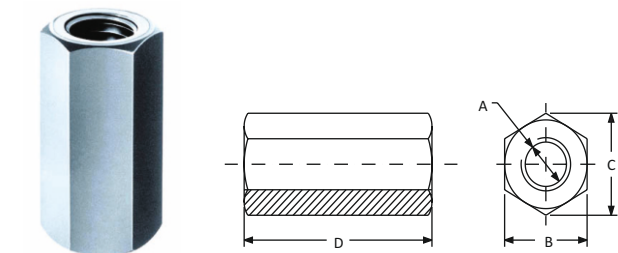
Model No.	A	B	C	D	E	R	Wt. in Kgs
FXN-8120	M 8	9	15	12	13	11	0.010
FXN-10150	M 10	11.5	19.6	15	17	15	0.020
FXN-12180	M 12	14	21.9	18	19	17	0.032
FXN-16240	M 16	18	27.7	24	24	22	0.060
FXN-20300	M 20	22	34.6	30	30	27	0.120
FXN-24360	M 24	26	41.6	36	45	30	0.195
FXN-30450	M 30	32	53.1	45	46	34	0.405



FEATURES:
Material: Steel Quality
Finish: Black Oxide

EXTENSION FIXTURE HEX NUTS

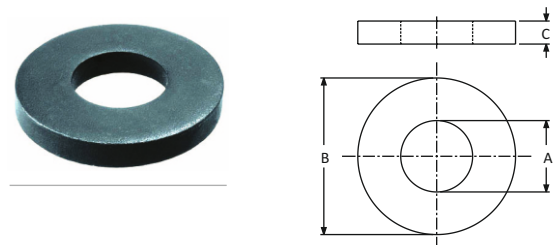
Model No.	A	B	C	D	Wt. in Kgs
EFXN-824	M 8	13	15	24	0.190
EFXN-1030	M 10	17	19.6	30	0.420
EFXN-1236	M 12	19	21.9	36	0.640
EFXN-1648	M 16	24	27.7	48	0.120
EFXN-2060	M 20	30	34.5	60	0.240
EFXN-2472	M 24	36	41.6	72	0.400
EFXN-3090	M 30	45	53.1	90	0.850



FEATURES:
Material: Steel Quality
Finish: Black Oxide

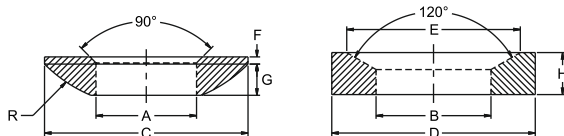
PLAIN WASHERS - DIN-6340

Model No.	A	B	C	For Bolt	Wt. in Kgs
SPW-84	8.4	23	4	M 8	0.010
SPW-104	10.5	28	4	M 10	0.016
SPW-125	13	35	5	M 12	0.035
SPW-166	17	45	6	M 16	0.060
SPW-206	21	50	6	M 20	0.100
SPW-248	25	60	8	M 24	0.170
SPW-3010	31	68	10	M 30	0.230



FEATURES:
Material: Heat Treated Steel
Finish: Black Oxide

SPHERICAL WASHERS - CONICAL SEATS DIN - 6319



FEATURES:
Material: Heat Treated Steel
Finish: Black Oxide

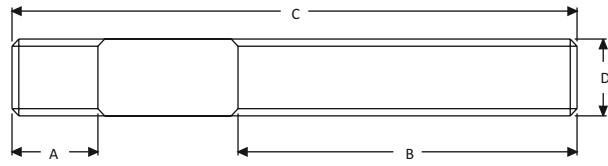
Model No.	For Bolt	A	B	C	D	E	F	G	H	R	Wt. in Kgs
DSWCS-812	M 8	8.4	9.6	17	17	14.5	0.6	3.2	3.5	12	0.006
DSWCS-1015	M 10	10.5	12	21	21	18.5	0.8	4.0	4.2	15	0.012
DSWCS-1217	M 12	13	14.2	24	24	20.0	1.1	4.6	5.0	17	0.012
DSWCS-1622	M 16	17	19	30	30	26.0	1.3	5.3	6.2	22	0.031
DSWCS-2027	M 20	21	23.2	36	36	31.0	2.0	6.3	7.5	27	0.055
DSWCS-2432	M 24	25	28	44	44	37.0	2.4	8.2	9.5	32	0.100

Clamping Devices

STUDS FOR T-NUTS DIN-6379



Finish: Black Oxide



FEATURES:

Material: Heat Treated Steel

Special: Longer or special studs are available on request.

Model No.	A	B	C	D	Wt. in Kgs.
DCS-632	9	16	32	M 6	0.008
DCS-650	9	30	50	M 6	0.011
DCS-663	9	40	63	M 6	0.014
DCS-680	9	50	80	M 6	0.018
DCS-840	11	20	40	M 8	0.010
DCS-863	11	40	63	M 8	0.020
DCS-8100	11	63	100	M 8	0.030
DCS-8160	11	100	160	M 8	0.045
DCS-1080	13	50	80	M 10	0.040
DCS-10100	13	75	100	M 10	0.050
DCS-10125	13	75	125	M 10	0.065
DCS-10160	13	100	160	M 10	0.080
DCS-10200	13	125	200	M 10	0.100
DCS-1280	15	50	80	M 12	0.060
DCS-12100	15	63	100	M 12	0.070
DCS-12125	15	75	125	M 12	0.090
DCS-12200	15	125	200	M 12	0.140
DCS-16100	19	63	100	M 16	0.130
DCS-16125	19	75	125	M 16	0.160
DCS-16160	19	100	160	M 16	0.210

Model No.	A	B	C	D	Wt. in Kgs.
DCS-16200	19	125	200	M 16	0.280
DCS-16250	19	160	250	M 16	0.325
DCS-16315	19	180	315	M 16	0.425
DCS-16500	19	180	500	M 16	0.650
DCS-20125	27	70	125	M 20	0.255
DCS-20160	27	100	160	M 20	0.330
DCS-20200	27	125	200	M 20	0.410
DCS-20250	27	160	250	M 20	0.510
DCS-20315	27	190	315	M 20	0.640
DCS-20400	27	250	400	M 20	0.815
DCS-20500	27	315	500	M 20	1.020
DCS-24100	35	45	100	M 24	0.290
DCS-24125	35	63	125	M 24	0.380
DCS-24160	35	100	160	M 24	0.470
DCS-24200	35	125	200	M 24	0.580
DCS-24250	35	160	250	M 24	0.725
DCS-24315	35	200	315	M 24	0.920
DCS-24400	35	250	400	M 24	1.160
DCS-24630	35	315	630	M 24	1.850

UNIVERSAL STEP BLOCKS

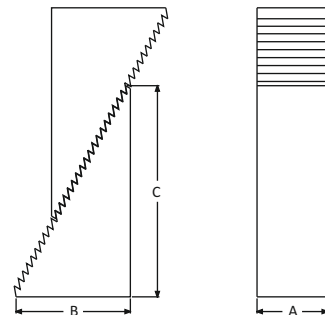


FEATURES:

Material: Heat Treated Steel

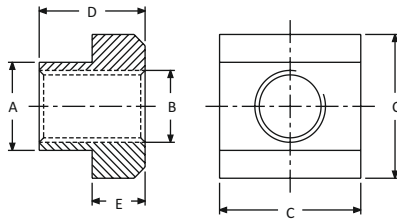
Finish: Black Oxide

Note: All three sizes can be combined with one another



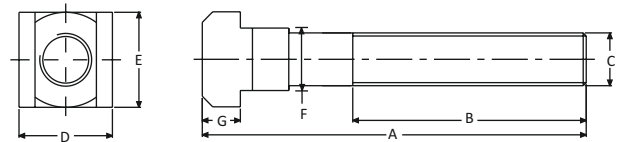
Model No.	A	B	C	Adjustable Height		Wt. in Kgs.
				Min.	Max.	
SSB-5033	24	30	33	22	50	0.110
SSB-10766	40	30	66	38	107	0.220
SSB-210131	73	30	131	69	208	0.490

T-NUTS DIN-508



Model No.	T-Slot Size	A	B	C	D	E	Wt. in Kgs
TNSS-108	10	9.6	M 8	15	12	6	0.014
TNSS-128	12	11.6	M 8*	18	14	7	0.022
TNSS-1210	12	11.6	M 10	18	14	7	0.022
TNSS-1410	14	13.6	M 10*	22	16	8	0.034
TNSS-1412	14	13.6	M 12	22	16	8	0.034
TNSS-1612	16	15.6	M 12*	25	18	9	0.050
TNSS-1816	18	17.6	M 16	28	20	10	0.068
TNSS-2016	20	19.6	M 16*	32	24	12	0.107
TNSS-2220	22	21.6	M 20	35	28	14	0.155
TNSS-2420	24	23.6	M 20*	40	32	16	0.220
TNSS-2824	28	27.6	M 24	44	36	18	0.330

T-BOLTS DIN-787

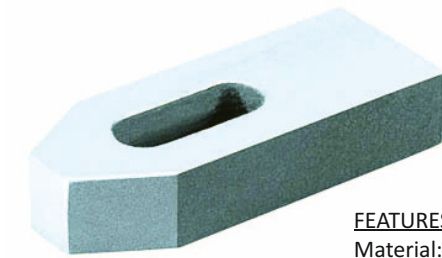


Model No.	T-Slot	A	B	C	D	E	F	G	Wt. in Kgs
TBSS - 850	8	50	35	M 8	13	13	7.6	6	0.025
TBSS - 865	8	65	35	M 8	13	13	7.6	6	0.035
TBSS - 880	8	80	50	M 8	13	13	7.6	6	0.040
TBSS - 1050	10	50	30	M 10	15	15	9.6	6	0.040
TBSS - 1065	10	65	45	M 10	15	15	9.6	6	0.050
TBSS - 1080	10	80	50	M 10	15	15	9.6	6	0.060
TBSS - 10100	10	100	60	M 10	15	15	9.6	6	0.070
TBSS - 1250	12	50	35	M 12	18	18	11.6	7	0.060
TBSS - 1265	12	65	40	M 12	18	18	11.6	7	0.065
TBSS - 1280	12	80	55	M 12	18	18	11.6	7	0.075
TBSS - 12100	12	100	65	M 12	18	18	11.6	7	0.090
TBSS - 12125	12	125	75	M 12	18	18	11.6	7	0.120
TBSS - 12160	12	160	80	M 12	18	18	11.6	7	0.145
TBSS - 12200	12	200	120	M 12	18	18	11.6	7	0.165
TBSS - 12250	12	250	150	M 12	18	18	11.6	7	0.185
TBSS - 1450	14	50	35	M 12	22	22	13.6	8	0.070
TBSS - 1465	14	65	40	M 12	22	22	13.6	8	0.080
TBSS - 1480	14	80	55	M 12	22	22	13.6	8	0.100
TBSS - 14100	14	100	65	M 12	22	22	13.6	8	0.110
TBSS - 14125	14	125	75	M 12	22	22	13.6	8	0.120
TBSS - 14160	14	160	80	M 12	22	22	13.6	8	0.150
TBSS - 14200	14	200	120	M 12	22	22	13.6	8	0.180
TBSS - 14250	14	250	150	M 12	22	22	13.6	8	0.220
TBSS - 1665	16	65	45	M 16	25	25	15.6	9	0.140
TBSS - 1680	16	80	55	M 16	25	25	15.6	9	0.160
TBSS - 16100	16	100	65	M 16	25	25	15.6	9	0.186
TBSS - 16125	16	125	80	M 16	25	25	15.6	9	0.205
TBSS - 16160	16	160	100	M 16	25	25	15.6	9	0.264
TBSS - 16200	16	200	100	M 16	25	25	15.6	9	0.315
TBSS - 16250	16	250	150	M 16	25	25	15.6	9	0.380
TBSS - 16315	16	315	180	M 16	25	25	15.6	9	0.440
TBSS - 1865	18	65	45	M 16	28	28	17.6	10	0.160
TBSS - 1880	18	80	55	M 16	28	28	17.6	10	0.185

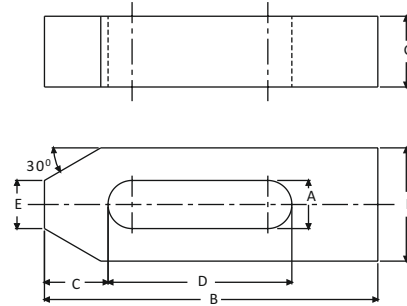
Model No.	T-Slot	A	B	C	D	E	F	G	Wt. in Kgs
TBSS - 18100	18	100	65	M 16	28	28	17.6	10	0.203
TBSS - 18125	18	125	65	M 16	28	28	17.6	10	0.235
TBSS - 18160	18	160	100	M 16	28	28	17.6	10	0.280
TBSS - 18200	18	200	125	M 16	28	28	17.6	10	0.330
TBSS - 18250	18	250	150	M 16	28	28	17.6	10	0.430
TBSS - 18315	18	315	180	M 16	28	28	17.6	10	0.530
TBSS - 2080	20	80	55	M 20	32	32	19.6	12	0.290
TBSS - 20100	20	100	65	M 20	32	32	19.6	12	0.340
TBSS - 20125	20	125	85	M 20	32	32	19.6	12	0.390
TBSS - 20160	20	160	110	M 20	32	32	19.6	12	0.470
TBSS - 20200	20	200	125	M 20	32	32	19.6	12	0.550
TBSS - 20250	20	250	150	M 20	32	32	19.6	12	0.670
TBSS - 20315	20	315	190	M 20	32	32	19.6	12	0.800
TBSS - 2280	22	80	55	M 20	35	35	21.6	14	0.330
TBSS - 22100	22	100	60	M 20	35	35	21.6	14	0.400
TBSS - 22125	22	125	85	M 20	35	35	21.6	14	0.428
TBSS - 22160	22	160	100	M 20	35	35	21.6	14	0.500
TBSS - 22200	22	200	125	M 20	35	35	21.6	14	0.570
TBSS - 22250	22	250	150	M 20	35	35	21.6	14	0.680
TBSS - 22315	22	315	190	M 20	35	35	21.6	14	0.820
TBSS - 24100	24	100	70	M 24	40	40	23.6	16	0.540
TBSS - 24125	24	125	85	M 24	40	40	23.6	16	0.640
TBSS - 24160	24	160	110	M 24	40	40	23.6	16	0.770
TBSS - 24200	24	200	125	M 24	40	40	23.6	16	0.900
TBSS - 24250	24	250	150	M 24	40	40	23.6	16	1.040
TBSS - 24315	24	315	190	M 24	40	40	23.6	16	1.270
TBSS - 28100	28	100	70	M 24	44	44	27.6	18	0.650
TBSS - 28125	28	125	75	M 24	44	44	27.6	18	0.720
TBSS - 28160	28	160	110	M 24	44	44	27.6	18	0.800
TBSS - 28200	28	200	125	M 24	44	44	27.6	18	0.950
TBSS - 28250	28	250	150	M 24	44	44	27.6	18	1.120
TBSS - 28315	28	315	160	M 24	44	44	27.6	18	1.350
TBSS - 28400	28	400	250	M 24	44	44	27.6	18	1.500

Clamping Devices

STRAP CLAMP FLAT DIN-6134

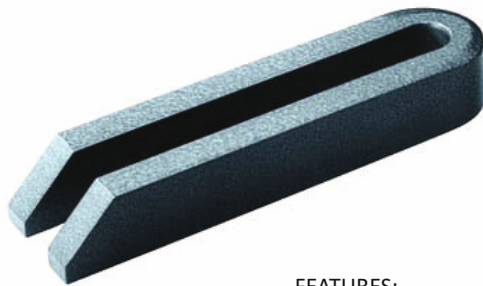


FEATURES:
Material: Heat Treated Steel
Finish: Black Oxide

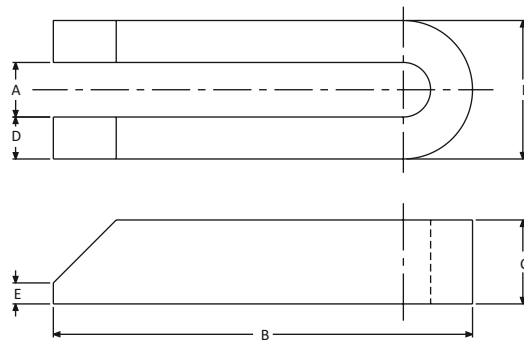


Model No.	A	B	C	D	E	F	G	For Bolt	Wt. in Kgs
SCF-860	9	60	13	22	10	25	12	M 8	0.110
SCF-1080	11	80	15	30	12	30	16	M 10	0.220
SCF-12100	14	100	21	40	14	40	20	M 12	0.490
SCF-12125	14	125	21	50	14	40	20	M 12	0.600
SCF-16125	18	125	26	45	18	50	25	M 16	1.000
SCF-16160	18	160	26	65	18	50	25	M 16	1.200
SCF-20160	22	160	30	60	22	60	30	M 20	1.830
SCF-20200	22	200	30	80	22	60	30	M 20	2.290
SCF-24200	26	200	30	80	26	70	40	M 24	3.400
SCF-24250	26	250	35	105	26	70	40	M 24	3.850

OPEN-ENDED STRAP CLAMP FLAT DIN -6135-B



FEATURES:
Material: Heat Treated Steel
Finish: Black Oxide

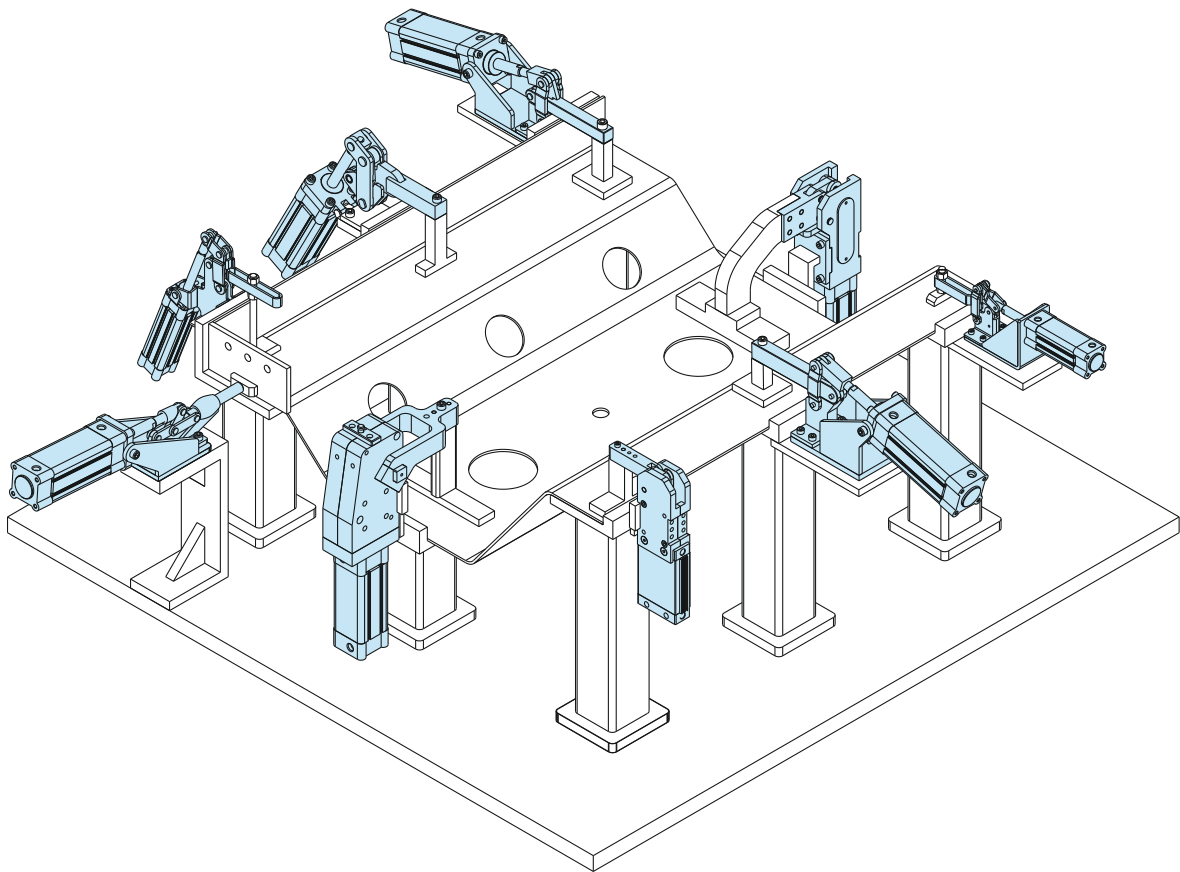


Model No.	A	B	C	D	E	F	For Bolt	Wt. in Kgs
UFS-880	9	80	15	8	4	25	M 8	0.150
UFS-10100	11	100	20	10	5	31	M 10	0.300
UFS-12125	14	125	25	12	6	38	M 12	0.570
UFS-12160	14	160	25	12	6	38	M 12	0.730
UFS-12200	14	220	25	12	6	38	M 12	0.910
UFS-16160	18	160	30	16	8	50	M 16	1.080
UFS-16200	18	200	30	16	8	50	M 16	1.360
UFS-16250	18	250	30	16	8	50	M 16	1.700
UFS-20200	22	200	40	20	10	62	M 20	1.800
UFS-20250	22	250	40	20	10	62	M 20	3.020
UFS-20315	22	315	40	20	10	62	M 20	3.830
UFS-24200	26	200	40	20	10	66	M 24	2.400
UFS-24250	26	250	40	20	10	66	M 24	3.050
UFS-24315	26	315	40	20	10	66	M 24	3.830

The sheer power of air clamping at your command

Steel-Smith Pneumatic Toggle Clamps combine the unfaltering Steel-smith toggle action with the speed and efficiency of pneumatic actuators.

These clamps yield high-speed operations with secure and finely controlled clamping pressures. Any number of these clamps can be operated instantly at the touch of a switch and where required they can be arranged to operate in any desired clamping sequence. Pneumatic Toggle Clamps are available in a variety of actions and models to meet the various clamping requirements.



Advantages:

- Pneumatic Toggle Clamps relieve operator of strenuous clamping movement
- A number of clamps can be used simultaneously
- A number of clamps with different sequences can be simultaneously operated
- One or more clamps can be controlled from the machine panel
- One or more clamps can be operated from different positions
- Clamps stay locked in the event of air failure
- Low air consumption with maximum leverage
- Large opening angle ensures easy component removal
- Assurance of a maximum power-to movement ratio
- Production time is reduced by 40%

Pneumatic Clamps

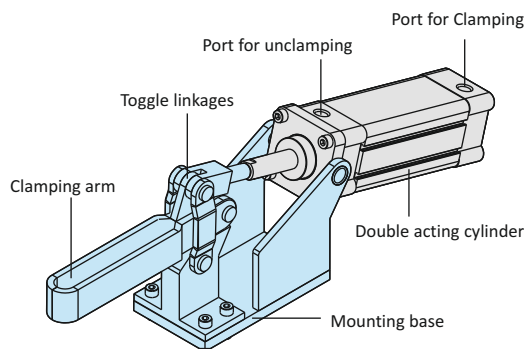
Introduction

What is a Pneumatic Toggle Clamp?

A Pneumatic Toggle clamp is basically a Toggle Clamp actuated with a double acting pneumatic cylinder.

The Clamps consists of a double acting cylinder, a clamping arm, linkages for multiplying the applied force, and a base for mounting at the workplace on its base.

Air pressure is applied in the clamping port, which thereby moves the clamping arm to hold the work piece. A required clamping force is achieved and exerted on the work piece. Under this action the Toggle Clamp Holds the work piece firmly and positively. To unlock the clamp the air pressure is applied in the unclamping port.



Pneumatic Toggle Action Force Factors

Holding Capacity:

The holding capacity mentioned for each clamp refers to the maximum force, which the clamp can withstand after being over-centered without damage to the clamp and without the toggle unlocking due to distortion of the clamp.

The over-center dimension is carefully chosen in relation to the elasticity of the clamp to maximize clamping force while ensuring that the clamp locks closed even under vibration or intermittent loading.

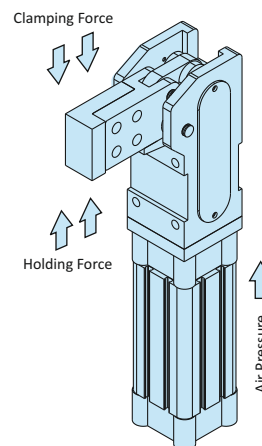
For Hold Down Clamps, holding capacity is measured with the spindle at the nearest end of the clamping arm and will decrease as the spindle goes farther away from the clamping arm. In cases of DCTC & SSC series the holding capacity is measured considering the specified arm length and if the arm length is increased the holding capacity will decrease accordingly.

Clamping Force:

Clamping Force, the amount of force actually applied to the work piece by closing and locking the clamp, is generally less than the stated holding capacity. Actual clamping force depends on many factors including; spindle position (clamping arm length), cylinder bore, cylinder area, available air pressure and the clamps mechanical advantage. In most cases, the Clamping force is roughly 2 to 3 times the force exerted by the pneumatic cylinder.

Clamping Arm Lengths:

Steel Smith strongly recommends using of clamping arms as per its specified data. Using heavier and longer clamping arms on smaller clamps may disturb the smooth movement of the clamp linkages and also a higher wear and tear in its pins & bushes. Please ask for data sheets on each clamp to know the maximum permissible clamp arm usage for that particular clamp.

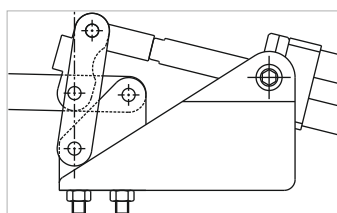


Toggle Principle:

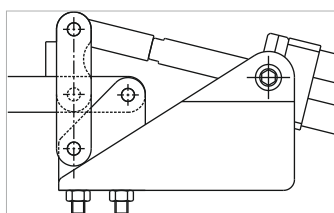
Toggle action clamps operate through a linkage system of levers and pivots. The fixed length levers, connected by pivot pins supply the action and clamping force. Toggle action has an over center lock point which is a fixed stop and linkage. Once in the over center position, the clamp cannot move or unlock unless the linkage is moved. All types of toggle clamps have same action, just oriented differently.

The Toggle Mechanism in a clamp has three functions:

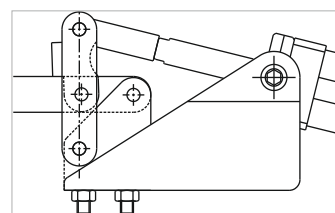
- 1) To multiply applied load at the handle into a high clamping force to hold the work piece.
- 2) To create an over - center lock to prevent the clamp from opening & releasing the work piece until opened by the operator.
- 3) To rapidly open & close the clamp giving a maximum clearance in which to load & unload the work piece.



Unclamped

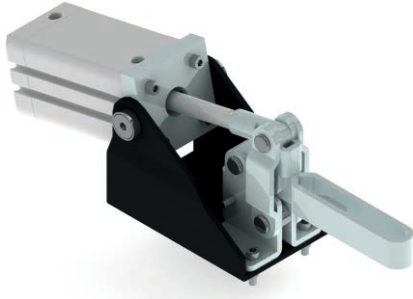


Center position



Over-center, clamped position

Types of Pneumatic Clamps

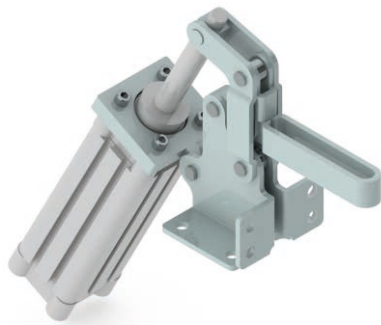
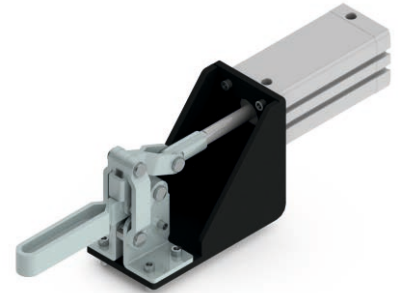


Hold Down Action - Pneumatic Clamps

These clamps utilize the same basic design and operation as manual hold down, only they are operated pneumatically. As the clamp uses the toggle action principle it ensures that the clamp stays locked in the event of air failure. These clamps are extremely compact in design and feature a very low height, allowing free movement of operating tools in drilling, tapping, milling etc. The clamp units are completely self contained with a double acting cylinder and require only to be connected to the air line. The clamping arm exhibits a minimum 95° opening angle for easy unloading of workpiece and is available in two different options.

Hold Down Action - Pneumatic Clamps Fixed Cylinder

These Fixed Cylinder clamps are identical to the Hold Down Action Pneumatic clamps with the exception of Cylinder Mounting design. The outstanding characteristic of the clamp is that the cylinder does not move at all while the clamp is in operation. As there is no movement in the cylinder, fixed solid tubing can be used instead of flexible tubing in welding applications. The clamping arm exhibits a minimum 80° opening angle for easy unloading of workpiece and is available in two different options.

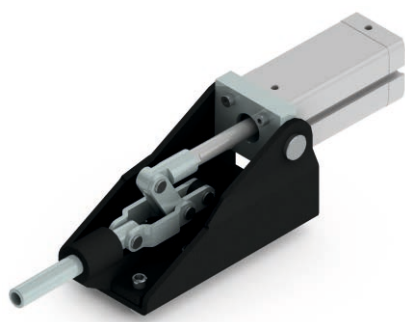


Right Angle Hold Down Clamps

Primarily these clamps belong to the same family of pneumatical hold down clamps with a exception of mounting flexibility. These clamps utilize the same basic design and operation as the pneumatic hold down clamps. In addition these clamps have a flexibility of mounting themselves on the side of the fixture and can also be mounted on top of the fixture. The clamps are used where a right angle model is desirable due to the space constraint. These clamps are nomenclatured as Right Angle Hold Down Clamps as the position of the cylinder is in the downwards perpendicular direction to the clamping unit. Due to these features these clamps can be accommodated in lesser area than the hold down clamps. The clamping arm exhibits a maximum 95° opening angle and is available in two different options. The typical applications of these clamps are on rotary indexing tables, wood working, injection moulding, PU mould closures, etc.

H. V. Series Pneumatic Clamps

These clamps are the air powered version of the manual H.V. Series. They comprise of a very strong and rugged toggle mechanism actuated by a double acting cylinder. The clamping arm is provided with the clamp and can be welded at any desired angle to suit the individual requirement of work pieces. These clamps carry the 'Over Centre Toggle Lock' principle for maximum safety as they remain in locked condition even in case of air failure. The clamps have almost all the features of the manual H. V. Series clamps. These clamps are available in three sizes off the shelf.



Straight Line Action Clamps

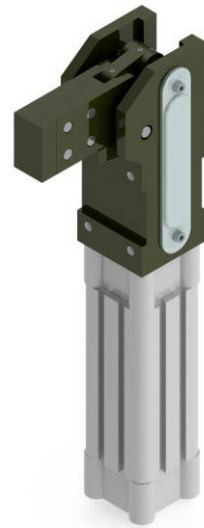
These clamps utilize the same basic design as manual straight line action clamps with an exception of pneumatic actuation. They are completely self contained with a double acting cylinder suitable to the clamp design and only need pressurised air connection. These cylinders are mounted in line with the plunger of the clamp. The to-and-fro motion of the cylinder operates the clamp. The cylinder piston extends the plunger of the clamp to achieve the lock position and vice versa for unlocking the clamp. The clamp plunger is drilled and tapped for easy loading of suitable adaptors. Plungers are hardened and ground which run in closed toleranced holes for smooth and accurate functioning of clamps. These clamps are widely used in fixtures where locating of components or holes is required and also in mini-automized presses.

Pneumatic Clamps

SSC-Series Pneumatic Clamps

SSC Series Pneumatic Clamps are the solution to applications, which demands 'Precision', 'Performance' and the most important factor as far as fixturing is concerned 'Compactness'. These clamps have been specially designed by gathering information and suggestions from customers presently using Steel-Smith pneumatic clamps. The design helps a fixture manufacturer as far as space constraints is concerned.

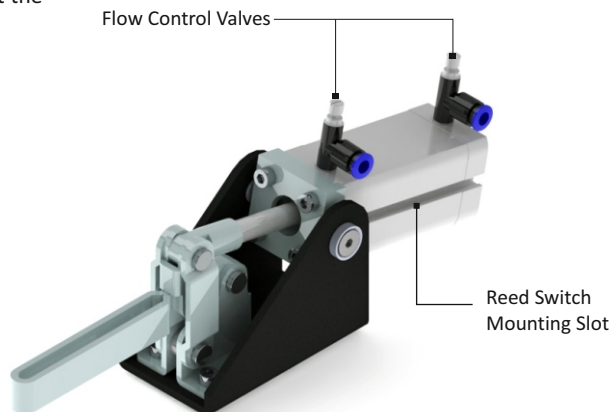
These clamps are flexible from the maintenance point of view, with features like compatible to all standards, brands and types of pneumatic cylinders. The linkages, connector to piston rod, and the clamping device consists hardened bushings and pivot pins which are easily replaceable in case of wear outs. The clamping device comes with mounting holes, which can be according to the customer's requirement helping them to standardize on their clamping adaptors. The Mounting of the clamp can also be customized in case of substitutes. SSC - Series pneumatic clamps are available in cylinder size from 16mm bore to 63mm bore size.



Pneumatic Clamps Installation Guide

Steel-Smith supplies all Pneumatic Clamps with magnetic cylinders, a standard reed switch can be mounted on these cylinders for sensing.

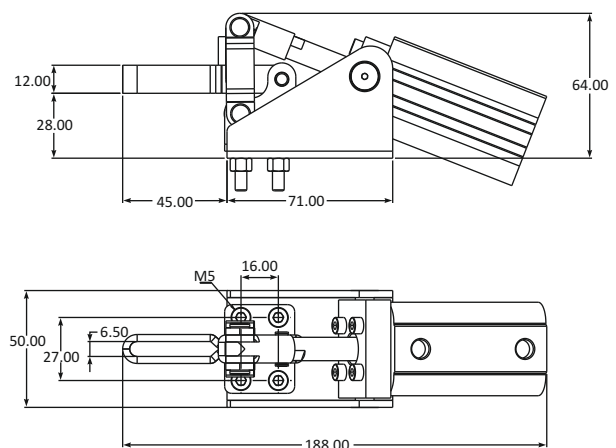
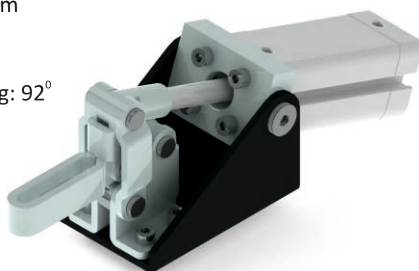
It is highly recommended that all the Pneumatic Clamps are used with flow control valve on both ports of the Cylinders. This ensure that the clamping arm clamps the component at a regulated speed.



Hold Down Action

Model No: AOT - 2535 UB

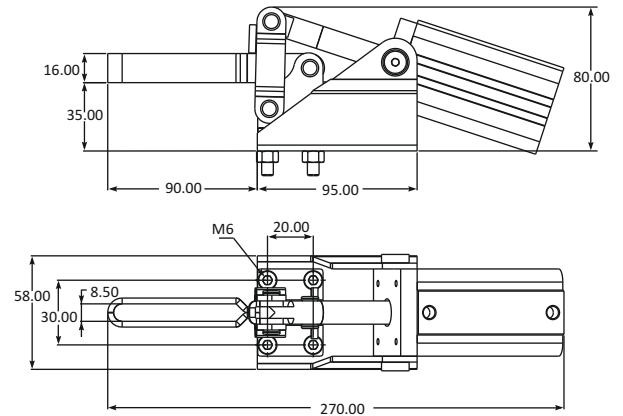
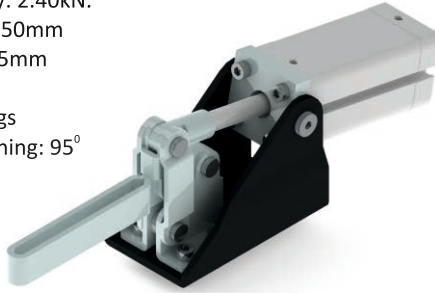
Operating Pressure: 2 - 6 Bar
Holding Capacity: 1.00kN
Cylinder Stroke: 40mm
Cylinder Bore: 16mm
Port Size: M5
Weight: 0.700 Kgs
Clamp Arm Opening: 92°



Hold Down Action

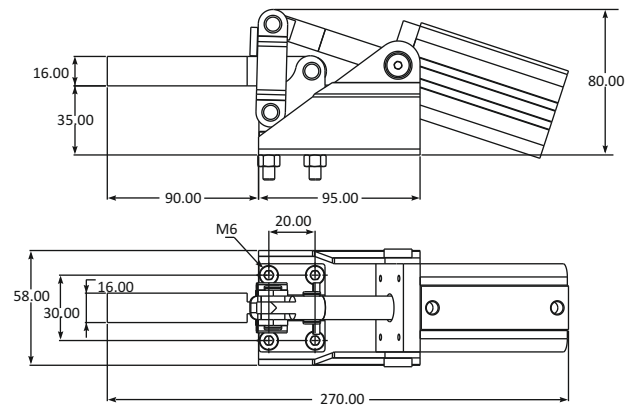
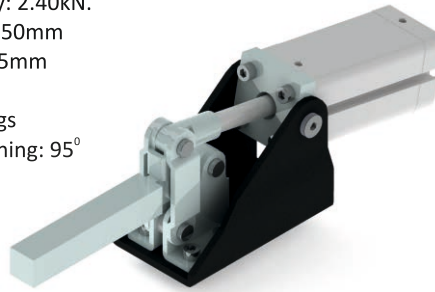
Model No: AOT - 3586 UB

Operating Pressure: 2 - 6 Bar
Holding Capacity: 2.40kN.
Cylinder Stroke: 50mm
Cylinder Bore: 25mm
Port Size: M5
Weight: 1.100 Kgs
Clamp Arm Opening: 95°



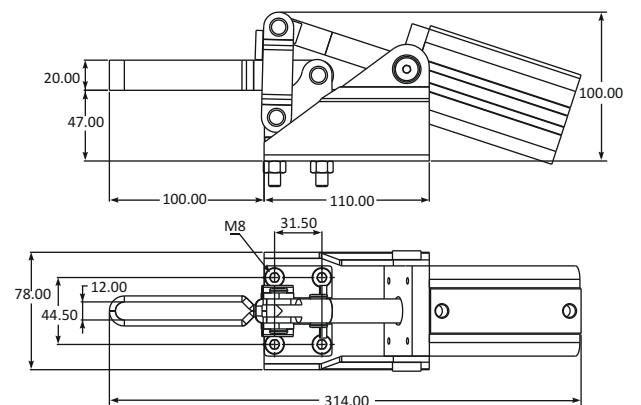
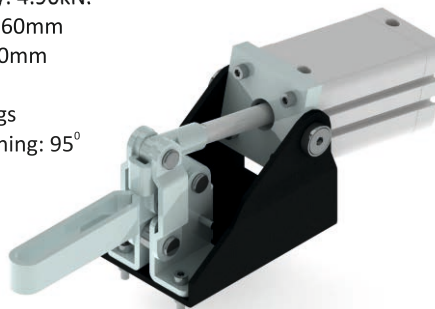
Model No: AOT - 3586 SB

Operating Pressure: 2 - 6 Bar
Holding Capacity: 2.40kN.
Cylinder Stroke: 50mm
Cylinder Bore: 25mm
Port Size: M5
Weight: 1.200 Kgs
Clamp Arm Opening: 95°



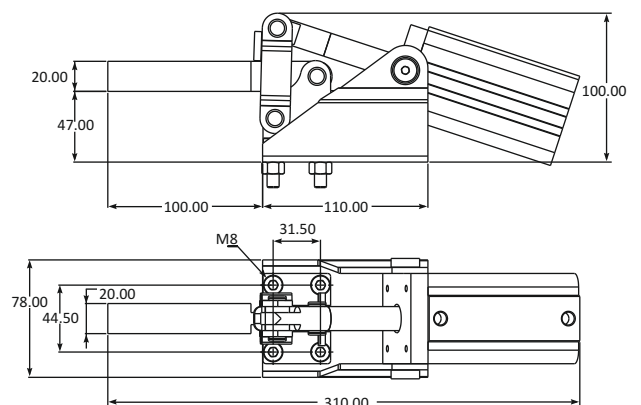
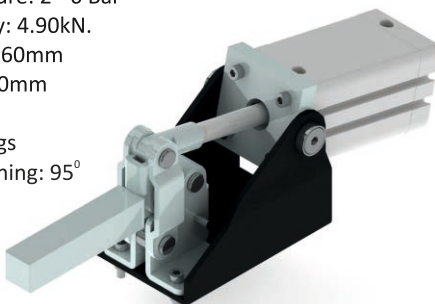
Model No: AOT - 4690 UB

Operating Pressure: 2 - 6 Bar
Holding Capacity: 4.90kN.
Cylinder Stroke: 60mm
Cylinder Bore: 40mm
Port Size: G1/8
Weight: 1.800 Kgs
Clamp Arm Opening: 95°



Model No: AOT - 4690 SB

Operating Pressure: 2 - 6 Bar
Holding Capacity: 4.90kN.
Cylinder Stroke: 60mm
Cylinder Bore: 40mm
Port Size: G1/8
Weight: 1.900 Kgs
Clamp Arm Opening: 95°

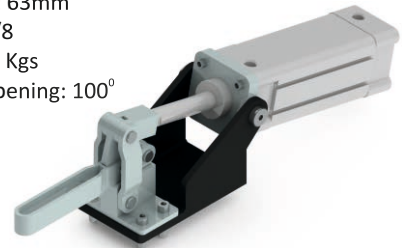


Pneumatic Clamps

Hold Down Action

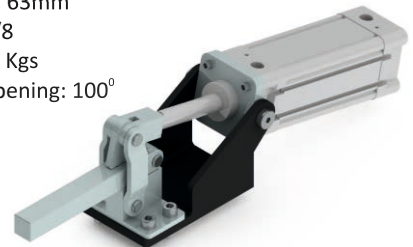
Model No: AOT - 57124 UB

Operating Pressure: 2 - 6 Bar
Holding Capacity: 7.40kN.
Cylinder Stroke: 100mm
Cylinder Bore: 63mm
Port Size: G 3/8
Weight: 6.900 Kgs
Clamp Arm Opening: 100°



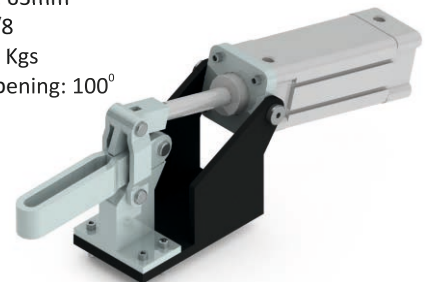
Model No: AOT - 57124 SB

Operating Pressure: 2 - 6 Bar
Holding Capacity: 7.40kN.
Cylinder Stroke: 100mm
Cylinder Bore: 63mm
Port Size: G 3/8
Weight: 7.400 Kgs
Clamp Arm Opening: 100°



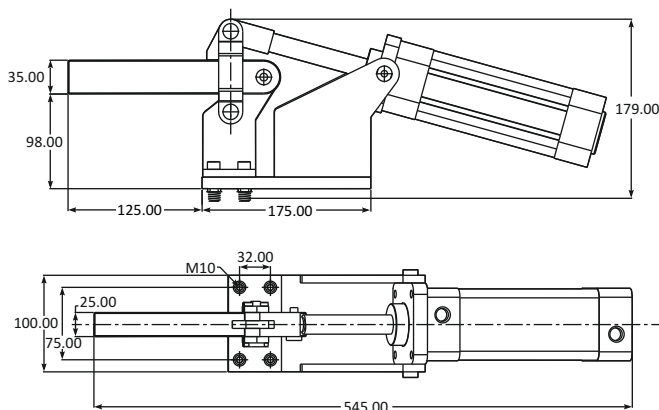
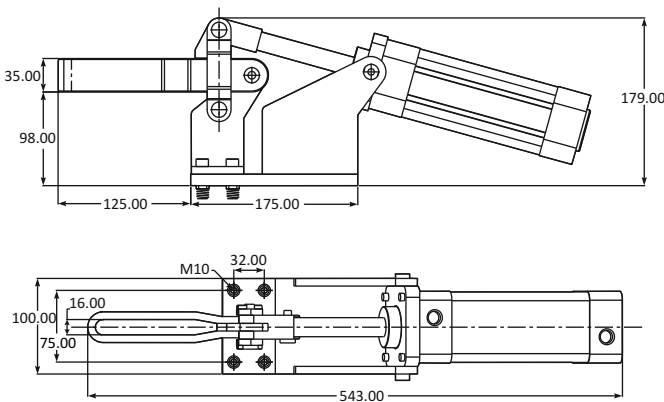
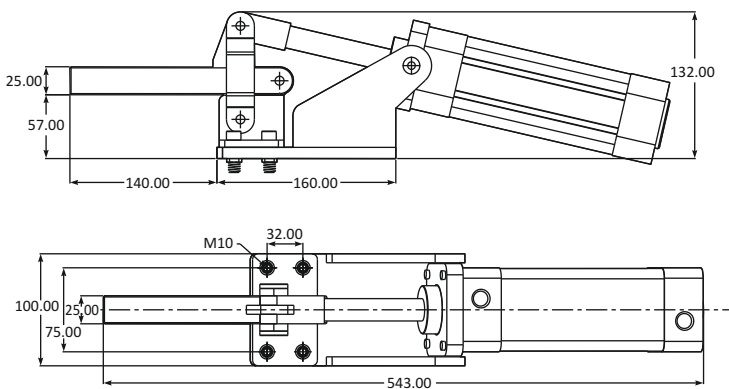
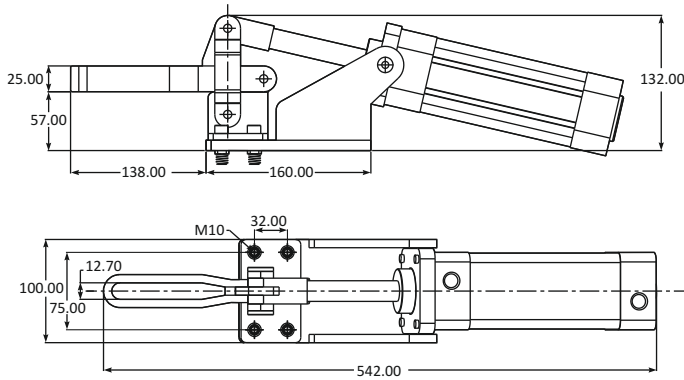
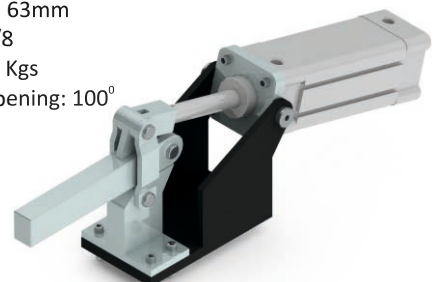
Model No: AOT - 98125 UB

Operating Pressure: 2 - 6 Bar
Holding Capacity: 9.80kN.
Cylinder Stroke: 100mm
Cylinder Bore: 63mm
Port Size: G 3/8
Weight: 8.800 Kgs
Clamp Arm Opening: 100°



Model No: AOT - 98125 SB

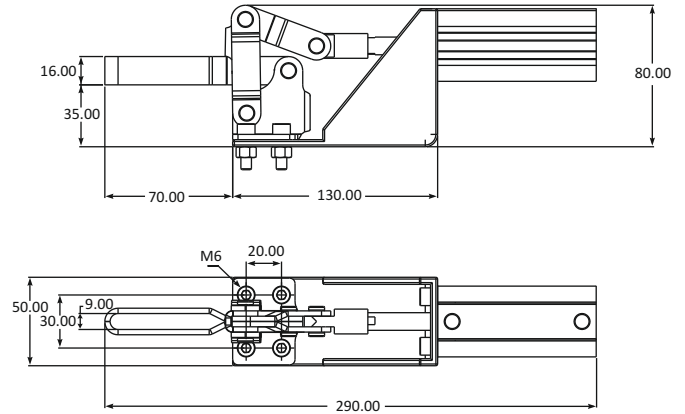
Operating Pressure: 2 - 6 Bar
Holding Capacity: 9.80kN.
Cylinder Stroke: 100mm
Cylinder Bore: 63mm
Port Size: G 3/8
Weight: 9.200 Kgs
Clamp Arm Opening: 100°



Hold Down Action - Fixed Cylinder

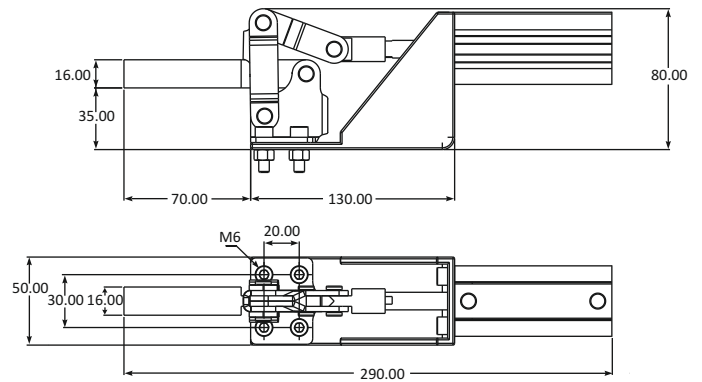
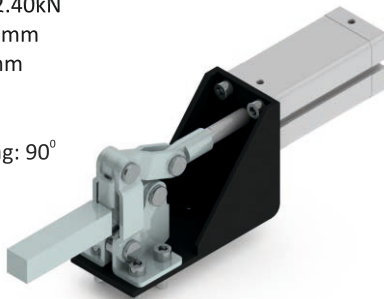
Model No: AOT - 3565 UB/FC

Operating Pressure: 2 - 6 Bar
Holding Capacity: 2.40kN.
Cylinder Stroke: 50mm
Cylinder Bore: 25mm
Port Size: M5
Weight: 1.200 Kgs
Clamp Arm Opening: 90°



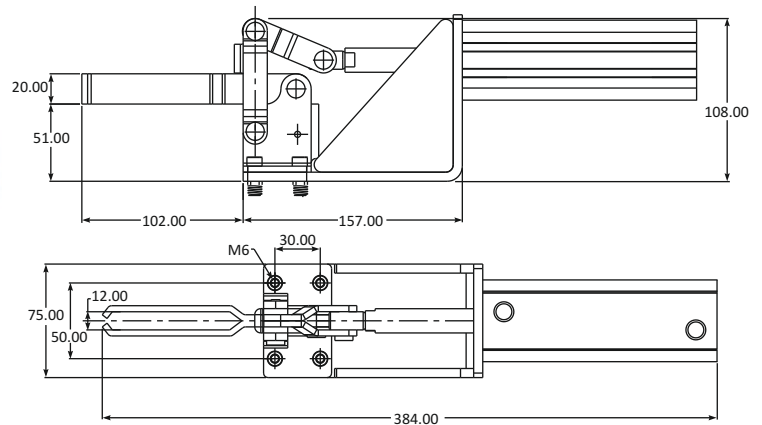
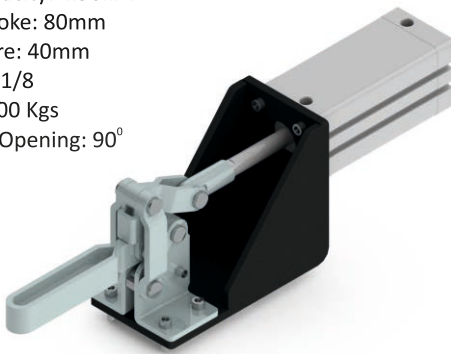
Model No: AOT - 3565 SB/FC

Operating Pressure: 2 - 6 Bar
Holding Capacity: 2.40kN
Cylinder Stroke: 50mm
Cylinder Bore: 25mm
Port Size: M5
Weight: 1.300 Kgs
Clamp Arm Opening: 90°



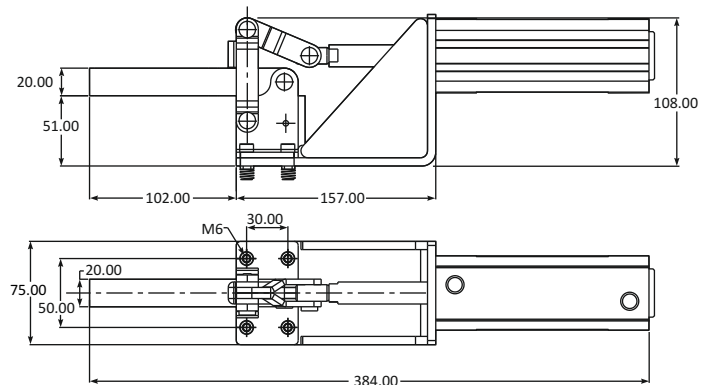
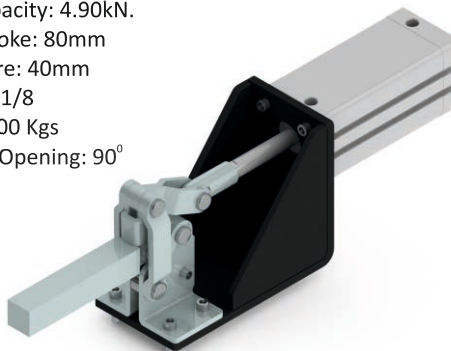
Model No: AOT - 5095 UB/FC

Operating Pressure: 2 - 6 Bar
Holding Capacity: 4.90kN.
Cylinder Stroke: 80mm
Cylinder Bore: 40mm
Port Size: G 1/8
Weight: 3.100 Kgs
Clamp Arm Opening: 90°



Model No: AOT - 5095 SB/FC

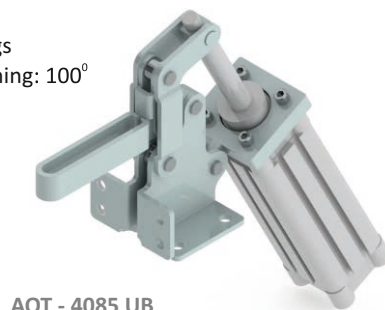
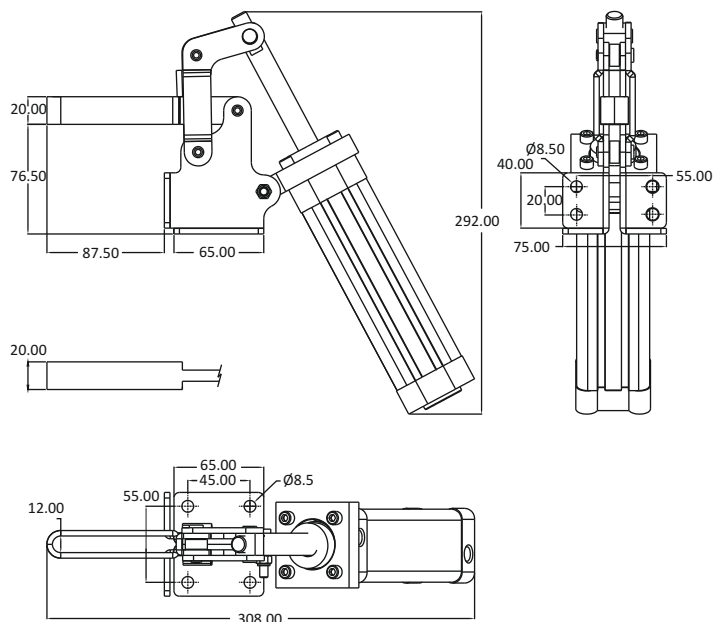
Operating Pressure: 2 - 6 Bar
Holding Capacity: 4.90kN.
Cylinder Stroke: 80mm
Cylinder Bore: 40mm
Port Size: G 1/8
Weight: 3.200 Kgs
Clamp Arm Opening: 90°



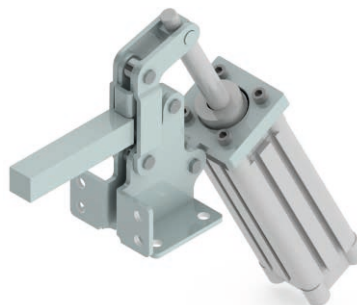
Hold Down Action - Right Angle

Model No: AOT - 4085 UB / AOT - 4085 SB

Operating Pressure: 2 - 6 Bar
Holding Capacity: 3.90kN.
Cylinder Stroke: 80mm
Cylinder Bore: 40mm
Port Size: G 1/4
Weight: 2.600 Kgs
Clamp Arm Opening: 100°



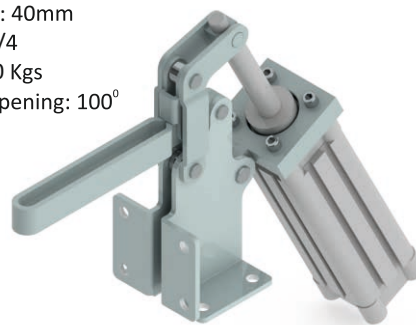
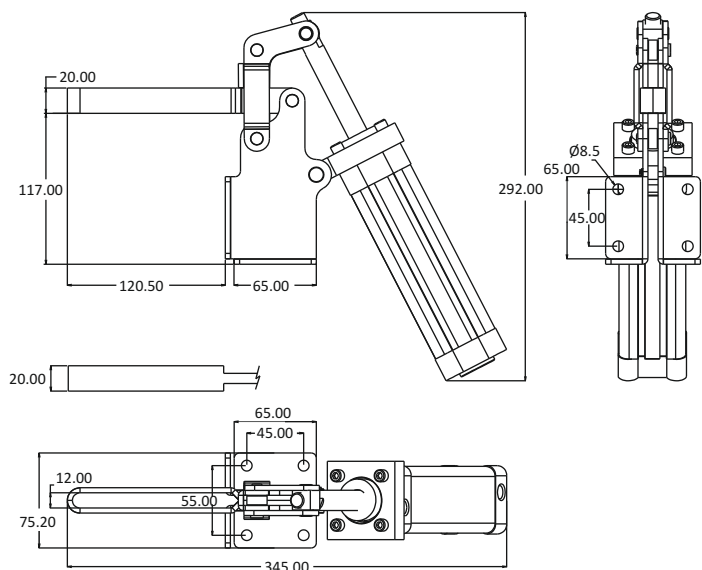
AOT - 4085 UB



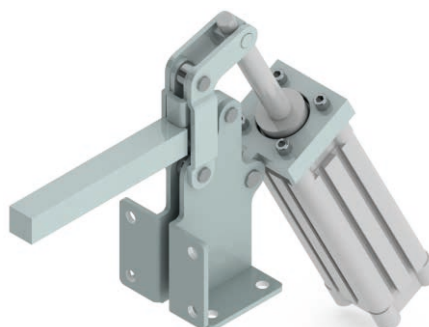
AOT - 4085 SB

Model No: AOT - 40125 UB / AOT - 40125 SB

Operating Pressure: 2 - 6 Bar
Holding Capacity: 6.40kN.
Cylinder Stroke: 80mm
Cylinder Bore: 40mm
Port Size: G 1/4
Weight: 2.900 Kgs
Clamp Arm Opening: 100°



AOT - 40125 UB

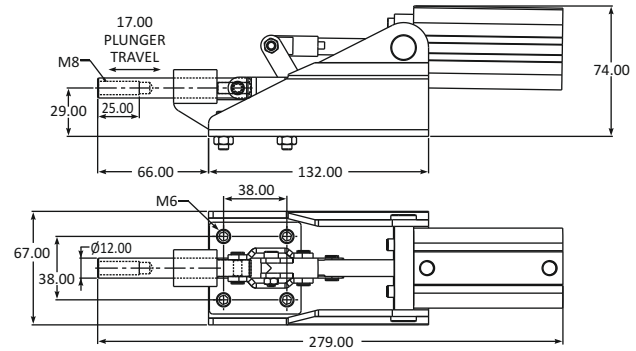
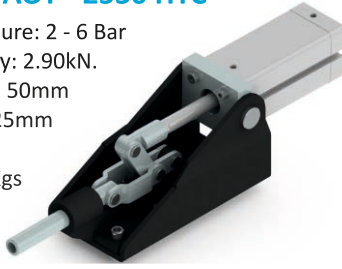


AOT - 40125 SB

Straight Line Action

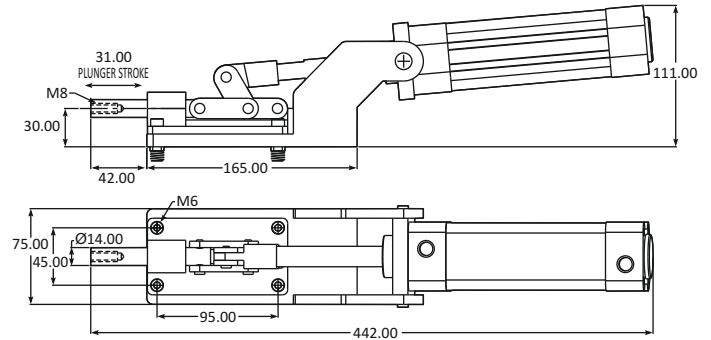
Model No: AOT - 2530 HTC

Operating Pressure: 2 - 6 Bar
Holding Capacity: 2.90kN.
Cylinder Stroke: 50mm
Cylinder Bore: 25mm
Port Size: M5
Weight: 1.400 Kgs



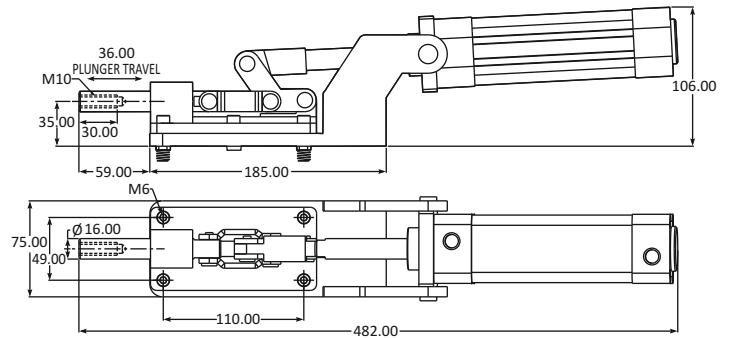
Model No: AOT - 3231 HTC

Operating Pressure: 2 - 6 Bar
Holding Capacity: 11.80kN.
Cylinder Stroke: 80mm
Cylinder Bore: 40mm
Port Size: G 1/4
Weight: 3.500 Kgs



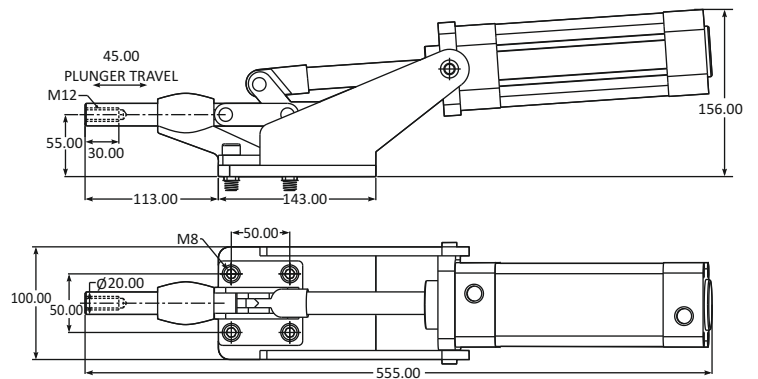
Model No: AOT - 3550 HTC

Operating Pressure: 2 - 6 Bar
Holding Capacity: 15.70kN.
Cylinder Stroke: 80mm
Cylinder Bore: 40mm
Port Size: G 1/4
Weight: 4.100 Kgs



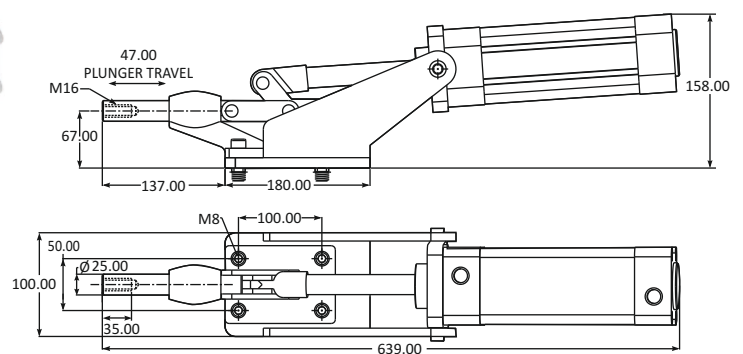
Model No: AOT - 5560 HTC

Operating Pressure: 2 - 6 Bar
Holding Capacity: 24.50kN.
Cylinder Stroke: 100mm
Cylinder Bore: 63mm
Port Size: G 3/8
Weight: 6.400 Kgs



Model No: AOT - 6750 HTC

Operating Pressure: 2 - 6 Bar
Holding Capacity: 73.50kN.
Cylinder Stroke: 100mm
Cylinder Bore: 63mm
Port Size: G 3/8
Weight: 7.800 Kgs



SSC Series

Model No: SSC - 1640

Operating Pressure: 2 - 6 Bar

Holding Capacity: 2.40kN.

Refer Page No. 124 for

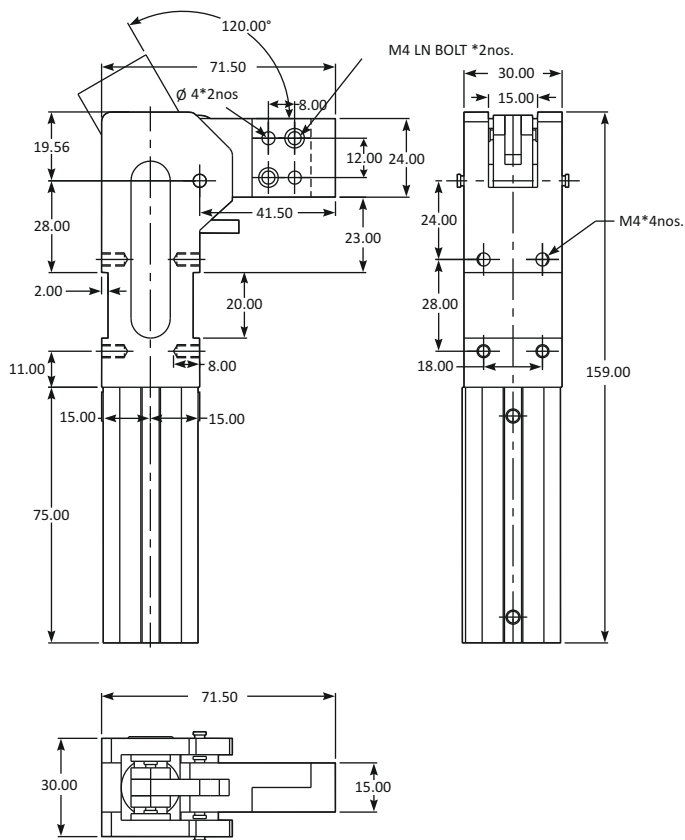
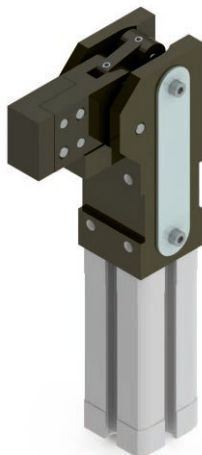
Clamping Forces & Holding Capacity.

Cylinder Stroke: 40mm

Cylinder Bore: 16mm

Port Size: M5

Weight: 0.800 Kgs



Model No: SSC - 2550

Operating Pressure: 2 - 6 Bar

Holding Capacity: 4.90kN.

Refer Page No. 124 for

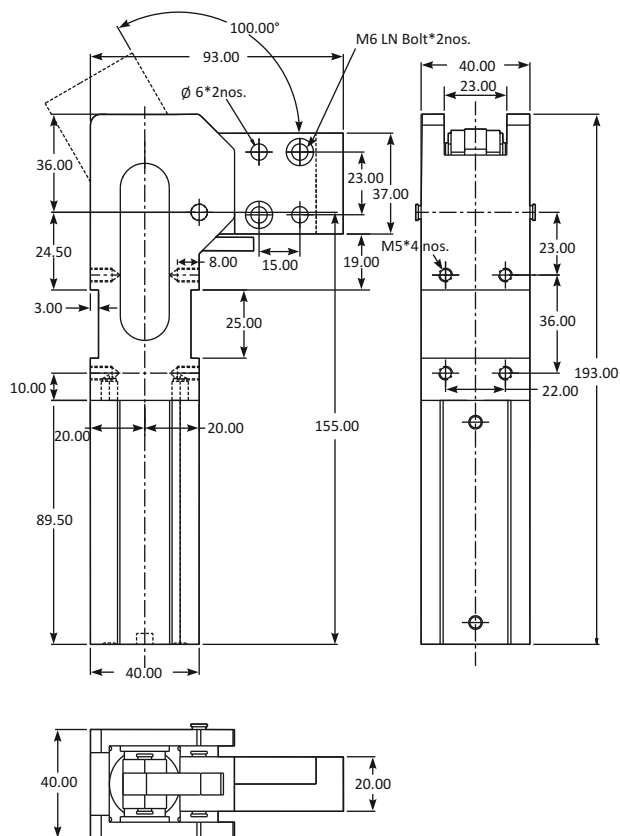
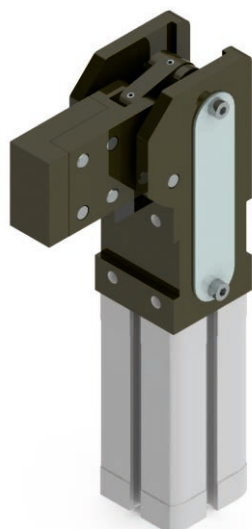
Clamping Forces & Holding Capacity.

Cylinder Stroke: 50mm

Cylinder Bore: 25mm

Port Size: M5

Weight: 1.300 Kgs



SSC Series

Model No: SSC - 4065

Operating Pressure: 2 - 6 Bar

Holding Capacity: 7.80kN.

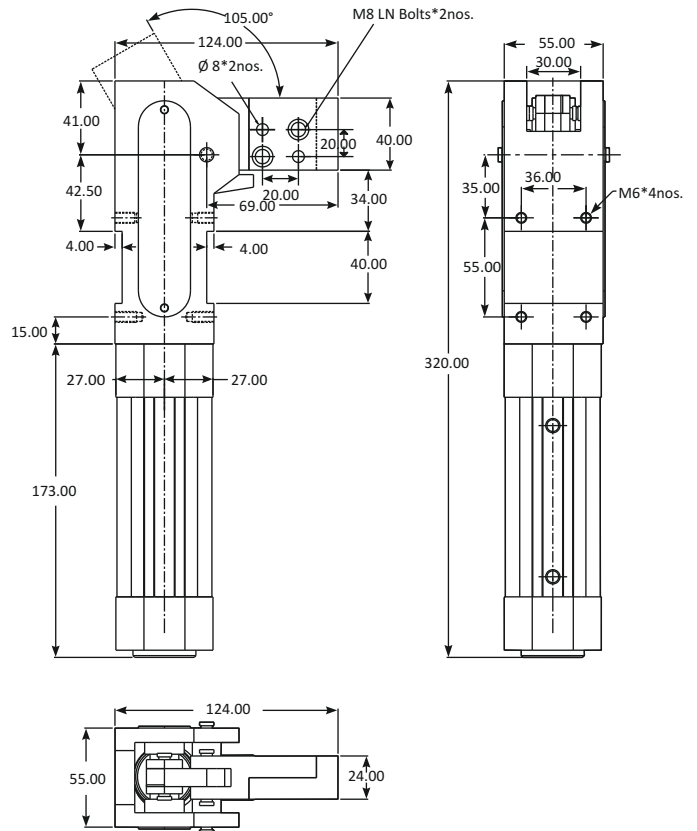
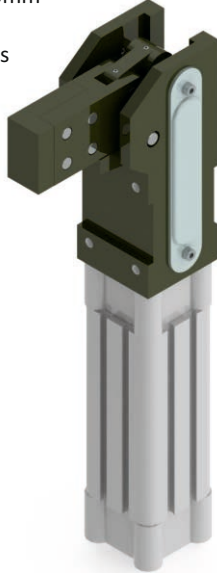
Refer Page No. 124 for
Clamping Forces & Holding Capacity.

Cylinder Stroke: 80mm

Cylinder Bore: 40mm

Port Size: G 1/4

Weight: 3.600 Kgs



Model No: SSC - 5065

Operating Pressure: 2 - 6 Bar

Holding Capacity: 14.70kN.

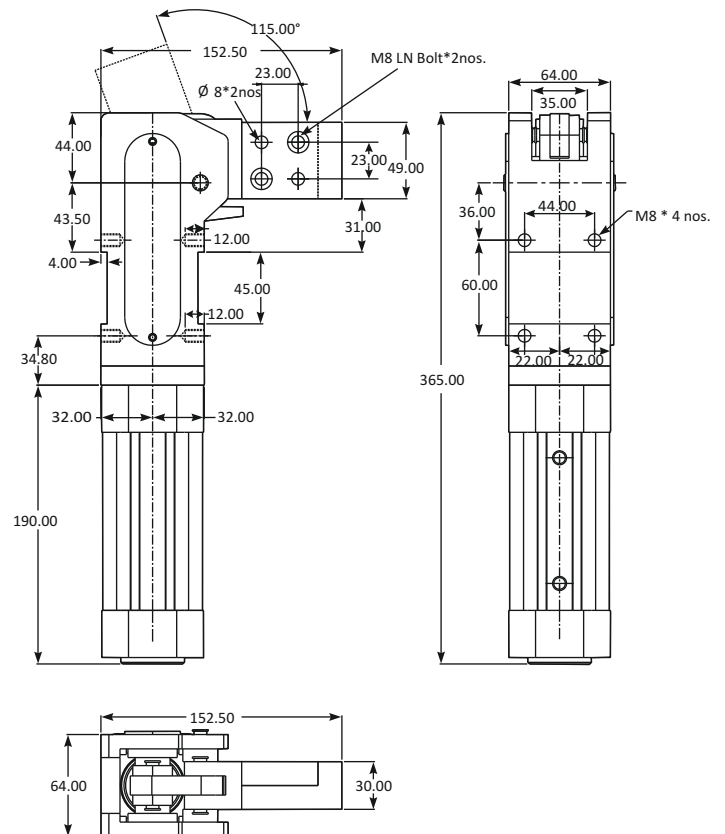
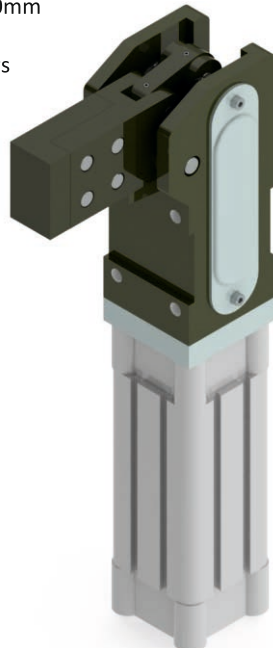
Refer Page No. 124 for
Clamping Forces & Holding Capacity.

Cylinder Stroke: 80mm

Cylinder Bore: 50mm

Port Size: G 1/4

Weight: 5.600 Kgs



SSC Series

Model No: SSC - 63100

Operating Pressure: 2 - 6 Bar

Holding Capacity: 24.50kN.

Refer Page No. 124 for

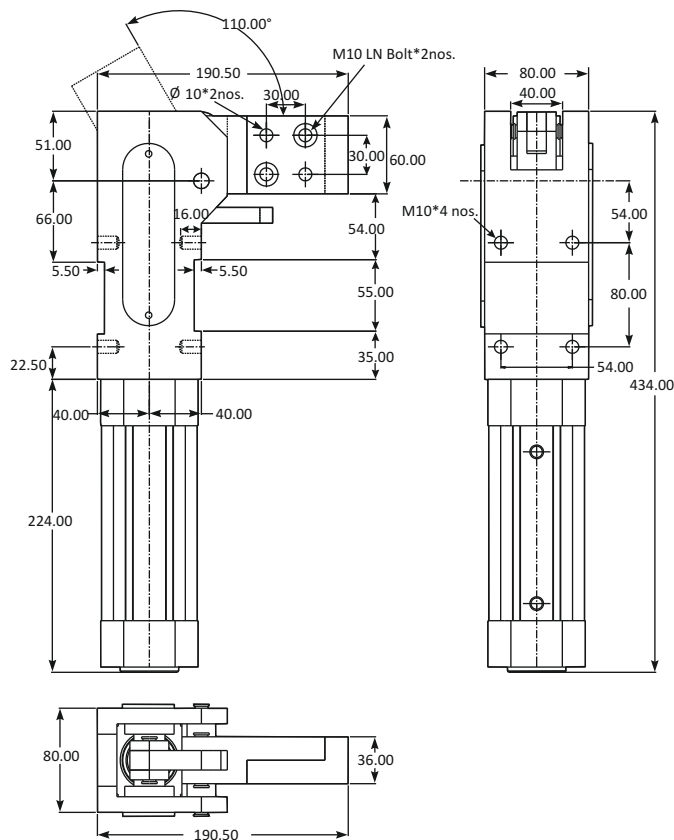
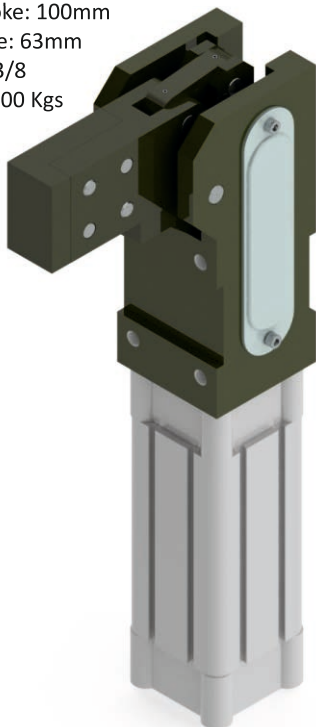
Clamping Forces & Holding Capacity.

Cylinder Stroke: 100mm

Cylinder Bore: 63mm

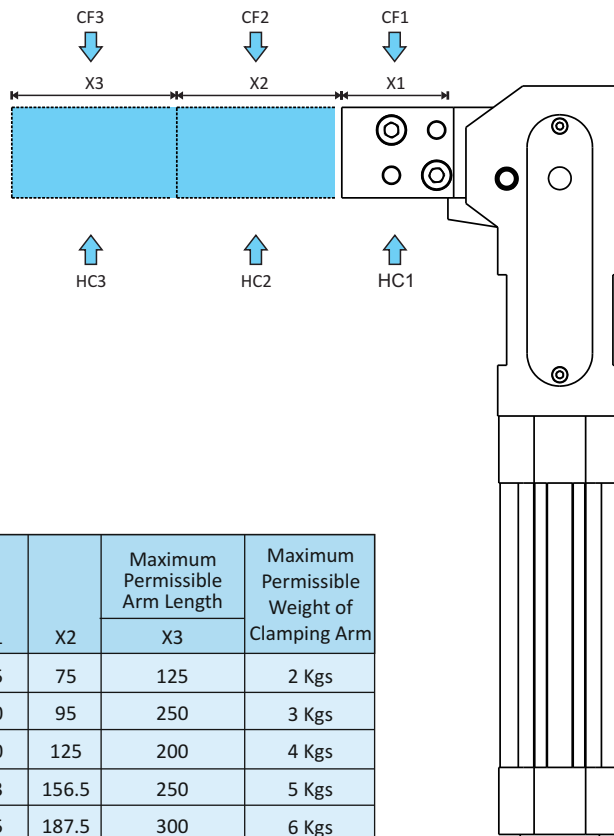
Port Size: G 3/8

Weight: 10.200 Kgs



Clamping Force / Holding Capacity: Arm Lengths

The construction of the SSC Series Clamps enable mounting of Clamping Arms/Adapters onto the clamp. There are limitations to the length and weight of the arm that can be mounted on the clamp. Longer the arm lesser the holding/clamping capacity. Refer the data below to for different capacities at different lengths.



Model No.	Holding Capacity			Clamping Force			X1	X2	Maximum Permissible Arm Length	Maximum Permissible Weight of Clamping Arm
	HC1	HC2	HC3	CF1	CF2	CF3			X3	
SSC - 1640	2.50kN	1.20kN	0.40kN	0.80kN	0.40kN	0.15kN	25	75	125	2 Kgs
SSC - 2550	4.90kN	2.50kN	1.00kN	1.60kN	0.80kN	0.30kN	40	95	250	3 Kgs
SSC - 4065	7.90kN	3.90kN	1.60kN	2.60kN	1.30kN	0.50kN	50	125	200	4 Kgs
SSC - 5065	14.70kN	7.40kN	2.90kN	4.90kN	2.50kN	1.00kN	63	156.5	250	5 Kgs
SSC - 63100	24.50kN	11.80kN	3.50kN	7.80kN	3.90kN	1.80kN	75	187.5	300	6 Kgs

SSC Series

Model No: SSC - 1640 - HA

Operating Pressure: 2 - 6 Bar

Holding Capacity: 2.40kN

[Refer Page No. 127 for](#)

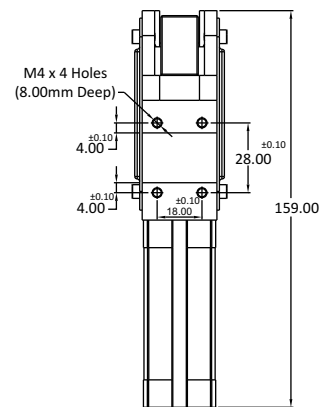
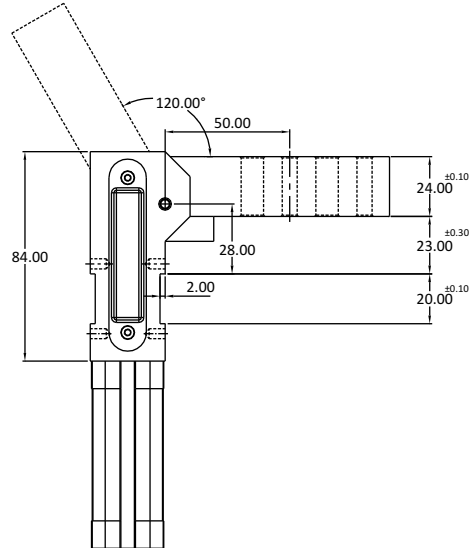
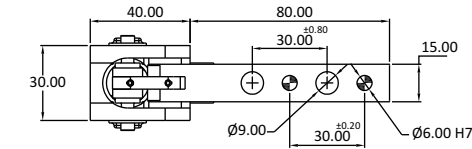
[Clamping Forces & Holding Capacity.](#)

Cylinder Stroke: 40mm

Cylinder Bore: 16mm

Port Size: M5

Weight: 0.800 Kgs



Model No: SSC - 2550 - HA

Operating Pressure: 2 - 6 Bar

Holding Capacity: 4.90kN.

[Refer Page No. 127 for](#)

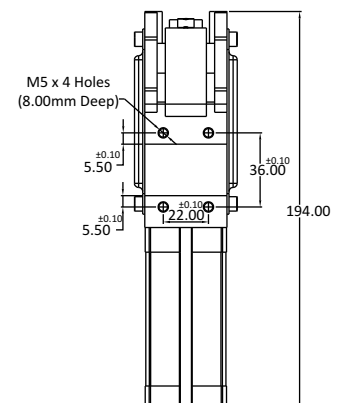
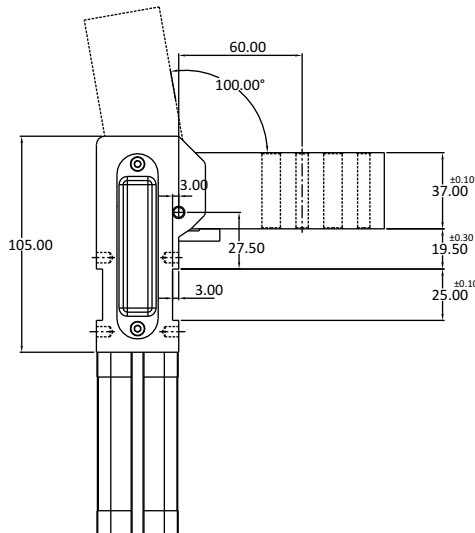
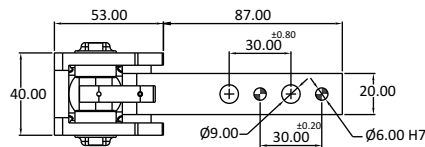
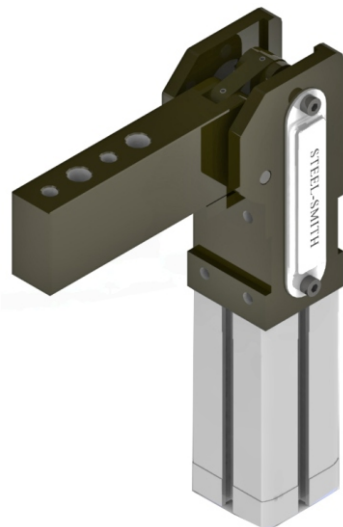
[Clamping Forces & Holding Capacity.](#)

Cylinder Stroke: 50mm

Cylinder Bore: 25mm

Port Size: M5

Weight: 1.300 Kgs



SSC Series

Model No: SSC - 4065 - HA

Operating Pressure: 2 - 6 Bar

Holding Capacity: 7.80kN.

Refer Page No. 127 for

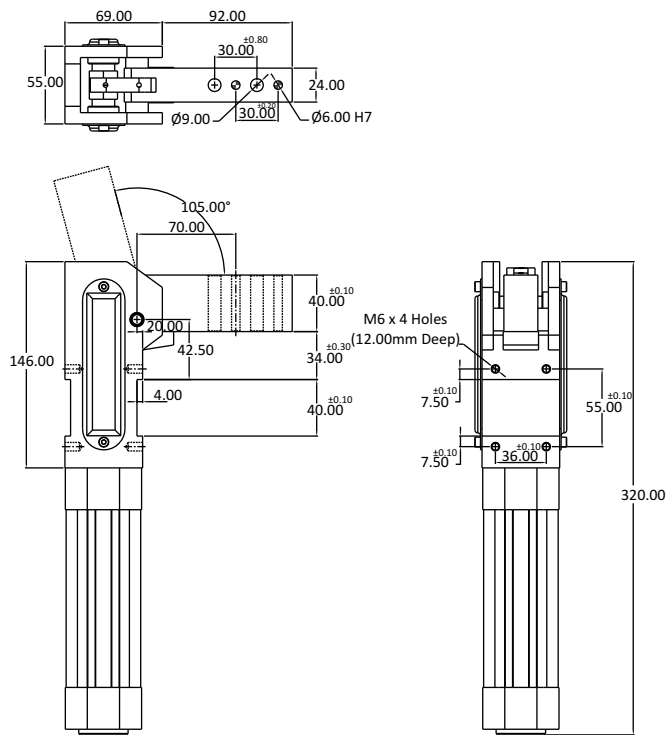
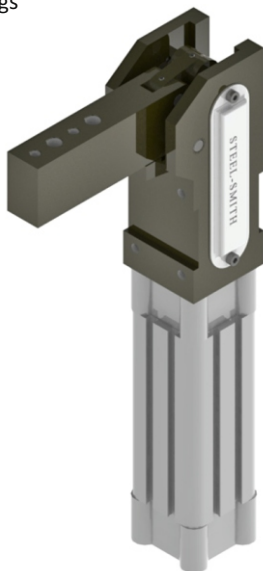
Clamping Forces & Holding Capacity.

Cylinder Stroke: 80mm

Cylinder Bore: 40mm

Port Size: G 1/4

Weight: 3.600 Kgs



Model No: SSC - 5065 - HA

Operating Pressure: 2 - 6 Bar

Holding Capacity: 2.40kN.

Refer Page No. 127 for

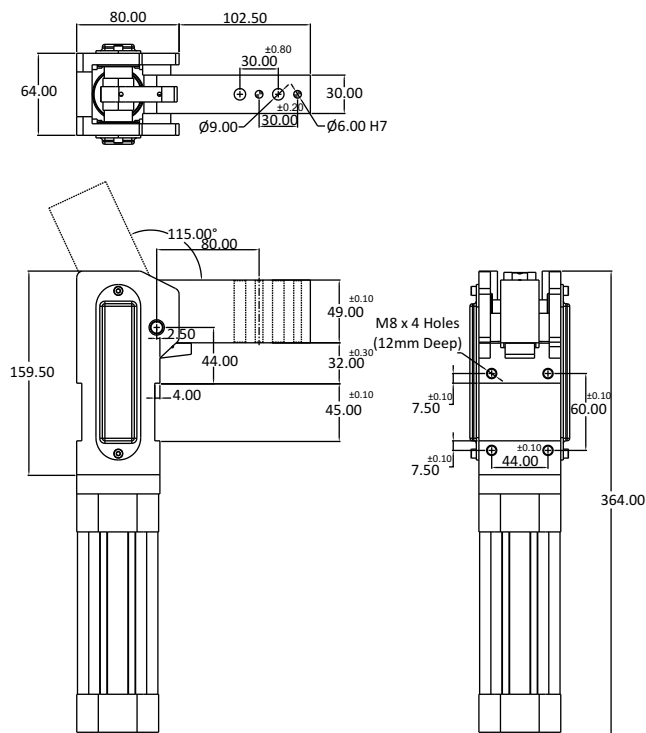
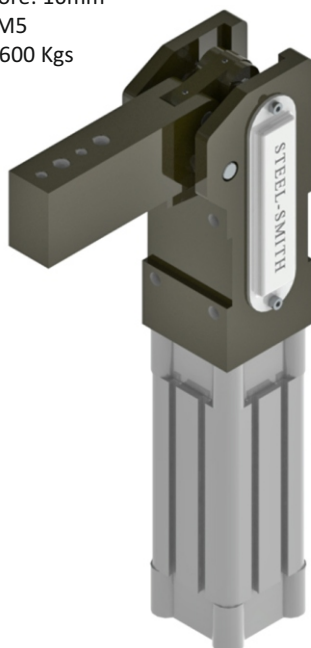
Clamping Forces & Holding Capacity.

Cylinder Stroke: 40mm

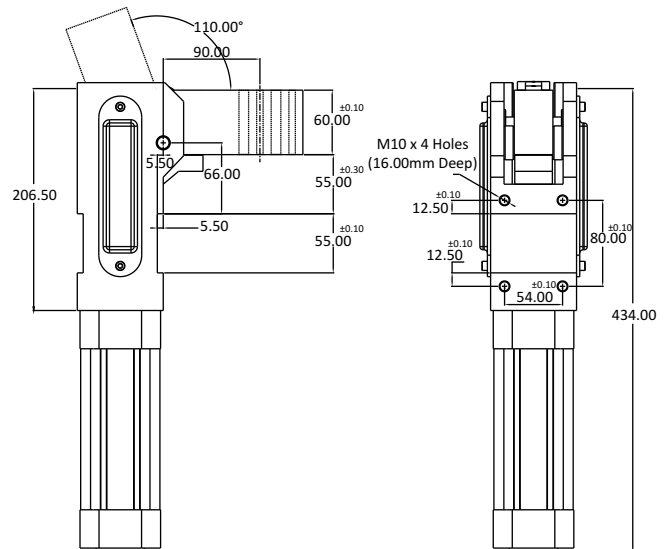
Cylinder Bore: 16mm

Port Size: M5

Weight: 5.600 Kgs



Weight: 10.200 Kgs



The diagram illustrates the clamping arm with dimensions X1, X2, and X3, and forces CF1, CF2, CF3, HC1, HC2, and HC3. The table below provides the maximum permissible arm length and weight for different X1 and X2 values.

X1	X2	Maximum Permissible Arm Length	Maximum Permissible Weight of Clamping Arm
		X3	
25	75	125	2 Kgs
40	95	250	3 Kgs
50	125	200	4 Kgs
63	156.5	250	5 Kgs
75	187.5	300	6 Kgs

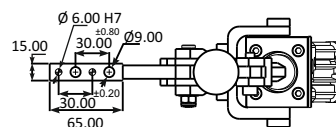
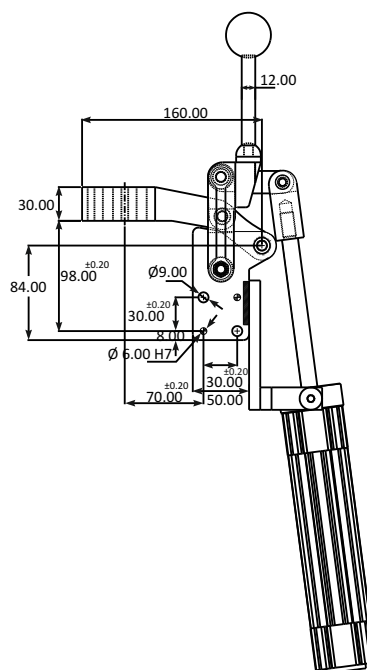
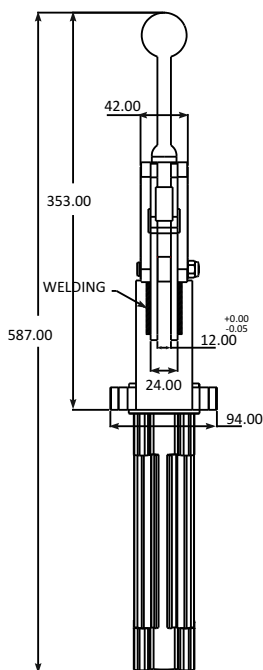
Model No.	Holding Capacity			Clamping Force			X1	X2	Maximum Permissible Arm Length	Maximum Permissible Weight of Clamping Arm
	HC1	HC2	HC3	CF1	CF2	CF3			X3	
SSC - 1640 - HA	2.50kN	1.20kN	0.40kN	0.80kN	0.40kN	0.15kN	25	75	125	2 Kgs
SSC - 2550 - HA	4.90kN	2.50kN	1.00kN	1.60kN	0.80kN	0.30kN	40	95	250	3 Kgs
SSC - 4065 - HA	7.90kN	3.90kN	1.60kN	2.60kN	1.30kN	0.50kN	50	125	200	4 Kgs
SSC - 5065 - HA	14.70kN	7.40kN	2.90kN	4.90kN	2.50kN	1.00kN	63	156.5	250	5 Kgs
SSC - 63100 - HA	24.50kN	11.80kN	3.50kN	7.80kN	3.90kN	1.80kN	75	187.5	300	6 Kgs

Pneumatic Clamps

H.V. Series

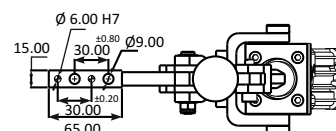
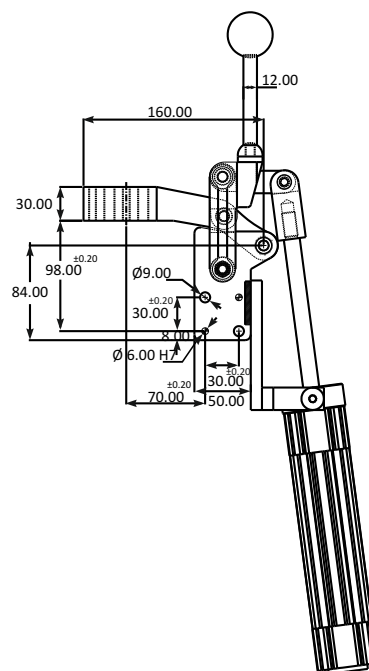
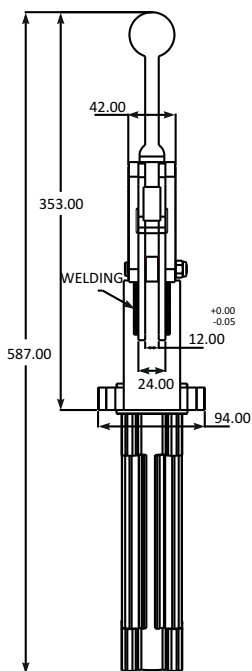
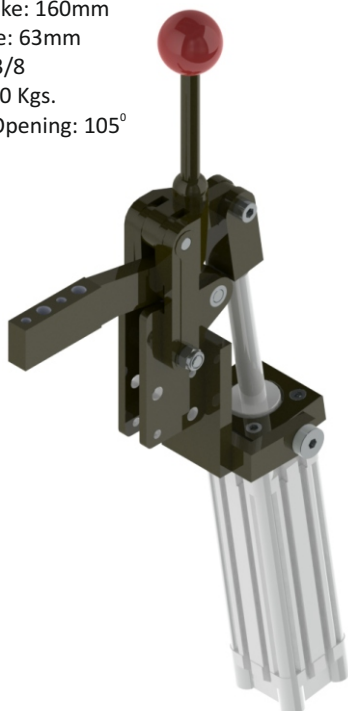
Model No: AOT - HV - 1200 - H - TM - TU

Operating Pressure: 2 - 6 Bar
Holding Capacity: 11.80kN.
Cylinder Stroke: 125mm
Cylinder Bore: 40mm
Port Size: G 1/4
Weight: 4.000 Kgs.
Clamp Arm Opening: 110°



Model No: AOT - HV - 2400 - H - TM - TU

Operating Pressure: 2 - 6 Bar
Holding Capacity: 23.50kN.
Cylinder Stroke: 160mm
Cylinder Bore: 63mm
Port Size: G 3/8
Weight: 8.500 Kgs.
Clamp Arm Opening: 105°



H.V. Series

Model No: AOT - BII - 200

Operating Pressure: 2 - 6 Bar

Holding Capacity: 2.00kN.

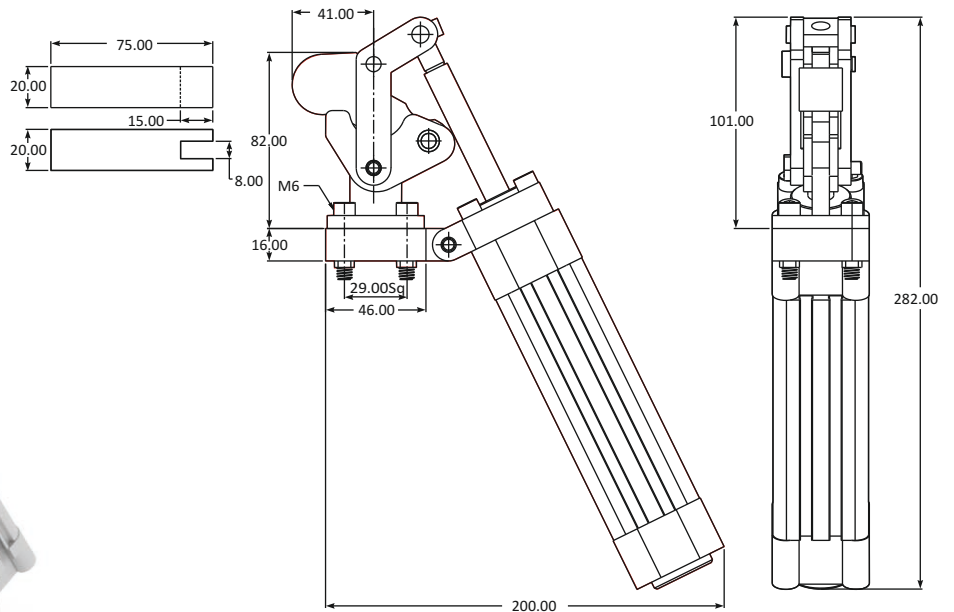
Cylinder Stroke: 80mm

Cylinder Bore: 32mm

Port Size: G 1/8

Weight: 2.100 Kgs

Clamp Arm Opening: 100°



Model No: AOT - BII - 300

Operating Pressure: 2 - 6 Bar

Holding Capacity: 2.90kN.

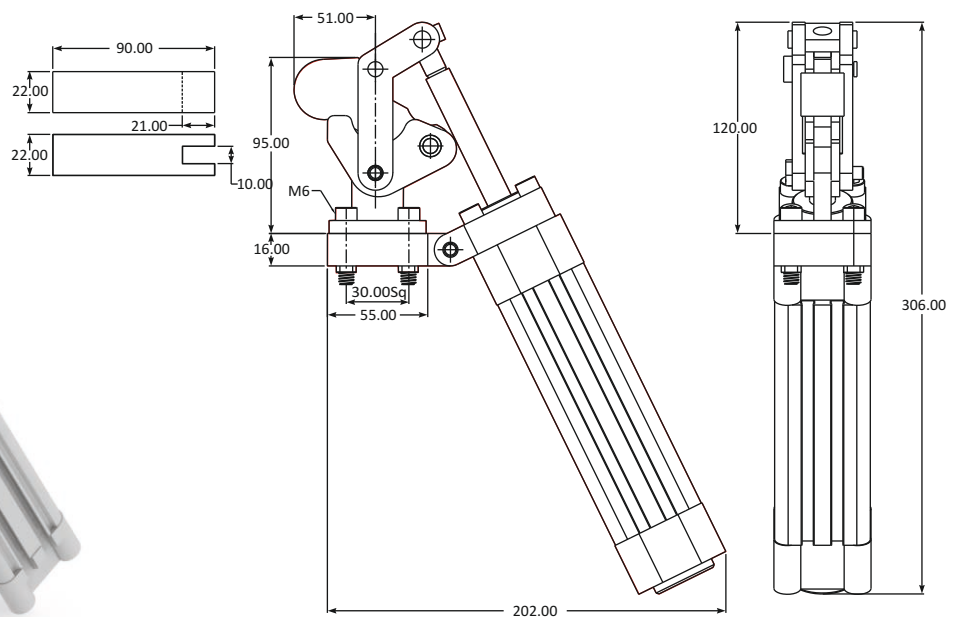
Cylinder Stroke: 80mm

Cylinder Bore: 32mm

Port Size: G 1/8

Weight: 3.200 Kgs

Clamp Arm Opening: 115°



Pneumatic Clamps

H.V. Series

Model No: AOT - BII - 500

Operating Pressure: 2 - 6 Bar

Holding Capacity: 7.40kN.

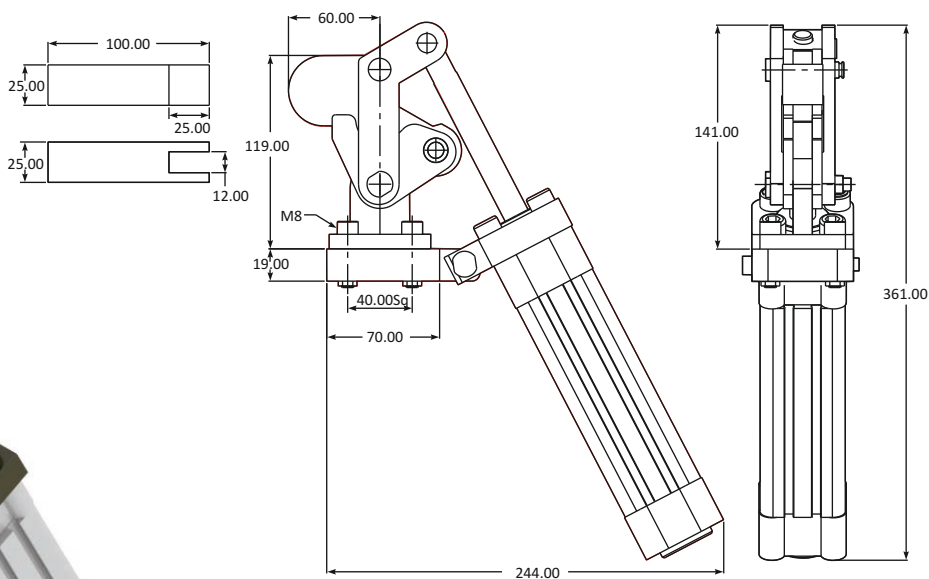
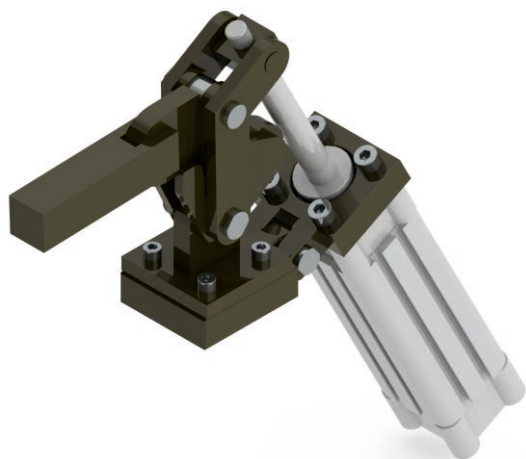
Cylinder Stroke: 100mm

Cylinder Bore: 40mm

Port Size: G 1/4

Weight: 4.800 Kgs

Clamp Arm Opening: 100°



Model No: AOT - BII - 1000

Operating Pressure: 2 - 6 Bar

Holding Capacity: 9.80kN.

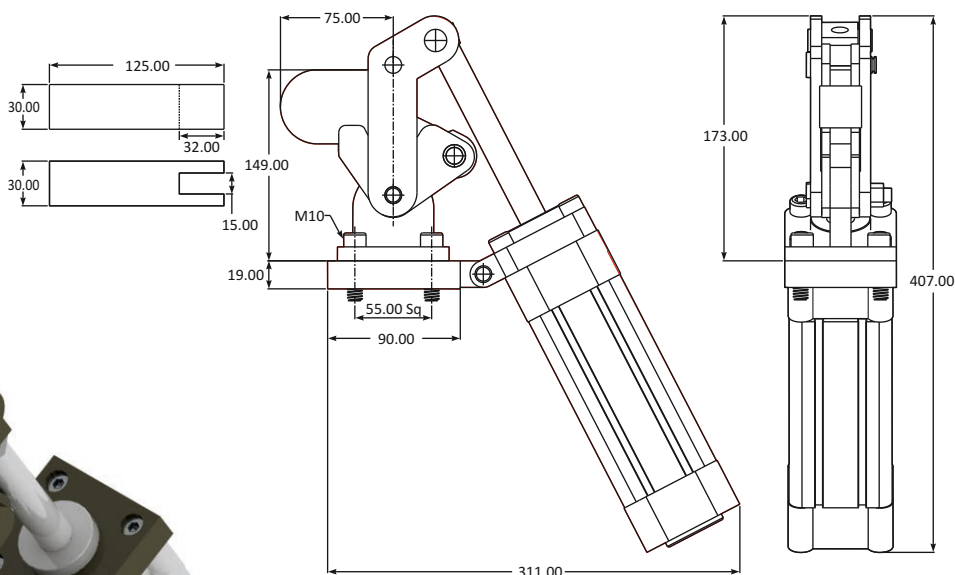
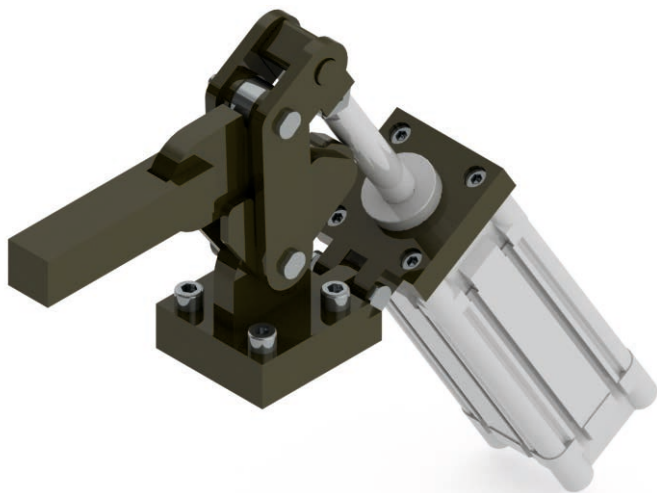
Cylinder Stroke: 100mm

Cylinder Bore: 63mm

Port Size: G 3/8

Weight: 8.200 Kgs

Clamp Arm Opening: 95°

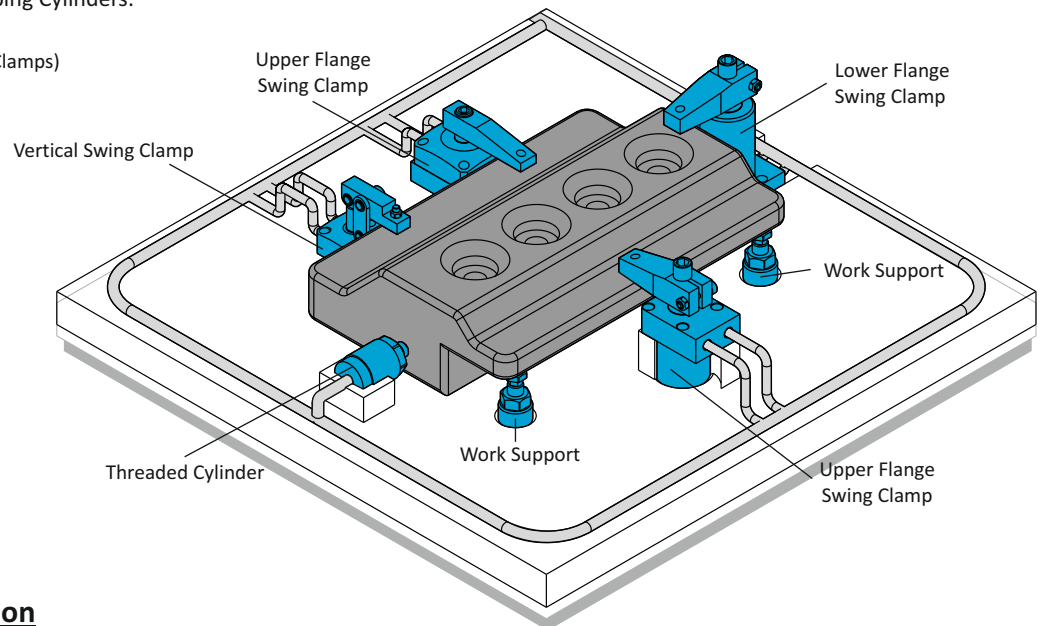


Introduction

Steel-Smith introduces India's biggest range of Swing Clamps having clamping capacity range from 20 kgs. to 1600 kgs. The unique single cylinder design powers both the swing & force cycles eliminating the bulkier, two-cylinder concept that requires one cylinder for the swing motion and another cylinder for the force cycles. Gives you more force in less space with less parts. Loading and unloading of the job is very easy due to the swing action.

There are two types of Clamping Cylinders.

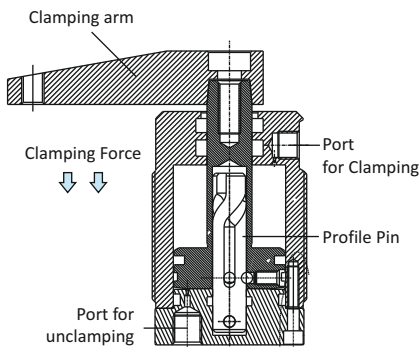
- Swing Action Clamps
- Link Clamps (Vertical Swing Clamps)



Anatomy & Information

Swing Clamps

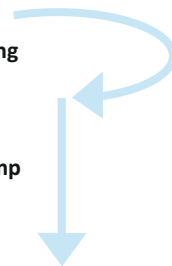
Cross Section View of Swing Clamp



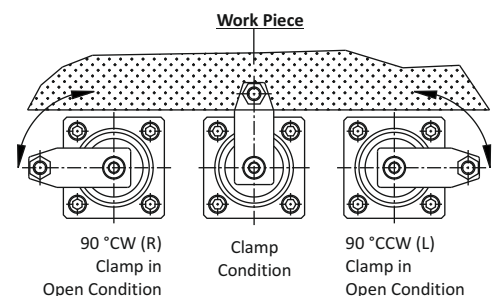
Swing Stroke / Clamp Stroke

Stroke to swing

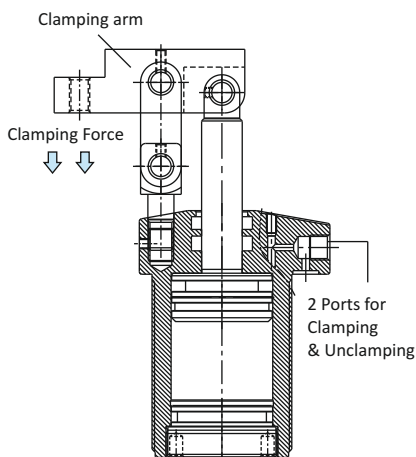
Stroke to clamp



Direction of Rotation



Cross Section View of Link Clamp



Link Clamps

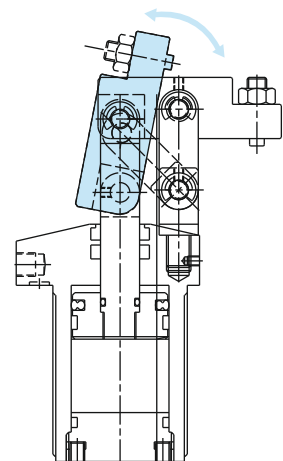
Features

In Vertical Swing clamping cylinders the clamping arm swings vertically to give the required clamping and unclamping action.

Can be used to clamp low profile work pieces.

Can produce larger clamp force than Swing Clamps in the same bore size.

Opening of Link Clamp

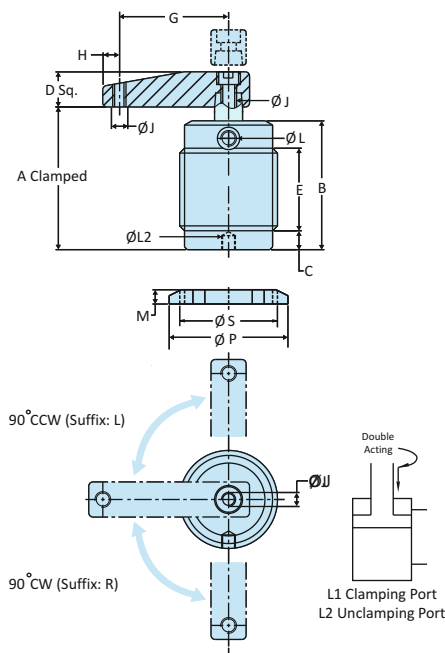


Pneumatic Swing Clamps

Pneumatic Swing Clamp - PST Series Threaded Body Model

- Body Thread for precise cylinder height positioning
- Threaded port connection
- Easy installation and removal
- Greatest flexibility in fixture design
- Available with two Flange Nuts

Material	Aluminum Alloy Body
Acting Type	Double Acting
Force	16 - 140 kgs
Stroke	28 - 30 mm
Pressure	4 - 7 Bar
Swivel Angle	90° ±2°

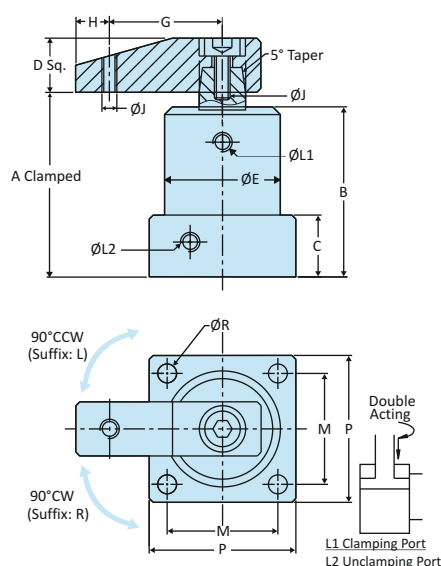


Model No.	A Clamped	B	C	D Sq.	E	G	H	J	L	M	P	S	Weight Kgs	Piston Dia.	Bore Dia.	Swing Stroke	Clamping Stroke	Force in Kgs (5 kg/cm ²)
PST-25-R/L	76	70	10	16	35	50	6	M8x1.25	M5x0.8	9	58	M40 x 1.5	0.800	14	25	14	14	16
PST-32-R/L	83	79	13	19	40	60	9	M8x1.25	G1/8	11	70	M50 x 1.5	1.100	16	32	14	16	30
PST-40-R/L	87	83	13	19	45	70	9	M8x1.25	G1/8	11	75	M55 x 1.5	1.250	16	40	14	15	50
PST-50-R/L	92	87	13	25	50	80	10	M12x1.5	G1/8	12	85	M65 x 1.5	1.700	20	50	14	14	85
PST-63-R/L	97	92	13	25	56	90	10	M12x1.5	G1/8	15	105	M80 x 1.5	2.200	20	63	15	15	140

Pneumatic Swing Clamp - PSF Series Lower Flange Version

- No Fixture hole required
- Cylinder can be bolted directly to the fixture
- Easiest mounting preparation in the swing clamp line
- Square flange design enables clamping at all four sides of the clamp
- Allows extra large parts to be clamped

Material	Aluminum Alloy Body
Acting Type	Double Acting
Force	16 - 140 kgs
Stroke	26 - 29 mm
Pressure	4 - 7 Bar
Swivel Angle	90° ±2°

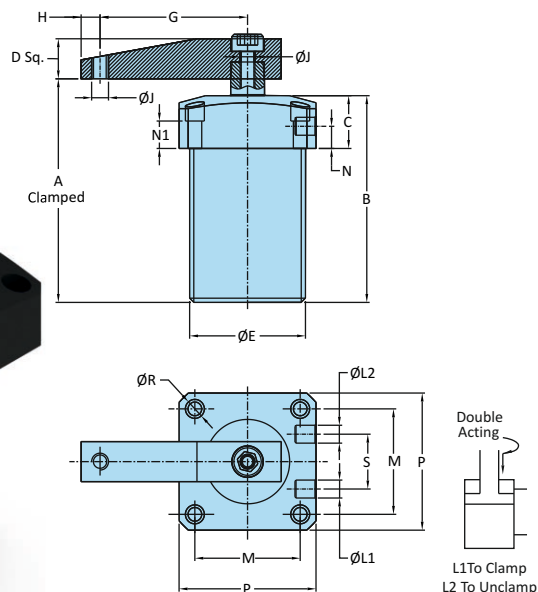


Model No.	A Clamped	B	C	D Sq.	E	G	H	J	L	M	P	R	Weight Kgs	Piston Dia.	Bore Dia.	Swing Stroke	Clamping Stroke	Force in Kgs (5 kg/cm ²)
PSF-25-R/L	69.5	65.5	23	16	35	30	8	M8 x 1.25	M5 x 0.8	30	40	4.5	0.400	14	25	12	14	16
PSF-32-R/L	76.5	71	23	19	50	50	9	M8 x 1.25	1/8 PT	44	54	6.5	0.700	16	32	12	14	30
PSF-40-R/L	79	75	26	19	55	50	9	M8 x 1.25	1/8 PT	48	58	6.5	0.850	16	40	12	15	50
PSF-50-R/L	84	80	26	25.4	65	70	10	M10 x 1.5	1/8 PT	55	68	8.5	1.300	20	50	14	15	85
PSF-63-R/L	90	86	30	25.4	75	70	10	M10 x 1.5	1/8 PT	64	80	8.5	1.800	20	63	14	15	140

Pneumatic Swing Clamp - NPSU Series Upper Flange Version

- No Fixture hole required
- Cylinder can be bolted directly to the fixture
- Easiest mounting preparation in the swing clamp line
- Square flange design enables clamping at all four sides of the clamp
- Allows extra large parts to be clamped

Material	Aluminum Alloy Body
Acting Type	Double Acting
Force	16 - 140 kgs
Stroke	27 - 32 mm
Pressure	4 - 7 Bar
Swivel Angle	90° ±2°

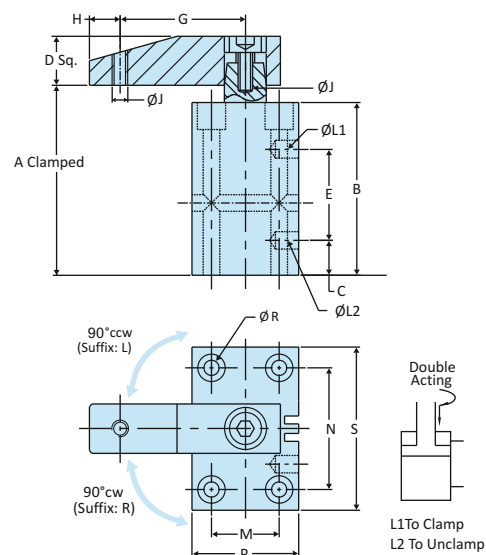


Model No.	A Unclamp	B	C	D Sq.	E	G	H	J	L	M	N	N1	P	R	S	Weight kgs	Piston Dia.	Bore Dia.	Swing Stroke	Clamping Stroke	Force in Kgs (5 kg/cm ²)
NPSU-25-R/L	92	87	25	16	M40 x 1.5	50	6	M6	M5	37	11.5	14.5	50	5.5	23	0.700	14	25	13	14	16
NPSU-32-R/L	103	98	25	19	M50 x 1.5	60	9	M8	G1/8	45	10.5	13	60	6.5	23	0.800	16	32	16	14	30
NPSU-40-R/L	103	98	25	19	M55 x 1.5	70	9	M8	G1/8	50	10.5	13	65	6.5	26	0.850	16	40	15	15	50
NPSU-50-R/L	110	105	25	25	M65 x 1.5	80	10	M12	G1/8	58	10.5	11	75	8.5	32	1.000	20	50	17	15	80
NPSU-63-R/L	110	105	25	25	M80 x 1.5	90	10	M12	G1/8	70	10.5	11	90	8.5	35	1.200	20	63	15	15	140

Pneumatic Swing Clamp - PSB Series Block Version

- Block Design permits the clamp to mounted from three different faces
- Grooves on one side for Reed switch mounting
- Simple mounting preparation and easy installation 2 or 4 mounting bolts

Material	Aluminum Alloy Body
Acting Type	Double Acting
Force	16 - 140 kgs
Stroke	27 - 32 mm
Pressure	4 - 7 Bar
Swivel Angle	90° ±2°



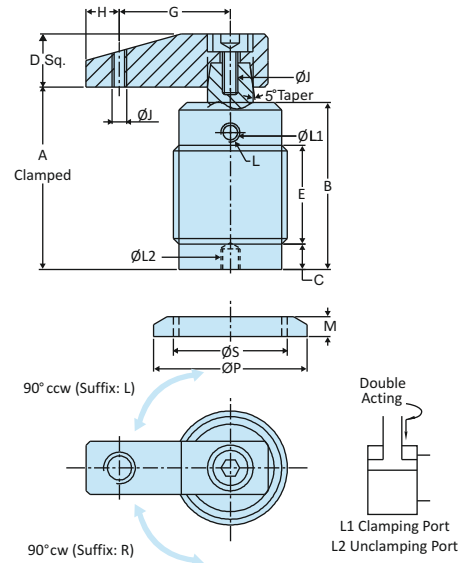
Model No.	A Clamped	B	C	D Sq.	E	G	H	J	L	M	N	P	R	S	Weight Kgs	Piston Dia.	Bore Dia.	Swing Stroke	Clamping Stroke	Force in Kgs (5 kg/cm ²)
PSB-25-R/L	82	78	21	16	34.5	50	6	M6 x 1.00	M5 x 0.8	20	40	35	6.5	55	0.700	14	25	13	14	16
PSB-32-R/L	96	90	21	19	51.5	60	9	M8 x 1.25	G 1/8"	30	45	45	6.5	60	0.900	16	32	16	14	30
PSB-40-R/L	96	90	22	19	50.5	70	9	M8 x 1.25	G 1/8"	37	52	55	8.5	70	1.100	16	40	15	15	50
PSB-50-R/L	105	100	25	25	53.5	80	10	M12 x 1.5	G 1/8"	46	66	65	8.5	85	1.200	20	50	17	15	80
PSB-63-R/L	107	100	28	25	52	90	10	M12 x 1.5	G 1/8"	60	80	80	10.5	100	1.400	20	63	15	15	140

Hydraulic Swing Clamps

Hydraulic Swing Clamp - HST Series Threaded Body

- Body Thread for precise cylinder height positioning
- Threaded port connection
- Easy installation and removal
- Greatest flexibility in fixture design
- Available with two Flange Nuts

Material	Aluminum Alloy Body
Acting Type	Double Acting
Force	59 - 400 kgs
Stroke	26 - 29 mm
Pressure	20 - 70 Bar
Swivel Angle	90° ±2°

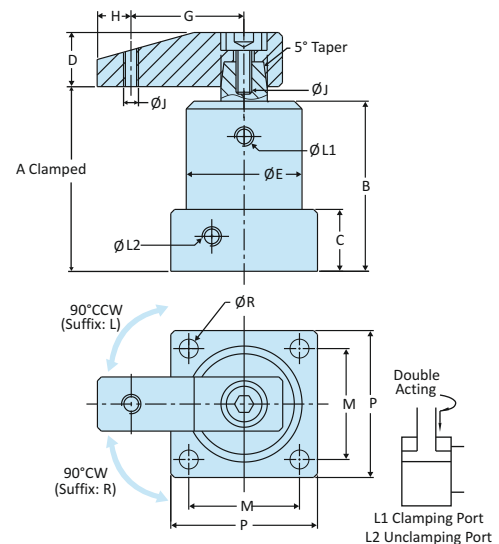


Model No.	A Clamped	B	C	D	E	G	H	J	L	M	P	S	Weight Kgs	Piston Dia.	Bore Dia.	Swing Stroke	Clamping Stroke	Force in Kgs (25 kg/cm ²)
HST-25-R/L	74	70	9	25.4	35	50	10	M10 x 1.5	1/8 PT	10	65	M45 x 1.5	0.800	18	25	12	14	59
HST-32-R/L	82	76	9	25.4	45	55	10	M10 x 1.5	1/8 PT	11	70	M50 x 1.5	1.100	20	32	14	15	125
HST-40-R/L	84.6	80	9	25.4	45	55	10	M10 x 1.5	1/8 PT	11	75	M55 x 1.5	1.250	20	40	14	15	200
HST-50-R/L	92	87	9	25.4	50	55	10	M10 x 1.5	1/8 PT	12	85	M65 x 1.5	1.700	20	50	14	14	400

Hydraulic Swing Clamp - HSF Series Lower Flange Version

- No Fixture hole required
- Cylinder can be bolted directly to the fixture
- Easiest mounting preparation in the swing clamp line
- Square flange design enables clamping at all four sides of the clamp
- Allows extra large parts to be clamped

Material	Aluminum Alloy Body
Acting Type	Double Acting
Force	59 - 600 kgs
Stroke	26 - 29 mm
Pressure	20 - 70 Bar
Swivel Angle	90° ±2°



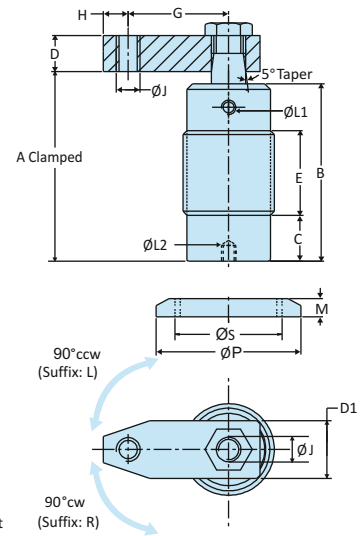
Model No.	A Clamped	B	C	D Sq.	E	G	H	J	L	M	P	R	Weight Kgs	Piston Dia.	Bore Dia.	Swing Stroke	Clamping Stroke	Force in kgs (25 kg/cm ²)
HSF-25-R/L	74	70	23	25.4	45	50	10	M10 x 1.5	1/8 PT	40	50	6.5	0.800	18	25	12	14	59
HSF-32-R/L	82	76	25	25.4	50	55	10	M10 x 1.5	1/8 PT	44	55	6.5	1.000	20	32	14	15	125
HSF-40-R/L	84.6	80	27	25.4	54	55	10	M10 x 1.5	1/8 PT	48	62	8.5	1.100	20	40	14	15	200
HSF-50-R/L	85.5	80	27	25.4	65	55	10	M10 x 1.5	1/8 PT	57	74	8.5	1.400	20	50	14	15	400
HSF-63-R/L	89	85	32	32	80	75	11	M12 x 1.75	1/8 PT	70	88	10.5	2.300	25	63	14	15	600

Hydraulic Swing Clamp - NFT Series Threaded Body Model

- Body Thread for precise cylinder height positioning
- Threaded port connection
- Easy installation and removal
- Greatest flexibility in fixture design
- Available with two Flange Nuts

For Single Acting clamp the Normal Condition will be Un-clamped condition.

Material	Medium Carbon Steel Body
Acting Type	Single Acting / Double Acting
Force	495 - 1600 kgs
Stroke	23 - 33 mm
Pressure	50 - 350 Bar
Swivel Angle	90° ±2°



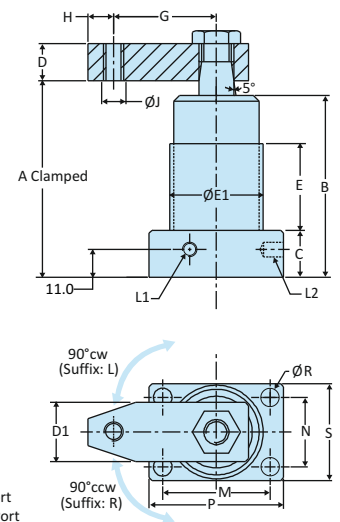
Model No.	A Clamped	B	C	D	E	G	H	J	L	M	P	S	Weight Kgs	Piston Dia.	Bore Dia.	Swing Stroke	Clamping Stroke	Force in Kgs (210 kg/cm ²)
Single Acting																		
NFT-25-A-R/L	108	102	18	19	48	45	10	M12	1/8 PT	10	65	M45 x 1.5	1.800	18	25	12	11	495
NFT-32-A-R/L	105	97	18	19	52	50	10	M12	1/8 PT	11	70	M50 x 1.5	2.100	22	32	12	11	890
NFT-40-A-R/L	105	98	18	19	54	50	10	M12	1/8 PT	11	80	M60 x 1.5	2.200	25	40	12	11	1600
Double Acting																		
NFT-25-B-R/L	103	102	18	19	48	45	10	M12	1/8 PT	10	65	M45 x 1.5	1.800	18	25	15	18	495
NFT-32-B-R/L	103	97	18	19	52	50	10	M12	1/8 PT	11	70	M50 x 1.5	2.100	22	32	15	18	890
NFT-40-B-R/L	103	98	18	19	54	50	10	M12	1/8 PT	11	80	M60 x 1.5	2.200	25	40	15	18	1600

Hydraulic Swing Clamp - NFS Series Lower Flange Version

- No Fixture hole required
- Cylinder can be bolted directly to the fixture
- Flexible design allows for manifold or threaded port connection
- Easiest mounting preparation in the swing clamp line
- Square flange design enables clamping at all four sides of the clamp
- Allows extra large parts to be clamped

For Single Acting clamp the Normal Condition will be Un-clamped condition.

Material	Medium Carbon Steel Body
Acting Type	Single Acting / Double Acting
Force	495 - 1600 kgs
Stroke	23 - 33 mm
Pressure	50 - 350 Bar
Swivel Angle	90° ±2°



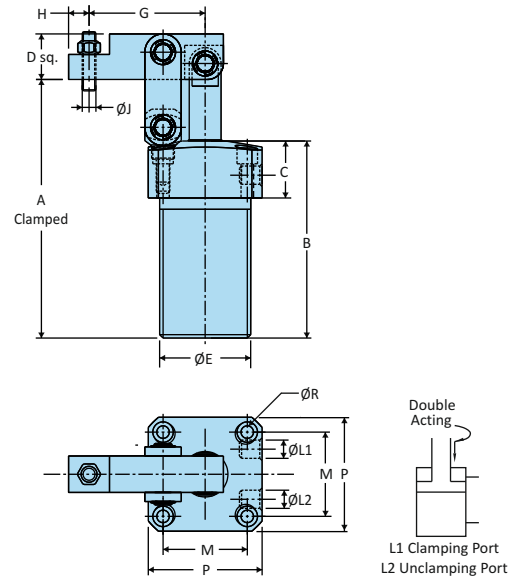
Model No.	A Clamped	B	C	D	E	E1	G	H	J	L	M	N	P	R	S	Weight Kgs	Piston Dia.	Bore Dia.	Swing Stroke	Clamping Stroke	Force in Kgs (210 kg/cm ²)
Single Acting																					
NFS-25-A-R/L	112	106	22	19	48	M45 x 1.5	45	10	M12	1/8 PT	50	30	64	6.5	46	1.600	18	25	12	11	495
NFS-32-A-R/L	109	101	22	19	52	M50 x 1.5	50	10	M12	1/8 PT	54	34	68	8.5	54	1.800	22	32	12	11	890
NFS-40-A-R/L	109	102	22	19	54	M60 x 1.5	50	10	M12	1/8 PT	66	40	84	8.5	64	2.800	25	40	12	11	1600
Double Acting																					
NFS-25-B-R/L	107	106	22	19	48	M45 x 1.5	45	10	M12	1/8 PT	50	30	64	6.5	46	1.400	18	25	15	18	495
NFS-32-B-R/L	107	101	22	19	52	M50 x 1.5	50	10	M12	1/8 PT	54	34	68	8.5	54	1.700	22	32	15	18	890
NFS-40-B-R/L	107	102	22	19	54	M60 x 1.5	50	10	M12	1/8 PT	66	40	84	8.5	64	2.700	25	40	15	18	1600

Link Clamps

Pneumatic Link Clamps - PLCU Series Upper Flanged Version

- Cylinder can be bolted directly to the fixture
- Square flange design enables clamping at all four sides of the clamp
- Allows extra large parts to be clamped

Material	Aluminum Alloy Body
Acting Type	Double Acting
Force	34 - 218 kgs
Pressure	4 - 7 Bar

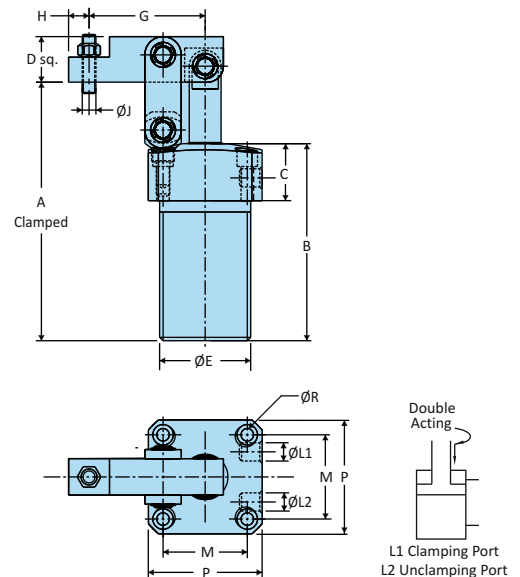
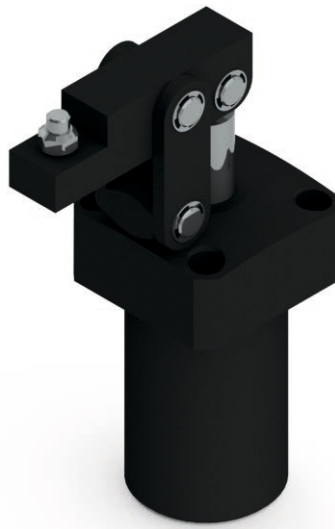


Model No.	A Clamped	B	C	D	E	G	H	J	L	M	P	R	Weight Kgs	Piston Dia.	Bore Dia.	Stroke	Force in Kgs (7 kg/cm ²)
PLCU-25	111.5	86.5	25	17	M40 x 1.5	41	7	M6x1.0	M5x0.8	37	50	5.5	0.600	14	25	22	34
PLCU-32	129.5	97.5	25	20	M50 x 1.5	52	8	M8x1.25	G1/8	45	60	6.5	1.000	16	32	28	56
PLCU-40	132.5	97.5	25	25	M55 x 1.5	56	10	M8x1.25	G1/8	50	65	6.5	1.200	16	40	30	88
PLCU-50	144	104	25	30	M65 x 1.5	63.5	14	M12x1.75	G1/8	58	75	8.5	2.000	20	50	30	137
PLCU-63	149	105	25	30	M80 x 1.5	74	14	M12x1.75	G1/8	70	90	8.5	2.700	20	63	30	218

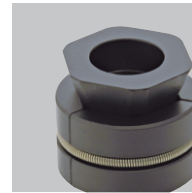
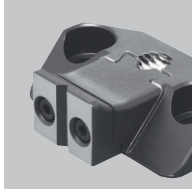
Hydraulic Link Clamp - LHC01D Series - Upper Flange Version

- Cylinder can be bolted directly to the fixture
- Square flange design enables clamping at all four sides of the clamp
- Allows extra large parts to be clamped

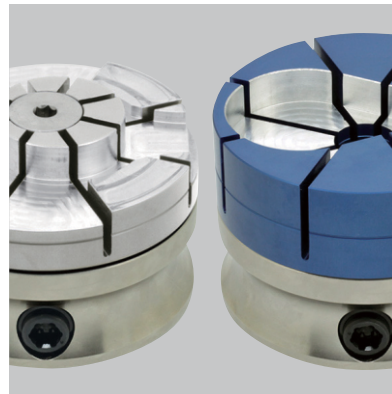
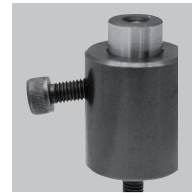
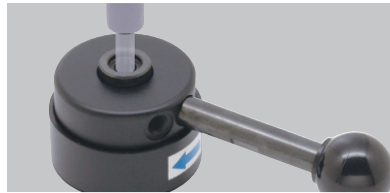
Material	S45C Body
Acting Type	Double Acting
Force	122 - 780 kgs
Pressure	20 - 70 Bar



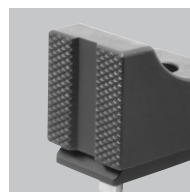
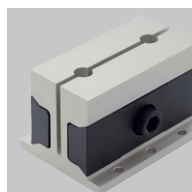
Model No.	A Clamped	B	C	D	E	G	H	J	L	M	P	R	Weight kgs	Piston Dia.	Bore Dia.	Stroke	Force in Kgs (70 kg/cm ²)
LHC01D-25	111.5	86.5	25	17	M40 x 1.5	41	7	M6x1.0	1/8 PT	37	50	5.5	1.200	14	25	22	122
LHC01D-32	129	97	25	20	M50 x 1.5	52	8	M8x1.25	1/8 PT	45	60	6.5	1.800	16	32	28	201
LHC01D-40	132	97	25	25	M55 x 1.5	56	10	M8x1.25	1/8 PT	50	65	6.5	2.500	16	40	30	315
LHC01D-50	144	104	25	30	M65 x 1.5	63.5	14	M12x1.75	1/8 PT	58	75	8.5	4.000	20	50	30	490
LHC01D-63	149	105	25	30	M80 x 1.5	74	14	M12x1.75	1/8 PT	70	90	8.5	6.500	20	63	30	780



Standard Fixture Components



IMAO CORPORATION offers a wide variety of quality easy-to-handle fixture components. IMAO unique fixture components satisfy different workholding needs, for better solutions.



IMAO CORPORATION

Any Tools Needed? No Need!

Just Turn the Handle!



ONE-TOUCH CLAMPS

for Better Efficiency and Lower Costs



Quick Manual Clamping with No Tools

Imao One-Touch Clamps allow clamping and unclamping the workpiece just by turning the handle, without any tools. This one-touch feature helps to slash workpiece loading/unloading time, for drastic setup time reduction and increased productivity.

One-Touch Clamps serve for various applications in machining, assembly, testing and inspection, in different industries.

Automobiles

Industrial
Machines

Office
Machines

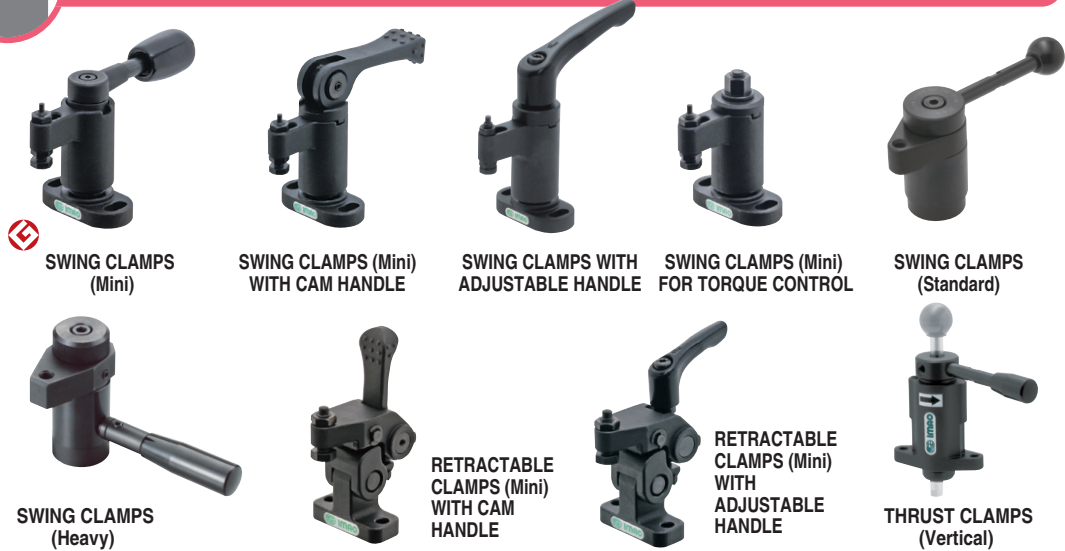
Semiconductor
Parts

Audiovisual
Apparatus

This extended line of One-Touch Clamps covers a wide range of clamping applications for small parts, and aluminum, zinc, cast-iron or steel parts.



Push-Down



Side-Push



Pull-Down



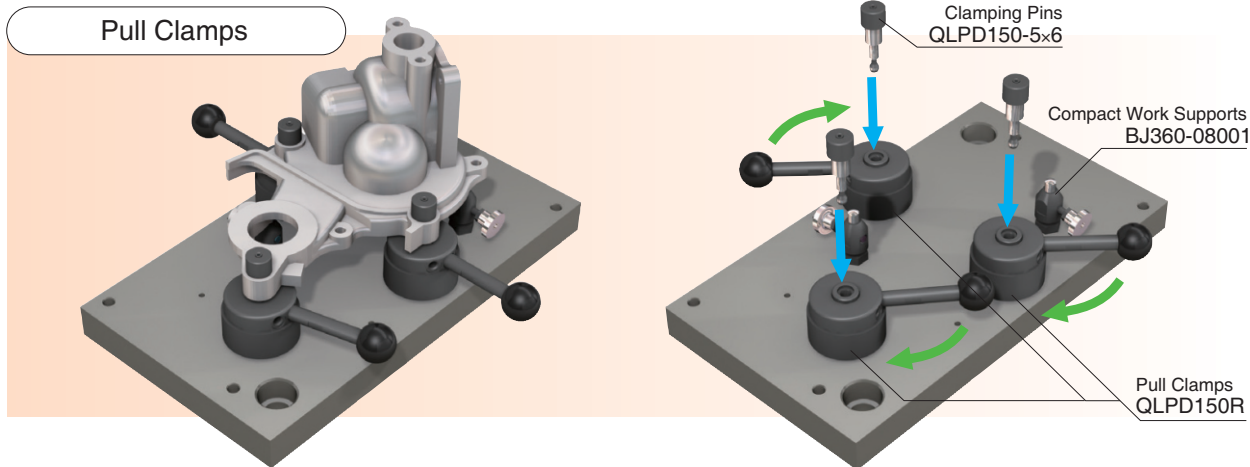
Push-Up



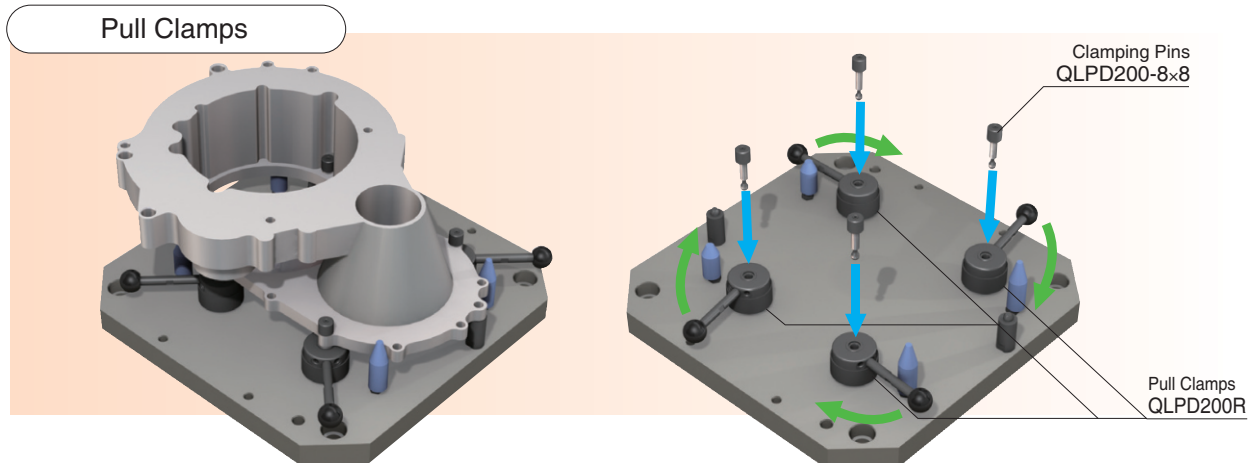
Applications

Application Examples

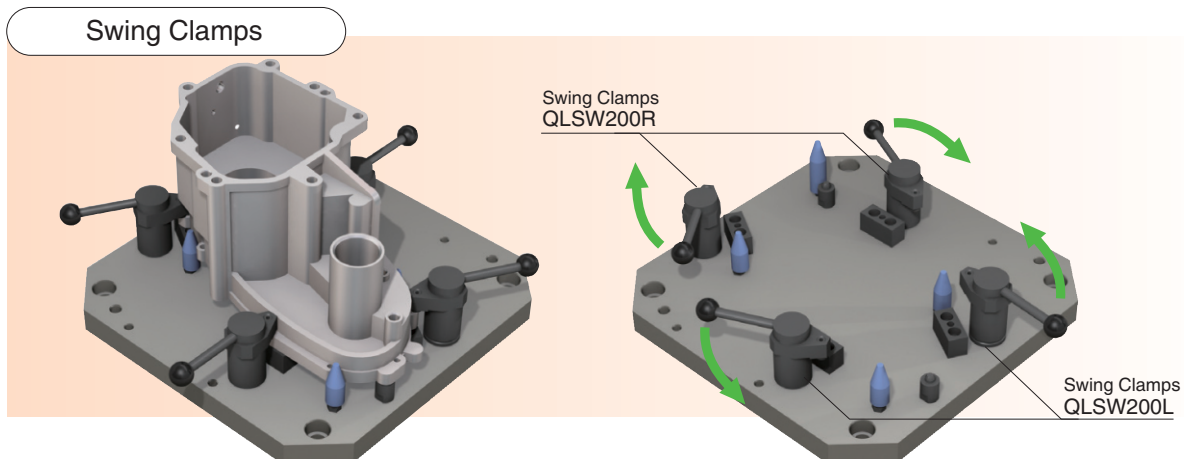
Pull Clamps



Pull Clamps

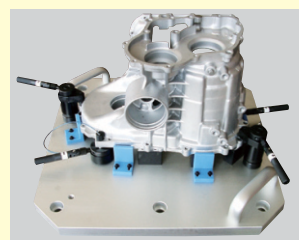
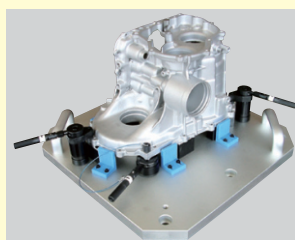


Swing Clamps



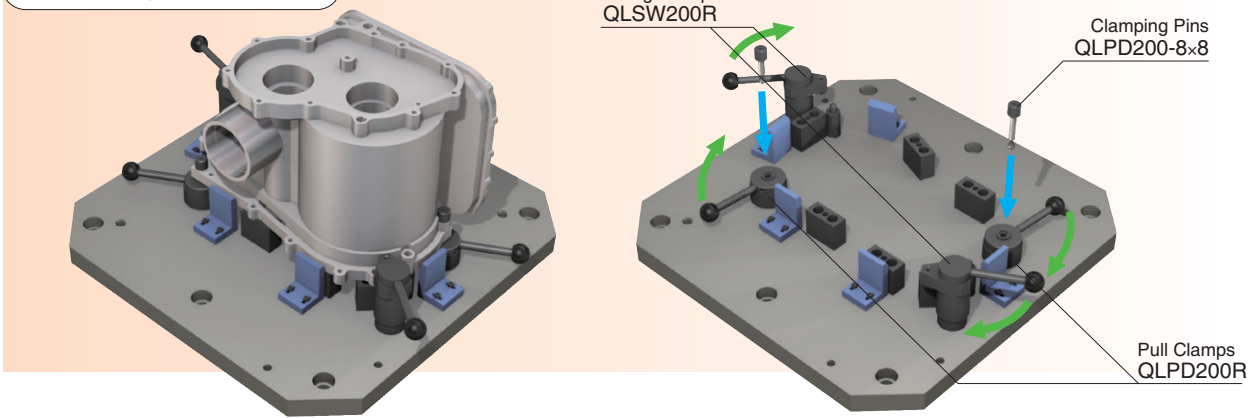
Photos of Actual Examples

Swing Clamps

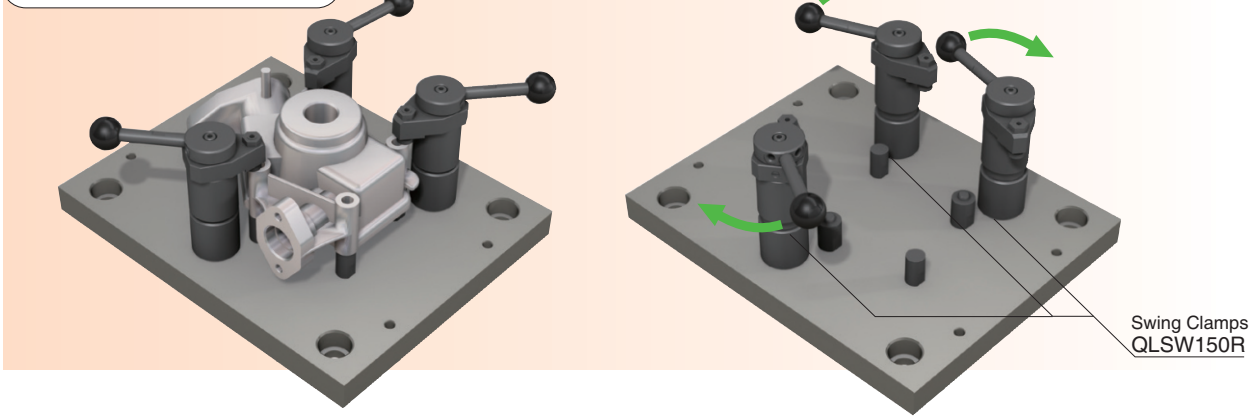


Application
Examples

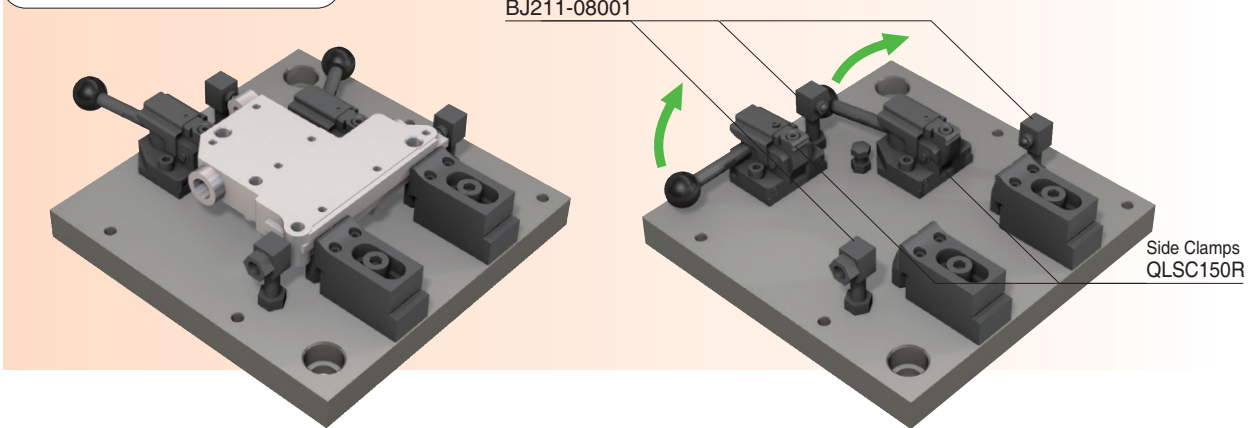
Swing Clamps



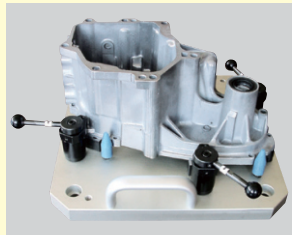
Swing Clamps



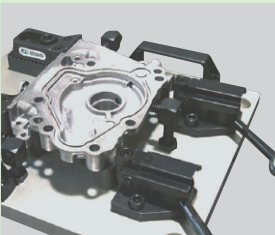
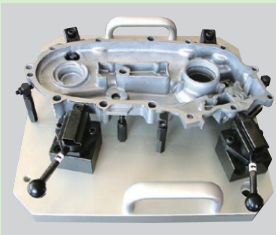
Side Clamps



Photos of Actual Examples



Photos of Actual Examples



QLSWC - Swing Clamps (Mini)



(Black Oxide Finish)

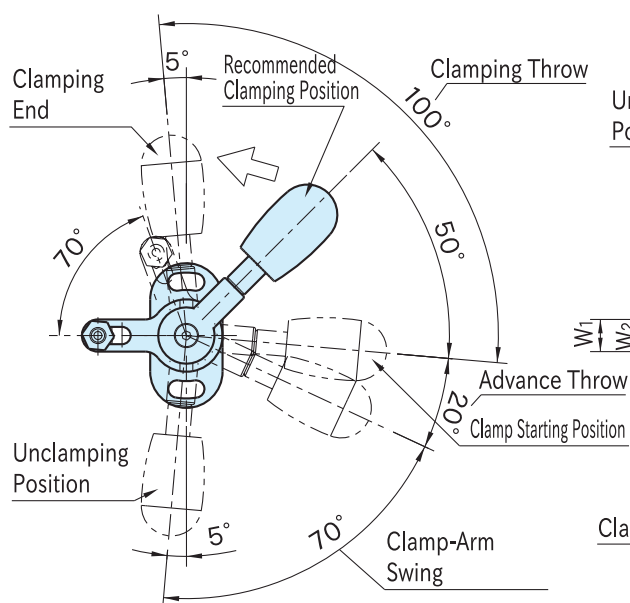
(Electroless Nickel Plated)

On Request

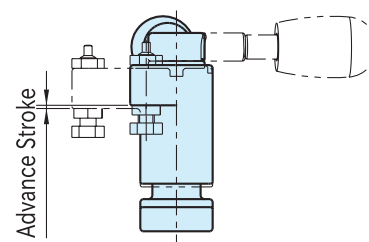
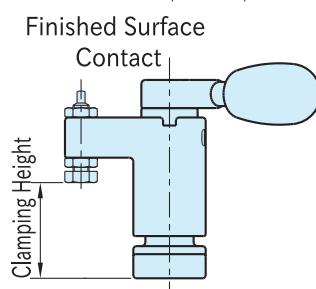
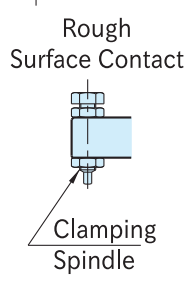
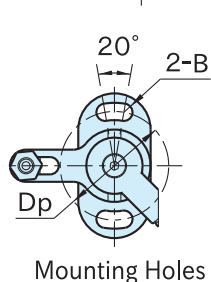
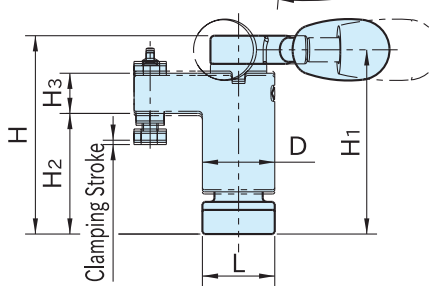
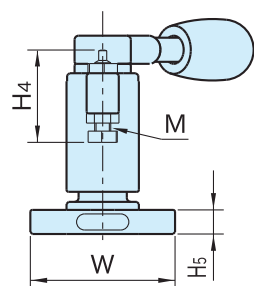
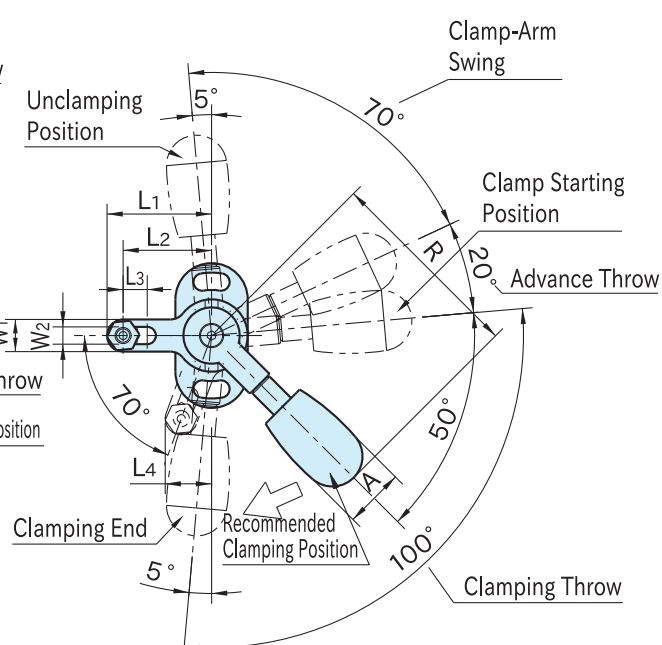


Type	Body/Handle/Clamping Spindle	Arm	Cam Shaft	Knob
QLSWC	Steel (S45C) Quenched and tempered Black oxide finish	SCM440 Quenched and tempered Black oxide finish	SCM415 Quenched and tempered Black oxide finish	Phenolic plastic Black
QLSWC-NP	S45C Quenched and tempered Electroless nickel plated	SCM440 Quenched and tempered Electroless nickel plated	SCM415 Quenched and tempered Electroless nickel plated	

Counterclockwise Clamping



Clockwise Clamping



Part Number		Clamping Direction				Clamping Stroke	Advance Stroke	L ₂	L ₃	L ₁	L ₄	W	L	H ₅	B
		Clamping Height *)													
		Finished Surface Contact		Rough Surface Contact											
		Min.	Max.	Min.	Max.										
QLSWC100R	CW	22.8	24.8	22.4	24.4	1	0.8	22	6	26	11.5	36	18	6	4.3
QLSWC100L	CCW	(22.3~23.3)	(24.3~25.3)	(21.9~22.9)	(23.9~24.9)										
QLSWC150R	CW	31.3	33.3	32.2	34.2	1.4	1.1	30	8	35	15.3	45	23	8	5.3
QLSWC150L	CCW	(30.6~32)	(32.6~34)	(31.5~32.9)	(33.5~34.9)										
QLSWC200R	CW	32.5	39	33.5	40	1.5	1.4	37		45	20.7	65	30	12	8.4
QLSWC200L	CCW	(31.7~33.2)	(38.2~39.7)	(32.7~34.2)	(39.2~40.7)										
QLSWC300R	CW	36.5	46	39	48.5	1.9	1.7	45		55	25.4	85	40	15	10.5
QLSWC300L	CCW	(35.5~37.4)	(45~46.9)	(38~39.9)	(47.5~49.4)										

Part Number	Dp	H	D	W ₁	W ₂	H ₃	H ₂	M	H ₄	R	A	H ₁	Allowable Operating Load (N) **	Clamping Force (N)	Clamping Mechanism
QLSWC100R	27	49	18	8	4.3	10	30	M 4×0.7	22.8	50	15	45.8	100	1,100	Spiral Cam Cam Angle:5°
QLSWC100L															
QLSWC150R	34	66	23	10	5.3	14	40	M 5×0.8	28.5	63	20	61.3	150	1,800	Spiral Cam Cam Angle:5°
QLSWC150L															
QLSWC200R	48	82	30	16	8.4	18	50	M 8×1.25	45.5	80	26	76.5	200	2,200	Spiral Cam Cam Angle:4°
QLSWC200L															
QLSWC300R	64	100	40	20	10.4	22	60	M10×1.5	57	100	33	93	300	3,500	Spiral Cam Cam Angle:4°
QLSWC300L															

QLSWC (Black oxide finish)

Part Number	Weight (g)
QLSWC100R	112
QLSWC100L	
QLSWC150R	250
QLSWC150L	
QLSWC200R	570
QLSWC200L	
QLSWC300R	1,200
QLSWC300L	

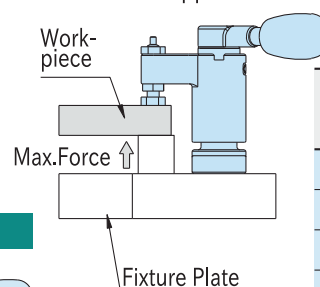
QLSWC-NP (Electroless nickel) On Request

Part Number	Weight (g)
QLSWC100R-NP	112
QLSWC100L-NP	
QLSWC150R-NP	250
QLSWC150L-NP	
QLSWC200R-NP	570
QLSWC200L-NP	
QLSWC300R-NP	1,200
QLSWC300L-NP	

*) Clamping height can be adjusted. The parenthesised values denote clamping height range.
**) Allowable load to operate the handle.

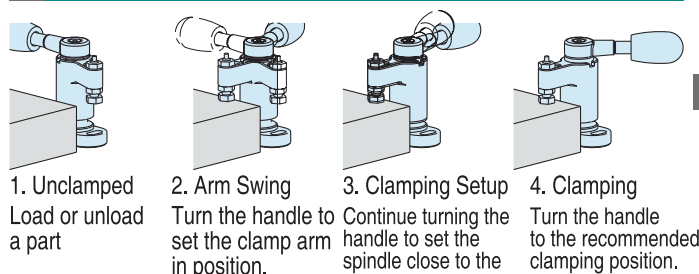
Technical Information

Allowable Loads in Machining of Workpiece Bottom Ensure that any force more than stated below is not applied.



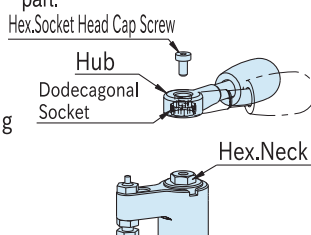
Series	Allowable Force To Workpiece Bottom (Per Clamp)
QLSWC100	max.2,300N
QLSWC150	max.3,600N
QLSWC200	max.3,700N
QLSWC300	max.5,600N

How To Use

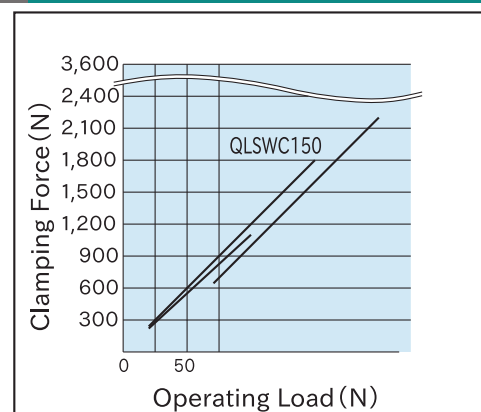


How To Change Handle Position

The dodecagonal socket in the hub of the handle allows changing the handle position by 30°.



Performance Curve



QLSWC - Swing Clamps (Mini) With Cam Handle



(Black Oxide Finish)

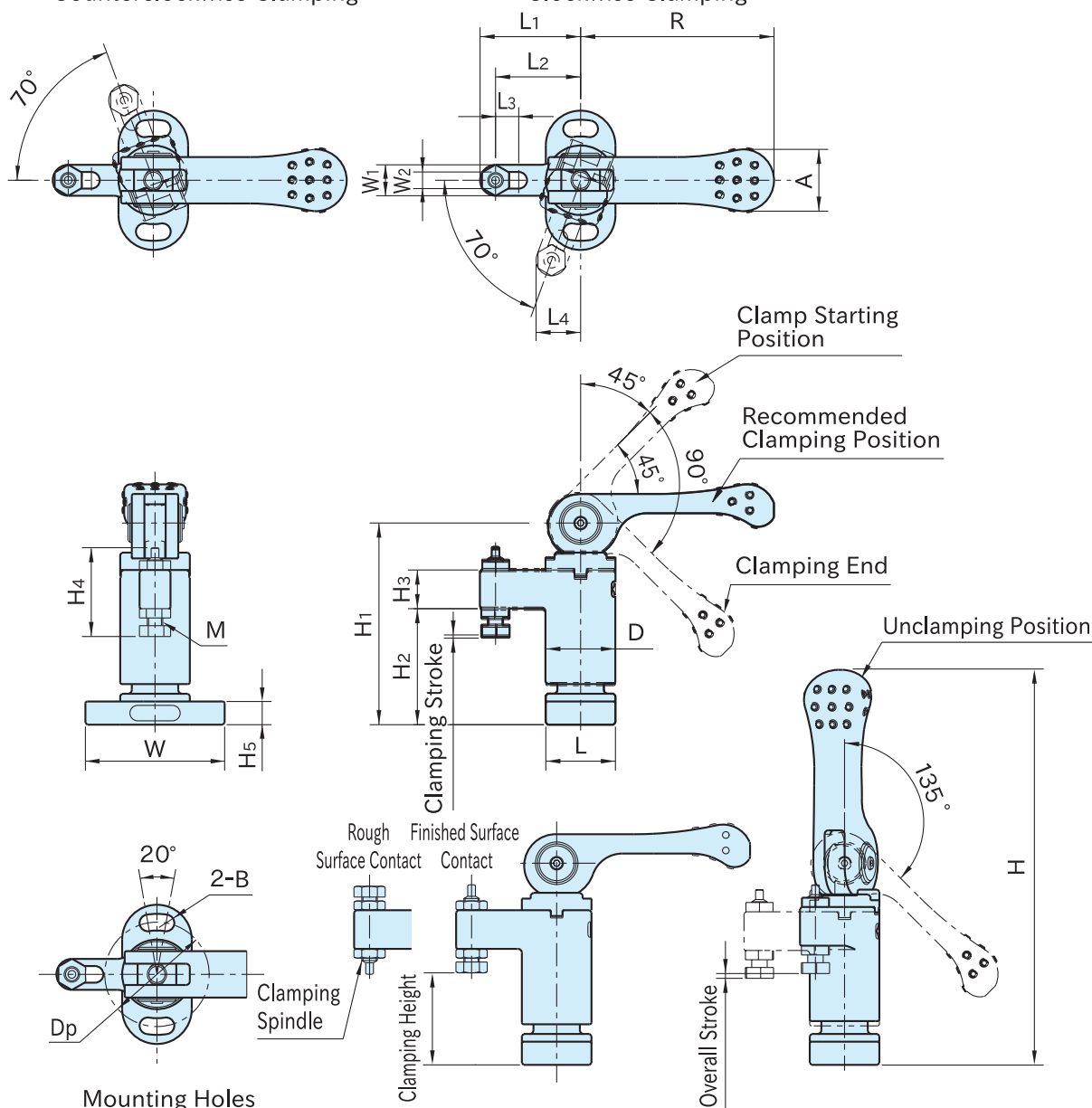
(Electroless Nickel Plated)

On Request

Style	Body/Washer/Clamping Spindle	Arm/Handle
QLSWC	Steel (S45C) Quenched and tempered Black oxide finish	Steel (SCM440) Quenched and tempered Black oxide finish
QLSWC-NP	Steel (S45C) Quenched and tempered Electroless nickel plated	Steel (SCM440) Quenched and tempered Electroless nickel plated

Counterclockwise Clamping

Clockwise Clamping



QLSWC - Swing Clamps (Mini) With Cam Handle

Part Number	Clamping Direction	Clamping Height *)				Clamping Stroke	Overall Stroke	L ₂	L ₃	L ₁	L ₄	W	L	H ₅	B
		Finished Surface Contact		Rough Surface Contact											
		Min.	Max.	Min.	Max.										
QLSWC100VR	CW	22.8	24.8	22.4	24.4	0.8	1.2	22	6	26	11.5	36	18	6	4.3
QLSWC100VL	CCW	(22.4~23.2)	(24.4~25.2)	(22~22.8)	(24~24.8)										
QLSWC150VR	CW	31.3	33.3	32.2	34.2	1	1.5	30		35	15.3	45	23	8	5.3
QLSWC150VL	CCW	(30.8~31.8)	(32.8~33.8)	(31.7~32.7)	(33.7~34.7)										
QLSWC200VR	CW	32.5	39	33.5	40	1.2	1.8	37	8	45	20.7	65	30	12	8.4
QLSWC200VL	CCW	(31.9~33.1)	(38.4~39.6)	(32.9~34.1)	(39.4~40.6)										
QLSWC300VR	CW	36.5	46	39	48.5	1.5	2.3	45		55	25.4	85	40	15	10.5
QLSWC300VL	CCW	(35.7~37.2)	(45.2~46.7)	(38.2~39.7)	(47.7~49.2)										

*) Clamping height can be adjusted. The parenthesized values denotes clamping height range.

Part Number	Dp	H	D	W ₁	W ₂	H ₃	H ₂	M	H ₄	R	A	H ₁	Cam Handles Part Number	Allowable Operating Load (N) **)	Clamping Force (N)	Clamping Mechanism
QLSWC100VR	27	102	18	8	4.3	10	30	M 4×0.7	22.8	50	16	52	QLCA-05	100	800	Spiral Cam Cam Angle:4°
QLSWC100VL																
QLSWC150VR	34	131	23	10	5.3	14	40	M 5×0.8	28.5	63	19	68	QLCA-06	150	1,500	
QLSWC150VL																
QLSWC200VR	48	167	30	16	8.4	18	50	M 8×1.25	45.5	80	24	87	QLCA-08	200	2,100	
QLSWC200VL																
QLSWC300VR	64	207	40	20	10.4	22	60	M10×1.5	57	100	30	107	QLCA-10	300	2,800	
QLSWC300VL																

**) Allowable load to operate the handle

QLSWC

(Black Oxide Finish)

Part Number	Weight (g)
QLSWC100VR	134
QLSWC100VL	
QLSWC150VR	272
QLSWC150VL	
QLSWC200VR	625
QLSWC200VL	
QLSWC300VR	1,340
QLSWC300VL	

QLSWC-NP

On Request

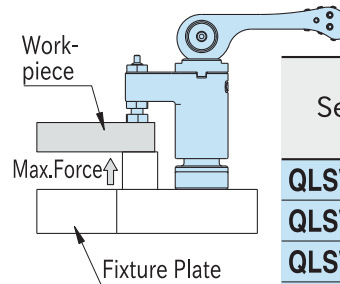
(Electroless Nickel Plated)

Part Number	Weight (g)
QLSWC100VR-NP	134
QLSWC100VL-NP	
QLSWC150VR-NP	272
QLSWC150VL-NP	
QLSWC200VR-NP	625
QLSWC200VL-NP	
QLSWC300VR-NP	1,340
QLSWC300VL-NP	

Technical Data

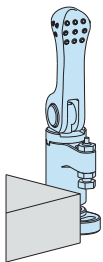
Allowable Loads in Machining of Workpiece Bottom

Ensure that any force more than stated below is not applied.

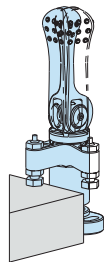


Series	Allowable Force To Workpiece Bottom (Per Clamp)
QLSWC100	Max.2,300N
QLSWC150	Max.3,600N
QLSWC200	Max.3,700N
QLSWC300	Max.5,600N

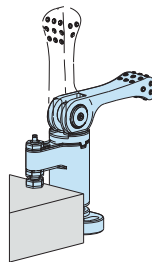
How To Use



1. Unclamped Load or unload a workpiece.

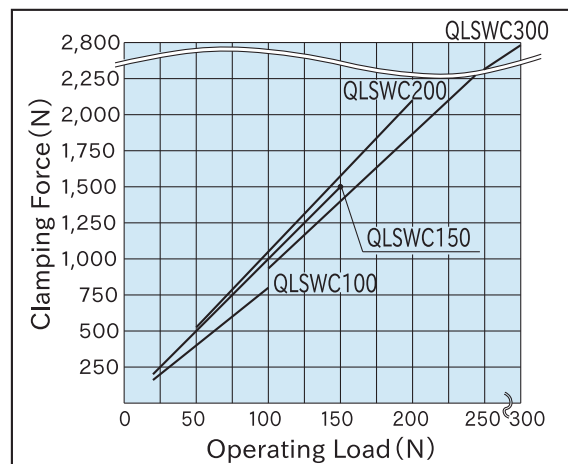


2. Arm Swing Turn the handle to set the clamp arm in position.



3. Clamping Set the handle down to clamp the workpiece.

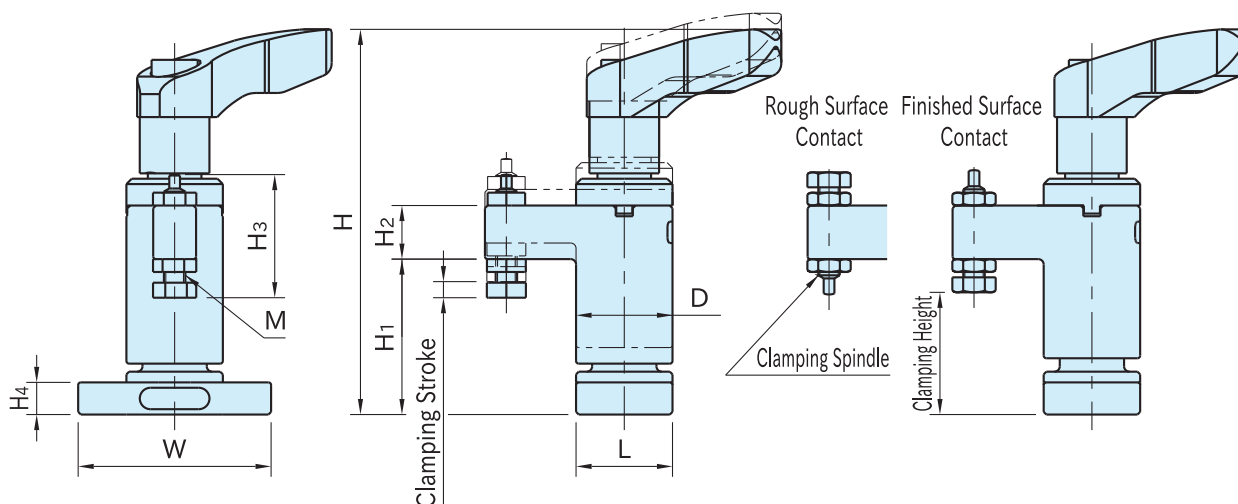
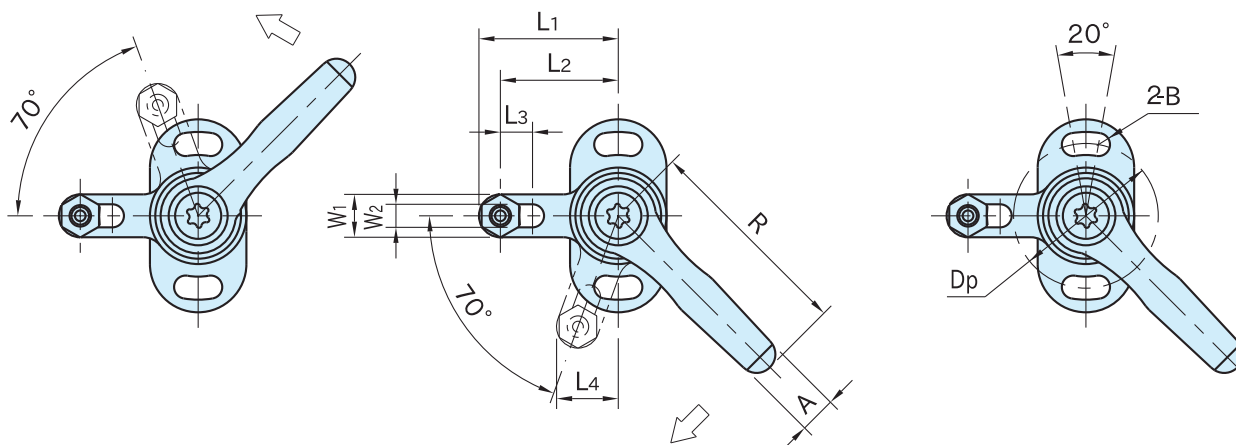
Performance Curve





- Clamp worked by a screw-locking mechanism which allows providing longer clamping stroke and greater clamping force than a cam-locking mechanism.
- Operated by an adjustable handle that allows for flexible handle positioning.

Clockwise Clamping



QLSWC - Swing Clamps With Adjustable Handle

Part Number	Clamping Direction	Clamping Height *)				Clamping Stroke	L ₂	L ₃	L ₁	L ₄	W	L	H ₄	B	Dp
		Finished Surface Contact		Rough Surface Contact											
		Min.	Max.	Min.	Max.										
QLSWC-0618KR	CW	21.8	23.8	21.4	23.4	3	22	6	26	11.5	36	18	6	4.3	27
QLSWC-0618KL	CCW	(21.8~24.8)	(23.8~26.8)	(21.4~24.4)	(23.4~26.4)										
QLSWC-0823KR	CW	30.3	32.3	31.2	33.2	4	30		35	15.3	45	23	8	5.3	34
QLSWC-0823KL	CCW	(30.3~34.3)	(32.3~36.3)	(31.2~35.2)	(33.2~37.2)										
QLSWC-1030KR	CW	30.5	37	31.5	38										
QLSWC-1030KL	CCW	(30.5~34.5)	(37~41)	(31.5~35.5)	(38~42)		37	8	45	20.7	65	30	12	8.4	48
QLSWC-1240KR	CW	34.5	44	37	46.5	5	45								
QLSWC-1240KL	CCW	(34.5~39.5)	(44~49)	(37~42)	(46.5~51.5)										

*) Clamping height can be adjusted. The parenthesised values denote clamping height range.

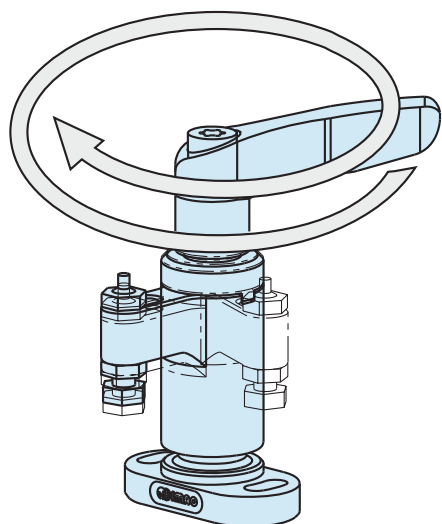
Part Number	H	D	W ₁	W ₂	H ₂	H ₁	M	R	A	H ₃	Adjustable Handles	Allowable Operating Load (N) **)	Clamping Force (N)	Weight (g)
QLSWC-0618KR	71.9	18	8	4.3	10	29	M 4×0.7	40	7	22.8	FKF 6-BR	170	2,000	121
QLSWC-0618KL														
QLSWC-0823KR	97.3	23	10	5.3	14	39	M 5×0.8	65	9.5	28.5	FKF 8-BR		3,200	276
QLSWC-0823KL														
QLSWC-1030KR	122.3	30	16	8.4	18	48	M 8×1.25	80	11	45.5	FKF10-BR	350	4,500	600
QLSWC-1030KL														
QLSWC-1240KR	145.7	40	20	10.4	22	58	M10×1.5	95	13	57	FKF12-BR	410	6,000	1,225
QLSWC-1240KL														

**) Allowable load to operate the handle.

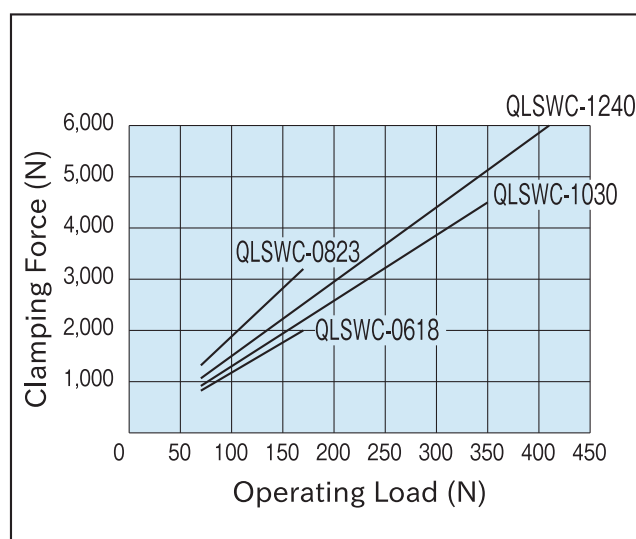
How To Use

Turning the handle allows the clamp arm to swing for clamping.

Lifting the handle allows the handle to be disengaged from the teeth of the locking element and then be turned to a desired position.



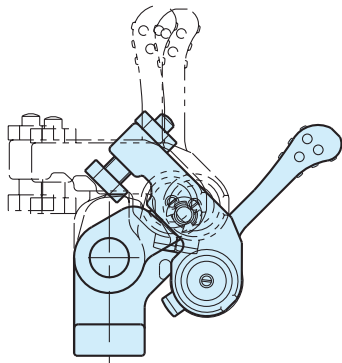
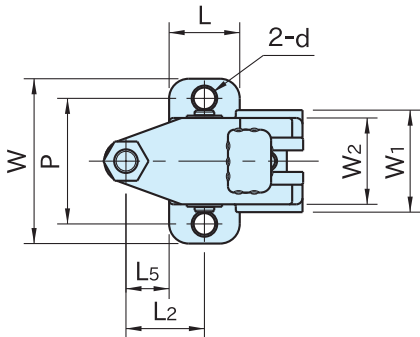
Performance Curve



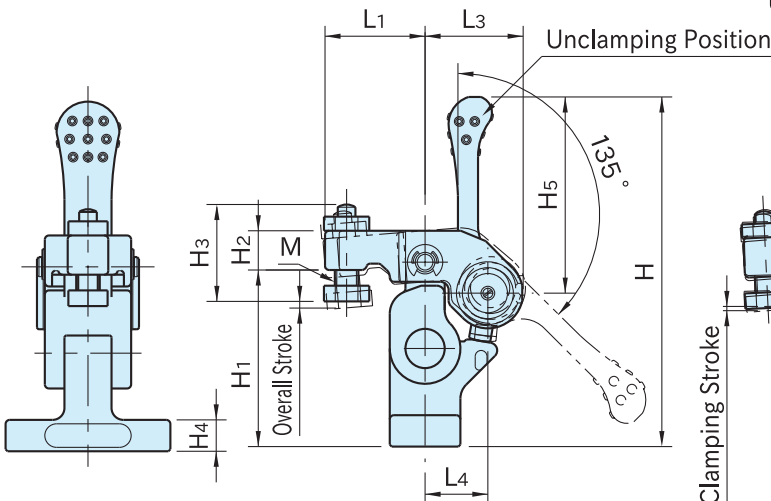
QLRE - Retractable Clamps (Mini) With Cam Handle



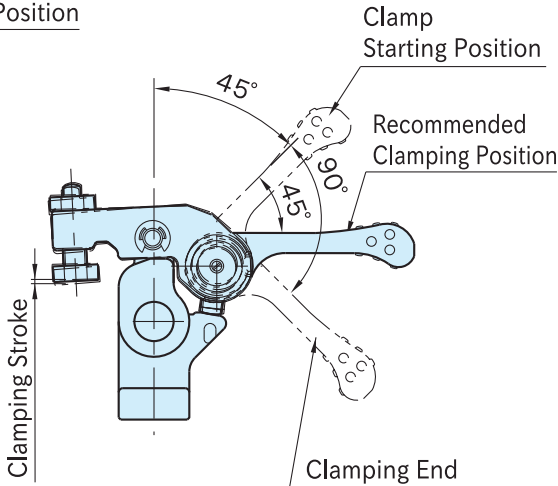
Body/Spindle	Arm/Joint	Cam Handle
Steel(S45C)	Steel(SCM435)	Steel(SCM440)
Quenched and tempered	Quenched and tempered	Quenched and tempered
Black oxide finish	Black oxide finish	Black oxide finish



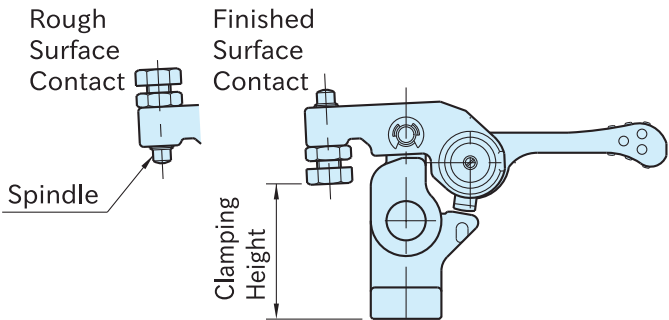
Unclamped



Clamping Position



Clamping Throw



QLRE - Retractable Clamps (Mini) With Cam Handle

Part Number	Clamping Height *)				Clamping Stroke	Overall Stroke	L ₂	L ₅	W	L	H ₄	d	P	H	L ₁	L ₃
	Finished Surface Contact		Rough Surface Contact													
	min.	max.	min.	max.												
QLRE100	32 (31.5~32.5)	40 (39.5~40.5)	35 (34.5~35.5)	43 (42.5~43.5)	1	1.5	20	11	42	18	8	5.5	32	89	25.5	25
QLRE150	37 (36.4~37.6)	48 (47.4~48.6)	42 (41.4~42.6)	53 (52.4~53.6)	1.2	1.8	25	14	52	22	10	6.6	40	109	32	31

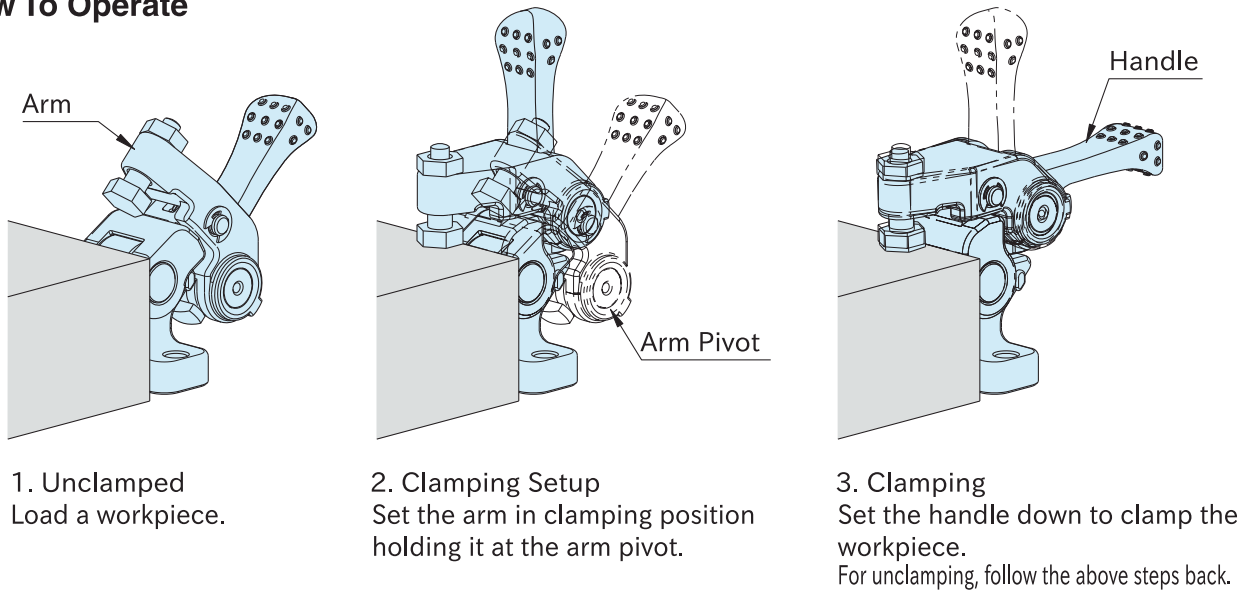
*)Clamping height can be adjusted. The parenthesised values denote actual clamping height.

Part Number	W ₁	W ₂	H ₂	H ₁	M	H ₃	H ₅	L ₄	Cam Handles Part Number	Allowable Operating Load (N)**	Clamping Force(N)	Clamping Mechanism	Weight (g)
QLRE100	26	22	10	45	M6×1	24	50	16	QLCA-05	100	700	Spiral Cam	244
QLRE150	32	28	12	55	M8×1.25	30.5	63	20	QLCA-06	150	1,100	Cam Angle:4°	468

**)Allowable load to operate the handle

How To Use

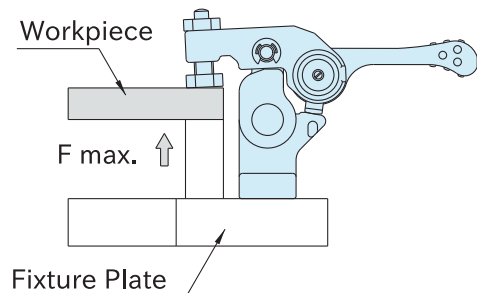
How To Operate



Technical Information

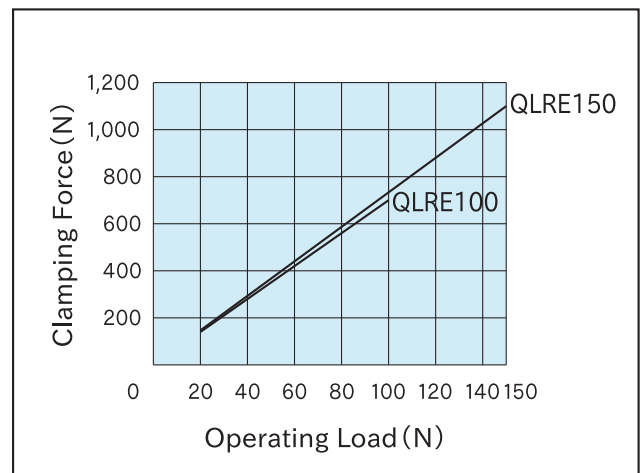
Allowable Loads in Machining of Workpiece Bottom

Ensure that any force more than stated below is not applied.



Part Number	Allowable Force to Workpiece Bottom (per Clamp)
QLRE100	max.5,000N
QLRE150	max.6,000N

Performance Curve

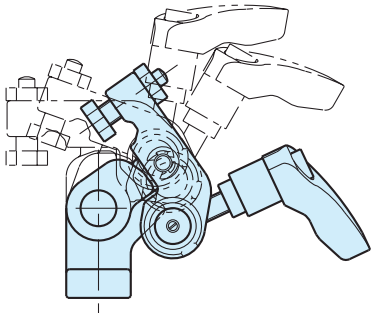
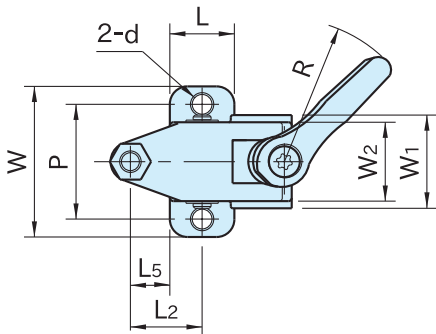


QLRE - Retractable Clamps (Mini) With Adjustable Handle

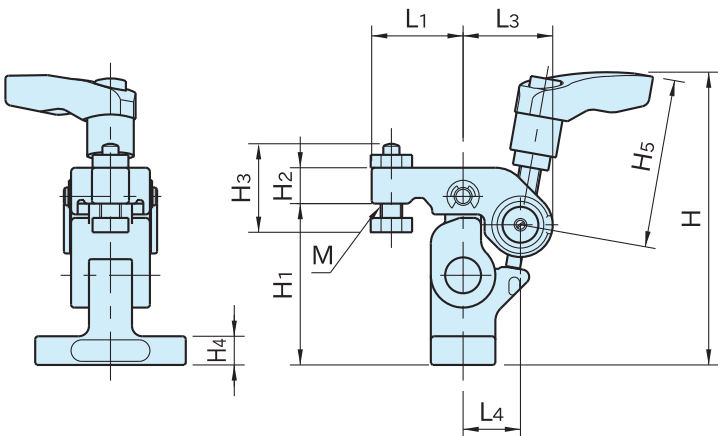


Body/Spindle	Arm/Joint
Steel(S45C)	Steel(SCM435)
Quenched and tempered	Quenched and tempered
Black oxide finish	Black oxide finish

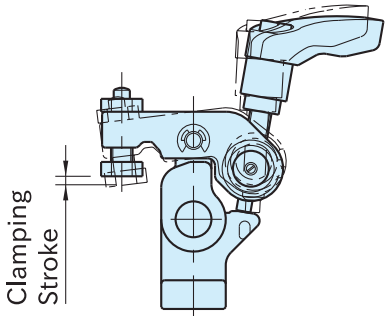
- Screw clamping mechanism allows for longer clamping stroke and greater clamping force.



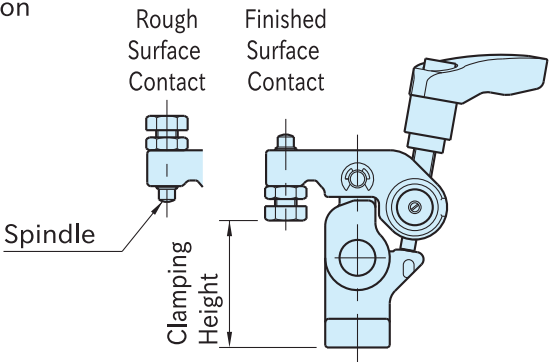
Unclamped



Clamping Position



Clamping Throw



QLRE - Retractable Clamps (Mini) With Adjustable Handle

Part Number	Clamping Height *)				Clamping Stroke	L ₂	L ₅	W	L	H ₄	d	P	H	L ₁	L ₃	W ₁
	Finished Surface Contact		Rough Surface Contact													
	min.	max.	min.	max.												
QLRE-06	32 (32~29.5)	40 (40~37.5)	35 (35~32.5)	43 (43~40.5)	2.5	20	11	42	18	8	5.5	32	81	25.5	25	26
QLRE-08	37 (37~33.5)	48 (48~44.5)	42 (42~38.5)	53 (53~49.5)	3.5	25	14	52	22	10	6.6	40	100	32	31	32

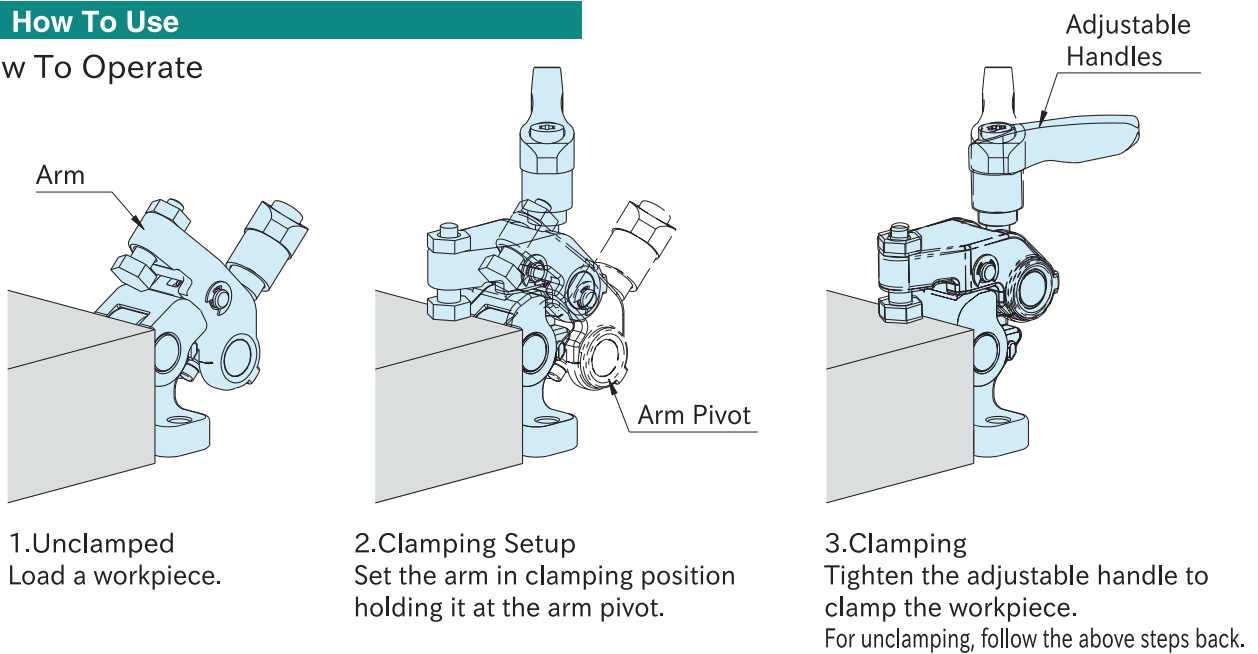
*)Clamping height can be adjusted. The parenthesised values denote actual clamping height.

Part Number	W ₂	H ₂	H ₁	M	H ₃	R	H ₅	L ₄	Adjustable Handles	Allowable Operating Load (N)**	Clamping Force (N)	Clamping Mechanism	Weight (g)
QLRE-06	22	10	45	M6×1	24	40	47	16	FKF6-BR	170	2,400	Screw	242
QLRE-08	28	12	55	M8×1.25	30.5	65	63	20	FKF8-BR	210	4,200		490

**)Allowable load to operate the handle.

How To Use

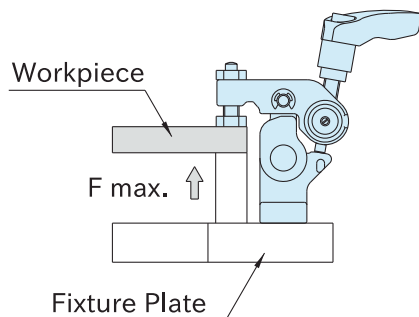
How To Operate



Technical Information

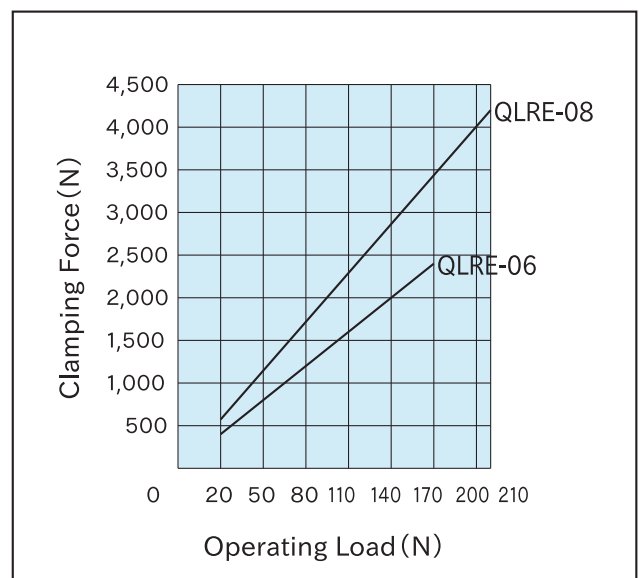
Allowable Loads in Machining of Workpiece Bottom

Ensure that any force more than stated below is not applied.



Part Number	Allowable Force to Workpiece Bottom (per Clamp)
QLRE-06	max.5,000N
QLRE-08	max.6,000N

Performance Curves



QLSCH - Cam Edge Clamps

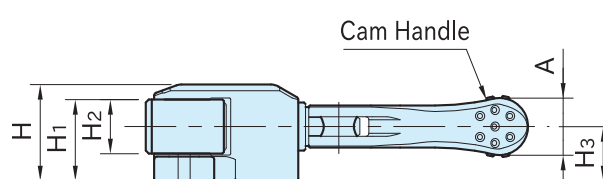
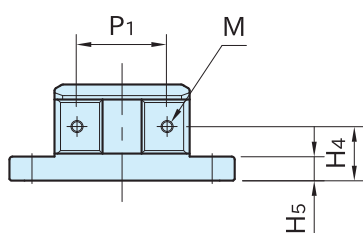
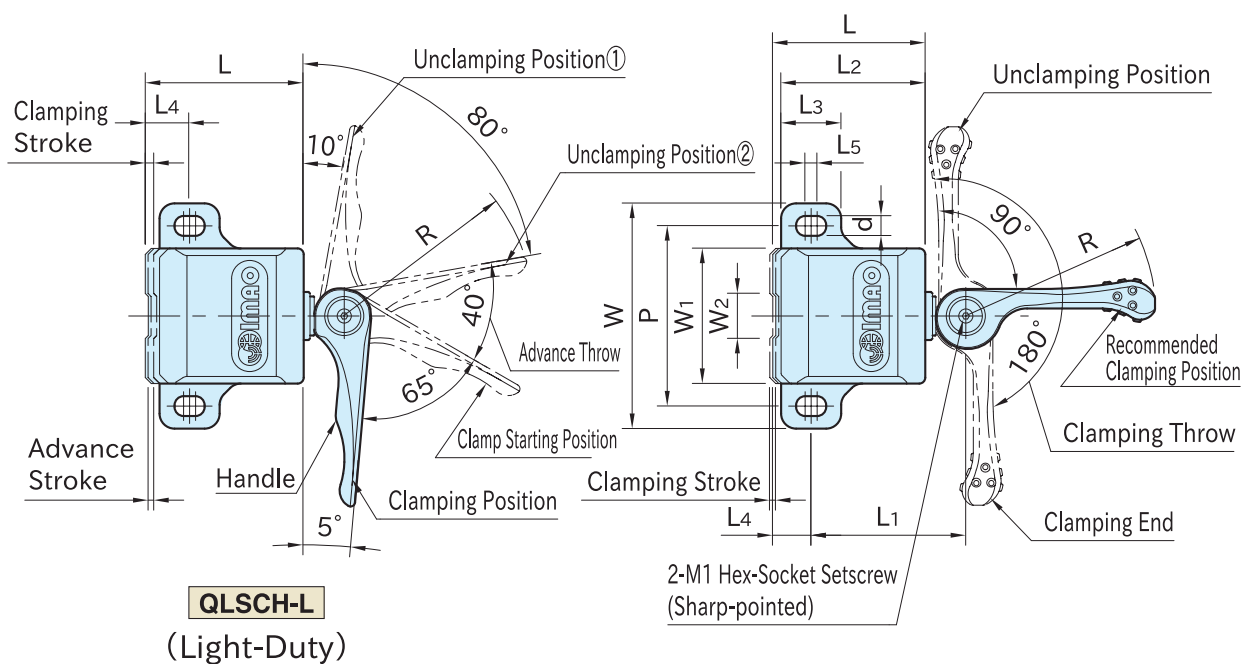


QLSCH-L
(Light-Duty)



QLSCH
(Standard)

Type	Body	Jaw/Handle Shaft	Handle
QLSCH-L	S45C steel Black oxide finished	S45C steel Quenched & tempered Black oxide finished Precision ground	SCM440 steel Quenched & tempered Electroless nickel plated
QLSCH			SCM440 steel Quenched & tempered Black oxide finished



QLSCH
(Standard)

Size	W ₁	W ₂	H ₁	H ₂	M	P ₁	H ₄	L ₄	W	L ₃	H ₅	d	L ₅	P
QLSCH32	45	15	27	18	M4×0.7 6deep	30	18	13	75	20	8	6.6	3	60
QLSCH40	60	20	33	22	M5×0.8 8deep	40	22	17	100	26	10	8.6	4	80

Size	H	L	L ₂	R	L ₁	H ₃	M ₁
QLSCH32	32	51	48	63	51.5	18	M4×0.7-5L
QLSCH40	40	67	63	80	67	22	M5×0.8-6L

Light-Duty Style

Part Number	A	Clamping Stroke *)	Advance Stroke	Operating Load (N) **)	Clamping Force (N)	Weight (g)
QLSCH32L	14	0.3	0.8	40	600	600
QLSCH40L	18	0.4		50	1,200	1,320

*) Dimensional variations between workpieces should be 0.1mm or less.

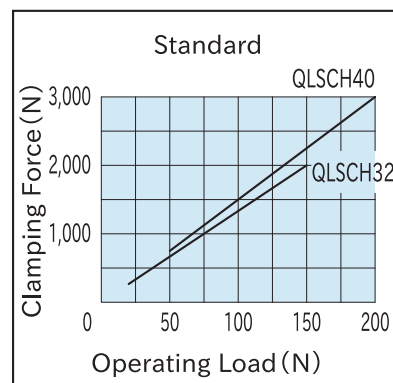
**) Load needed to turn the handle to clamping position

Standard Style

Part Number	A	Clamping Stroke	Handle Number	Operating Load (N) ***)	Clamping Force (N)	Weight (g)
QLSCH32	19	1.6	QLCA-06	150	2,000	620
QLSCH40	24	2.2	QLCA-08	200	3,000	1,360

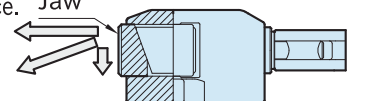
***) Allowable load to operate the handle

Performance Curve



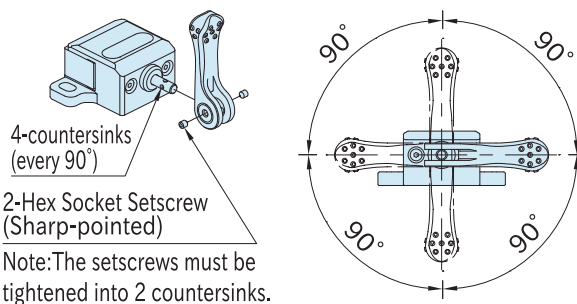
Features

- The cam handle allows fast clamping in single operation.
- Spring-loaded light-duty style allows distributing constant clamping force.
- Standard style allows adjusting clamping force depending on operating loads.
- Precision-ground jaw is perfect for clamping the workpiece on its finished surface.
- In clamping, the jaw provides downward force to prevent part lift



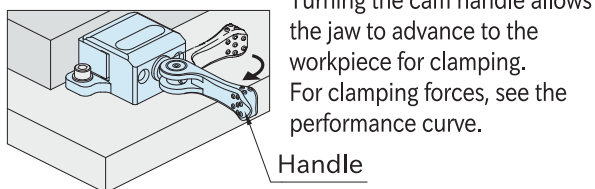
Changing Handle Position

The handle shaft has 4 countersinks which are provided every 90° for 4 options of handle position

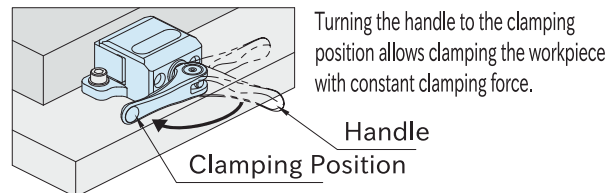


How To Use

Standard

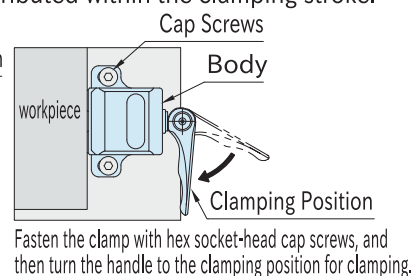
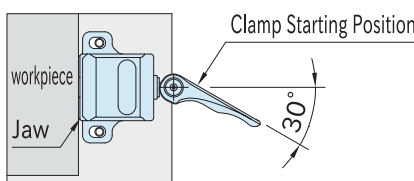
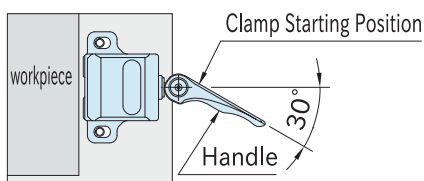


Light-Duty Style



Installation Instructions for Light-Duty Style

The steps below must be followed so that constant clamping force can be distributed within the clamping stroke.



QLSCL - Low Profile Cam Edge Clamps

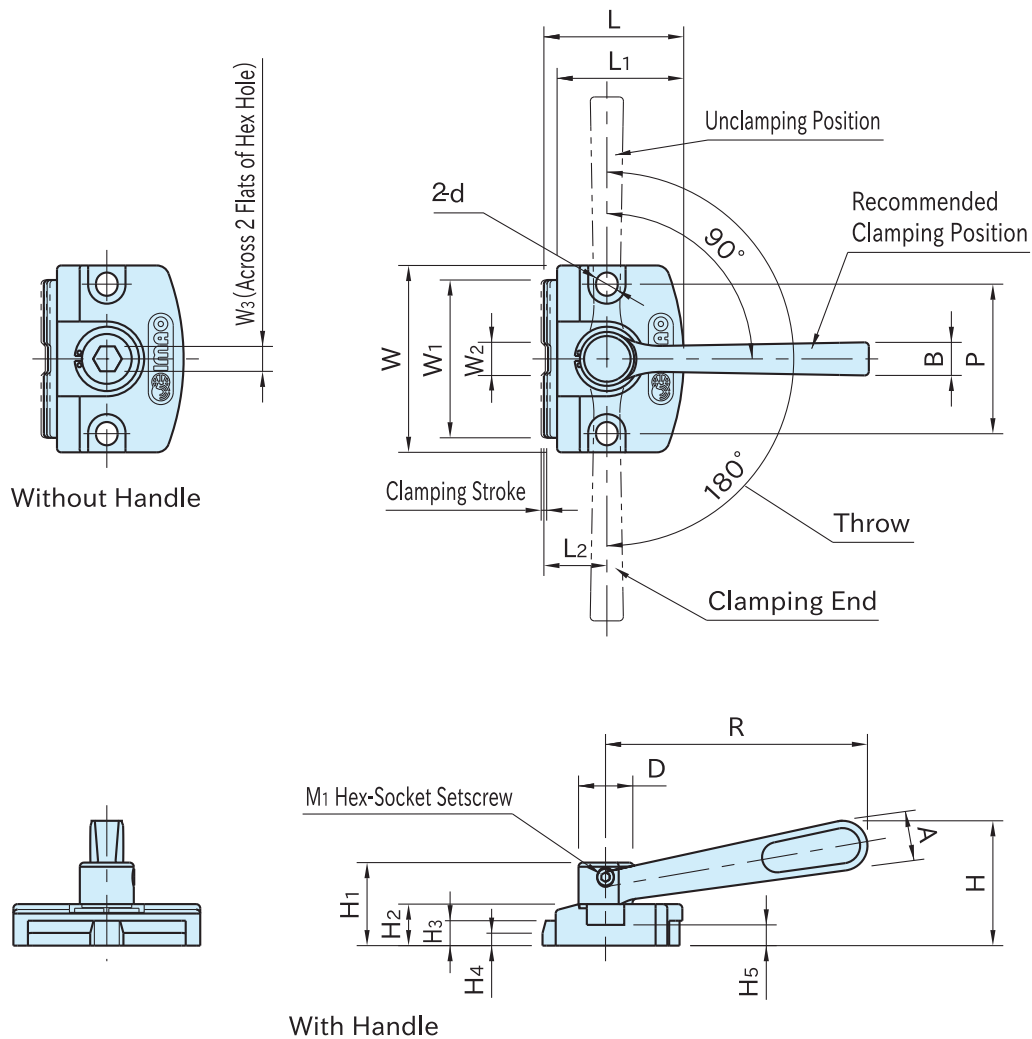


With Handle



Without Handle

Body	Jaw / Cam	Handle
Steel(S45C) Black oxide finish	Steel(SCM440) Quenched and tempered Black oxide finish	Steel(S45C) Quenched and tempered Black oxide finish



QLSCL - Low Profile Cam Edge Clamps

Series	Clamping Stroke	W ₁	W ₂	H ₃	H ₄	L ₂	W	L	H ₂	d	P	H ₅	L ₁	Clamping Mechanism
QLSCL10	1	38	8	6	3	15	45	33.5	10	5.2	36	5	30.5	Spiral Cam Cam Angle : 4°
QLSCL15	2	60	12	9	5	22	70	50	15	8.2	55	7	46	

With Handle

Part Number	H	D	H ₁	R	A	B	M ₁	Allowable Operating Load(N)*	Clamping Force (N)	Weight (g)
QLSCL10R	30	13	20	63	12	8	M4×0.7-4L	170	4,000	130
QLSCL15R	46	19	30	100	18	12	M5×0.8-5L	280	6,000	440

*) Allowable load to operate the handle

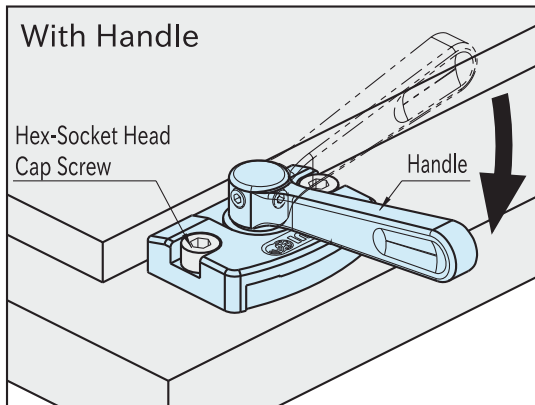
Without Handle

Part Number	W ₃	Allowable Screw Torque(N m)	Clamping Force (N)	Weight (g)
QLSCL10NR	6	10	4,000	85
QLSCL15NR	10	27	6,000	290

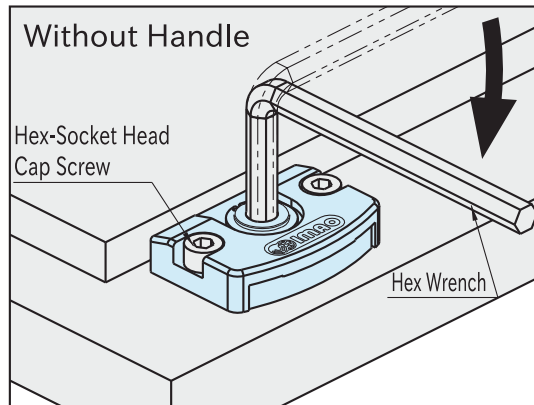
Features

Designed to prevent part lift.

How To Use

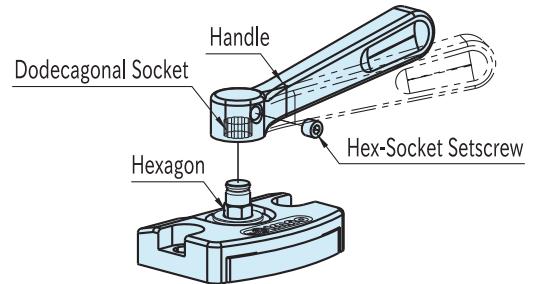


Turning the handle allows the cam to project the jaw for clamping. When the handle is turned back for unclamping, the loaded spring lets the jaw return to the original position.



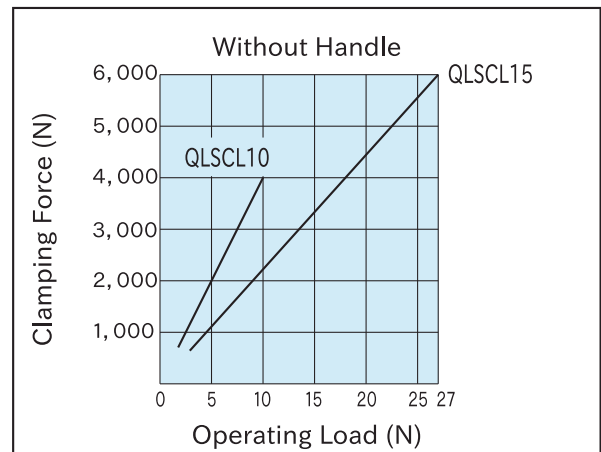
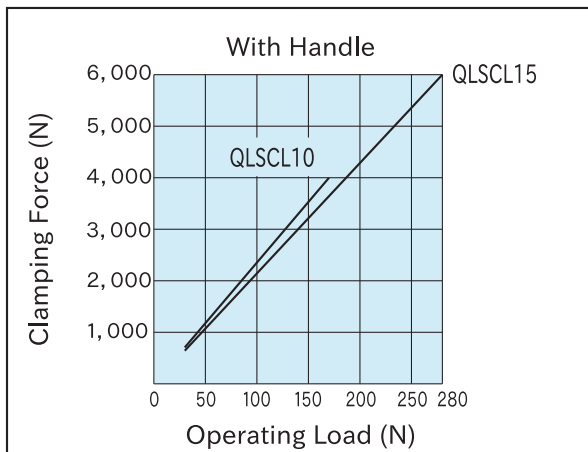
Use the without-handle style in applications where the handle lies in the way.

How To Change Handle Position



The handle has the dodecagonal socket to allow changing the handle position by 30°

Performance Curve



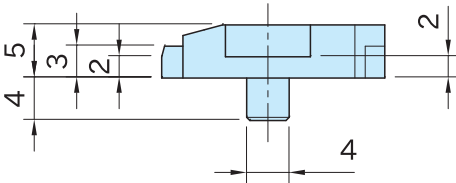
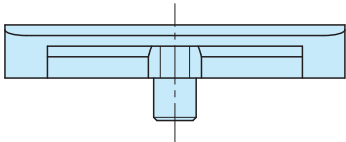
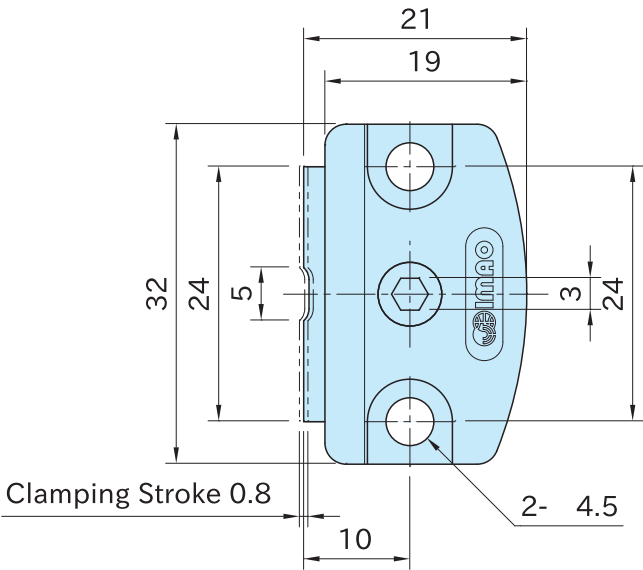
Notes

Ensure that mounting surfaces are finished to $\sqrt{6.3}$ (6.3a) or better, without any scratches or dents.

QLSCL - Compact Low Profile Cam Edge Clamps

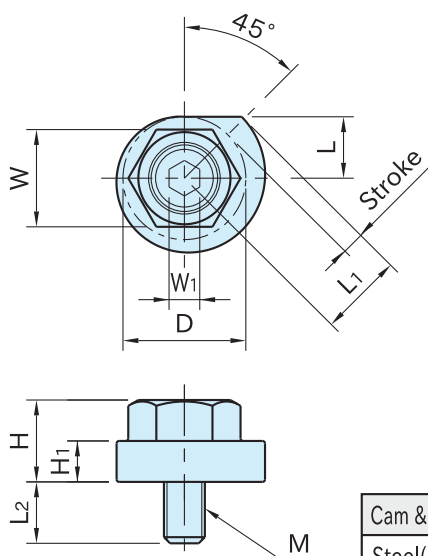


Body	Jaw / Cam
S45C steel Black oxide finished	SCM440 steel Black oxide finished HRC39-45



Part Number	Allowable Screw Torque N m	Clamping Force kN	Weight g
QLSCL05NR	2.1	1.3	18

BJ161 - Cam Clamps



Cam & Locking Screw	Flanged Collar
Steel(SCM435) Quenched and tempered Black oxide finish	Steel(SK95) Quenched and tempered Black oxide finish

Part Number	Stroke	L	L ₁	D	H ₁	M	L ₂	H	W	W ₁
BJ161-08001	4.4	12	16.4	24	8	M 8×1.25	12	16	19	6
BJ161-10001	5.5	15	20.5	30	10	M10×1.5	15	20	24	8
BJ161-12001	6.2	17	23.2	34	12	M12×1.75	18	24	27	10

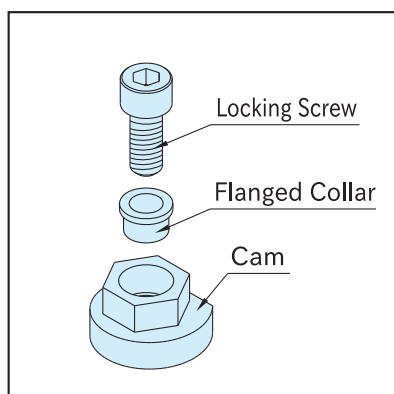
Part Number	Allowable Screw Torque (N·m)	Clamping Force (N)	Weight (g)
BJ161-08001	50	5,200	55
BJ161-10001	75	8,000	110
BJ161-12001	90	9,300	185

Features:

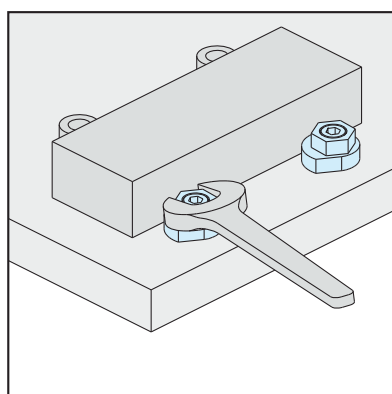
- Allows loading and unloading a part faster
- Compact design

How To Use

To install, lock the flanged collar into the cam using the locking screw and then tighten up the cam with a wrench.



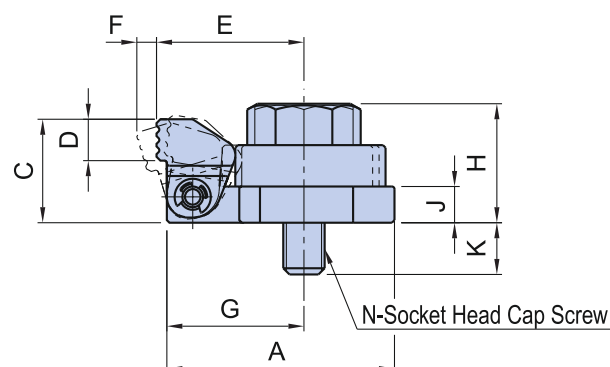
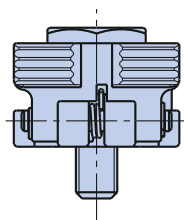
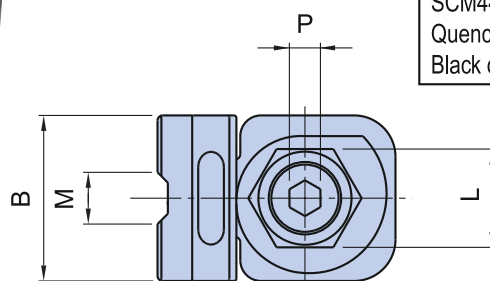
Parts Breakdown



Provides positive clamping



Body / Nose	Cam
SCM440 steel Quenched and tempered Black oxide	SCM435 steel

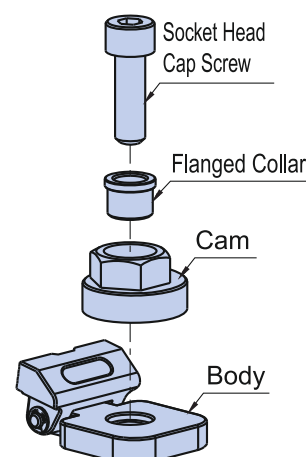
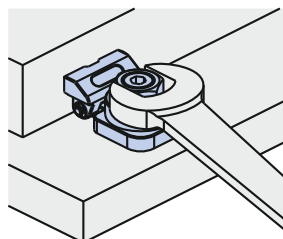


Part Number	A	B	C	D	E	F	G	H	J	K	L	M	N
BJ162-08001	44	32	20	8	28.5	4	26.5	23	7	15	19	10	M 8×1.25 -30L
BJ162-10001	54	40	25	10	35	5	33	29	9	16	24	12	M10×1.5 -35L
BJ162-12001	62	46	30	12	39.5	5.5	37.5	35	11	17	27	14	M12×1.75 -40L

Part Number	P	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (g)
BJ162-08001	6	3,500	45	160
BJ162-10001	8	5,500	55	310
BJ162-12001	10	7,000	70	490

How To Use

Secure the body and the flanged collar with a socket head cap screw, and then turn the the cam with a wrench to clamp a workpiece.



QLPD - Pull Clamps (Standard)



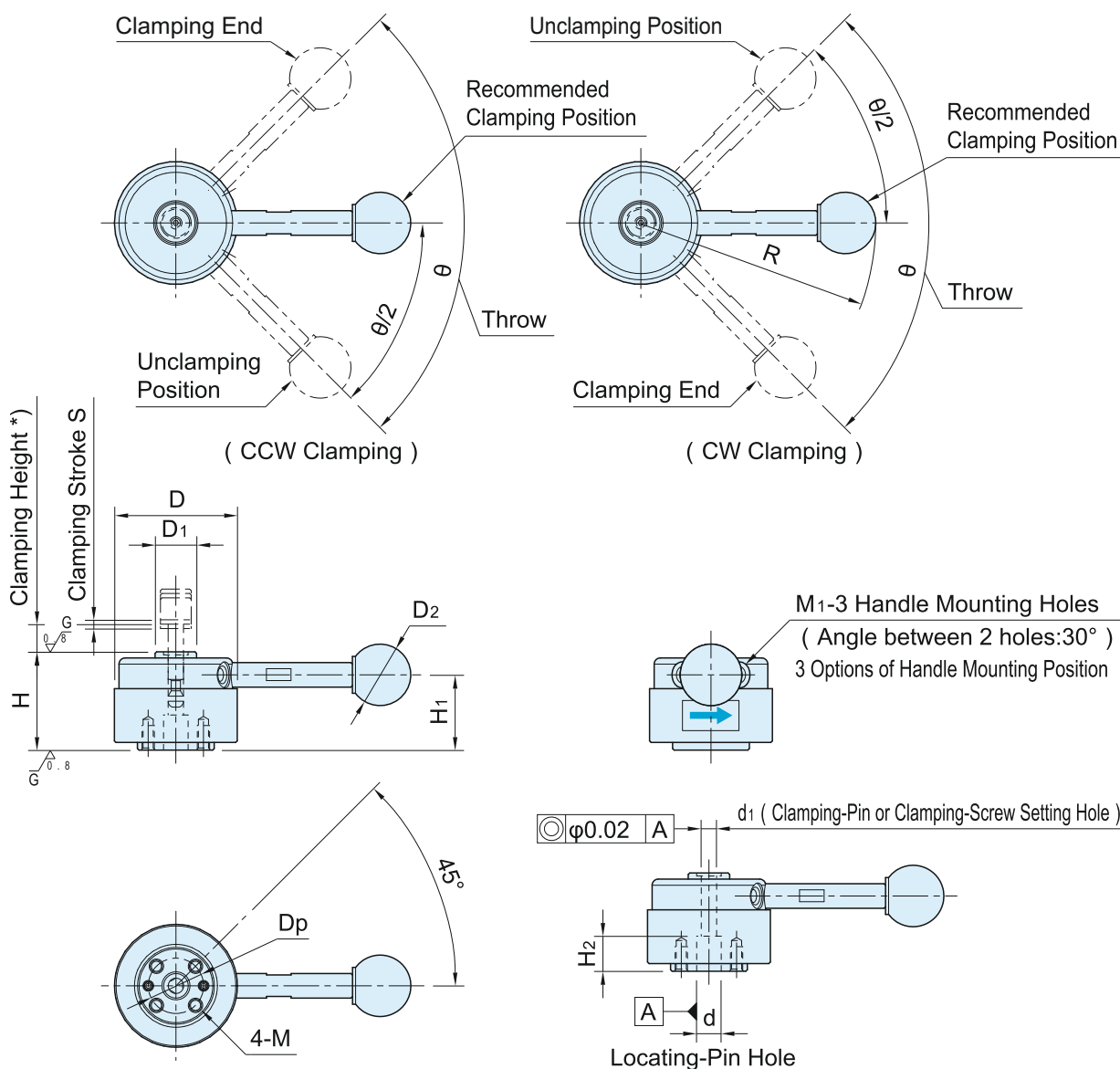
(CCW Clamping With Handle) (CW Clamping Without Handle) (CW Clamping With Handle)

Note) Clamping Pins or Screws must be ordered separately.

★Key Point

Easy clamping without screws.

Body & Clamp Ring	Handle Shank	Ball Knob
SCM440 steel Quenched and tempered Black oxide finish	S45C steel Black oxide finish	ABS resin Black



QLPD - Pull Clamps (Standard)

Type	S	d (G6)	d ₁ (F7)	H ₂	D ₁	H (±0.01)	D	θ	D _p	M
QLPD150	1.5	8	5	10	13.5	32	40	90°	18	M4×0.7 8-deep
QLPD200	2	12	8	13	18	40	50	110°	25	M6×1 9-deep

Type	M ₁	H ₁	Clamping Force (kN)	Clamping Mechanism	Recommended Workpiece Thickness Tolerance **)
QLPD150	M5×0.8	24.5	0.9	Spiral Cam Cam Angle: 4°	±0.3
QLPD200	M6×1	30.7	2.5		±0.5

■With Handle

Part Number	Clamping Direction	R	D ₂	Allowable Operating Load (N) ***)	Weight (g)
QLPD150R	CW	76.5	20	150	245
QLPD150L	CCW				
QLPD200R	CW	111.5	25	200	470
QLPD200L	CCW				

■Without Handle ****)

Part Number	Clamping Direction	Weight (g)
QLPD150NR	CW	220
QLPD150NL	CCW	
QLPD200NR	CW	420
QLPD200NL	CCW	

*) Grip length of **QLPD-X** Clamping Pin (workpiece thickness)

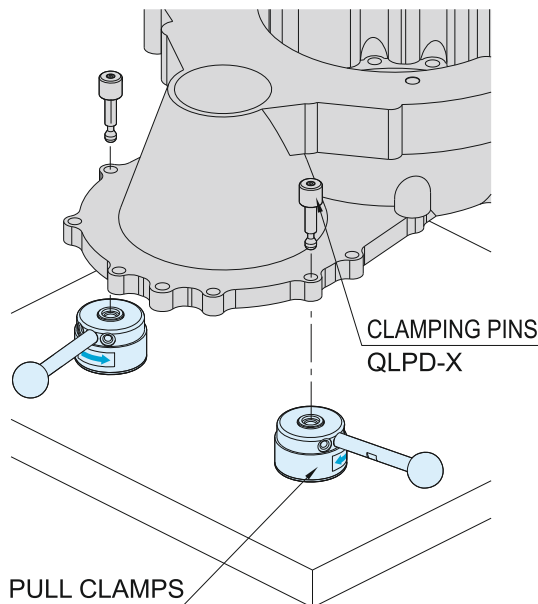
**) Maintaining these recommended tolerances allows minimizing the variation of handle position in the clamping mode in clamping with the use of the Clamping Pin .

***) Allowable load to operate the handle .

****) The handle must be ordered separately.

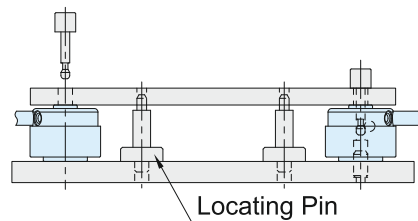
- **QLSL** STANDARD HANDLES
- **QLTL** ADJUSTABLE-TORQUE HANDLES

How To Use



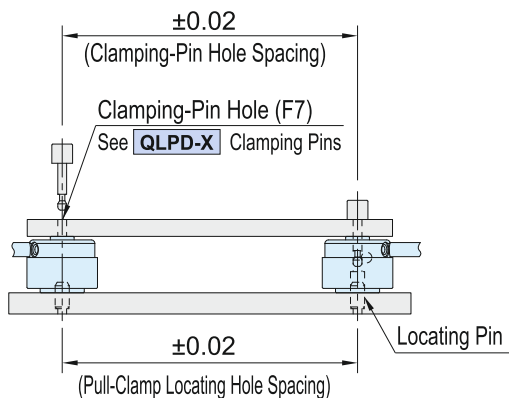
■How To Locate Workpiece

1. Basic Method



2. Method for clamping and locating a workpiece at a time

Give an accuracy shown below to the hole spacing to generate a locating accuracy of ±0.08.



Continuing on Next Page

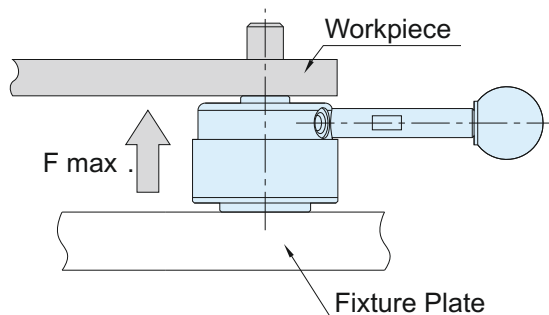
QLPD - Pull Clamps (Standard)

Technical Information

■ Allowable Loads in Machining of Workpiece Bottom

Ensure that a force more than indicated below is not applied to the workpiece bottom.

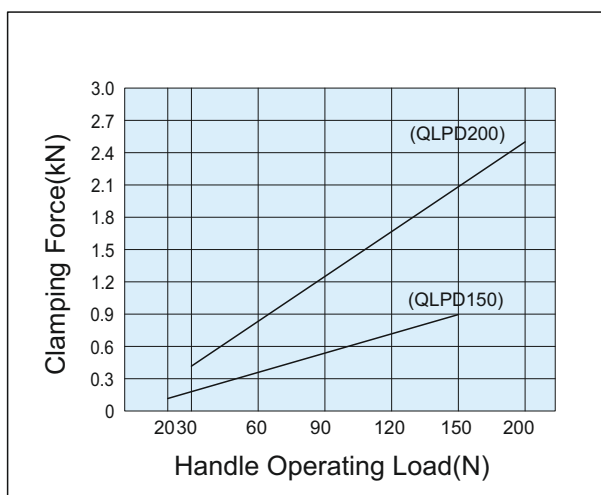
Type	Allowable Force To Workpiece Bottom (Per Clamp)
QLPD150	max.2 kN
QLPD200	max.5.5kN



Performance Curve

■QLSL STANDARD HANDLES

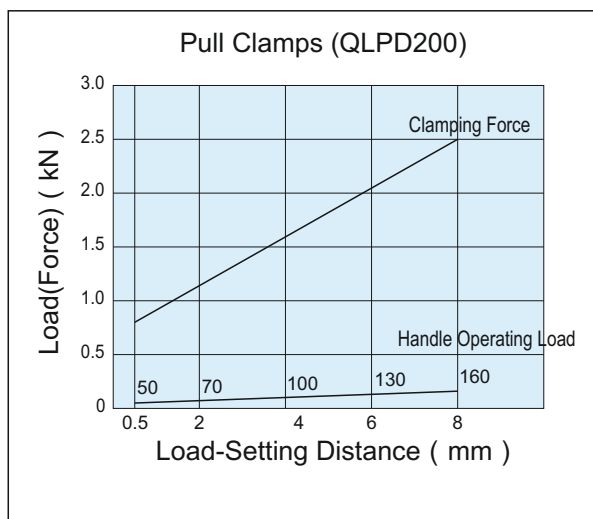
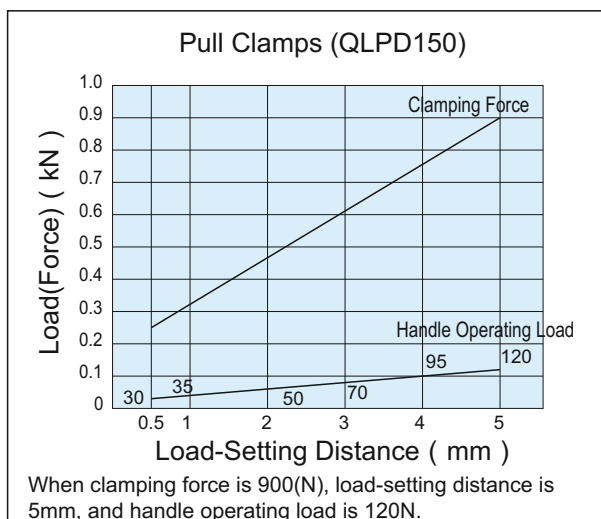
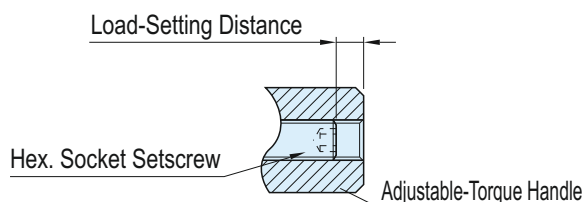
⚠ The performance curves shown below do not denote the guaranteed performance.



■QLTL ADJUSTABLE-TORQUE HANDLES

Use a force gauge when measuring handle-operating loads.

⚠ The performance curves shown below do not denote the guaranteed performance.

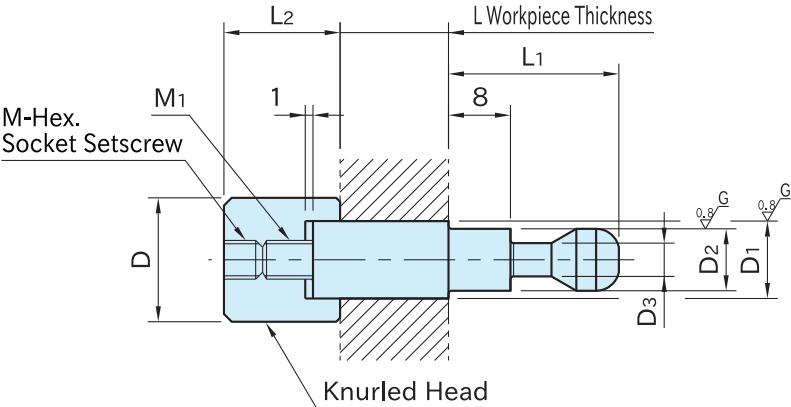


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QLPD-X - Clamping Pins (Standard)



L dimension is adjustable by +/-1mm to fit actual workpiece thickness.

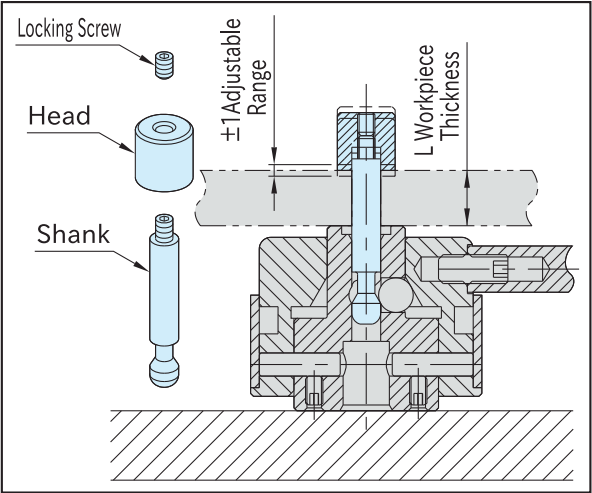
Shank	Head
Steel (SCM435) Induction hardened(taper seat) Precision ground	Steel (S45C) Quenched and tempered Black oxide finish

Part Number	D ₂ (f7)	D ₁ (f7)	L* (By 0.1 mm)	D	L ₂	L ₁	D ₃	M
QLPD150-5X 5- (L Dim. in mm)	5	5	3≤L≤50	10	10	17	3	M3×0.5-4L
QLPD150-5X 6- (L Dim. in mm)		6						
QLPD200-8X 8- (L Dim. in mm)	8	8	4≤L≤80	16	15	22	4.3	M5×0.8-5L
QLPD200-8X10- (L Dim. in mm)		10						

Part Number	M ₁	Pull Clamps	Weight (g)
QLPD150-5X 5- (L Dim. in mm)	M3×0.5	QLPD150Series	min. 8~max.16
QLPD150-5X 6- (L Dim. in mm)			min. 8~max.19
QLPD200-8X 8- (L Dim. in mm)	M5×0.8	QLPD200Series	min.30~max.60
QLPD200-8X10- (L Dim. in mm)			min.31~max.77

*) For ordering, specify workpiece thickness.

How To Use



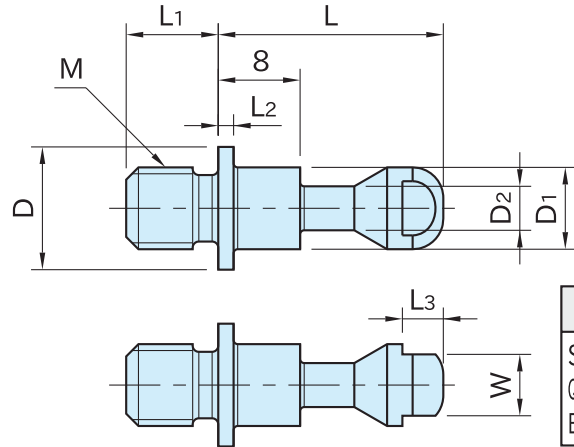
Notes

Custom Clamping Pins are available on request.

Ordering Example

QLPD150-5X5 - 10.5	
Shank Size	L Dim.

QLPD-M-Clamping Screws (Standard)



Body
Steel(SCM435)
Quenched and tempered
Black oxide finish

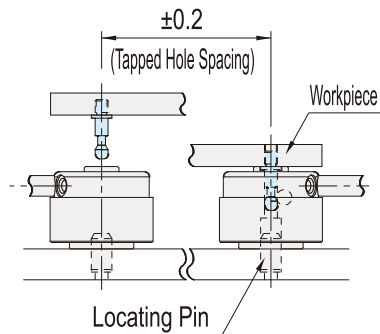
Part Number	D ₁	M	L ₁	L	D	L ₂	D ₂	W	L ₃	Pull Clamps	Weight (g)
QLPD150-M 5	5	M 5X0.8	6	17	8	1.2	3	4	2.5	QLPD150	3
QLPD150-M 6		M 6X1	7								4
QLPD200-M 8	8	M 8X1.25	9	22	12	1.5	4.3	6	4	QLPD200	10
QLPD200-M10		M10X1.5	11								13

Notes

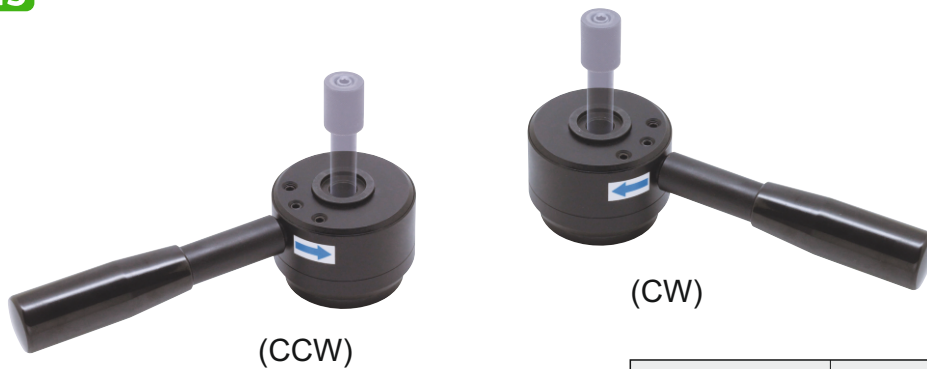
Custom Clamping Screws (different screw thread sizes) are available on request.

How To Use

Recommended Spacing Tolerance in Use of Clamping Screws



QLPDH - Pull Clamps (Heavy)

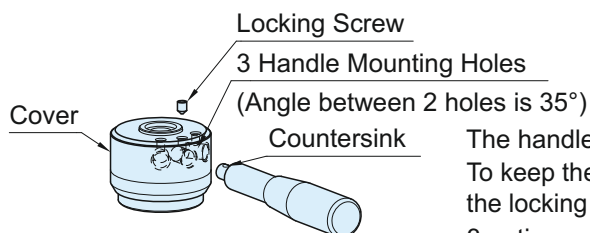
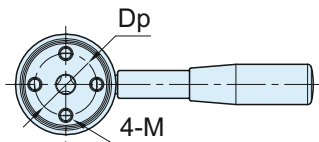
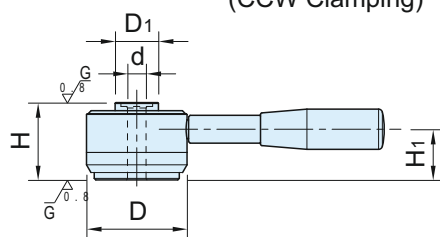
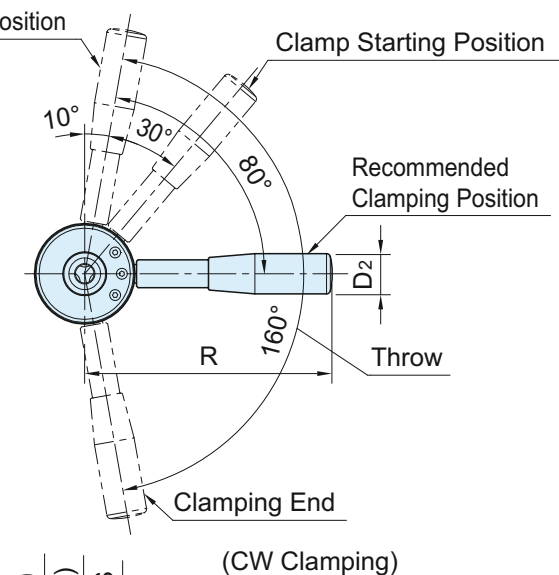
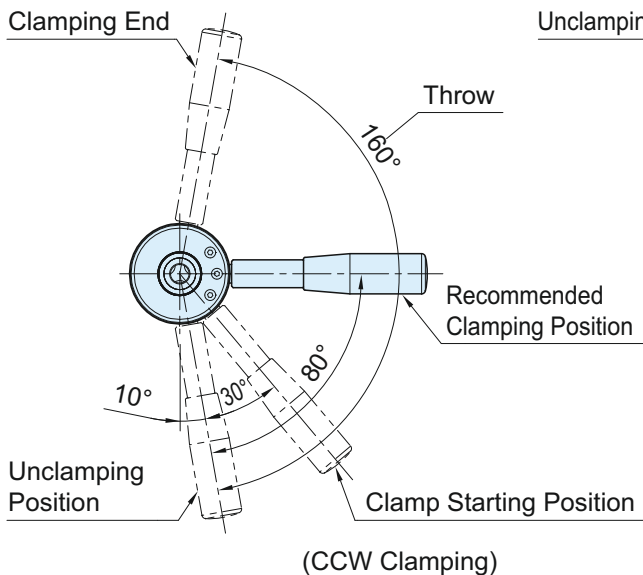


★Key Point

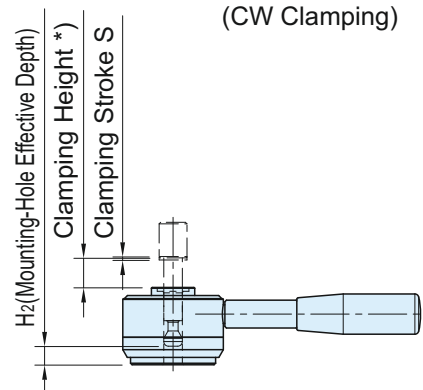
Easy clamping without screws.

Note) Clamping Pins or Screws must be ordered separately.

Body & Clamp Ring	Handle Shank	Handle
SCM440 steel Quenched and tempered Black oxide finish	S45C steel Quenched and tempered Black oxide finish	Phenolic plastic Black



The handle can be removed by loosening the locking screw. To keep the handle mounted permanently, make sure that the locking screw is fully tightened. 3 options of handle mounting position.



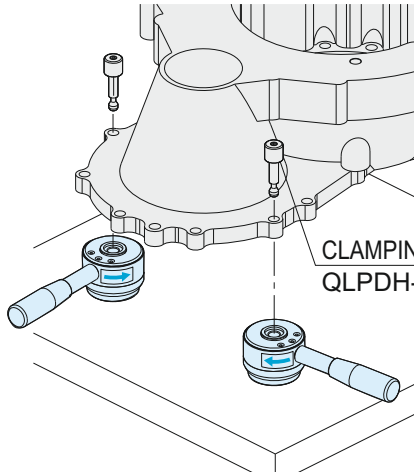
QLPDH - Pull Clamps (Heavy)

Part Number	Clamping Direction	S	d (F7)	H ₂	D ₁	H (±0.01)	D	M	Dp	R
QLPDH400R	CW	2	12	10	28	50	65	M 8×1.25 14-deep	40	160
QLPDH400L	CCW									
QLPDH500R	CW	2.5	16	12	34	63	80	M10×1.5 18-deep	50	180

Part Number	D ₂	H ₁	Allowable Operating Load (N) **)	Clamping Force (kN)	Clamping Mechanism	Recommended Workpiece Thickness Tolerance ***)	Weight (kg)
QLPDH400R	26	32.8	600	6	Spiral Cam Cam Angle: 4°	±0.5	1.2
QLPDH400L				8		±0.8	2.2

- *)Grip length of **QLPDH-X** Clamping Pin (workpiece thickness)
 **) Allowable load to operate the handle
 ***) Maintaining these recommended tolerances allows minimizing the variation of handle position in the clamping mode in clamping with the use of the Clamping Pin .
 ****) **QLPDH500** is available only with Clockwise Clamping.

How To Use



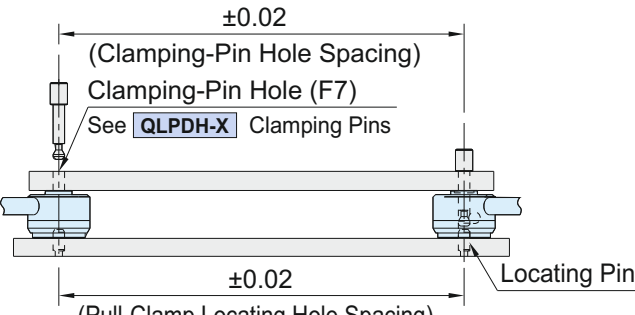
CLAMPING PIN
QLPDH-X

■How To Locate Workpiece

1. Basic Method
 

Locating Pin
2. Method for clamping and locating a workpiece at a time

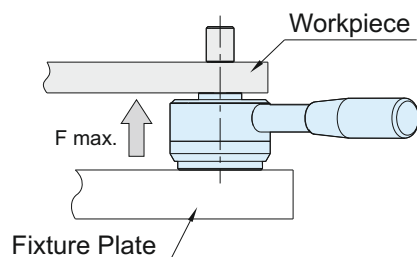
Give an accuracy shown below to the hole spacing to generate a locating accuracy of ±0.08.



±0.02
(Clamping-Pin Hole Spacing)
Clamping-Pin Hole (F7)
See **QLPDH-X** Clamping Pins
±0.02
(Pull-Clamp Locating Hole Spacing)
Locating Pin

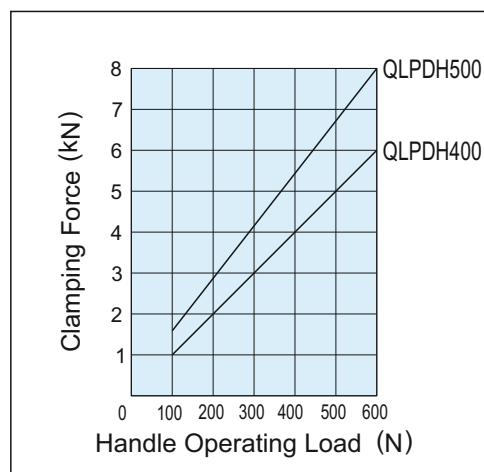
Technical Information

- Allowable Loads in Machining of Workpiece Bottom
 Ensure that a force more than indicated below is not applied to the workpiece bottom.



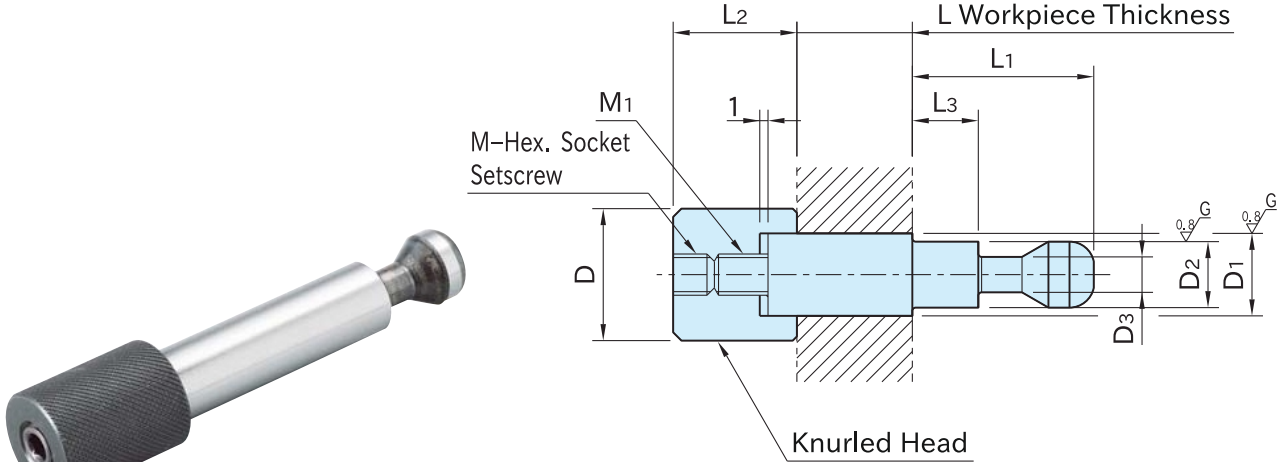
Type	Allowable Force To Workpiece Bottom (Per Clamp)
QLPDH400	max. 8kN
QLPDH500	max. 14kN

Performance Curve



QLPDH-X - Clamping Pins (Heavy)

On Request 



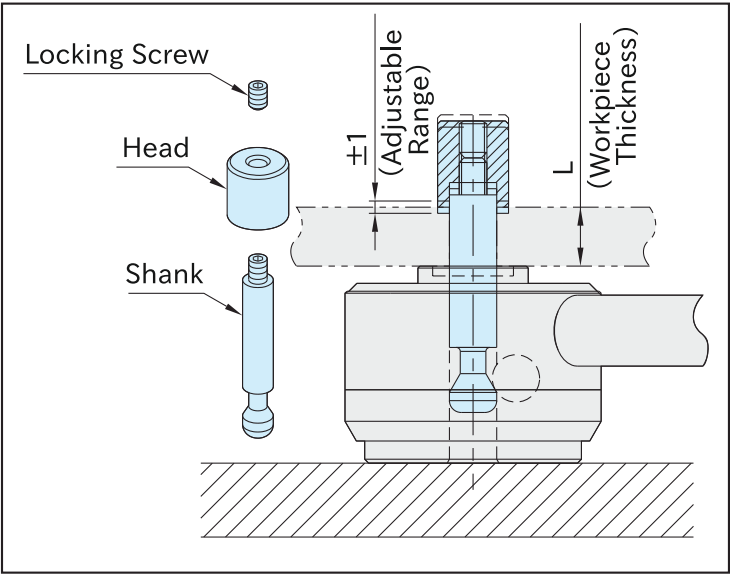
L dimension is adjustable by ± 1 mm to fit actual workpiece thickness.

Shank	Head
Steel (SCM435) Induction hardened(taper seat) Precision ground	Steel (S45C) Quenched and tempered Black oxide finish

Part Number	D ₂ (f7)	D ₁ (f7)	L* (By 0.1mm)	D	L ₂	L ₁	L ₃	D ₃	M	M ₁	Pull Clamps	Weight (g)
QLPDH400-12-(L Dim. In mm)	12	12	0<L≤100	18	23	38	21.5	6.5	M 8×1.25- 8L	M 8×1.25	QLPDH400R	min. 70~max.160
QLPDH400-16-(L Dim. In mm)		16		24								min.175~max.265
QLPDH500-16-(L Dim. In mm)	16	16	0<L≤120	24	29	48	28	9.5	M10×1.5 -10L	M10×1.5	QLPDH500R	min.160~max.350
QLPDH500-20-(L Dim. In mm)		20		30								min.325~max.515

*) For ordering, specify workpiece thickness.

How To Use



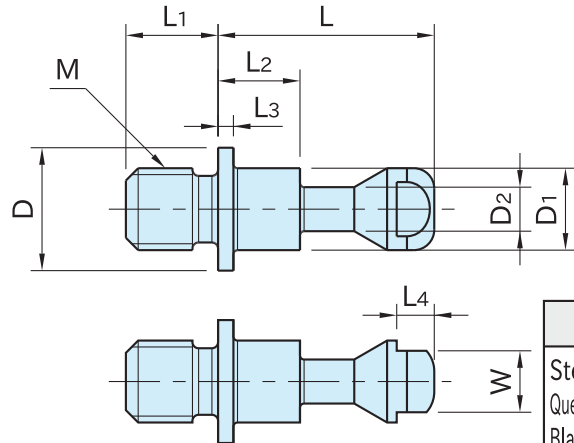
Ordering Example

QLPDH400-12-20.5
Shank Size L Dim.

Notes

Custom Clamping Pins are available on request.

QLPDH-M - Clamping Screws (Heavy)



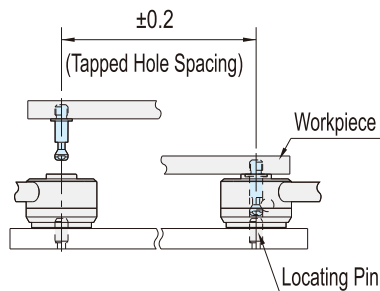
Part Number	D ₁	M	L ₁	L	D	L ₂	L ₃	D ₂	W	L ₄	Pull Clamps	Weight (g)
QLPDH400-M12	12	M12X1.75	13	38	20	21.5	2	6.5	10	4	QLPDH400R	40
QLPDH400-M16		M16X2	17									55
QLPDH500-M16	16	M16X2	17	48	25	28	2.5	9.5	13	5	QLPDH500R	90
QLPDH500-M20		M20X2.5	21									110

Notes

Custom Clamping Screws (different screw thread sizes) are available on request.

How To Use

Recommended Spacing Tolerance in Use of Clamping Screws

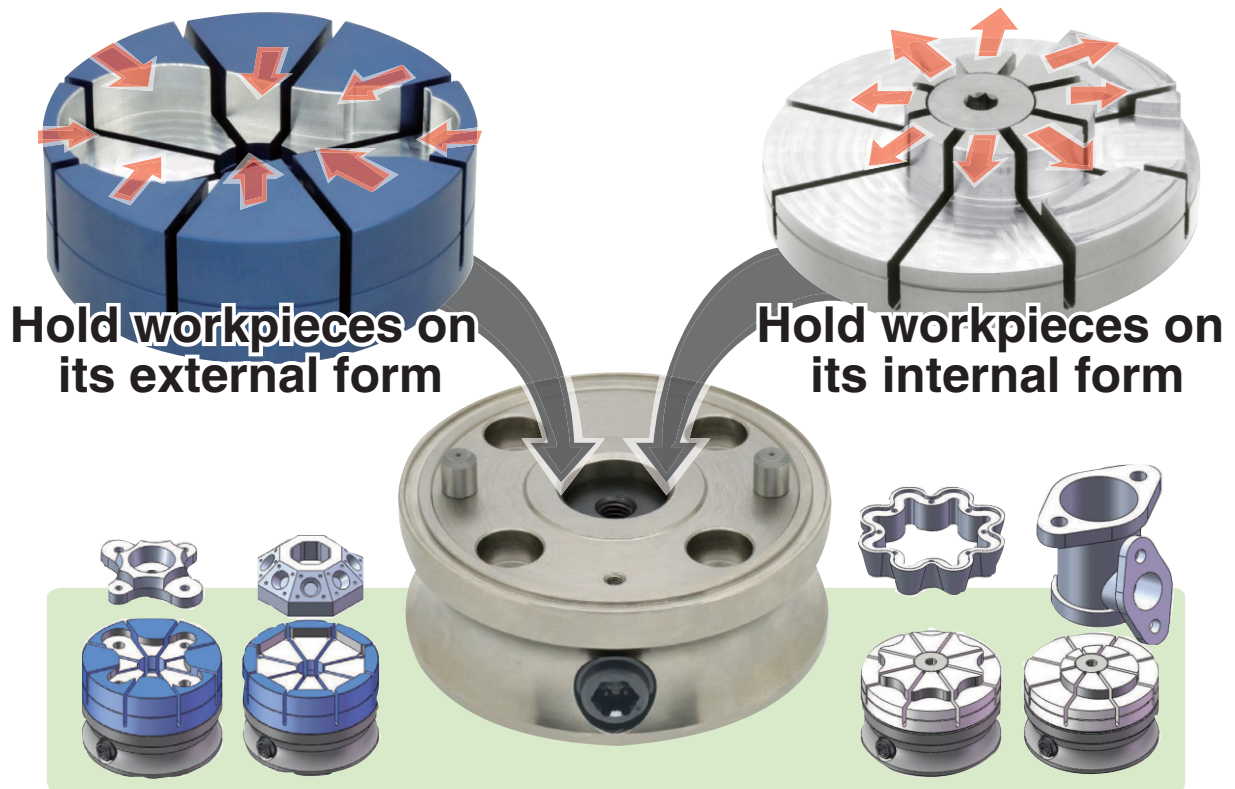


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FORM HOLDING CLAMPS



For holding on external / internal form! FORM HOLDING CLAMPS

Form Holding Clamps that have a machinable jaw to hold irregular-shaped workpieces. Two optional jaws allow clamping workpieces both on its external form and internal form.

- 1 Prepare the jaw
- 2 Machine the jaw
- 3 Mount a workpiece
- 4 Tighten the cam cylinder

For external form holding



For internal form holding

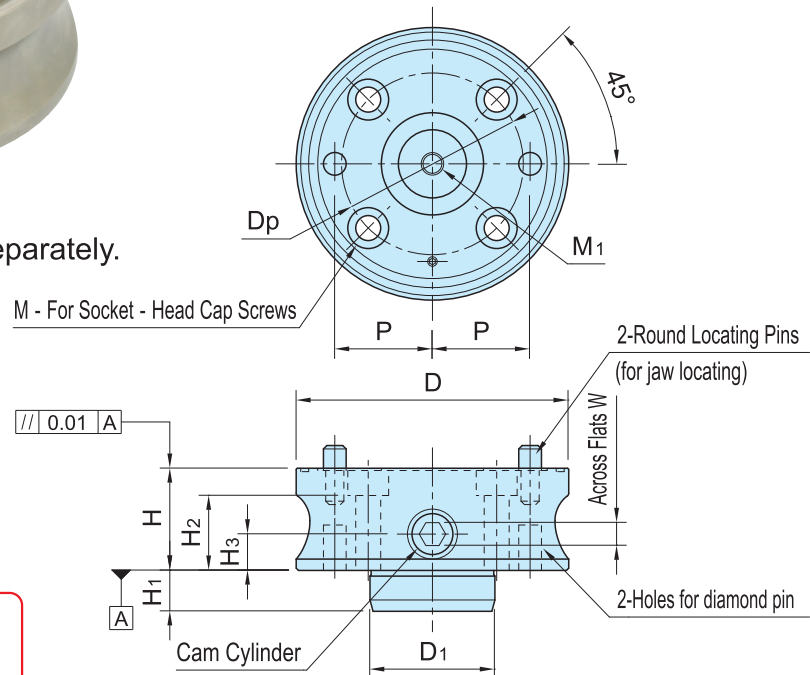


CPI25 - Form Holding Clamps



Body	Pull Cylinder	Cam Cylinder
S45C Steel Electroless nickel plated	SCM415 Steel Carburized-hardened Black oxide finish	SCM435 Steel Quenched & tempered Black oxide finish

Note: Jaws must be ordered separately.



★Key Point

Can hold on external/
internal form.

Part Number	D	H (± 0.01)	D ₁ (g 6)	H ₁	M	H ₂	D _p	P (± 0.02)	W	H ₃	M ₁
CP125-06501	65	35	28	12	M 6	27	42	22	8	12	M 8×1.25
CP125-09001	90	40	42	14	M 8	30	60	30		14	M10×1.5
CP125-12001	120	45	55	18	M10	33	80	43	10	16	
CP125-16001	160	50	63	24	M12	36	110	60		18	M12×1.75

Part Number	Allowable Screw Torque(N·m)	Weight (kg)	Proper Jaws				
			For External Form Holding			For Internal Form Holding	
			Part Number	Clamping Force(kN)	Clamping Stroke	Part Number	Clamping Force(kN)
CP125-06501	15	0.8	CP126-06501	4.5	φ0.3	CP127-06501	4.5
CP125-09001	25	1.7	CP126-09001	7		CP127-09001	7
CP125-12001	40	3.5	CP126-12001	10		CP127-12001	10
CP125-16001		7.1	CP126-16001	12		CP127-16001	

Technical Information

- Part locating repeatability: ± 0.03
- Jaw locating repeatability: ± 0.02

Notes

Do not actuate clamping without a workpiece to avoid damage and deformation. Tightening with torque greater than the allowable screw torque will lower the durability of the jaw.

Furnished Parts

- **CP125-06501** : 1 pc. of Diamond Locating Pin (BJ722-06001)
- **CP125-09001** : 1 pc. of Diamond Locating Pin (BJ722-08001)
- **CP125-12001** : 1 pc. of Diamond Locating Pin (BJ722-10001)
- **CP125-16001** : 1 pc. of Diamond Locating Pin (BJ722-12001)

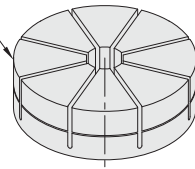
Related Products

- **CP126** Jaws for External Form Holding
- **CP127** Jaws for Internal Form Holding
- **BJ722** Diamond Locating Pin

Feature

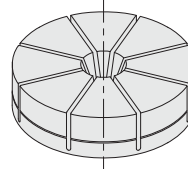
Two optional jaws allow clamping a workpiece both on its external form and internal form.

JAW FOR EXTERNAL FORM HOLDING
CP126

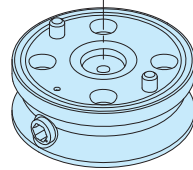


TAPERED SCREW FOR INTERNAL FORM HOLDING
CP127-B

JAW FOR INTERNAL FORM HOLDING
CP127

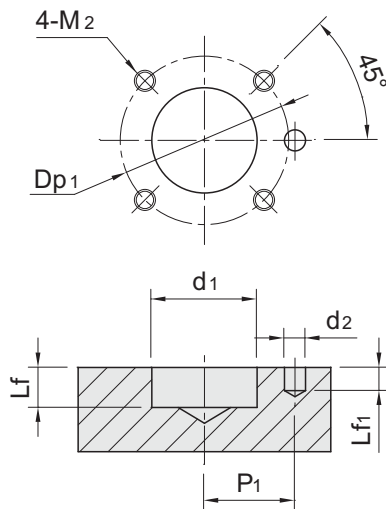


FORM HOLDING CLAMP
CP125



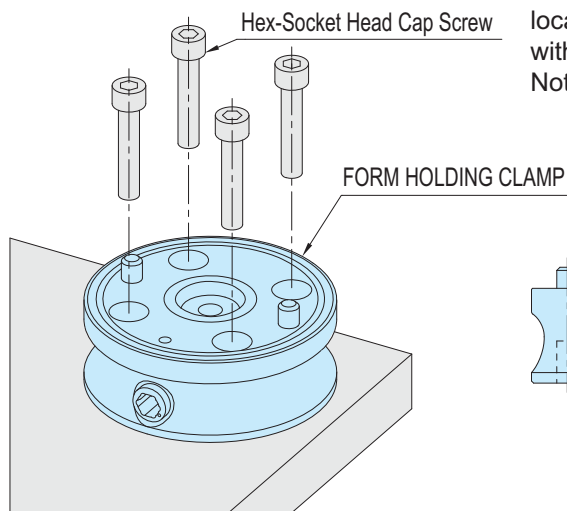
How To Use

■ Mounting-Hole Dimensions



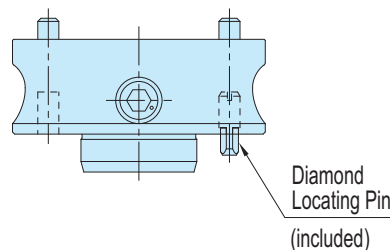
Part Number	d ₁ (H7)	L _f	d ₂ (G7)	L _{f1}	P ₁ (±0.02)	M ₂	D _{p1}
CP125-06501	28	13	6	6	22	M 6×1	42
CP125-09001	42	15	8	8	30	M 8×1.25	60
CP125-12001	55	19	10	11	43	M10×1.5	80
CP125-16001	63	25	12	13	60	M12×1.75	110

■ Installation Instructions



Insert an included diamond pin into the body for locating and secure the body to the fixture plate with 4 socket-head cap screws.

Note: Use either of the holes for diamond locating pin for your application.



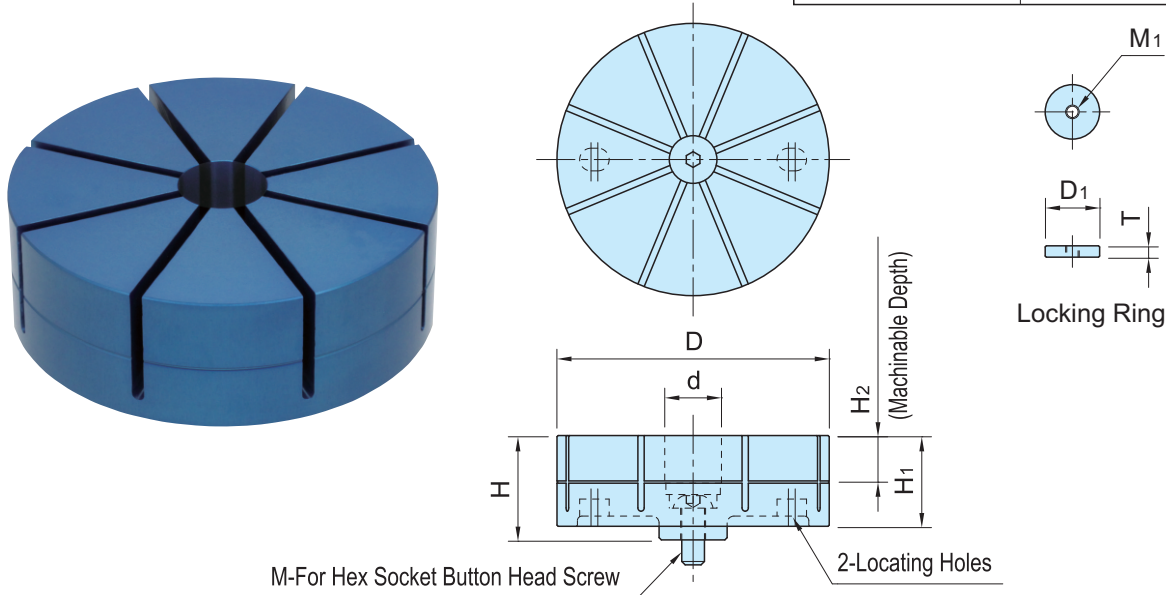
Dimensions of Diamond Locating Pin

Part Number	Diameter
CP125-06501	φ 6h6
CP125-09001	φ 8h6
CP125-12001	φ 10h6
CP125-16001	φ 12h6

CPI26 - Jaws For External Form Holding



Jaw	Locking Ring
A7075 Aluminum Blue	S45C Steel Black oxide finish

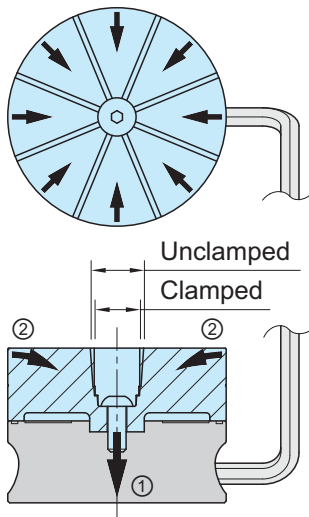


Part Number	D	d	H ₁	H ₂	M	H	M ₁	D ₁	T	Weight (kg)	Proper CP125 Clamps
CP126-06501	65	21	25	10	M 8×20L Across Flats5	29	M5×0.8	20	4	0.2	CP125-06501
CP126-09001	90	25	35	15	M10×20L Across Flats6	40	M6×1	24	5	0.5	CP125-09001
CP126-12001	120	25	40	20	M10×25L Across Flats6	46	M6×1	24	5	1.1	CP125-12001
CP126-16001	160	29	45	25	M12×25L Across Flats8	52	M8×1.25	28	6	2.2	CP125-16001

Furnished Parts

- 1 pc. of O-ring
- 1 pc. of Locking Ring
- 1 pc. of Hex Socket Button Head Screw

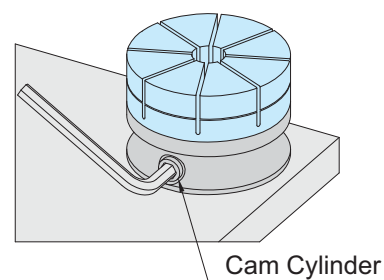
Features



- The diaphragm clamping mechanism allows securely clamping a part with 8 jaw sections.
- 0.15mm clamping stroke of each jaw section is perfect for clamping of lost-wax parts, die-cast parts, extruded parts, solid-drawn parts, prefinished parts, etc.

①When the cam cylinder is tightened, the central bottom part of the jaw is pulled down.

②At the same time the 8 jaw sections tilt toward the center to clamp the external form of a part.



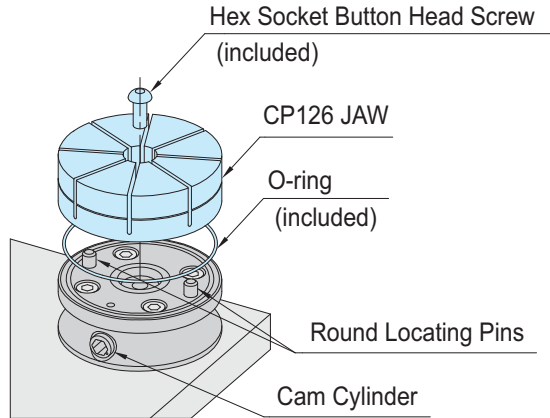
CP126 - Jaws For External Form Holding

How To Use

①Jaw Mounting

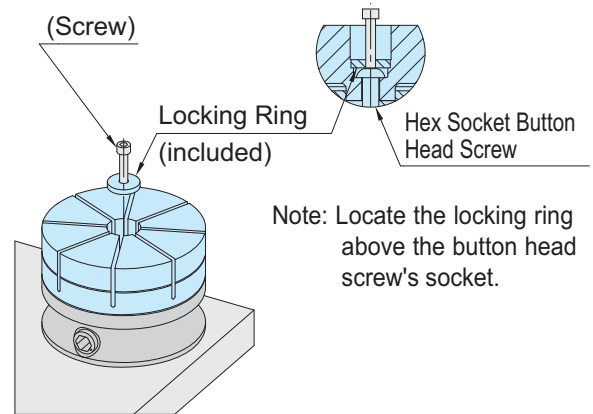
- Insert an O-ring to the groove on top surface of the Form Holding Clamp.
- Set a Jaw putting its locating holes onto the round locating pins and fix it with a hex socket button head screw.

Note: At jaw installation, ensure the cam cylinder is fully loosened by turning counterclockwise until it stops.

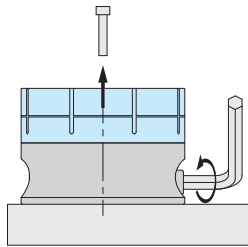


②Jaw Machining

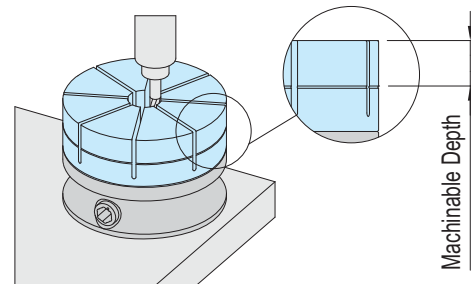
- (2-1) Set the locking ring in the jaw.
(Using a screw facilitates setting.)



- (2-2) • Tighten the cam cylinder to clamp the locking ring. (Recommended Tightening Torque: $15\text{N} \cdot \text{m}$)
• After clamping the screw should be removed from the locking ring.

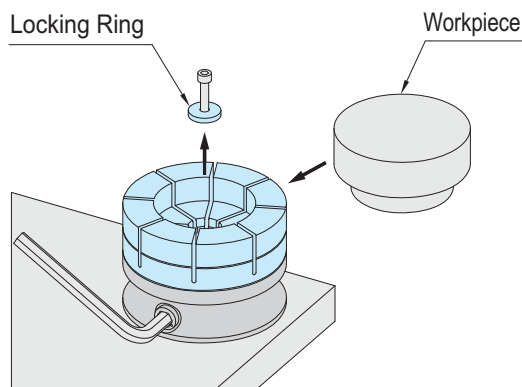


- (2-3) Machine the jaw to the contours of a part.
Note: Do not machine the jaw deeper than allowed.

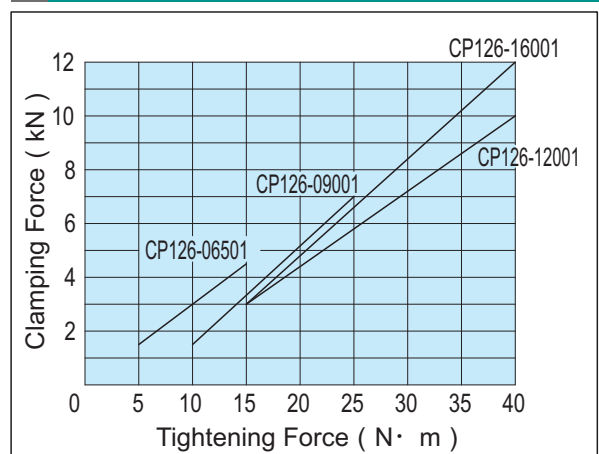


③Workpiece Setting

- After machining loosen the cam cylinder to take out the locking ring.
- Mount a workpiece and tighten the cam cylinder for clamping.



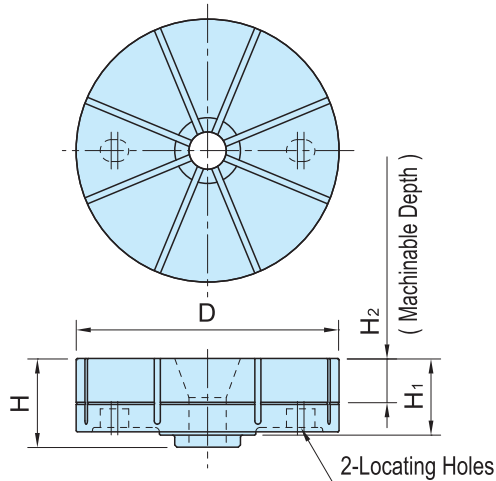
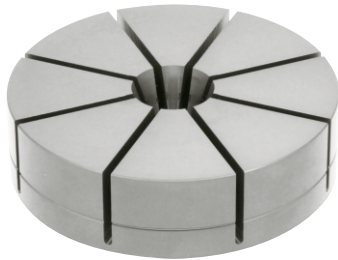
Performance Curve



Notes

Do not actuate clamping without a workpiece to avoid damage and deformation. Tightening with torque greater than the allowable screw torque will lower the durability of the jaw.

CPI27 - Jaws For Internal Form Holding



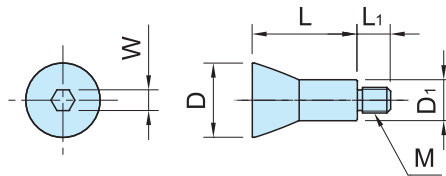
Jaw
A7075 Aluminum Silver

Part Number	D	H ₁	H ₂	H	Weight (kg)	Proper CP125 Clamps	Proper CP127-B Screws
CP127-06501	65	25	10	28.5	0.2	CP125-06501	CP127-06501B
CP127-09001	90	30	15	34.5	0.4	CP125-09001	CP127-09001B
CP127-12001	120	35	20	40.5	0.9	CP125-12001	CP127-12001B
CP127-16001	160	40	25	46.5	1.9	CP125-16001	CP127-16001B

Furnished Part

1 pc. of O-ring

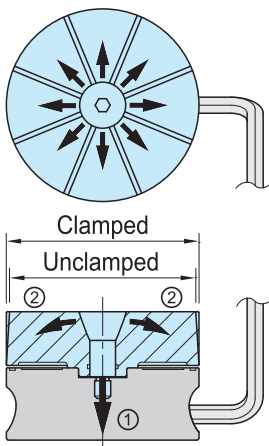
CPI27-B - Tapered Screws For Internal Form Holding



Body
SCM435 Steel Quenched and tempered Electroless nickel plated

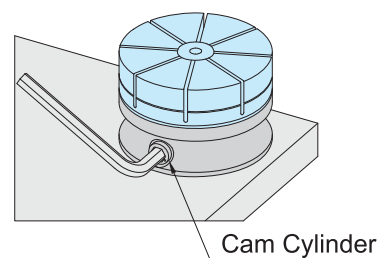
Part Number	D	L	M	L ₁	D ₁	W	Weight (g)	Proper CP127 Jaws
CP127-06501B	22.5	29	M 8×1.25	10	13.2	6	50	CP127-06501
CP127-09001B	27	35	M10×1.5	11	16	8	80	CP127-09001
CP127-12001B	29	41		13			100	CP127-12001
CP127-16001B	33	47	M12×1.75	14	18	10	150	CP127-16001

Features



- The tapered screw expands the jaws towards eight directions to hold different irregularly-shaped parts securely.
- 0.15mm clamping stroke of each jaw section is perfect for clamping of lost-wax parts, die-cast parts, extruded parts, solid-drawn parts, prefinished parts, etc.

- ① When the cam cylinder is tightened, the tapered screw is pulled down.
- ② At the same time the 8 jaw sections expand to clamp the internal form of a part.



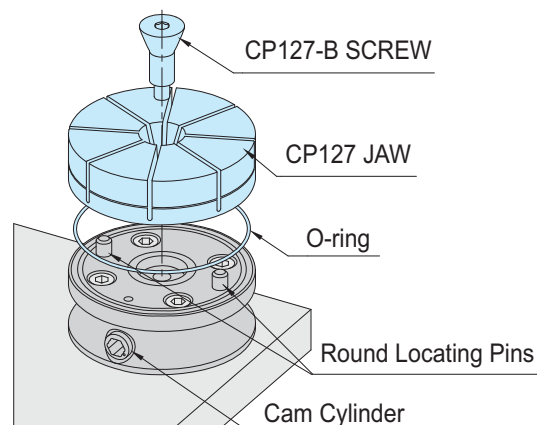
CP127 - Jaws For Internal Form Holding

How To Use

① Jaw Mounting

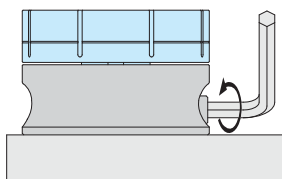
- Insert an O-ring to the groove on top surface of the Form Holding Clamp.
- Set a Jaw putting its locating holes onto the round locating pins and fix it with a tapered screw.

Note: At jaw installation, ensure the cam cylinder is fully loosened by turning counterclockwise until it stops.

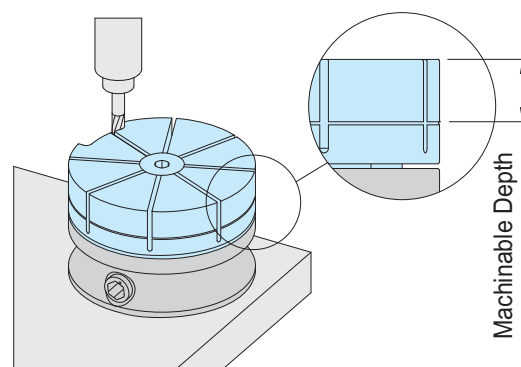


② Jaw Machining

- ②-1 Loosen the cam cylinder fully and measure the dimension of the jaw for machining. Then tighten the cam cylinder until each jaw section expands 0.15mm.

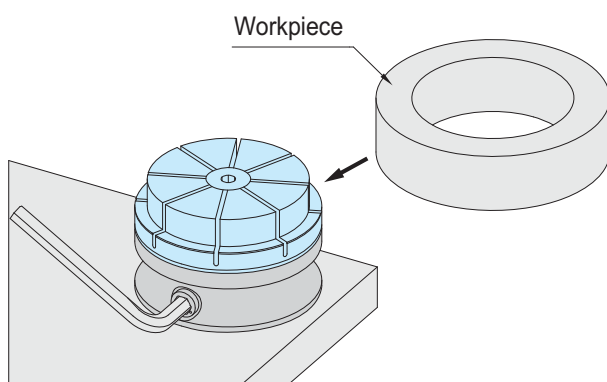


- ②-2 Machine the jaw to the contours of a part.
Note: Do not machine the jaw deeper than allowed.

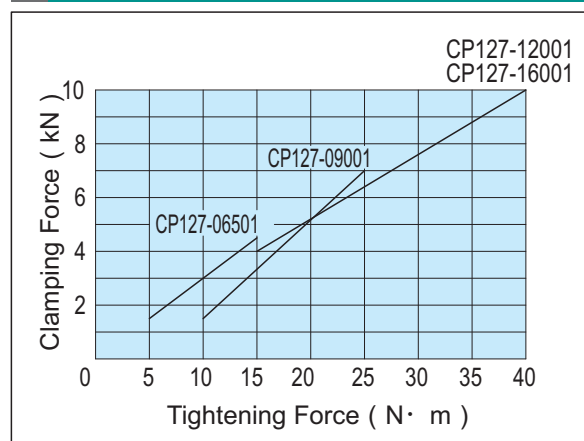


③ Workpiece Setting

After machining loosen the cam cylinder to set a part and tighten the cam cylinder again for clamping.



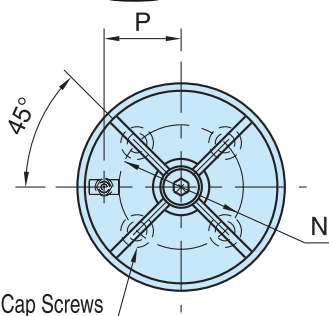
Performance Curve



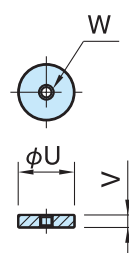
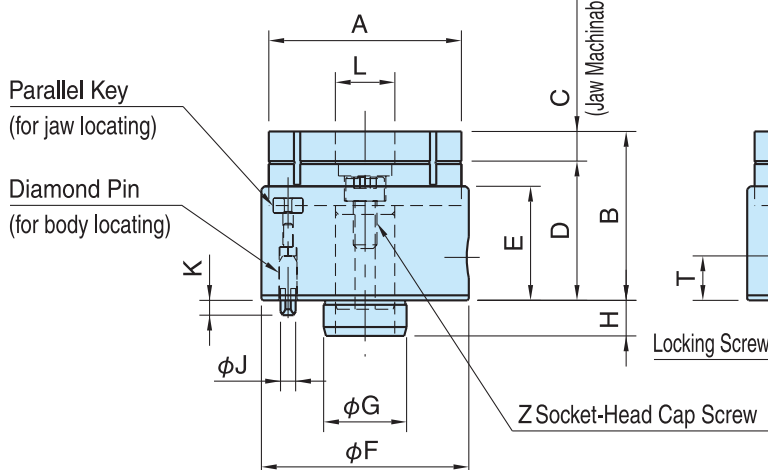
Notes

Do not actuate clamping without a workpiece to avoid damage and deformation. Tightening with torque greater than the allowable screw torque will lower the durability of the jaw.

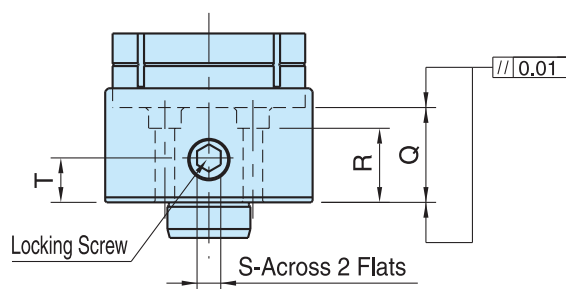
CPI20 - OD Holding Clamps



For Socket-Head Cap Screws



Locking Ring



Part Number	A	B	C	D	E	F	G (g6)	H	J (h6)	K	L	M	N	P (±0.02)	Q (±0.01)	R
CP120-06501	65	57	10	47	39	70	28	12	6	5	19	M6	42	26	32	25
CP120-09001	90	72	15	57	46	95	42	14	8	7	23	M8	60	36	38	28

Part Number	S	T	U	V	W	Z	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (kg)
CP120-06501	8	15	18	4	M4x0.7	M 8x1.25-15L	4,000	60	1.1
CP120-09001	10	17	22	6	M5x0.8	M10x1.5 -20L	6,000	100	2.6

Technical Data:

- Part locating repeatability: ±0.03
- Jaw locating repeatability: ±0.02

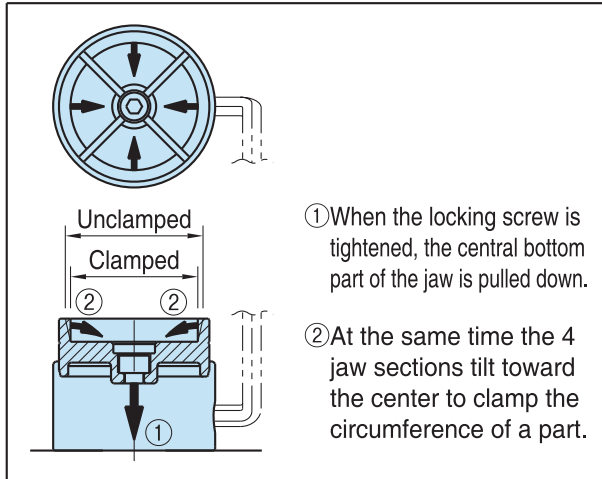
Included:

- 1 of locking ring
- 1 of diamond pin
- 1 of socket-head cap screw

Notes:

- Never tighten the locking screw without a part mounted, to avoid damage and deformation.
- Do not machine the jaw deeper than allowed.

Features:



- The diaphragm clamping mechanism allows securely clamping a part with 4 jaw sections.
- Different irregularly-shaped parts can be clamped.
- 0.15mm clamping stroke of each jaw section is perfect for clamping of lost-wax parts, die-cast parts, extruded parts, solid-drawn parts, prefinished parts, etc.

How To Use

① Body Mounting

Insert an included diamond pin into the body for locating, and then secure the body to the fixture plate with 4 socket-head cap screws.

② Jaw Setting

Engage the keyway on the bottom of the jaw with the parallel key on the top of the body, and then secure the jaw with an included cap screw. Note: At jaw installation, ensure the locking screw is fully loosened by turning counterclockwise until it stops.

③ Jaw Machining

(1) Set the locking ring in the jaw. (using a bolt facilitates setting)

Note: Locate the locking ring in full contact with the top of the cap screw's socket.

(2) Tighten the locking screw to clamp the locking ring (after clamping the bolt will be removed from the locking ring).

(3) Machine the jaw to the contours of a part.

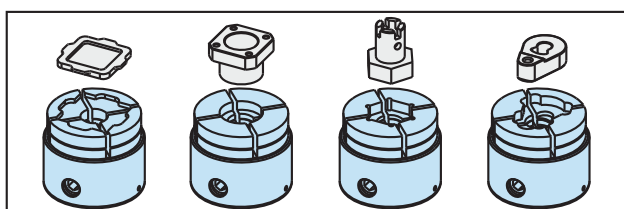
Machinable Depth

④ Part Setting

After machining loosen the locking screw to take out the locking ring.

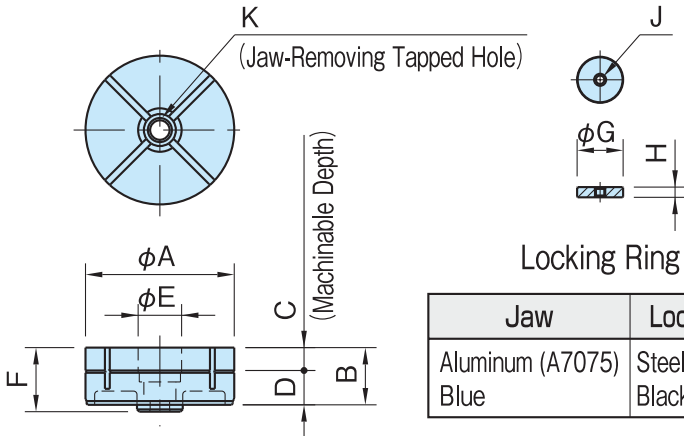
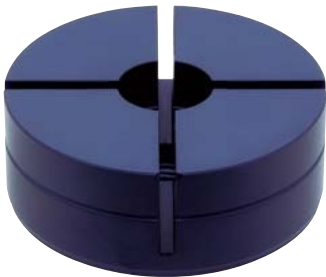
Mount a part and then tighten the locking screw for clamping.

Part Number	A (H7)	B	C (G7)	D	E (±0.02)	F (P.C.D)	G
CP120-06501	28	13	6	6	26	42	M6X1
CP120-09001	42	15	8	8	36	60	M8X1.25



- Tightening the locking screw on the side of the body allows holding a part on its circumference.
- Machinable jaws allow clamping parts of various shapes.
- Ideal way to hold parts for machining on small-size machining centers, tapping centers, small-size 5-axis machines, CNC rotary tables, etc.

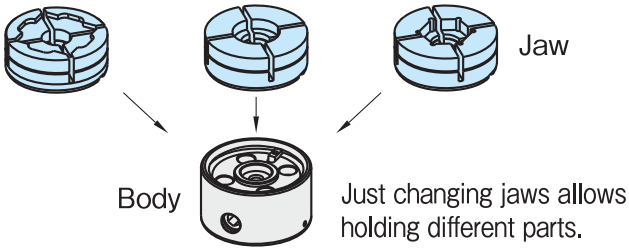
CPI21 - Jaws



Jaw	Locking Ring
Aluminum (A7075) Blue	Steel (S45C) Black oxide finish

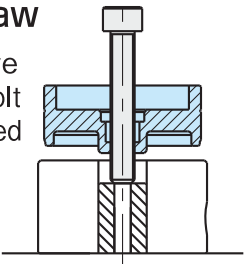
Part Number	A	B	C	D	E	F	G	H	J	K	Weight (g)	OD Holding Clamps	
CP121-06501	65	25	10	15	19	28	18	4	M4×0.7	M10×1.5 (Prepared hole φ 8.5)	170	CP120-06501	AMCH080-5W
CP121-09001	90	34	15	19	23	39	22	6	M5×0.8	M12×1.75(Prepared hole φ10.2)	470	CP120-09001	AMCH100-5W

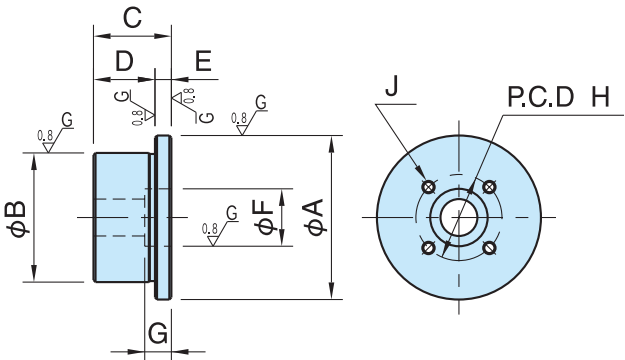
Feature:



How To Remove Jaw

When it is hard to remove the jaw by hand, screw a bolt into the jaw-removing tapped hole to push it against the body, for easier removal.

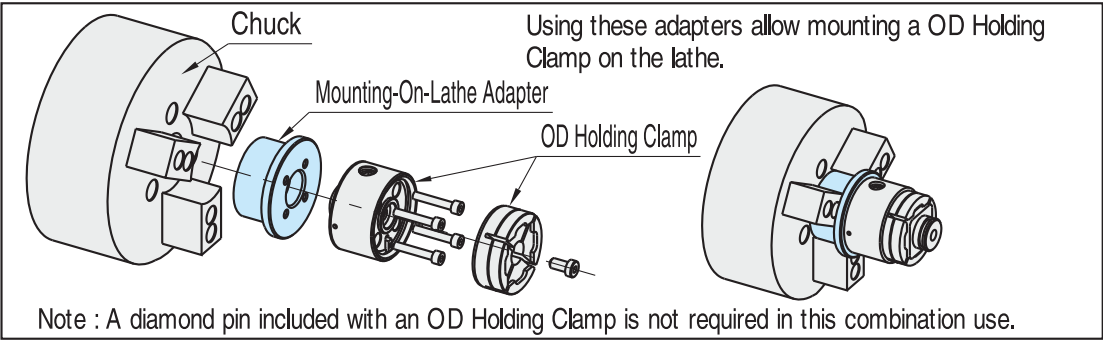




Body
Steel (SCM415)
Black oxide finish
Carburized-hardened

Part Number	A	B (±0.01)	C	D	E (±0.01)	F (H7)	G	H	J	Weight (g)	OD Holding Clamps
CP122-06501	80	63	38	30	8	28	13	42	M6×1 12 deep	910	CP120-06501
CP122-09001	100	80	43	35		42	15	60	M8×1.25 16 deep	1,600	CP120-09001

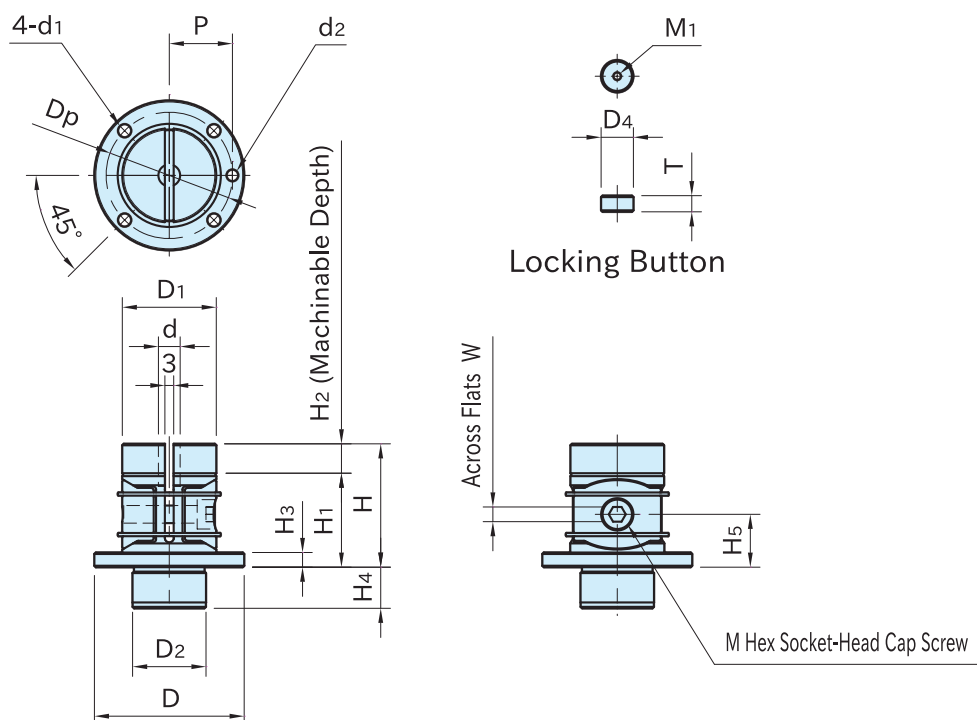
How To Use:



CP123 - OD Holding Clamps (Wedge Style/Round)



Body	Wedge
Steel(S45C) Black oxide finished	Steel(S45C) Black oxide finished Quenched & tempered



Part Number	D ₁	d	H	H ₂	D	H ₁	H ₃	D ₂ (g7)	H ₄	d ₁	D _p	d ₂	P
CP123-03201	32	7.4	42	10	51	32	5	25	14	4.5	43	5	21.5
CP123-05001	50	11.4	63	15	75	48	7	40	19	5.5	65	6	32.5

Part Number	M	W	H ₅	M ₁	D ₄	T	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (kg)
CP123-03201	M 6×1 -25L	5	18	M3×0.5	7	3.5	3,000	9	0.33
CP123-05001	M10×1.5-35L	8	27		11	5.5	7,000	42	1.2

Technical Information

- Locating Repeatability ± 0.08

Furnished Parts

- 1 of locking button
- Spring pin
($\phi 5 \times 10L$ for CP123-03201)
($\phi 6 \times 14L$ for CP123-05001)

Notes:

- Do not tighten the clamping screw without the workpiece set to prevent damage and deformation.
- Do not machine the jaws beyond the machinable depth.

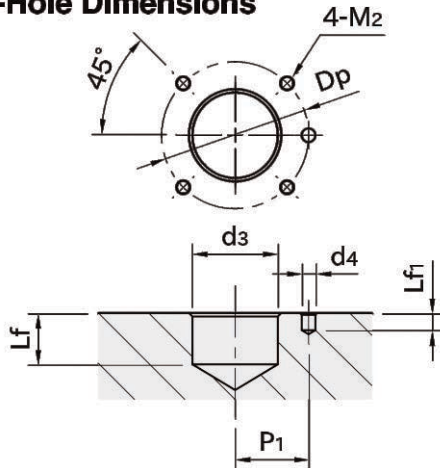
CPI23 - OD Holding Clamps (Wedge Style/Round)

Features:

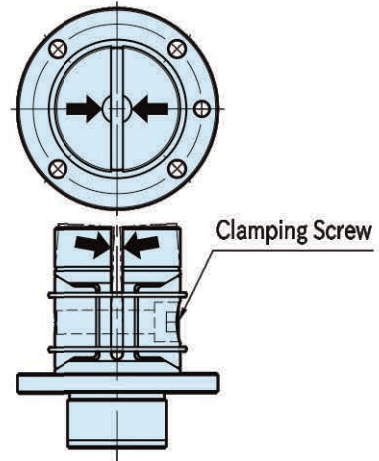
- When the clamp screw is tightened, both jaws tilt toward the center to clamp the circumference of the workpiece.
- The clamping stroke is 0.5mm.
- Cutting the machinable jaw to the contours of parts allows holding parts of different shapes.
- Simple and compact design permits multiple-parts holding arrangement.

How To Use

Mouting-Hole Dimensions



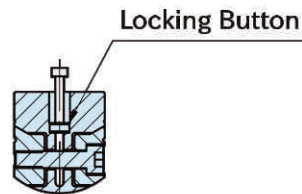
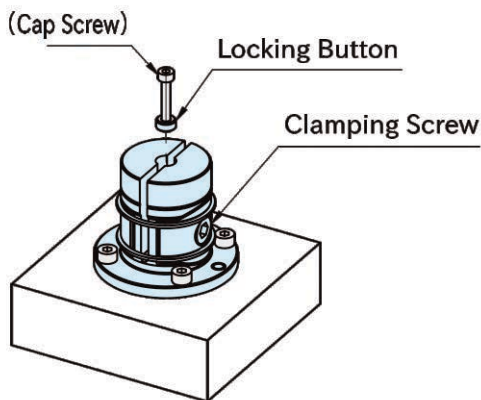
Part Number	d3 (H7)	Lf	d4 ($^{+0.12}_0$)	Lf1	P1 (± 0.05)	M2	Dp
CP123-03201	25	15	5	5	21.5	M4×0.7	43
CP123-05001	40	20	6	7	32.5	M5×0.8	65



How To Machine Jaws

① Setting the locking button

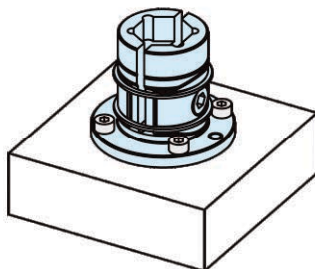
Insert the locking button into the jaw, and then tighten the clamp screw to fasten the locking button.
(Using a cap screw facilitates setting)



Note: The locking button must be inserted onto the bottom.

② Machining the jaw

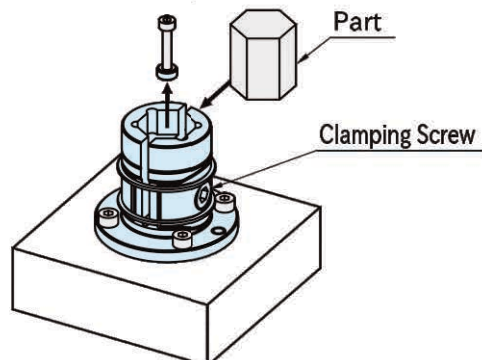
Cut the jaw to the contours of the part.



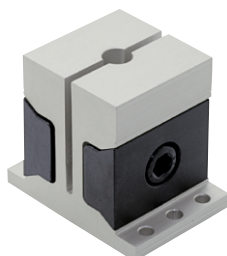
Note: Do not cut beyond the machinable depth.

③ Loading the part

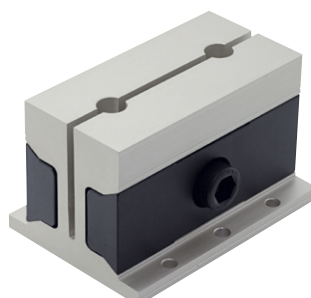
Loosen the clamping screw to remove the locking button. Load the part and tighten the clamping screw for clamping.



CP124 - OD Holding Clamps (Wedge Style/Square)

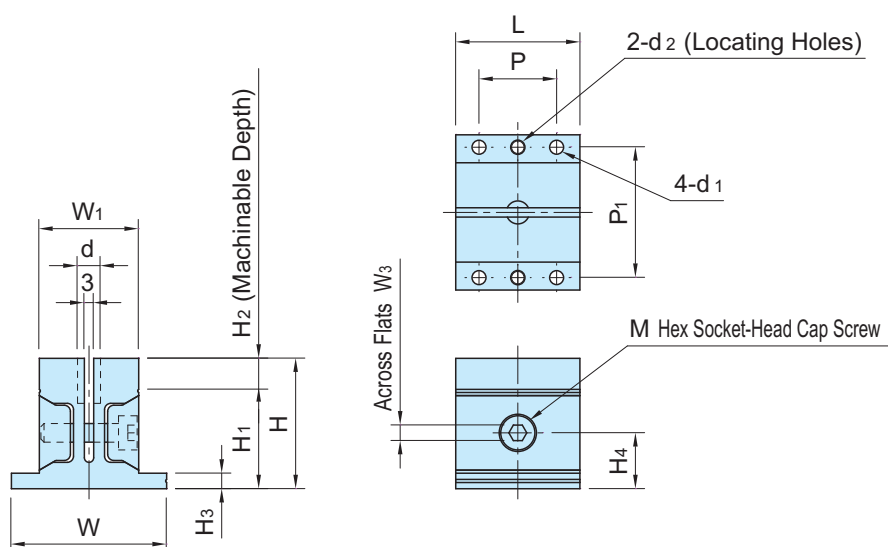


CP124-***01

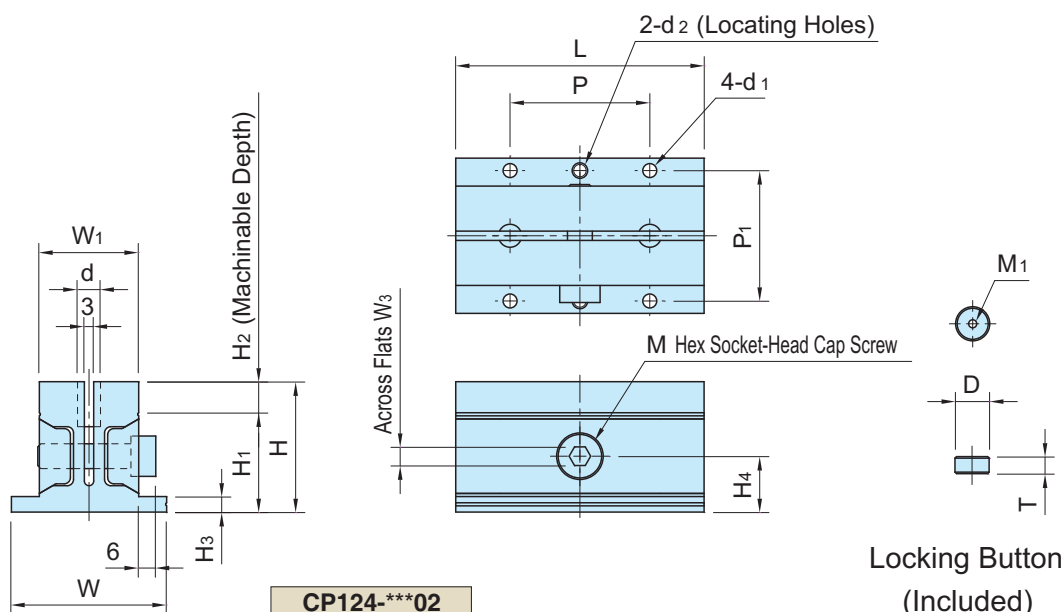


CP124-***02

Body	Wedge
Aluminum(A6N01)	Steel(SCM440)
Anodized	Black oxide finished
Natural color	Quenched & tempered



CP124-***01



CP124-***02

Locking Button
(Included)

CP124 - OD Holding Clamps (Wedge Style/Square)

Part Number	W ₁	d	L	H	H ₂	W	H ₃	H ₁	d ₂ (H7)	d ₁	P	P ₁	M
CP124-03201	32	7.4	40	42	10	50	5	32	5	4.5	25	42	M 6×1 25L
CP124-03202			80								45		M 8×1.25 30L
CP124-05001	50	11.4	50	63	15	72	7	48	6	5.5	30	62	M10×1.5 40L
CP124-05002			100								58		M12×1.75 45L

Part Number	W ₃	H ₄	M ₁	D	T	Clamping Force (N)	Allowable Screw torque (N · m)	Weight (kg)
CP124-03201	5	18	M3×0.5	7	3.5	2,500	7.5	0.22
CP124-03202	6						14	0.42
CP124-05001	8	27		11	5.5	5,500	26	0.62
CP124-05002	10						46	1.29

Technical Information

Locating Repeatability : ±0.08

Furnished Parts

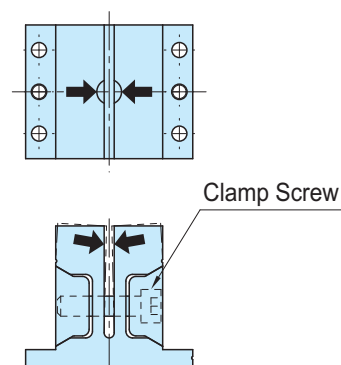
- 1 of locking button for CP124-***01
2 of locking button for CP124-***02
- 2 of parallel pin(m6 tolerance)
φ5×10L for CP124-***01
φ6×15L for CP124-***02

Features:

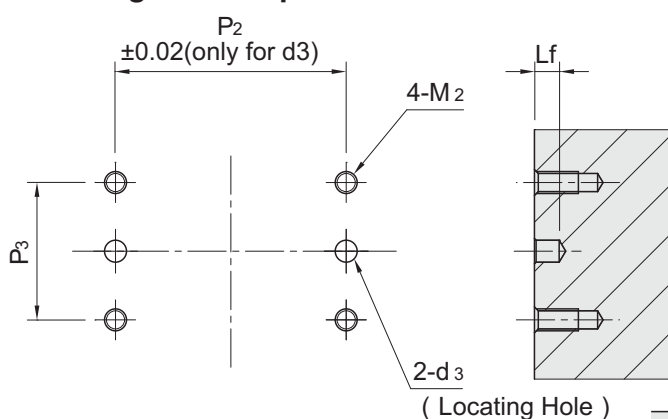
- When the clamp screw is tightened, both jaws tilt toward the center to clamp the circumference of the workpiece.
- The clamping stroke is 0.5mm.
- Cutting the machinable jaw to the contours of parts allows holding parts of different shapes.
- Simple and compact design permits multiple-parts holding arrangement.

Notes:

- Do not tighten the clamp screw without the workpiece set to prevent damage and deformation.
- Do not machine the jaws beyond the machinable depth



Mounting-Hole Preparation



Use the included parallel pin for locating.

Part Number	d ₃ (H7)	Lf	M ₂	P ₂	P ₃
CP124-03201	5	5	M4×0.7	42	25
CP124-03202					45
CP124-05001	6	8	M5×0.8	62	30
CP124-05002					58



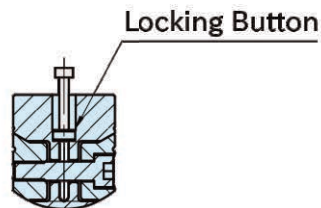
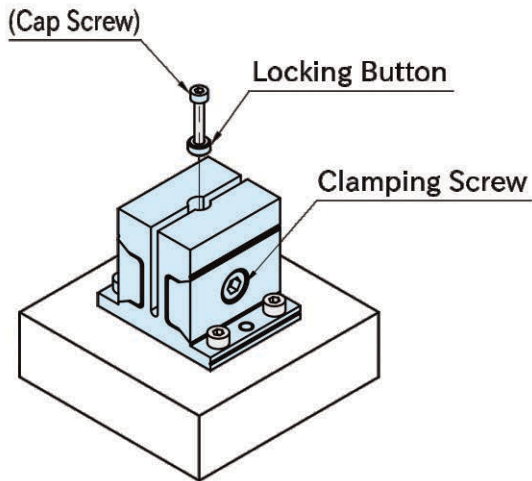
Continuing on Next Page

CPI24 - OD Holding Clamps (Wedge Style/Square)

How To Machine Jaws

①Setting the locking button

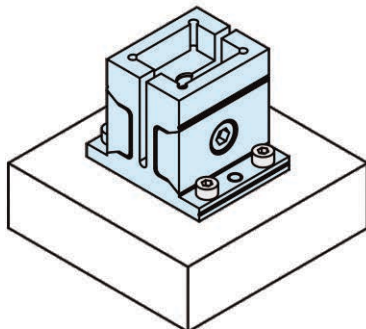
Insert the locking button into the jaw, and then tighten the clamp screw to fasten the locking button.
(Using a cap screw facilitates setting)



Note: The locking button must be inserted onto the bottom.

②Machining the jaw

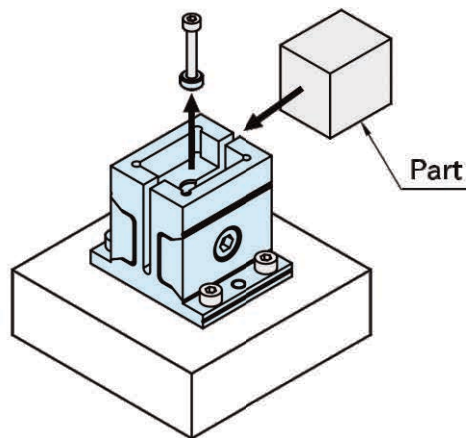
Cut the jaw to the contours of the part.



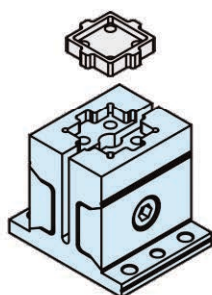
Note: Do not cut beyond the machinable depth.

③Loading the part

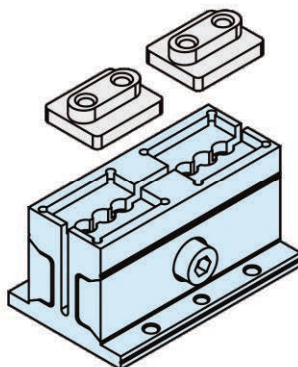
Loosen the clamping screw to remove the locking button. Load the part and tighten the clamping screw for clamping.



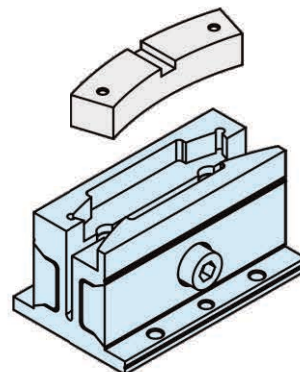
Application Examples



Single-station mode
on the short-type clamp



Dual-station mode
on the long-type clamp



Single-station mode
on the long-type clamp

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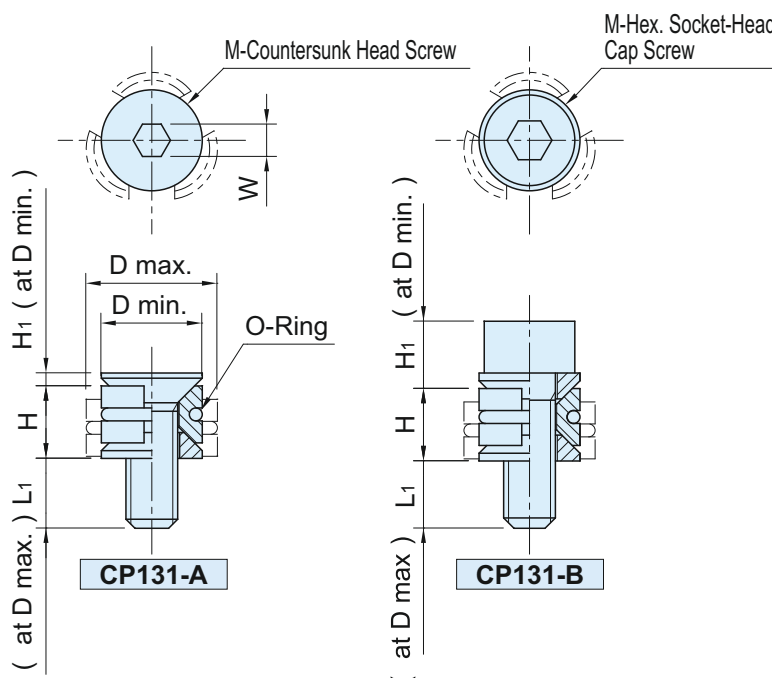
CP131 - Compact ID Holding Clamps



CP131-A



CP131-B



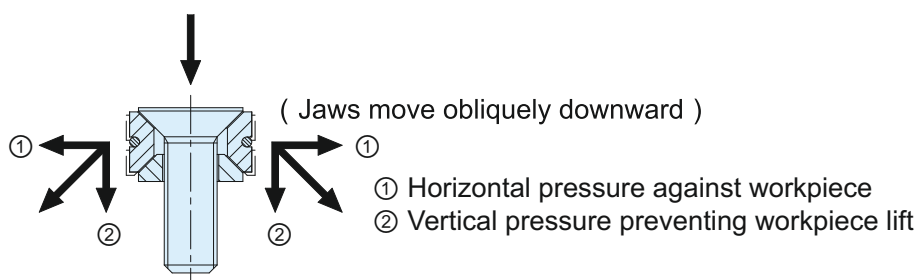
Jaw	Washer	O-Ring
SNCM439 steel Black oxide finished HRC33-39	SCM435 steel Black oxide finished	Fluoro rubber

Part Number	D		H		H ₁	M	L ₁	W
	min.	max.	D min.	D max.				
CP131-04001A	8	10.3	5.5	4.6	0.9	M4×0.7 -12L	7.3	2.5
CP131-05001A	10	12.3	6.4	5.6	1.1	M5×0.8 -15L	9.1	3
CP131-06001A	12	16.3	8.6	7	1.3	M6×1 -18L	11.2	4
CP131-08001A	16	22	11.5	9.4	1.6	M8×1.25-25L	16.2	5
CP131-04001B	8	10.3	5.5	4.6	5.1	M4×0.7 -12L	7.1	3
CP131-05001B	10	12.3	6.4	5.6	6.2	M5×0.8 -15L	9	4
CP131-06001B	12	16.3	8.6	7	7.9	M6×1 -18L	10.6	5
CP131-08001B	16	22	11.5	9.4	10.4	M8×1.25-25L	15.4	6

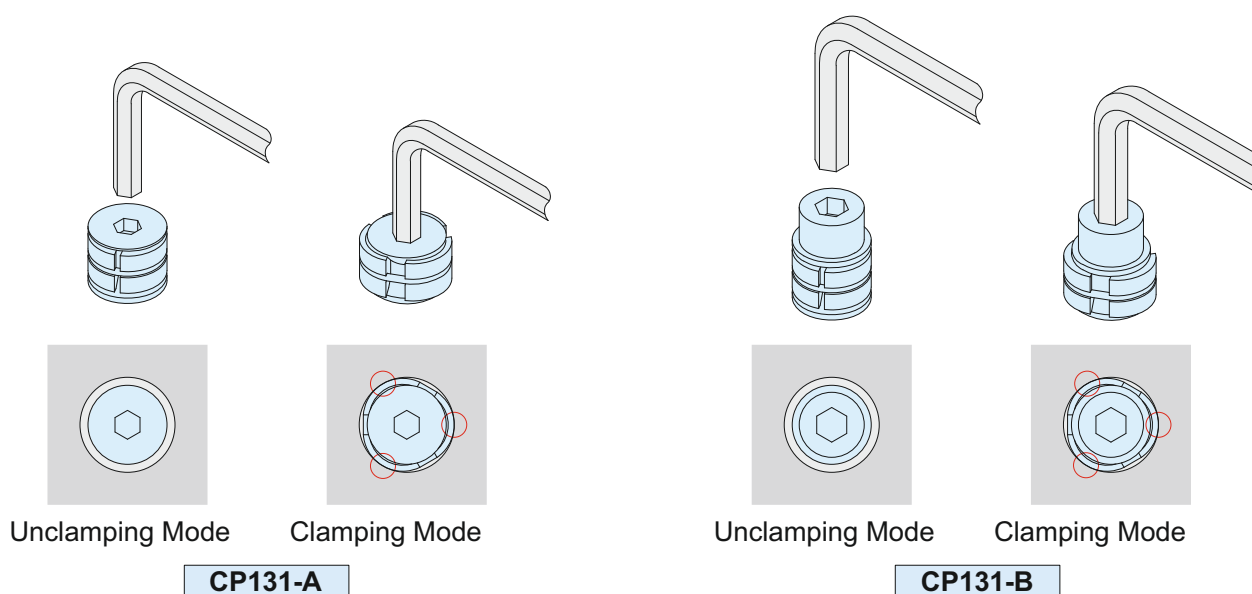
Part Number	Clamping Force (kN)	Allowable Screw Torque (N · m)	Weight (g)
CP131-04001A	0.9	2.1	3
CP131-05001A	1.5	4.3	5
CP131-06001A	2.1	7.3	9
CP131-08001A	4	18	22
CP131-04001B	1.5	2.7	4
CP131-05001B	2.5	5.4	7
CP131-06001B	5	9.1	11
CP131-08001B	9	25	28

Features

- These clamps hold the inside diameter of the workpiece.
- The wedge construction allows powerfully clamping the workpiece.
- Long clamping stroke is ideal for holding as-cast or roughly-finished holes.

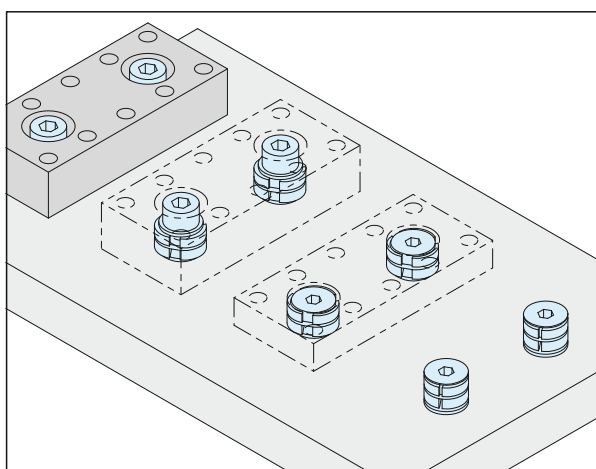


How To Use



Note: The clamp makes a line contact with the workpiece at the clamping mode.

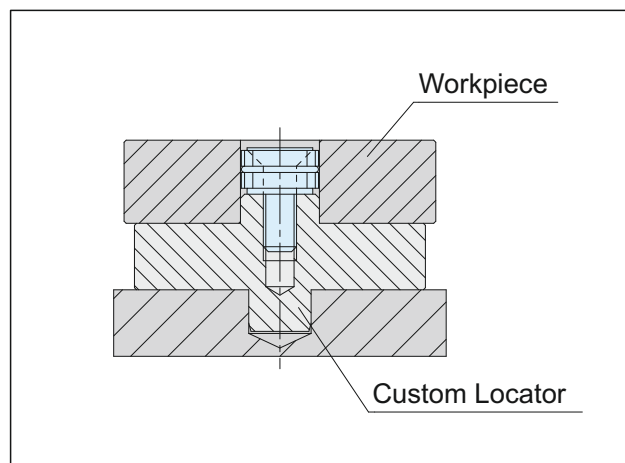
This contact can mark the surface of the workpiece depending on its materials, and using these clamps for accurately finished holes is not recommended.



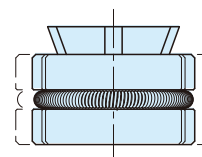
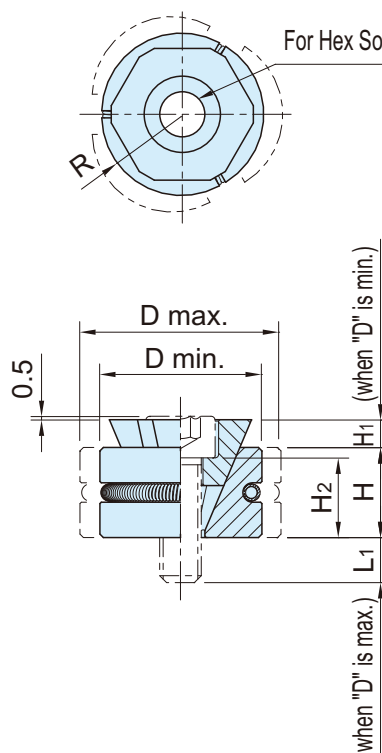
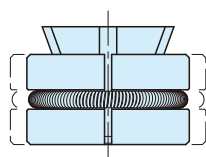
Example of application where two Compact ID Holding Clamps are used.

Note

For accurate locating, use these clamps with a locator as shown below.



CP130 - ID Holding Clamps



Body/Jaw	Spring
Steel(SKD61) Quenched & tempered(HRC47-53) Black oxide finished	Stainless Steel (SUS304)

Part Number	D		H	H ₁	R	H ₂		L ₁ (*)	Proper Cap Screws	Clamping Force (N)
	min.	max.				min.	max.			
CP130-04001	19.5	24	9	2.5	R 9.5	8	2.6	9.4	M4×12L	2,000
CP130-06001	23.5	29	13	4	R11.5	11.5	5	13	M6×18L	5,000
CP130-08001	28.5	36	17	5.5	R14	15	6	19	M8×25L	9,000

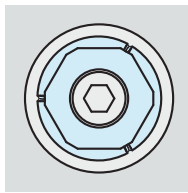
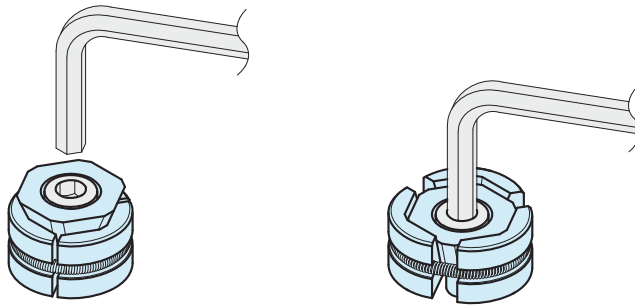
Part Number	Allowable Screw Torque (N · m)	Weight (g)
CP130-04001	3.2	17
CP130-06001	10.5	37
CP130-08001	25.0	75

*) The stated values are only for use of the proper cap screws.

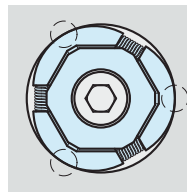
Features

- These clamps hold the inside diameter of the workpiece.
- The wedge construction allows powerfully clamping the workpiece.
- Long clamping stroke is ideal for holding as-cast or roughly-finished holes.

How To Use

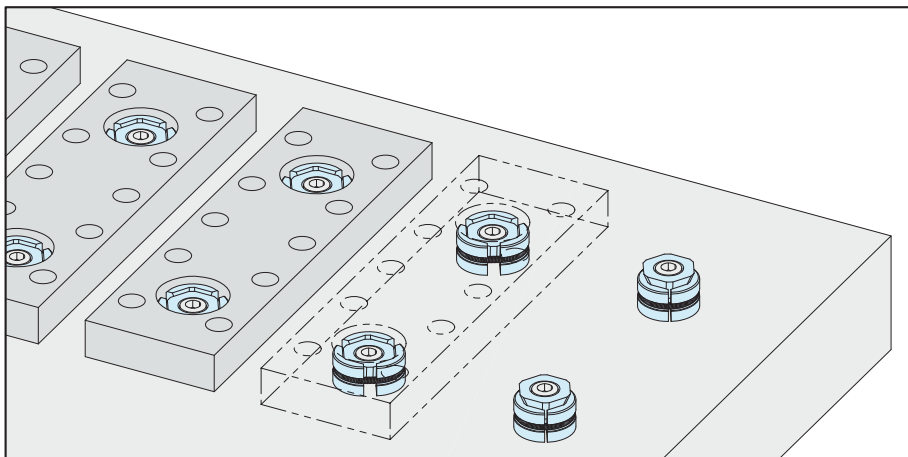


Unclamping Mode



Clamping Mode

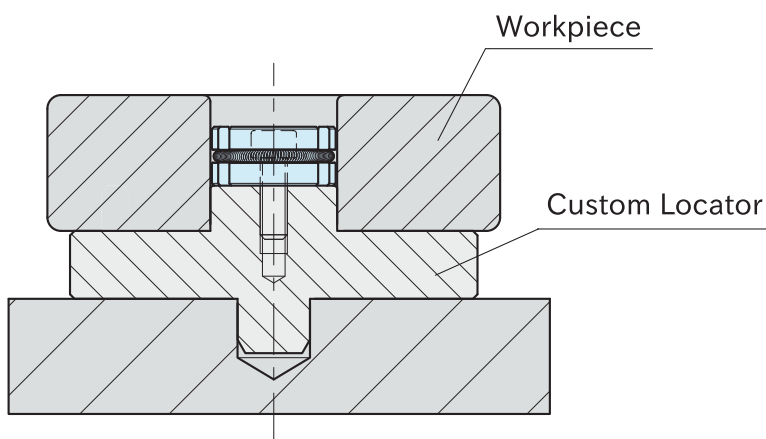
Note: The clamp makes a line contact with the workpiece at the clamping mode. This contact can mark the surface of the workpiece depending on its materials, and using these clamps for accurately finished holes is not recommended.



Example of application where two I.D. Holding Clamps are used.

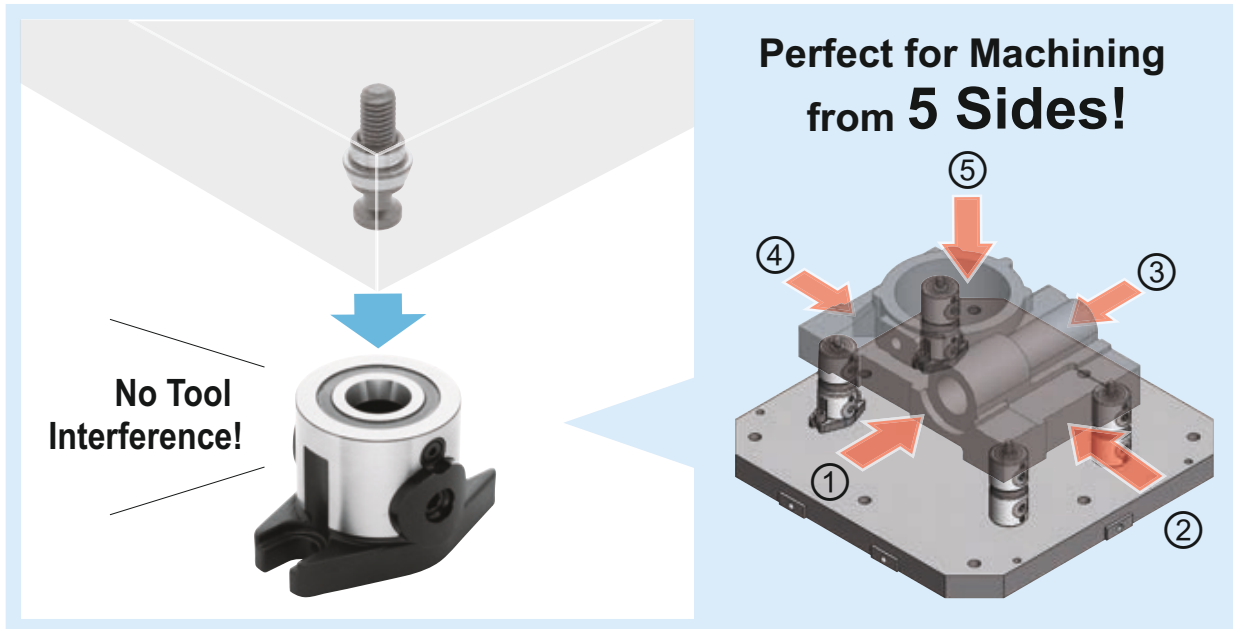
Note

For accurate locating, use these clamps with a locator as shown below.



New Style of Pull Clamps!

MODULAR PULL CLAMPING SYSTEM



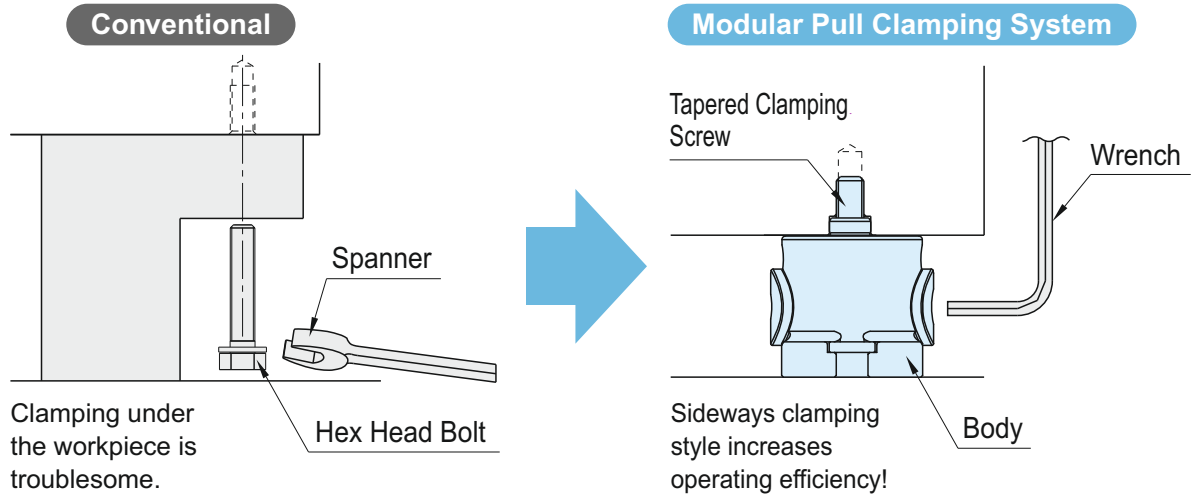
- The cylindrical body allows machining from 5 sides without tool interference.
- Precise dual contact of tapered surfaces provides the excellent locating repeatability at 8µm!

Flexible Workholding!



3 Sizes in 3 Types

9 options are available!



Modular Pull Clamping System provides simple workholding!

Time Saving

- Shorter workpiece setup time
- Shorter fixture preparation time

Cost Saving

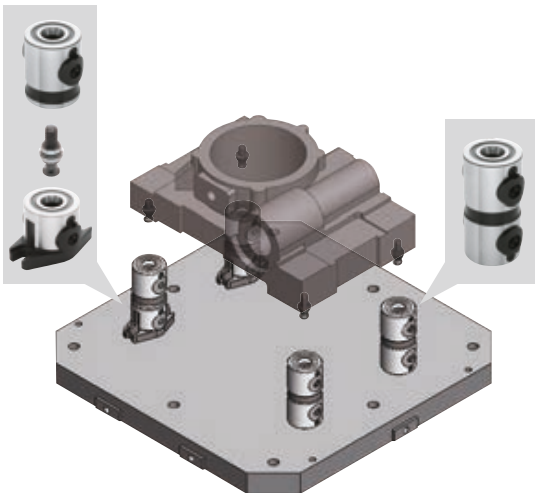
- Lower fixturing cost

Space Saving

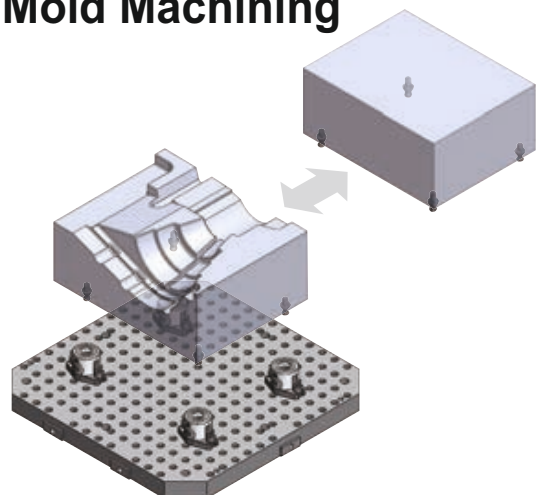
- Smaller fixture storage
- Smaller quantity of fixtures

Application Examples

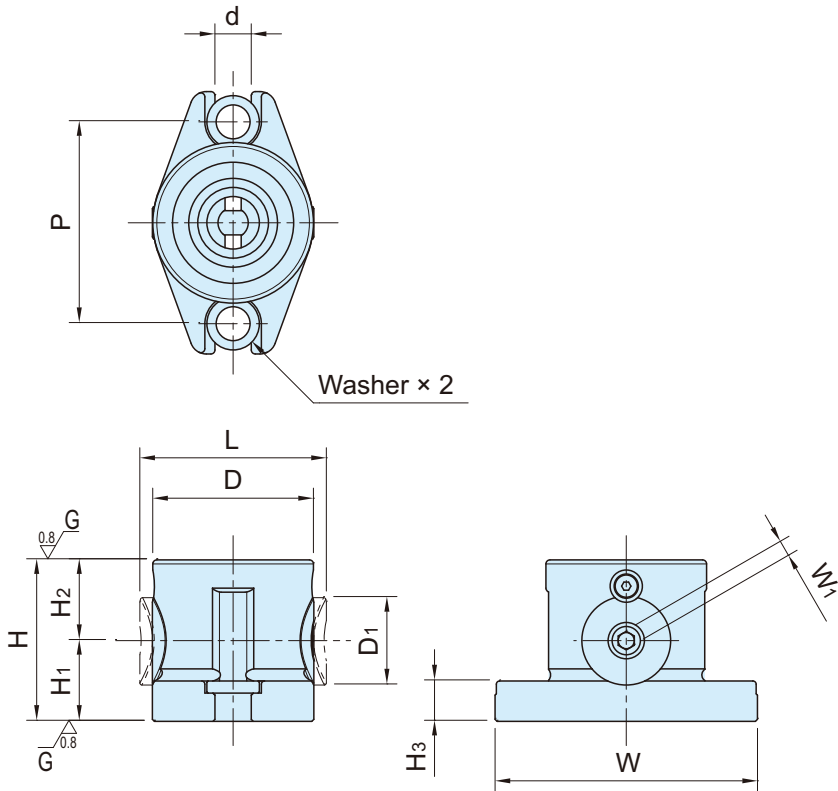
Part Machining



Mold Machining



CP150 - Clamping Modules (Flanged)



Body	Clamping Nut	Locking Screw
SCM440 steel Induction hardened Black oxide finished Precision ground	SCM440 steel Quenched and tempered Black oxide finished	SCM435 steel Quenched and tempered Black oxide finished

Part Number	D	H (±0.01)	D ₁	L	H ₁	H ₂	W	H ₃	d	P	W ₁
CP150-08040	40	40	22	46	20	20	65	10	9	50	4
CP150-12063	60	63	32	69	33	30	95	15	13	75	6
CP150-16080	80	80	44	91	40	40	130	20	17	100	8

Part Number	Clamping Force (kN)	Allowable Screw Torque (N · m)	Weight (kg)
CP150-08040	8	8	0.3
CP150-12063	15	22	1.4
CP150-16080	25	50	3.3

Furnished Parts

2 pcs. of flat washer

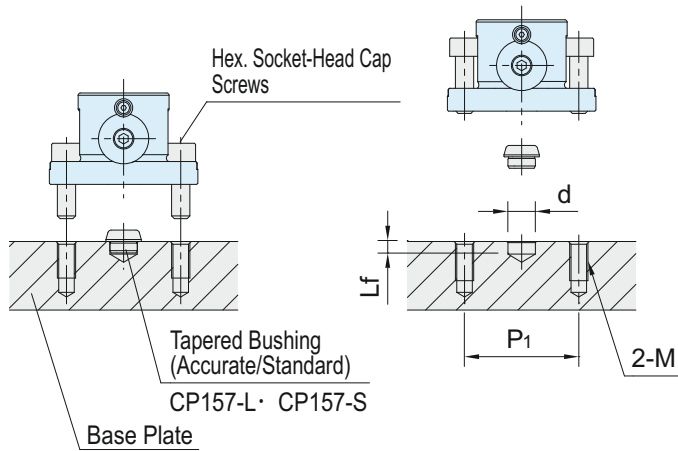
Related Products

- CP155-L Tapered Clamping Screws (Round)
- CP155-D Tapered Clamping Screws (Diamond)
- CP156 Clamping Screws
- CP157 Tapered Bushings

How To Use

- Use **CP157-L** Tapered Bushing (Accurate) for precise locating.
- Use **CP157-S** Tapered Bushing (Standard) for rough locating.

■Mounting-Hole Dimensions



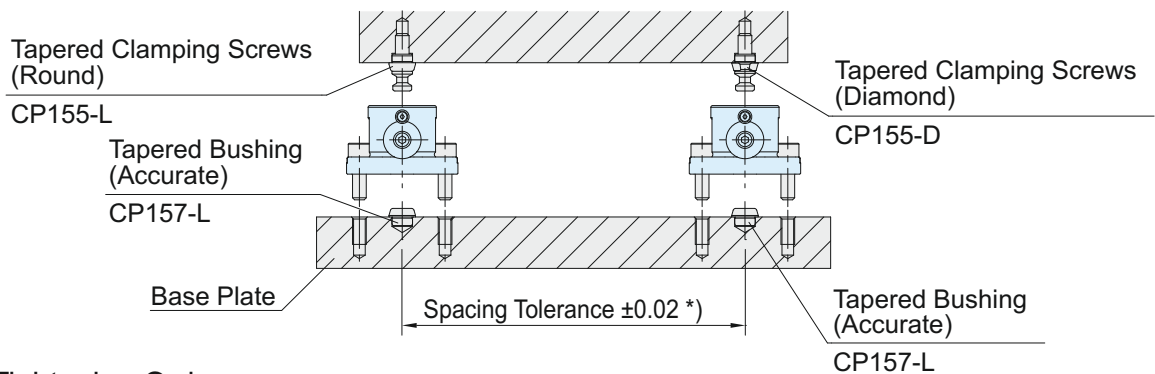
Part Number	d (H7)	Lf	M	P ₁
CP150-08040	12	5.5	M 8×1.25	50
CP150-12063	18	6.5	M12×1.75	75
CP150-16080	22	8	M16×2	100

Note: The tolerance of dimension "d" for Tapered Bushing (Standard) should be $^{+0.1}_{0}$.

■Spacing Tolerance

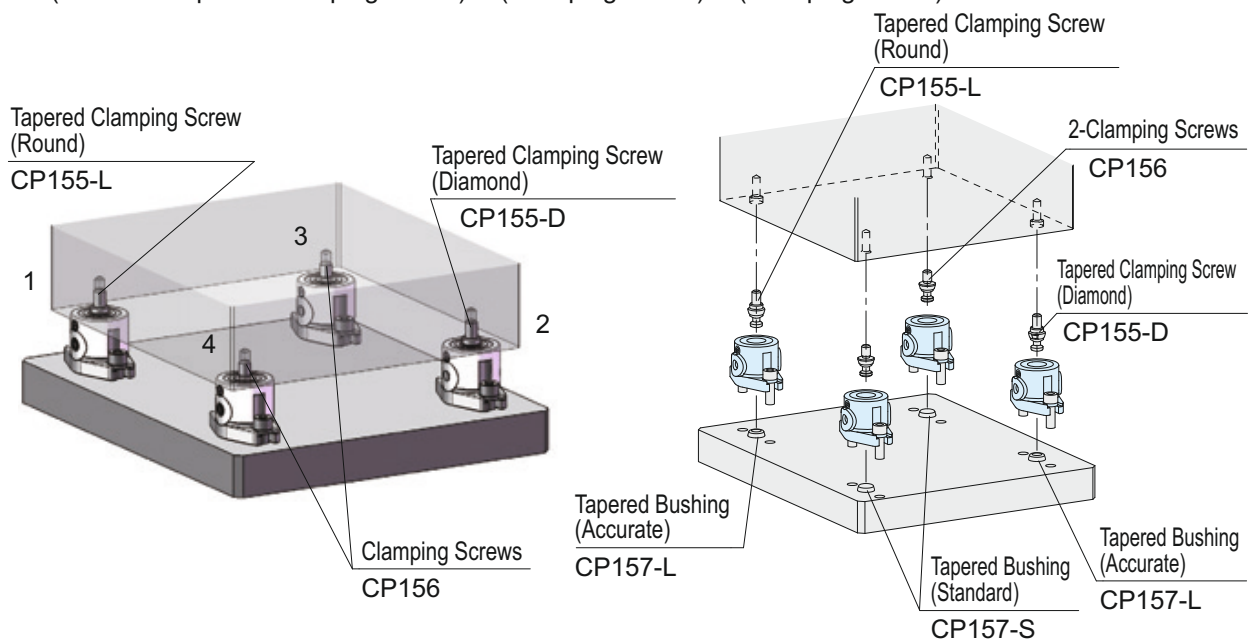
Spacing tolerance for CP157-L Tapered Bushings (Accurate) should be ± 0.02 .

*) Spacing tolerance for CP157-S Tapered Bushings (Standard) should be ± 0.1 .

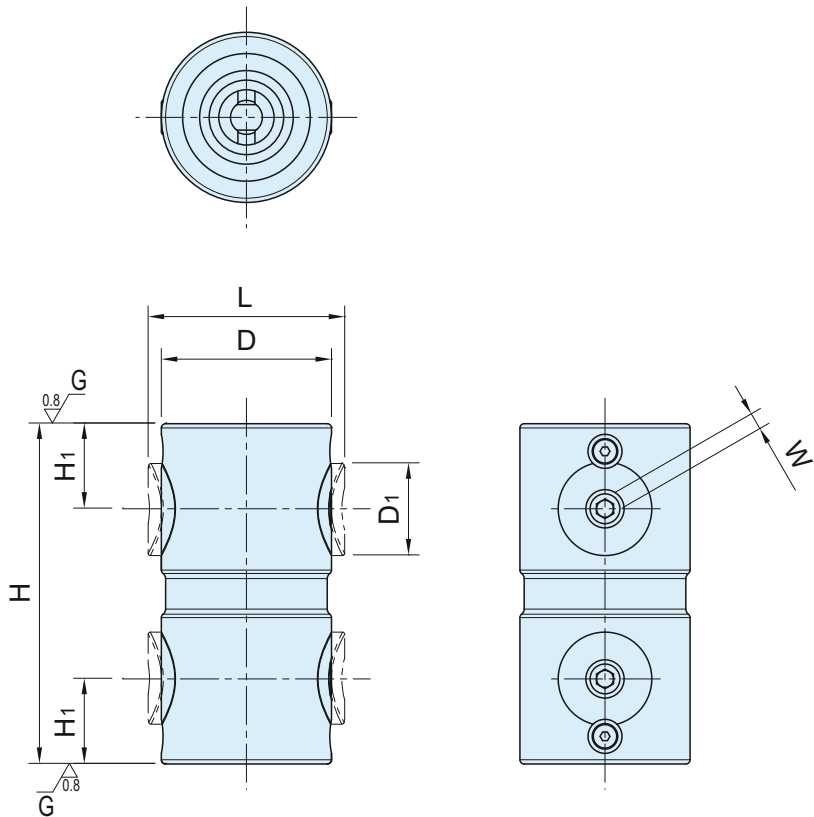


■Tightening Order

Tighten the locking screws in order of 1(Round Tapered Clamping Screw)→
2(Diamond Tapered Clamping Screw)→3(Clamping Screw)→4(Clamping Screw).



CPI51 - Clamping Modules (Double)



Body	Clamping Nut	Locking Screw
SCM440 steel Induction hardened Black oxide finished Precision ground	SCM440 steel Quenched and tempered Black oxide finished	SCM435 steel Quenched and tempered Black oxide finished

Part Number	D	H (±0.01)	D ₁	L	H ₁	W	Clamping Force (kN)	Allowable Screw Torque (N·m)	Weight (kg)
CP151-08080	40	80	22	46	20	4	8	8	0.7
CP151-12125	60	125	32	69	30	6	15	22	2.6
CP151-16160	80	160	44	91	40	8	25	50	5.8

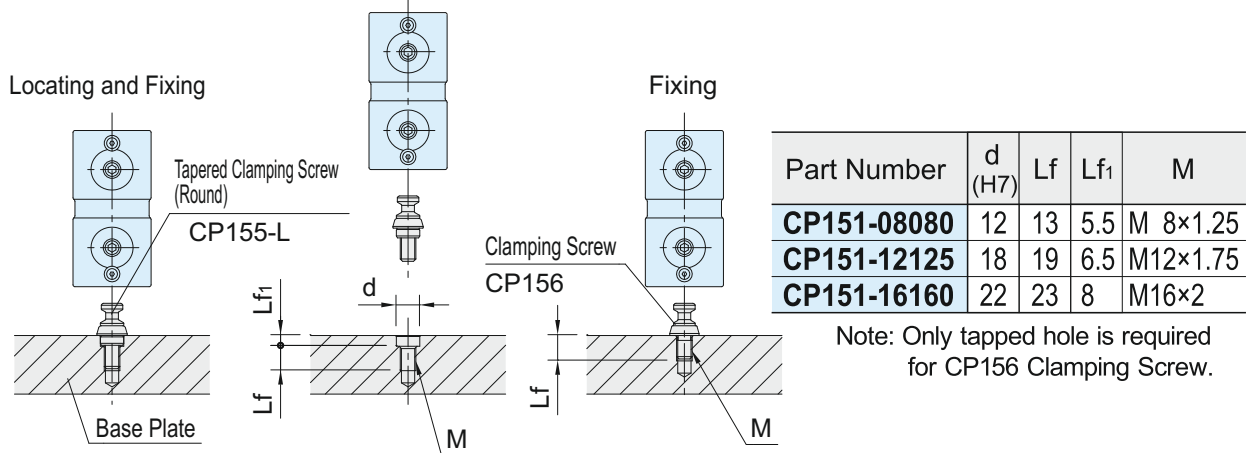
Related Products

- CP150 Clamping Modules (Flanged)
- CP152 Clamping Modules (Single)
- CP155-L Tapered Clamping Screws (Round)
- CP155-D Tapered Clamping Screws (Diamond)
- CP156 Clamping Screws

How To Use

- Use **CP155-L** Tapered Clamping Screw (Round) for precise locating.
- Use **CP156** Clamping Screw just for fixing.

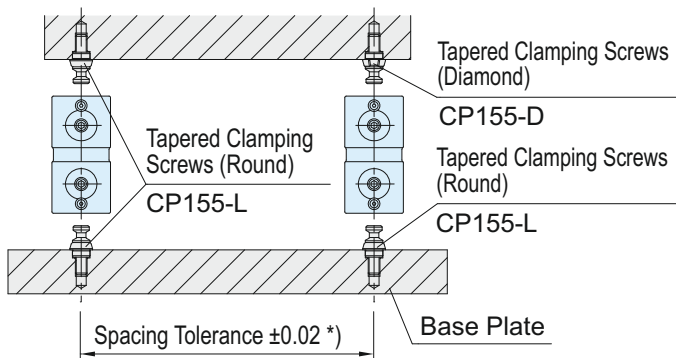
■ Mounting-Hole Dimensions



■ Spacing Tolerance

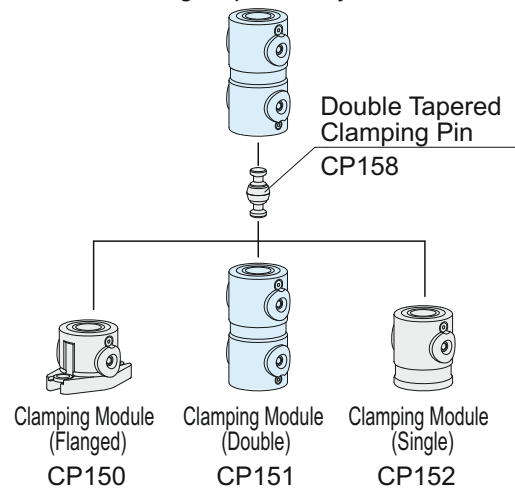
Spacing tolerance for CP155-L Tapered Clamping Screws (Accurate) should be ± 0.02 .

*) Spacing tolerance for CP156 Clamping Screws should be ± 0.2 .



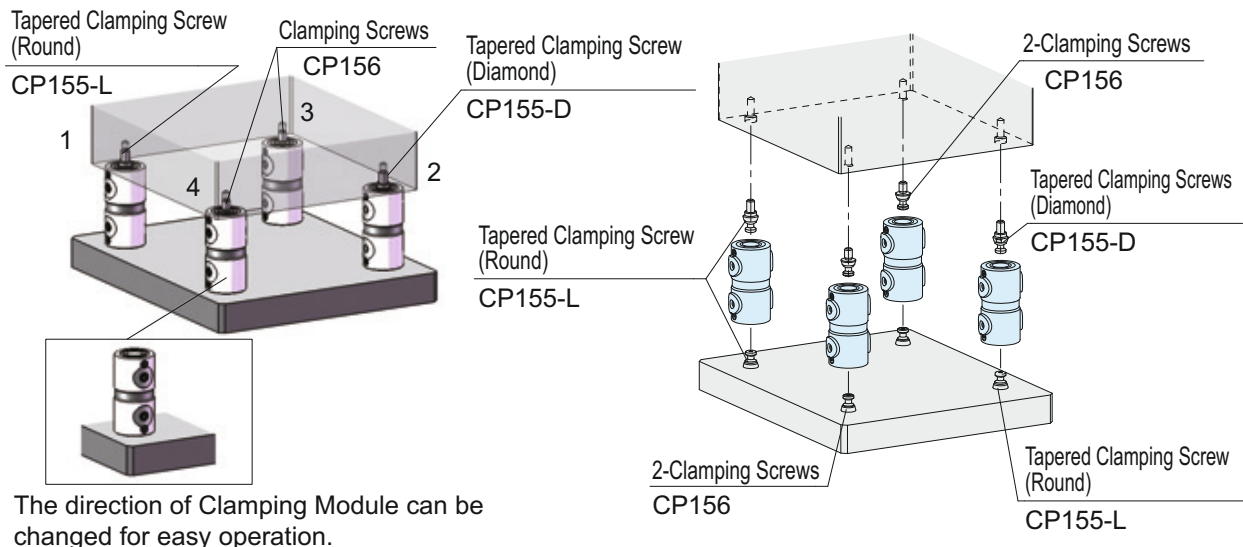
■ Coupling With Other Clamping Modules

Can be coupled with each Clamping Module.
 (Locating Repeatability is 0.2)

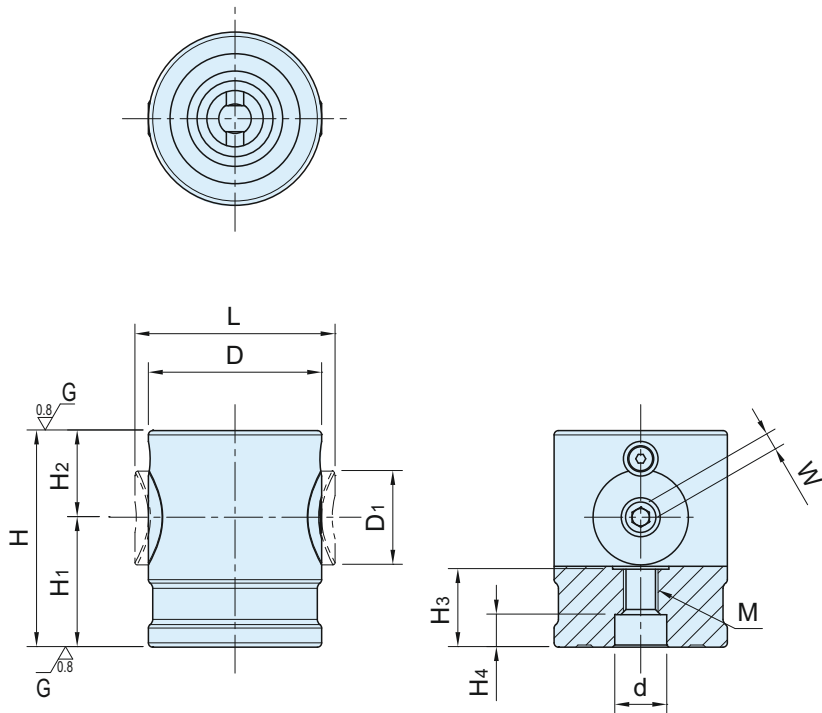


■ Tightening Order

Tighten the locking screws in order of 1(Round Tapered Clamping Screw)→
 2(Diamond Tapered Clamping Screw)→3(Clamping Screw)→4(Clamping Screw).



CPI52 - Clamping Modules (Single)



Body	Clamping Nut	Locking Screw
SCM440 steel Induction hardened Black oxide finished Precision ground	SCM440 steel Quenched and tempered Black oxide finished	SCM435 steel Quenched and tempered Black oxide finished

Part Number	D	H (± 0.01)	D ₁	L	H ₁	H ₂	H ₃	d (H7)	H ₄	M	W
CP152-08050	40	50	22	46	30	20	18	12	7.5	M 8×1.25	4
CP152-12080	60	80	32	69	50	30	25	18	10.5	M12×1.75	6
CP152-16100	80	100	44	91	60	40	31	22	12.5	M16×2	8

Part Number	Clamping Force (kN)	Allowable Screw Torque (N · m)	Weight (kg)
CP152-08050	8	8	0.5
CP152-12080	15	22	1.6
CP152-16100	25	50	3.8

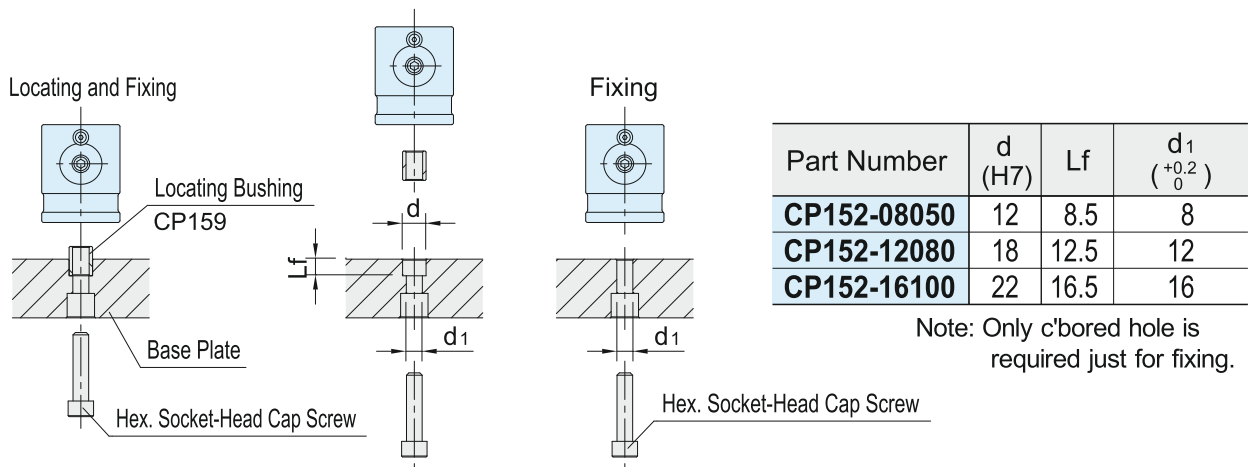
Related Products

- **CP150** Clamping Modules (Flanged)
- **CP151** Clamping Modules (Double)
- **CP155-L** Tapered Clamping Screws (Round)
- **CP155-D** Tapered Clamping Screws (Diamond)
- **CP156** Clamping Screws
- **CP159** Locating Bushings

How To Use

- Use **CP159** Locating Bushing for precise locating.
- Use only hex. socket-head cap screw just for fixing.

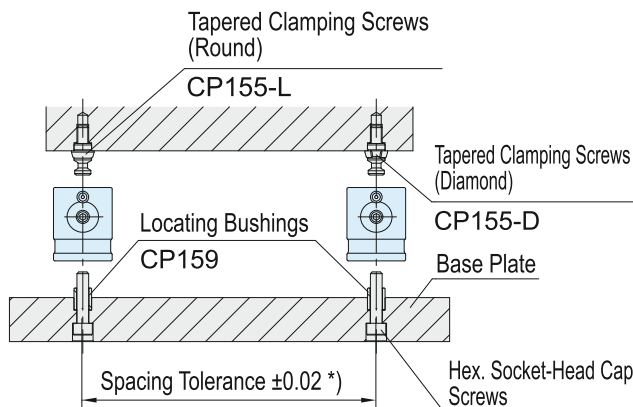
■ Mounting-Hole Dimensions



■ Spacing Tolerance

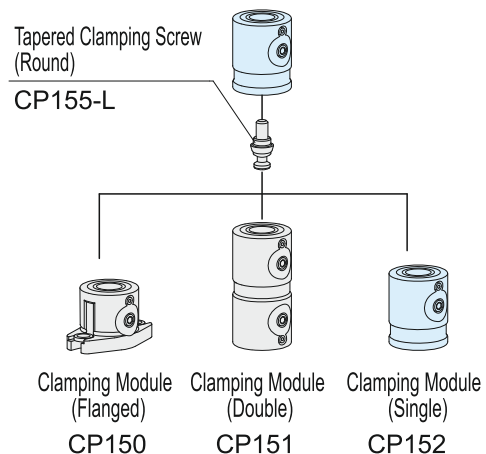
Spacing tolerance for CP159 Locating Bushings should be ± 0.02 .

*) Spacing tolerance for hex. socket-head cap screw should be ± 0.1 .



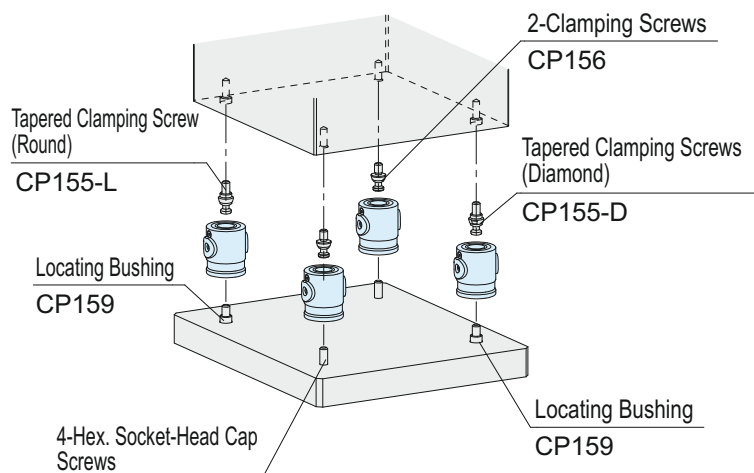
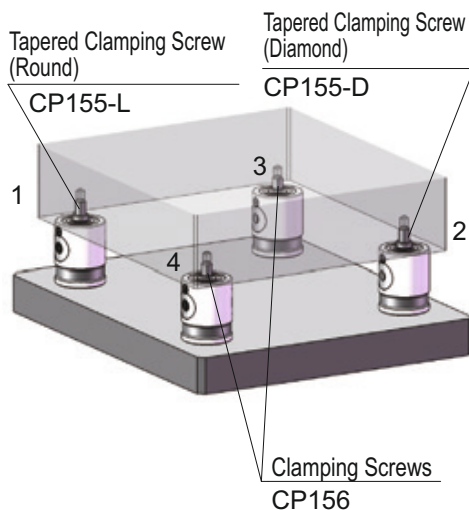
■ Coupling With Other Clamping Modules

Can be coupled with each Clamping Module.
(Locating Repeatability is 8 μ m)

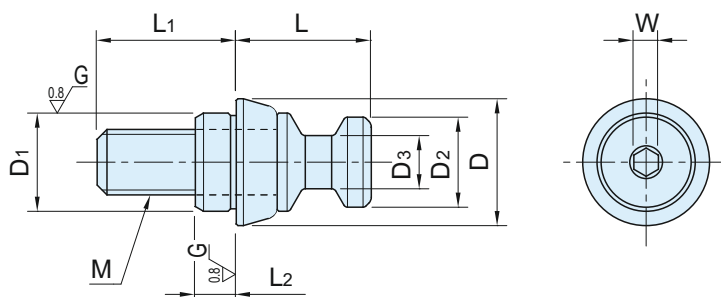


■ Tightening Order

Tighten the locking screws in order of 1(Round Tapered Clamping Screw)→ 2(Diamond Tapered Clamping Screw)→3(Clamping Screw)→4(Clamping Screw).



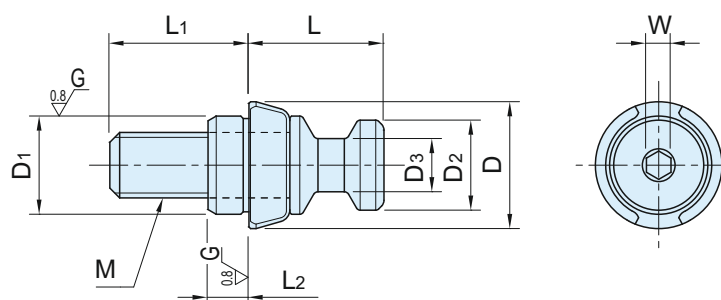
CPI55-L - Tapered Clamping Screws (Round)



Tapered Bushing	Clamping Screw
S45C steel Black oxide finished Precision ground	SCM435 steel Quenched and tempered Black oxide finished

Part Number	M	D ₁ (g6)	L ₂	L ₁	D	L	D ₂	D ₃	W	Weight (g)
CP155-08001L	M 8×1.25	12	5	17	15.5	16.5	11	6.5	3	20
CP155-12001L	M12×1.75	18	6	24	24.5	25	16	9.5	5	70
CP155-16001L	M16×2	22	7.5	30	31.5	33	21	13	6	150

CPI55-D - Tapered Clamping Screws (Diamond)



Tapered Bushing	Clamping Screw
S45C steel Black oxide finished Precision ground	SCM435 steel Quenched and tempered Black oxide finished

Part Number	M	D ₁ (g6)	L ₂	L ₁	D	L	D ₂	D ₃	W	Weight (g)
CP155-08001D	M 8×1.25	12	5	17	15.5	16.5	11	6.5	3	20
CP155-12001D	M12×1.75	18	6	24	24.5	25	16	9.5	5	70
CP155-16001D	M16×2	22	7.5	30	31.5	33	21	13	6	150

How To Use

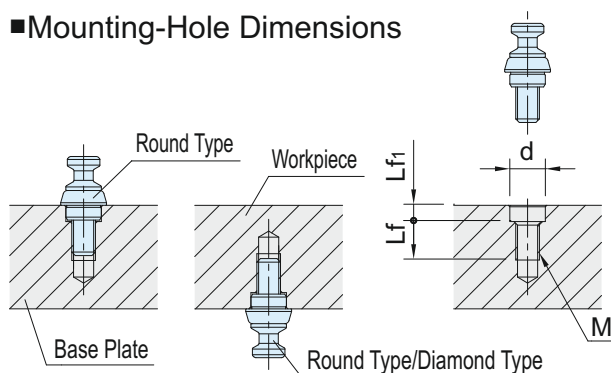
Round Type

- Can be used for locating **CP151** Clamping Module (Double).
- Can be used for locating a workpiece with diamond type.

Diamond Type

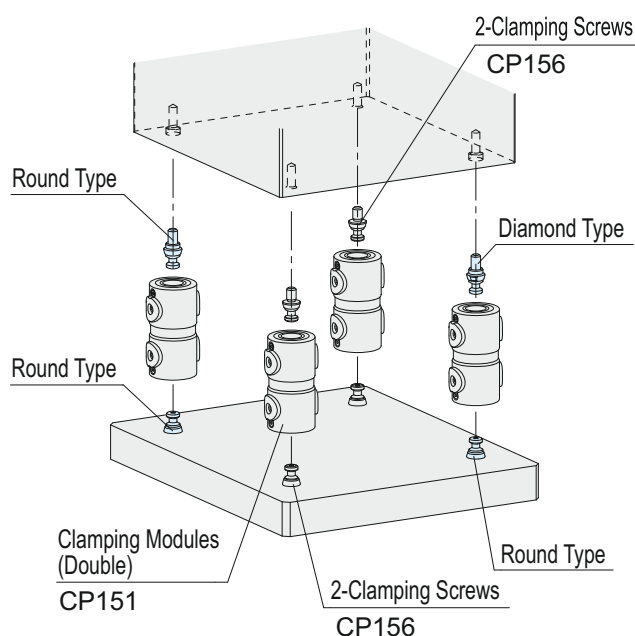
- Can be used for locating a workpiece with round type.
- Fix the tapered bushing of diamond type after deciding the direction.

■Mounting-Hole Dimensions

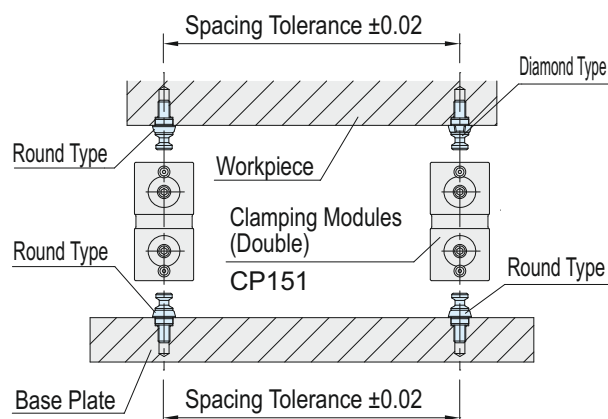


Part Number	d (H7)	Lf	Lf ₁	M
CP155-08001D	12	13	5.5	M 8×1.25
CP155-12001D	18	19	6.5	M12×1.75
CP155-16001D	22	23	8	M16×2

■Application Example

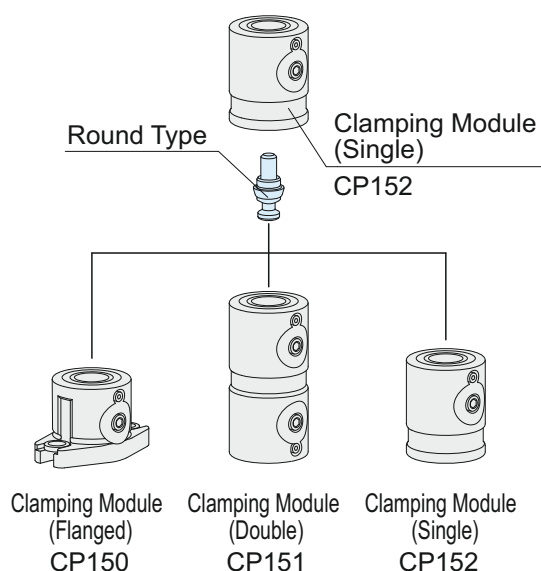


■Spacing Tolerance



■Coupling of Clamping Module (Single)

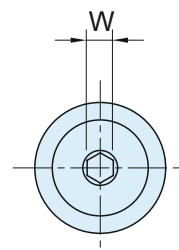
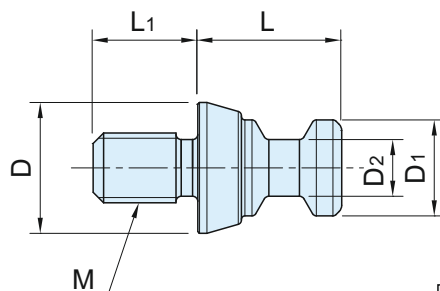
Round type can be used as a coupling for Clamping Module (Single).
 〈Locating Repeatability is 8μm〉



Related Products

- **CP150** Clamping Modules (Flanged)
- **CP151** Clamping Modules (Double)
- **CP152** Clamping Modules (Single)
- **CP156** Clamping Screws

CP156 - Clamping Screws

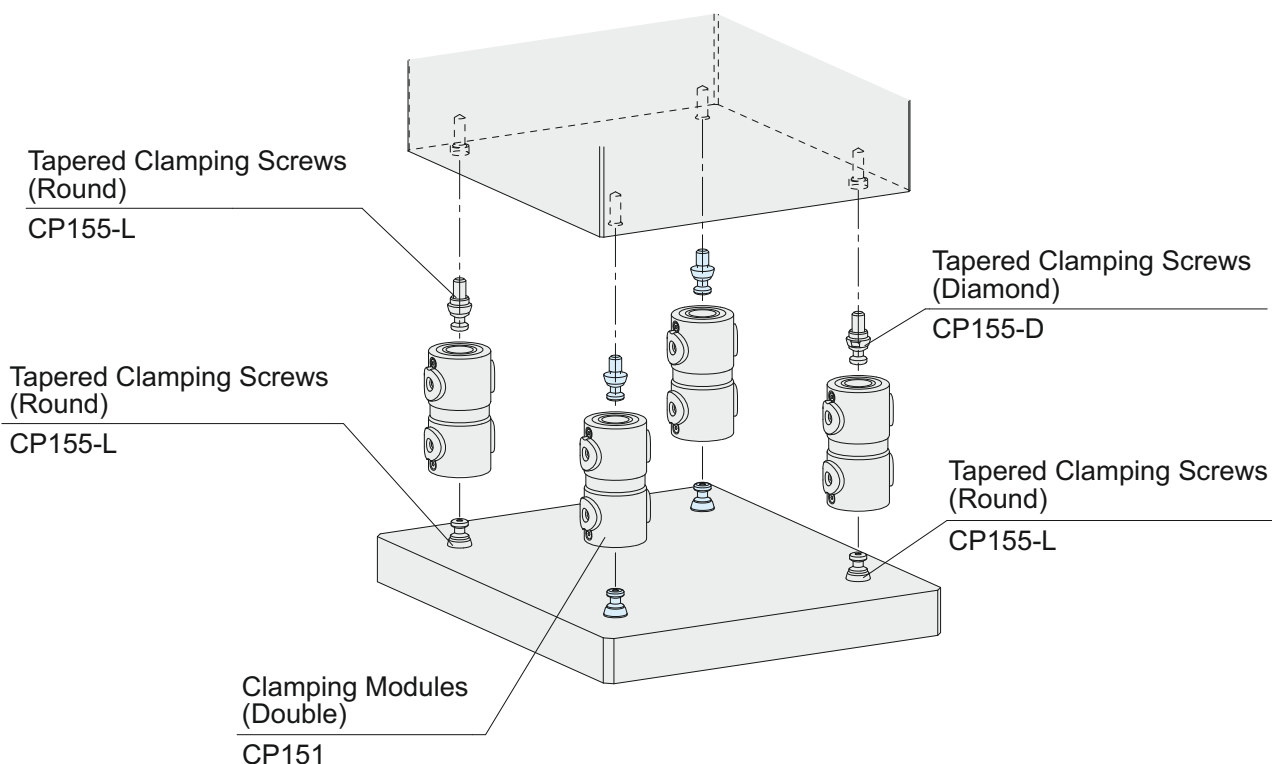


Body
SCM435 steel Quenched and tempered Black oxide finished

Part Number	M	L ₁	D	L	D ₁	D ₂	W	Weight (g)
CP156-08001	M 8×1.25	12	15	16.5	11	6.5	3	16
CP156-12001	M12×1.75	18	24	25	16	9.5	5	57
CP156-16001	M16×2	22	31	33	21	13	6	125

How To Use

- Can be used for mounting **CP151** Clamping Module (Double) on the base plate.
- Can be installed on the workpiece.
- No locating function.
- Spacing tolerance of the tapped holes should be ± 0.2 .





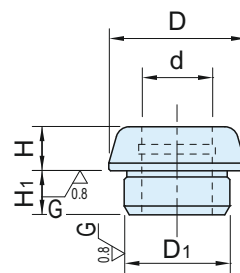
CP157-L

(Accurate)



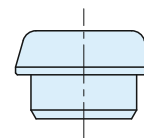
CP157-S

(Standard)



CP157-L

(Accurate)



CP157-S

(Standard)

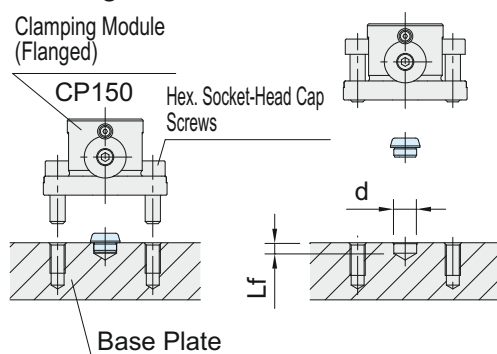
Part Number	D	H	D ₁		H ₁	d	Weight (g)
CP157-08001L	15.5	5	12	g6	5	8	6
CP157-12001L	24.5	8	18		6	12	24
CP157-16001L	31.5	10	22		7.5	16	45
CP157-08001S	15.5	5	12	-0.02 -0.05	5	-	11
CP157-12001S	24.5	8	18		6	-	37
CP157-16001S	31.5	10	22		7.5	-	75

Accurate	Standard
S45C steel Black oxide finished Precision ground	S45C steel Black oxide finished

How To Use

- Can be used for mounting **CP150** Clamping Module (Flanged) on the base plate.
- Use Accurate Type for precise locating of a clamping module.
- Use Standard Type for rough locating of a clamping module.

Mounting-Hole Dimensions



Size	d (H7)	Lf
08001	12	5.5
12001	18	6.5
16001	22	8

Note: The tolerance of dimension "d" for Standard Type should be ± 0.1

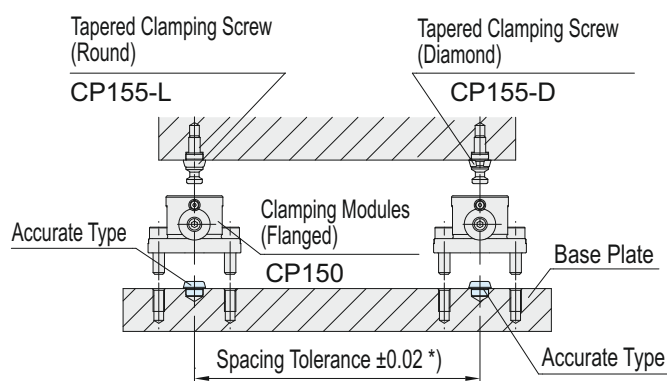
Related Products

- CP150** Clamping Modules (Flanged)
- CP155-L** Tapered Clamping Screws (Round)
- CP155-D** Tapered Clamping Screws (Diamond)
- CP156** Clamping Screws

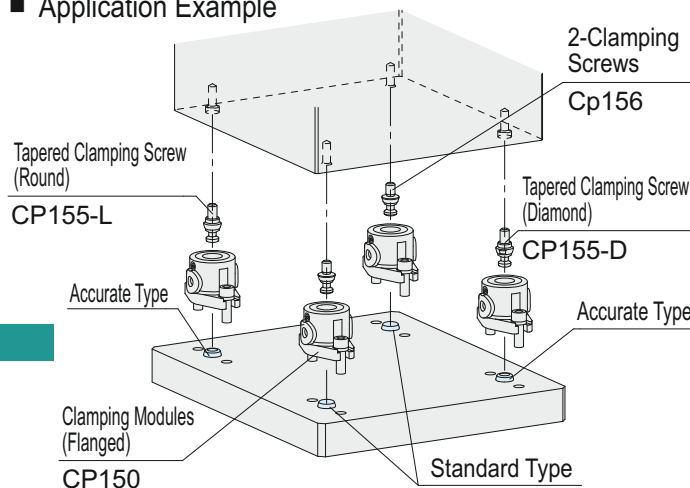
Spacing Tolerance

Spacing tolerance for Accurate Type should be ± 0.02 .

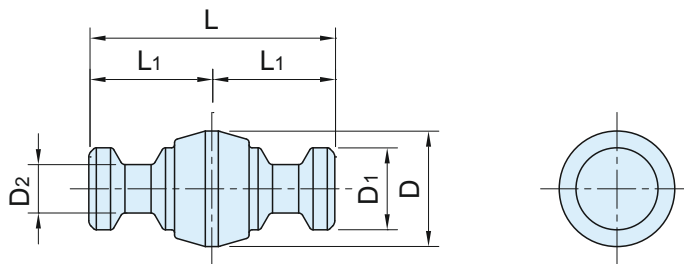
*) Spacing tolerance for Standard Type should be ± 0.1 .



Application Example



CPI58 - Double Tapered Clamping Pins

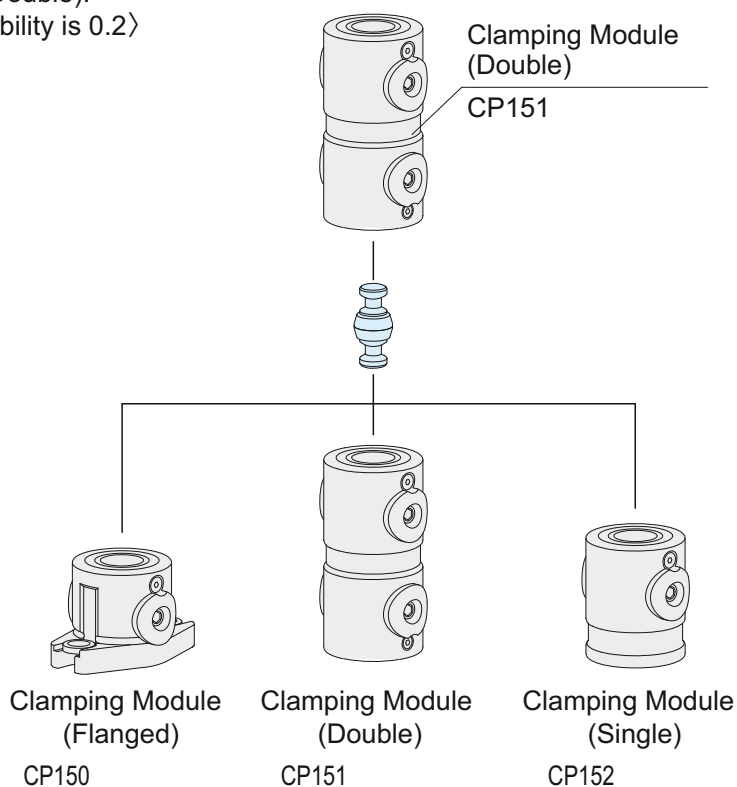


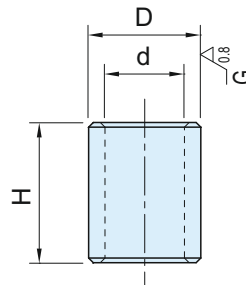
Body
SCM435 steel Quenched and tempered Black oxide finished

Part Number	D	L	D ₁	D ₂	L ₁	Weight (g)
CP158-08001	15.5	33	11	6.5	16.5	24
CP158-12001	24.5	50	16	9.5	25	85
CP158-16001	31.5	66	21	13	33	190

How To Use

Can be used as a coupling for **CP151** Clamping Module (Double).
 (Locating Repeatability is 0.2)





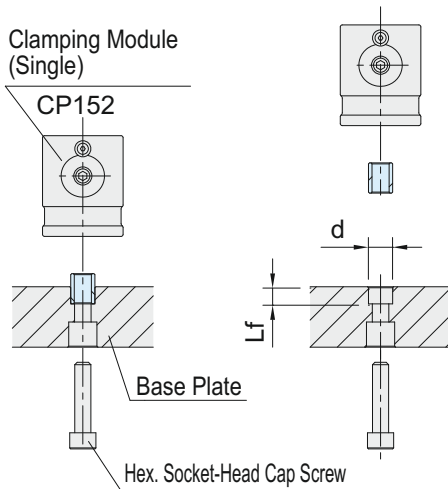
Body
SCM435 steel Quenched and tempered Black oxide finished

Part Number	d	D (h6)	H	Weight (g)
CP159-08001	8.5	12	15	7
CP159-12001	12.5	18	22	22
CP159-16001	16.5	22	28	35

How To Use

Can be used for locating **CP152** Clamping Module (Single) on the base plate.

■Mounting-Hole Dimensions

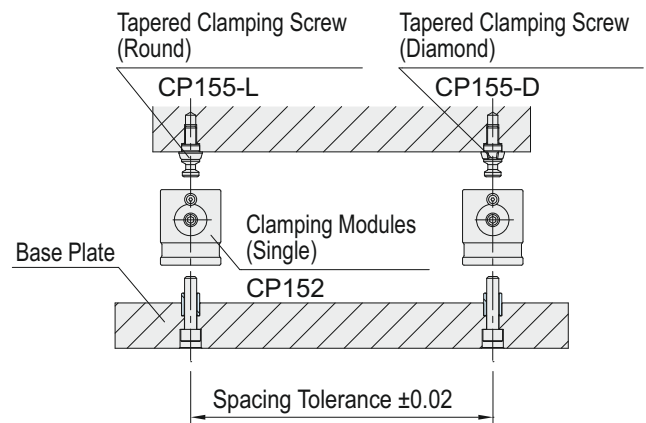


Part Number	d (H7)	Lf
CP159-08001	12	8.5
CP159-12001	18	12.5
CP159-16001	22	16.5

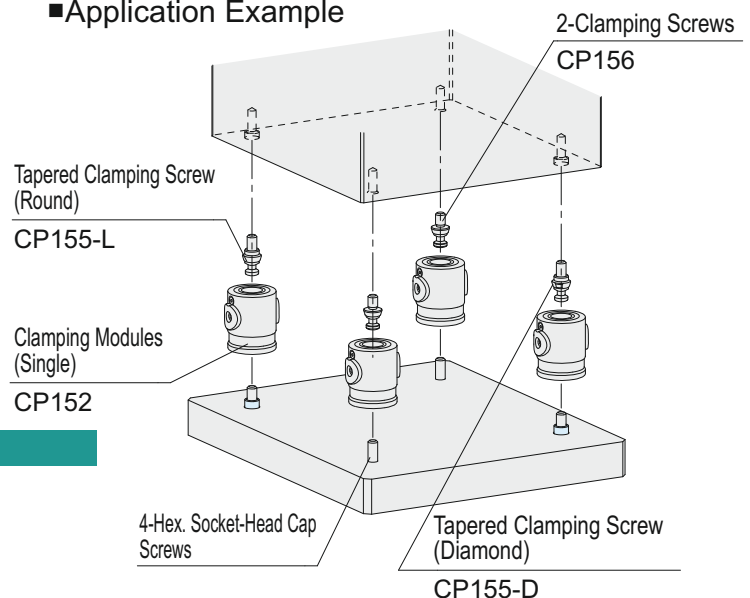
Related Products

- **CP152** Clamping Modules (Single)
- **CP155-L** Tapered Clamping Screws (Round)
- **CP155-D** Tapered Clamping Screws (Diamond)
- **CP156** Clamping Screws

■Spacing Tolerance



■Application Example



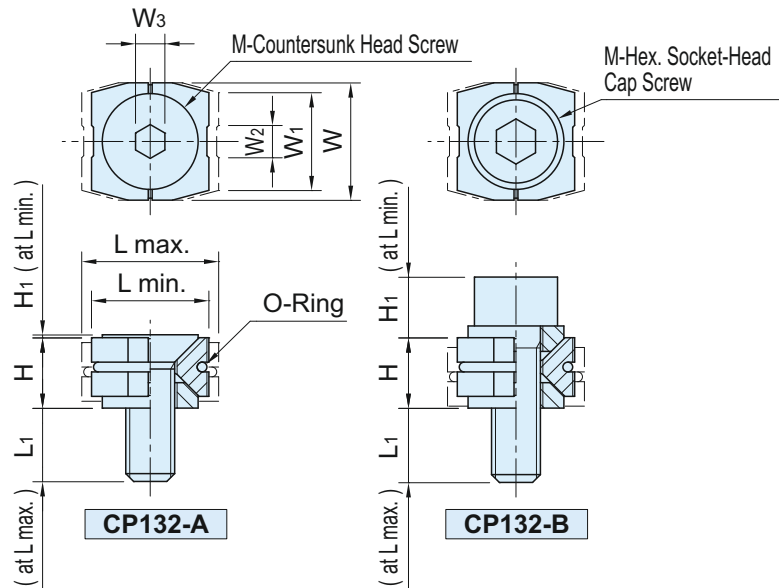
CPI32 - Compact Wedge Clamps



CP132-A



CP132-B



★Key Point

Can clamp 2 workpieces in small space.

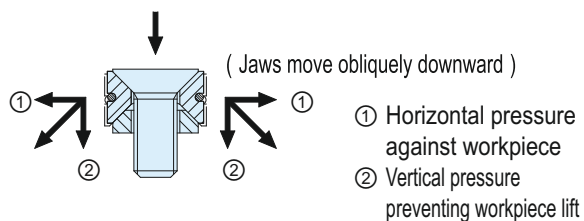
Jaw	Washer	O-Ring
SNCM439 steel Black oxide finished HRC33-39	SCM435 steel Black oxide finished	Fluoro rubber

Part Number	L		W	H		W ₁	W ₂	H ₁	M	L ₁	W ₃
	min.	max.		L min.	L max.						
CP132-05001A	12	14	12	7.2	6.2	10	3.3	0.3	M5×0.8 -15L	9.5	3
CP132-06001A	15	17	14.8	8.5	7.5	12	4	0.2	M6×1 -16L	9.3	4
CP132-08001A	18.5	21.5	18.4	11.4	9.9	16	5.3	0.4	M8×1.25-20L	11.3	5
CP132-05001B	12	14	12	7.2	6.2	10	3.3	6.2	M5×0.8 -16L	9.6	4
CP132-06001B	15	17	14.8	8.5	7.5	12	4	7.3	M6×1 -18L	10.2	5
CP132-08001B	18.5	21.5	18.4	11.4	9.9	16	5.3	9.8	M8×1.25-25L	14.9	6

Part Number	Clamping Force (kN)	Allowable Screw Torque (N·m)	Weight (g)
CP132-05001A	2	4.3	8
CP132-06001A	3.5	7.3	13
CP132-08001A	5	18	27
CP132-05001B	3	5.4	9
CP132-06001B	4.5	9.1	17
CP132-08001B	9	22	30

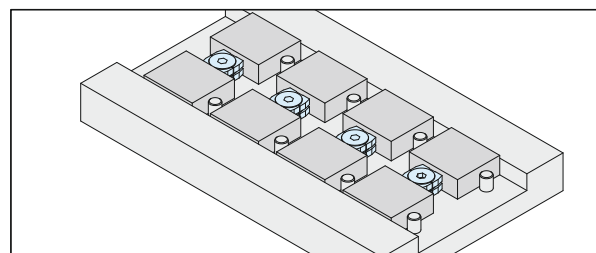
Features

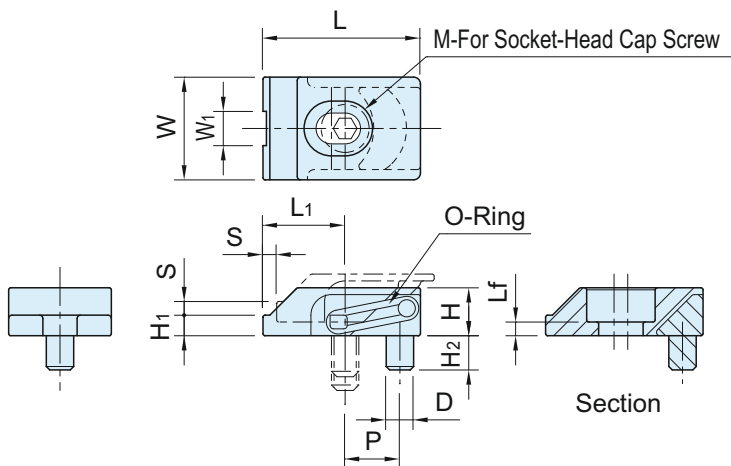
- The wedge construction allows powerfully clamping the workpiece.
- Can hold two workpieces with equilateral clamping action by using a hex wrench.



How To Use

Compact design allows to utilize machining area and clamp multiple workpieces.



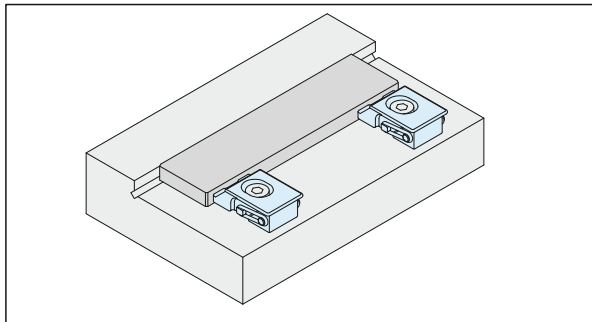


Body	O-Ring
SCM440 steel Black oxide finished HRC33-39	Fluoro rubber

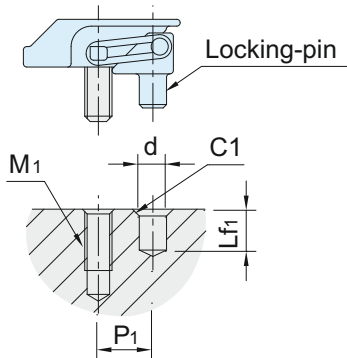
Part Number	S	W	W ₁	H ₁	L ₁	P	D	H ₂	M	L _f	L	H
CP133-04007	2	15	5	3	12	8	4	5	M4	2	23	7
CP133-05009	2.5	19	7	4	14	10	5	6	M5	3	28	9

Part Number	Clamping Force (kN)	Allowable Screw Torque (N·m)	Weight (g)
CP133-04007	2	2.7	13
CP133-05009	3	5.4	27

How To Use

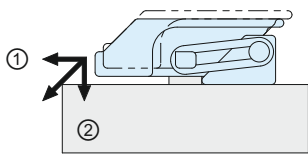


■ Mounting-Hole Dimensions



Features

(Jaw moves obliquely downward)

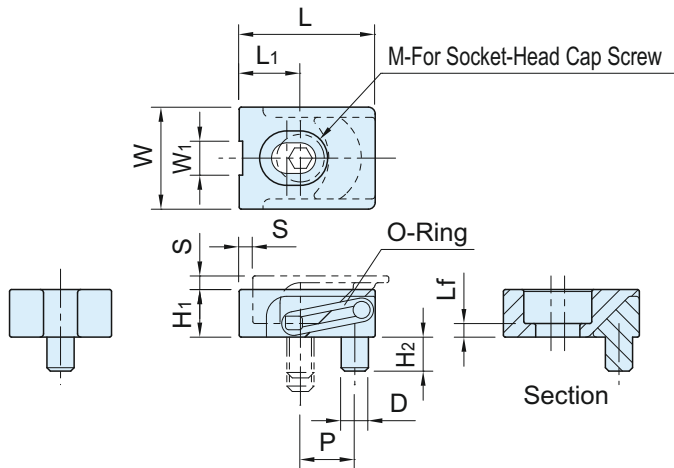
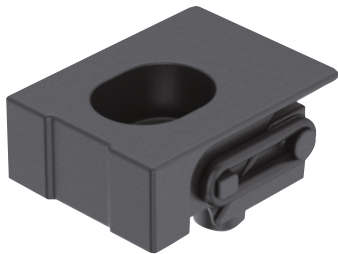


- ① Horizontal pressure against workpiece
- ② Vertical pressure preventing workpiece lift

Drill a tapped hole and a locking-pin hole as specified below .

Part Number	M ₁	d (^{+0.3} ₀)	L _{f1}	P ₁
CP133-04007	M4	4	6	8
CP133-05009	M5	5	7	10

CPI34 - Compact Side Clamps

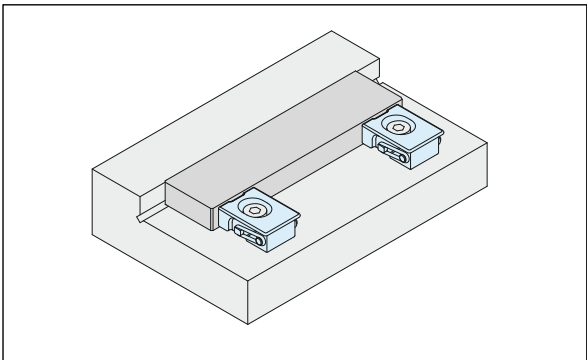


Body	O-Ring
SCM440 steel Black oxide finished HRC33-39	Fluoro rubber

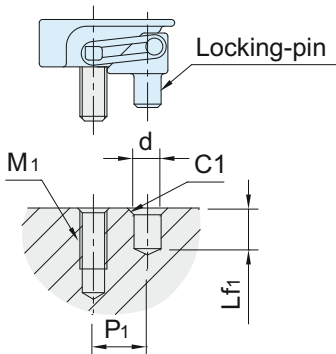
Part Number	S	W	W ₁	H ₁	L ₁	P	D	H ₂	M	L _f	L
CP134-04007	2	15	5	7	9	8	4	5	M4	2	20
CP134-05009	2.5	19	7	9	11	10	5	6	M5	3	25

Part Number	Clamping Force (kN)	Allowable Screw Torque (N · m)	Weight (g)
CP134-04007	2.5	2.7	13
CP134-05009	3.5	5.4	26

How To Use

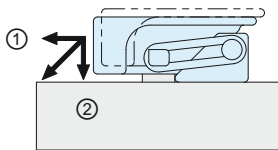


■ Mounting-Hole Dimensions



Features

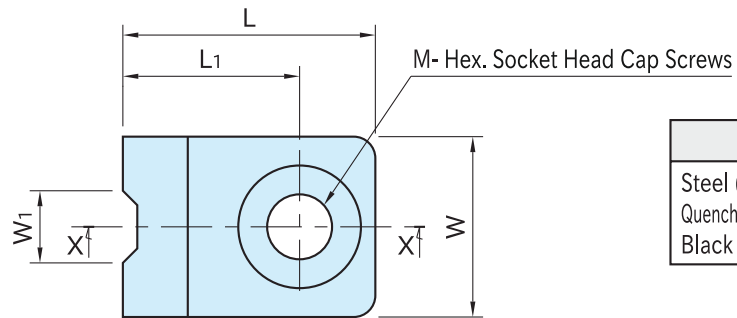
(Jaw moves obliquely downward)



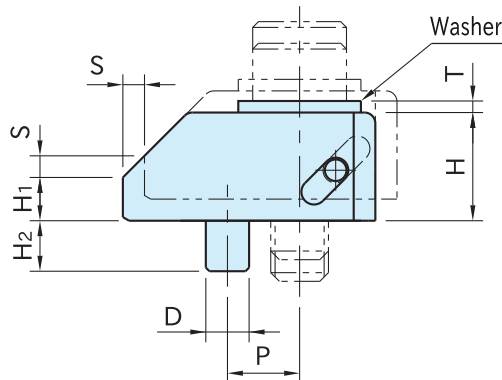
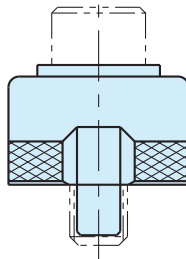
- ① Horizontal pressure against workpiece
- ② Vertical pressure preventing workpiece lift

Drill a tapped hole and a locking-pin hole as specified below .

Part Number	M ₁	d (^{+0.3} ₀)	L _{f1}	P ₁
CP134-04007	M4	4	6	8
CP134-05009	M5	5	7	10

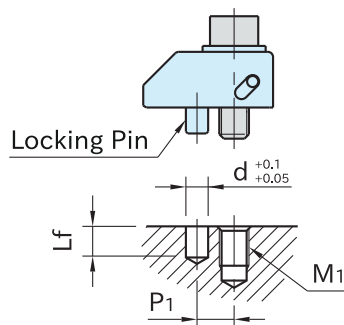


Body
Steel (S45C)
Quenched and tempered
Black oxide finish



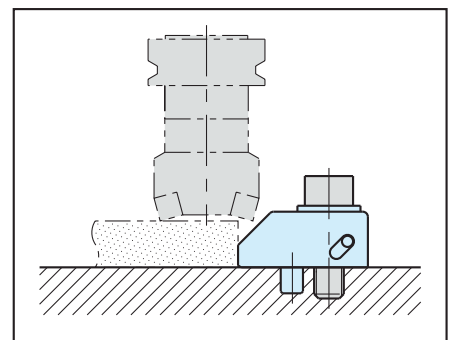
Section X-X

Part Number	S	W	W ₁	H ₁	L ₁	P	D (h7)	H ₂	M	L	H	T	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (g)
CP106-08015	3	25	10	6	24.5	10	6	7	M 8	35	15	1.6	7,000	25	100
CP106-10019	4	30	11	8	29	12			M10	43	19	2	8,500	50	185
CP106-12023	5	35	12	9	37	16	8	10	M12	54	23	2.3	20,000	90	320
CP106-16025	6	40	14	10	45	20			M16	65	25	3.2	30,000	150	520



Part Number	M ₁	d	Lf	P ₁
CP106-08015	M 8	6	8	10
CP106-10019	M10			12
CP106-12023	M12	8	11	16
CP106-16025	M16	10		20

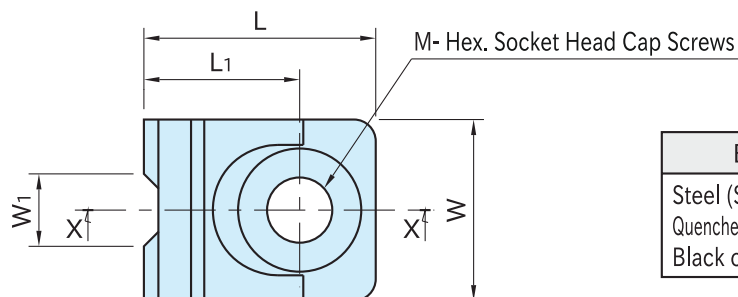
Drill a cap-screw hole and a locking-pin hole as specified on the left.



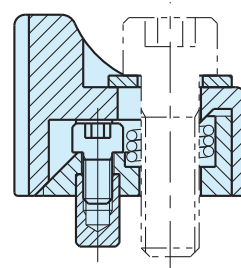
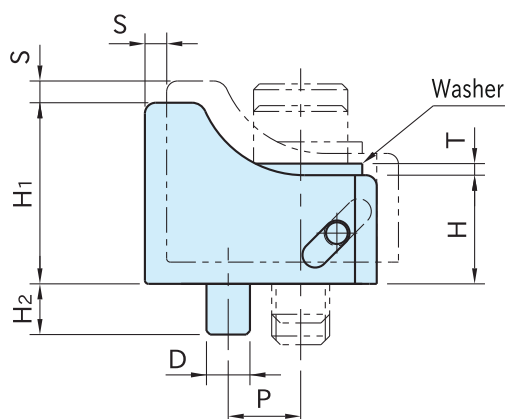
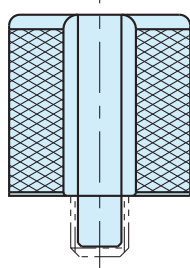
Furnished With

One flat washer is included.

CPI07 - Side Clamps

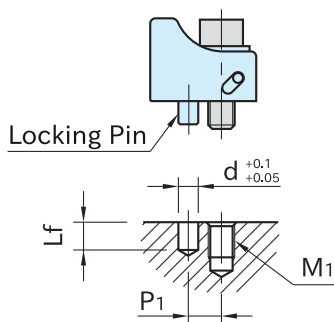


Body
Steel (S45C)
Quenched and tempered
Black oxide finish



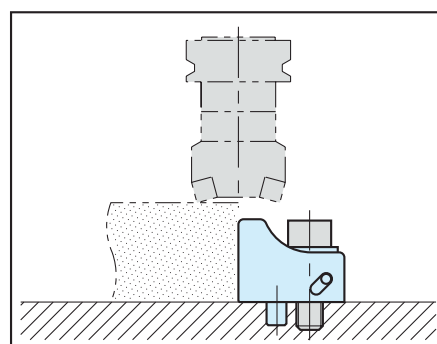
Section X-X

Part Number	S	W	W ₁	H ₁	L ₁	P	D (h7)	H ₂	M	L	H	T	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (g)
CP107-08015	3	25	10	25	21.5	10	6	7	M 8	32	15	1.6	7,000	25	115
CP107-10019	4	30	11	32	26	12			M10	40	19	2	8,500	50	225
CP107-12023	5	35	12	38	33	16	8	10	M12	50	23	2.3	20,000	90	390
CP107-16025	6	40	14	45	40	20			M16	60	25	3.2	30,000	150	640



Part Number	M ₁	d	L _f	P ₁
CP107-08015	M 8	6	8	10
CP107-10019	M10			12
CP107-12023	M12	8	11	16
CP107-16025	M16			20

Drill a cap-screw hole and a locking-pin hole as specified on the left.



Furnished With

One flat washer is included.



Serrated Nose



Smooth Nose

[Body]

Material : SCM440 steel

Heat Treat : Quenched and tempered

Finish : Black oxide

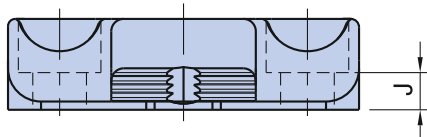
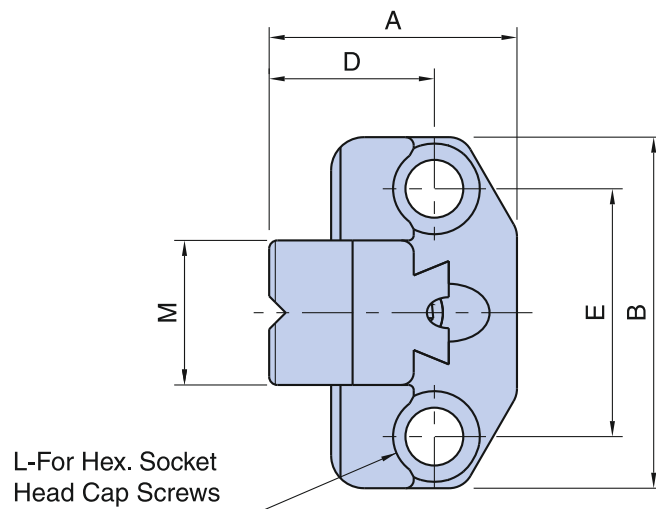
[Sliding Nose]

Material : SCM440 steel

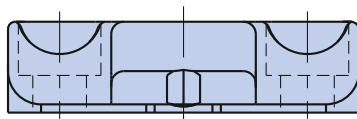
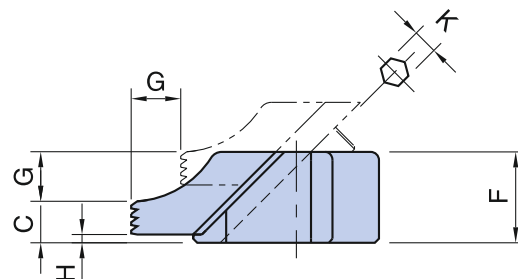
Heat Treat : Induction hardened on contact surface

Finish : Black oxide

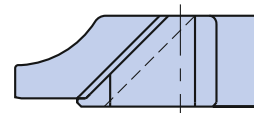
Precision ground (smooth nose)



Serrated Nose



Smooth Nose



Nose	Part Number	A	B	C	D	E	F	G	H	J	K	L	M	Clamping Force(N)	Allowable Screw Torque (N·m)	Weight (g)
Serrated	CP104-08016	39.5	65	7.5	25	45	16	7	1.5	7	4	M 8	25	4,000	8	160
	CP104-12022	60	85	10	40	60	22	12	2	9	6	M12	35	9,000	26	450
	CP104-16030	77	100	14	50	70	30	14		13	8	M16	40	17,000	60	900
Smooth	CP104-08116	39.5	65	7.5	25	45	16	7	1.5	7	4	M 8	25	4,000	8	160
	CP104-12122	60	85	10	40	60	22	12	2	9	6	M12	35	9,000	26	450
	CP104-16130	77	100	14	50	70	30	14		13	8	M16	40	17,000	60	900

CP105 - Side Clamps



Serrated Nose



Smooth Nose

[Body & Jaw Carrier]

Material : SCM440 steel

Finish : Black oxide

Heat Treat : Quenched and tempered

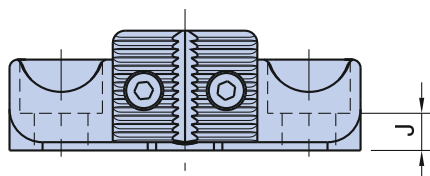
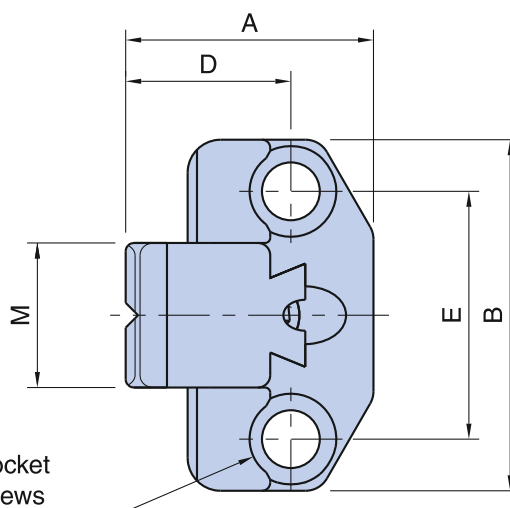
[Jaw]

Material : SCM440 steel

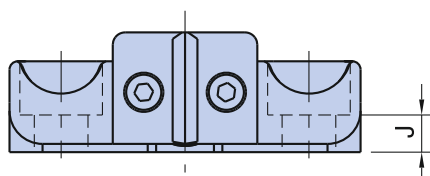
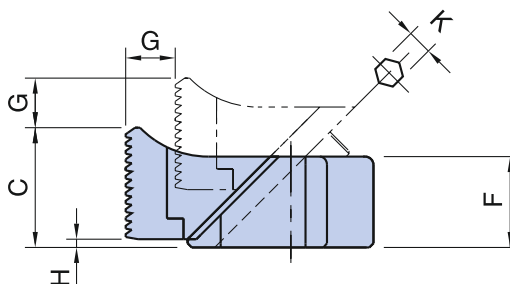
Finish : Black oxide

Heat Treat : Quenched and tempered

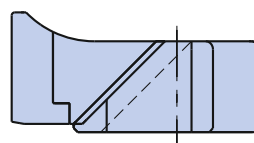
Precision ground (smooth nose)



Serrated Nose



Smooth Nose



Nose	Part Number	A	B	C	D	E	F	G	H	J	K	L	M	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (g)
Serrated	CP105-08016	39.5	65	19.5	25	45	16	7	1.5	7	4	M 8	25	4,000	8	180
	CP105-12022	60	85	29	40	60	22	12	2	9	6	M12	35	9,000	26	500
	CP105-16030	77	100	38	50	70	30	14	2	13	8	M16	40	17,000	60	1,010
Smooth	CP105-08116	39.5	65	19.5	25	45	16	7	1.5	7	4	M 8	25	4,000	8	180
	CP105-12122	60	85	29	40	60	22	12	2	9	6	M12	35	9,000	26	510
	CP105-16130	77	100	38	50	70	30	14	2	13	8	M16	40	17,000	60	1,020

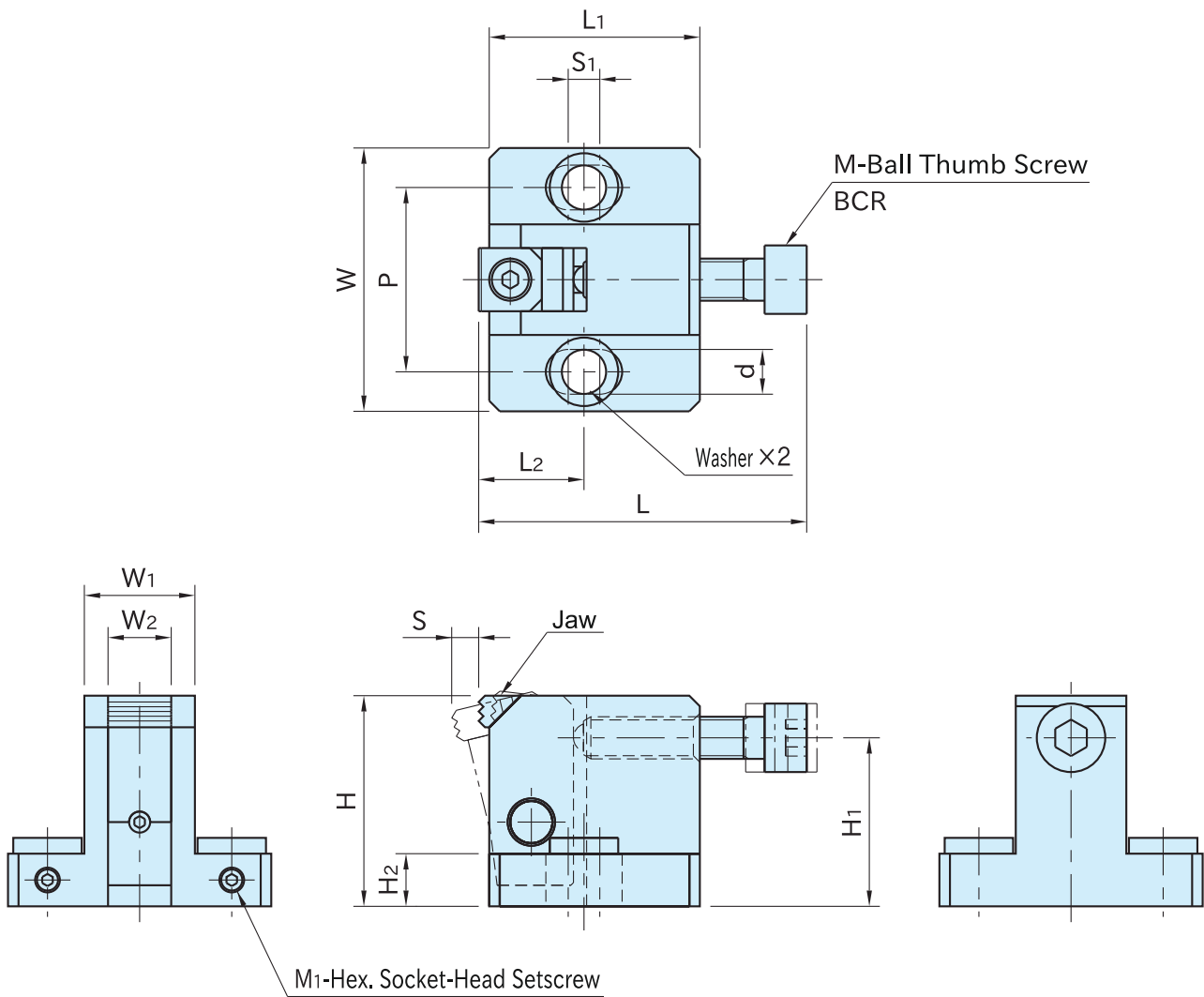
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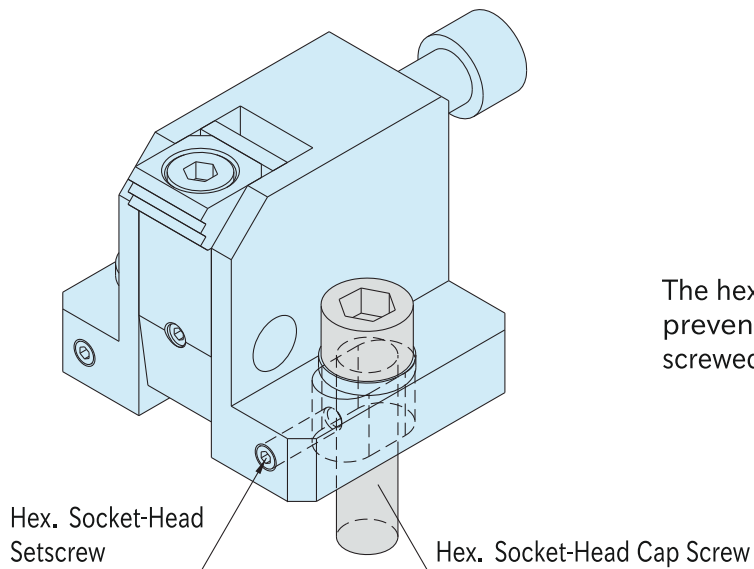
Body	Arm	Jaw
Steel (S45C) Black oxide finish	Steel (S45C) Quenched and tempered Black oxide finish	Steel (SKH51) Quenched and tempered Black oxide finish



Part Number	S	W ₂	L ₂	H	W	L	W ₁	L ₁	d	S ₁	H ₂	P	M ₁
CP101-08040	5.3	12	20	40	50	62.5	21	40	8.5	6	10	35	M4×0.7-10L
CP101-10050	7.1	16	25	50	65	74	27	50	11	8	12	45	M4×0.7-12L
CP101-12060	8	20	30	60	70	91	31	60	13	10	15	50	M5×0.8-15L
CP101-16080	10.2	25	40	80	90	115	39	80	17	15	20	65	M6×1 -20L

Part Number	M	H ₁	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (kg)	Jaw
CP101-08040	M 8×1.25-35L	32	15,000	25	0.33	HSE-9126-SS
CP101-10050	M10×1.5 -40L	40	27,000	50	0.66	HSE-9166-SS
CP101-12060	M12×1.75-50L	48	38,000	90	1.06	HSE-9200-SS
CP101-16080	M16×2 -60L	64	46,000	130	2.38	HSE-9250-SS

How To Install



The hex. socket-head setscrew works to prevent the clamp from sliding back if screwed in until it contacts the cap screw.

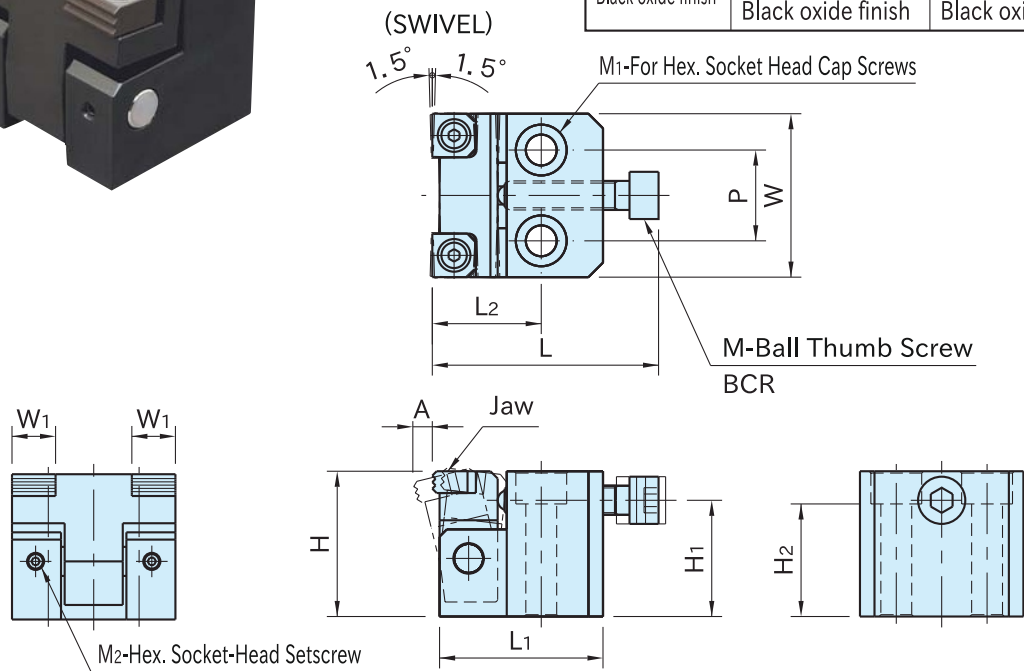
Furnished With

Two flat washers are included.

CPI02 - Wide-Jaw Side Clamps



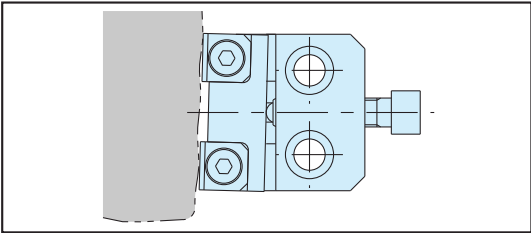
Body	Arm	Jaw
Steel (S45C) Black oxide finish	Steel (S45C) Quenched and tempered Black oxide finish	Steel (SKH51) Quenched and tempered Black oxide finish



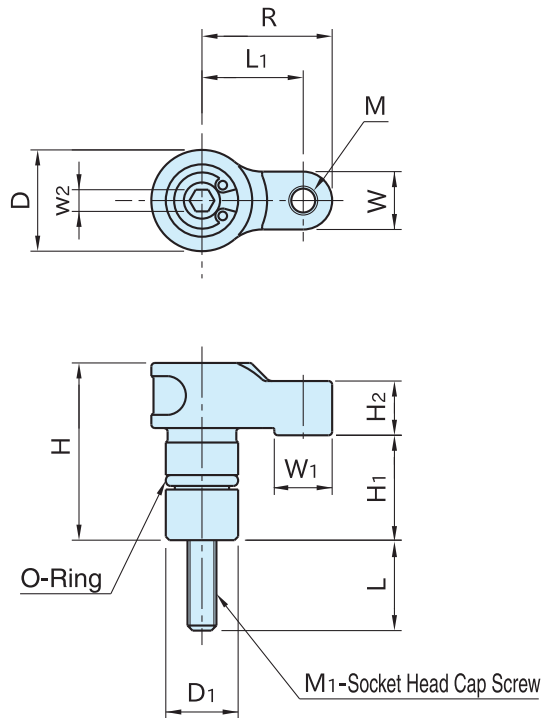
Part Number	A	W ₁	L ₂	H	W	L	L ₁	M ₁	H ₂	P	M ₂	M	H ₁	Clamping Force (N)
CP102-08040	5.3	12	30	40	45	62.5	45	M 8	31	25	M4×0.7-4L	M 8×1.25-35L	32	15,000
CP102-10050	7.1	16	40	50	55	74	55	M10	39	30		M10×1.5 -40L	40	27,000
CP102-12060	8	20	45	60	65	91	65	M12	47	35		M12×1.75-50L	48	38,000

Part Number	Allowable Screw Torque (N·m)	Weight (kg)	jaw
CP102-08040	25	0.55	HSE-9126-SS
CP102-10050	50	1	HSE-9166-SS
CP102-12060	90	1.69	HSE-9200-SS

How To Use



The jaw swivels to fit an unmachined surface of the workpiece.



Body / Arm
SCM440 steel
Quenched and tempered
Black oxide

Part Number	W ₁	M	L ₁	R	D ₁ (^{-0.02} / _{-0.10})	H ₁	M ₁	L	H	D	W	H ₂	w ₂
BJ132-04018	8	M4×0.7	14	18	10	14.5	M4×0.7-30L	12.5	24.5	14	8	7.5	3
BJ132-06022	10	M5×0.8	17	22	12	17.5	M6×1 -35L	13.5	30.5	16	10	9.5	5

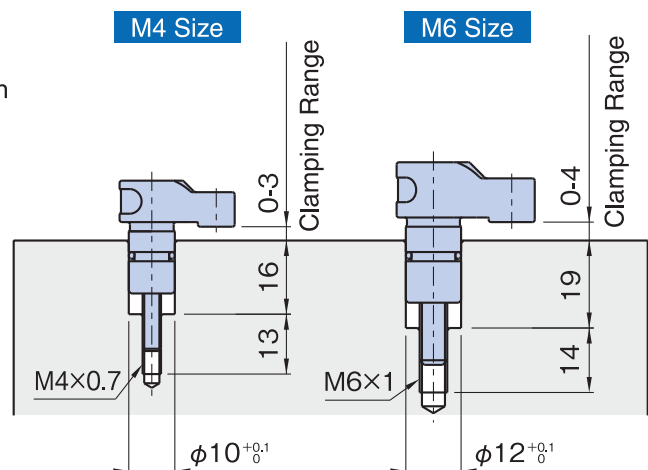
Part Number	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (g)
BJ132-04018	2,000	2.7	25
BJ132-06022	3,500	7	45

Features:

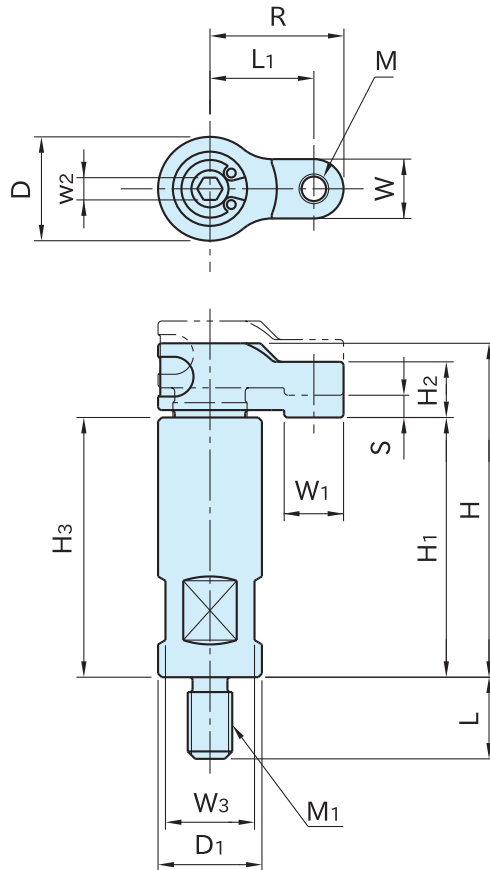
- Compact design for applications in limited space
- BJ530 Hook-Clamp Holders are available.
- Clamp that is designed to move up and down in conjunction with the tightening screw, for prevention of galling.

How To Use

Instead of being used with Hook-Clamp Holders, these Hook Clamps may be plugged into a custom block with receiving holes as specified on the right.



BJ132-A - Hook-Clamp Assemblies



[Hook Clamp]

Material : SCM440 steel

Heat Treat : Quenched and tempered

Finish : Black oxide

[Hook-Clamp Holder]

Material : S45C steel

Heat Treat : Quenched and tempered

Finish : Black oxide

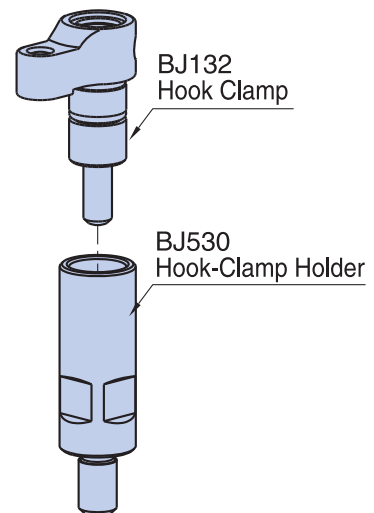
Part Number	H ₁	S (Clamping Range)	W ₁	M	L ₁	R	D ₁	H ₃	M ₁	L	H	D	W	H ₂	w ₂	W ₃
BJ132-04018A	35	3	8	M4×0.7	14	18	14	35	M6×1	11	45	14	8	7.5	3	12
BJ132-06022A	40	4	10	M5×0.8	17	22	16	40	M8×1.25	14	53	16	10	9.5	5	13

Part Number	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (g)
BJ132-04018A	2,000	2.7	55
BJ132-06022A	3,500	7	90

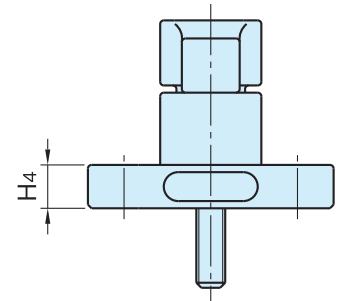
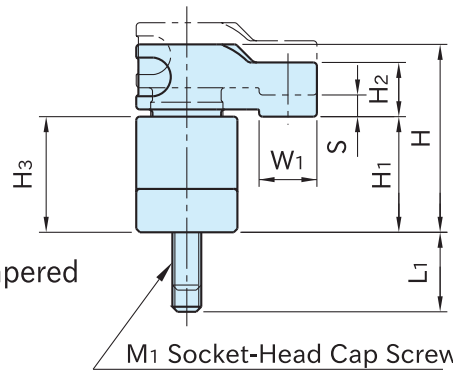
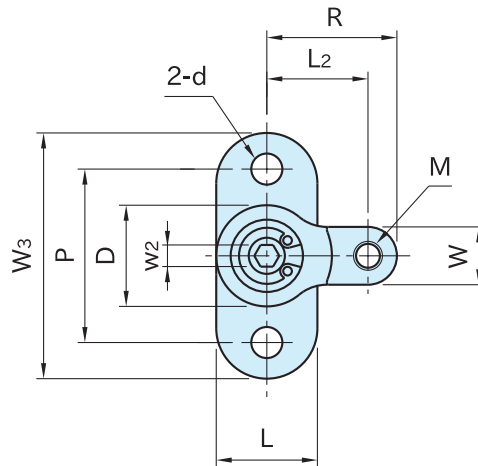
Feature:

The hook clamp is designed to move up and down in conjunction with the tightening screw, for prevention of galling in the hook-clamp holder.

How To Use



BJ132-B - Hook-Clamp Assemblies With Flanged Holder



[Hook Clamp]

Material : SCM440 steel

Heat Treat : Quenched and tempered

Finish : Black oxide

[Hook-Clamp Holder]

Material : S45C steel

Heat Treat : Quenched and tempered

Finish : Black oxide

M1 Socket-Head Cap Screw

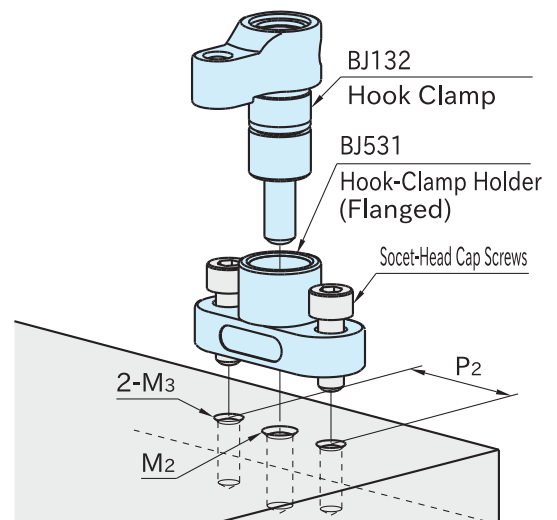
Part Number	H ₁	S (Clamping Range)	W ₁	M	L ₂	R	W ₃	L	M ₁	L ₁ (max)	d	H ₄	P	H	H ₃	D	W	H ₂	w ₂
BJ132-04018B	16	3	8	M4×0.7	14	18	34	14	M4×0.7-30L	11	4.3	6	24	26	16	14	8	7.5	3
BJ132-06022B	19	4	10	M5×0.8	17	22	40	16	M6×1 -35L	12	5.3	8	28	32	19	16	10	9.5	5

Part Number	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (g)
BJ132-04018B	2,000	2.7	45
BJ132-06022B	3,500	7	75

Ideal for clamping at low height.

The hook clamp is designed to move up and down in conjunction with the tightening screw, for prevention of galling in the hook-clamp holder.

Part Number	M ₂	M ₃	P ₂
BJ132-04018B	M4×0.7 13 deep	M4×0.7	24
BJ132-06022B	M6×1 14 deep	M5×0.8	28



BJ130 - Hook Clamps



M8 Size



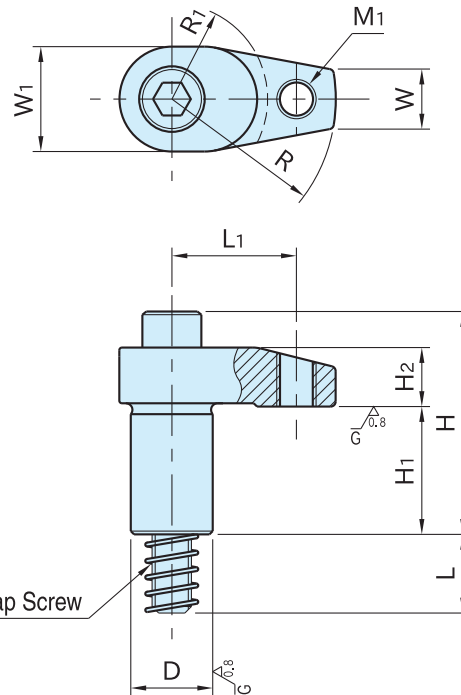
M10-M16 Sizes

Material : SCM435 steel

Heat treated

Black oxide finish

Precision ground

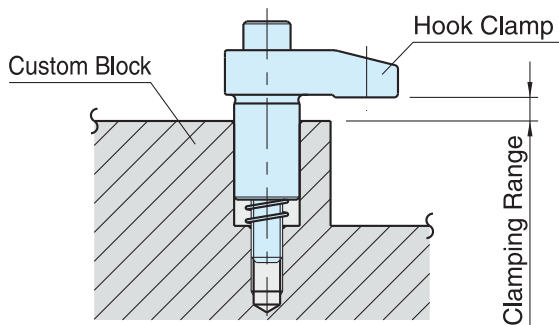


M- Socket-Head Cap Screw

Related Product Page

Use with a [BJ530](#) Hook-Clamp Holder.

How To Use



When a Hook Clamp is plugged into a custom block, ensure that the clamping range does not exceed the values stated below.

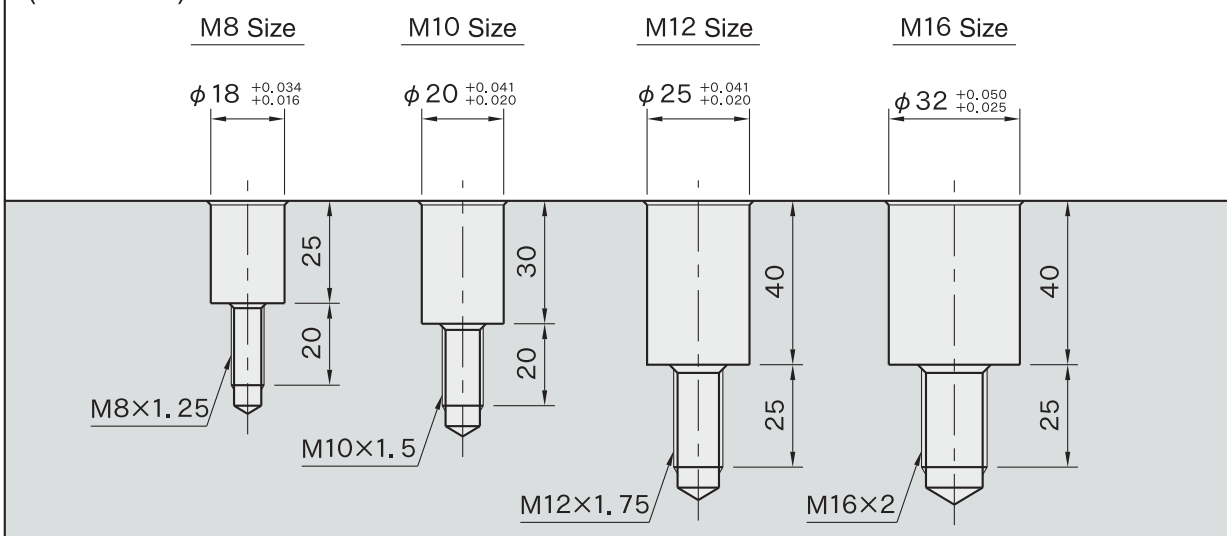
BJ130-08*** (M 8 size) : 10mm

BJ130-10*** (M10 size) : 12mm

BJ130-12*** (M12 size) : 15mm

BJ130-16*** (M16 size) : 15mm

(Reference)



Hook Clamps can be plugged directly into custom blocks with receiving holes as specified above.

Part Number	R	R ₁	M ₁	L ₁	D (h7)	H ₁	M	L	H
BJ130-08020	20	15	-	-	18	23	M 8×1.25-50L	21	37
BJ130-08025	25								
BJ130-08030	30	20							
BJ130-10030	30	20	-	-	20	30	M10×1.5 -65L	21	54
BJ130-10040	40	25							
BJ130-12040	40	25	-	-	25	39	M12×1.75-80L	26	66
BJ130-12050	50							24	68
BJ130-12060	60							26	66
BJ130-12140	40		M12×1.75	31				24	68
BJ130-12150	50			38					
BJ130-12160	60			46					
BJ130-16040	40	25	-	-	32	39	M16×2 -85L	26	75
BJ130-16050	50								
BJ130-16060	60								
BJ130-16150	50		M12×1.75	38					
BJ130-16160	60			46					

Part Number	W ₁	W	H ₂	Clamping Force (N)	Allowable Screw Torque (N·m *)	Weight (g)
BJ130-08020	22	10	12	15,000	38	90
BJ130-08025				12,000	33	100
BJ130-08030				10,000	30	105
BJ130-10030	25	12	15	13,000	38	165
BJ130-10040				10,000	32	180
BJ130-12040	32	18	16	18,000	60	305
BJ130-12050			18	14,000	50	360
BJ130-12060				12,000	46	380
BJ130-12140			16	18,000	60	295
BJ130-12150			18	14,000	50	350
BJ130-12160				12,000	46	370
BJ130-16040	36	22	21	38,000	170	530
BJ130-16050				31,000	150	580
BJ130-16060				26,000	130	625
BJ130-16150				31,000	150	565
BJ130-16160				26,000	130	610

*) Values for use in conjunction with custom holder blocks.

For use in conjunction with [BJ530](#) Hook-Clamp Holders, apply allowable screw torques given on the [BJ530](#) page.

BJ130-A - Hook-Clamp Assemblies



M8 Size



M12 Size

[Hook Clamp]

Material : SCM435 steel

Heat Treat : Quenched and tempered

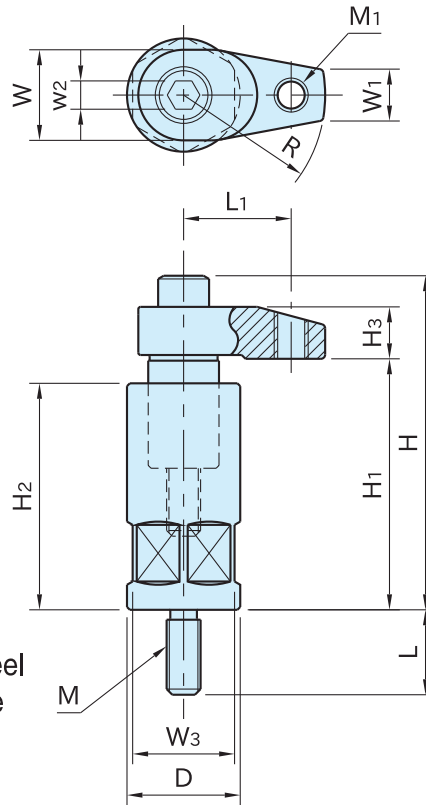
Finish : Black oxide

Precision ground

[Holder]

Material : S45C steel

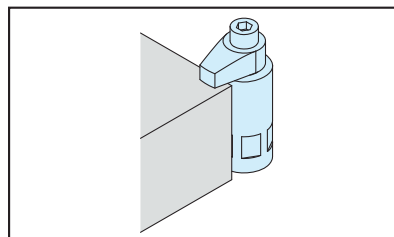
Finish : Black oxide



Part Number	H ₁	M ₁	L ₁	R	D	H ₂	M	L	H	
BJ130-08020A1	55~65	-	-	20	24	55	M 8×1.25	19	69~ 79	
BJ130-08025A1				25						
BJ130-08030A1				30						
BJ130-10030A1	63~75	-	-	30	32	63	M12×1.75	30	87~ 99	
BJ130-10030A2	80~92					80			104~116	
BJ130-10040A1	63~75			40		63			87~ 99	
BJ130-10040A2	80~92					80			104~116	

Part Number	W	W ₁	H ₃	w ₂	W ₃	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (kg)
BJ130-08020A1	22	10	12	6	22	12,000	30	0.23
BJ130-08025A1						11,000		0.24
BJ130-08030A1						10,000		0.25
BJ130-10030A1	25	12	15	8	30	13,000	38	0.60
BJ130-10030A2								0.70
BJ130-10040A1						10,000	32	0.61
BJ130-10040A2								0.71

Use [BJ600](#) Riser Cylinders for additional height.



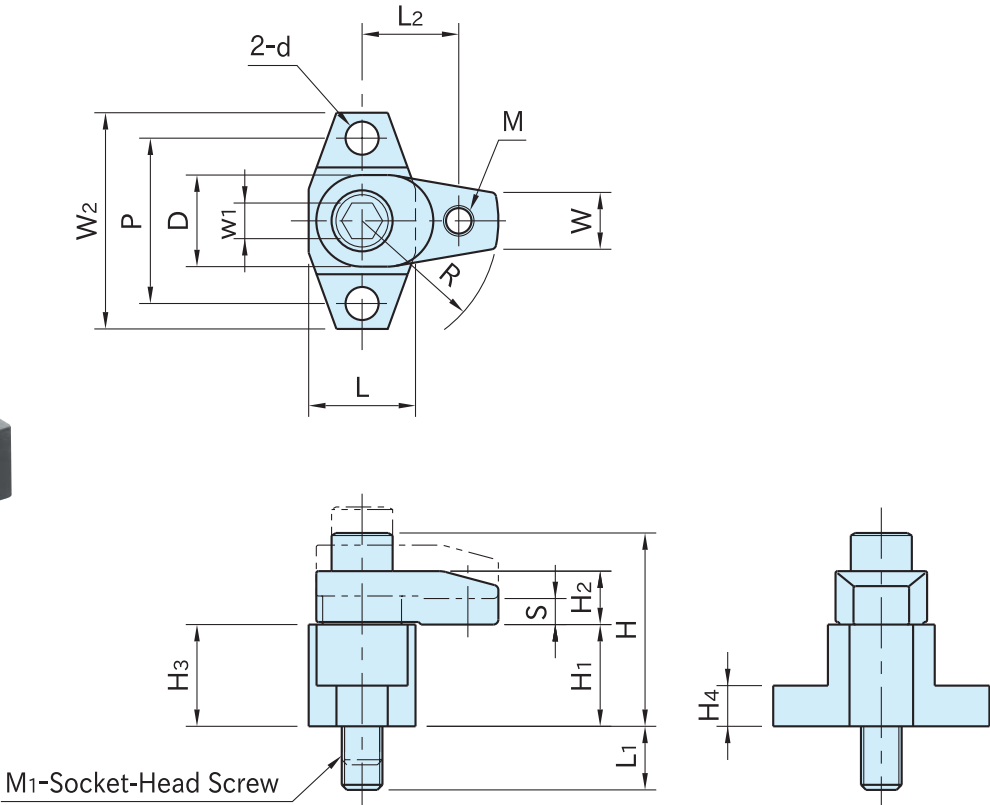
BJ130-A - Hook-Clamp Assemblies

Part Number	H ₁	M ₁	L ₁	R	D	H ₂	M	L	H
BJ130-12040A1	80~ 95	-	-	40	40	80	M12×1.75	30	107~122
BJ130-12040A2	100~115					100			127~142
BJ130-12050A1	80~ 95					80			109~124
BJ130-12050A2	100~115			100		129~144			
BJ130-12060A1	80~ 95			80		109~124			
BJ130-12060A2	100~115			100		129~144			
BJ130-12140A1	80~ 95	M12×1.75	31	40		80			107~122
BJ130-12140A2	100~115					100			127~142
BJ130-12150A1	80~ 95		38	50		80			109~124
BJ130-12150A2	100~115					100			129~144
BJ130-12160A1	80~ 95		46	60		80			109~124
BJ130-12160A2	100~115					100			129~144
BJ130-16040A1	80~ 95	-	-	40	50	80	M16×2	30	116~131
BJ130-16040A2	100~115					100			136~151
BJ130-16050A1	80~ 95					80			116~131
BJ130-16050A2	100~115			100		136~151			
BJ130-16060A1	80~ 95			80		116~131			
BJ130-16060A2	100~115			100		136~151			
BJ130-16150A1	80~ 95	M12×1.75	38	50		80			116~131
BJ130-16150A2	100~115					100			136~151
BJ130-16160A1	80~ 95		46	60		80			116~131
BJ130-16160A2	100~115					100			136~151

Part Number	W	W ₁	H ₃	w ₂	W ₃	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (kg)
BJ130-12040A1	32	18	16	10	36	15,000	50	1.36
BJ130-12040A2								1.56
BJ130-12050A1			18			14,000		1.39
BJ130-12050A2								1.59
BJ130-12060A1			12,000			46	1.43	
BJ130-12060A2							1.63	
BJ130-12140A1			16			50	1.36	
BJ130-12140A2							1.56	
BJ130-12150A1			18				14,000	1.39
BJ130-12150A2								1.59
BJ130-12160A1			12,000			46	1.43	
BJ130-12160A2							1.63	
BJ130-16040A1	36	22	21	14	46	18,000	80	2.11
BJ130-16040A2								2.42
BJ130-16050A1						16,500		2.16
BJ130-16050A2								2.47
BJ130-16060A1						16,000		2.22
BJ130-16060A2								2.53
BJ130-16150A1						16,500		2.16
BJ130-16150A2								2.47
BJ130-16160A1						16,000		2.22
BJ130-16160A2								2.53

BJ130-B1 - Hook-Clamp Assemblies

Flanged



Clamp Body	Holder
Steel (SCM435) Quenched and tempered Black oxide finish Precision ground	Steel (S45C) Black oxide finish

Part Number	H ₁	S (Clamping Stroke)	M	L ₂	R	W ₂	L	M ₁	L ₁ (max)	d	H ₄	P
BJ130-08020B1	25	10	-	-	20	50	24	M 8×1.25-50L	19	6.6	10	38
BJ130-08025B1					25							
BJ130-08030B1					30							
BJ130-10030B1	30	12	-	-	30	60	28	M10×1.5 -65L	21	9	12	45
BJ130-10040B1					40							

Part Number	H	H ₃	D	W	H ₂	w ₁	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (g)
BJ130-08020B1	39	25	22	10	12	6	15,000	38	175
BJ130-08025B1							12,000	33	185
BJ130-08030B1							10,000	30	190
BJ130-10030B1	54	30	25	12	15	8	13,000	38	315
BJ130-10040B1							10,000	32	330

BJ130-B1 - Hook-Clamp Assemblies

Flanged

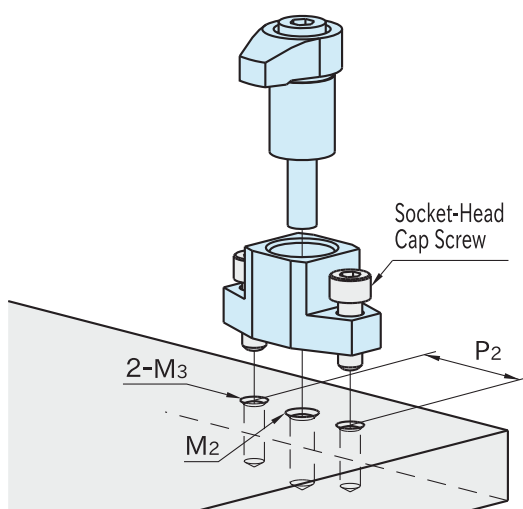
Part Number	H ₁	S (Clamping Stroke)	M	L ₂	R	W ₂	L	M ₁	L ₁ (max)	d	H ₄	P
BJ130-12040B1	40	15	-	-	40	75	35	M12×1.75-80L	25	11	14	55
BJ130-12050B1					50				23			
BJ130-12060B1					60				25			
BJ130-12140B1			M12×1.75	31	40				25			
BJ130-12150B1				38	50				23			
BJ130-12160B1				46	60				23			
BJ130-16040B1	40	15	-	-	40	85	42	M16×2 -85L	25	13	16	65
BJ130-16050B1					50				25			
BJ130-16060B1					60				25			
BJ130-16150B1			M12×1.75	38	50				25			
BJ130-16160B1				46	60				25			
BJ130-16160B1				46	60				25			

Part Number	H	H ₃	D	W	H ₂	w ₁	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (g)
BJ130-12040B1	67	40	32	18	16	10	18,000	60	595
BJ130-12050B1	69				18		14,000	50	650
BJ130-12060B1	67				16		12,000	46	675
BJ130-12140B1	67				16		18,000	60	585
BJ130-12150B1	69				18		14,000	50	640
BJ130-12160B1	69				18		12,000	46	665
BJ130-16040B1	76	40	36	22	21	14	38,000	170	930
BJ130-16050B1							31,000	150	980
BJ130-16060B1							26,000	130	1,025
BJ130-16150B1							31,000	150	965
BJ130-16160B1							26,000	130	1,010
BJ130-16160B1							26,000	130	1,010

Feature:

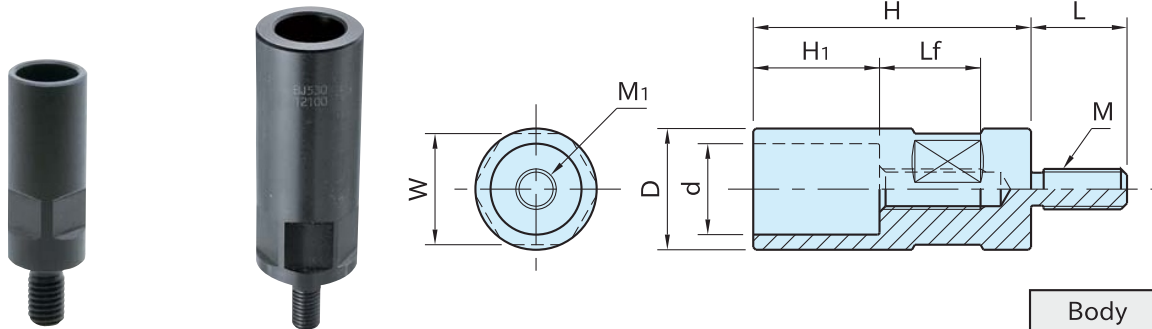
Perfect for low-height clamping.

How To Use:



Part Number	M ₂	M ₃	P ₂
BJ130-08020B1	M 8×1.25 20-deep	M 6×1	38
BJ130-08025B1			
BJ130-08030B1			
BJ130-10030B1	M10×1.5 21-deep	M 8×1.25	45
BJ130-10040B1			
BJ130-12040B1	M12×1.75 25-deep	M10×1.5	55
BJ130-12050B1			
BJ130-12060B1			
BJ130-12140B1			
BJ130-12150B1			
BJ130-12160B1			
BJ130-16040B1	M16×2 25-deep	M12×1.75	65
BJ130-16050B1			
BJ130-16060B1			
BJ130-16150B1			
BJ130-16160B1			
BJ130-16160B1			

BJ530 - Hook-Clamp Holders



- BJ530-04
- BJ530-08
- BJ530-10
- BJ530-06
- BJ530-12
- BJ530-16

Body
Steel (S45C)
Black oxide finish

Part Number	H	D	d (*)	H ₁	M ₁	L _f	M	L	W	Allowable Screw Torque (N·m)	Weight (g)
BJ530-04035	35	14	10	16	M 4×0.7	13	M 6×1	11	12	2.7	30
BJ530-06040	40	16	12	19	M 6×1	14	M 8×1.25	14	13	7	45
BJ530-08055	55	24	18	25	M 8×1.25	20	M 8×1.25	19	22	30	140
BJ530-10063	63	32	20	30	M10×1.5	21	M12×1.75	30	30	38 (32 **)	400
BJ530-10080	80					23					
BJ530-12080	80	40	25	40	M12×1.75	25	M12×1.75	30	36	50 (46 ***)	600
BJ530-12100	100										
BJ530-16080	80	50	32	40	M16×2	25	M16×2	30	46	80	930
BJ530-16100	100										

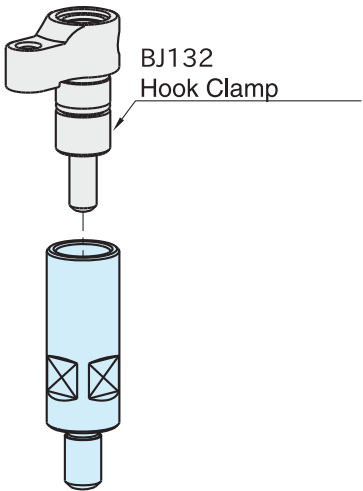
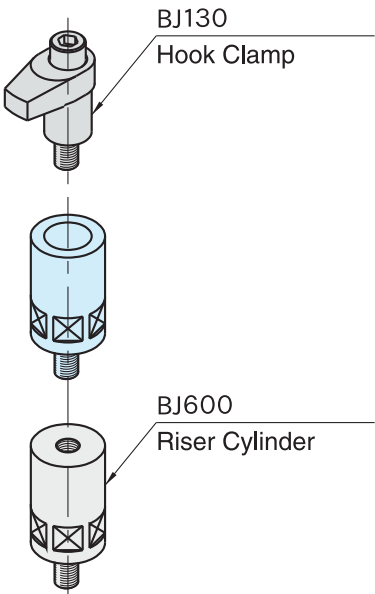
*) Tolerances of d Diameter

- BJ530-04
- BJ530-06
- BJ530-08
- BJ530-10
- BJ530-12
- BJ530-16
- : +0.1
0
- : F7

**) The value when BJ530 is used with BJ130-10030.

***) The value when BJ530 is used with BJ130-12060 or BJ130-12160.

The above screw torque values are effective for installation of Hook Clamps.
BJ130 BJ132



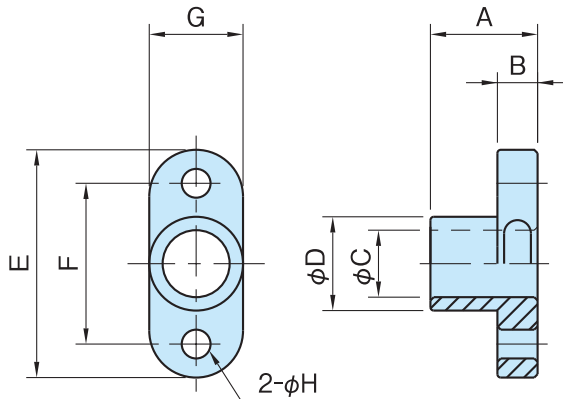
BJ531 - Hook-Clamp Holders (Flanged)



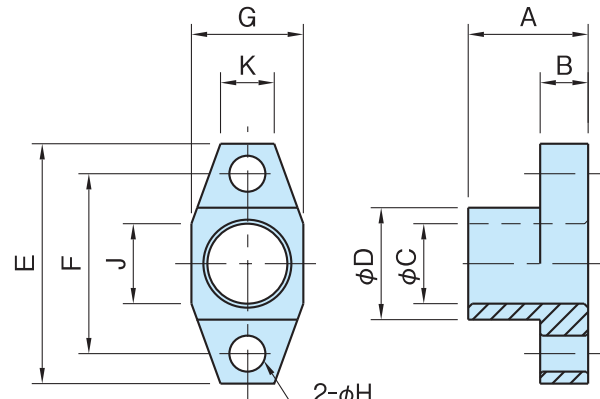
Type	Body
BJ531-04016,06019	Steel (S45C) Quenched and tempered Black oxide finish
BJ531-08025~16040	Steel (S45C) Black oxide finish

BJ531-04016,06019

BJ531-08025~16040



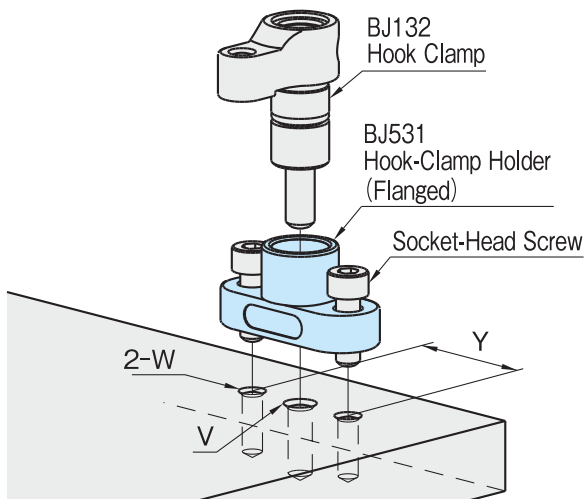
BJ531-04016,06019



BJ531-08025~16040

Part Number	A	B	C (^{+0.1})	D	E	F	G	H	J	K	Weight (g)
BJ531-04016	16	6	10	14	34	24	14	4.3	-	-	20
BJ531-06019	19	8	12	16	40	28	16	5.3	-	-	30
BJ531-08025	25	10	18	24	50	38	24	6.6	15	11.3	85
BJ531-10030	30	12	20	28	60	45	28	9	20	13.4	150
BJ531-12040	40	14	25	35	75	55	35	11		15	290
BJ531-16040		16	32	42	85	65	42	13	25	20.2	400

How To Use

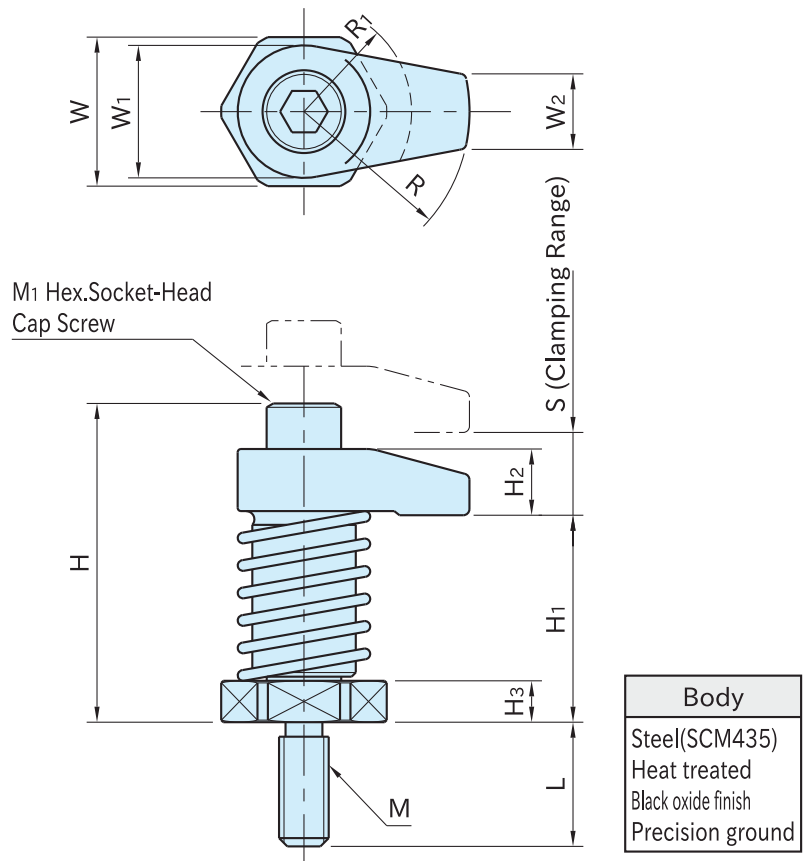


Feature:

Suitable for low-height clamping.

Part Number	V	W	Y
BJ531-04016	M 4×0.7 13 deep	M 4×0.7	24
BJ531-06019	M 6×1 14 deep	M 5×0.8	28
BJ531-08025	M 8×1.25 20 deep	M 6×1	38
BJ531-10030	M10×1.5 21 deep	M 8×1.25	45
BJ531-12040	M12×1.75 25 deep	M10×1.5	55
BJ531-16040	M16×2 25 deep	M12×1.75	65

BJ131 - Hook Clamps



Part Number	H ₁	S	R	R ₁	M	L	H	W ₁	W ₂	H ₂	W
BJ131-08020	35	10	20	15	M 8×1.25	19	49	22	10	12	22
BJ131-08025			25								
BJ131-08030			30	15 *)							
BJ131-08120	45		20	15			59				
BJ131-08125			25								
BJ131-08130			30	15 *)							
BJ131-12040	50	15	40	26	M12×1.75	30	77	32	18	16	36
BJ131-12050			50				79			18	
BJ131-12060			60				92			16	
BJ131-12140	65		40				94			18	
BJ131-12150			50								
BJ131-12160			60								
BJ131-16040	50	15	40	26	M16×2	30	86	36	22	21	36
BJ131-16050			50								
BJ131-16060			60								
BJ131-16140	65		40				101				
BJ131-16150			50								
BJ131-16160			60								

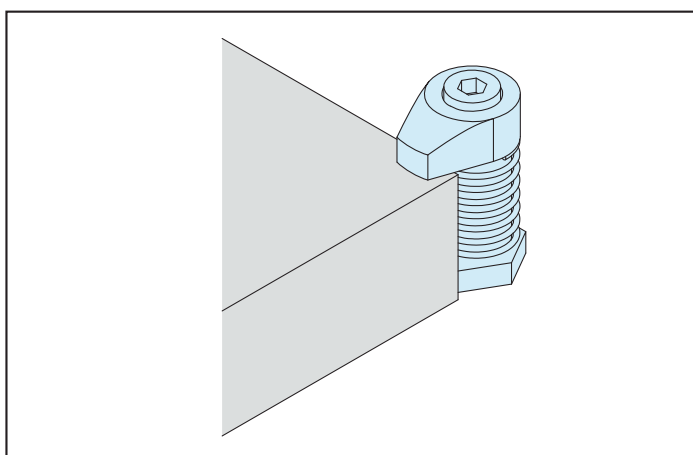
*) The center of R₁ is located in 5mm outside from the center of the body.

Part Number	H ₃	M ₁	Clamping Force(N)	Allowable Screw Torque (N·m)	Weight (g)
BJ131-08020	6	M 8×1.25-30L	7,900	20	125
BJ131-08025			7,300		130
BJ131-08030			6,700		135
BJ131-08120	16		7,900		160
BJ131-08125			7,300		165
BJ131-08130			6,700		170
BJ131-12040	10	M12×1.75-45L	13,500	45	450
BJ131-12050			12,600		480
BJ131-12060			11,700		520
BJ131-12140	25		13,500		600
BJ131-12150			12,600		630
BJ131-12160			11,700		670
BJ131-16040	10	M16×2 -55L	13,400	60	630
BJ131-16050			12,400		680
BJ131-16060			12,000		740
BJ131-16140	25		13,400		780
BJ131-16150			12,400		830
BJ131-16160			12,000		890



BJ600 Riser Cylinders are available for additional height.

HOW TO USE

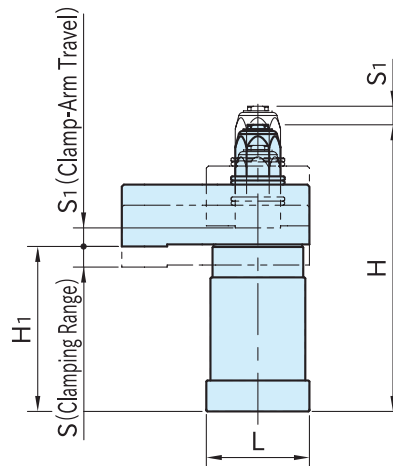
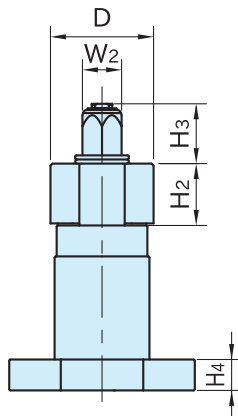
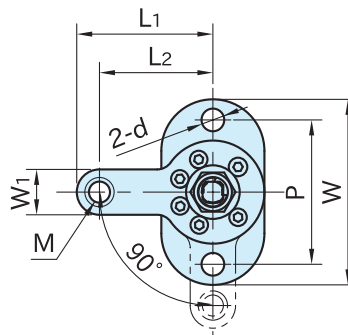


PTSWI - Swing Clamps (Quick-Acting)



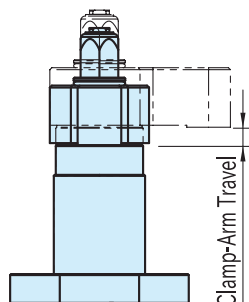
Without Clamp Arm

Body / Clamp-Arm Holder / Hex. Head	Clamp Arm
Steel(SCM440) Quenched and tempered Black oxide finish	Steel(S45C) Quenched and tempered Black oxide finish



Features

- The clamp arm swings in swift response to the turning speed of an impact wrench, for quick clamping.
- A short clamp-arm travel allows quick clamping.



For robotized production lines,
use Spiral-Acting Swing Clamps.

PTSWI - Swing Clamps (Quick-Acting)

Series	H ₁	S (Clamping Range)	S ₁ (Clamp-Arm Travel)	M	L ₂	L ₁	W	L	H ₄	d	P	H	D	W ₁	H ₂	W ₂	H ₃
PTSW1-12	80	10	11	M12×1.75	55	66	90	50	15	11	70	139	50	22	30	19	29
PTSW1-16	95		15	M16×2	65	79	100	60	20	13	80	165	60	28	35	24	35

With Clamp Arm

Part Number	Clamping Force (N)	Allowable Screw Torque(N·m)	Clamping Direction	Weight (kg)
PTSW1-12R	6,000	28	Clockwise	1.6
PTSW1-16R	10,000	55		2.9

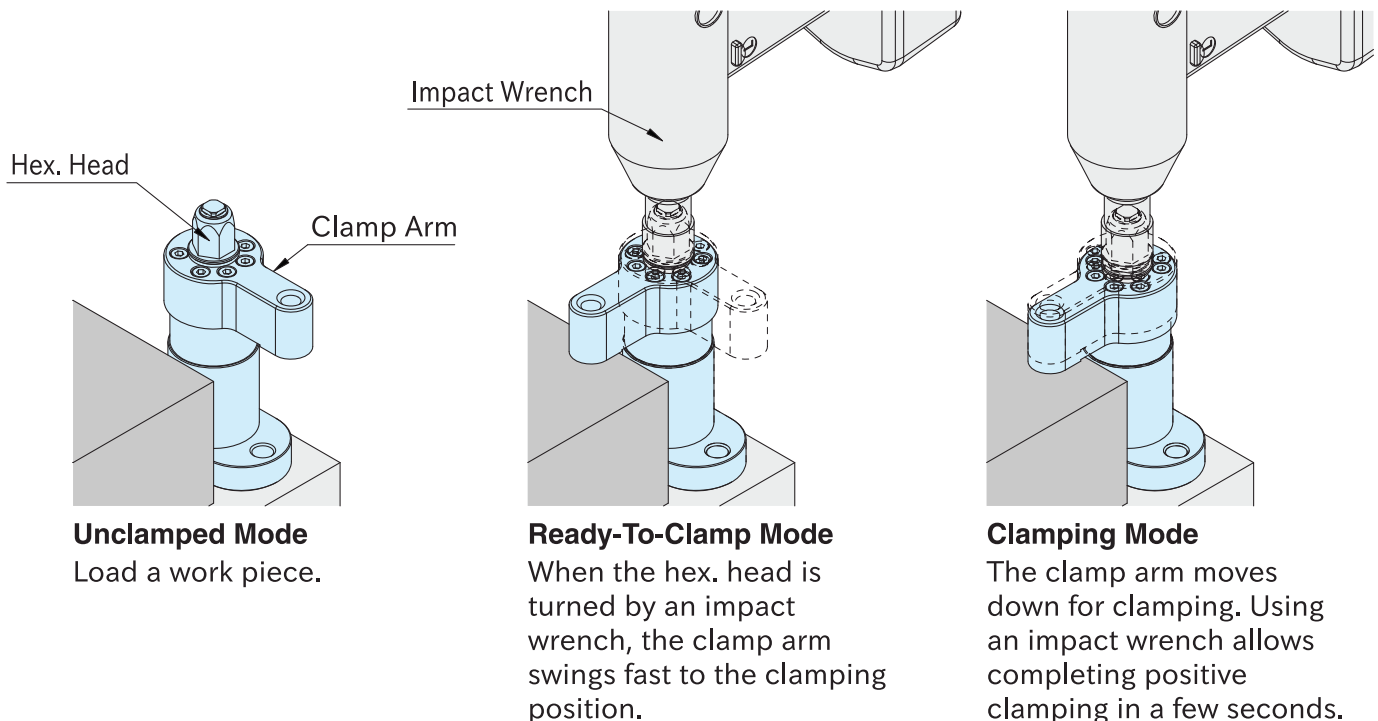
Without Clamp Arm

Part Number	Clamping Force (N)	Allowable Screw Torque(N·m)	Clamping Direction	Weight (kg)
PTSW1-12NR	6,000	28	Clockwise	1.2
PTSW1-16NR	10,000	55		2.2

If you prepare custom clamp arms, contact us for the dimensional information on their mounting section. Bear in mind that such clamp arms can cause higher or lower clamping force than stated above.



How To Use



Notes

- Do not use applying higher torque than allowable for a long period of time, to avoid damage. Using a torque-settable impact wrench is recommended.

PTSW2 - Swing Clamps (Spiral-Acting)

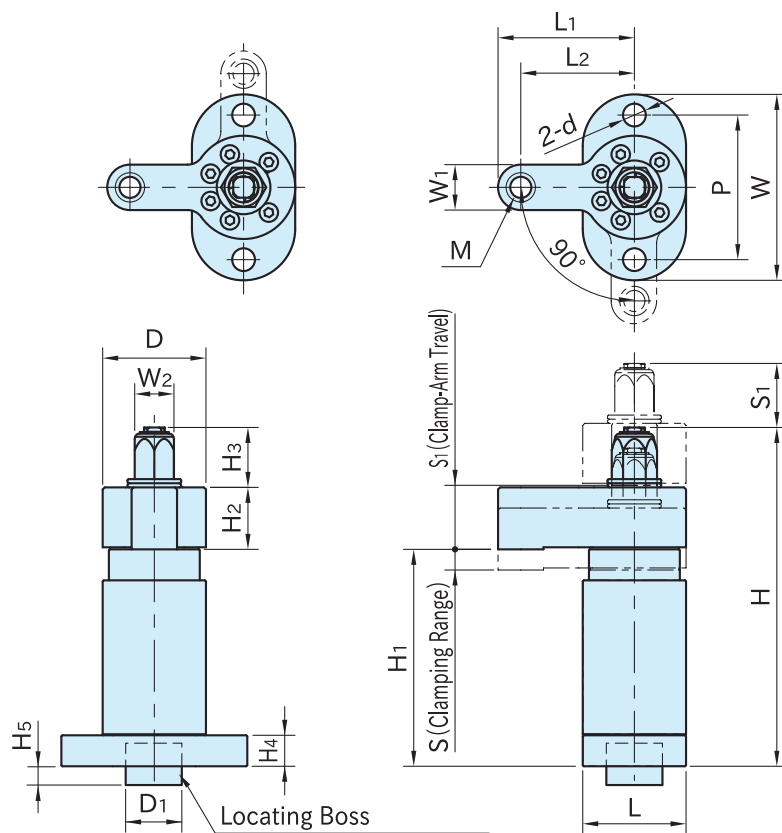


Without Clamp Arm

Body / Clamp-Arm Holder / Hex. Head	Clamp Arm
Steel(SCM440) Quenched and tempered Black oxide finish	Steel(S45C) Quenched and tempered Black oxide finish

Counterclockwise Clamping

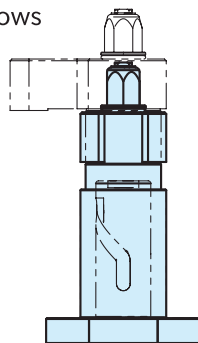
Clockwise Clamping



Use when locating clamps is required in the robotized production line.

Features

The inside spiral groove allows the clamp arm to swing positively.



PTSW2 - Swing Clamps (Spiral-Acting)

Series	H ₁	S (Clamping Range)	S ₁ (Clamp-Arm Travel)	M	L ₂	L ₁	D ₁ ($\begin{smallmatrix} 0 \\ -0.2 \end{smallmatrix}$)	H ₅	W	L	H ₄	d	P	H	D	W ₁	H ₂	W ₂	H ₃
PTSW2-12	105	10	31	M12×1.75	55	66	26	10	90	50	15	11	70	164	50	22	30	19	29
PTSW2-16	120		36	M16×2	65	79	30	12	100	60	20	13	80	190	60	28	35	24	35

With Clamp Arm

Part Number	Clamping Force(N)	Allowable Screw Torque(N·m)	Clamping Direction	Weight (kg)
PTSW2-12R	6,000	28	Clockwise	2
PTSW2-12L			Counterclockwise	
PTSW2-16R	10,000	55	Clockwise	3.2
PTSW2-16L			Counterclockwise	

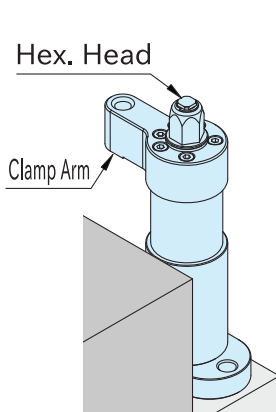
Without Clamp Arm

Part Number	Clamping Force(N)	Allowable Screw Torque(N·m)	Clamping Direction	Weight (kg)
PTSW2-12NR	6,000	28	Clockwise	1.6
PTSW2-12NL			Counterclockwise	
PTSW2-16NR	10,000	55	Clockwise	2.5
PTSW2-16NL			Counterclockwise	

If you prepare a custom clamp arm, contact us for the dimensional information on its mounting section. Note that custom clamp arms made by yourselves may cause clamping force to be increased or decreased.

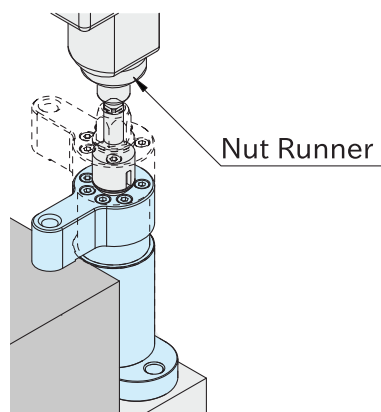


How To Use



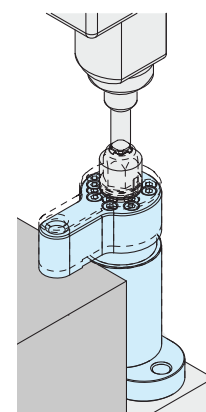
Unclamped Mode

Load or unload a work piece.



Ready-To-Clamp Mode

When the hex. head is turned by a nut runner, the clamp arm swings fast to the clamping position.



Clamping Mode

The clamp arm moves down for clamping. Using a nut runner allows completing positive clamping in a few seconds.

Notes

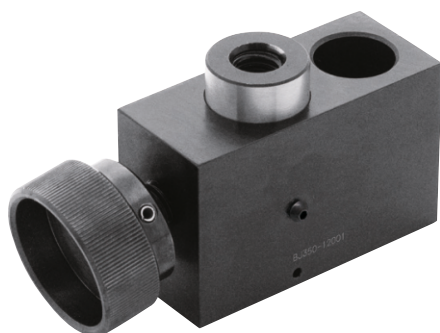
A torque-settable impact wrench may also be used to operate these clamps.

BJ350 - Work Supports



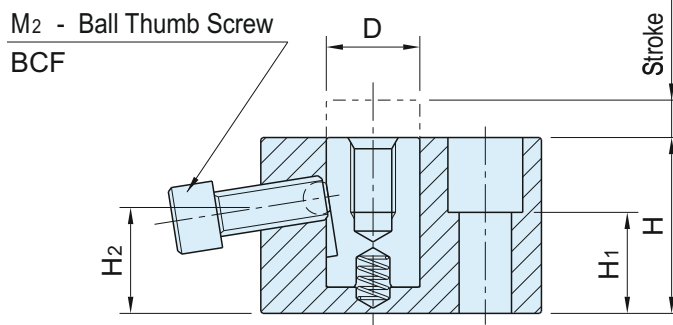
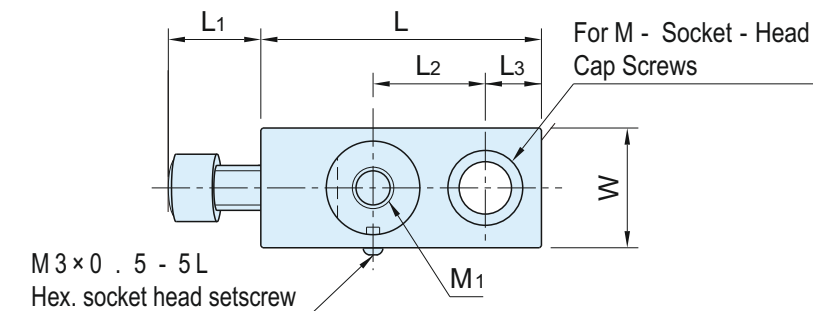
BJ350

(Ball-Thumb-Screw Style)



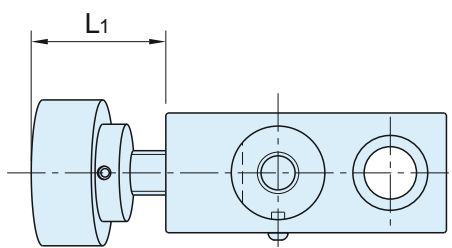
BJ350-C

(Knurled-Knob Style)

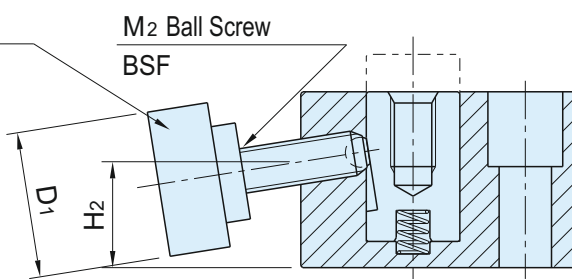


BJ350

(Ball-Thumb-Screw Style)



BJ750 - N
Knurled Knob
(pinned and glued)



BJ350-C

(Knurled-Knob Style)

Body	Piston
Steel (S 4 5 C) Black oxide finish	Steel (SK 9 5) Quenched and tempered Black oxide finish

Size		H	S	M ₁	D	L	W	M	L ₂	L ₃	H ₁	H ₂
BJ350 BJ350-C	06001	29	6	M 6×1 10 -deep	12	38	19	M 6	15	8	15	17.6
	08001	37	10	M 8×1.25 15 -deep	16	50	22	M 8	20	10	20	21.6
	10001	42		M10×1.5 15 -deep	19	65	25	M10	25	15		24.6
	12001	47		M12×1.75 20 -deep	25	75	32	M12	30		27	28.3

BJ350 (Ball-Thumb-Screw Style)

Part Number	L ₁	M ₂	Screw Torque(N·m)	Support Capacity (N)	Piston Spring Force (N)	Weight (g)
BJ350-06001	12	M 6×1 -16L	7.5	4,000	0~ 6	150
BJ350-08001	15	M 8×1.25-20L	14	6,000	0~ 7	285
BJ350-10001	18.5	M10×1.5 -25L	18	7,500	1~11	480
BJ350-12001	23	M12×1.75-30L	22	9,000		800

BJ350-C (Knurled-Knob Style)

Part Number	L ₁	D ₁	M ₂	Screw Torque(N·m)	Support Capacity (N)	Piston Spring Force (N)	Weight (g)
BJ350-06001C	20.7	24	M 6×1	1	600	0~ 6	180
BJ350-08001C	23.6	30	M 8×1.25	1.2	700	0~ 7	340
BJ350-10001C	26.2	36	M10×1.5	1.5		1~11	500
BJ350-12001C	31.3	40	M12×1.75	2	800		950

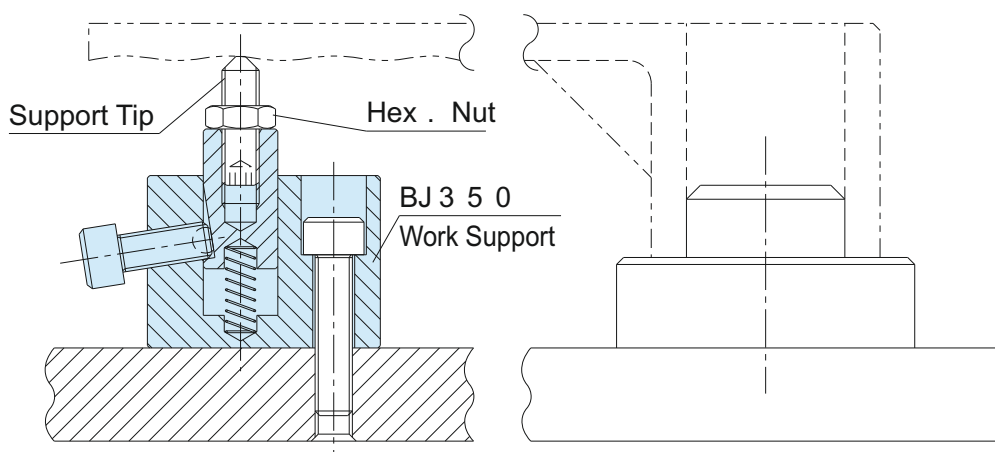
Feature:

The positive locking mechanism allows the ball-thumb-screw style to offer high support capacities.

Note

When you attach a support tip to the tapped hole through the shaft, tighten the shaft and fix it to prevent damage.

Application Example



Ideal for preventing the workpiece from chattering and deflecting .

BJ351 - Work Support Cylinders

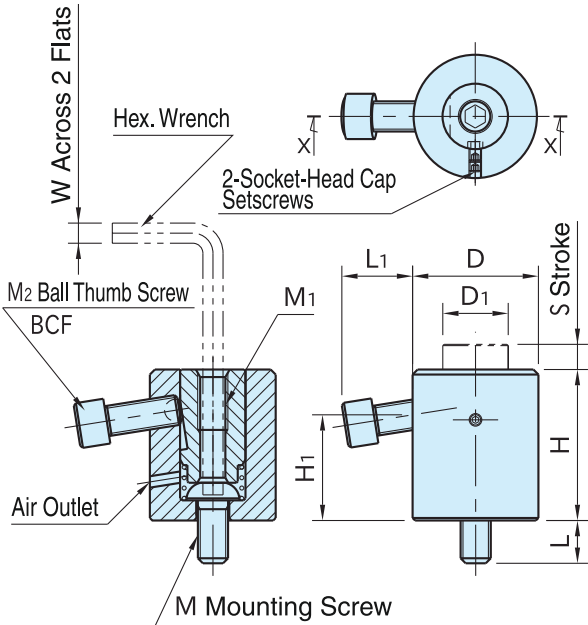


BJ351
(Ball-Thumb-Screw Style)



BJ351-C
(Knurled-Knob Style)

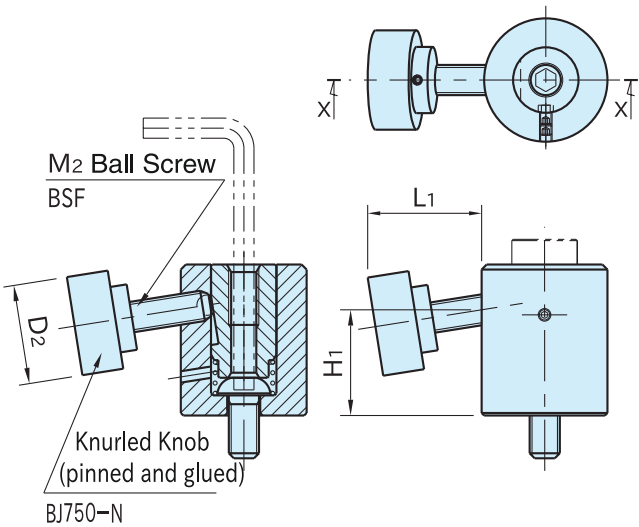
Body	Piston
Steel (S45C) Black Oxide Finish	Steel (SK95) Quenched and tempered Black Oxide Finish



Section X-X

To install, insert a hex. wrench through the piston into the mounting screw.

BJ351
(Ball-Thumb-Screw Style)



Section X-X

BJ351-C
(Knurled-Knob Style)

Size		H	S	M ₁	D ₁	D	M	L	W	H ₁
BJ351 BJ351-C	06001	33	6	M 6×1 12 deep	14	28	M 6×1	10	4	22.2
	08001	42	10	M 8×1.25 16 deep	19	35	M 8×1.25	14	5	27.5
	10001	50		M10×1.5 20 deep	22	42	M10×1.5		6	34
	12001	60		M12×1.75 24 deep	26	50	M12×1.75		8	42.1
	16001	70		M16×2 32 deep	33	60	M16×2		10	47.4

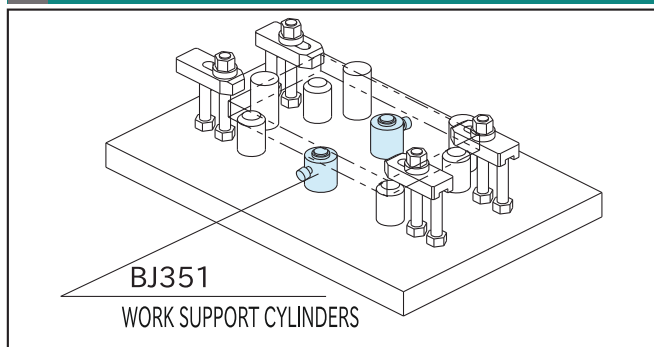
BJ351 (Ball-Thumb-Screw Style)

Part Number	L ₁	M ₂	Allowable Screw Torque (N·m)	Support Capacity (N)	Piston Spring Force (N)	Weight (g)
BJ351-06001	13.1	M 6×1 -16L	7.5	4,000	10~22	150
BJ351-08001	17.2	M 8×1.25-20L	14	6,000	10~27	300
BJ351-10001	24	M10×1.5 -25L	18	7,500	14~28	540
BJ351-12001	28.1	M12×1.75-30L	22	9,000	15~30	865
BJ351-16001	26.6		25		15~35	1,390

BJ351-C (Knurled-Knob Style)

Part Number	L ₁	D ₂	M ₂	Allowable Screw Torque (N·m)	Support Capacity (N)	Piston Spring Force (N)	Weight (g)
BJ351-06001C	22.7	24	M 6×1	1	600	10~22	185
BJ351-08001C	27.7	30	M 8×1.25	1.2	700	10~27	360
BJ351-10001C	31.8	36	M10×1.5	1.5		14~28	620
BJ351-12001C	36.8	40	M12×1.75	2	800	15~30	1,020

How To Use

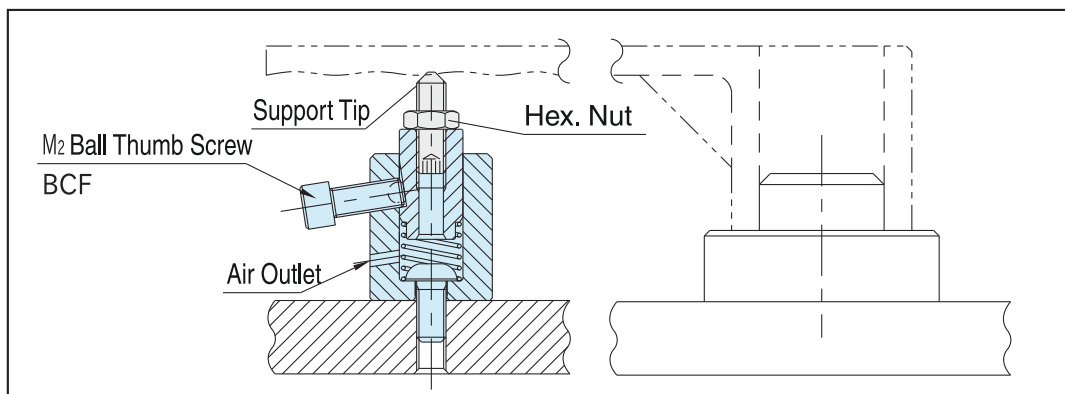


Feature:

The positive locking mechanism allows the ball-thumb-screw style to offer high support capacities.

Note

When you attach a support tip to the tapped hole through the shaft, tighten the shaft and fix it to prevent damage.

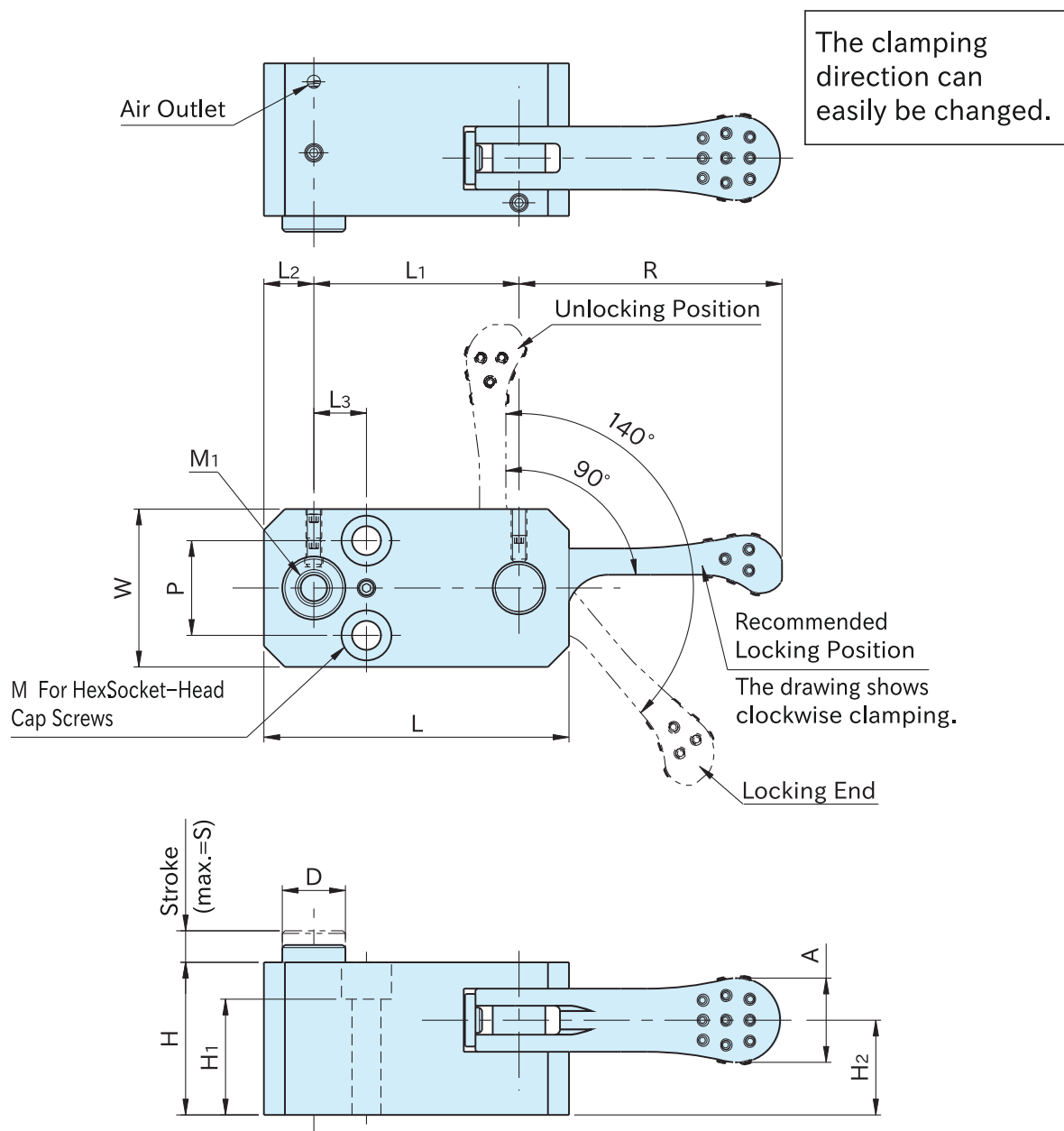


Ideal for preventing the workpiece from chattering and deflecting.

BJ352 - Work Supports With Cam Handle



Body	Piston	Locking Pin	Handle
Steel (S45C) Black oxide finish	Steel (SK95) Quenched and tempered Black oxide finish	Steel (S45C) Quenched and tempered Black oxide finish	Steel (SCM440) Quenched and tempered Black oxide finish



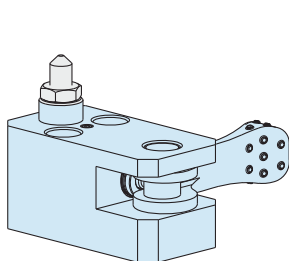
BJ352 - Work Supports With Cam Handle

Part Number	H	S	M ₁	D	L	W	R	A	H ₂	M	H ₁	P
BJ352-05001	24	5	M5×0.8 8deep	10	52	25	40	14	14	M4	19	15
BJ352-06001	29	6	M6×1 10deep	12	58	30	50	16	18	M5	22	18
BJ352-08001	37	8	M8×1.25 15 deep	16	75	38	63	19	23	M6	25	24
BJ352-10001	42	10	M10×1.5 15 deep	19	85	45	80	24	26	M8	30	28

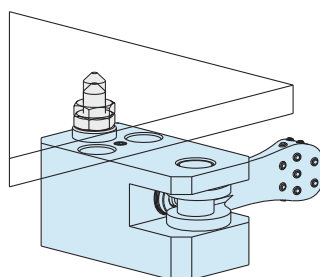
Part Number	L ₁	L ₂	L ₃	Cam Handles Part Number	Allowable Operating Load (N)*	Support Capacity (N)	Piston Spring Force (N)	Locking Mechanism	Weight (g)
BJ352-05001	36	8	8	QLCA-04	80	500	0~6	Spiral Cam Cam Angle: 4°	213
BJ352-06001	39	9.5	10	QLCA-05	100	700	0~6		335
BJ352-08001	51	12	12	QLCA-06	150	900	0~7		738
BJ352-10001	56	14.5	15	QLCA-08	200	1,200	1~11		1,110

*) Allowable load to operate the handle

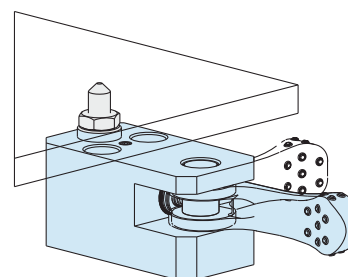
How To Operate



1. Unlocked
No workpiece loaded

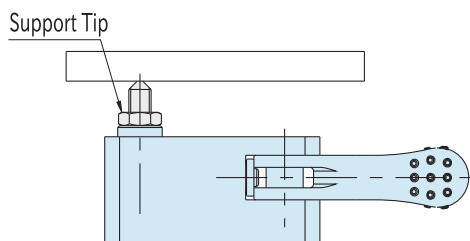


2. Workpiece Loading
Load a workpiece,
and the piston lowers.



3. Clamping
Turn the handle
to lock the piston.

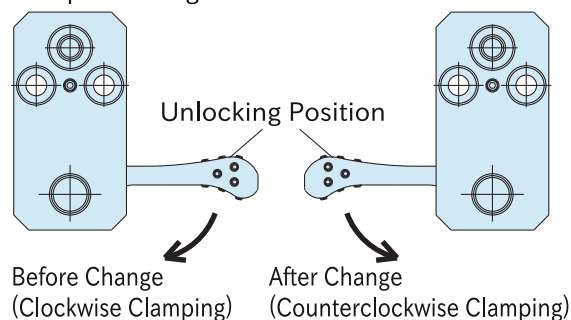
Adjusting Handle Locking Position



When the projection amount from the body is $\frac{1}{2}$ of the stroke S, the handle comes to the recommended locking position. Design your application as the support tip contacts the workpiece at this position.

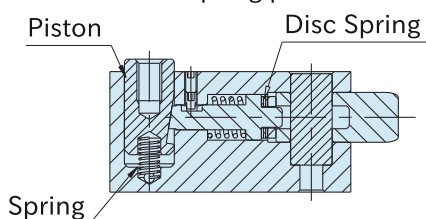
Changing Clamping Direction

Loosen the hex. socket setscrew to remove the retaining pin. Turn the handle upside down and put it in position again.

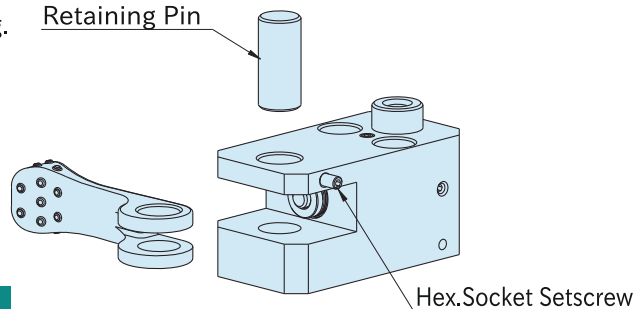


Feature

The built-in disc spring prevents loosened locking.

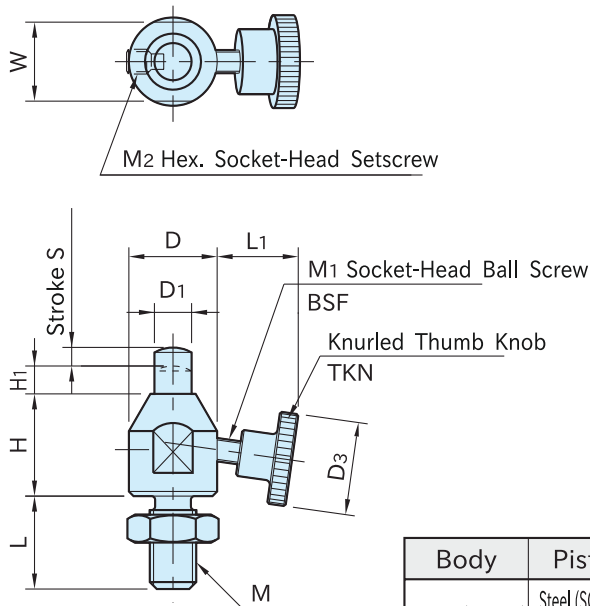


Retaining Pin



Notes

When you attach a support tip to the tapped hole through the shaft, tighten the shaft and fix it to prevent damage.



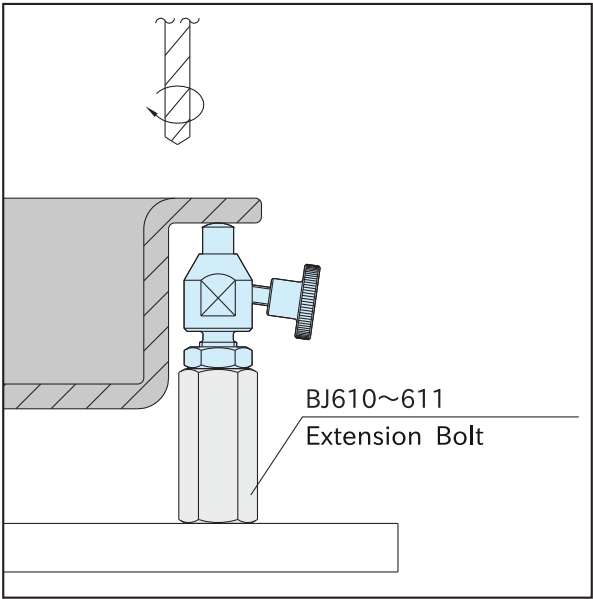
Note) The socket-head ball screw is glued to the knurled thumb knob.

Body	Piston
Steel(S45C) Black oxide	Steel (SCM440) Heat treated Black oxide

Part Number	H	H ₁	S	D ₁	D	M	L	W	D ₃	M ₁
BJ360-08001	18	5	3	6	15	M 8×1.25	16	13	16	M4×0.7-16L
BJ360-10001	22	6	4	8	19	M10×1.5	20	17	20	M5×0.8-20L
BJ360-12001	25			10	22	M12×1.75	24	19	24	M6×1 -25L

Part Number	L ₁	M ₂	Piston Spring Force(N)	Support Capacity (N)	Weight (g)
BJ360-08001	13.2	M4×0.7-6L	1.5~3.0	200	36
BJ360-10001	16.3		1.8~3.0	300	72
BJ360-12001	22.3			400	150

How To Use



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for more details of our latest information,
CAD downloads or movie data.

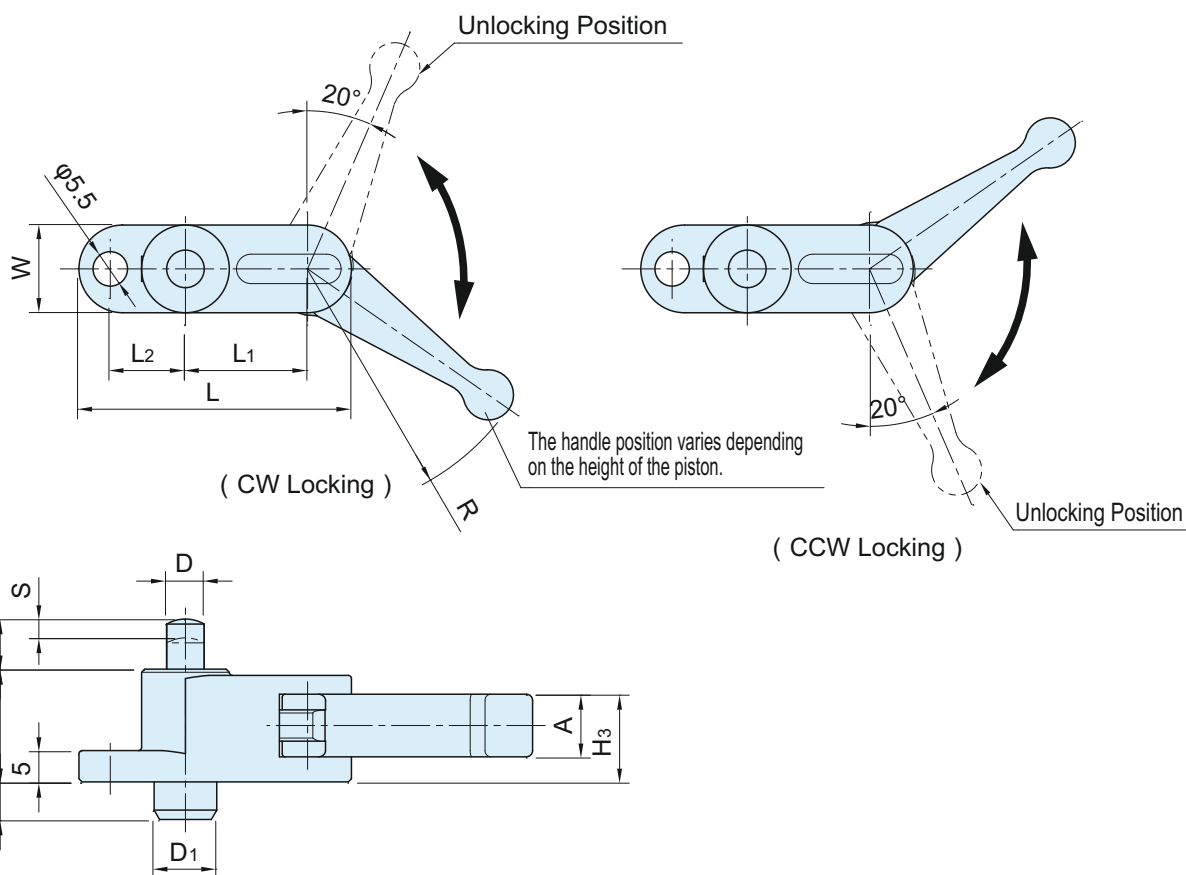
BJ362 - Compact Work Supports With Cam Handle



★Key Point

Prevent chattering
and deflection.

Body/Pin	Piston	Cam Handle
S45C steel Black oxide finished	SCM440 steel Black oxide finished HRC50-55	Die-cast zinc Chrome plated



BJ362 - Compact Work Supports With Cam Handle

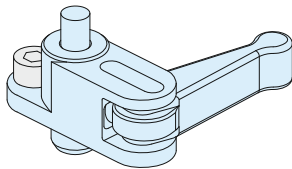
Part Number	Locking Direction	H	H ₁	S	D	L	W	R	A	H ₃	D ₁	H ₂	L ₁	L ₂
BJ362-06001R	CW	18	8	3	6	43.5	14	39	10	14	10	6	19.5	12
BJ362-06001L	CCW													
BJ362-10001R	CW	25	10	4	10	50.4	18	50	13	18.5	14	9.5	22.4	14
BJ362-10001L	CCW													

Part Number	Allowable Operating Load (N) *	Support Capacity (N)	Piston Spring Force (N)	Locking Mechanism	Weight (g)
BJ362-06001R	80	200	1.5 ~ 3	Spiral Cam Cam Angle: 4°	76
BJ362-06001L					
BJ362-10001R	100	400	1.8 ~ 3		140
BJ362-10001L					

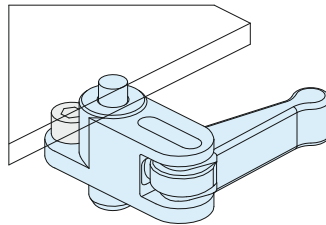
*)Allowable load to operate the handle.

How To Use

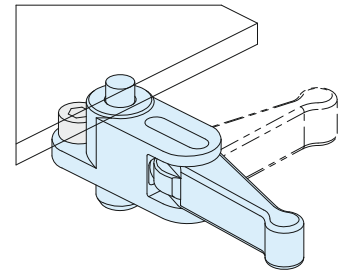
How To Operate



① Unlocked
No workpiece loaded.

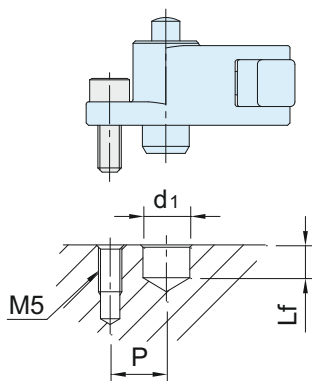


② Workpiece Loading
Load a workpiece,
and the piston lowers.



③ Locking
Turn the handle to lock the piston.

Mounting-Hole Dimensions

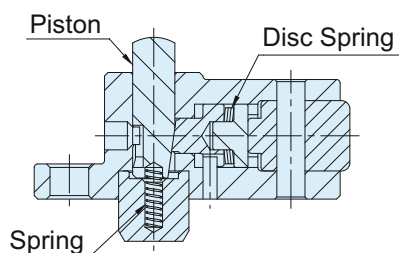


Drill a tapped hole and a locating-pin hole as specified below .

Size	d ₁ (^{+0.3} ₀)	Lf	P
BJ362-06001	10	7	12
BJ362-10001	14	10.5	14

Feature

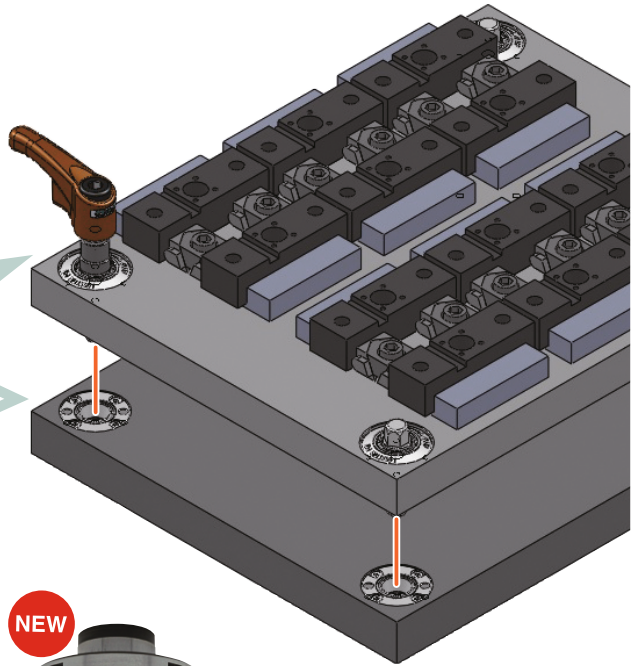
The built-in disc spring prevents loosened locking.



FLEX LOCATORS

Expanded product lineup of Flex Locators!

Flex Locators provide "precise locating" and "easy operation" by movable tapered pin or bushing.



Hexagon Head

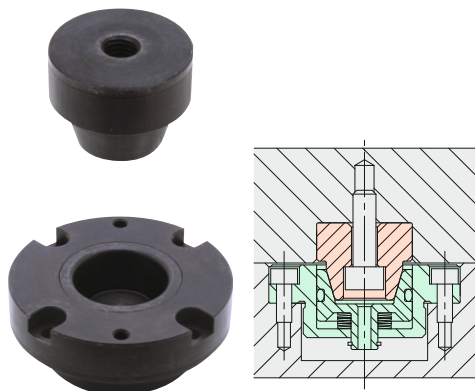
Cam Handle

Knob

Pneumatic

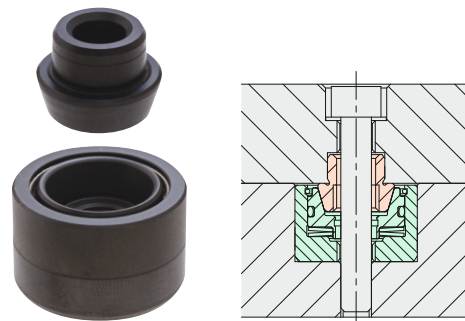
FLEX LOCATORS

Simple and low cost types with only locating function



Standard

Locating Repeatability	10µm
------------------------	------



Through Hole

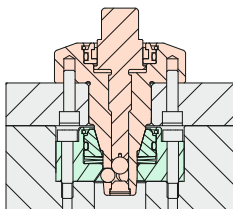
Locating Repeatability	10µm
------------------------	------

ONE-TOUCH FLEX LOCATORS

Locating and clamping functions



High clamping force by screw

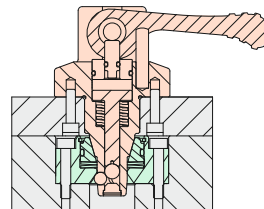


Hexagon Head

Locating Repeatability	8μm
Clamping Force	1700N, 3000N, 4500N



Quick operation by handle

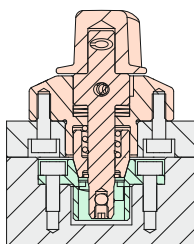


Cam Handle

Locating Repeatability	8μm
Clamping Force	600N, 1200N, 1800N

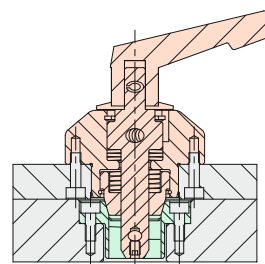


Quick and easy operation by knob



Knob

Locating Repeatability	10μm
Clamping Force	350N, 600N



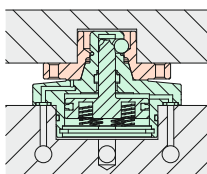
Handle

Locating Repeatability	10μm
Clamping Force	600N, 700N

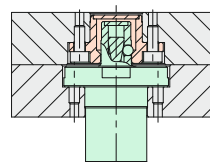
PNEUMATIC FLEX LOCATORS

Easier and faster pneumatic operation

High clamping force by spring and air

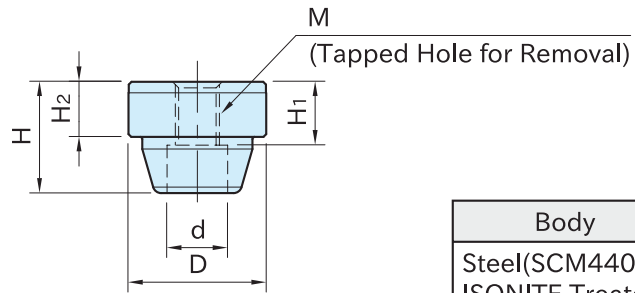


Flange diameter	φ70 / φ85
Locating Repeatability	3μm
Clamping Force	4kN, 6.3kN



Flange diameter	φ40 / φ51
Locating Repeatability	±10μm
Clamping Force	250N, 350N

CP720 - Flex Locator Pins

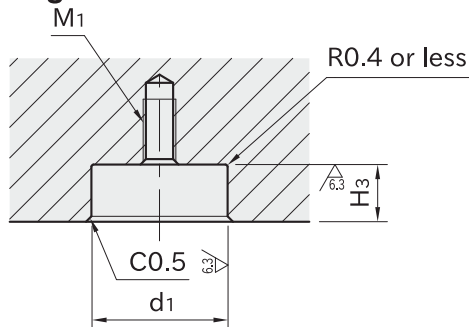


Body
Steel(SCM440) ISONITE Treated (Nitrocarburized)

Part Number	D (g6)	H ₂	H	M	H ₁	d	Weight (g)	Proper Flex Locator Bushings
CP720-16032	16	5.5	11.5	M 5×0.8 (Prepared Hole ϕ 4.2)	6	8	18	CP725-16032
CP720-25050	25	10	20	M 8×1.25 (Prepared Hole ϕ 6.8)	11.5	11	49	CP725-25050
CP720-38070	38	15	29.5	M10×1.5 (Prepared Hole ϕ 8.5)	18	14	176	CP725-38070
CP720-56095	56	22	43.5	M16×2 (Prepared Hole ϕ 14)	28.5	20	569	CP725-56095

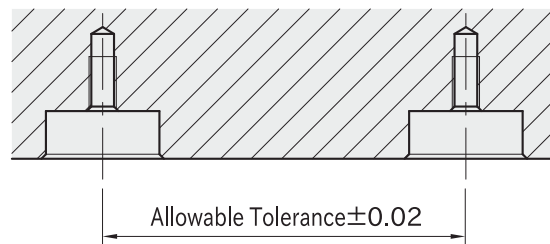
How To Use

Mouting Hole Dimensions

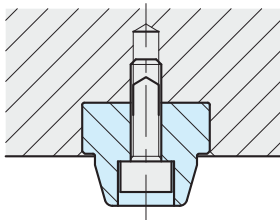


Part Number	d ₁ (H7)	H ₃ (± 0.05)	M ₁
CP720-16032	16	6	M 4×0.7
CP720-25050	25	10.5	M 6×1
CP720-38070	38	15.5	M 8×1.25
CP720-56095	56	22.5	M12×1.75

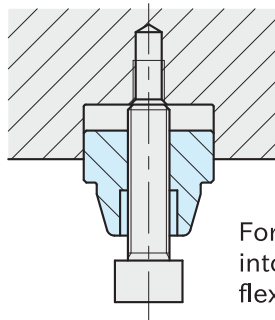
Spacing Tolerance



How to Install and Remove



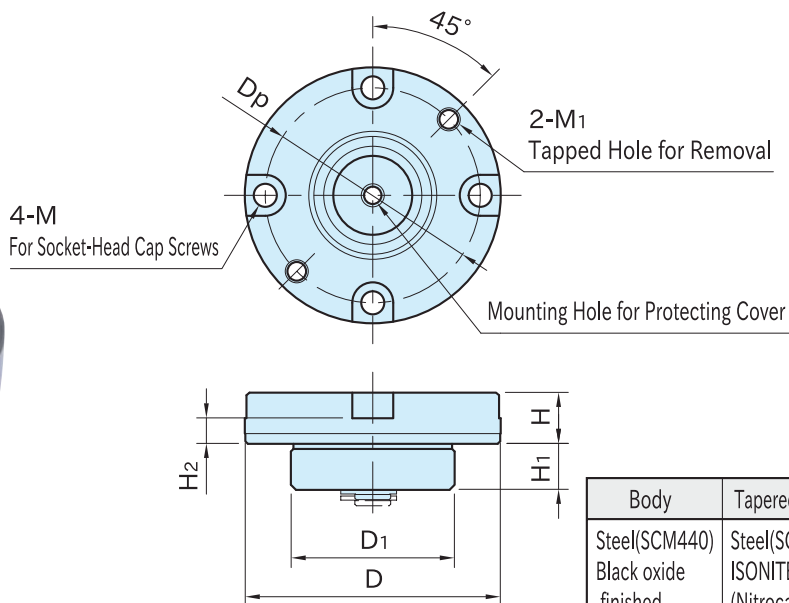
Use a socket-head cap screw to fix the flex locator pin.



For removal, insert a screw into the tapped hole of the flex locator pin and screw it.

Reference

- How To Install FLEX LOCATORS (Blind)
- How To Use FLEX LOCATORS (Blind)

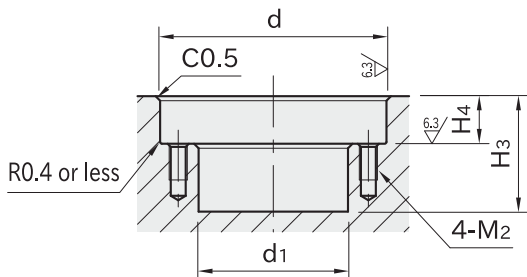


Part Number	D (g6)	H	D ₁	H ₁	M	H ₂	M ₁	D _p	Lifting Force (N) (*)	Weight (g)
CP725-16032	32	6.5	20	7	M3	3	M3×0.5	25.5	110	60
CP725-25050	50	10	32	9	M4	5	M4×0.7	42	180	160
CP725-38070	70	15	48	14	M5	9	M5×0.8	60	400	508
CP725-56095	95	22	70	21	M6	15	M6×1	84	690	1451

*) The lifting force is the power of the inner spring of the body to push up up the movable tapered bushing.

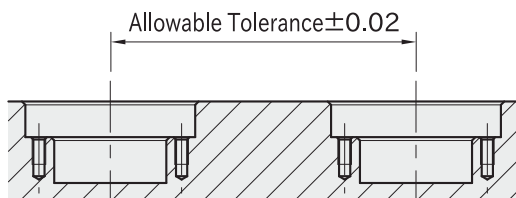
How To Use

Mouting Hole Dimensions

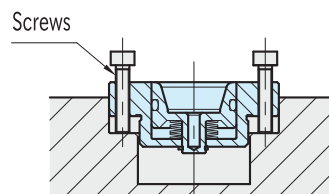


Part Number	d (H7)	H ₄ (±0.05)	d ₁	H ₃	M ₂
CP725-16032	32	7	21	18	M3×0.5
CP725-25050	50	10.5	33	24	M4×0.7
CP725-38070	70	15.5	49	35	M5×0.8
CP725-56095	95	22.5	71	51	M6×1

Spacing Tolerance



How to Remove

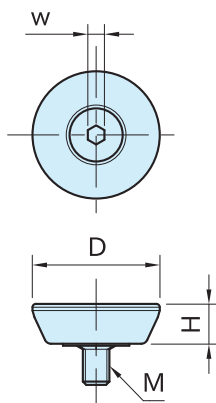


For removal, insert screws into the tapped holes and screw it.

Reference

- How To Install FLEX LOCATORS (Blind)
- How To Use FLEX LOCATORS (Blind)

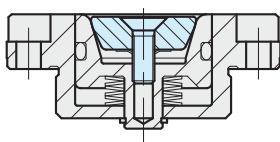
CP725-P - Flex Locator Protecting Covers



Body	Screw
A5056 Red	Steel(SCM435) Black oxide finished

Part Number	D	H	M	w	Weight (g)	Proper Flex Locator Bushings
CP725-16032P	12	4	M3×0.5	2	3	CP725-16032
CP725-25050P	19	6	M4×0.7	2.5	5	CP725-25050
CP725-38070P	29	7	M5×0.8	3	14	CP725-38070
CP725-56095P	44	8	M6×1	4	35	CP725-56095

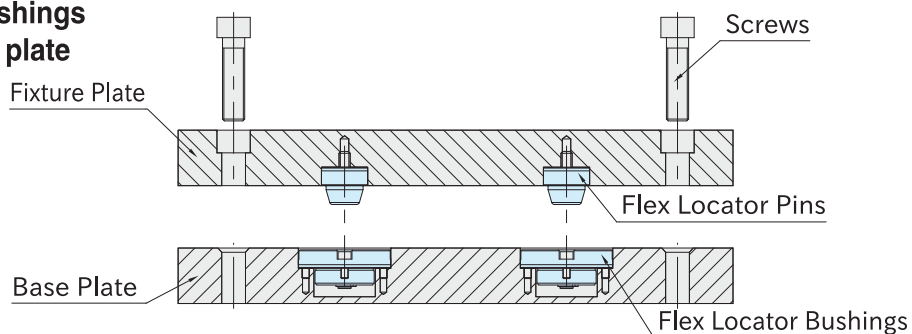
How to Install



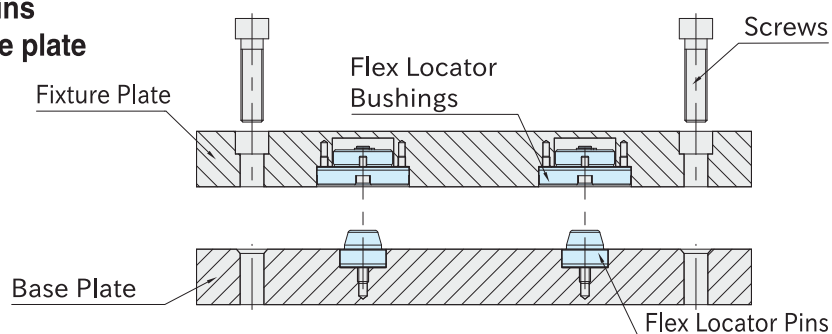
Mount on Flex Locator Bushings using the tapped hole and use it as a protective cover.

How To Install FLEX LOCATORS (Blind)

When the flex locator bushings are installed on the base plate



When the flex locator pins are installed on the base plate



How To Use FLEX LOCATORS (Blind)

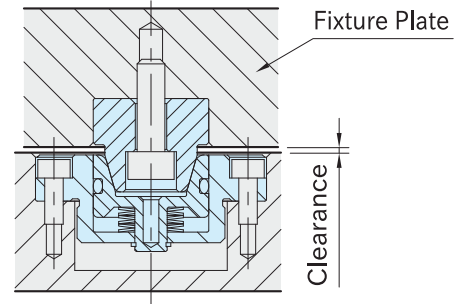
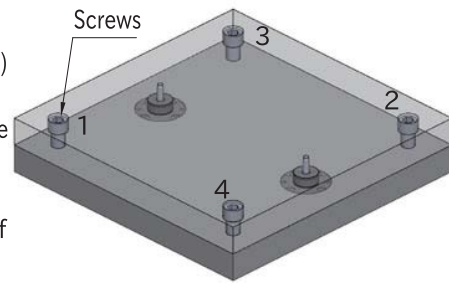
Tightening Order of Screws

1. Ensure that each plates is in close contact with each other. (*)
2. Tighten the screws temporarily in order of 1→2→3→4.
For temporary tightening, the tightening torque should be approximately 50% of the final tightening.
3. Tighten the screws finally in order of 1→2→3→4.

*) The fixture plate may be pushed up by the lifting force of **CP725** Flex Locator Bushings.

In such cases, tighten the screws loosely in order of 1→2→3→4, and make the each plate be in close contact with each other. Then tighten the screws temporarily.

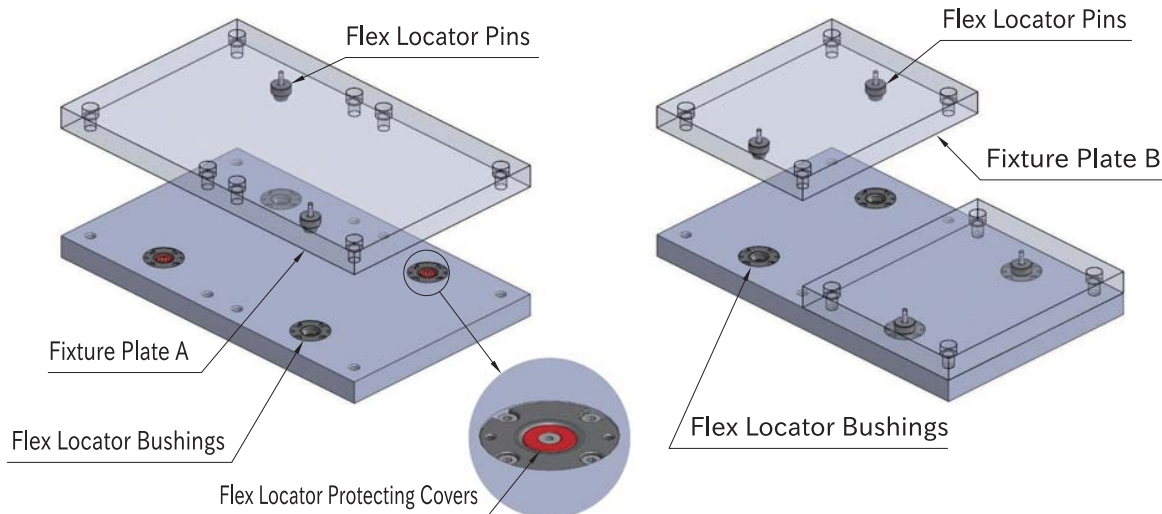
For the lifting force, see the measurement table of **CP725** Flex Locator Bushings.



If the screws are not tightened in the correct order, the locating repeatability may exceed 10 μm.

How To Use

Horizontal Assembly of Base Plate and Fixture Plate



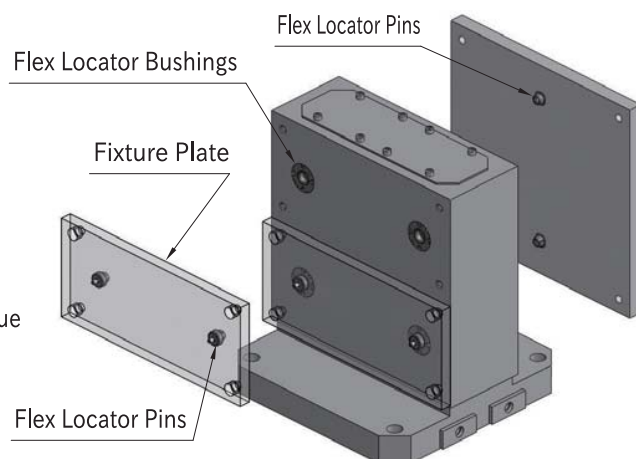
Vertical Assembly of Tooling Block and Fixture Plate

If the total load exceeds the maximum loading capacity, the locating repeatability may exceed 10 μm.

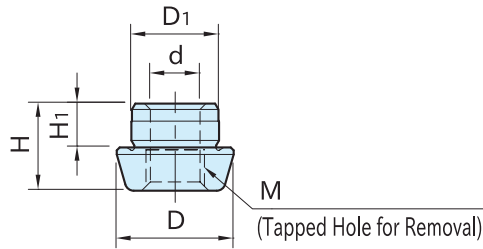
Size	Maximum Loading Capacity (N)
CP720 25050	1,200
CP725 38070	2,000
56095	2,200

*) The maximum load is the entire sum of the load of fixture plates, fixtures and workpieces.

*) The maximum loading capacity shown is the value when two sets of **CP720** Flex Locator Pins and **CP725** Flex Locator Bushings are used.



CP721 - Flex Locator Pins



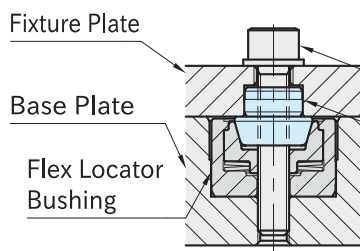
Body
Steel(SCM440) ISONITE Treated (Nitrocarburized)

Part Number	D ₁ (p6)	H ₁	D	H	M	d	Weight (g)	Proper Flex Locator Bushings
CP721-12025	12	4.5	15	10	M10×1.5 Depth3.5	8.5	6	CP726-12025
CP721-15032	15	7.5	20	15	M12×1.75Depth4.5	10.2	16	CP726-15032
CP721-20045	20	10	30	20	M16×2 Depth5.5	14	47	CP726-20045

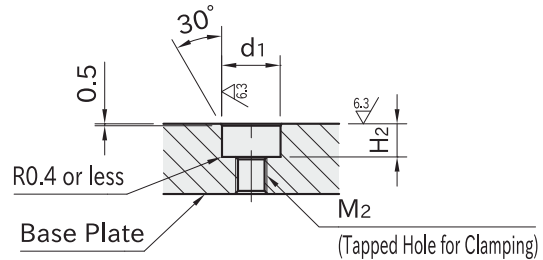
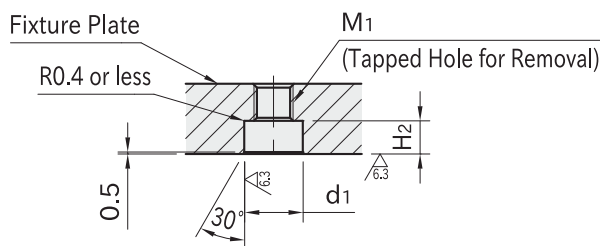
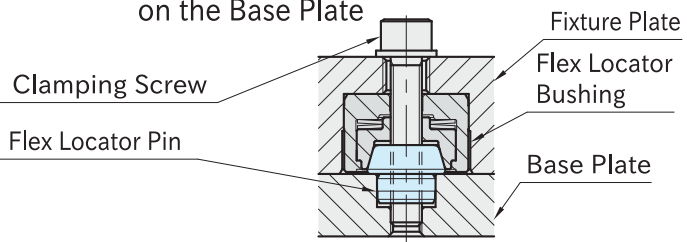
How To Use

■ Mounting Hole Dimensions for Press Fit

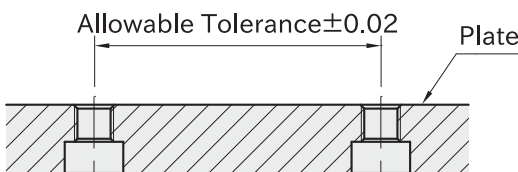
Installation of the Flex Locator Pins on the Fixture Plate



Installation of the Flex Locator Pins on the Base Plate



■ Spacing Tolerance

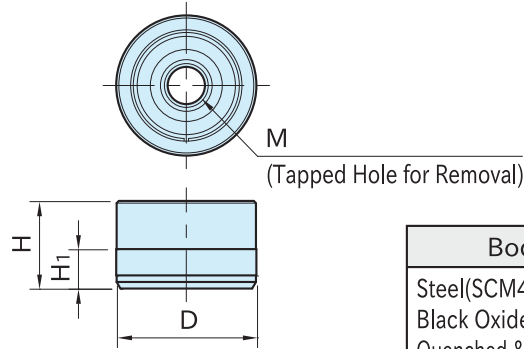


Part Number	d ₁ (H6)	H ₂	M ₁	M ₂
CP721-12025	12	5.5	M 8×1.25	M 6×1
CP721-15032	15	8.5	M10×1.5	M 8×1.25
CP721-20045	20	11	M14×1.5	M12×1.75

Reference

- How To Install FLEX LOCATORS (Through)
- How To Use FLEX LOCATORS (Through)

CP726 - Flex Locator Bushings (Through)



Body	Tapered Bushing
Steel(SCM440) Black Oxide Finished Quenched & Tempered	Steel(SCM440) ISONITE Treated (Nitrocarburized)

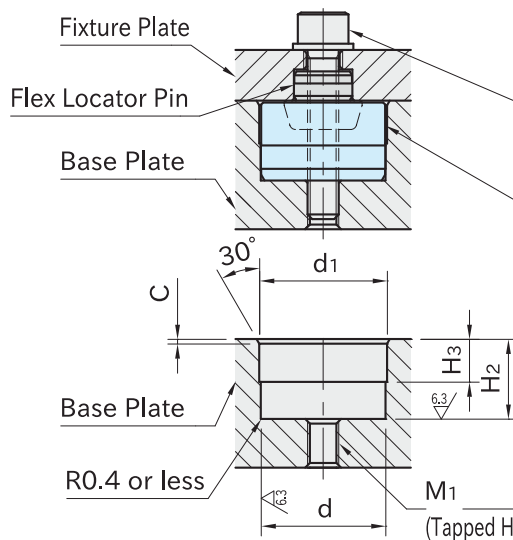
Part Number	D	H	H ₁	M	Lifting Force (N) (*)	Weight (g)
CP726-12025	25 ^(+0.028) _(+0.018)	16	8	M 8X1.25 (Prepared Hole ϕ 6.8)	540	46
CP726-15032	32 ^(+0.031) _(+0.021)	20	9	M10X1.5 (Prepared Hole ϕ 8.5)	600	92
CP726-20045	45 ^(+0.031) _(+0.021)	26	11	M14X1.5 (Prepared Hole ϕ 12.5)	780	230

*) The lifting force is the power of the inner spring of the body to push up the movable tapered bushing.

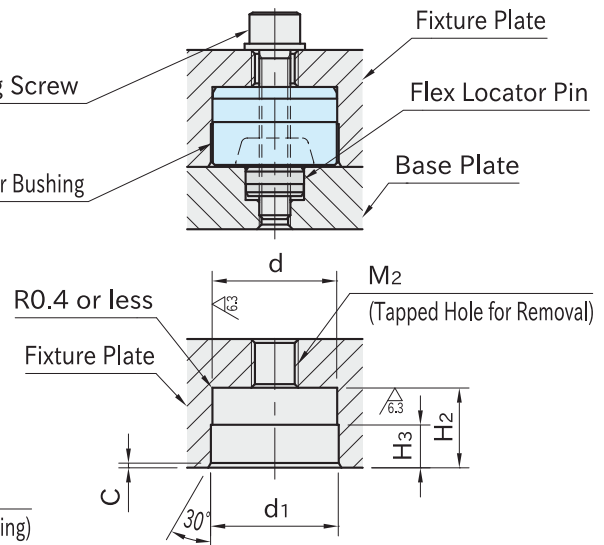
How To Use

■ Mounting Hole Dimensions for Press Fit

Installation of the Bushings on the Base Plate

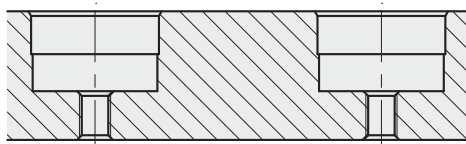


Installation of the Bushings on the Fixture Plate



■ Spacing Tolerance

Allowable Tolerance ± 0.02



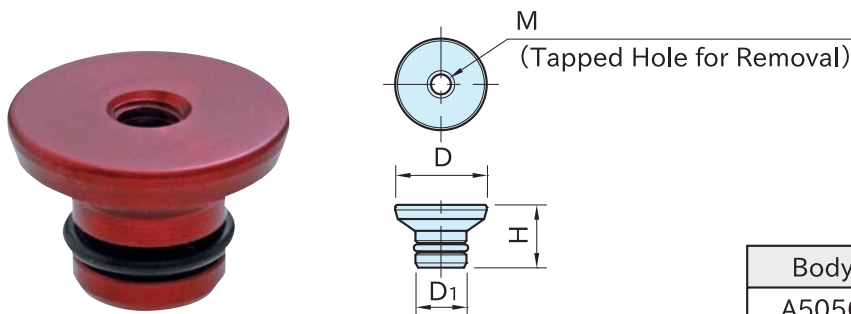
Part Number	d (H6)	H ₂ (± 0.05)	d ₁	H ₃	C	M ₁	M ₂
CP726-12025	25	16.5	25.2	8	1	M 6X1	M10X1.5
CP726-15032	32	20.5	32.2	11	1.2	M 8X1.25	M12X1.75
CP726-20045	45	26.5	45.2	15	1.5	M12X1.75	M16X2

Base Plate

Reference

- How To Install FLEX LOCATORS (Through)
- How To Use FLEX LOCATORS (Through)

CP726-P - Flex Locator Protecting Covers



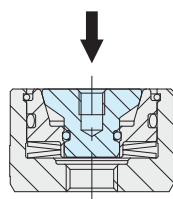
Body	O-Ring
A5056 Red	NBR

Part Number	D	H	D1	M	Weight (g)	Proper Flex Locator Bushings
CP726-12025P	15	10	9	M4×0.7	2	CP726-12025
CP726-15032P	19	13	11	M5×0.8	5	CP726-15032
CP726-20045P	29	18	16	M6×1	17	CP726-20045

How To Use

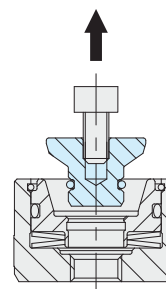
How to Install

Insert the product to the center hole of the Flex Locator Bushings and use it as a protective cover.



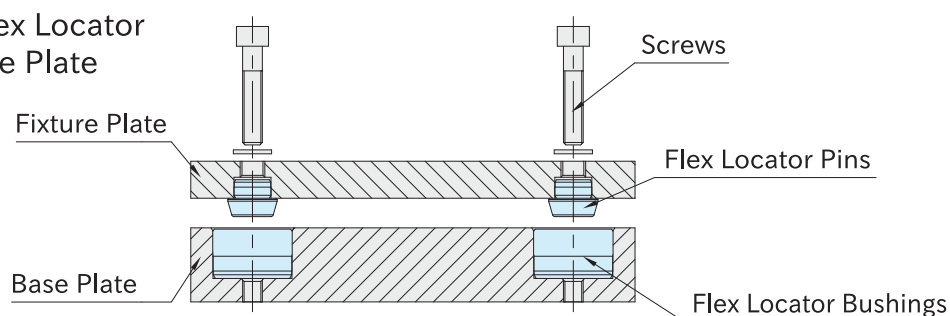
How to Remove

Insert a screw into the tapped hole and pull it out.

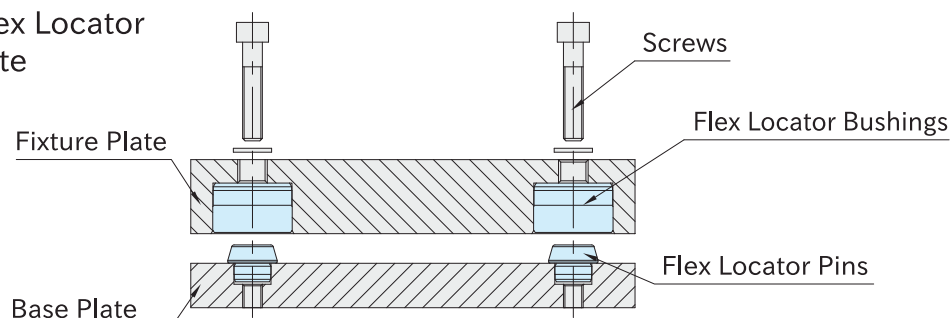


How To Install FLEX LOCATORS (Through)

Installation of the Flex Locator Bushings on the Base Plate



Installation of the Flex Locator Pins on the Base Plate

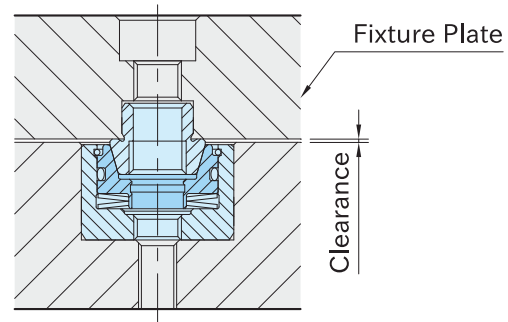
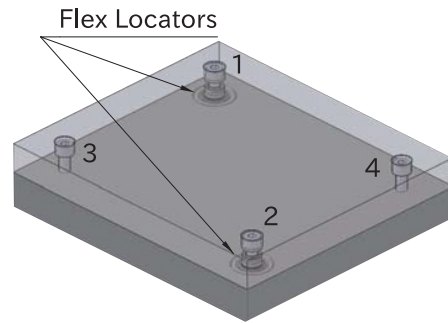


How To Use FLEX LOCATORS (Through)

Tightening Order of Screws

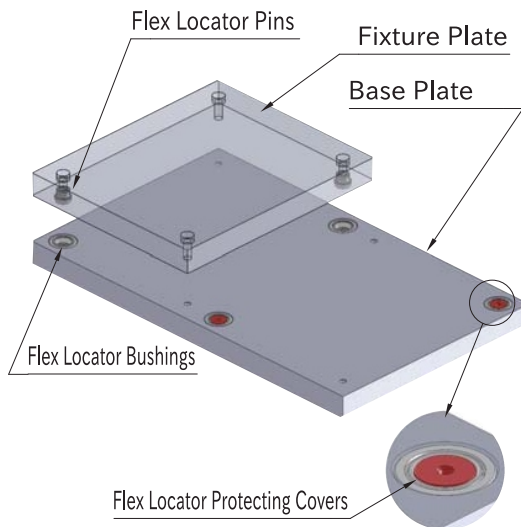
1. Ensure that each plate is in close contact with each other. (*)
 2. Tighten the screws temporarily in order of 1→2→3→4.
For temporary tightening, the tightening torque should be approximately 50% of the final tightening.
 3. Tighten the screws finally in order of 1→2→3→4.
- (*)The fixture plate may be pushed up by the lifting force of CP726 Flex Locator Bushings.
In such cases, tighten the screws loosely in order of 1→2→3→4, and make the each plate be in close contact with each other. Then tighten the screws temporarily. For the lifting force, see the measurement table of CP726 Flex Locator Bushings.

If the screws are not tightened in the correct order, the locating repeatability may exceed $10\mu\text{m}$.

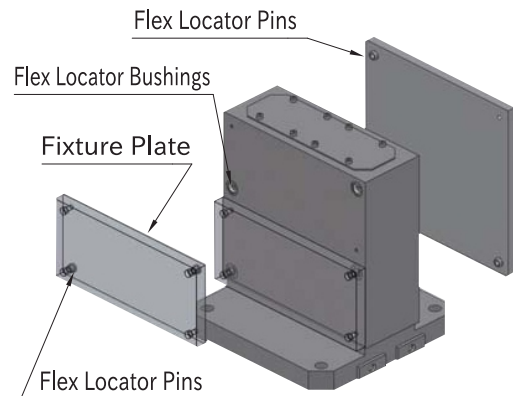


How To Use

Horizontal Assembly of Base Plate and Fixture Plate



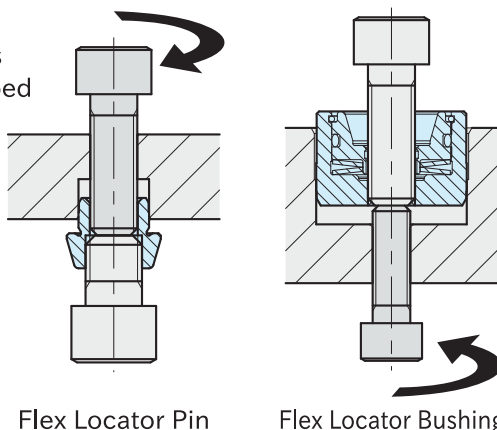
Vertical Assembly of Base Plate and Fixture Plate



In vertical assembly, the locating repeatability may exceed $10\mu\text{m}$ if the total load exceeds the maximum loading capacity.

How to Remove

For removal, insert screws into the tapped holes and screw it.



Size		Maximum Loading Capacity (N)
CP721	12025	1500
CP726	15032	2000
	20045	2400

*) The maximum load is the entire sum of the load of fixture plates, fixtures and workpieces.

*) The maximum loading capacity shown is the value when two sets of CP721 Flex Locator Pins and CP726 Flex Locator Bushings are used.

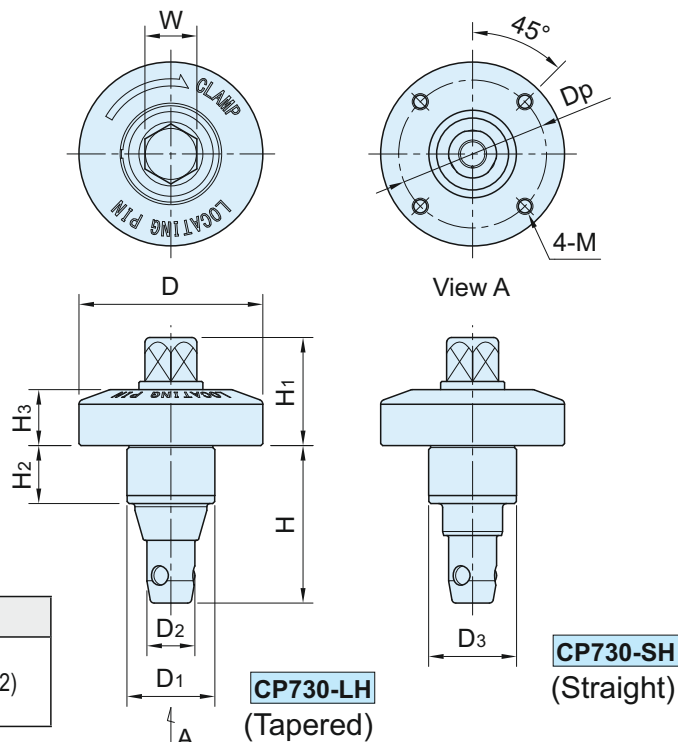
CP730 - One-Touch Flex Locator Clampers (Hexagon Head)



CP730-LH
(Tapered)

CP730-SH
(Straight)

Body	Clamping Screw	Ball
Steel (SCM440) ISONITE Treated (Nitrocarburized)	Steel (SCM435) Black oxide finished Quenched & tempered	Steel (SUJ2)



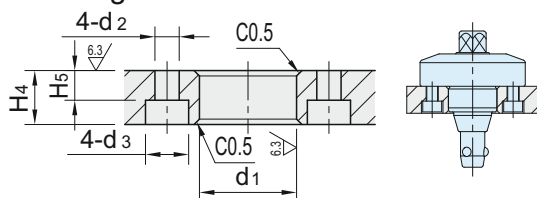
Part Number	D ₁ (g6)	D ₃ (-0.02 +0.06)	H ₂	D	H ₁	H ₃	D ₂	H	W	M	Dp
CP730-0939LH	18	-	9.5	39	22	12	9	30	10	M4×0.7 Depth 6	30
CP730-0939SH	-	18									
CP730-1246LH	22	-	14.5	46	27	14	12	40	13	M5×0.8 Depth 7	37
CP730-1246SH	-	22									
CP730-1656LH	28	-	19.5	56	34	16	16	51	17	M5×0.8 Depth 7	45
CP730-1656SH	-	28									

Part Number	Clamping Force (N)	Allowable Screw Torque (N·m)*	Weight (g)	Proper Bushing
CP730-0939LH	1700	2	134	CP735-0939L
CP730-0939SH			133	CP735-0939S
CP730-1246LH	3000	4	241	CP735-1246L
CP730-1246SH			239	CP735-1246S
CP730-1656LH	4500	7	457	CP735-1656L
CP730-1656SH			453	CP735-1656S

*) Do not apply greater torque than allowable screw torque.
Do not use a power tool (impact wrench etc.) to turn the hex head, for damage prevention.

How To Use

■ Mounting Hole Dimensions



Supplied With

- **CP730-0939** : Four pieces of hex. socket-head cap screws M4×0.7-10L
- **CP730-1246** : Four pieces of hex. socket-head cap screws M4×0.7-15L
- **CP730-1656** : Four pieces of hex. socket-head cap screws M5×0.8-20L

Reference

How To Use ONE-TOUCH FLEX LOCATORS (Hexagon Head / Cam Handle)

Related Product

CP-TCW ADJUSTABLE-TORQUE WRENCHES are available for tightening.

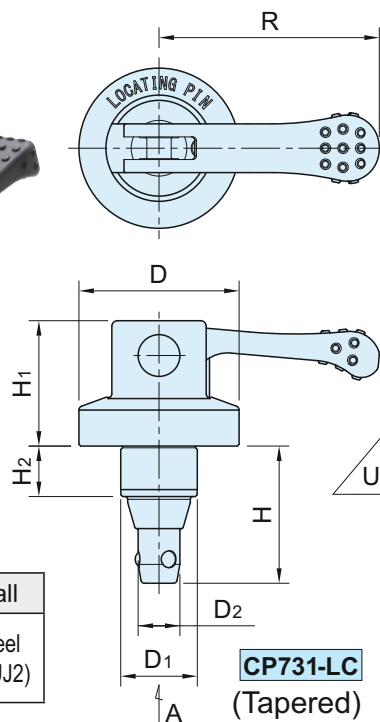
CP731 - One-Touch Flex Locator Clampers (Cam Handle)



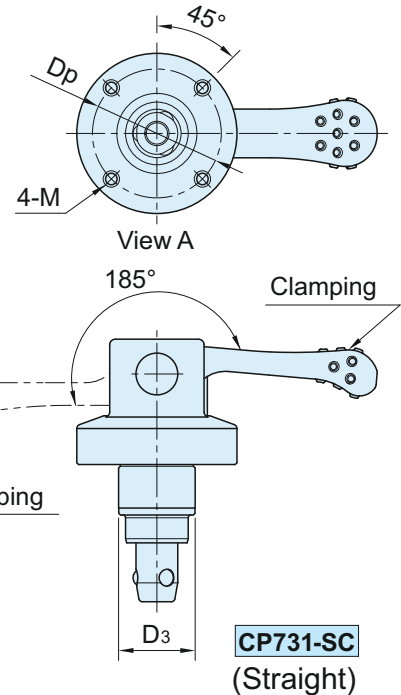
CP731-LC
(Tapered)

CP731-SC
(Straight)

Body	Cam Handle	Ball
Steel (SCM440) ISONITE Treated (Nitrocarburized)	Steel (SCM440) Black oxide finished Quenched & tempered	Steel (SUJ2)



CP731-LC
(Tapered)



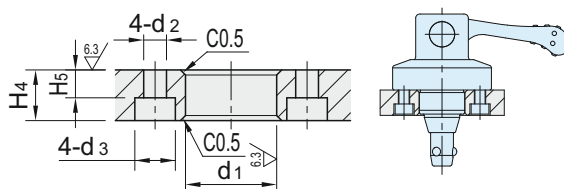
CP731-SC
(Straight)

Part Number	D ₁ (g6)	D ₃ ($\begin{smallmatrix} -0.02 \\ +0.06 \end{smallmatrix}$)	H ₂	D	H ₁	D ₂	H	M	Dp	R	Cam Handle
CP731-0939LC	18	-	9.5	39	30	9	30	M4×0.7 Depth 6	30	50	QLCA-05
CP731-0939SC	-	18									
CP731-1246LC	22	-	14.5	46	36	12	40		37	63	QLCA-06
CP731-1246SC	-	22									
CP731-1656LC	28	-	19.5	56	42	16	51	M5×0.8 Depth 7	45	80	QLCA-08
CP731-1656SC	-	28									

Part Number	Clamping Force (N)	Operating Load (N)	Weight (g)	Proper Bushing
CP731-0939LC	600	60	191	CP735-0939L
CP731-0939SC			189	CP735-0939S
CP731-1246LC	1200	130	297	CP735-1246L
CP731-1246SC			294	CP735-1246S
CP731-1656LC	1800	160	654	CP735-1656L
CP731-1656SC			648	CP735-1656S

How To Use

■ Mounting Hole Dimensions



Size	d ₁ (H7)	H ₄ (±0.05)	d ₂	H ₅	d ₃
CP731-0939	18	10	4.5	5	8
CP731-1246	22	15		10	
CP731-1656	28	20	5.5	14	10

Supplied With

- CP731-0939** : Four pieces of hex. socket-head cap screws M4×0.7-10L
- CP731-1246** : Four pieces of hex. socket-head cap screws M4×0.7-15L
- CP731-1656** : Four pieces of hex. socket-head cap screws M5×0.8-20L

Reference

How To Use ONE-TOUCH FLEX LOCATORS (Hexagon Head / Cam Handle)

CP735 - One-Touch Flex Locator

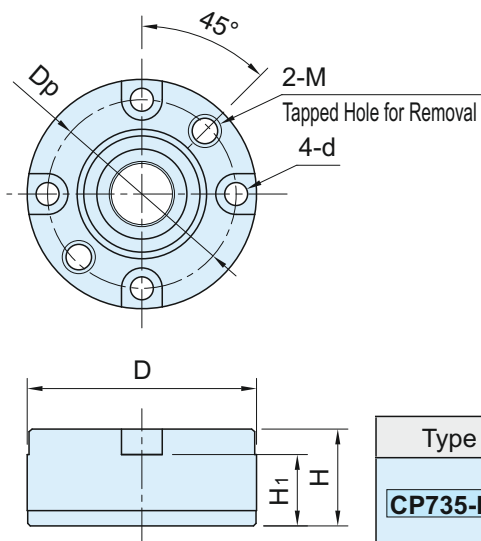
Bushings



(Tapered Bushing)



(Straight Bushing)



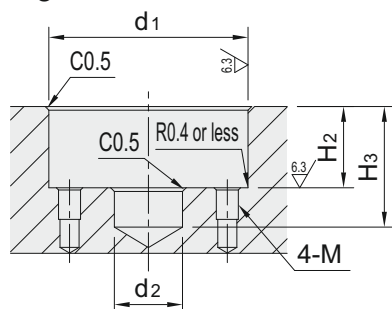
Type	Body	Tapered Bushing
CP735-L	Steel (SCM440) Black oxide finished Quenched & tempered	Steel (SCM440) ISONITE Treated (Nitrocarburized)
CP735-S		-

Part Number	Type	D (g6)	H	d	H ₁	Dp	M	Lifting Force (N) *	Weight (g)
CP735-0939L	Tapered Bushing	38	15	4.5	10	30	M5×0.8	300	100
CP735-0939S	Straight Bushing							-	101
CP735-1246L	Tapered Bushing	45	19	5.5	14	37	M6×1	450	179
CP735-1246S	Straight Bushing							-	184
CP735-1656L	Tapered Bushing	55	24	5.5	18	45	M6×1	680	337
CP735-1656S	Straight Bushing							-	341

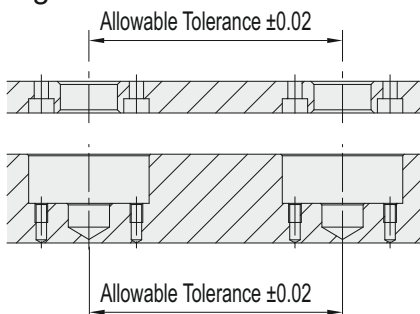
*) The lifting force is the power of the inner spring of the body to push up the movable tapered bushing.

How To Use

■ Mounting Hole Dimensions



■ Spacing Tolerance



Size	d ₁ (H7)	H ₂ (±0.05)	d ₂	H ₃	M
CP735-0939	38	15.5	13	23	M4×0.7
CP735-1246	45	19.5	16	28	
CP735-1656	55	24.5	20	34	M5×0.8

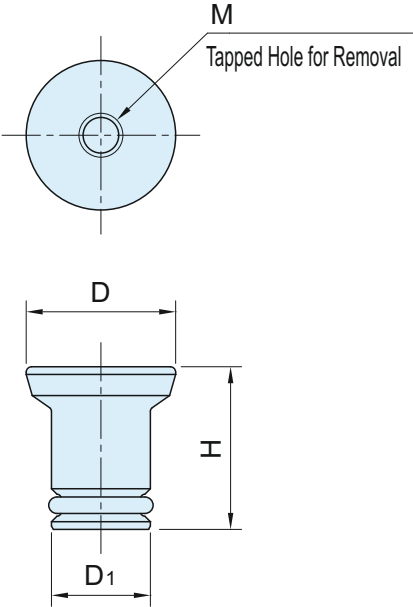
Related Products

- **CP730** ONE-TOUCH FLEX LOCATOR CLAMPERS (Hexagon Head)
- **CP731** ONE-TOUCH FLEX LOCATOR CLAMPERS (Cam Handle)
- **CP735-P** ONE-TOUCH FLEX LOCATOR PROTECTING COVERS

Reference

How To Use ONE-TOUCH FLEX LOCATORS (Hexagon Head / Cam Handle)

**CP735-P - One-Touch Flex Locator
Protecting Covers**



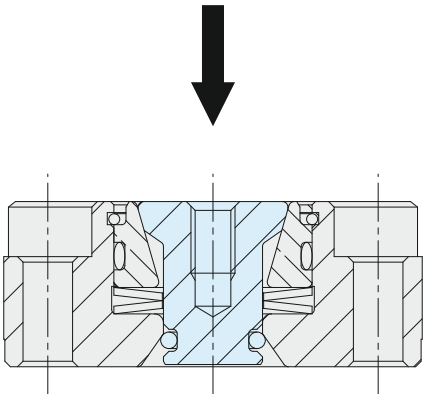
Body	O-Ring
A5052 Red	NBR

Part Number	D	H	D ₁	M	Weight (g)	Proper Bushing	
CP735-0939P	13.5	15.0	9	M4×0.7	3	CP735-0939L	CP735-0939S
CP735-1246P	17.0	19.0	12		6	CP735-1246L	CP735-1246S
CP735-1656P	23.0	22.5	16	M5×0.8	14	CP735-1656L	CP735-1656S

How To Use

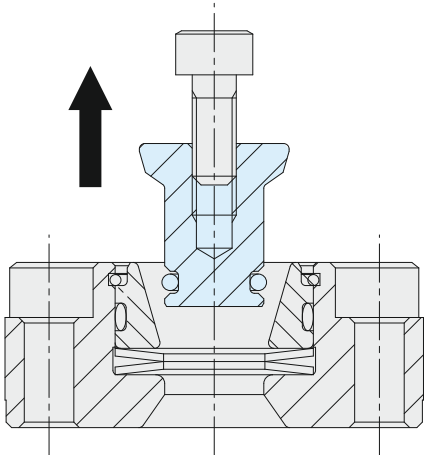
■How to Install

Insert the product to the center hole of the Flex Locator Bushings and use it as a protective cover.



■How to Remove

Insert a screw into the tapped hole and pull it out.



CP-TCW

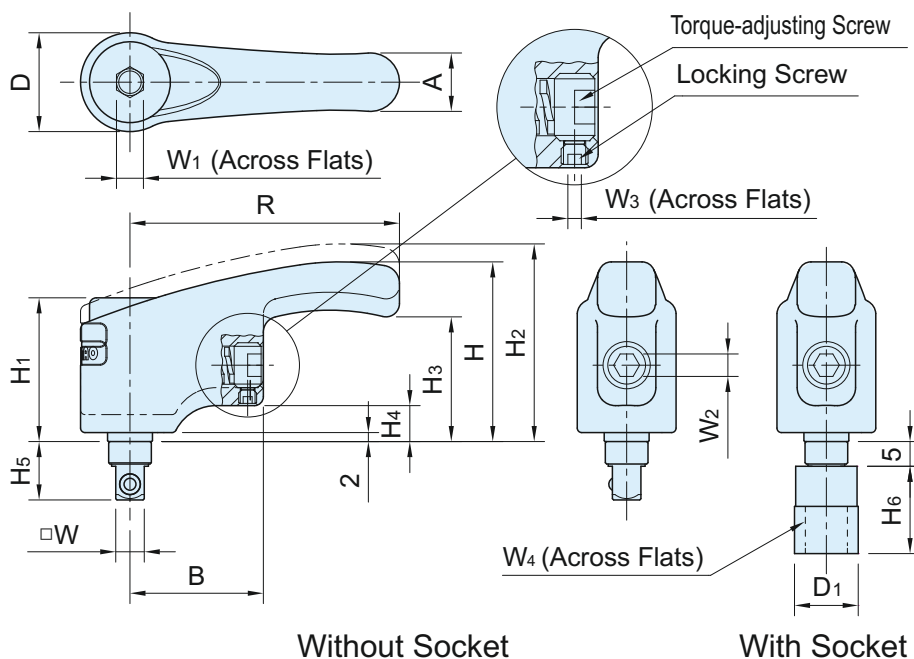
Adjustable Torque Wrenches



Without Socket



With Socket



Type	Handle	Ratchet	Adapter	Socket
CP-TCW	Steel (SCM440) Quenched & tempered Painted Orange	Steel (SCM415) Carburized-hardened Black oxide finished	Steel (SCM435) Quenched & tempered Black oxide finished	-
CP-TCW-S				Chrome-vanadium steel (Cr-V) Chrome plated

Size		W	R	H	D	H ₁	H ₂	H ₃	H ₄	H ₅	A	B	W ₁	W ₂	W ₃
CP-TCW	6	6.3	60	40	22	32	4.4	27.5	8	13	13	30	6	5	2
	8		75	48	26	38	52.5	33	9		15	37	8	6	2.5
CP-TCW-S	10	9.5	90	57	32	45	62.5	39.5	10.5	16.5	18	39	10		

Size	Torque Range (N·m)
CP-TCW	6 1 ~ 3.5
CP-TCW-S	8 2 ~ 5.4
	10 3 ~ 8

Without Socket

Part Number	Weight (g)
CP-TCW 6	166
CP-TCW 8	284
CP-TCW10	467

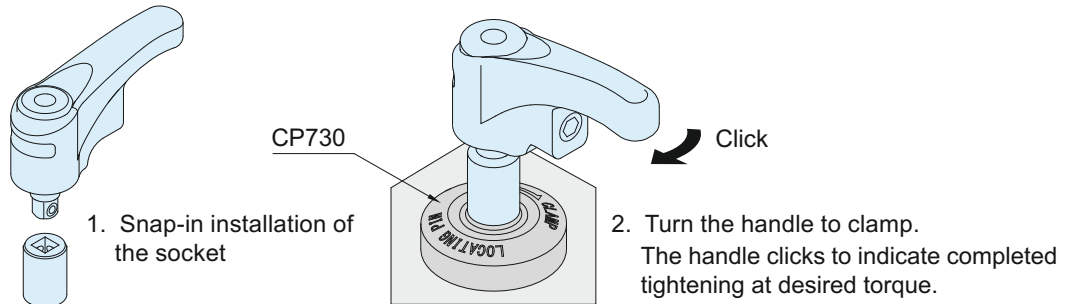
With Socket

Part Number	W ₄	D ₁	H ₆	Weight (g)
CP-TCW 6-S	10	13.8	25	183
CP-TCW 8-S	13	17.8		314
CP-TCW10-S	17	23.8	30	529

CP-TCW Adjustable Torque Wrenches

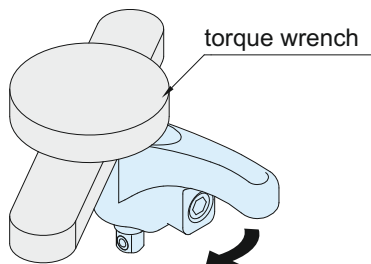
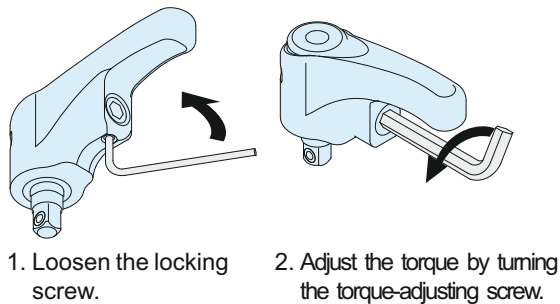
How To Use

Can be used as a tightening tool for **CP730**
ONE-TOUCH FLEX LOCATOR CLAMPERS (Hexagon Head).

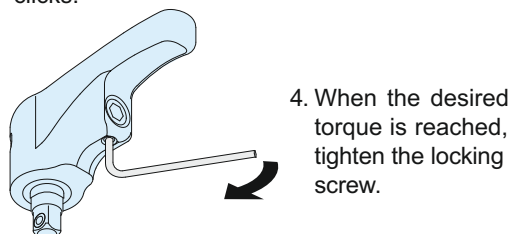


How To Set Torque

The preset torque is roughly its maximum tightening torque.



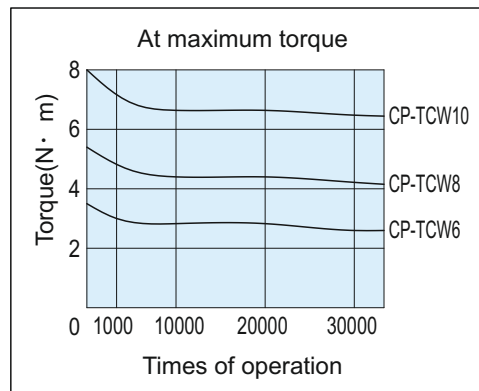
3. Measure the torque with a torque wrench.
- Connect a torque wrench to the Adjustable-Torque Wrench.
 - Apply a load in the tightening direction, and fine adjust the depth of torque-adjusting screw to reach the desired torque when the handle clicks.



Torque Performance

- For initial several thousand operations, the tightening torque decreases. (See the graph below) Measure the torque regularly, and fine adjust the depth of torque-adjusting screw when needed.
- The tightening torque can vary. (Max. $\pm 15\%$) Not recommended for applications where precise tightening torque is required.

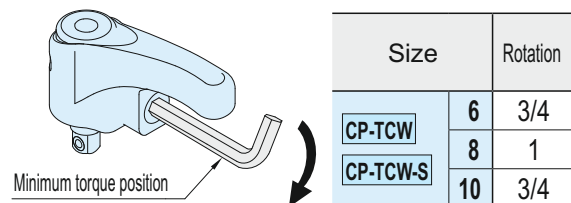
Torque Performance Graph



Note

- Adjust the torque-adjusting screw within the torque range. Do not overtighten or overloosen the screw.

Guide for Torque Adjusting



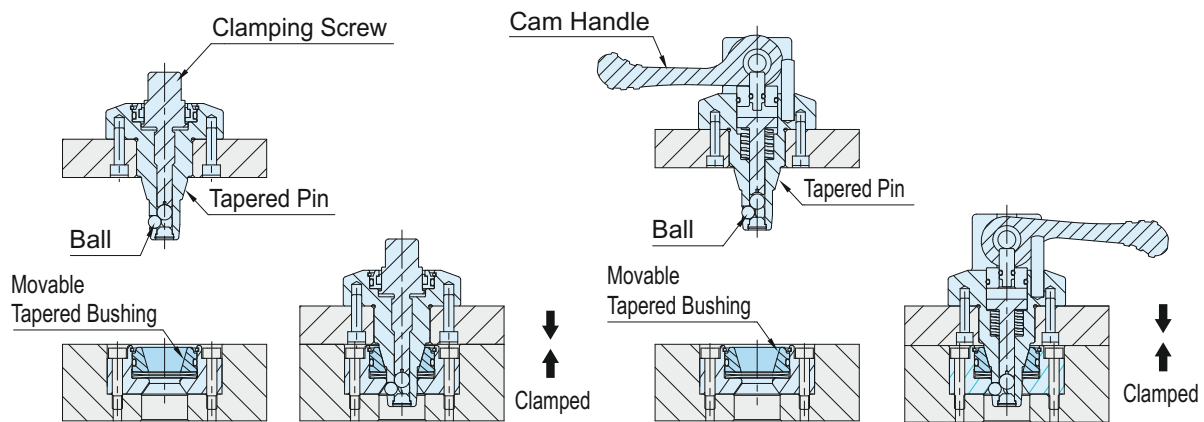
- To reach approximately the minimum torque, tighten the torque adjusting screw until you feel kind of touch from the loosened position, where the torque adjusting screw is on the same level to the body. (Ensure that the torque adjusting screw does not protrude from the body, when loosening it.)
- To reach approximately the maximum torque, tighten the torque adjusting screw for the above listed rotations from the position at the minimum torque.

Related Product

CP730 ONE-TOUCH FLEX LOCATOR CLAMPERS
(Hexagon Head)

How To Use ONE-TOUCH FLEX LOCATORS (Hexagon Head / Cam Handle)

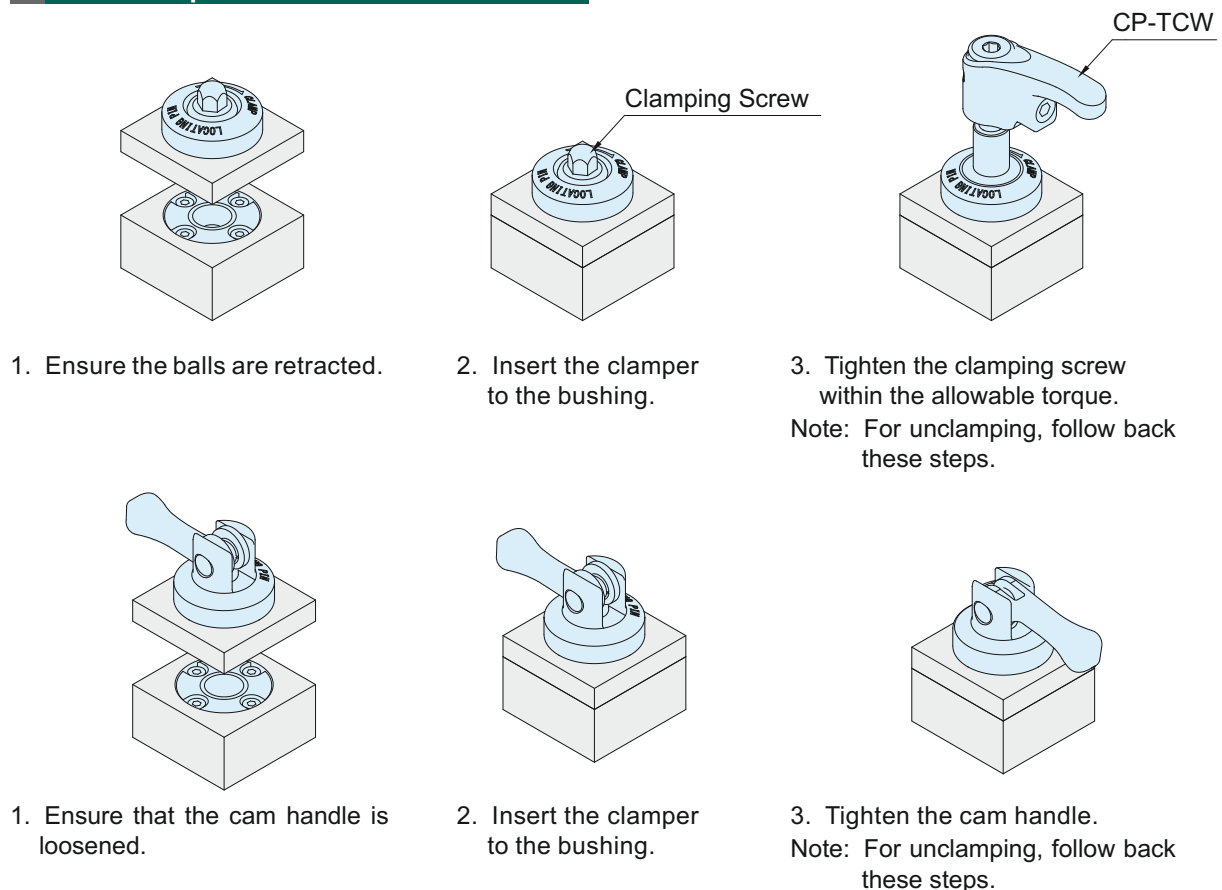
Features



- The plate is located by fitting of the tapered parts.
- When the clamping screw or the cam handle is tightened, the balls go out and the movable tapered bushing goes down. The fixture plate contacts with the base plate.
- For clamping screw, 2 turns tightening is enough.

Note: No locating function on the combination of straight pin and straight bushing.

How To Operate



1. Ensure the balls are retracted.

2. Insert the clammer to the bushing.

3. Tighten the clamping screw within the allowable torque.

Note: For unclamping, follow back these steps.

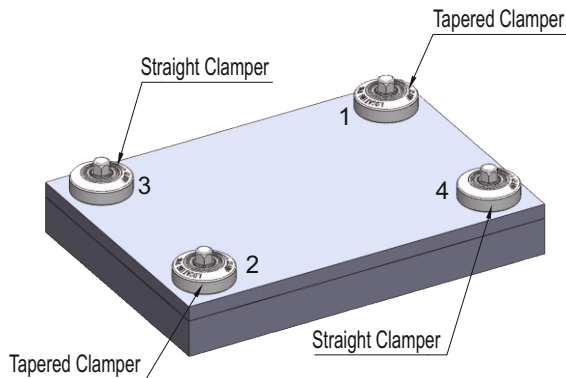
1. Ensure that the cam handle is loosened.

2. Insert the clammer to the bushing.

3. Tighten the cam handle.

Note: For unclamping, follow back these steps.

Tightening Order



CP730

1. Ensure that each plates is in close contact with each other. *)
 2. Tighten the screws temporarily in order of 1→2→3→4. For temporary tightening, the tightening torque should be approximately 50% of the final tightening.
 3. Tighten the screws finally in order of 1→2→3→4.
- *) The fixture plate may be pushed up by the lifting force of the tapered bushing. In such cases, tighten the screws loosely in order of 1→2→3→4, and make the each plate be in close contact with each other. Then tighten the screws temporarily. For the lifting force, see the measurement table of **CP735** ONE-TOUCH FLEX LOCATOR BUSHINGS.

CP731

- Tighten the cam handles in order of 1→2→3→4.

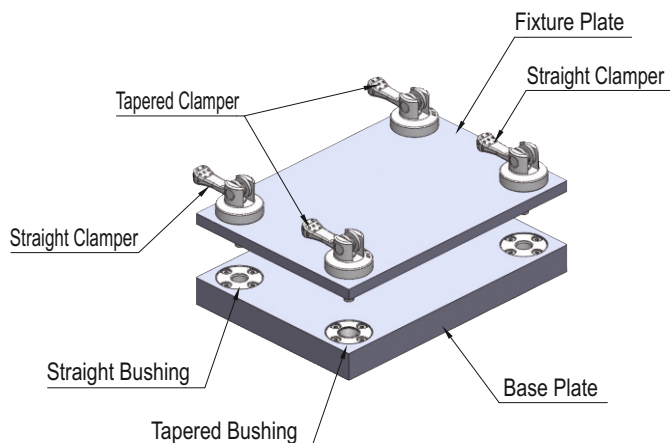
If the screws are not tightened in the correct order, the locating repeatability may exceed 8μm.

How To Use

■Horizontal Assembly

Two sets of tapered pin and straight pin

Note: Ensure not to lift the fixture plate up and down with gripping the cam handle of the clampers.



■Vertical Assembly

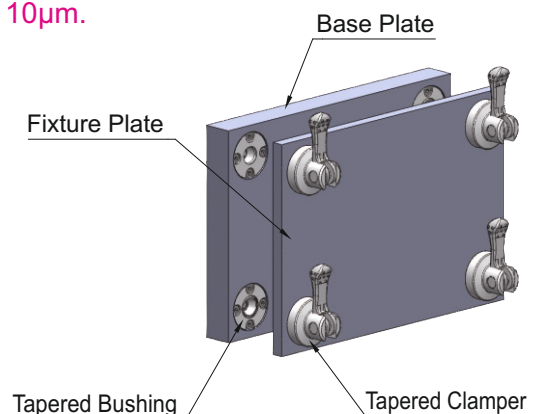
In vertical assembly, the locating repeatability is 10μm.

Size		Maximum Loading Capacity (N)
CP730	0939	400
	1246	600
CP735	1656	1000

Size		Maximum Loading Capacity (N)
CP731	0939	250
	1246	400
CP735	1656	600

Note: The maximum load is the entire sum of the load of fixture plates, fixtures and workpieces.

Note: The maximum loading capacity shown is the value when two sets of tapered clamper and tapered bushing are used.



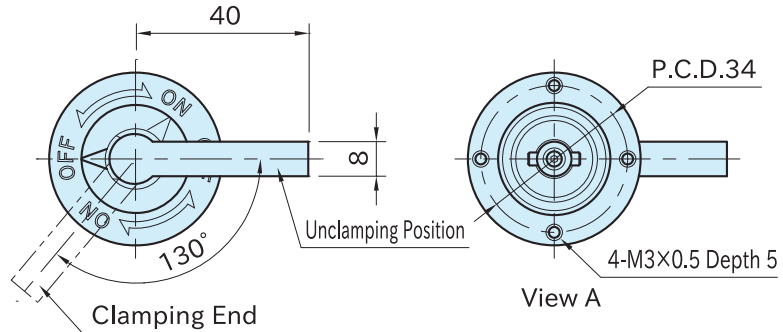
CP722 - One Touch Flex Locator Clampers



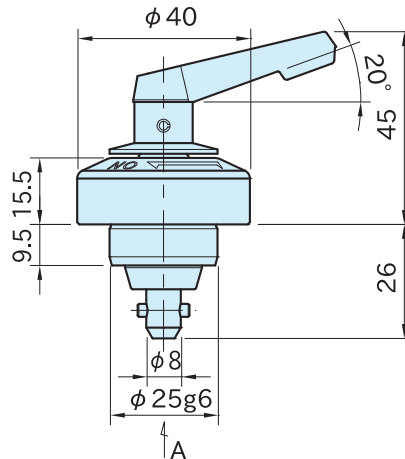
Body / Shank	Tapered Pin	Handle	Pin
Steel(SCM440) Black Oxide Finished	SCM440 ISONITE Treated (Nitrocarburized)	Die cast zinc(ZDC1) ZDC1 Silver-gray painted	SUS303 Stainless steel



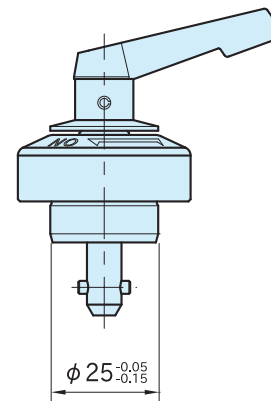
CP722-0840R-06



CP722-0840R-06N



CP722-0840R-06



CP722-0840R-06N

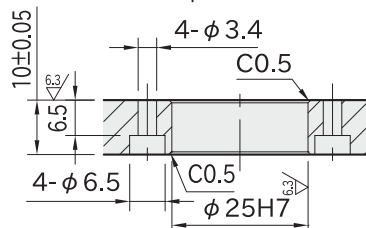
Part Number	Tapered Pin	Clamping Force (N)	Lifting Force (N) (*)	Weight (g)	Proper One-Touch Flex Locator Bushing
CP722-0840R-06	With	600	100	220	CP727-0840R
CP722-0840R-06N	Without	700	—	215	

*) The lifting force is the power of the inner spring of the body to push up the movable tapered pin.

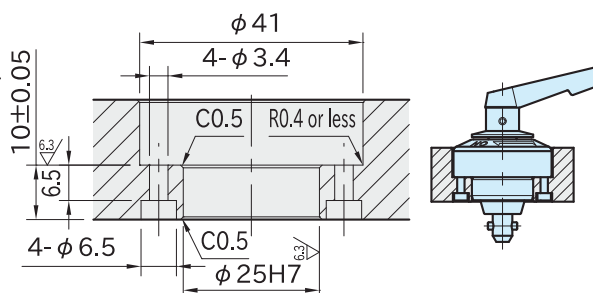
How To Use

Mounting Hole Dimensions

Can be used with plates of 10mm - 22mm thickness.



Installation on 10mm-thick Plate



Installation on 10mm-22mm Thick Plate
Drill a counterbored hole.

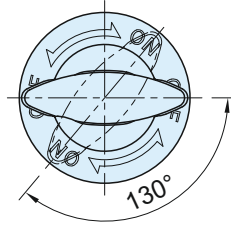
Reference

•How To Use ONE-TOUCH FLEX LOCATORS

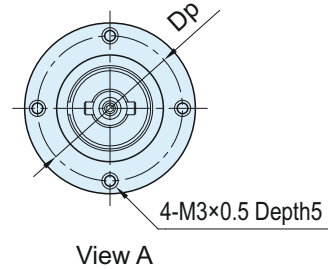
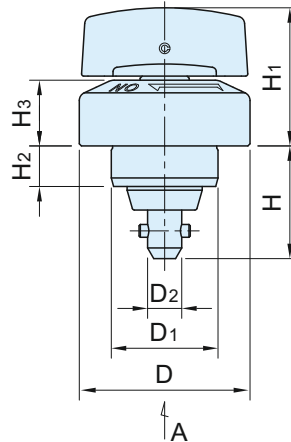
Furnished Part:

4 of M3×0.5-10L Hex Socket-Head Cap Screw

CP723 - One-Touch Flex Locator Clampers (Knob)



Body / Shank	Tapered Pin	Knob	Pin
Steel (SCM440) Black oxide finished	Steel (SCM440) ISONITE Treated (Nitrocarburized)	Stainless steel (SCS13) (Equivalent to SUS304)	Stainless steel (SUS304)



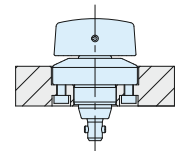
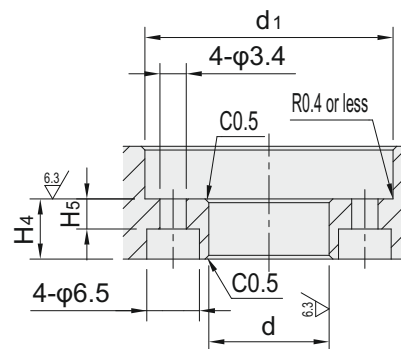
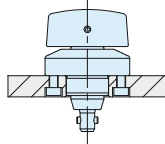
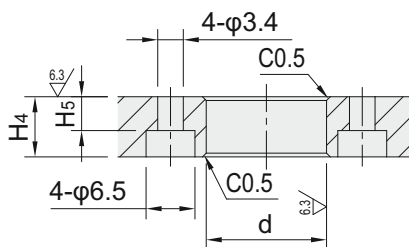
Part Number	D ₁ (g6)	H ₂	D	H ₁	H ₃	D ₂	H	D _p
CP723-0632R-04	16	7.5	32	27	12.0	5.5	22	25.5
CP723-0840R-06	25	9.5	40	32	15.5	8.0	26	34.0

Part Number	Clamping Force (N)	Lifting Force (N) *)	Weight (g)	Proper Bushing
CP723-0632R-04	350	30	96	CP727-0632R
CP723-0840R-06	600	100	211	CP727-0840R

*) The lifting force is the power of the inner spring of the body to push up the movable tapered bushing.

How To Use

■Mounting Hole Dimensions



Part Number	d (H7)	H ₄ (±0.05)	d ₁	H ₅
CP723-0632R-04	16	8	33	4.0
CP723-0840R-06	25	10	41	6.5

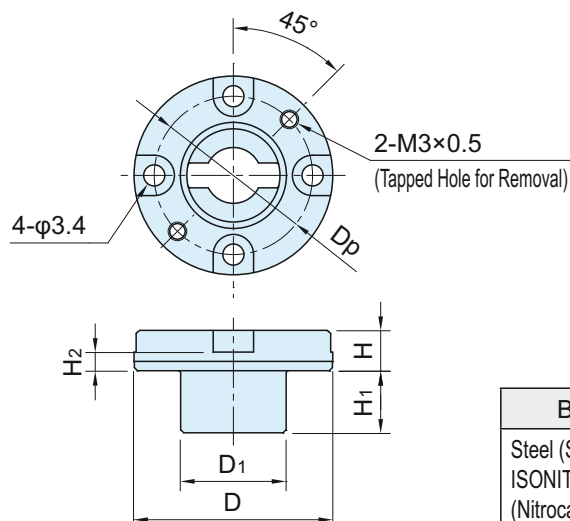
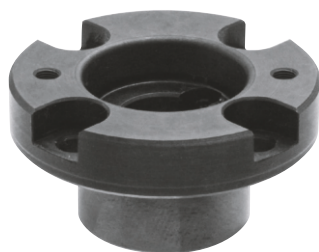
Supplied With

- **CP723-0632R-04** : Four pieces of hex. socket-head cap screws M3×0.5-8L
- **CP723-0840R-06** : Four pieces of hex. socket-head cap screws M3×0.5-10L

Reference

- Features of ONE-TOUCH FLEX LOCATOR BUSHINGS
- How To Use ONE-TOUCH FLEX LOCATORS (Knob)

CP727 - One-Touch Flex Locator Bushings

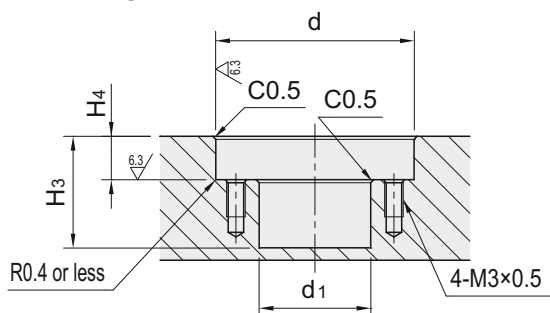


Body
Steel (SCM440) ISONITE Treated (Nitrocarburized)

Part Number	D (g6)	H	D ₁	H ₁	H ₂	D _p	Weight (g)
CP727-0632R	28	5.5	12.5	8	2	21.5	20
CP727-0840R	32	6.5	17	10	3	25.5	32

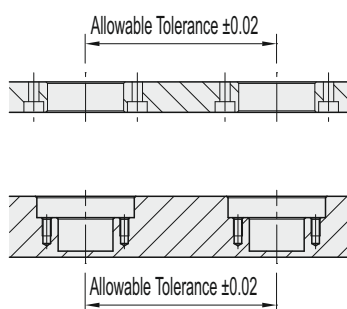
How To Use

■ Mounting Hole Dimensions

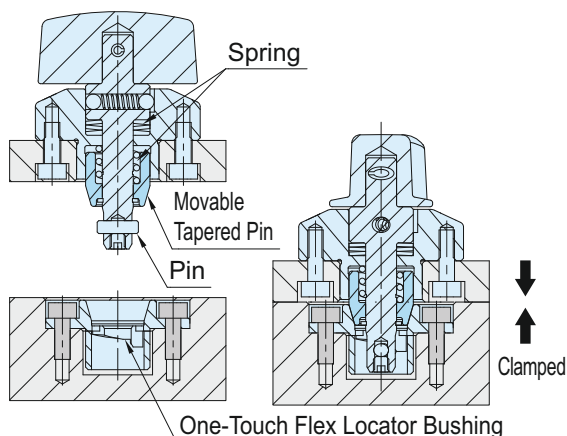


Part Number	d (H7)	H ₄ (±0.05)	d ₁	H ₃
CP727-0632R	28	6	13.5	15
CP727-0840R	32	7	13	18

■ Spacing Tolerance



Features



- The plate is located by fitting of the tapered parts.
- The pin contacts the cam surface inside the One-Touch Flex Locator Bushing, and it compresses the inner spring, then the plate is clamped.

Related Product

- **CP722** ONE-TOUCH FLEX LOCATOR CLAMPERS
- **CP723** ONE-TOUCH FLEX LOCATOR CLAMPERS (Knob)

Reference

<CP722>

- Mechanism of FLEX LOCATORS
- How To Use ONE-TOUCH FLEX LOCATORS

<CP723>

- How To Use ONE-TOUCH FLEX LOCATORS (Knob)

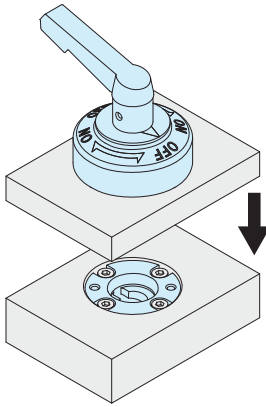
Visit us at

<http://www.imao.biz/en/>

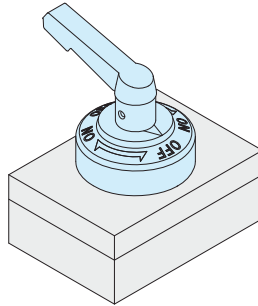
for more details of our latest information,
CAD downloads or movie data.

How To Use ONE-TOUCH FLEX LOCATORS

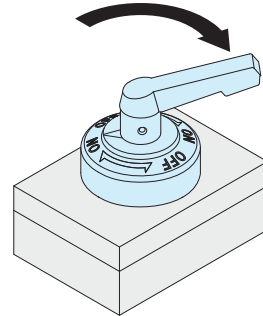
How To Operate



1. Ensure that the handle is positioned at the "OFF" mark.



2. Insert the clamber to the receiver bushing.



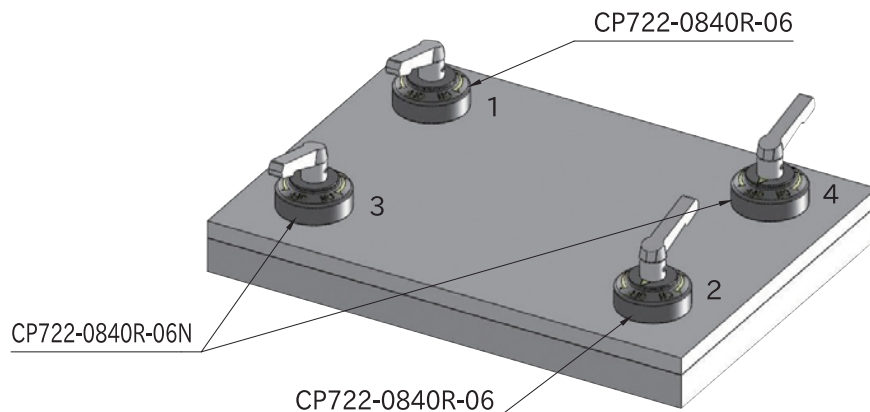
3. Turn the handle to the "ON" mark for clamping.
※For unclamping, follow back these steps.

Tightening Order of Handles

①Ensure that the handle is positioned at the "OFF" mark and lift down the fixture plate.

②Turn the handle and clamp in order of 1→2→3→4.

※For unclamping, ensure that the handle is positioned at the "OFF" mark and disassemble the fixture plate.

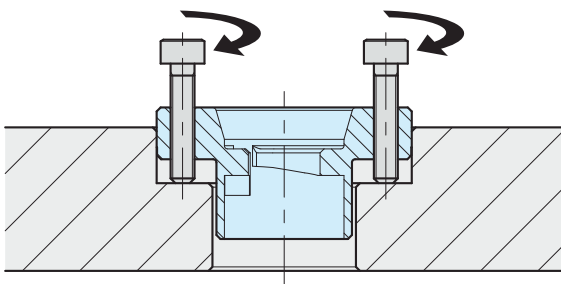


If the handles are not tightened in the correct order, the locating repeatability may exceed $10\ \mu\text{m}$.

How To Use

■How to Remove the One-Touch Flex Locator Bushing

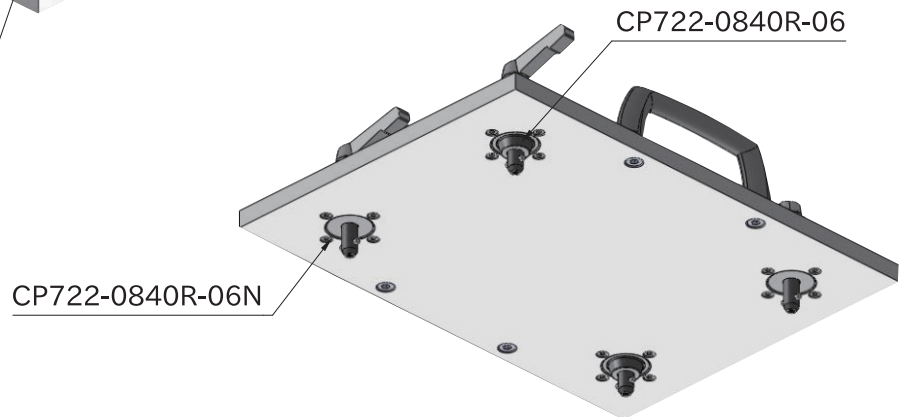
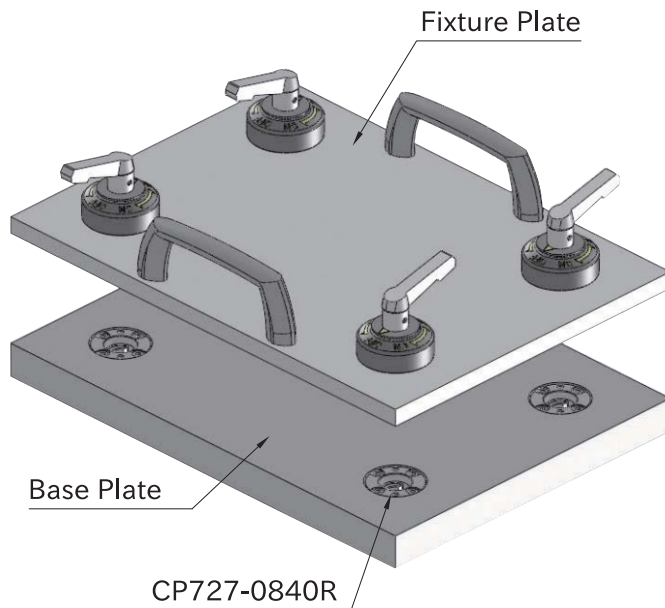
For removal, insert the screws into the tapped holes and screw it.



■ Horizontal Assembly of Fixture Plate

Assemble with 2 pcs. each of CP722-0840R-06 and CP722-0840R-06N.

※Ensure not to lift the fixture plate up and down with gripping the handle of the clampers.



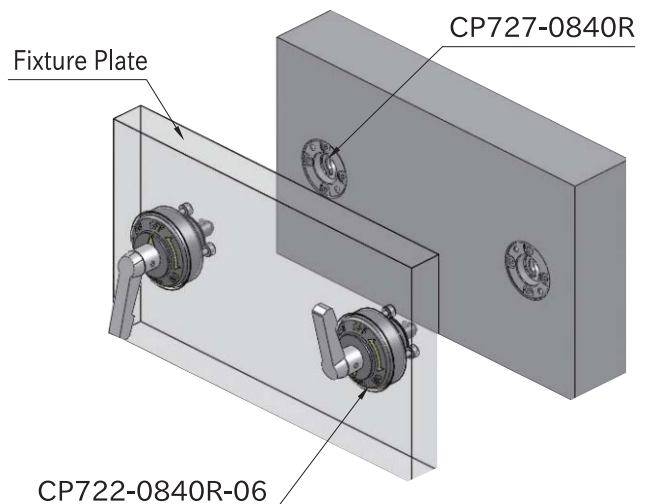
■ Vertical Assembly of Fixture Plate

In vertical assembly, the locating repeatability is 20 μ m.

Size		Maximum Loading Capacity (N)
CP722	0840R	400
CP727		

*) The maximum load is the entire sum of the load of fixture plates, fixtures and workpieces.

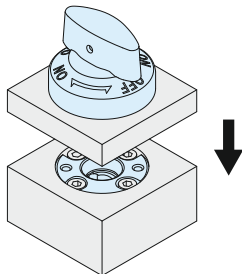
*) The maximum loading capacity shown is the value when two sets of CP722-0840R-06 and CP727-0840R are used.



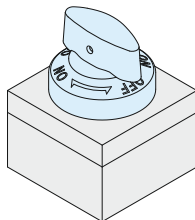
Continuing on Next Page

How To Use ONE-TOUCH FLEX LOCATORS (Knob)

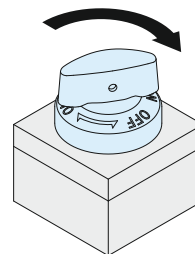
How To Operate



1. Ensure that the knob is positioned at the "OFF" mark.



2. Insert the clamber to the bushing.



3. Turn the knob to the "ON" mark for clamping.

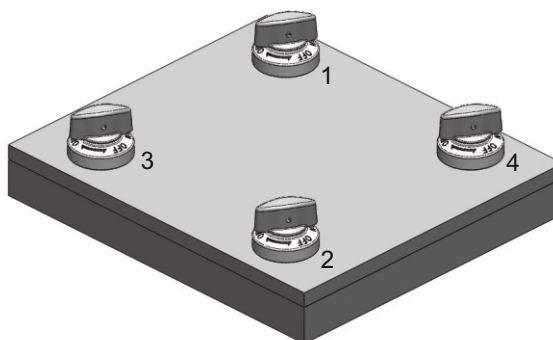
Note: For unclamping, follow back these steps.

Tightening Order of Knobs

1. Ensure that the knob is positioned at the "OFF" mark and lift down the fixture plate.

2. Turn the handle and clamp in order of 1→2→3→4.

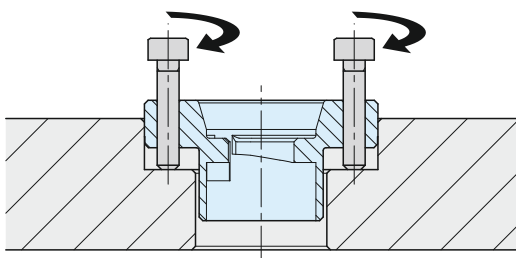
Note: For unclamping, ensure that the knob is positioned at the "OFF" mark and disassemble the fixture plate.



If the knobs are not tightened in the correct order, the locating repeatability may exceed 10µm.

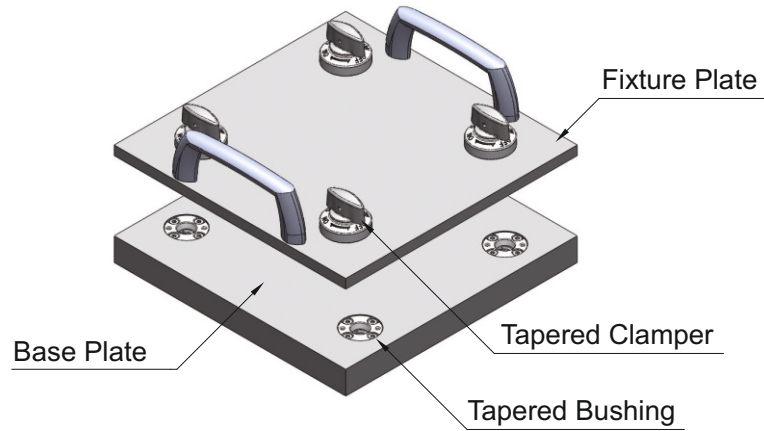
How To Use

- How to Remove the One-Touch Flex Locator Bushing
For removal, insert the screws into the tapped holes and screw them.



■Horizontal Assembly

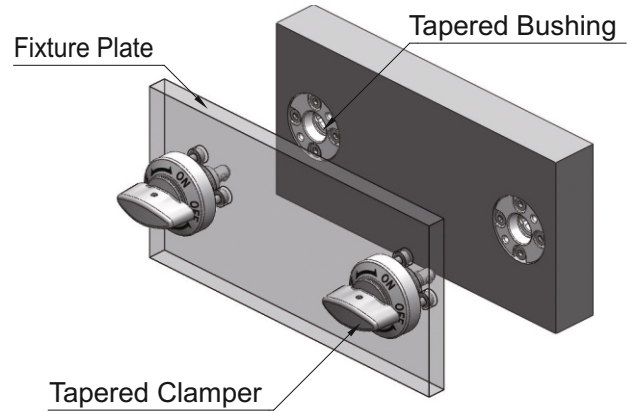
Note: Ensure not to lift the fixture plate up and down with gripping the knob of the clampers.



■Vertical Assembly

In vertical assembly, the locating repeatability is 20µm.

Size		Maximum Loading Capacity (N)
CP723	0632R	120
CP727	0840R	400



Note: The maximum load is the entire sum of the load of fixture plates, fixtures and workpieces.

Note: The maximum loading capacity shown is the value when two sets of tapered clamper and tapered bushing are used.

ONE-TOUCH FASTENERS



Additional line-ups!
Easy to mount!
 Only **Tapped Hole** or **Through Hole** is required!

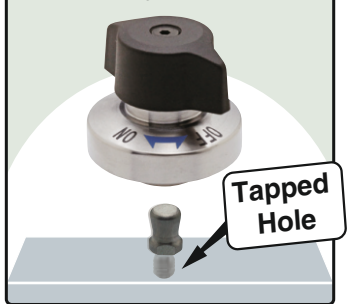
Screwless! Time Saving!

ONE-TOUCH FASTENERS

Alternatives To Screws

PIN HOLDING CLAMPS **NEW**

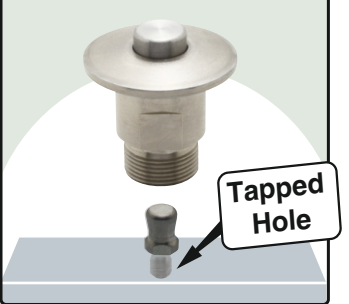
Pin clamping design enables space-saving application



Tapped Hole

SNAP-IN CLAMPS **NEW**

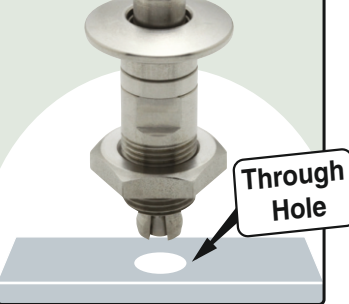
Quick & easy snap-in operation



Tapped Hole

HOLE HOLDING CLAMPS **NEW**

Receptacle is not required.

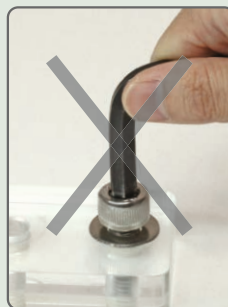


Through Hole

Easy! **Secure!**

Kaizen for Frequent Set-Ups!

Quick fasteners alternative to screws for quick changeover with no tools! One-Touch Fasteners slash setup time and provide positive locking with easy operation.

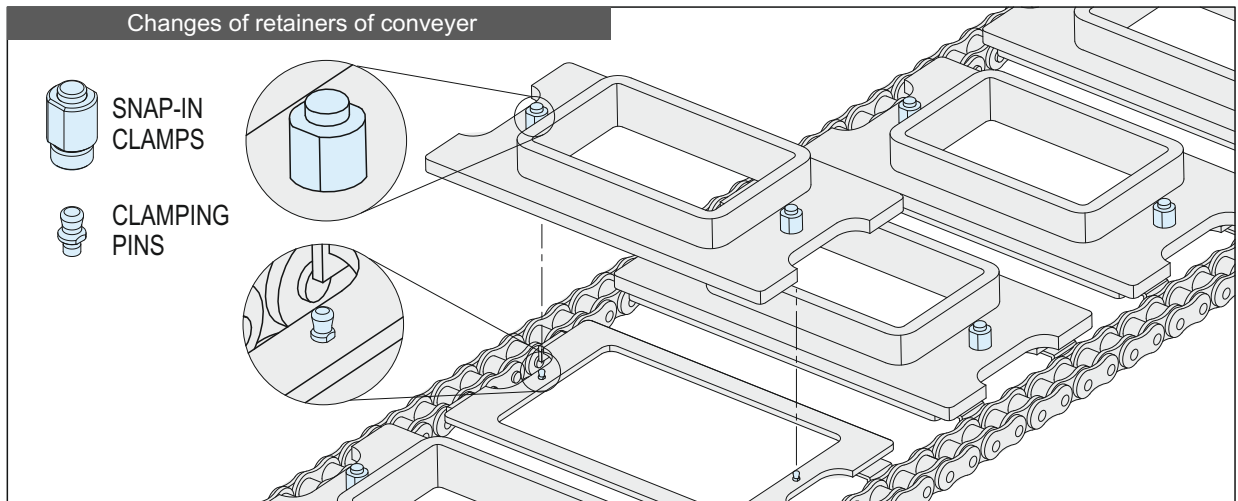
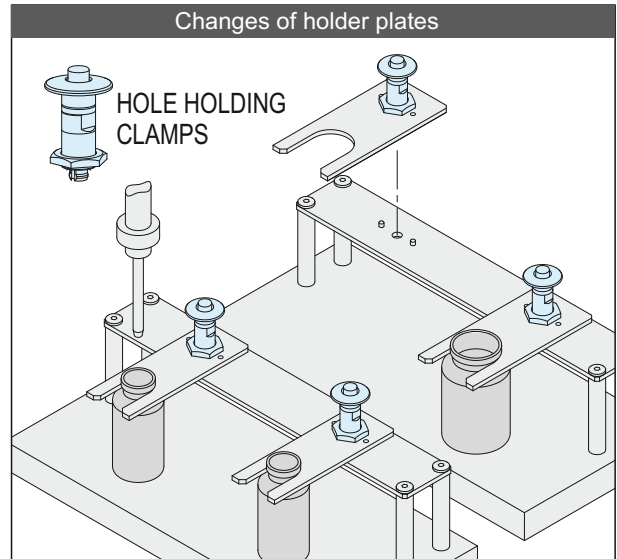
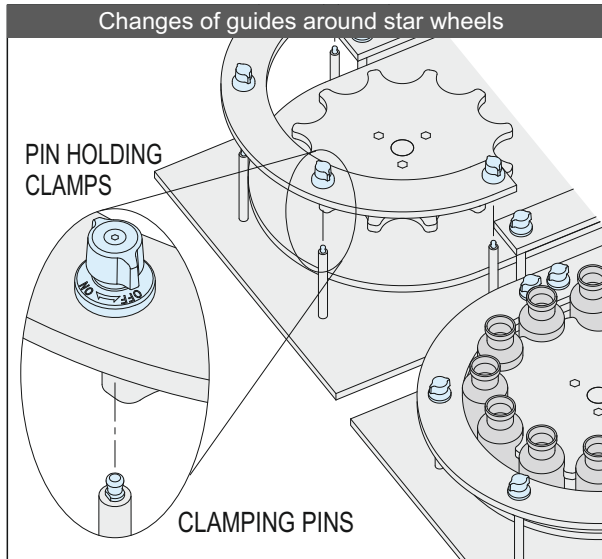


Screw



ONE-TOUCH FASTENERS

Application Examples

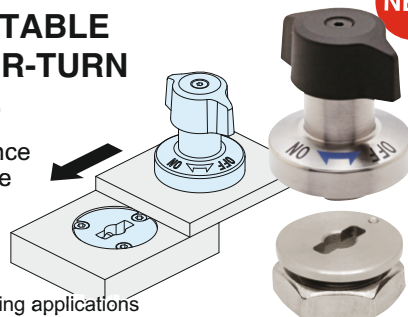


Lineups

RETRACTABLE QUARTER-TURN CLAMPS

No interference
by retractable
shank

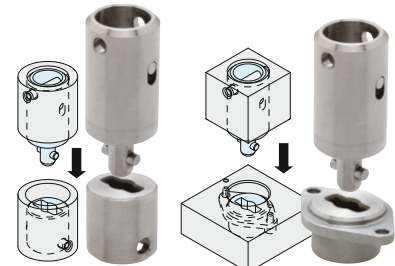
For sliding applications



NEW

SHAFT COUPLING CLAMP

Multipurpose
coupling
element



NEW

QUARTER-TURN CLAMPS

Easy-to-read
ON/OFF position



KNOB-LOCKING CLAMPS

Secure clamping with wedge.
Easy-to-read ON/OFF position.



BUTTON-LOCKING PINS

Securely locked with wedge
upon releasing button.



BALL-LOCK CLAMPINGS



MAGNET- LOCK CLAMPINGS



QCTH, QCTHL Quarter-Turn Clamps



Stainless Steel

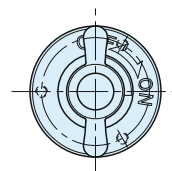
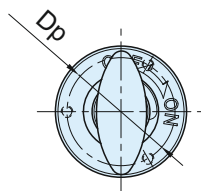
Electroless Nickel Plated

★Key Point

Easy-to-read ON/OFF position

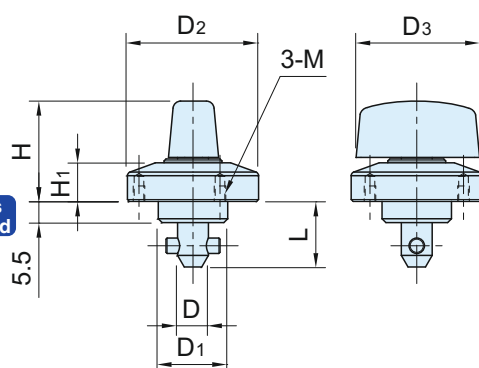


QCTH
(Plastic Knob)



QCTH-S
(Metal Knob)

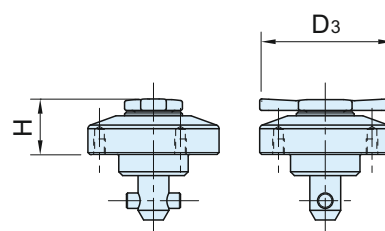
Electroless Nickel Plated



QCTH
(Plastic Knob)

QCTH-S
(Metal Knob)

QCTH-SUS
(Stainless Steel)

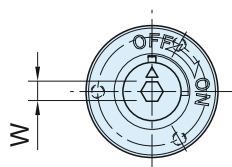


QCTHL-S
(Low-height Knob)



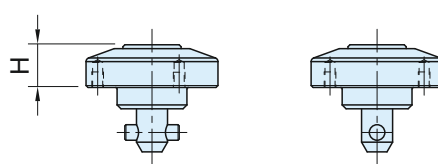
QCTH-SUS
(Stainless Steel)

Stainless Steel



QCTHL-S
(Low-height Knob)

Electroless Nickel Plated



QCTHH
(Hex. Socket Head)



QCTHH
(Hex. Socket Head)

Electroless Nickel Plated

Type	Body	Shank	Pin	Knob	Spring
QCTH	S45C steel Electroless nickel plated	S45C steel Electroless nickel plated	SUS304 stainless steel	Polyamide (glass-fiber reinforced) Black	Equivalent to SWOSC-V steel
QCTH-S				SCS13 stainless steel (Equivalent to SUS304)	
QCTHL-S				-	
QCTHH				-	
QCTH-SUS	SCS13 stainless steel (Equivalent to SUS304)	SUS303 stainless steel		SCS13 stainless steel (Equivalent to SUS304)	SUS304 stainless steel

QCTH, QCTHL Quarter-Turn Clamps

Size		Proper Plate Thickness	D ($\begin{smallmatrix} 0 & 0.04 \\ 0 & 0.08 \end{smallmatrix}$)	D ₁ (h9)	D ₂	L	H ₁	M	Dp	Clamping Force (N)	Proper Cam Receptacles
QCTH	0525-10	6~10	5	14	25	15.5	6.5	M2x0.4 3-deep	21	60	QCTH0525-N,QCTH0525-B QCTH0525-N-SUS,QCTH0525-B-SUS
QCTH-S											
QCTHL-S											
QCTH-SUS	0834-14	6~14	8	18	34	17	10	M3x0.5 4-deep	28	90	QCTH0834-N,QCTH0834-B QCTH0834-N-SUS,QCTH0834-B-SUS
QCTHH	0834-20	12~20				23					

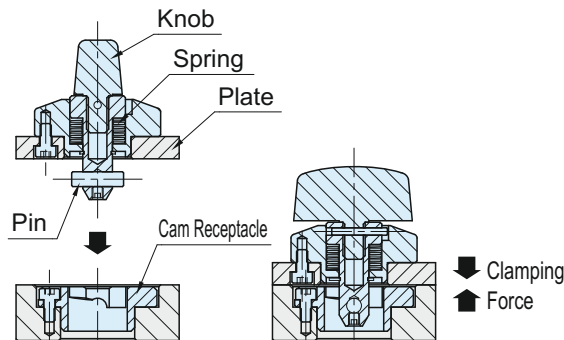
QCTH (Plastic Knob)				QCTH-S (Metal Knob)				QCTHL-S (Low-height Knob)			
Part Number	D ₃	H	Weight (g)	Part Number	D ₃	H	Weight (g)	Part Number	D ₃	H	Weight (g)
QCTH0525-10	20	19	35	QCTH0525-10S	20	19	40	QCTHL0525-10S	25	11.5	35
QCTH0834-14 QCTH0834-20	32	26	105 110	QCTH0834-14S QCTH0834-20S	32	25.5	130 135	QCTHL0834-14S QCTHL0834-20S	34	15.5	80 85

QCTH-SUS (Stainless Steel)				QCTHH (Hex. Socket Head)			
Part Number	D ₃	H	Weight (g)	Part Number	H	W	Weight (g)
QCTH0525-10-SUS	20	19	40	QCTHH0525-10	8	4	30
QCTH0834-14-SUS QCTH0834-20-SUS	32	25.5	130 135	QCTHH0834-14 QCTHH0834-20	11	5	105 110

Supplied With

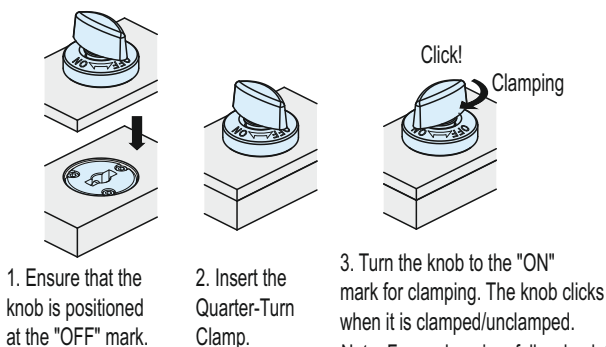
- **QCTH** **QCTH-S** **QCTHL-S** **QCTH-SUS** **QCTHH** 0525-10 : 3 of socket-head cap screws (stainless steel), M2x0.4-5L
- **QCTH** **QCTH-S** **QCTHL-S** **QCTH-SUS** **QCTHH** 0834-14, 0834-20 : 3 of socket-head cap screws (stainless steel), M3x0.5-6L

Feature

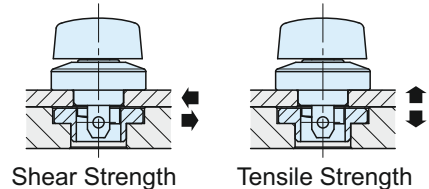


When the pin contacts the cam in the Cam Receptacle, the spring gets compressed to press down the plate.

How To Use



Technical information



Part Number	Heatresistant Temperature (°C)	Shear Strength (N)	Tensile Strength (N)
QCTH 0525-10	130	1800	1200
0834-14		3200	2600
0834-20		3200	2600
QCTH-S 0525-10	200	1800	1200
QCTHL-S 0834-14		3200	2600
QCTH-SUS 0834-20		3200	2600

QCTH-N, QCTH-B CAM RECEPTACLES

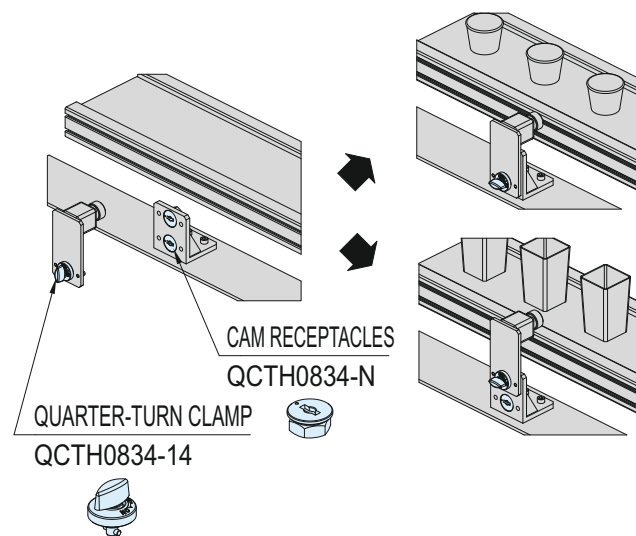


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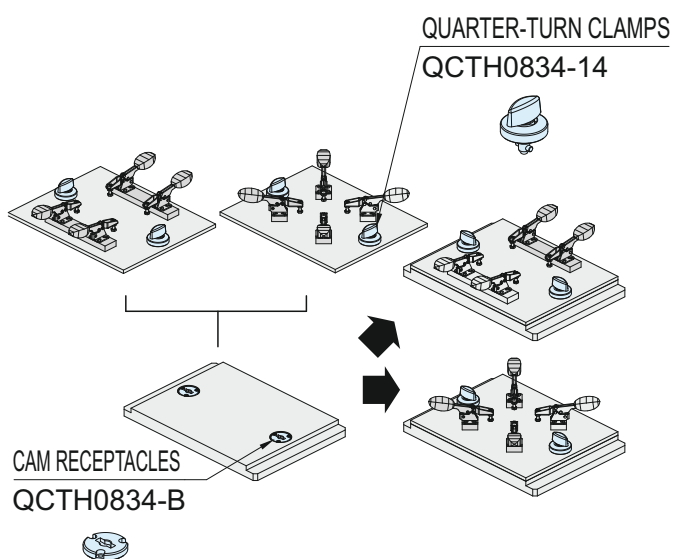
QCTH, QCTHL Quarter-Turn Clamps

Application Examples

Changes of camera positions



Changes of fixture plates



How To Mount

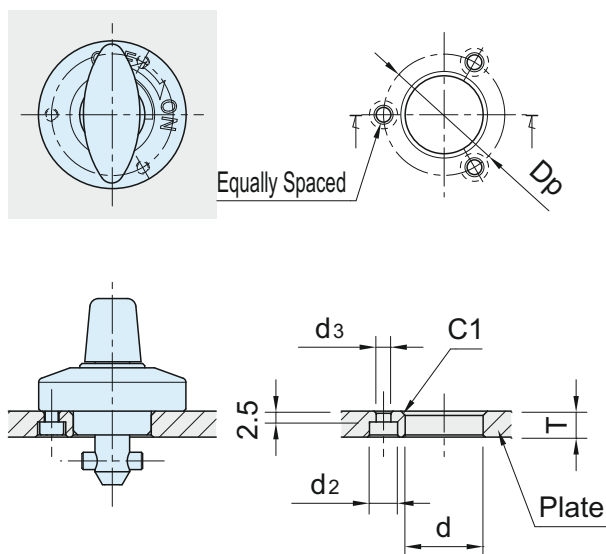


Figure A

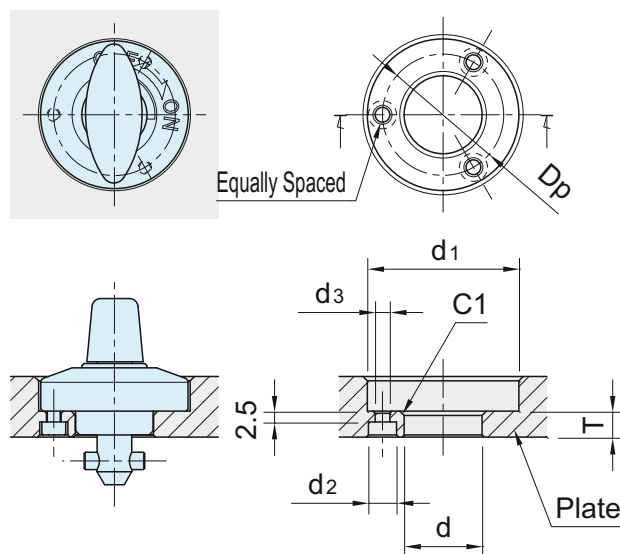


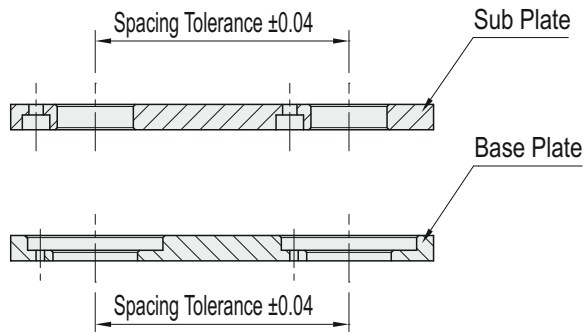
Figure B

Part Number		Proper Plate Thickness	Figure	d ($+0.10$ $+0.05$)	d ₁	T (± 0.2)	d ₂	d ₃	D _p
QCTH	0525-10	6	A	14	-	6	4.4	2.4	21
		Over 6, 10 or less	B		26				
QCTH-S	0834-14	6	A	18	-	12	6.5	3.4	28
		Over 6, 14 or less	B		35				
QCTHL-S	0834-20	12	A		-				
		Over 12, 20 or less	B		35				

QCTH, QCTHL Quarter-Turn Clamps

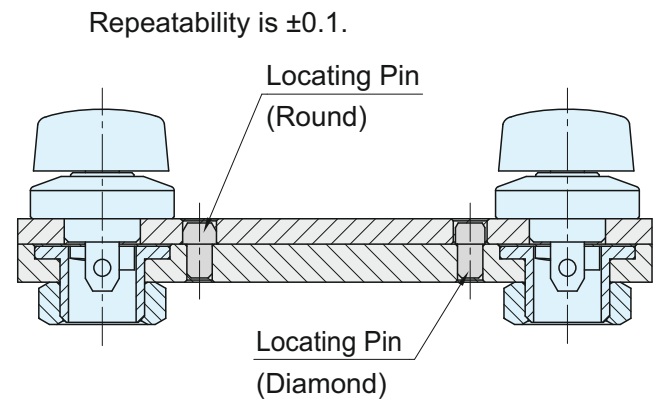
Accuracies

■ Machining Accuracy



Spacing tolerance on both the sub plate and the base plate should be ± 0.04 .

■ Repeatability



For highly accurate locating, use locating pins.

Reference

"How To Mount" of [QCTH-N](#) [QCTH-B](#) [QCTH-N-SUS](#) [QCTH-B-SUS](#) Cam Receptacles

QCTHA

Retractable Quarter-Turn Clamps



Electroless
Nickel Plated

★Key Point

No interference
by retractable shank



QCTHA

(Plastic Knob) (Metal Knob)
(OFF position)

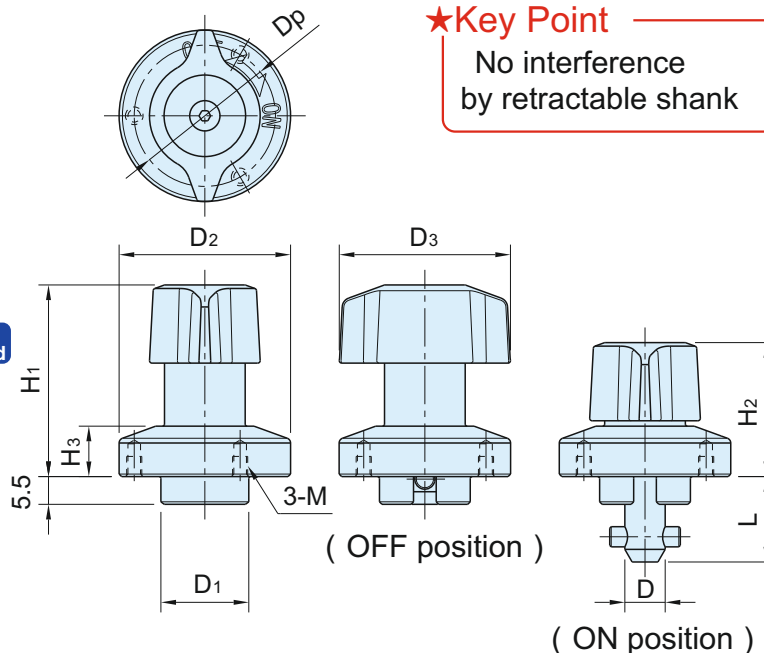


QCTHA-S



QCTHA

(ON position)



Type	Body/Shank	Pin	Knob	Spring	Coiled spring
QCTHA	S45C steel Electroless nickel plated	SUS304 stainless steel	Polyamide (glass-fiber reinforced) Black	SUS304WPB stainless steel	Equivalent to SWOSC-V steel
QCTHA-S			SCS13 stainless steel (Equivalent to SUS304)		

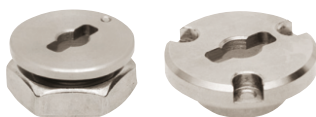
Size	Proper Plate Thickness	D ($\begin{smallmatrix} 0 \\ -0.04 \end{smallmatrix}$)	D ₁ (h9)	D ₂	D ₃	L	H ₁	H ₂	H ₃	M	D _p	Clamping Force (N)	Proper Cam Receptacles
QCTHA 0525-10	6~10	5	14	25	25	15.5	30	20	6.5	M2×0.4 3-deep	21	60	QCTH0525-N, QCTH0525-B QCTH0525-N-SUS, QCTH0525-B-SUS
QCTHA-S 0834-14	6~14	8	18	34	34	17	38	26.5	10	M3×0.5 4-deep	28	90	QCTH0834-N, QCTH0834-B QCTH0834-N-SUS, QCTH0834-B-SUS

QCTHA (Plastic Knob)		QCTHA-S (Metal Knob)	
Part Number	Weight (g)	Part Number	Weight (g)
QCTHA0525-10	40	QCTHA0525-10S	50
QCTHA0834-14	100	QCTHA0834-14S	120

Supplied With

- QCTHA** **QCTH-S** 0525-10 : 3 of socket-head cap screws(stainless steel), M2×0.4-5L
- QCTHA** **QCTH-S** 0834-14 : 3 of socket-head cap screws(stainless steel), M3×0.5-6L

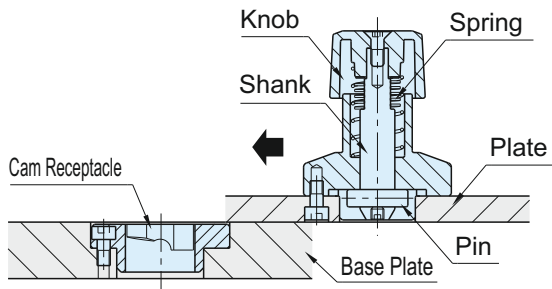
QCTH-N, QCTH-B Cam Receptacles



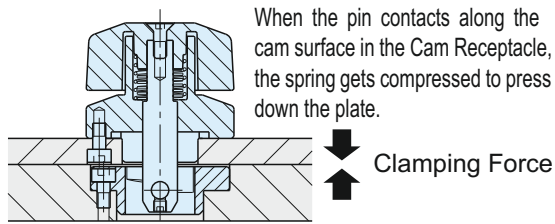
QCTHA

Retractable Quarter-Turn Clamps

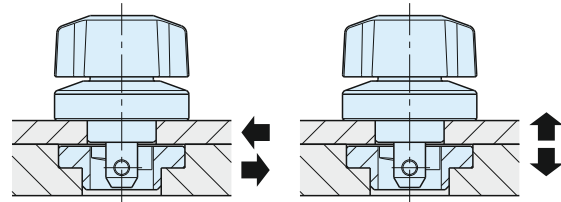
Features



The shank retracts at the unclamping position to enable operations without interference with the base plate.



Technical Information

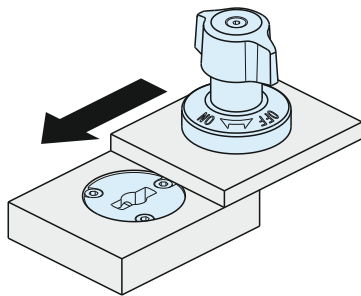


Shear Strength

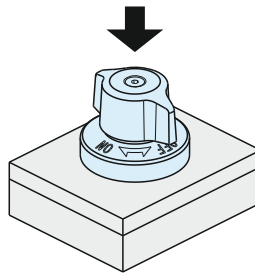
Tensile Strength

Part Number	Heatresistant Temperature (°C)	Shear Strength (N)	Tensile Strength (N)
QCTHA0525-10	130	1800	1200
QCTHA0834-14		3200	400
QCTHA0525-10S	200	1800	1200
QCTHA0834-14S		3200	400

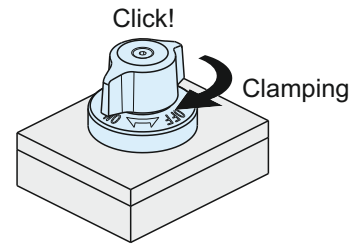
How To Use



1. Ensure that the knob is positioned at the "OFF" mark and the shank is retracted.



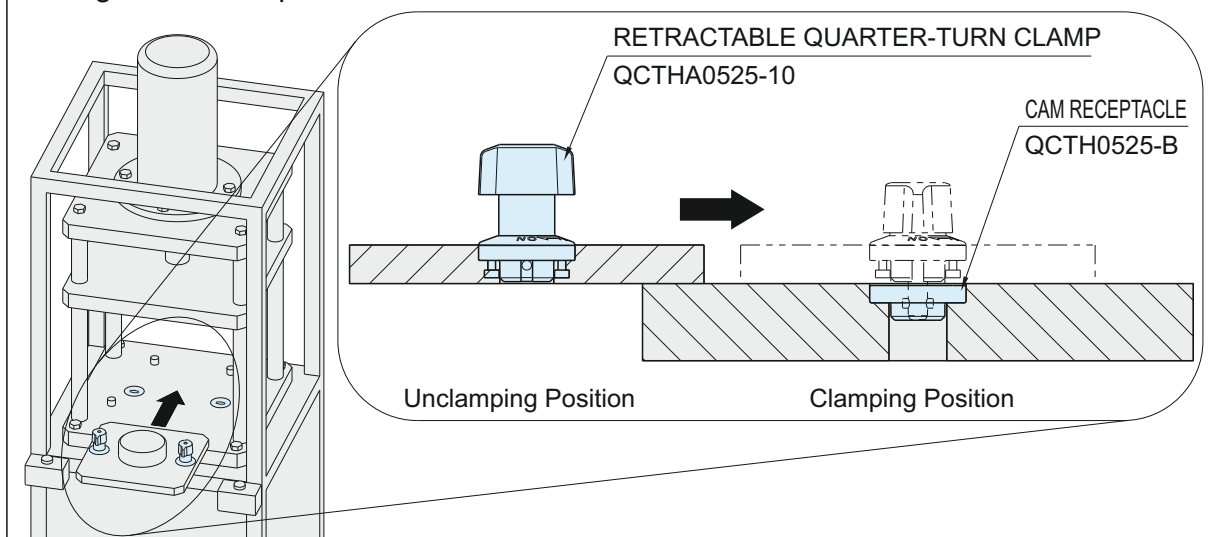
2. Insert Retractable Quarter-Turn Clamp pressing the knob.



3. Turn the knob to the "ON" mark for clamping. The knob clicks when clamped. Turning the knob to the "OFF" position, the shank returns automatically to the unclamping position by the spring.

Application Examples

Changes of fixture plates

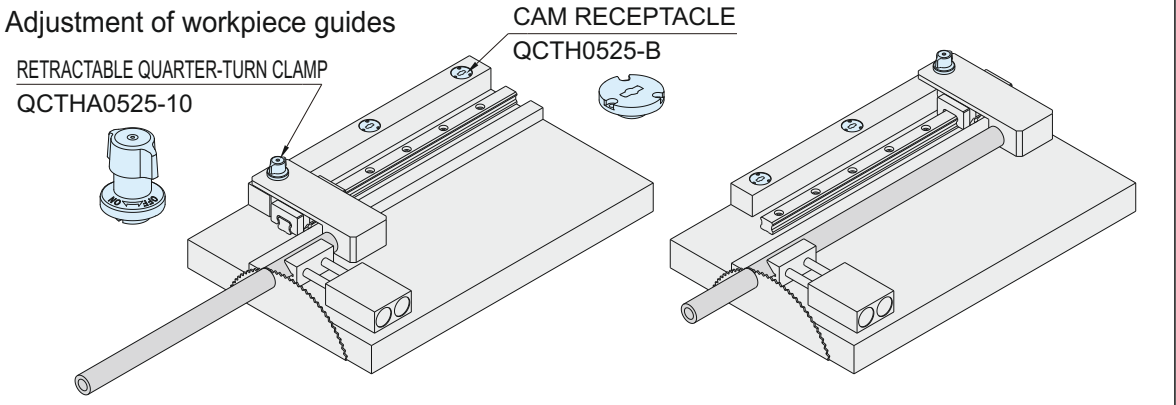
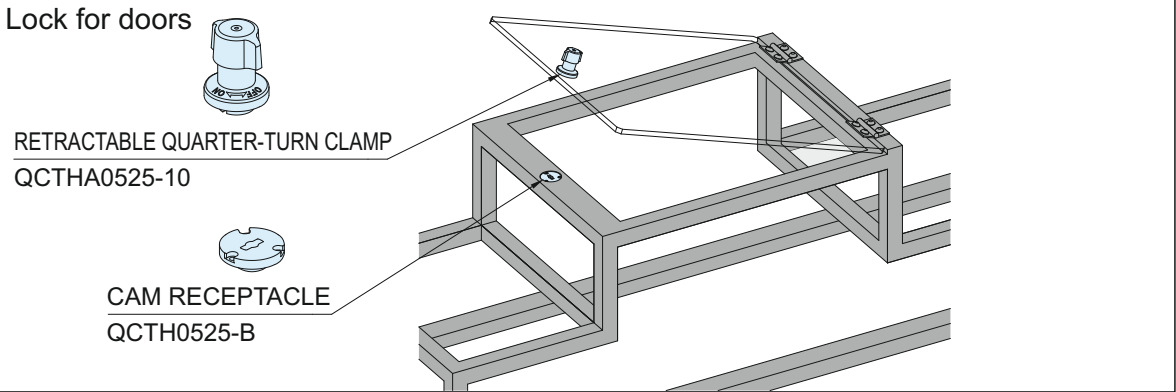


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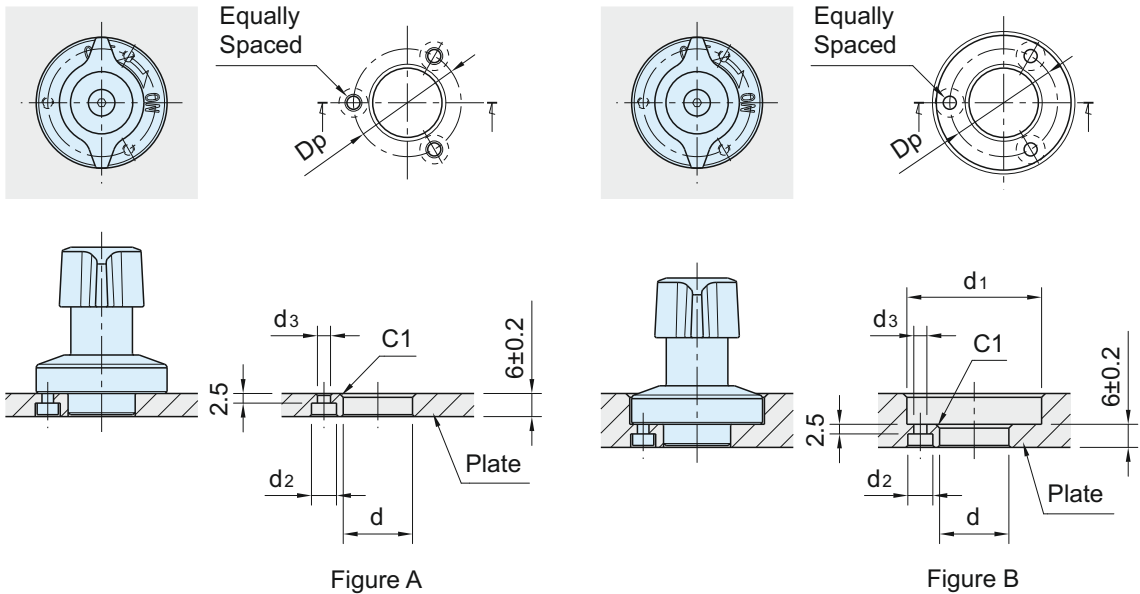
QCTHA

Retractable Quarter-Turn Clamps

Application Examples



How To Mount



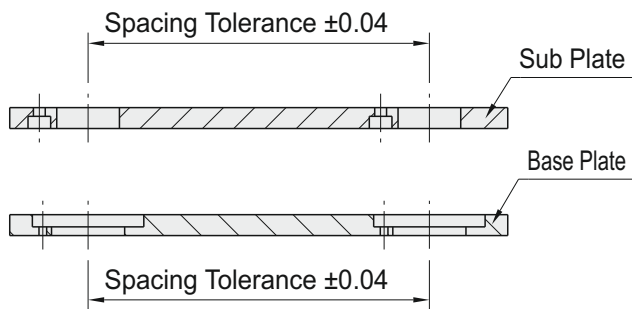
Part Number		Proper Plate Thickness	Figure	d ($\begin{smallmatrix} +0 & : & 10 \\ +0 & : & 05 \end{smallmatrix}$)	d ₁	d ₂	d ₃	Dp
QCTHA QCTHA-S	0525-10	6	A	14	-	4.4	2.4	21
		Over 6, 10 or less	B		26			
	0834-14	6	A	18	-	6.5	3.4	28
		Over 6, 14 or less	B		35			

QCTHA

Retractable Quarter-Turn Clamps

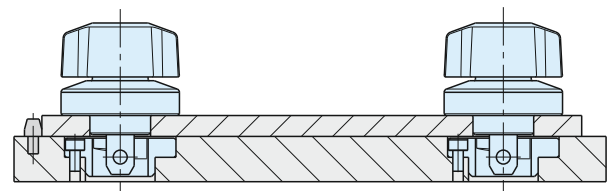
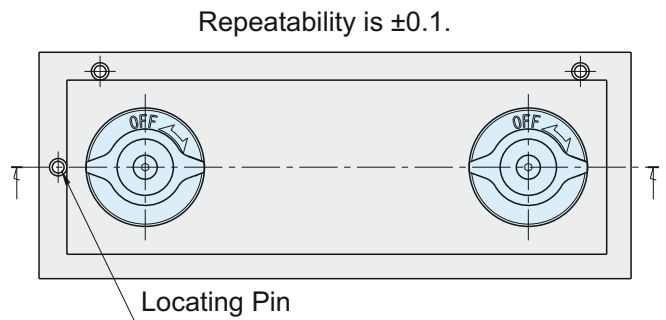
Accuracies

■ Machining Accuracy



Spacing tolerance on both the sub plate and the base plate should be ± 0.04 .

■ Repeatability

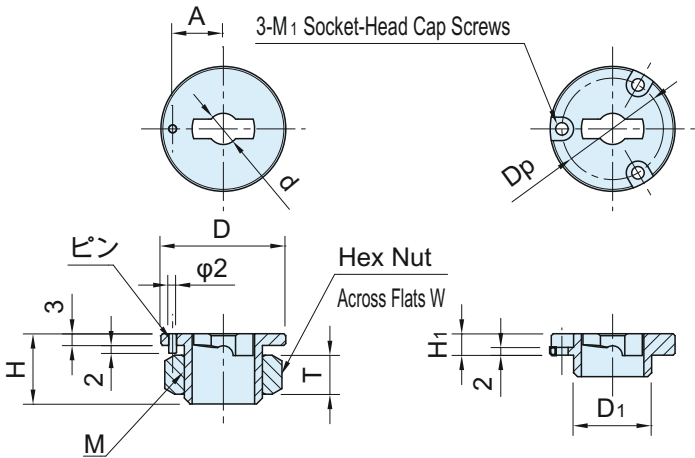


For highly accurate locating, use locating components.

Reference

"How To Mount" of [QCTH-N](#) [QCTH-B](#)
[QCTH-N-SUS](#) [QCTH-B-SUS](#) Cam Receptacles

QCTH-N,QCTH-B - Cam Receptacles



QCTH-N QCTH-N-SUS (Thin-Plate Mount, Stainless Steel)
QCTH-B QCTH-B-SUS (Embedded Mount, Stainless Steel)

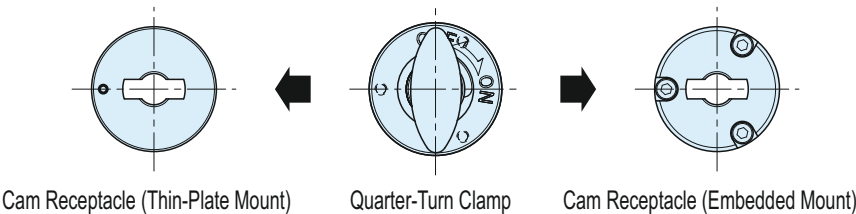
Type	Body	Nut
QCTH-N	SCM440 steel	Stainless steel
QCTH-B	Electroless nickel plated	-
QCTH-N-SUS	SCS24 stainless steel	Stainless steel
QCTH-B-SUS	(Equivalent to SUS630)	-

Part Number	Proper Plate Thickness		D		H	d ($\begin{smallmatrix} 0 & 0 & 0 \\ 0 & 0 & 4 \end{smallmatrix}$)	A (± 0.1)	M	T	W	D ₁ ($\begin{smallmatrix} 0 & 0 & 0 \\ 0 & 0 & 8 \end{smallmatrix}$)	H ₁	M ₁	D _p	Weight (g)	Proper Quarter-Turn Clamps				
QCTH0525-N	Thin-Plate Mount	6~10	25	-0.04 -0.08	16	5	10.5	M14× 1.5 (fine thread)	8	22	-	-	-	-	40	QCTH	0525-10			
QCTH0525-N-SUS		6~12	32		18	8	13	M20× 1.5 (fine thread)	10	30					55	QCTH-S	0834-14 0834-20			
QCTH0834-N															QCTHL-S					
QCTH0834-N-SUS															QCTH-SUS					
QCTH0525-B	Embedded Mount	Over 10	25	-	9	5	-	-	-	-	14	4.5	M2	21	20	QCTHH	0525-10			
QCTH0525-B-SUS		Over 12	32		11	8					-	-	-	20	5.5	M3	26	35	QCTHA	0834-14 0834-20
QCTH0834-B																			QCTHA-S	
QCTH0834-B-SUS																				

Supplied With

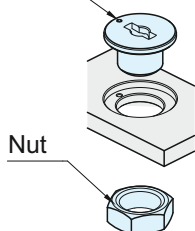
- QCTH0525-B QCTH0525-B-SUS : 3 of socket-head cap screws(stainless steel), M2x0.4-5L
- QCTH0834-B QCTH0834-B-SUS : 3 of socket-head cap screws(stainless steel), M3x0.5-6L

Mounting Positions

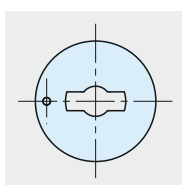


How To Mount

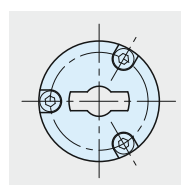
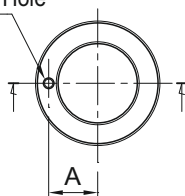
Locating Pin



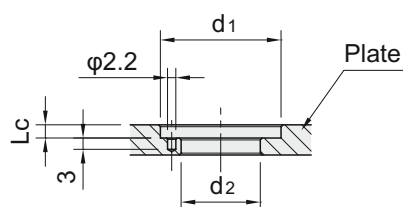
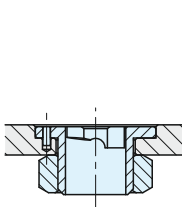
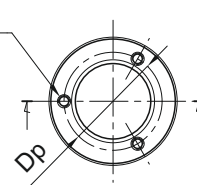
Locate the Cam Receptacle with the locating pin and fasten it with the nut.



Locating-Pin Hole

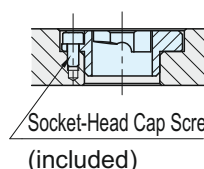


3-M
(Equally
Spaced)

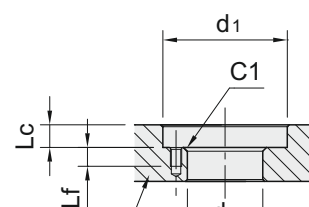


QCTH-N

(Thin-Plate Mount)



Socket-Head Cap Screw
(included)



QCTH-B

(Embedded Mount)

Part Number	Proper Plate Thickness		d ₁		d ₂		A (±0.1)	Lc (^{+ 0.1} ₀)	M	Lf	Dp
QCTH0525-N	Thin-Plate Mount	6~10	25	+0.10 +0.05	15	-	10.5	3.5	-	-	-
QCTH0525-N-SUS											
QCTH0834-N											
QCTH0834-N-SUS		6~12	32		21		13				
QCTH0525-B	Embedded Mount	Over 10	26	-	14	+0.10 +0.05	-	5	M2× 0.4	4	21
QCTH0525-B-SUS											
QCTH0834-B											
QCTH0834-B-SUS		Over 12	33		20			6	M3× 0.5	5	26

Reference

"Accuracies" of **QCTH** **QCTHL** **QCTHH** **QCTHA** Quarter-Turn Clamps

QCWE - Knob-Locking Clamps



Stainless Steel

Electroless Nickel Plated



QCWE

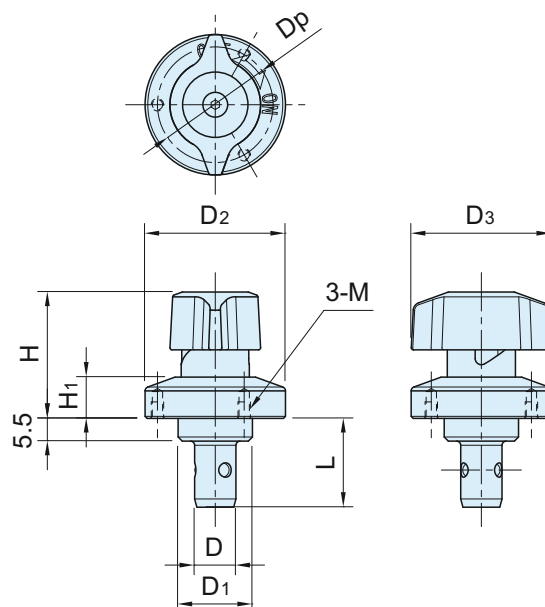


QCWE-S



QCWE-SUS

(OFF position)



QCWE

(ON position)

★Key Point

Secure clamping with wedge.

Type	Body	Shank	Knob	Ball	Spring
QCWE	S45C steel Electroless nickel plated	S45C steel Electroless nickel plated Quenched and tempered	Polyamide (glass-fiber reinforced) Black	SUS440C stainless steel Quenched and tempered	SUS304WPB stainless steel
QCWE-S			SCS13 stainless steel (Equivalent to SUS304)		
QCWE-SUS	SUS303 stainless steel	SUS420J2 stainless steel Quenched and tempered			

Size		Proper Plate Thickness	D (± 0.05)	D ₁ (h9)	D ₂	D ₃	L	H	H ₁	M	D _p	Clamping Force (N)	Proper Receptacle
QCWE	0625-10	6~10	6	14	25	25	19.5	24.5	6.5	M2×0.4 3 deep	21	30	QCBU0608-M12 QCBU0608-M12SUS
QCWE-S	1034-14	6~14	10	18	34	34	21.5	31	10	M3×0.5 4 deep	28	50	QCBU1012-M16 QCBU1012-M16SUS
QCWE-SUS	1034-20	12~20					27.5						

QCWE (Plastic Knob)		QCWE-S (Metal Knob)		QCWE-SUS (Stainless Steel)	
Part Number	Weight (g)	Part Number	Weight (g)	Part Number	Weight (g)
QCWE0625-10	40	QCWE0625-10S	50	QCWE0625-10-SUS	50
QCWE1034-14	95	QCWE1034-14S	120	QCWE1034-14-SUS	120
QCWE1034-20	100	QCWE1034-20S	130	QCWE1034-20-SUS	130

QCBU-M

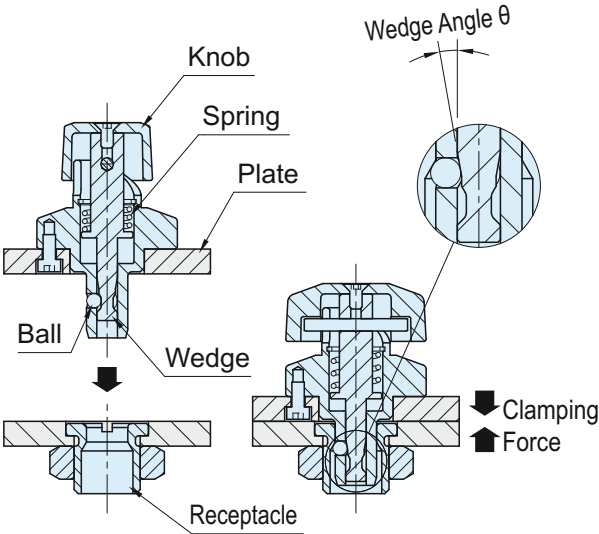
BALL-LOCK RECEPTACLES



Supplied With

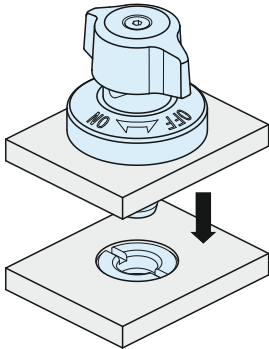
- QCWE QCWE-S QCWE-SUS 0625-10 :
3 of socket-head cap screws(stainless steel), M2x0.4-5L
- QCWE QCWE-S QCWE-SUS 1034-14、1034-20 :
3 of socket-head cap screws(stainless steel), M3x0.5-6L

Feature

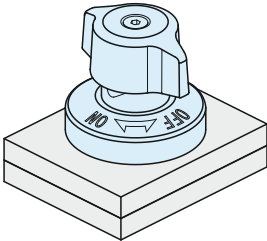


The wedge of the locking pin pushes out the ball onto the taper of the receptacle, for clamping of the two plates.

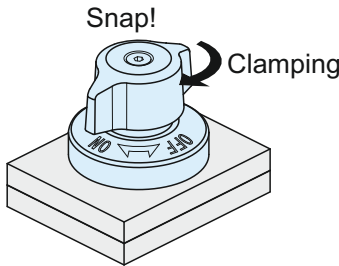
How To Use



1. Ensure that the knob is positioned at the "OFF" mark.

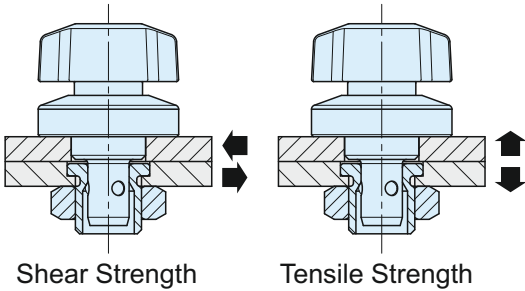


2. Insert the Knob-Locking Clamp.



3. Turn the knob to the "ON" mark for clamping. The knob turns lightly by spring force. Note: For unclamping, follow back these steps.

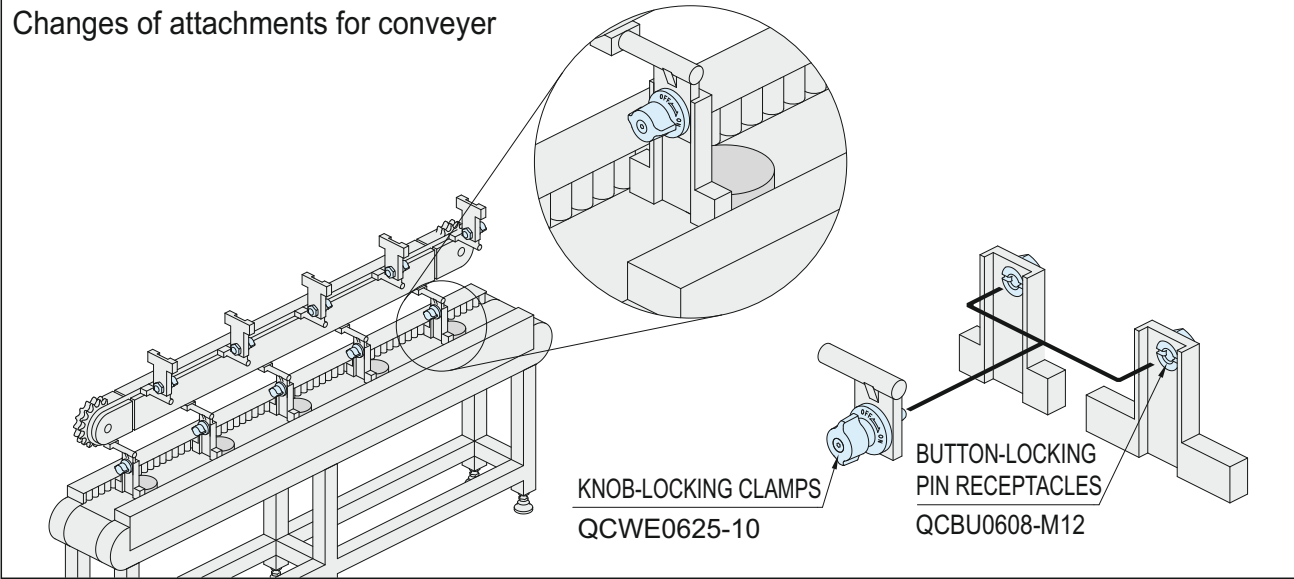
Technical Information



Size		Heatresistant Temperature (°C)	Shear Strength (N)	Tensile Strength (N)
QCWE	0625-10	130	3000	500
	1034-14		9000	1500
	1034-20		9000	1500
QCWE-S QCWE-SUS	0625-10	200	3000	500
	1034-14		9000	1500
	1034-20		9000	1500

Application Examples

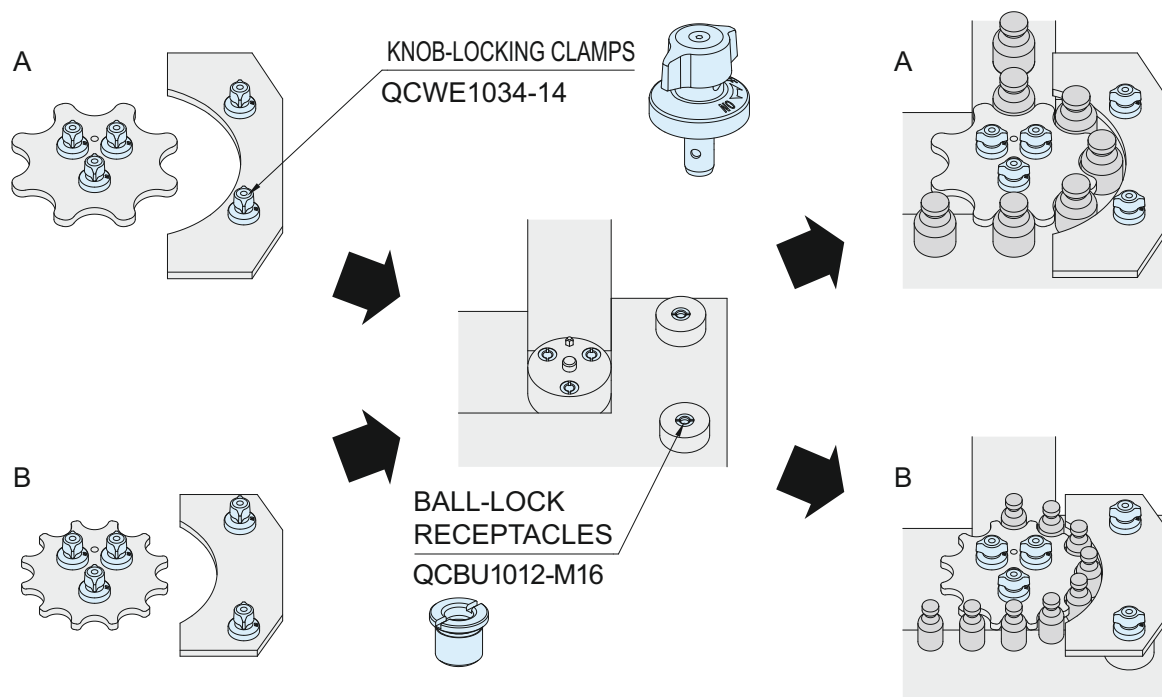
Changes of attachments for conveyer



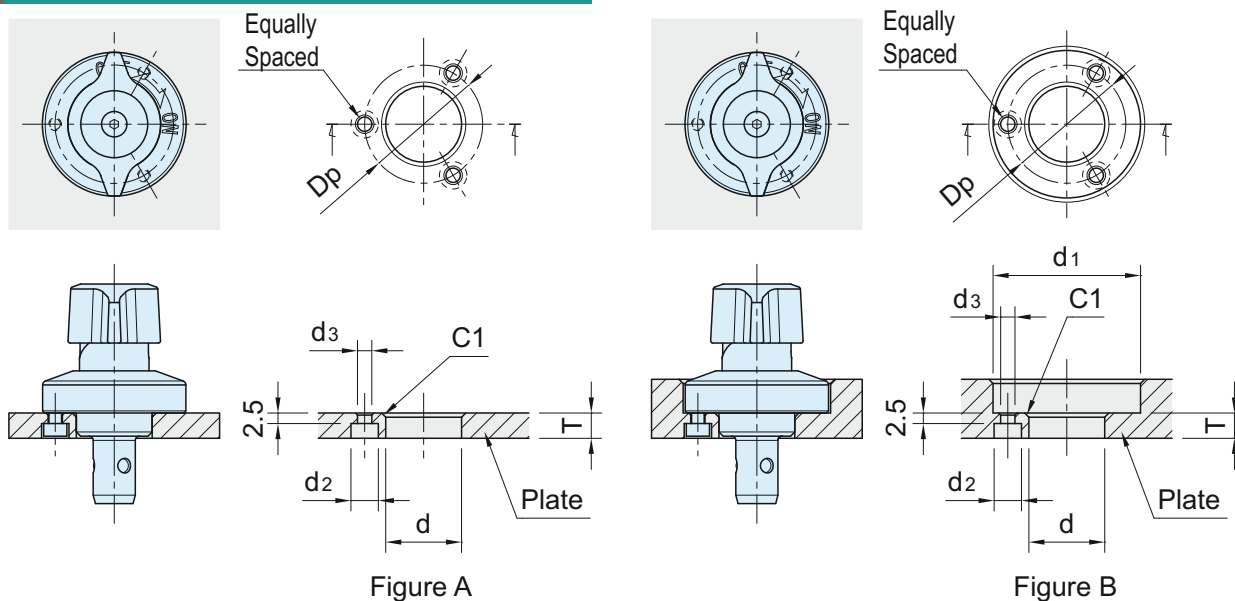
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Application Examples

Changes of star wheels and guide plates



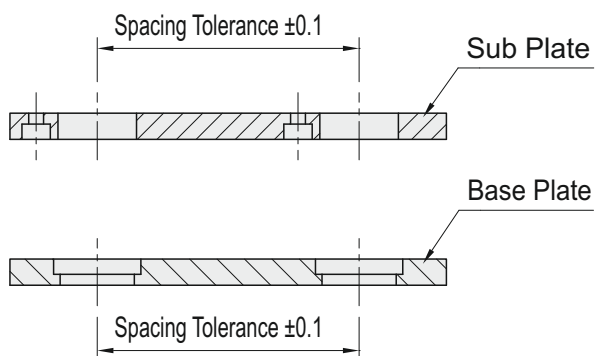
How To Mount



Size		Proper Plate Thickness	Figure	d (^{+0.10} _{+0.05})	d ₁	T (±0.2)	d ₂	d ₃	Dp	
QCWE QCWE-S QCWE-SUS	0625-10	6	A	14	-	6	4.4	2.4	21	
		Over 6, 10 or less	B		26					
	1034-14	6	A	18	-	6	6.5	3.4	28	
		Over 6, 14 or less	B		35					
	1034-20	12	A		-					12
		Over 12, 20 or less	B		35					

Accuracies

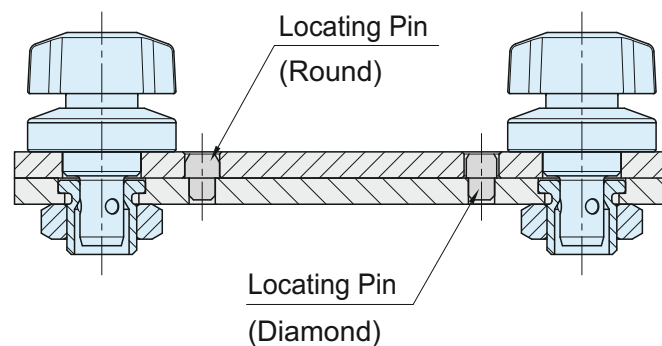
■ Machining Accuracy



Spacing tolerance on both the sub plate and the base plate should be ± 0.1 .

■ Repeatability

Repeatability is ± 0.25 .



For highly accurate locating, use locating pins.

QCBU,QCBUS - Button-Locking Pins



Stainless Steel

Electroless Nickel Plated

Heat resistance: 180°C

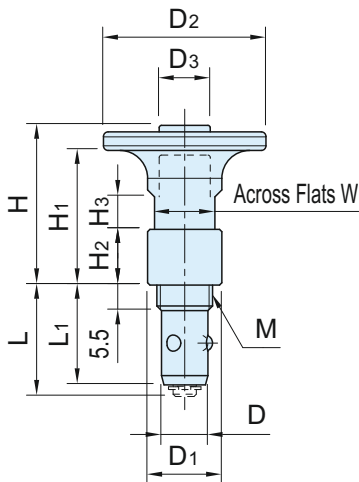
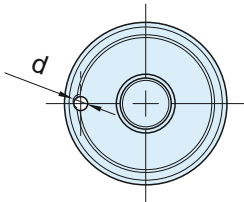


★Key Point
Secure clamping with wedge



Electroless Nickel Plated

QCBU
(Standard)

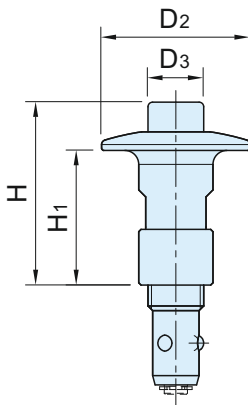
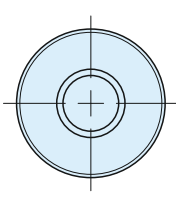


QCBU



Stainless Steel

QCBU-SUS
(Stainless Steel)



QCBU-SUS



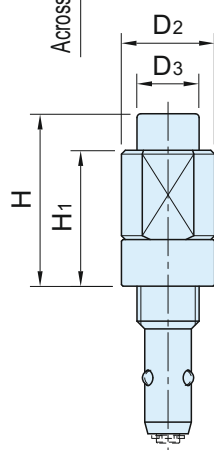
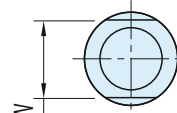
Electroless Nickel Plated

QCBUS
(Cylindrical)



Stainless Steel

QCBUS-SUS
(Cylindrical, Stainless Steel)



QCBUS

QCBUS-SUS

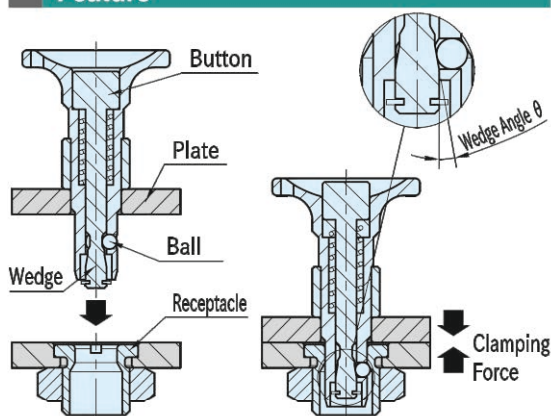
Part Number		Body	Button		Ball	Coiled Spring	Snap Ring	O-Ring
QCBU	0608-10	S45C steel	S45C steel	Electroless nickel plated	SUS440 stainless steel	SUS304WPB stainless steel	Stainless steel	Fluororubber(FKM)
QCBUS	1012-16	Electroless nickel plated						-
QCBU-SUS	0608-10	SUS303	SUS420J2 stainless steel	Quenched and tempered	Quenched and tempered			Fluororubber(FKM)
QCBUS-SUS	1012-16	stainless steel						-

Part Number		Proper Plate Thickness	D ($\begin{smallmatrix} 0 \\ -0.15 \end{smallmatrix}$)	M	D ₁	L	L ₁	H ₂	H ₃	W	Clamping Force (N)	Proper Receptacles
QCBU	0608-10	6 ~ 10	6	M 8 × 1.25	12	21	19	6	5.5	10	30	QCBU0608-M12
QCBUS												QCBU0608-M12SUS
QCBU-SUS	1012-16	6 ~ 16	10	M12 × 1.5 (Fine Thread)	16	23.5	21.5	12	7	13	50	QCBU1012-M16
QCBUS-SUS												QCBU1012-M16SUS

QCBU (Standard)							QCBU-SUS (Stainless Steel)					
Part Number	D ₂	D ₃	H	H ₁	d	Weight (g)	Part Number	D ₂	D ₃	H	H ₁	Weight (g)
QCBU0608-10	25	8	22	18	-	30	QCBU0608-10-SUS	23	8	26	18	30
QCBU1012-16	35	11	34.5	29	3	75	QCBU1012-16-SUS	32	12	39.5	29	75

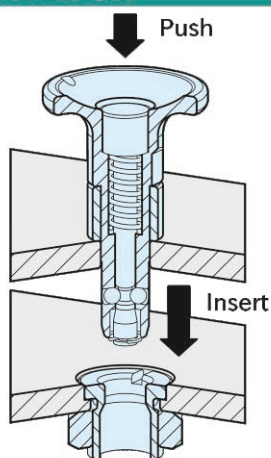
QCBUS (Cylindrical)						QCBUS-SUS (Cylindrical,Stainless Steel)					
Part Number	D ₂	D ₃	H	H ₁	Weight (g)	Part Number	D ₂	D ₃	H	H ₁	Weight (g)
QCBUS0608-10	12	8	22	17.5	30	QCBUS0608-10SUS	12	8	22	17.5	30
QCBUS1012-16	16	11	34.5	28	50	QCBUS1012-16SUS	16	11	34.5	28	50

Feature

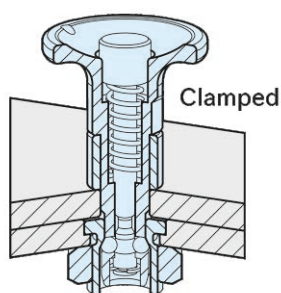


The wedge of the locking pin pushes out the ball onto the taper of the receptacle, for clamping of the two plates.

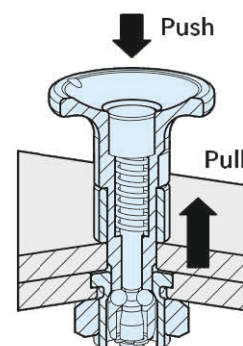
How To Use



1. Insert the pin pressing the button.

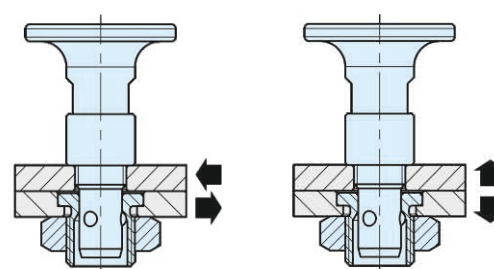


2. When the button is released, plates are clamped.



3. For removal, pull out the pin pressing the button.

Technical Information



		Shear Strength			Tensile Strength		
Part Number		Heatresistant Temperature (°C)	Shear Strength (N)	Tensile Strength (N)			
QCBU	0608-10	180	3000	500			
QCBUS							
QCBU-SUS	1012-16		9000	1500			
QCBUS-SUS							

QCBU-M

Ball-Lock Receptacles



Note

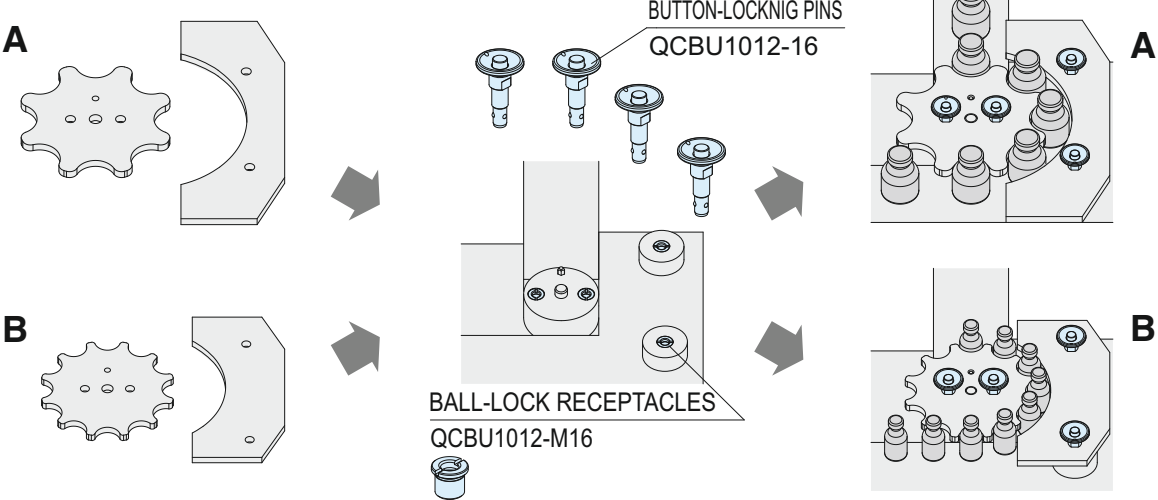
For cylindrical types, prepare handles or knobs separately to facilitate the operation. Use of cylindrical type requires handles or knobs separately to operate the product properly.



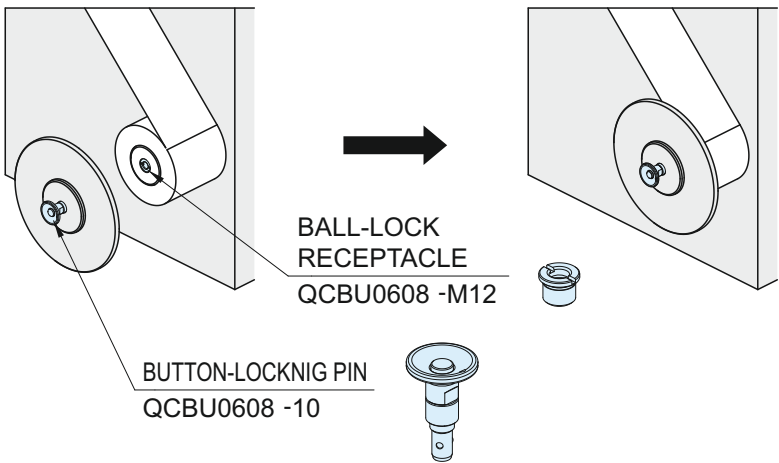
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Application Examples

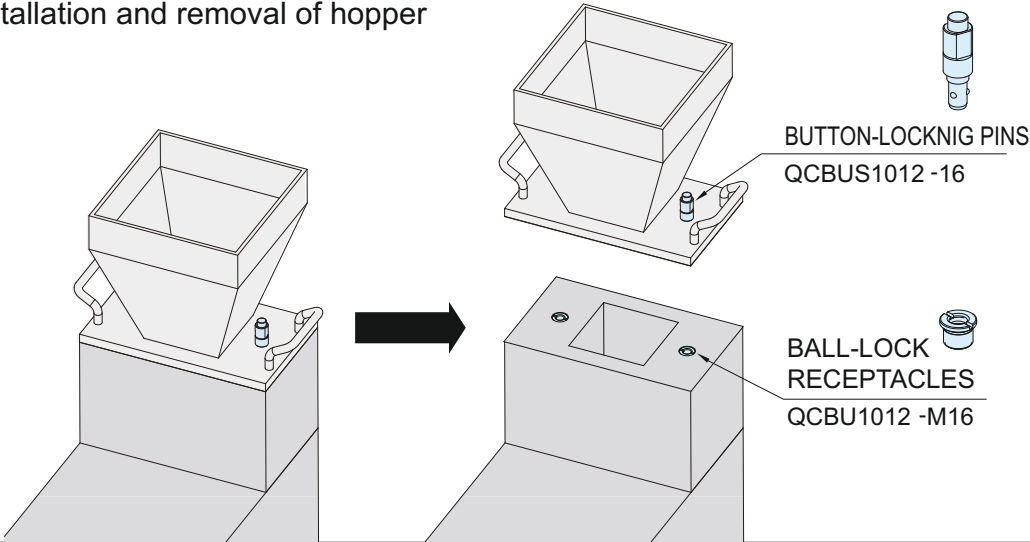
Changes of star wheels and guide plates



Installation and removal of stopper plate for rolls

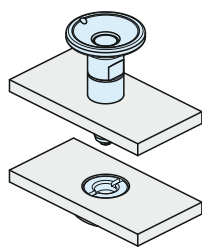


Installation and removal of hopper



How To Mount

Fixed Installation



Part Number		Proper Plate Thickness	Figure	M	d ₂
QCBU	0608-10	6	A	M 8 × 1.25	-
QCBUS		Over 6, 10 or less	B		13
QCBU-SUS	1012-16	6	A	M12× 1.5 (Fine Thread)	-
QCBUS-SUS		Over 6, 16 or less	B		17

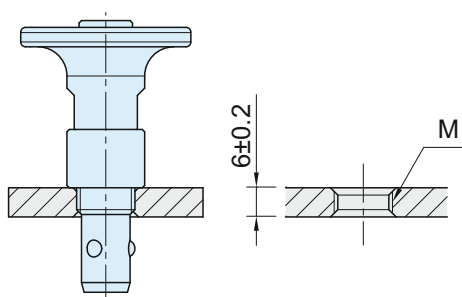


Figure A

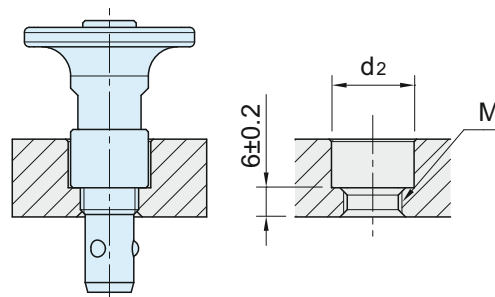
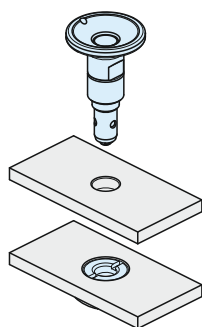


Figure B

Unfixed installation (Except QCBUS QCBUS-SUS type)



Part Number		Proper Plate Thickness	Figure	d ₁ (^{+0.1} ₀)	d ₂
QCBU	0608-10	6	C	8	-
QCBUS		Over 6, 10 or less	D		13
QCBU-SUS	1012-16	6	C	12	-
QCBUS-SUS		Over 6, 16 or less	D		17

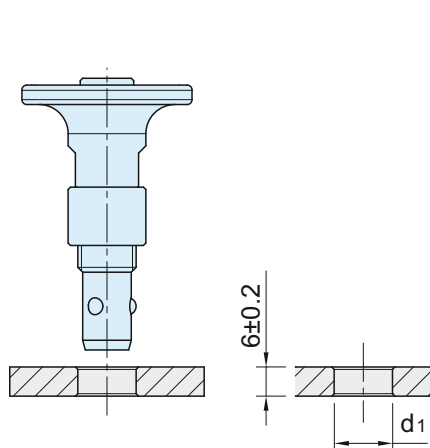


Figure C

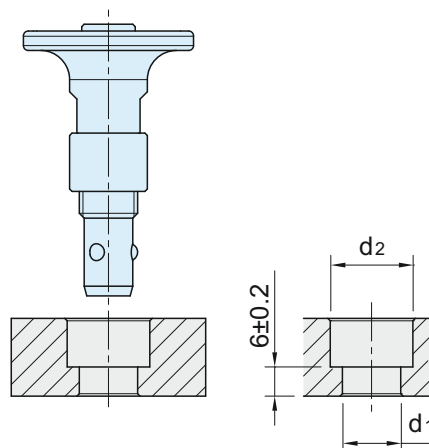


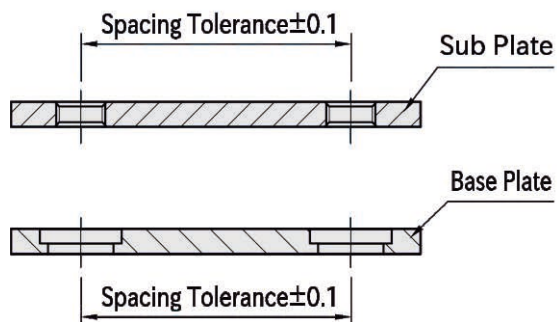
Figure D



Continuing on Next Page

Accuracies

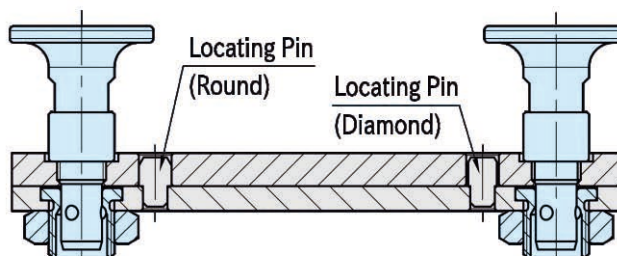
■ Machining Accuracy



Spacing tolerance on both the sub plate and the base plate should be ± 0.1 .

■ Repeatability

Repeatability is ± 0.25 for both fixed and unfixed installations.



For highly accurate locating, use locating pins.

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CAD downloads or movie data.

QCBU-M - Ball-Lock Receptacles

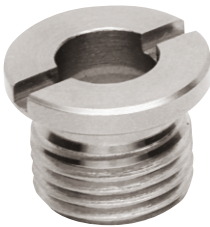


Heat resistance: 180 °C



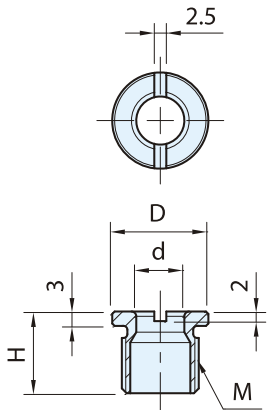
Electroless Nickel Plated

QCBU-M



Stainless Steel

QCBU-M-SUS



Type	Body
QCBU-M	S45C steel Electroless nickel plated
QCBU-M-SUS	SUS303 stainless steel

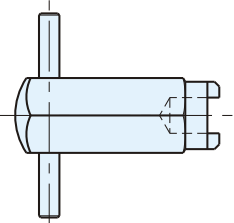
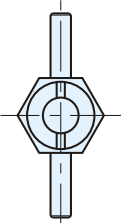
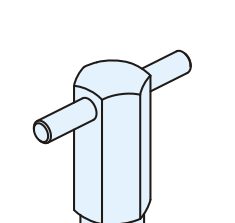
Part Number	Proper Plate Thickness	d (+0.4 -0.2)	D (h9)	M	H	Weight (g)	Proper Knob-Locking Clamps	Proper Button-Locking Pins
QCBU0608-M12	6 or more	6	16	M12× 1.5 (Fine Thread)	15	9	QCWE0625-10 QCWE0625-10S QCWE0625-10-SUS	QCBU0608-10,QCBUS0608-10 QCBU0608-10-SUS QCBUS0608-10SUS
QCBU0608-M12SUS								
QCBU1012-M16		10	20	M16× 1.5 (Fine Thread)	17	13	QCWE1034-14,QCWE1034-14S QCWE1034-20,QCWE1034-20S QCWE1034-14-SUS,QCWE1034-20-SUS	QCBU1012-16,QCBUS1012-16 QCBU1012-16-SUS QCBUS1012-16SUS
QCBU1012-M16SUS								

Order Separately Nut (Stainless Steel)

Technical drawing of a hexagonal nut. The front view shows a hexagon with a central circular hole. The outer width is labeled 'W', the thickness is labeled 'T', and the thread specification is labeled 'M1'. The side view shows the hexagonal profile with the thickness 'T' indicated.

Part Number	M ₁	T	W
NDX12-NUT-SUS	M12× 1.5 (Fine Thread)	6	19
NDX16-NUT-SUS	M16× 1.5 (Fine Thread)	8	24

Order Separately Installation Wrench

							
<table><tr><th>Part Number</th></tr><tr><td>PW16</td></tr></table>	Part Number	PW16		<table><tr><th>Body</th></tr><tr><td>Steel(S45C) Black oxide finish</td></tr></table>	Body	Steel(S45C) Black oxide finish	
Part Number							
PW16							
Body							
Steel(S45C) Black oxide finish							

How To Mount

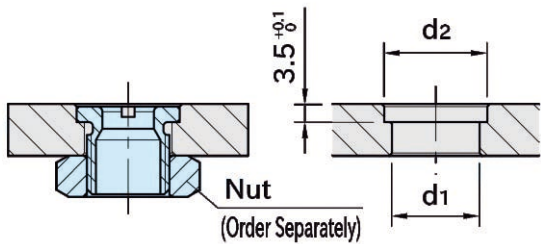


Figure A

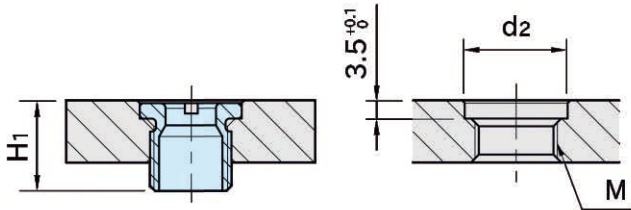
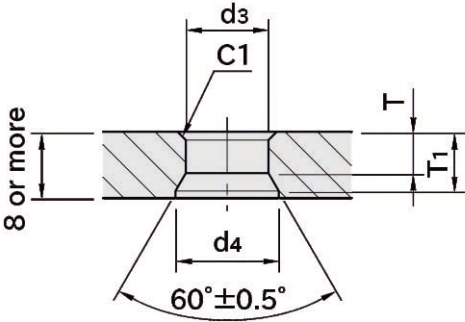


Figure B

Part Number		Proper Plate Thickness	Figure	M	d1	d2 (+0.10 +0.05)	H1
QCBU-M QCBU-M-SUS	12	6~10	A	-	13	16	-
		Over 10	B	M12X1.5(Fine Thread)	-		15.5
	16	6~10	A	-	17	20	-
		Over 10	B	M16X1.5(Fine Thread)	-		17.5

Without Ball-Lock Receptacle

With additional work to plate of 8mm or more thickness, Button-Locking Pins and Knob-Locking Clamps can be used directly on the plate made of hard steel such as S45C.



Dimensions				Proper Knob-Locking		Proper Button-Locking Pins	
d3 (+0.4 +0.2)	d4	T (±0.1)	T1				
6	8 or more	4.9	(6.6)	QCWE	0625-10	QCBU	0608-10
10	12.5 or more	5	(7.2)	QCWE-S	1034-14	QCBU-SUS	1012-16
				QCWE-SUS	1034-20	QCBUS QCBUS-SUS	

Reference

"Accuracies" of QCWE Knob-Locking Clamps and QCBU QCBUS Button-Locking Pins

QCPC - Pin Holding Clamps



Stainless Steel

Electroless Nickel Plated



QCPC



QCPC-S

(OFF position)

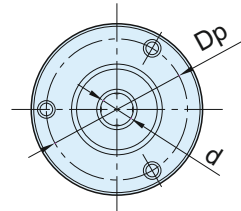
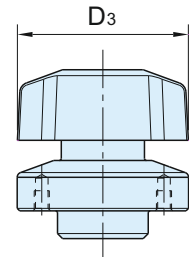
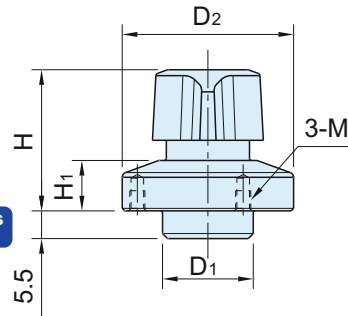
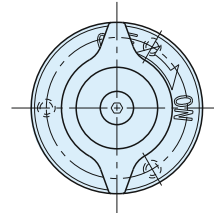


QCPC-SUS



QCPC

(ON position)



★Key Point

Pin clamping design enables space-saving application.

Type	Body	Knob	Ball	Spring
QCPC	S45C steel Electroless nickel plated	Polyamide (glass-fiber reinforced) Black	SUS440C stainless steel Quenched and tempered	SUS304WPB stainless steel
QCPC-S		SCS13		
QCPC-SUS	SUS303 stainless steel	stainless steel (Equivalent to SUS304)		

Size		Proper Plate Thickness	d (^{+0.4} _{+0.2})	D ₁ (h9)	D ₂	D ₃	H	H ₁	M	D _p	Clamping Force (N)	Proper Clamping Pins
QCPC	0625-10	6 ~ 10	6	14	25	25	23	6.5	M2×0.4 3-deep	21	7	QCPC0625-M4-SUS
QCPC-S												
QCPC-SUS												
	0834-14	6 ~ 14	8	18	34	34	28	10	M3×0.5 4-deep	28	9	QCPC0834-M5-SUS

QCPC (Plastic Knob)		QCPC-S (Metal Knob)		QCPC-SUS (Stainless Steel)	
Part Number	Weight (g)	Part Number	Weight (g)	Part Number	Weight (g)
QCPC0625-10	35	QCPC0625-10S	45	QCPC0625-10-SUS	45
QCPC0834-14	85	QCPC0834-14S	105	QCPC0834-14-SUS	105

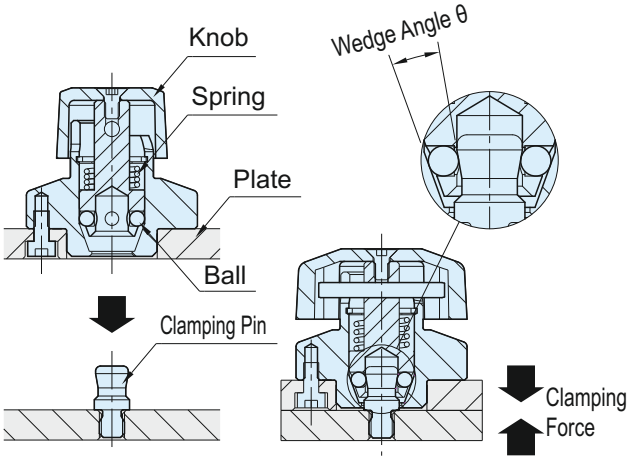
QCPC-M Clamping Pin



Supplied With

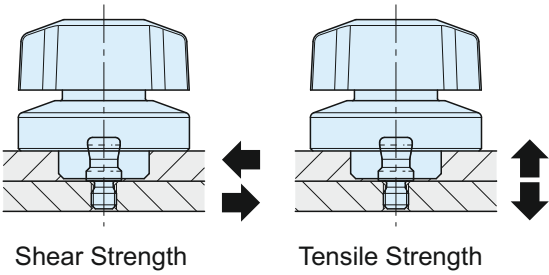
- QCPC QCPC-S QCPC-SUS 0625-10
: 3 of socket-head cap screws(stainless steel), M2×0.4-5L
- QCPC QCPC-S QCPC-SUS 0834-14
: 3 of socket-head cap screws(stainless steel), M3×0.5-6L

Feature



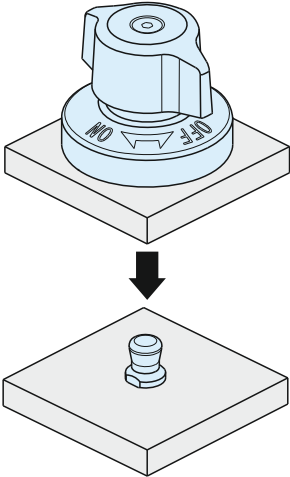
Four balls hold the Clamping Pin to pull the plate for clamping.

Technical Information

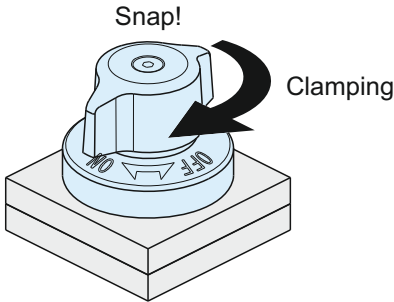


Size		Heatresistant Temperature (°C)	Shear Strength (N)	Tensile Strength (N)
QCPC	0625-10	130	1100	250
	0834-14		1800	400
QCPC-S	0625-10	200	1100	250
QCPC-SUS	0834-14		1800	400

How To Use

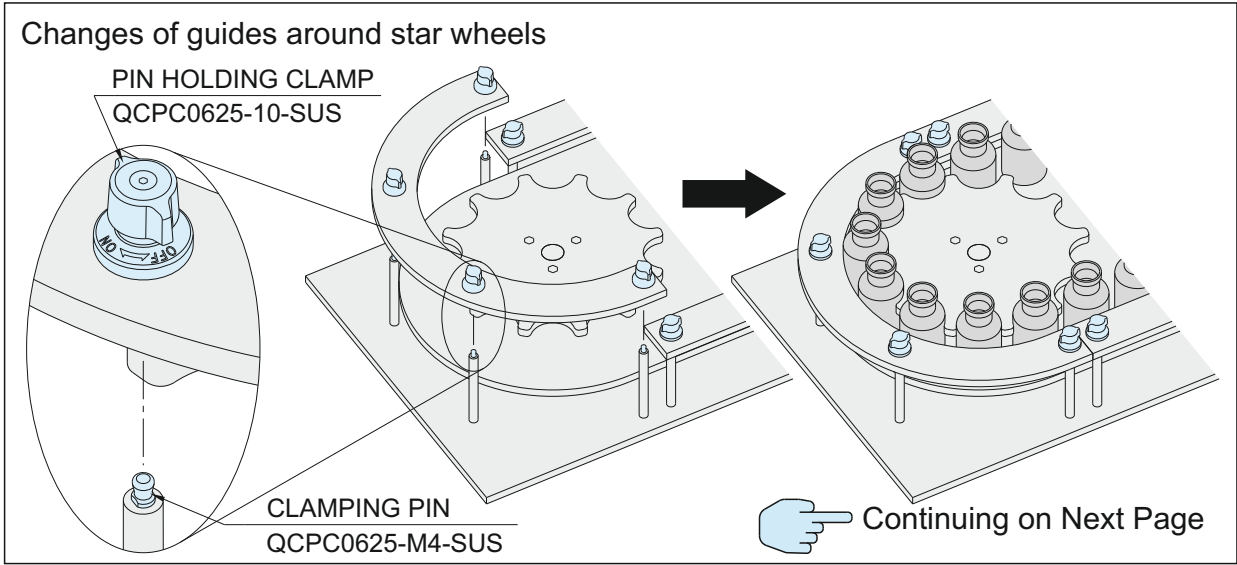


1. Ensure that the knob is positioned at the "OFF" mark and put Pin Holding Clamp over the Clamping Pin.



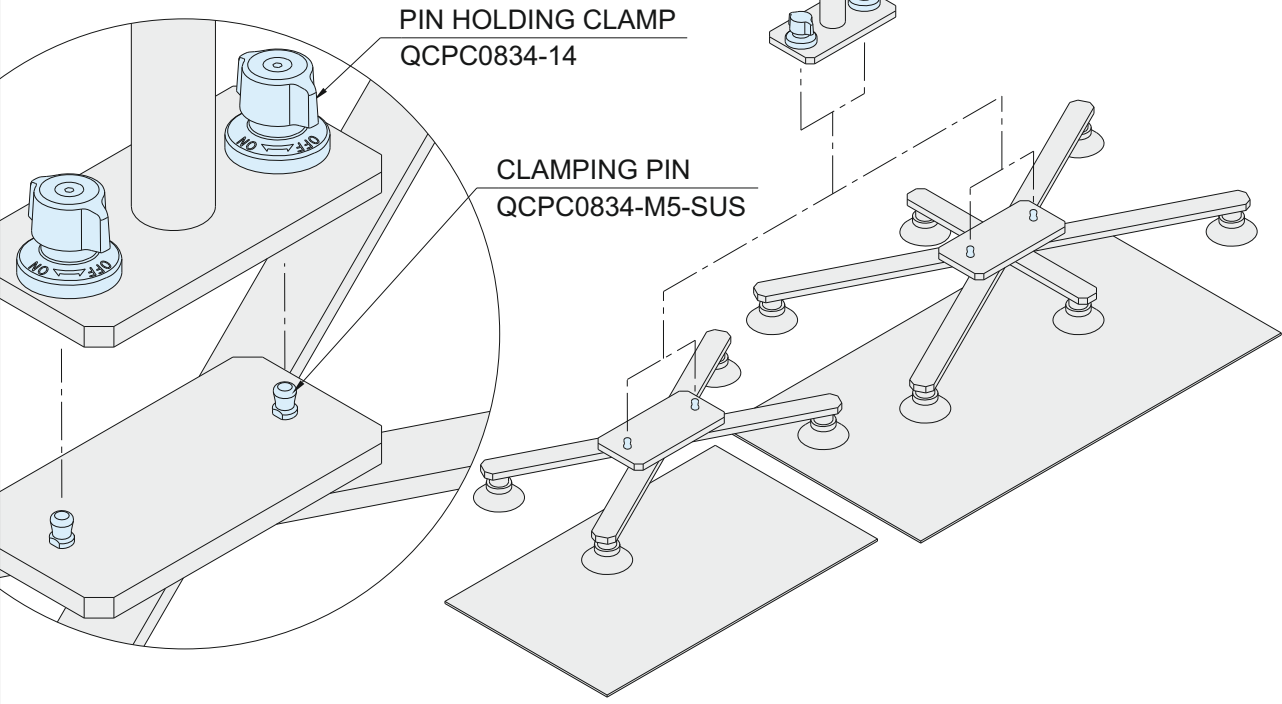
2. Turn the knob to the "ON" mark for clamping.
※For unclamping, follow back these steps.

Application Examples



Application Examples

Changes of suction grippers for wafer handling



How To Mount

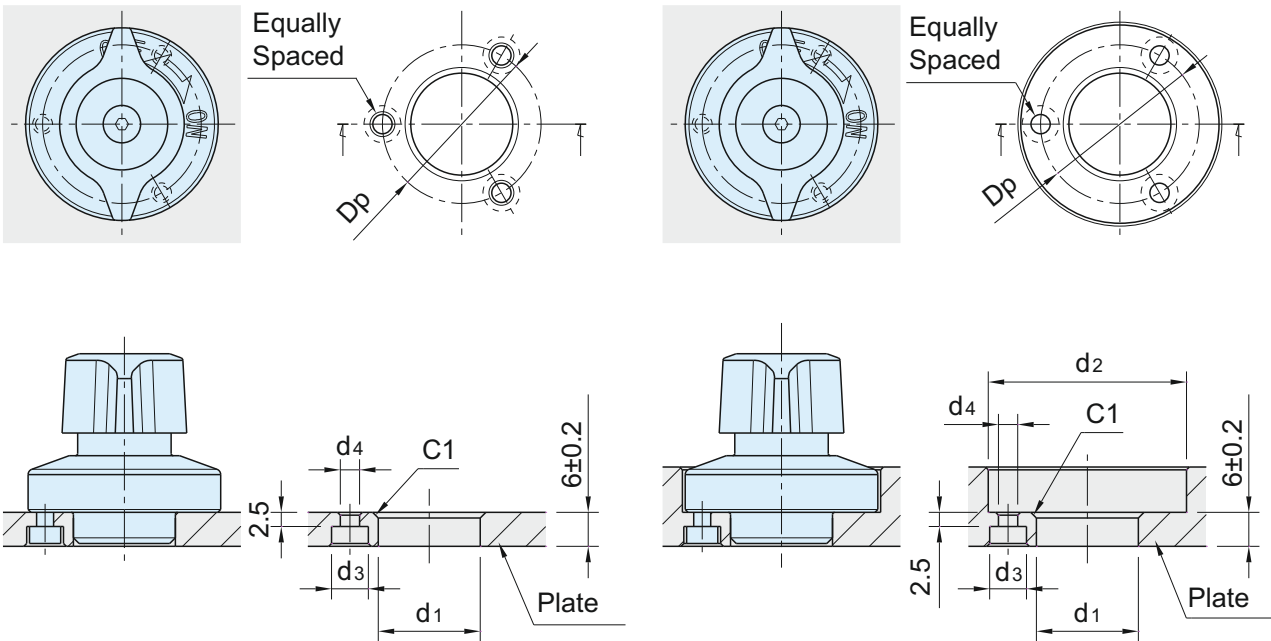


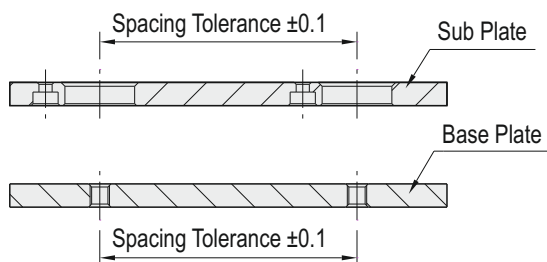
Figure A

Figure B

Size		Proper Plate Thickness	Figure	d_1 ($+0.10$ $+0.05$)	d_2	d_3	d_4	D_p
QCPC	0625-10	6	A	14	-	4.4	2.4	21
		Over 6, 10 or less	B		26			
QCPC-S	0834-14	6	A	18	-	6.5	3.4	28
		Over 6, 14 or less	B		35			

Accuracies

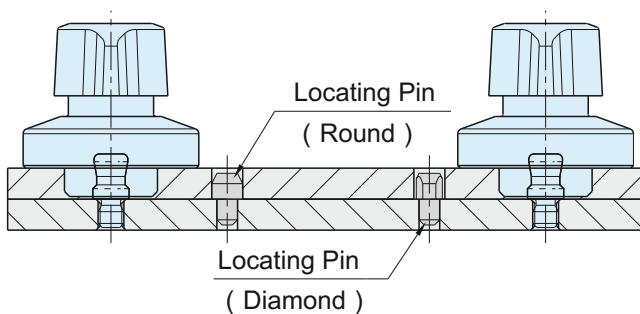
■ Machining Accuracy



Spacing tolerance on both the sub plate and the base plate should be ± 0.1 .

■ Repeatability

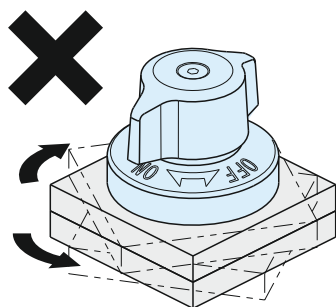
Repeatability is ± 0.25 .



For highly accurate locating, use locating pins.

🔧 Note

Rotation of either sub plate or base plate can get Pin Holding Clamp unclamped, when one pair of the clamp and the clamping pin is used. Prepare a stop in such application.



QCOW, QCOWS - Snap-In Clamps



Stainless Steel

Heat resistance: 180°C



QCOW

(Stainless Steel)

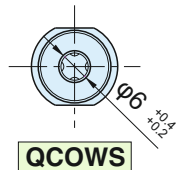
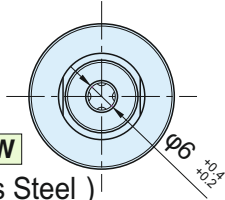
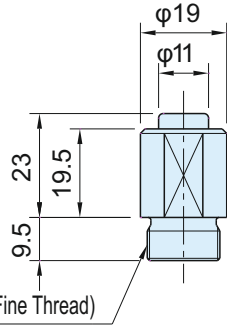
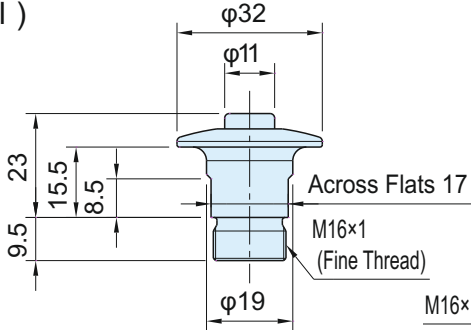
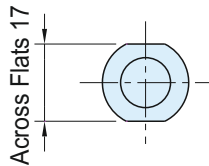
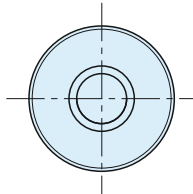


QCOWS

(Cylindrical, Stainless Steel)

★Key Point Quick & easy snap-in operation

Body/Button	Ball	Spring	O-Ring
SUS303 stainless steel	SUS440C stainless steel	SUS304WPB stainless steel	Fluororubber (FKM)



Part Number	Proper Plate Thickness	Clamping Force (N)	Weight (g)	Proper Clamping Pin
QCOW 0616-10SUS	3~10	6	65	QCPC0625-M4-SUS
QCOWS0616-10SUS	3~27		50	

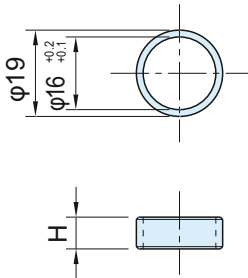
(Cylindrical, Stainless Steel)

QCOW - Spacers



Stainless Steel

Heat resistance: 180°C

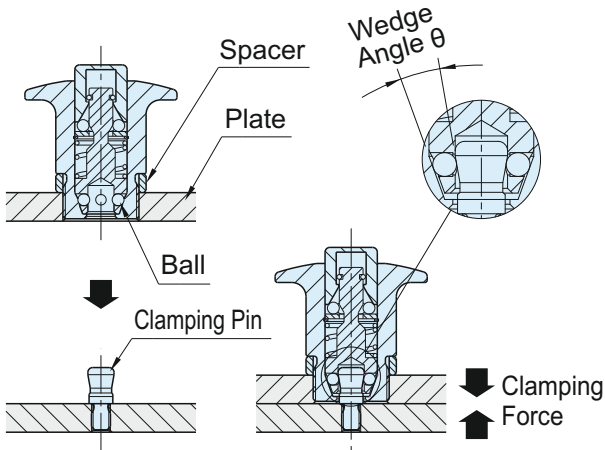


Spacer
SUS303 stainless steel

Part Number	Proper Plate Thickness	H (±0.05)	Weight (g)	Proper Snap-In Clamps
QCOW0616-04-SUS	6	4	2.5	QCOW0616-10SUS QCOWS0616-10SUS
QCOW0616-05-SUS	5	5	3	
QCOW0616-06-SUS	4	6	3.5	
QCOW0616-07-SUS	3	7	4	

QCPC-M	Clamping Pin

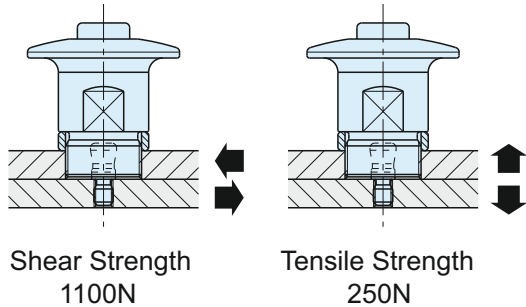
Feature



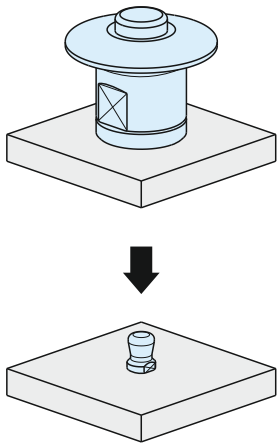
Four balls hold the Clamping Pin to pull the plate for clamping.

Technical Information

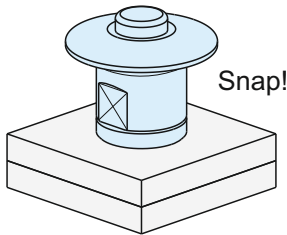
- Heatresistant Temperature 180°C
- Mechanical Strength



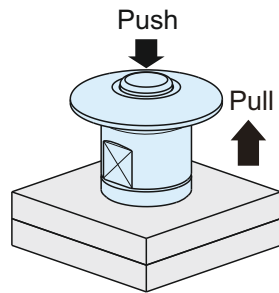
How To Use



1. Put Snap-In Clamp over the Clamping Pin. No need to push the button.



2. Clamped instantly as the pin is inserted.

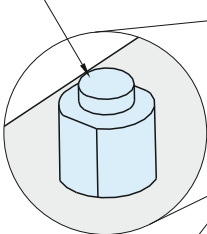


3. For unclamping, push the button and pull the clamp.

Application Examples

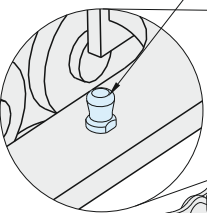
Changes of retainers of conveyor
SNAP-IN CLAMP

QCOWS0616-10SUS



CLAMPING PIN

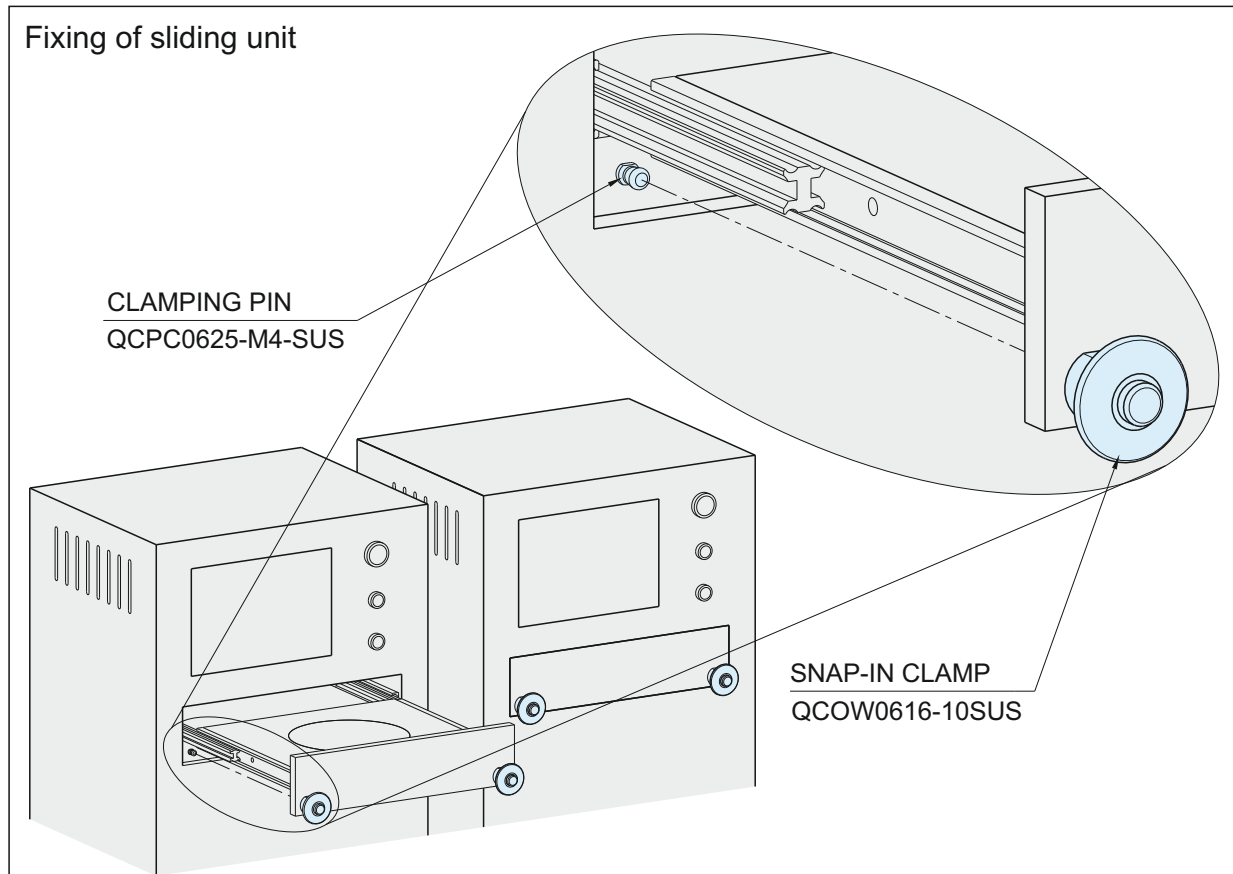
QCPC0625-M4-SUS



Continuing on Next Page

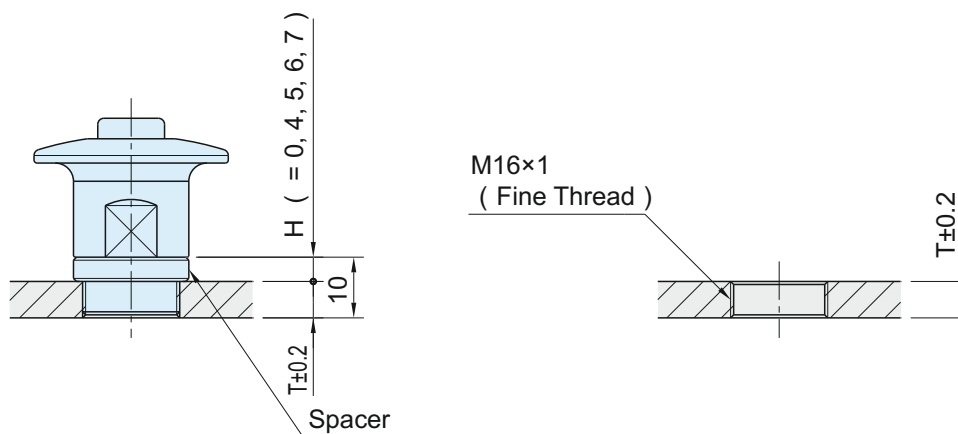
Application Examples

Fixing of sliding unit

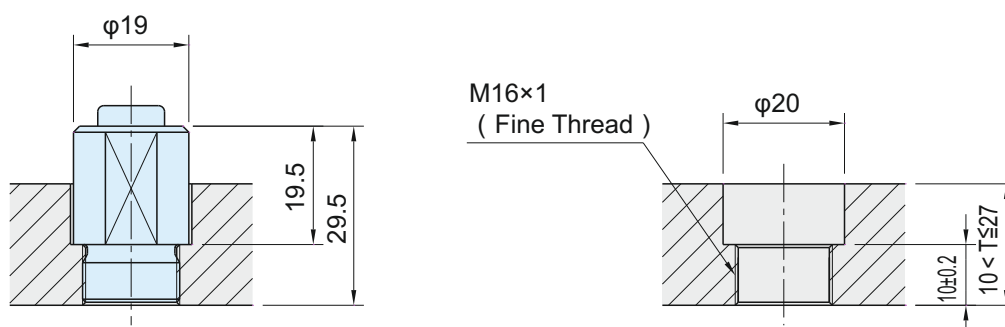


How To Mount

For 3 to 10mm-thick plate

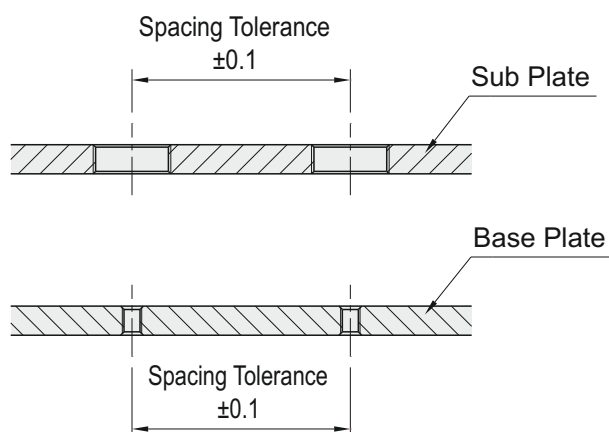


For over 10mm-thick plate



Accuracies

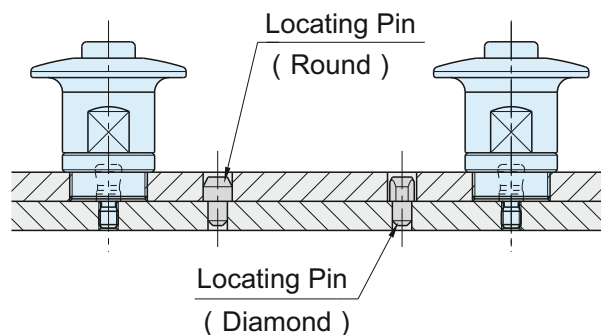
■ Machining Accuracy



Spacing tolerance on both the sub plate and the base plate should be ± 0.1 .

■ Repeatability

Repeatability is ± 0.25 .



For highly accurate locating, use locating pins.

QCPC-M - Clamping Pins



Stainless Steel

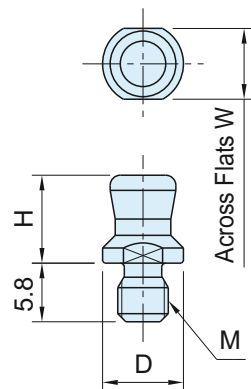
Heat resistance: 180°C



QCPC0625-M4-SUS



QCPC0834-M5-SUS



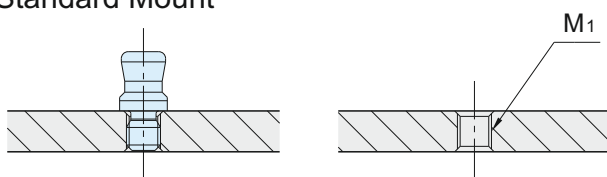
Clamping Pin
SUS630 stainless steel

Part Number	D ($\begin{smallmatrix} -0 \\ -0.05 \end{smallmatrix}$ $\begin{smallmatrix} -0 \\ -0.10 \end{smallmatrix}$)	M	H	W	Weight (g)	Proper Pin Holding Clamps	Proper Snap-In Clamps
QCPC0625-M4-SUS	6	M4×0.7	7.6	5	2	QCPC0625-10 QCPC0625-10S QCPC0625-10-SUS	QCOW0616-10SUS QCOWS0616-10SUS
QCPC0834-M5-SUS	8	M5×0.8	8.7	7	3	QCPC0834-14 QCPC0834-14S QCPC0834-14-SUS	-

Note: Refer to the product pages of clamps for machining accuracy and repeatability.

How To Mount

Standard Mount

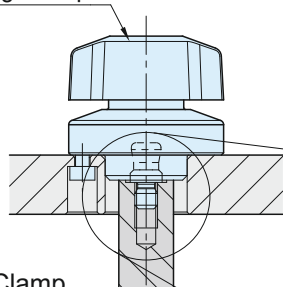


Part Number	M ₁	d
QCPC0625-M4-SUS	M4×0.7	7
QCPC0834-M5-SUS	M5×0.8	9

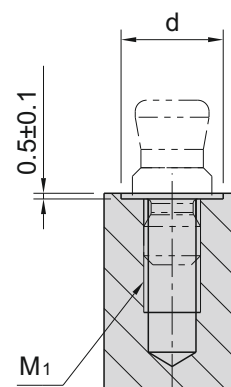
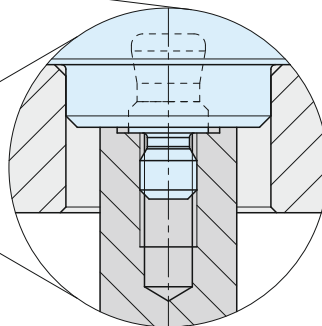
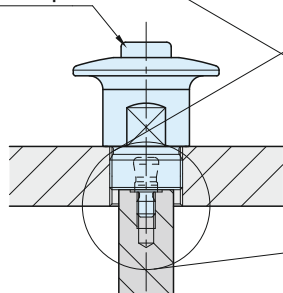
Space-Saving Mount

Prepare a counterbored hole with depth 0.5 ± 0.1 on the surface where Clamping Pin to be mounted directly contacts with the bottom surface of the clamp.

Pin Holding Clamp



Snap-In Clamp



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for more details of our latest information,
CAD downloads or movie data.

QCHC - Hole Holding Clamps



Stainless Steel

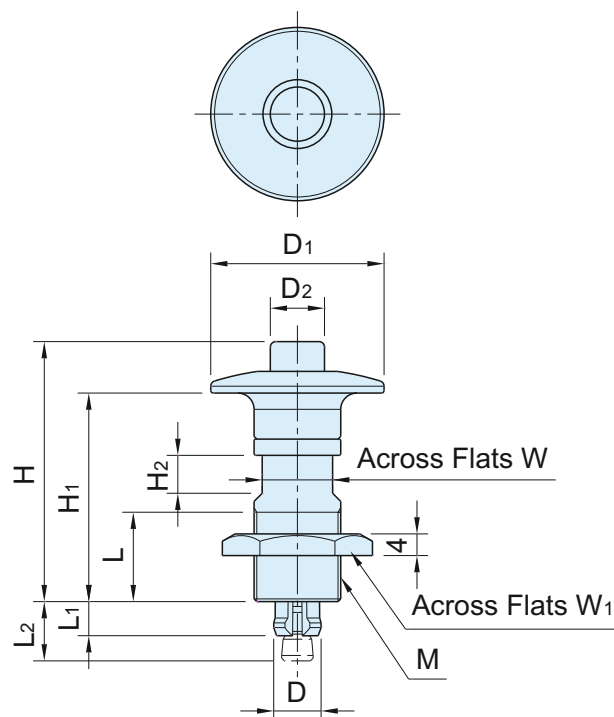
Heat resistance: 180°C



QCHC-03



QCHC-06



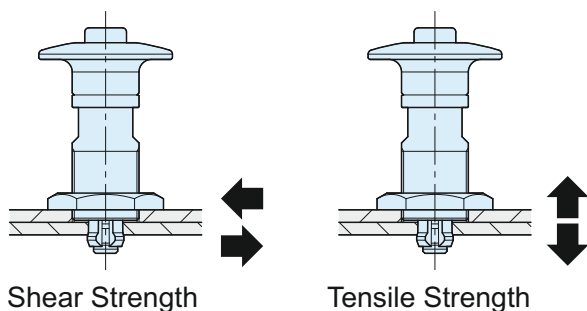
★Key Point

Receptacle is not required.

Part Number	Body/Nut	Spacer	Spring/Snap Ring
QCHC-03	SUS303 stainless steel	SUS303 stainless steel	SUS304WPB stainless steel
QCHC-06		—	

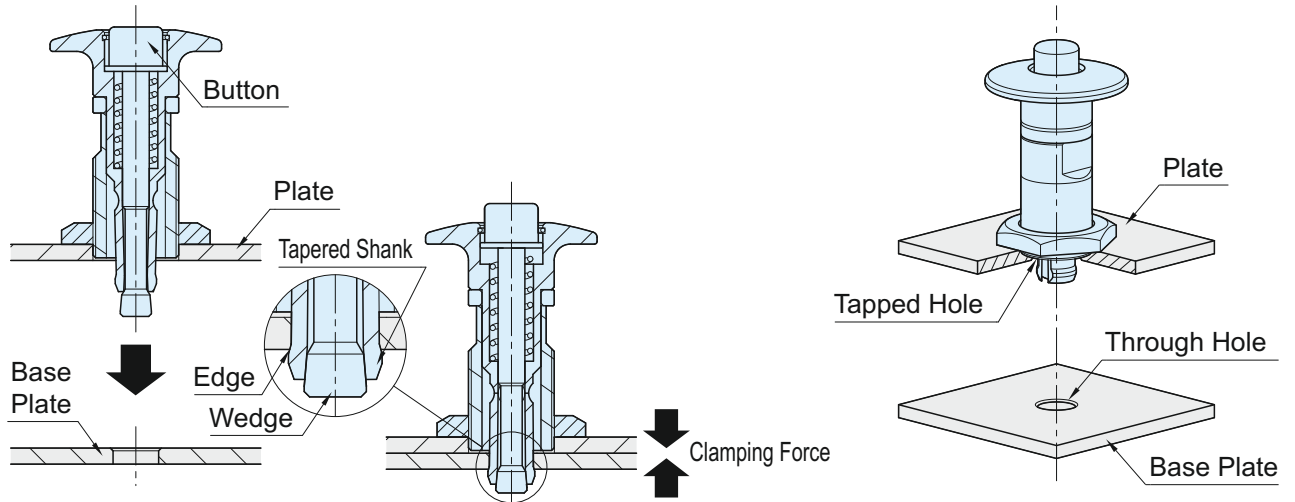
Part Number	Proper Base Plate Thickness	Proper Plate Thickness	D	M	D ₁	D ₂	H	L	H ₁	L ₁	L ₂	H ₂	W	W ₁	Clamping Force (N)	Weight (g)
QCHC0612-03-SUS	3	3~ 8	6.5	M12×1 (Fine Thread)	23	8	37	12.5	29	6.5	10.5	5.5	10	19	3	40
QCHC0612-06-SUS	6															
QCHC0816-03-SUS	3	3~12	8.5	M16×1 (Fine Thread)	32	10	48	16.5	38.5	6.5	11	7	13	24	6	80
QCHC0816-06-SUS	6															

Technical Information



Part Number	Heat Resistant Temperature (°C)	Shear Strength (N)	Tensile Strength (N)
QCHC0612-03-SUS	180	200	150
QCHC0612-06-SUS			
QCHC0816-03-SUS		400	300
QCHC0816-06-SUS			

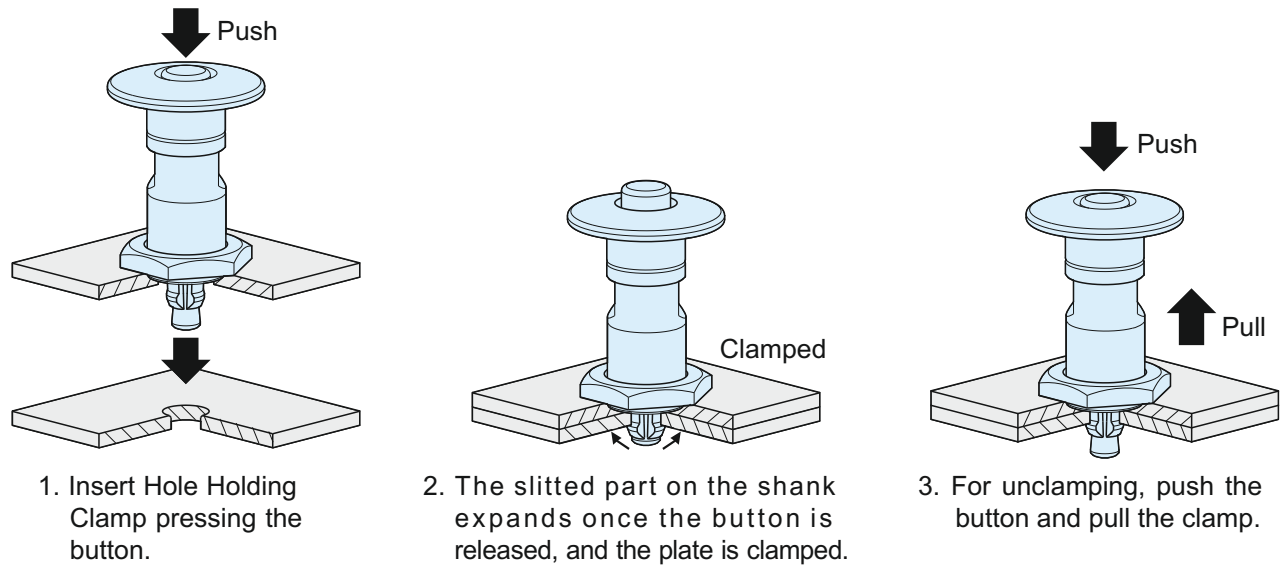
Features



The tapered shank expanded by the wedge pushes out the edge of the hole on the base plate, and the two plates are clamped.

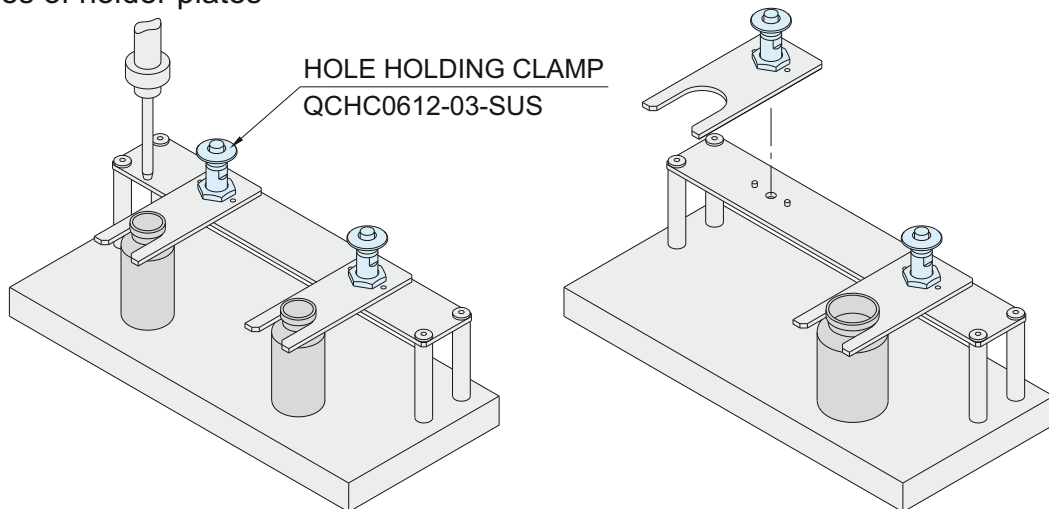
Just a tapped hole and a through hole are required.

How To Use



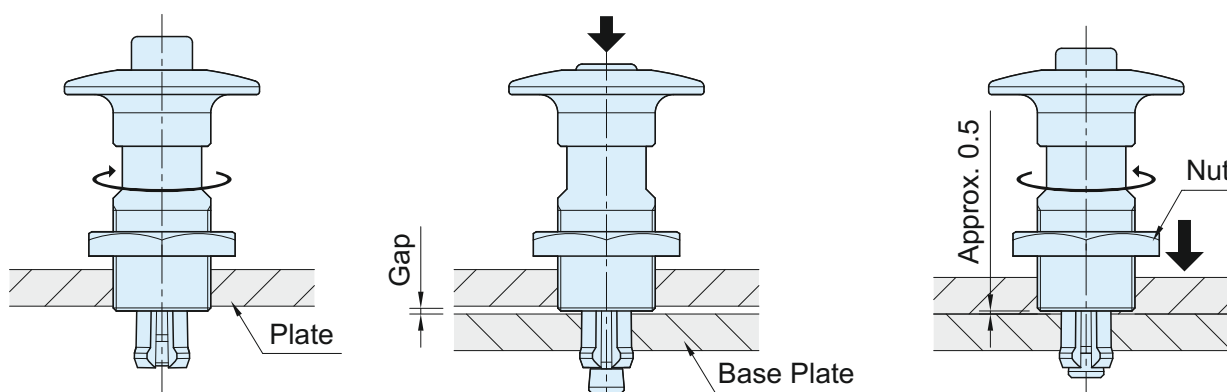
Application Example

Changes of holder plates



Continuing on Next Page

How To Mount

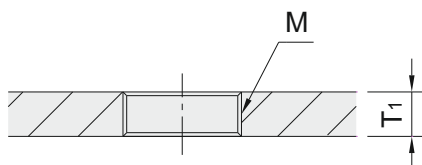


1. Screw Hole Holding Clamp into the plate until the end of threaded part comes out of the plate.

2. Insert the clamp pushing the button.

3. Adjust the clamp until the both plates get contacted, and then lock the clamp with the nut.

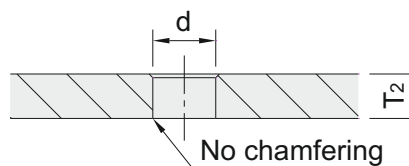
■Mounting Hole on Plate



Part Number	M	T ₁
QCHC-0612	M12×1 (Fine Thread)	3~ 8
QCHC-0816	M16×1 (Fine Thread)	3~12

■Mounting Hole on Base Plate

Use hard metals such as stainless steels for the base plate.



Part Number	d (±0.1)	T ₂
QCHC0612-03-SUS	6.5	3
QCHC0612-06-SUS		6
QCHC0816-03-SUS	8.5	3
QCHC0816-06-SUS		6

Accuracies

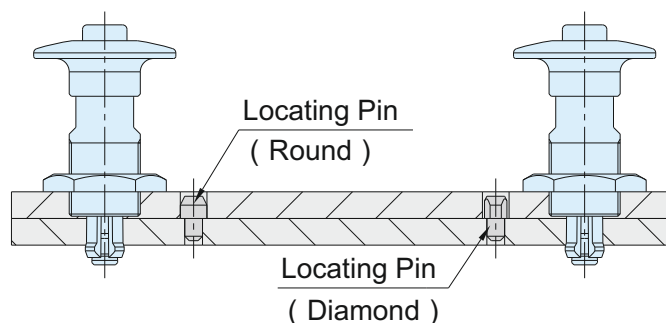
■Machining Accuracy



Spacing tolerance on both the sub plate and the base plate should be ± 0.1 .

■Repeatability

Repeatability is ± 0.25 .



For highly accurate locating, use locating pins.

Visit us at

<http://www.imao.biz/en/>

for more details of our latest information,
CAD downloads or movie data.

QCSJ - Shaft Coupling Clamp



Electroless Nickel Plated

Heat resistance: 200°C



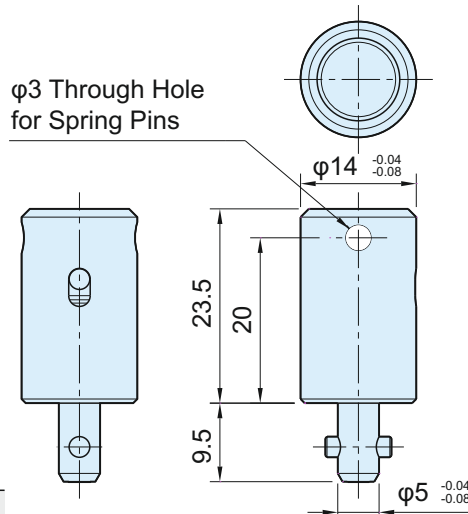
★Key Point

Multipurpose coupling element

Part Number	Clamping Force (N)	Weight (g)
QCSJ0514A	30	25

Note

Spring pins are not supplied.



Body/Shank	Pin	Spring
S45C steel Electroless nickel plated	SUS304 stainless steel	SUS304-CSP stainless steel

QCSJ-S,QCSJ-B - Cam Receptacles



Electroless Nickel Plated



QCSJ0514-S

(Shaft Mount)



QCSJ0514-B

(Plate Mount)

Body
SCM440 steel Quenched and tempered Electroless nickel plated

Part Number	Weight (g)
QCSJ0514-S	10
QCSJ0514-B	8

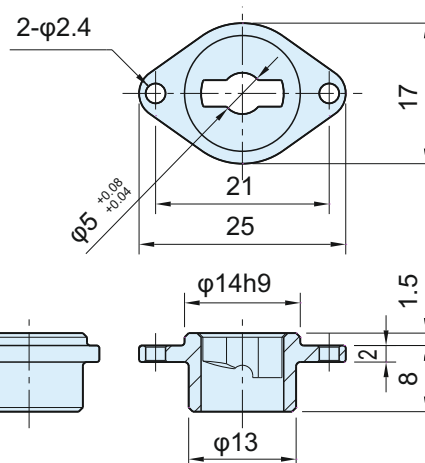
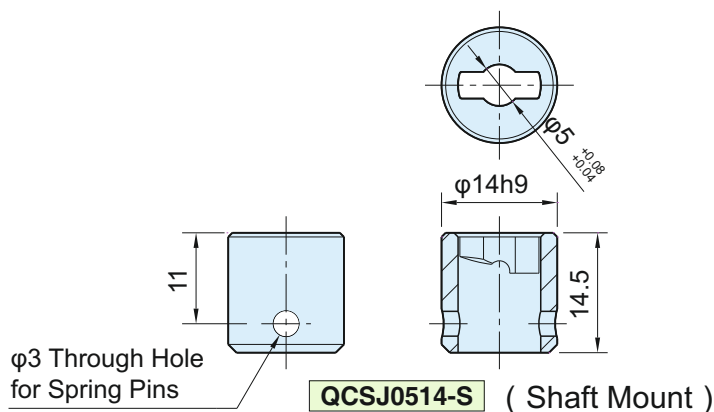
Supplied With

QCSJ0514-B

(stainless steel), M2×0.4-5L

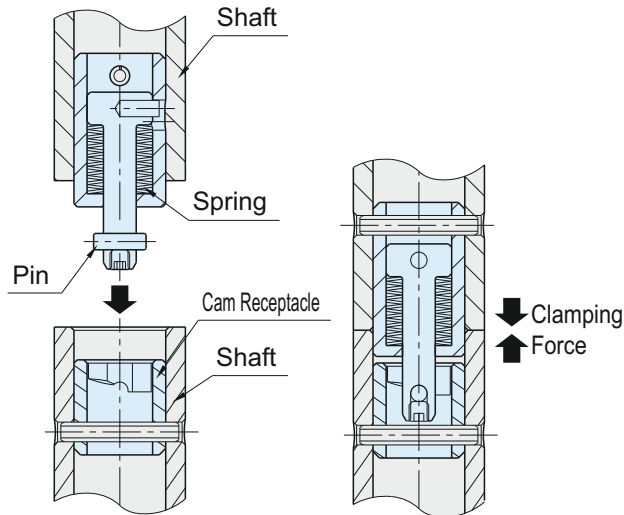
Note

Spring pins to mount **QCSJ0514-S** are not supplied.



QCSJ0514-B (Plate Mount)

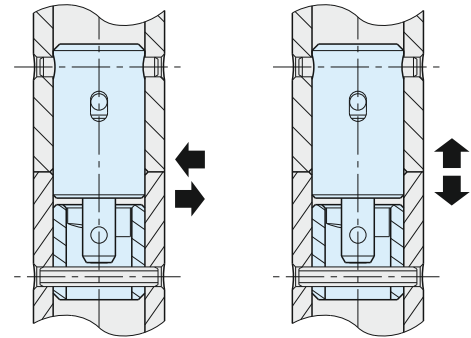
Feature



When the pin contacts along the cam surface in Cam Receptacle, the spring gets compressed to clamp the shafts.

Technical Information

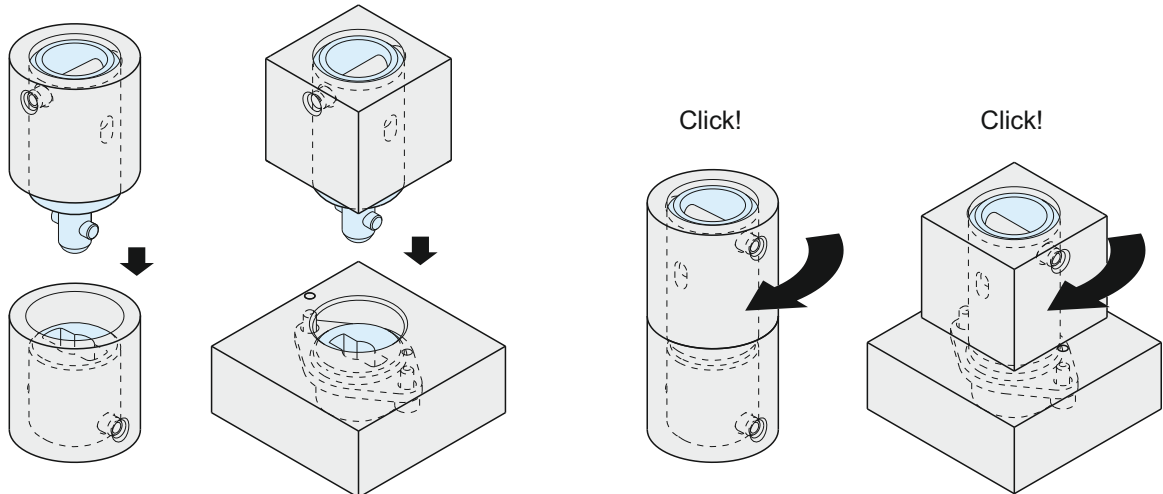
- Heatresistant Temperature 200°C
- Mechanical Strength



Shear Strength
1800N

Tensile Strength
1200N

How To Use

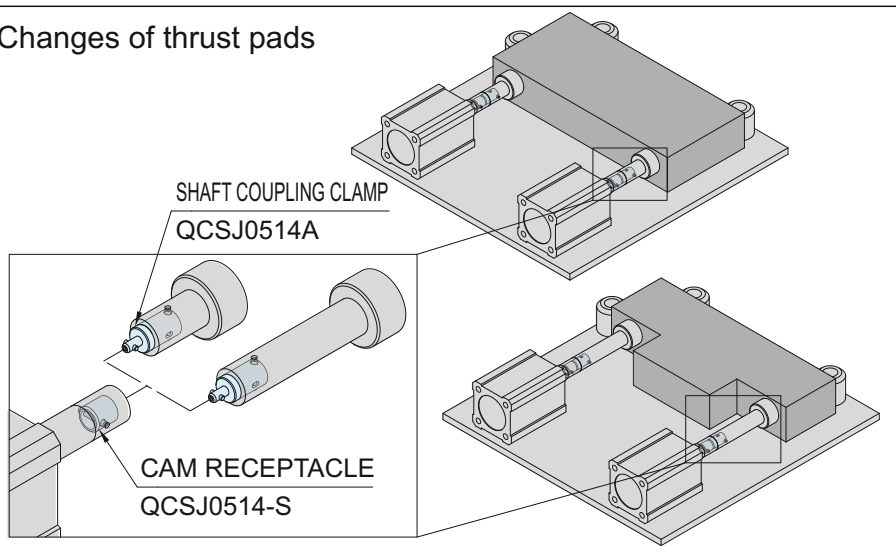


1. Insert the shaft into the keyway of Cam Receptacle.

2. Turn the shaft or block for 90° to clamp. The element clicks when clamped. For unclamping, follow back these steps.

Application Examples

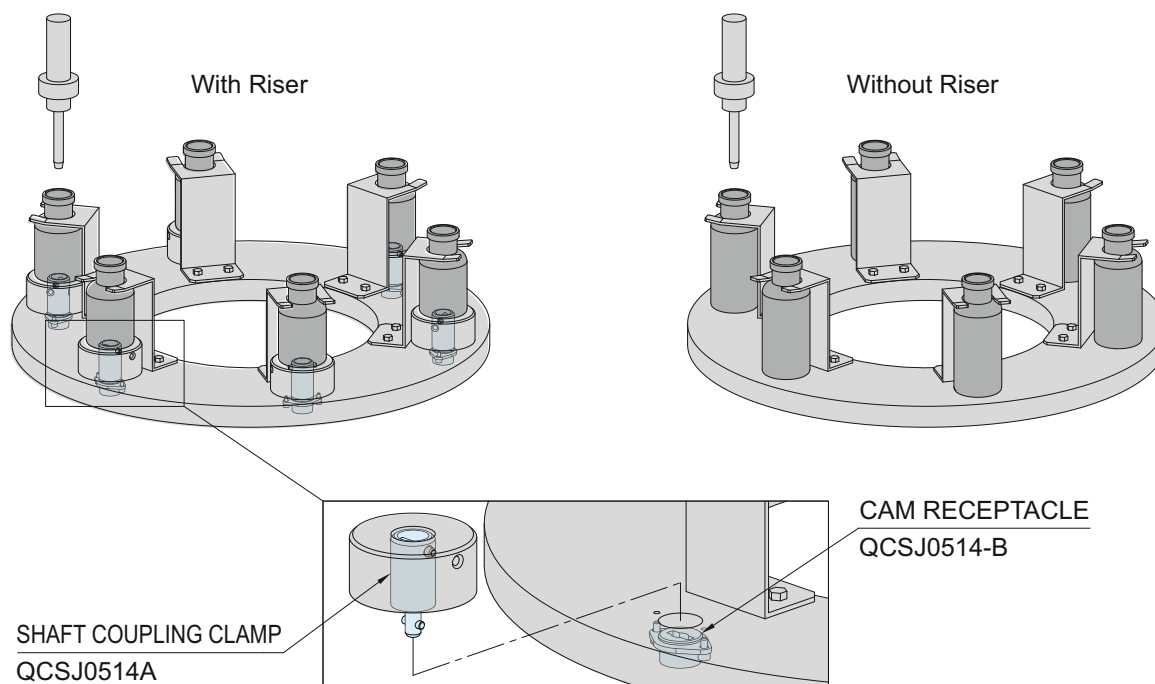
Changes of thrust pads



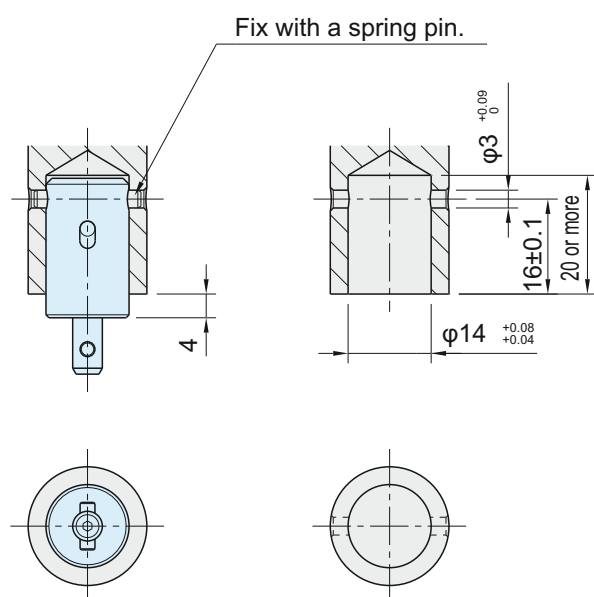
Continuing on Next Page

Application Examples

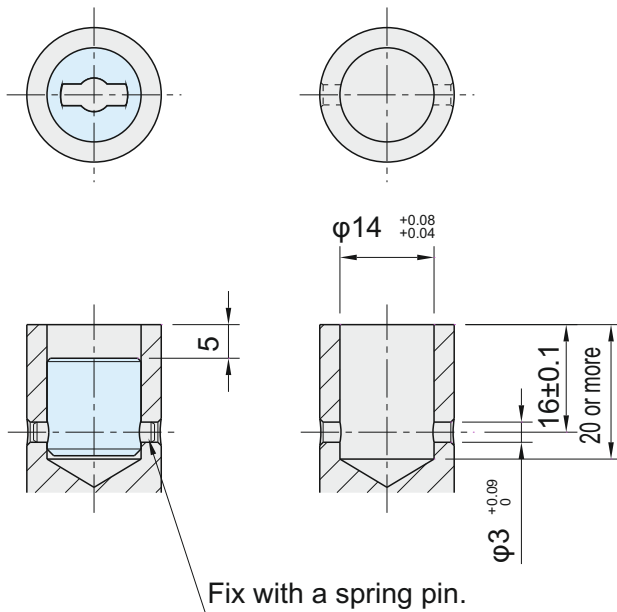
Changes of riser



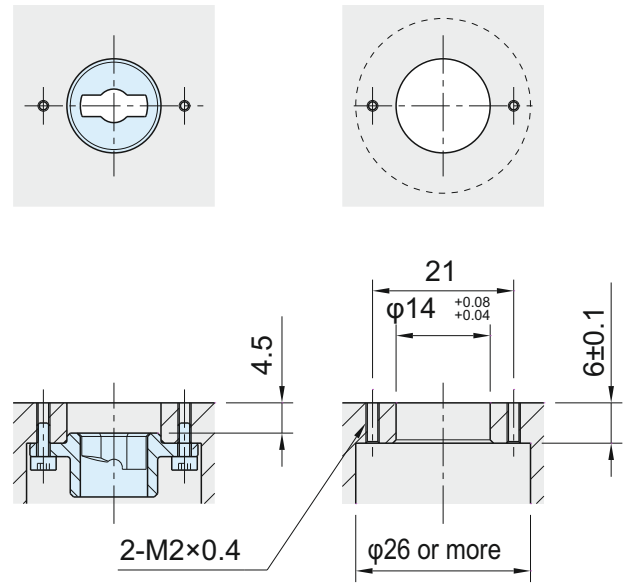
How To Mount Shaft Coupling Clamp



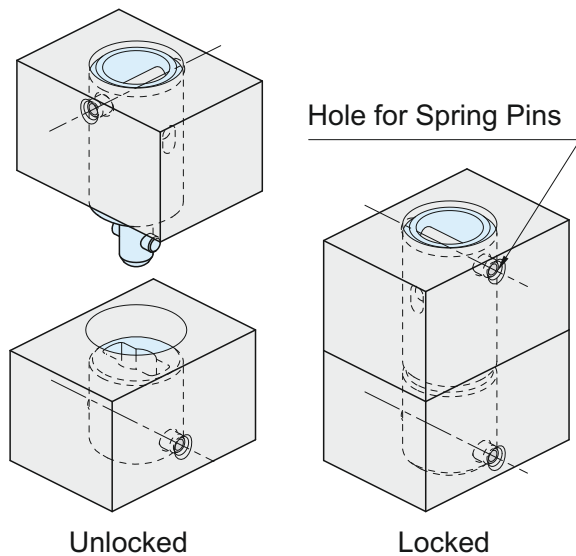
How To Mount Cam Receptacle(Shaft Mount)



How To Mount Cam Receptacle(Plate Mount)



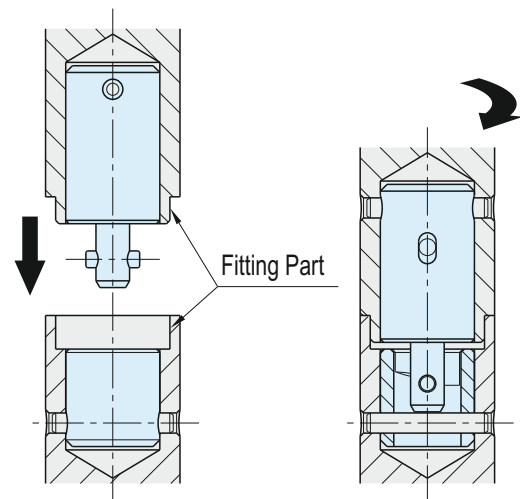
Note



Pay attention to the direction of holes for spring pins.

Repeatability

Repeatability is ± 0.08 .



Prepare male and female fittings for highly accurate locating.

QCBA/QCBAS - Ball-Lock Clamping Receptacles

RoHS 180°C



QCBA0816
(Standard)



QCBAS0820
(Safety Lock)

QCBA0816 (Standard)

Part Number	Clamping Force (N)	Weight (g)
QCBA0816A	7	30
QCBA0816B	15	30

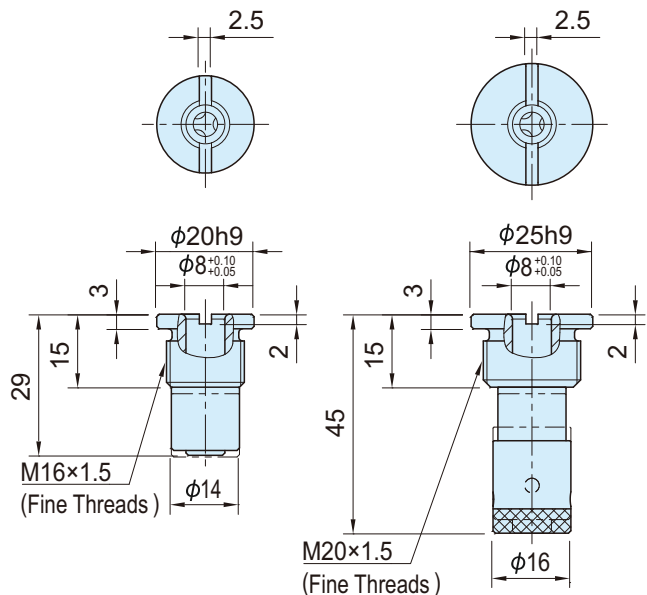
QCBAS0820 (Safety Lock)

Part Number	Clamping Force (N)	Weight (g)
QCBAS0820A	7	65
QCBAS0820B	15	65

Related Product Page

PW Plunger Wrench

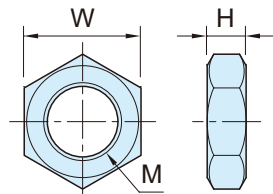
Type	Body/Collar	Balls	Coiled Spring	Locking Knob
QCBA0816	Steel (S45C) Electroless nickel plated	Stainless steel (SUS440C) Quenched and tempered	Stainless steel (SUS304WPB)	-
QCBAS0820				Steel (S45C) Electroless nickel plated



QCBA0816
(Standard)

QCBAS0820
(Safety Lock)

Nut (Stainless Steel)
(Separately Sold)

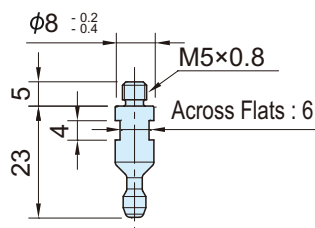


Part Number	M (Fine Threads)	H	W	Proper Ball-Lock Clamping Receptacles
NDX16-NUT-SUS	M16 x 1.5	8	24	QCBA0816
NDX20-NUT-SUS	M20 x 1.5	10	30	QCBAS0820

QCBA-M - Ball-Lock Clamping Pins

RoHS 180°C

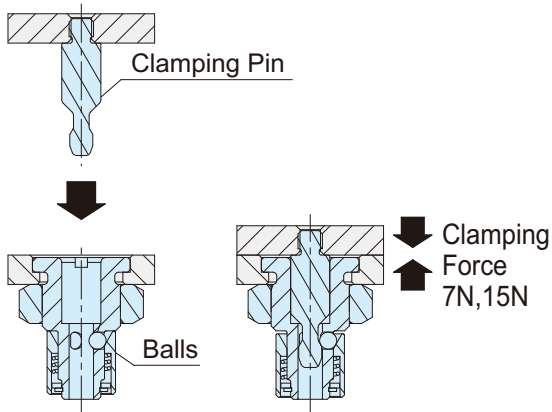
Part Number	Weight (g)
QCBA0816-M5	7



Body
Steel (S45C) Quenched and tempered Electroless nickel plated

QCBA/QCBAS - Ball-Lock Clamping Receptacles

Feature



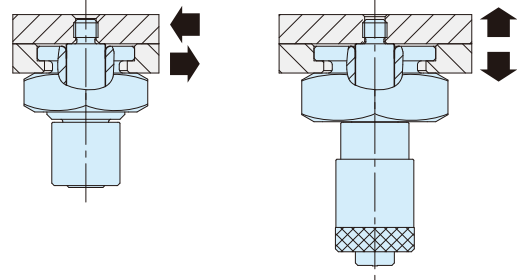
The 3 balls pull in the clamping pin.

Technical Information

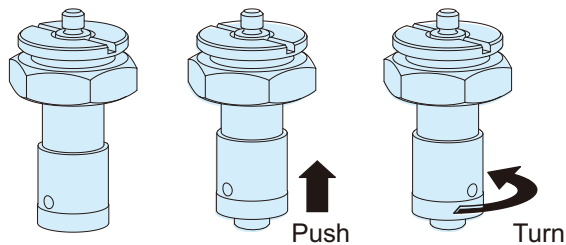
- Heat resistance : up to 180°C
- Mechanical Strength

Shear Strength 1,800N

Tensile Strength 1,800N
(at active safety lock)

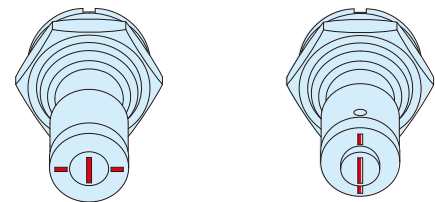


How To Operate Safety Lock



Turn in the arrowhead direction pushing the locking knob.
To release the safety lock, follow the steps back.

Safety Locking Mode

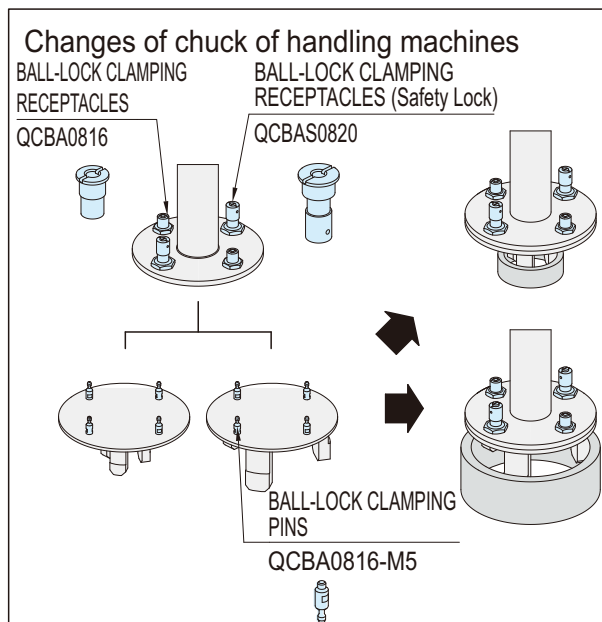


Inactive Mode

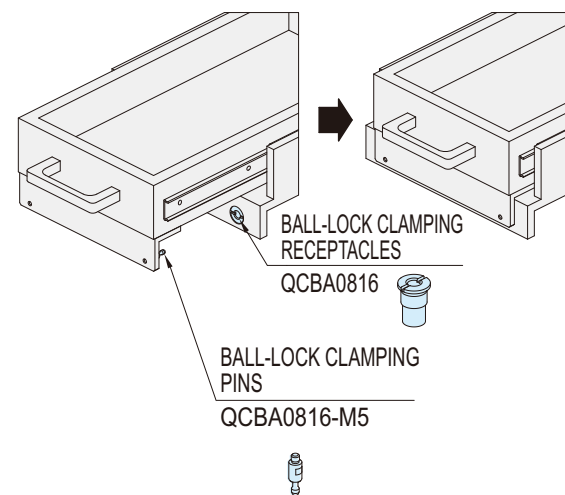
Active Mode

When the mark lines on the end of the locking knob are aligned, the safety lock is active.

Application Examples



End fixing of sliding units

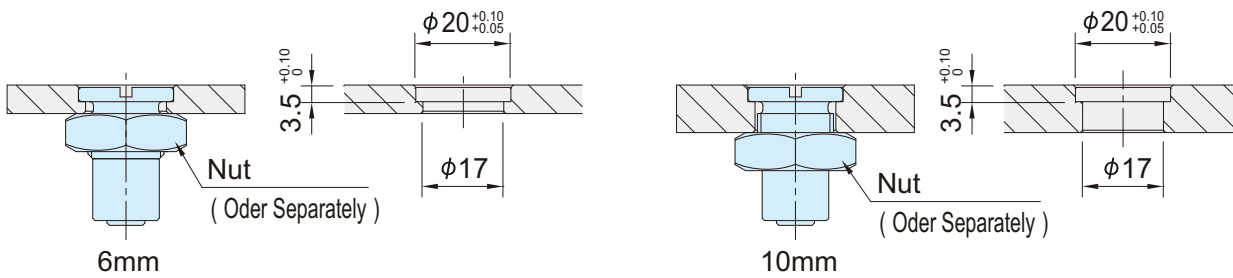


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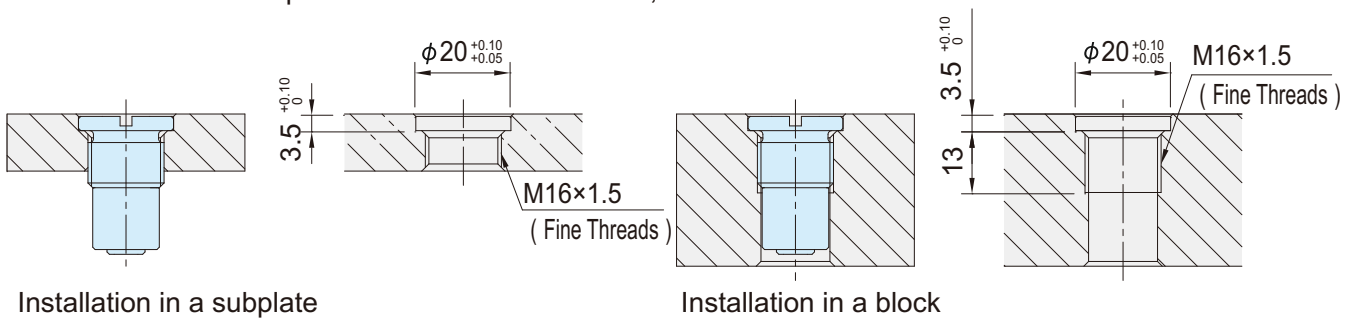
QCBA/QCBAS - Ball-Lock Clamping Receptacles

Installation Instructions for "Standard" Ball-Lock Clamping Receptacles

For installation in a subplate of thickness ranging from 6mm to 10mm, use a nut for fastening.

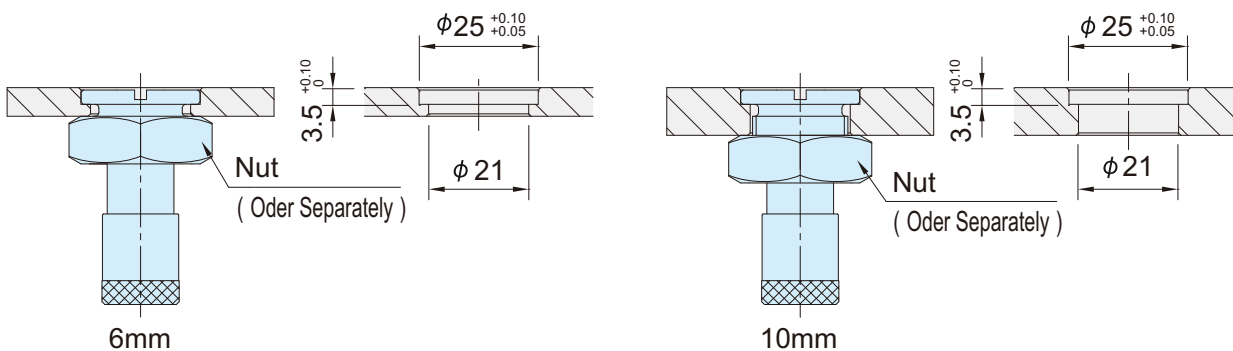


For installation in a subplate of thickness over 10mm, use a screw-in method.

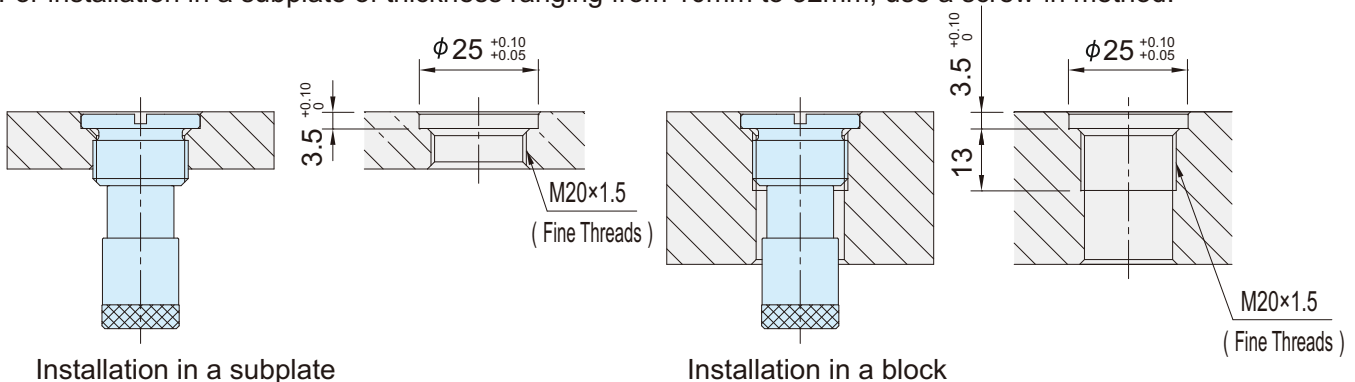


Installation Instructions for "Safety-Lock" Ball-Lock Clamping Receptacles

For installation in a subplate of thickness ranging from 6mm to 10mm, use a nut for fastening.

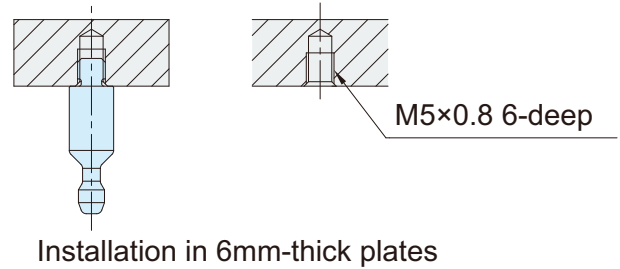
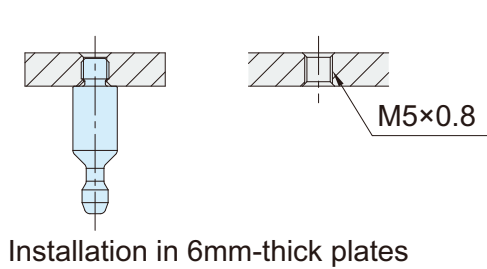


For installation in a subplate of thickness ranging from 10mm to 32mm, use a screw-in method.



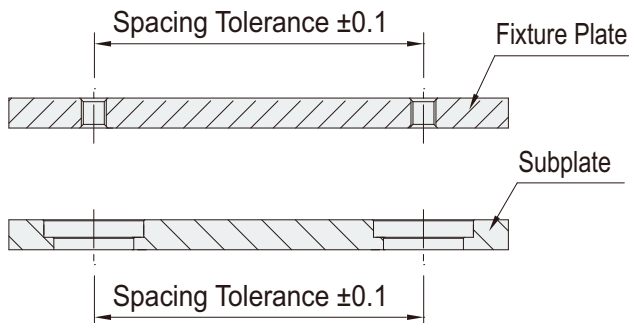
Installation Instructions for Ball-Lock Clamping Pins

Installation in 6mm-thick plates



Accuracies

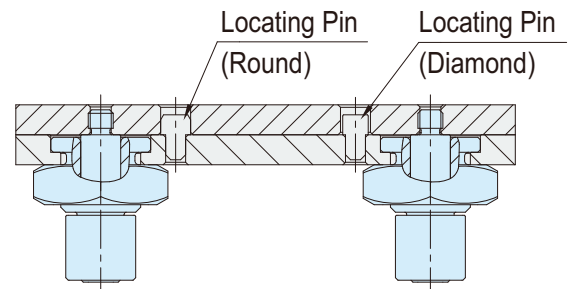
■ Machining Accuracy



Spacing tolerance on both the fixture plate and the subplate should be ± 0.1 .

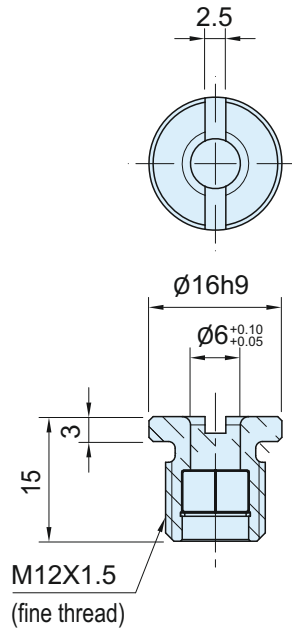
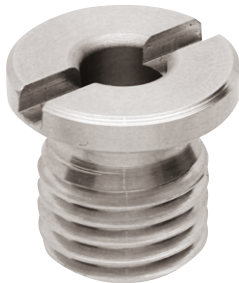
■ Repeatability

Repeatability of ± 0.25 can be maintained



For highly accurate locationing, use locating pins.

QCMA - Magnet-Lock Clamping Receptacles



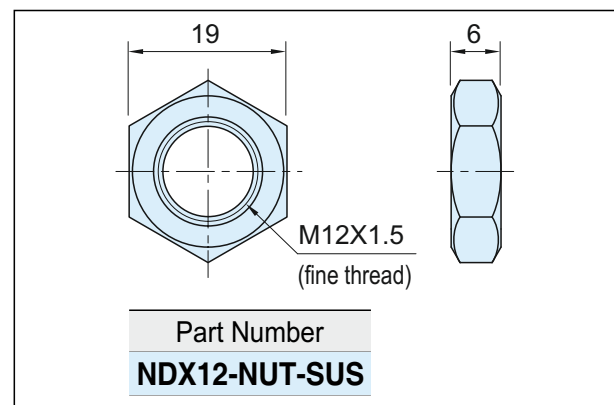
Body	Magnet
Stainless Steel(SUS304)	Neodymium

Part Number	Clamping Force (N)	Weight (g)
QCMA0612A	7	12

[Related Product Page](#)

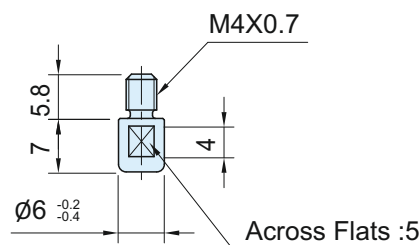
PW Plunger Wrench

Separately Sold Nut (Stainless Steel)



Part Number
NDX12-NUT-SUS

QCMA-M - Magnet-Lock Clamping Pins

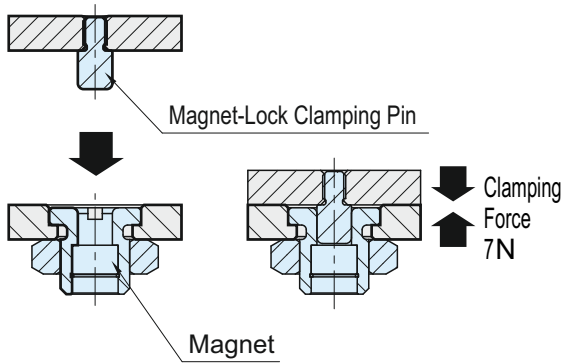


Body/Stud
Steel(S45C) Electroless nickel plated

Part Number	Weight (g)
QCMA0612-M4	2

QCMA - Magnet-Lock Clamping Receptacles

Feature

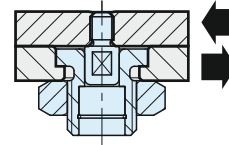


The magnet pulls in the clamping pin.

Technical Information

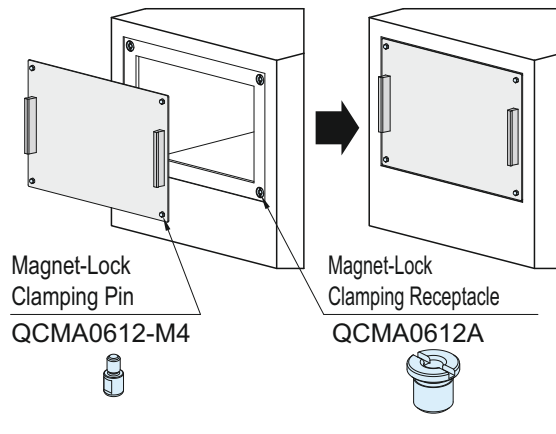
- Heat resistance : up to 80°C
- Mechanical Strength

Shear Strength 900N



Application Example

Installation/removal of maintenance cover plate of machines

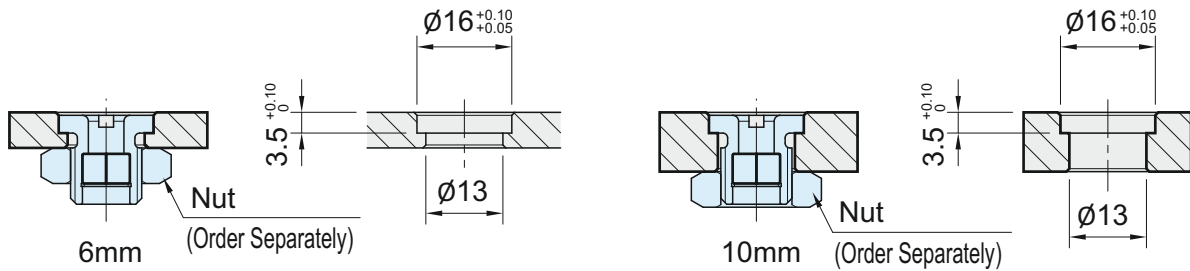


Continuing on Next Page

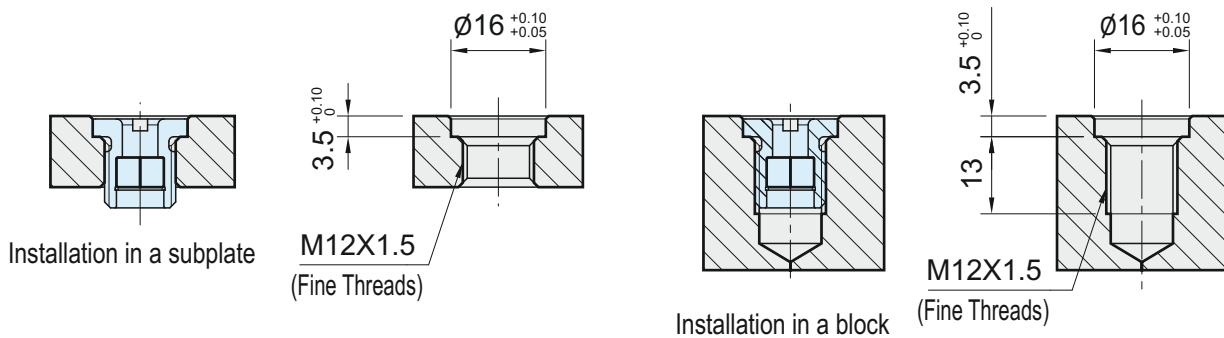
QCMA - Magnet-Lock Clamping Receptacles

Installation Instructions for Magnet-Lock Clamping Receptacles

For installation in a subplate of thickness ranging from 6mm to 10mm, use a nut for fastening.

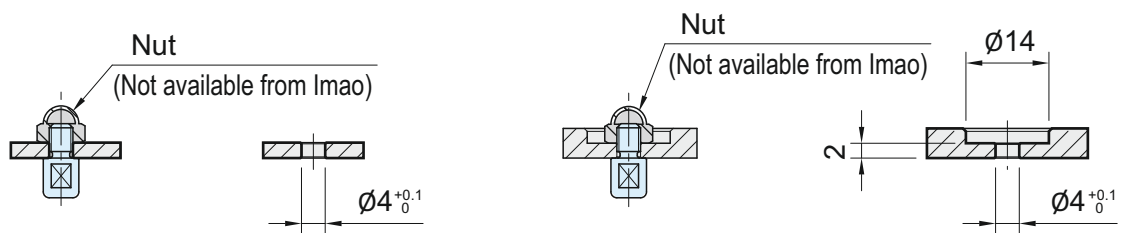


For installation in a subplate of thickness over 10mm, use a screw-in method.



Installation Instructions for Magnet-Lock Clamping Pins

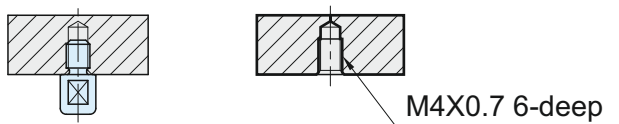
For installation in a subplate of thickness ranging from 2mm to 6mm, use a nut for fastening.



Installation in a plate of thickness ranging from 2 to 2.6mm.

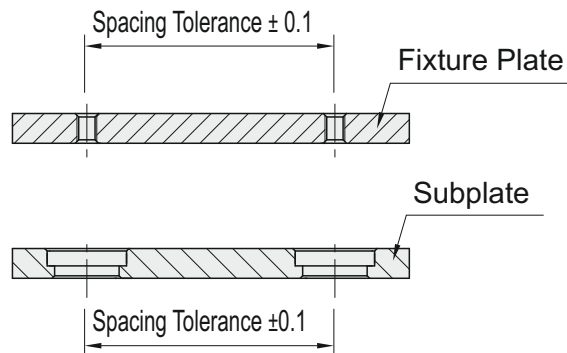
Installation in fixture plates of thickness ranging from over 2.6mm to 6mm.

For installation in a subplate of thickness over 6mm, use a screw-in method.



Accuracies

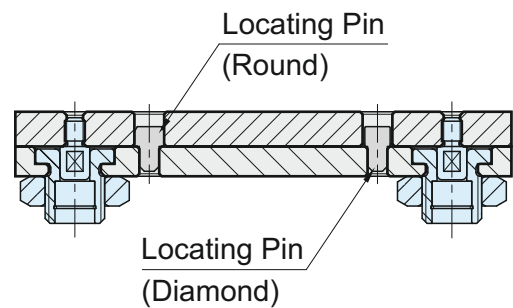
Machining Accuracy



Spacing tolerance on both the fixture plate and the subplate should be ± 0.1 .

Repeatability

Repeatability of ± 0.25 can be maintained



For highly accurate locationg, use locating pins.

ONE-TOUCH SLIDING LOCKS

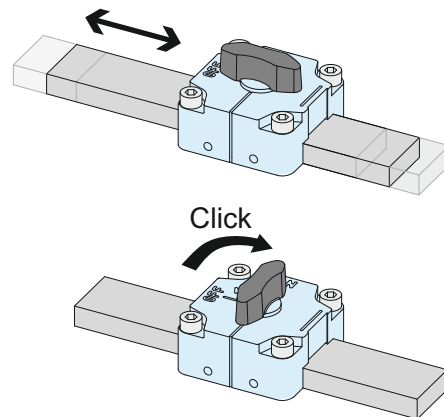
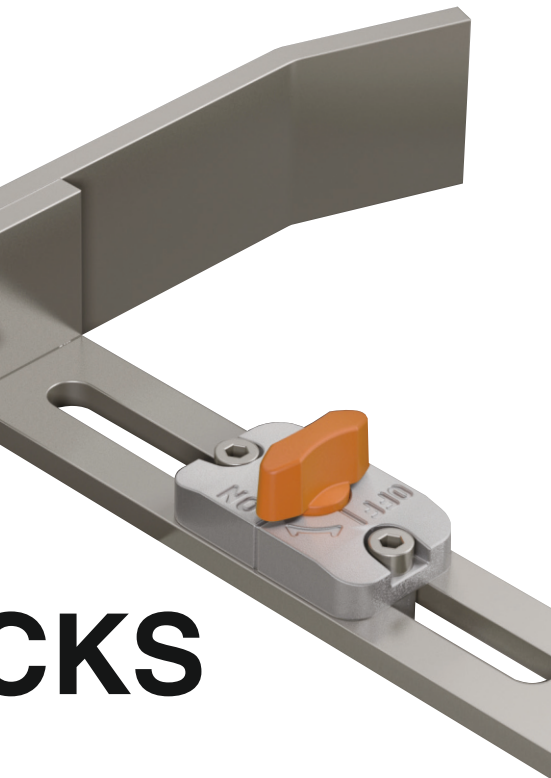
New solution for
sliding adjustment!

ONE-TOUCH SLIDING LOCKS

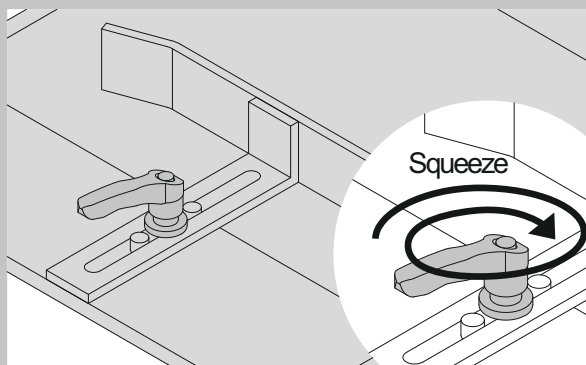
What is One-touch Sliding Lock?

One-touch Sliding Lock is a fixing component that enables easy & secure locking in sliding adjustment.

This dramatically improves reliability and safety in set-ups of various devices.

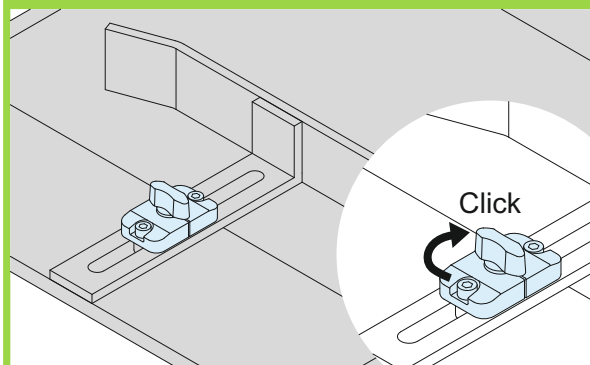


Conventional Method



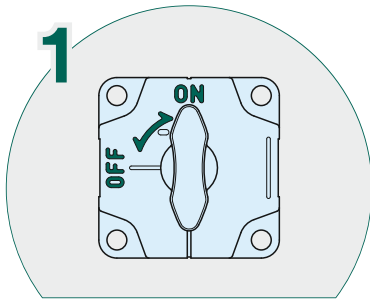
Required to tighten by main force to prevent misalignment.

IMAO's Method



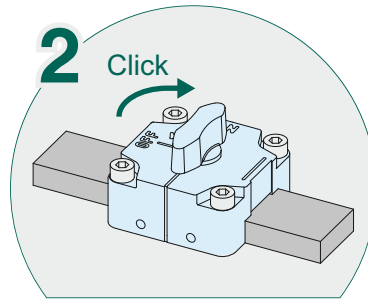
Prevents misalignment with easy operation!

Features



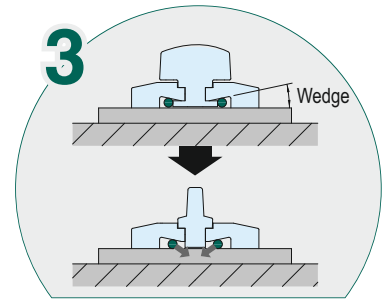
High Visibility

Easy-to-read ON/OFF position



Leveling of Operation

The knob clicks when it is locked/unlocked.

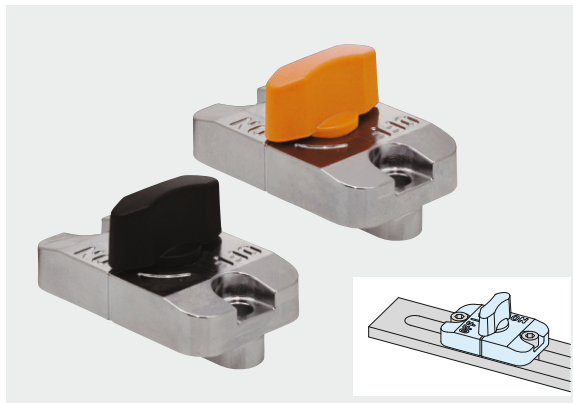


Secure Locking

Secure locking with wedge structure.

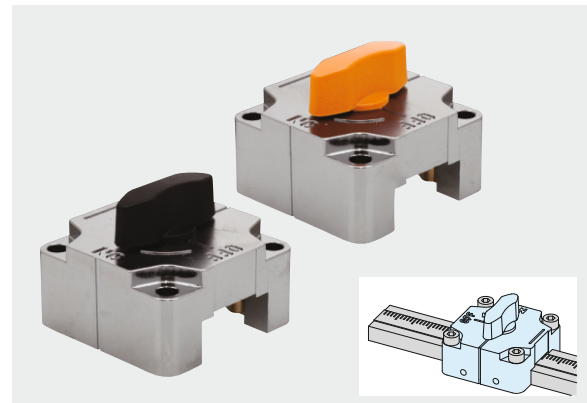
Lineups

Sliding Locks For Slotted Hole



For slotted holes

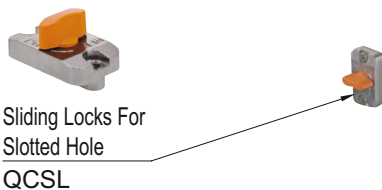
Sliding Locks For Square Bar



For commercially-available square bars

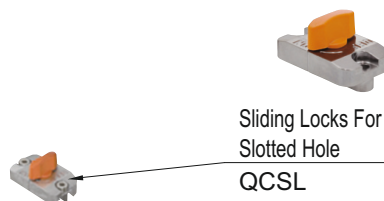
Applications

For Adjusting Camera Position



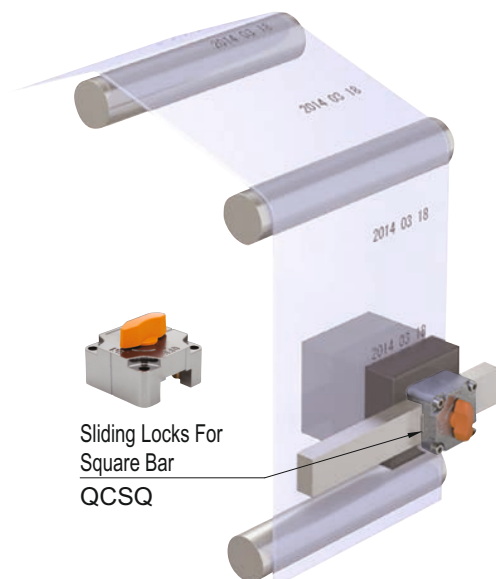
Sliding Locks For
Slotted Hole
QCSL

For Adjusting Workpiece Guide



Sliding Locks For
Slotted Hole
QCSL

For Adjusting Stamp Base Position

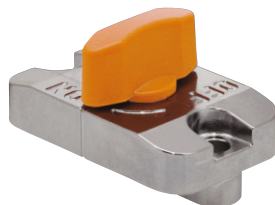


Sliding Locks For
Square Bar
QCSQ

QCSL - Sliding Locks For Slotted Hole



Type	Body	Knob	Shafts / Wedge	Ball Plunger
QCSL-OG	Die-cast zinc Chrome plated	Polyamide (glass-fiber reinforced)	Stainless steel	Polyacetal
QCSL-BK				
QCSL-S		SCS13 stainless steel (Equivalent to SUS304)		



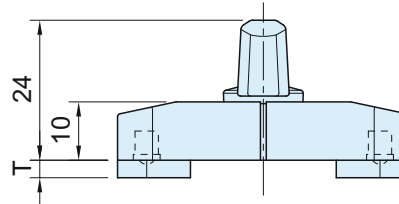
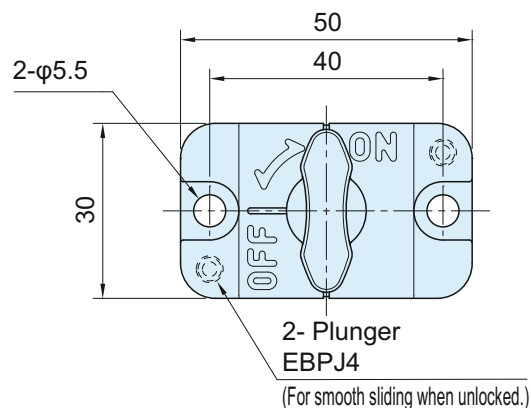
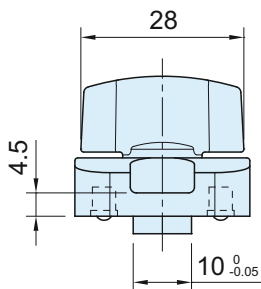
QCSL-OG
(Plastic Knob,
Orange)



QCSL-BK
(Plastic Knob,
Black)

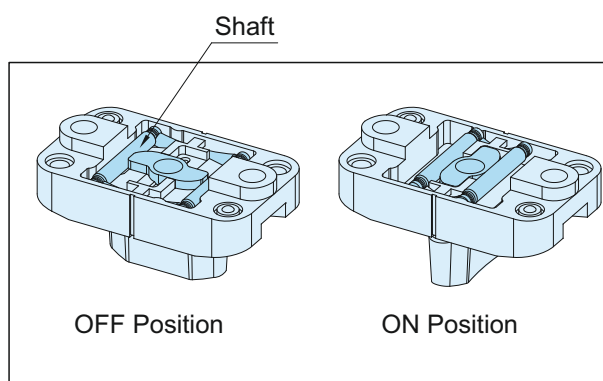
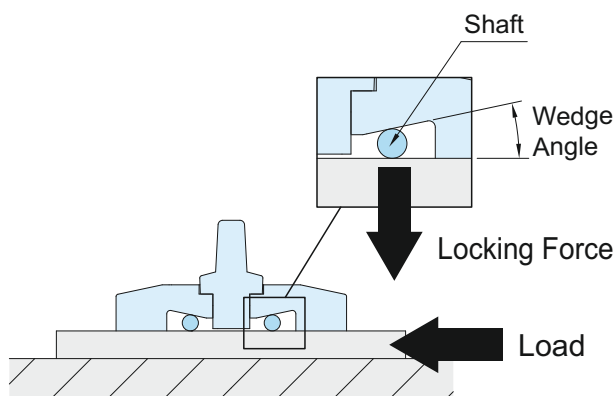


QCSL-S
(Metal Knob)



■ Locking Mechanism

The shafts are locked being pushed into the wedged spaces when sliding load is applied in horizontal direction.

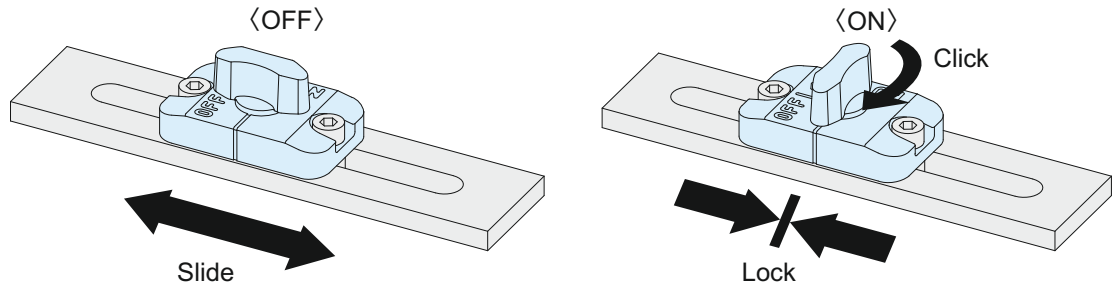


QCSL-OG (Plastic Knob, Orange)		QCSL-BK (Plastic Knob, Black)		QCSL-S (Metal Knob)		T ($^{+0.2}_{0}$)
Part Number	Weight (g)	Part Number	Weight (g)	Part Number	Weight (g)	
QCSL1003-OG	80	QCSL1003-BK	80	QCSL1003-S	95	3
QCSL1006-OG	80	QCSL1006-BK	80	QCSL1006-S	95	6

QCSL - Sliding Locks For Slotted Hole

How To Use

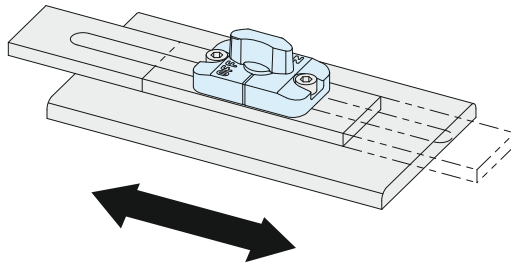
■Operating Instructions



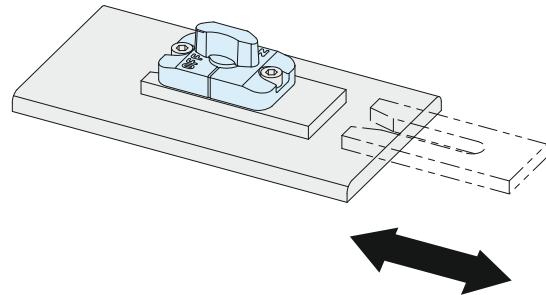
The slide is locked when the knob is at "ON" position.

■Usage Instructions * Refer to the "Notes" for safety use.

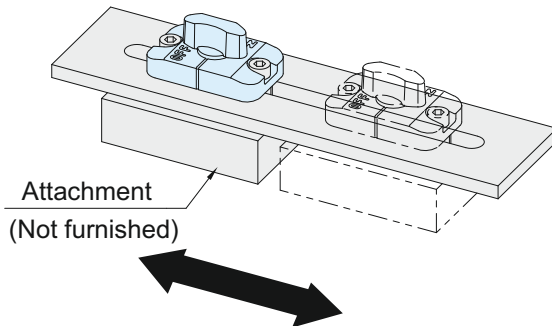
①Slide the steel bar.



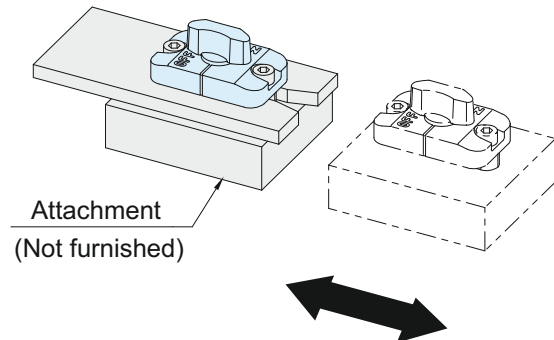
②Attach/remove the steel bar.



③Slide the Sliding Locks For Slotted Hole.

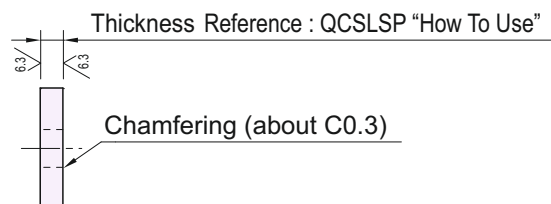
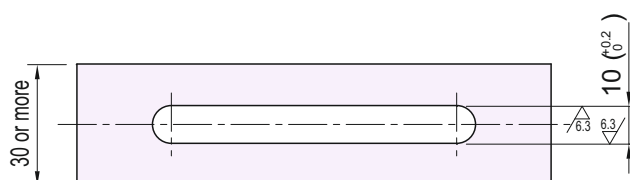


④Attach/remove the Sliding Locks For Slotted Hole.



■Steel Bar Materials

- Usable Materials: Flat bar (JIS h14 grade) made of SS400, S45C or SUS304 etc.
- Machining of slotted hole: Recommended tolerance of the slotted hole to prevent chattering is shown as below.
For more accurate sliding, machine the slotted hole to fit the dimension of 10mm(-0.05 to 0) on the bottom of Sliding Locks.
Remove the burr around the slotted hole to ensure secure locking.

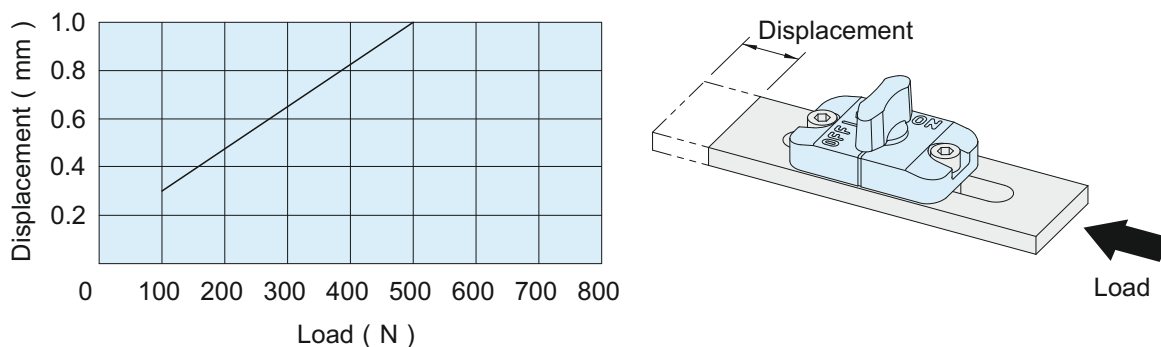


Continuing on Next Page

QCSL - Sliding Locks For Slotted Hole

Performance Curve

- The displacement of steel bar by axial load (Static load from single direction)



Note: The above data is for a flat bar made of SUS304 stainless steel, SS400 steel and S45C steel.
Using an aluminum flat bar, the surface will be scratched or dent by applied load.

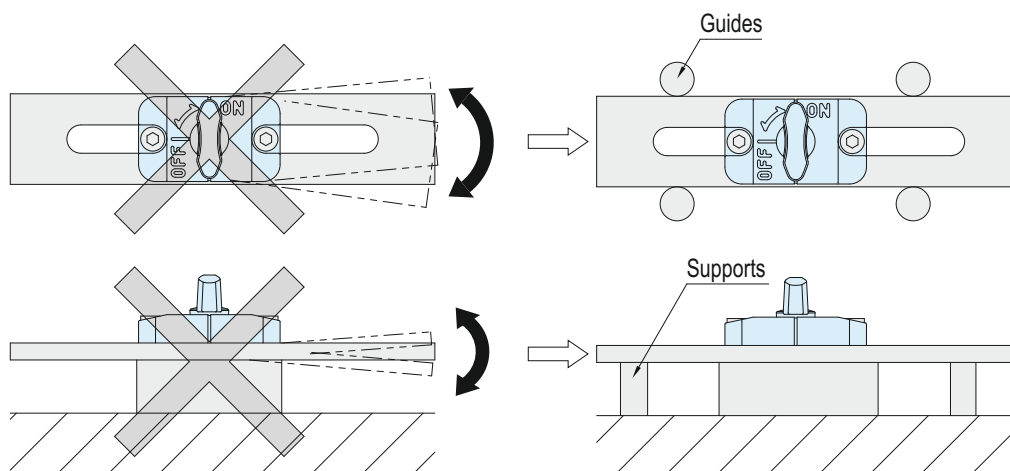
Technical Information

- Heat resistance : Up to 90°C
- Rated load : Up to 500N

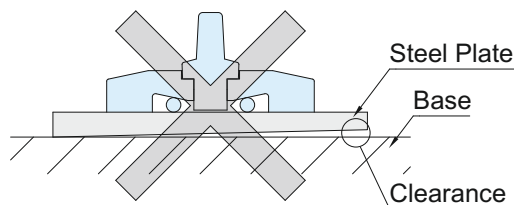
Notes

The following conditions may cause displacement increasing or misalignment.

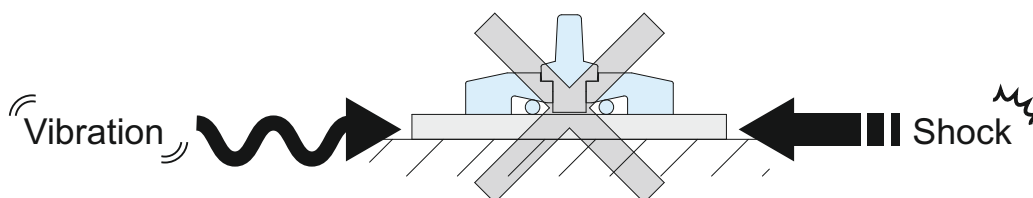
1. Use under slippage or chattering caused by vertical or horizontal loads



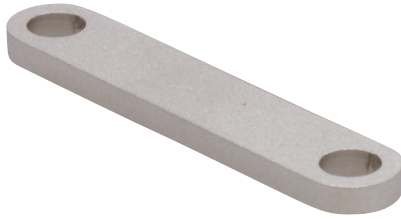
2. Use with a clearance between the steel bar and the base when the Sliding Locks at "ON" position.



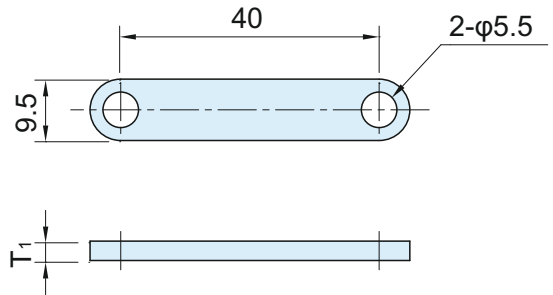
3. Use under excess shock or vibration



QCSLSP - Riser Plates For Sliding Lock



Body
SUS304 stainless steel

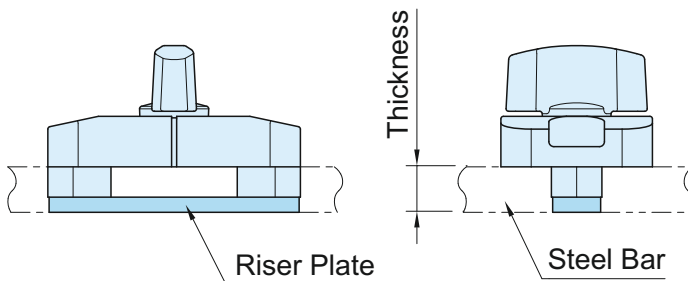


Part Number	T ₁ (±0.1)	Weight (g)
QCSLSP1002	2	6
QCSLSP1003	3	10

How To Use

■How To Use Riser Plate

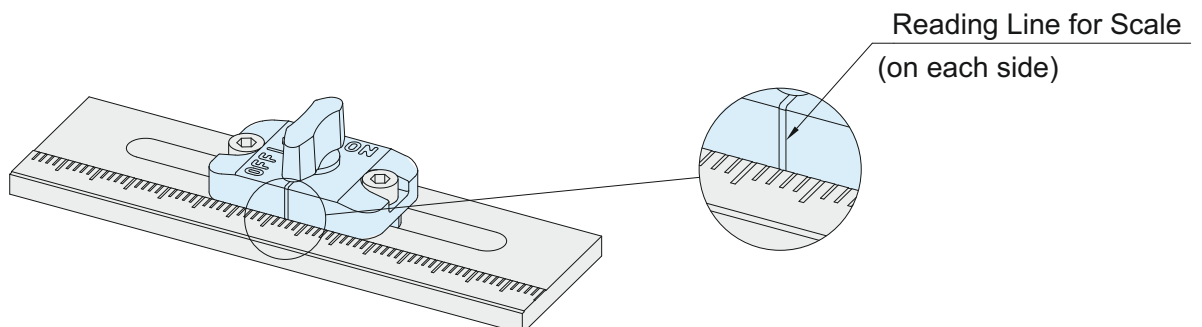
Can be used for various steel thicknesses by attaching the Riser Plates (to be ordered separately).



Type	Part No. of Riser Plates	Thickness of Steel Bar(h14) (mm)
QCSL	1003	- 3 $\begin{pmatrix} 0 \\ -0.25 \end{pmatrix}$
		QCSLSP1002 5 $\begin{pmatrix} 0 \\ -0.3 \end{pmatrix}$
	1006	- 6 $\begin{pmatrix} 0 \\ -0.3 \end{pmatrix}$
		QCSLSP1002 8 $\begin{pmatrix} 0 \\ -0.36 \end{pmatrix}$
		QCSLSP1003 9 $\begin{pmatrix} 0 \\ -0.36 \end{pmatrix}$

■How To Use Scale Plate

- You can read the scale with the line on the body of Sliding Lock.
- ES1N** Scale Plate is separately available.



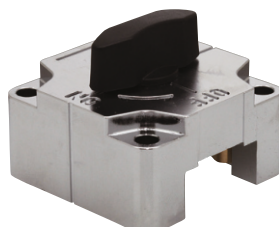
QCSQ - Sliding Locks For Square Bar



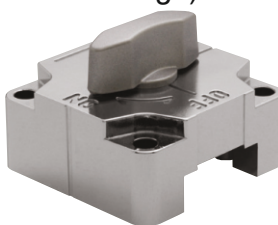
Type	Body	Knob	Shafts / Wedge	Flat Spring
QCSQ-OG	Die-cast zinc Chrome plated	Polyamide (glass-fiber reinforced)	Stainless steel	C519P phosphor bronze
QCSQ-BK				
QCSQ-S		SCS13 stainless steel (Equivalent to SUS304)		



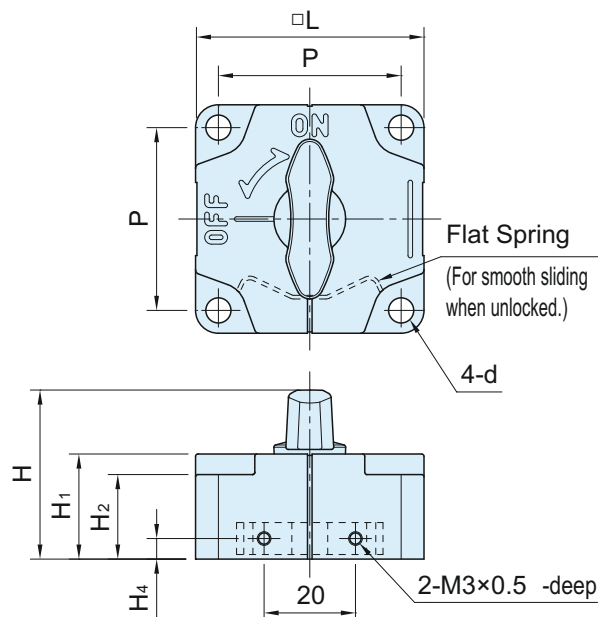
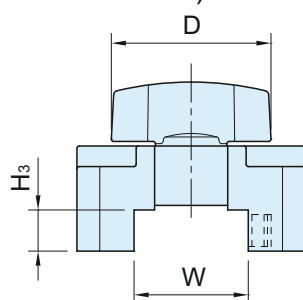
QCSQ-OG
(Plastic Knob,
Orange)



QCSQ-BK
(Plastic Knob,
Black)

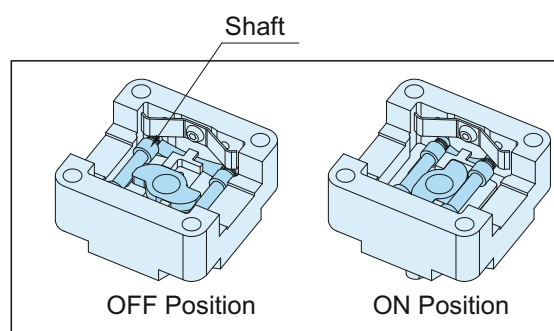
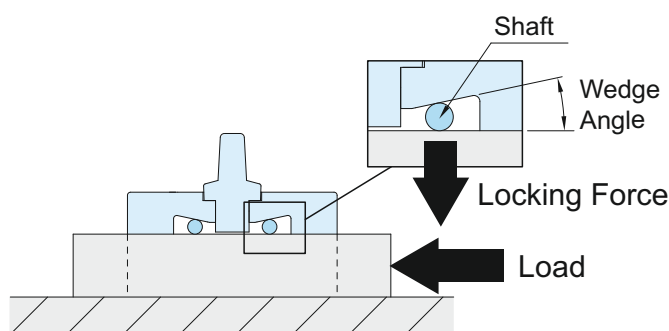


QCSQ-S
(Metal Knob)



■ Locking Mechanism

The shafts are locked being pushed into the wedged spaces when sliding load is applied in horizontal direction.



Size		L	H	W ($\begin{smallmatrix} +0.05 \\ 0 \end{smallmatrix}$)	H ₃ ($\begin{smallmatrix} +0.2 \\ 0 \end{smallmatrix}$)	D	H ₁	H ₂	H ₄	P	d
QCSQ-OG QCSQ-BK QCSQ-S	1212	40	36	12	12	28	22	18.5	6	32	4.5
	1616		40	16	16		26	22.5	8		
	2509	50	37	25	9	35	23	18.5	4.5	40	5.5
	2512		40		12		26	21.5	6		
	3212		44	32	16		30	25.5	8		
	3216										

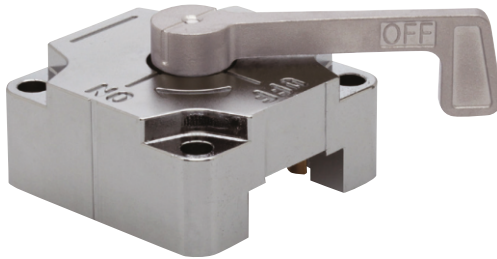
QCSQ - Sliding Locks For Square Bar

QCSQ-OG (Plastic Knob, Orange)		QCSQ-BK (Plastic Knob, Black)		QCSQ-S (Metal Knob)	
Part Number	Weight (g)	Part Number	Weight (g)	Part Number	Weight (g)
QCSQ1212-OG	130	QCSQ1212-BK	130	QCSQ1212-S	145
QCSQ1616-OG	150	QCSQ1616-BK	150	QCSQ1616-S	165
QCSQ2509-OG	220	QCSQ2509-BK	220	QCSQ2509-S	245
QCSQ2512-OG	240	QCSQ2512-BK	240	QCSQ2512-S	265
QCSQ3212-OG	220	QCSQ3212-BK	220	QCSQ3212-S	245
QCSQ3216-OG	240	QCSQ3216-BK	240	QCSQ3216-S	265

QCSQ-L - Sliding Locks For Square Bar With Handle

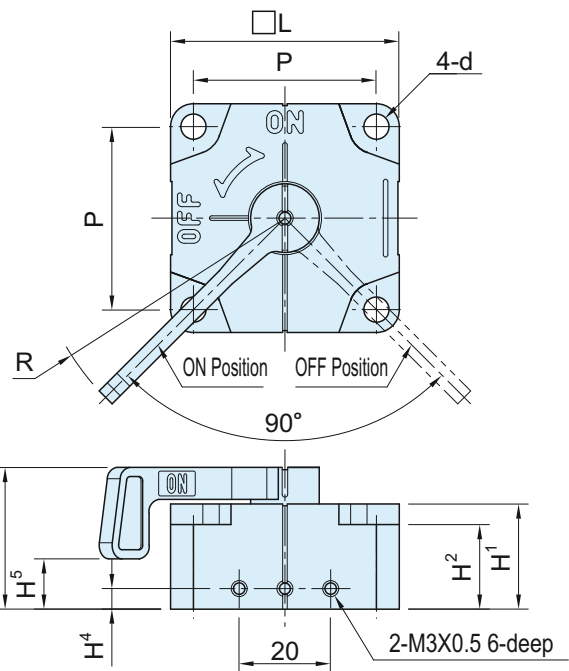


Body	Handle	Shafts / Wedge	Flat Spring
Die-cast zinc Chrome plated	SCS13 stainless steel (Equivalent to SUS304)	Stainless steel	C519P phosphor bronze



★Key Point

The handle is accessible from the side even in tight spaces.



Part Number	L	H	W (⁰ ₀ . 0.5)	H ₃ (⁰ ₀ . 2)	H ₁	H ₂	H ₄	R	H ₅	P	d	Weight (g)
QCSQ1212-L	40	29	12	12	22	18.5	6	46	11	32	4.5	150
QCSQ1616-L		33	16	16	26	22.5	8		15			160
QCSQ2509-L	50	31	25	9	23	18.5	4.5	55.5	11	40	5.5	250
QCSQ2512-L		34		12	26	21.5	6		14			260
QCSQ3212-L		34	32	12	26	21.5	6		14			250
QCSQ3216-L		38		16	30	25.5	8		18			270

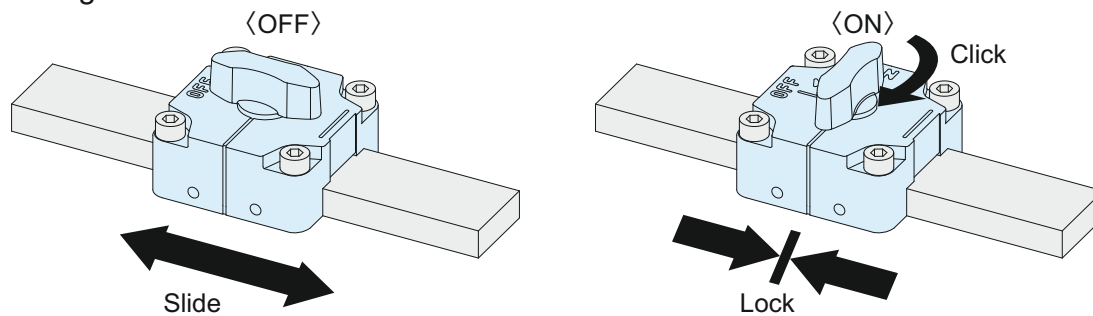


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QCSQ - Sliding Locks For Square Bar

How To Use

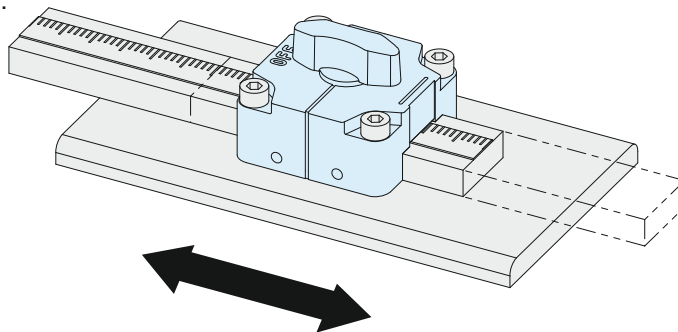
■ Operating Instructions



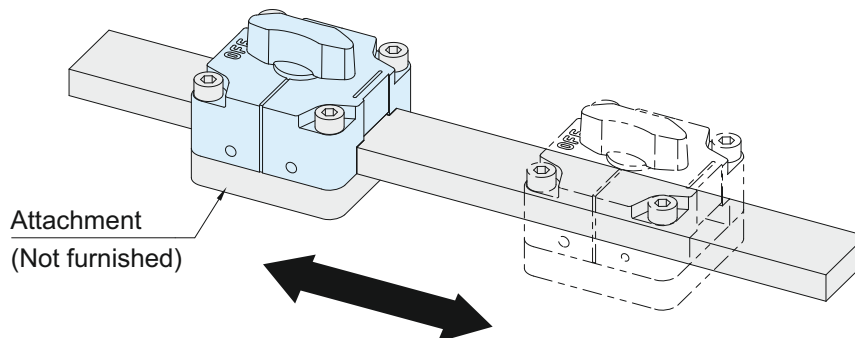
The slide is locked when the knob is at "ON" position.

■ Usage Instructions * Refer to the "Notes" for safety use.

① Slide the steel bar.



② Slide the Sliding Locks For Square Bar.



■ Steel Bar Materials

- Usable Materials: Flat bar (JIS h14 grade) made of SS400, S45C or SUS304 etc.

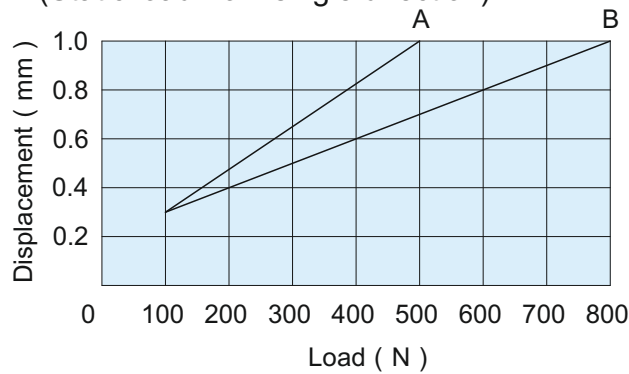


Size	W	H
1212	12 ($\begin{smallmatrix} 0 \\ -0.43 \end{smallmatrix}$)	12 ($\begin{smallmatrix} 0 \\ -0.43 \end{smallmatrix}$)
1616	16 ($\begin{smallmatrix} 0 \\ -0.43 \end{smallmatrix}$)	16 ($\begin{smallmatrix} 0 \\ -0.43 \end{smallmatrix}$)
2509	25 ($\begin{smallmatrix} 0 \\ -0.52 \end{smallmatrix}$)	9 ($\begin{smallmatrix} 0 \\ -0.36 \end{smallmatrix}$)
2512		12 ($\begin{smallmatrix} 0 \\ -0.43 \end{smallmatrix}$)
3212	32 ($\begin{smallmatrix} 0 \\ -0.62 \end{smallmatrix}$)	
3216		16 ($\begin{smallmatrix} 0 \\ -0.43 \end{smallmatrix}$)

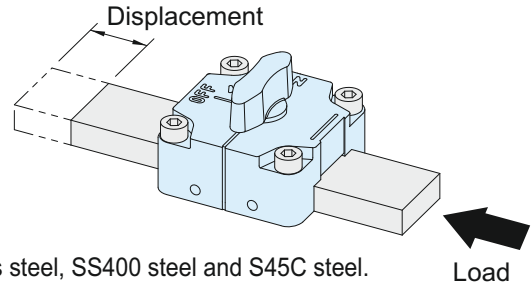
QCSQ - Sliding Locks For Square Bar

Performance Curve

- The displacement of steel bar by axial load
(Static load from single direction)



A: QCSQ 1212,1616
B: QCSQ 2509,2512
QCSQ 3212,3216



Note: The above data is for a flat bar made of SUS304 stainless steel, SS400 steel and S45C steel.
Using an aluminum flat bar, the surface will be scratched or dent by applied load.

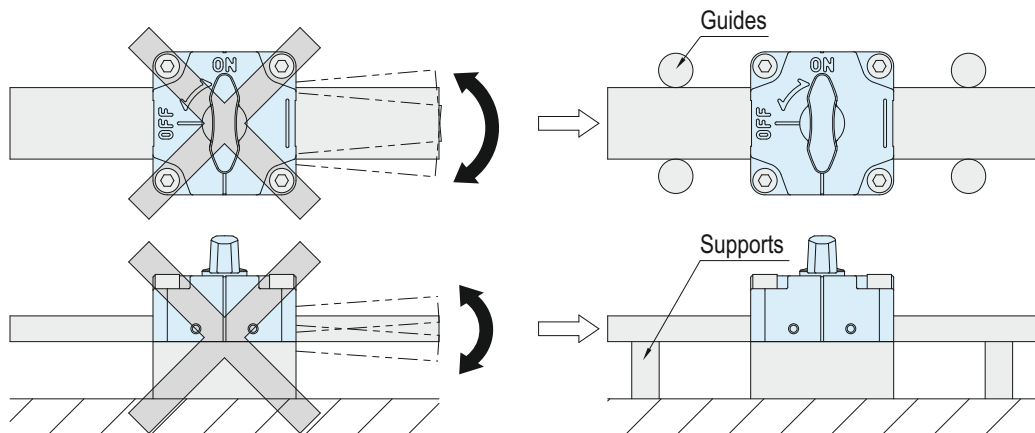
Technical Information

- Heat resistance : Up to 90°C
- Rated load : QCSQ 1212,1616 500N
QCSQ 2509,2512,3212,3216 : Up to 800N

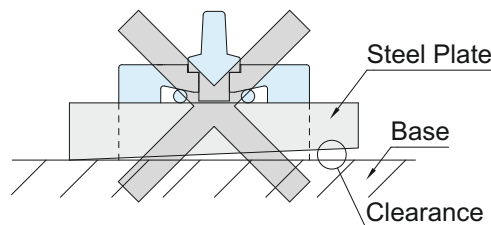
Notes

The following conditions may cause displacement increasing or misalignment.

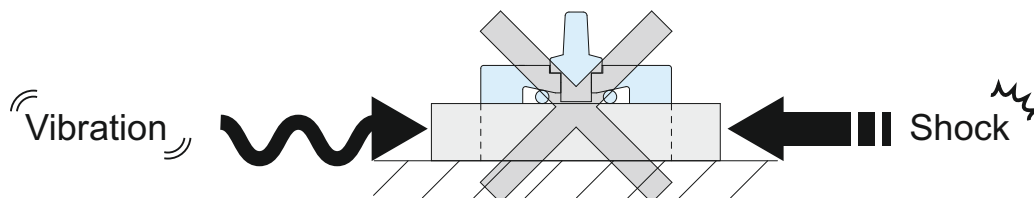
1. Use under slippage or chattering caused by vertical or horizontal loads



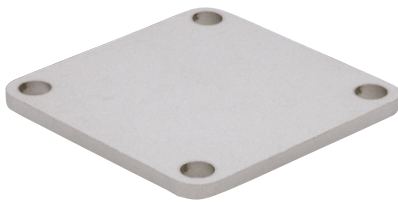
2. Use with a clearance between the steel bar and the base when the Sliding Locks at "ON" position.



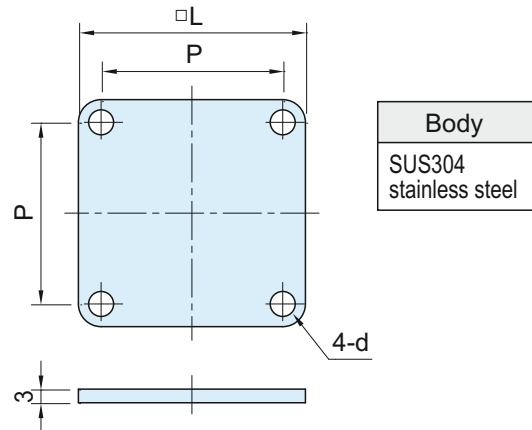
3. Use under excess shock or vibration



QCSQSP - Riser Plates For Sliding Lock



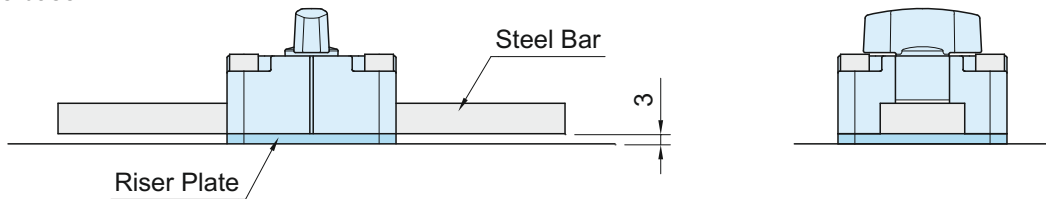
Part Number	L	d	P	Weight (g)
QCSQSP4003	40	4.5	32	35
QCSQSP5003	50	5.5	40	55



How To Use

How To Use Riser Plate

Riser Plates (to be ordered separately) can lift the steel bar to create a clearance between the steel bar and the base.

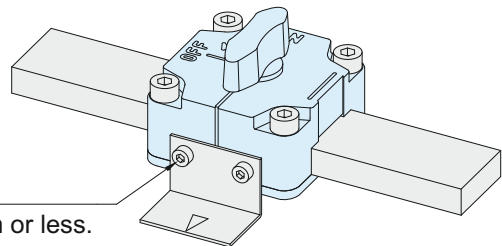


How To Use Tapped Holes On Side Surface

Can be used with attachments such as pointer plates and brackets.

Screw Size M3×0.5

Note: Screw depth must be 6mm or less.



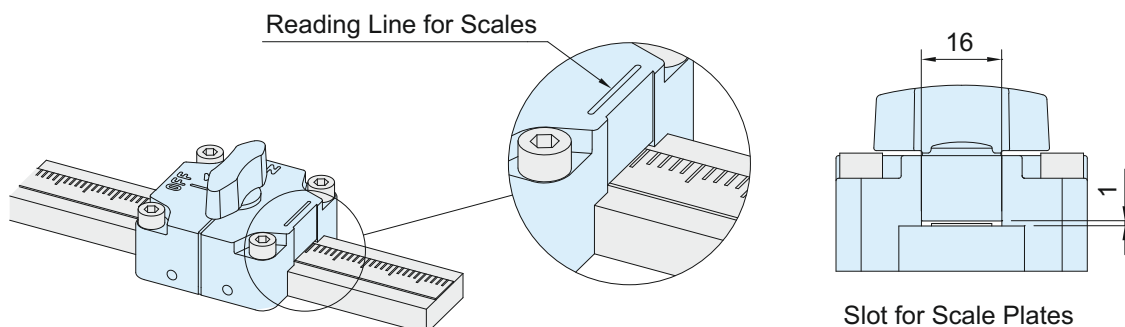
How To Use Scale Plate

- Scale plate can be put on the steel bar.

Note: Fit scale plate inside the slot in the figure below.

Putting scale plate outside the slot cause interference between scale plate and Sliding Lock, and this may cause failure.

- ES1N** Scale Plate is separately available.



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Clamping levers, tension levers, cam levers



K0005

Cam levers
internal and external thread
Material & Version :
Handles cast aluminum EN AC-46200,
Studs steel grade 5.8 or stainless steel
1.4305, Blue chromated or bright stainless steel.



K0788

Cam levers
internal and external thread
Material & Version :
Handle steel 1.0401, Blue chromated.
Stud steel, grade 5.8, Blue chromated.



K0645

Cam levers
internal and external thread
Material & Version :
Handles 1.4308, Electrolytic polished.
Stud 1.4305, Bright.



K0646

Cam levers with plastic handle
internal and external thread
Material & Version :
Handles plastic PA 66 fibreglass Reinforced, Black.
Studs steel grade 5.8 or stainless steel 1.4305,
Blue chromed or bright stainless steel.



K0006

Cam levers adjustable
external thread
Material & Version :
Handles cast aluminium EN AC-46200
Studs steel grade 5.8 or stainless steel
1.4305, Blue chromed or bright stainless steel.



K0789

Cam levers adjustable
external thread
Material & Version :
Handle steel 1.0401, Blue chromated.
Stud steel, grade 5.8, Blue chromated.



K0647

Cam levers adjustable
external thread
Material & Version :
Handles 1.4308, Electrolytic polished.
Screw 1.4305, Bright.



K0648

Cam levers adjustable
external thread
Material & Version :
Handles plastic PA 66 fibreglass Reinforced
Studs steel grade 5.8 or stainless steel.
1.4305, Blue chromed steel & stainless steel.



K0751

Cam levers with quick lock
Material & Version :
Handle fibreglass reinforced
plastic PA66, black.
Spring clip stainless steel 1.4310, passivated.



K0118

Cam lever with elastomer lock
Material & Version :
Handle Fibreglass Reinforced
Plastic PA 66, Black.
Stud steel grade 5.8, Blue chromated.



K0116

Clamping levers
internal thread
Material & Version :
Handle die-cast zinc DIN EN 12844.
Steel parts grade 5.8, Black oxidized.



K0116

Clamping levers
external thread
Material & Version :
Handle die-cast zinc DIN EN 12844 ,
Plastic coated.Steel parts grade 5.8,
Black oxidized.



K0117

Clamping levers
internal thread
Material & Version :
Handle die-cast zinc DIN EN 12844,
Plastic coated.
Steel parts stainless steel 1.4305, Bright.



K0117

Clamping levers
external thread
Material & Version :
Handle die-cast zinc DIN EN 12844,
Plastic coated.
Steel parts stainless steel 1.4305, Bright.



K0120

Clamping levers
internal thread
Material & Version :
Handle 1.0401, Silver-grey hammertone.
Steel parts grade 5.8, Black oxidized.



K0120

Clamping levers steel
external thread
Material & Version :
Handle 1.0401, Silver-grey hammertone.
Steel parts grade 5.8, Black oxidized.



K0121

Clamping levers
internal thread
Material & Version :
Handle stainless steel 1.4308,
Metal parts stainless steel 1.4305



K0121

Clamping levers
external thread
Material & Version :
Handle stainless steel 1.4308
Metal parts stainless steel 1.4305, Bright.



K0752

Clamping levers steel
internal thread
Material & Version :
Handle 1.0401, Plastic-coated
Steel parts grade 5.8, Black oxidized.



K0752

Clamping levers steel
external thread
Material & Version :
Handle 1.0401, Plastic-coated
Steel parts grade 5.8, Black oxidized.



K0122

Clamping levers
internal thread
Material & Version :
Handle die-cast zinc DIN EN 12844,
Plastic-coated or high-gloss chromated.
Steel parts grade 5.8, Black oxidized.



K0122

Clamping levers
external thread
Material & Version :
Handle die-cast zinc DIN EN 12844,
Plastic-coated or high-gloss chromated.
Steel parts grade 5.8, Black oxidized.



K0123

Clamping levers
internal thread
Material & Version :
Handle die-cast zinc DIN EN 12844,
Plastic-coated or high-gloss chromated.
Steel parts stainless steel 1.4305, Bright.



K0123

Clamping levers
external thread,
Material & Version :
Handle die-cast zinc DIN EN 12844,
Plastic-coated or high-gloss chromated.
Steel parts stainless steel 1.4305, Bright.



K0122

Clamping levers with protective cap
internal thread
Material & Version :
Handle die-cast zinc DIN EN 12844
Steel parts grade 5.8, Black oxidized.



K0122

Clamping levers with protective cap
external thread
Material & Version :
Handle die-cast zinc DIN EN 12844,
Plastic coated.
Steel parts grade 5.8, Black oxidized.



K0123

Clamping levers with protective cap
internal thread
Material & Version :
Handle die-cast zinc DIN EN 12844,
Plastic coated.
Steel parts stainless steel 1.4305, Bright.



K0123

Clamping levers with protective cap
external thread
Material & Version :
Handle die-cast zinc DIN EN 12844,
Plastic coated.
Steel parts stainless steel 1.4305, Bright.



K0124

Clamping levers
internal thread
Material & Version :
Handle investment cast 1.4308,
Electrolytic polished.
Steel parts 1.4305, Bright.



K0124

Clamping levers
external thread
Material & Version :
Handle investment cast 1.4308,
Electrolytic polished.
Steel parts 1.4305, Bright.



K0124

Clamping levers with protective cap
internal thread
Material & Version :
Handle investment cast 1.4308,
Electrolytic polished.
Steel parts 1.4305, Bright.



K0124

Clamping levers with protective cap
external thread
Material & Version :
Handle investment cast 1.4308,
Electrolytic polished.
Steel parts 1.4305, Bright.



K0737

Clamping levers flat
internal thread
Material & Version:
Handle die-cast zinc DIN EN 12844,
Plastic coated.
Steel parts grade 5.8, Black oxidized.



K0737

Clamping levers flat
external thread
Material & Version:
Handle die-cast zinc DIN EN 12844,
Plastic coated.
Steel parts grade 5.8, Black oxidized.



Clamping levers, tension levers, cam levers

K0738

Clamping levers flat
internal thread
Material & Version :
Handle die-cast zinc DIN EN 12844
Steel parts stainless steel 1.4305, Bright.



K0738

Clamping levers flat
external thread
Material & Version :
Handle die-cast zinc DIN EN 12844
Steel parts stainless steel 1.4305, Bright.



K0269

Clamping levers with plastic handle
internal thread
Material & Version :
Handle fibreglass reinforced plastic .
Steel parts grade 5.8, Black oxidized.



K0269

Clamping levers with plastic handle
external thread
Material & Version :
Handle fibreglass reinforced plastic.
Steel parts grade 5.8, Black oxidized.



K0270

Clamping levers with plastic handle
internal thread,
Material & Version:
Handle fibreglass reinforced plastic.
Steel parts stainless steel 1.4305, Bright.



K0270

Clamping levers with plastic handle
external thread
Material & Version:
Handle fibreglass reinforced plastic.
Steel parts stainless steel 1.4305, Bright.



K0269

Clamping levers with push button
internal thread
Material & Version :
Handle fibreglass reinforced plastic.
Steel parts grade 5.8, Black oxidized.



K0269

Clamping levers with push button
external thread
Material & Version :
Handle fibreglass reinforced plastic.
Steel parts grade 5.8, Black oxidized.



K0270

Clamping levers with push button
internal thread
Material & Version :
Handle fibreglass reinforced plastic.
Metal parts stainless steel 1.4305.



K0270

Clamping lever with push button
external thread
Material & Version :
Handle fibreglass reinforced plastic.
Metal parts stainless steel 1.4305.



K0269

Clamping levers antistatic
internal thread
Material & Version :
Handles reinforced plastic
Steel parts grade 5.8, Black oxidized.



K0269

Clamping levers antistatic
external thread
Material & Version :
Handles reinforced plastic
Steel parts grade 5.8, Black oxidized.



K0270

Clamping levers antibacterial
internal thread
Material & Version :
Handles slate grey reinforced plastic.
Steel parts stainless steel 1.4305, Bright.



K0270

Clamping levers antibacterial
external thread
Material & Version :
Handles slate grey reinforced plastic.
Steel parts stainless steel 1.4305, Bright.



K0125

Clamping levers 2K
internal thread
Material & Version:
Handle fibreglass reinforced plastic.
Steel parts grade 5.8, Black oxidized.



K0125

Clamping levers 2K
external thread
Material & Version :
Handle fibreglass reinforced plastic.
Steel parts grade 5.8, Black oxidized.



K0126

Clamping levers 2K
internal thread
Material & Version :
Handle glass-fibre-reinforced plastic.
Steel parts Stainless steel 1.4305, Bright.



K0126

Clamping levers 2K
external thread
Material & Version :
Handle fibreglass reinforced plastic.
Steel parts Stainless steel 1.4305, Bright.



K0252

Clamping lever ECO
internal thread
Material & Version :
Handle and insert reinforced plastic.
For size 1 and 2, brass bush.
For size 3, steel bush, Blue chromated.



K0252

Clamping lever ECO
external thread
Material & Version :
Handle and insert reinforced plastic.
Screw steel 5.8, Blue chromated.



K0981

Clamping levers ergonomic
internal thread
Material & Version :
Handle reinforced plastic.
Steel parts grade 5.8. Blue chromated.



K0981

Clamping levers ergonomic
external thread
Material & Version :
Handle reinforced plastic.
Steel parts grade 5.8. Blue chromated.



K0982

Clamping levers ergonomic
internal thread
Material & Version :
Handle reinforced plastic.
Steel parts stainless steel 1.4305, Bright.



K0982

Clamping levers ergonomic
external thread
Material & Version :
Handle reinforced plastic.
Steel parts stainless steel 1.4305, Bright.



K0780

Clamping levers with thrust pin
external thread
Material & Version :
Handles fibreglass reinforced plastic.
Steel parts grade 5.8, Black oxidized.



K0108

Tension levers
internal thread
Material & Version :
Steel parts grade 5.8, Plastic-coated
Ball knob black plastic.



K0108

Tension levers
external thread
Material & Version :
Steel parts grade 5.8,
Ball knob black plastic.



K0109

Tension levers
internal thread
Material & Version :
Steel parts stainless steel 1.4305, Bright.
Ball knob black plastic, Polished.



K0109

Tension levers
external thread
Material & Version :
Steel parts stainless steel 1.4305, Bright.
Ball knob black plastic, Polished.



K0112

Tension levers safety
internal thread
Material & Version :
Steel parts grade 5.8, Plastic-coated
with fine texture black.
Ball knob black plastic.



K0112

Tension levers safety
external thread
Material & Version :
Steel parts grade 5.8, Plastic-coated
with fine texture black.
Ball knob black plastic.



K0114

Tension levers flat
internal thread
Material & Version :
Steel parts grade 5.8, Black oxidized.
Ball knob black plastic.



K0114

Tension levers flat
external thread
Material & Version :
Steel parts grade 5.8, Black oxidized.
Ball knob black plastic.



K0129

Tension levers flat
internal thread
Material & Version :
Steel parts stainless steel 1.4305
Ball knob black plastic.



K0129

Tension levers flat
external thread
Material & Version :
Steel parts stainless steel 1.4305
Ball knob black plastic.



K0175

Clamping levers non-adjustable
Material & Version :
Handle fibreglass reinforced plastic.
Steel parts grade 5.8, Blue chromated.





K0137

Knurled nuts, DIN 6303
Material & Version:
Free-cutting steel 1.0718, Black oxidised.
Stainless steel 1.4305, Bright.



K0138

Knurled nuts
Material & Version:
Black Duroplast PF 31.
Tapped bush brass, Nickel plated.



K0141

Knurled screws
Material & Version:
Black Duroplast PF 31.
Screw steel, Galvanized.



K0139

Knurled nuts quick-acting
Material & Version:
Carbon steel, Tempered and black oxidised.



K0144

Knurled nuts flat, DIN 467
Material & Version:
Free-cutting steel 1.0718, Black oxidised.
Stainless steel 1.4305, Bright.



K0143

Knurled nuts high form, DIN 466
Material & Version:
Free-cutting steel 1.0718, Black oxidised.
Stainless steel 1.4305, Bright.



K0140

Knurled screws high, DIN 464
Material & Version:
Free-cutting steel 1.0718, Black oxidised.
Stainless steel 1.4305, Bright.



K0142

Knurled knobs
Material & Version :
Duroplastic PF 31, black.
Bushing brass, High-gloss polished.



K0247

Knurled knobs
Material & Version :
Thermoplastic, black grey.
Bush and threaded pin
steel 5.8 or stainless steel 1.4305.



K0247

Knurled knobs biopolymer
Material & Version:
Biopolymer, beech.
Bush or threaded pin steel 5.8.



K0247

Knurled knobs antistatic
Material & Version:
Thermoplastic, graphite black.
Bush or screw steel 5.8.



K0110

Knurled knobs
Material & Version:
Grip black grey thermoplastic.
Bush brass or stainless steel 1.4305.
Screw steel 5.8 or stainless steel 1.4305,
Blue chromated or Bright.



K0680

Knurled heads
for hexagon socket screws
Material & Version:
Thermoplastic, Black, grey or red.



K0681

Wing grips
for hexagon socket screws
Material & Version:
Thermoplastic, Black, grey or red.



K0145

Palm grips, DIN 6335
Material & Version:
Aluminium, Ground & Polished.



K0146

Palm grips, DIN 6335
Material & Version:
Stainless steel 1.4308, Polished.



K0147

Palm grips, DIN 6335
Material & Version:
Grey cast iron GJL 200,
Ground & bright.



K0682

Palm grips, DIN 6335
Material & Version:
Grey cast iron GJL 200, Plastic coated.



K0613

Palm grips soft
Material & Version:
Body hard thermoplastic, Black.
Coating soft thermoplastic, Black.
Bush or screw steel 5.8, Galvanized.



K0148

Palm grips, DIN 6335
Material & Version:
Black Duroplast PF 31, High-gloss polished
Bush and screw galvanized steel.



K1089

Palm grips
Material & Version:
Fibreglass reinforced thermoplastic.
Tapped bush brass.
Screw steel, Galvanized.



K1017

Palm grips, DIN 6335
Material & Version:
Duroplast PF 31, High-gloss polished black
Metal parts stainless steel 1.4305.



K0683

Palm grips quick-acting
Material & Version:
Grey cast iron GJL 300, Vibratory ground.



K0149

Star grips, DIN 6336
Material & Version:
Aluminium, Vibratory ground or
ground and polished.



K0150

Star grips, DIN 6336
Material & Version:
Stainless steel 1.4308,
Ground and polished.



K0151, DIN 6336

Star grips
Material & Version:
Grey cast iron GJL 200,
Vibratory ground Bright.



K0152, DIN 6336

Star grips
Material & Version:
Duroplast PF 31, Polished black.
Bush and screw steel,
galvanized and blue chromed.



K1016, DIN 6336

Star grips
Material & Version:
Duroplast PF 31, black,
High-gloss polished.
Bushing or threaded pin stainless steel.



K0153

Star grips
Material & Version:
Black thermoplastic.
Steel grade 5.8 or stainless steel 1.4305,
Blue chromated or Bright.



K0155

Star grips, DIN 6336
Material & Version:
Black thermoplastic.
Bush and screw steel,
Galvanized and blue chromated.



K0155

Star grips, DIN 6336
Material & Version:
Biopolymer,
Natural beech with beech fibres
Bush or threaded pin steel,
Galvanized and blue chromated.



K0154

Star grips antibacterial, DIN 6336
Material & Version:
Thermoplastic, slate grey.
Bush or threaded pin
stainless steel 1.4305, Bright.



K0155

Star grips antistatic, DIN 6336
Material & Version:
Thermoplastic, graphite black.
Bush or screw steel 5.8,
Blue chromated.



K0154

Star grips, DIN 6336
Material & Version:
Black thermoplastic.
Bush and screw stainless steel 1.4305.



Grips, Knobs

K1090

Star grips
Material & Version:
Fibreglass reinforced thermoplastic.
Tapped bush brass.
Screw steel, Galvanized.



K0155

Star grips with safety band, DIN 6336
Material & Version:
Grip thermoplastic.
Bush and screw steel.
Safety band elastic TPU.



K0154

Star grips with safety band, DIN 6336
Material & Version:
Grip thermoplastic.
Bush and screw stainless steel 1.4305.
Safety band elastic TPU.



K0743

Safety band
Material & Version:
Thermoplastic urethane TPU.



K0156

Star grips quick-acting
Material & Version:
Black thermoplastic.
Bush steel, galvanized and blue chromated.



K1088

Star grips with extended hub
Material & Version:
Fibreglass reinforced thermoplastic.
Tapped bush brass.



K0276

Ribbed grips
Material & Version:
Grip black grey thermoplastic.
Bush steel, Galvanized.
Threaded pin steel 5.8, Blue chromated.



K1020

Triangular grips
Material & Version:
Grip reinforced thermoplastic.
Steel parts grade 5.8, Blue chromated.



K0183

Triangular grips with high collar
Material & Version:
Black Duroplast PF 31, High-gloss.
Bush and screw galvanized steel or bright stainless steel.



K1083

Triangular grips
Material & Version:
Fibreglass reinforced thermoplastic.
Tapped bush brass.
Screw steel, Galvanized.



K0785

Triangular grips ergonomic
Material & Version:
Fibreglass reinforced plastic.
Bush or screw, steel grade 5.8 or stainless steel 1.4305.



K1019

Triangular torque grips
Material & Version:
Grip glass-bead reinforced thermoplastic.
Metal parts hardened stainless steel.



K0278

Four lobe grips flat
Material & Version:
Grip black hard thermoplastic.
Tapped bush brass.
Screw galvanized steel grade 5.8.



K1093

Four lobe grips
Material & Version:
Fibreglass reinforced thermoplastic.
Tapped bush brass.
Screw steel, Galvanized.



K0185

Five lobe grips
Material & Version:
Duroplast PF 31, Black High-gloss
Bush and stud galvanized steel.



K0279

Five lobe grips
Material & Version:
Grip black hard thermoplastic.
Tapped bush brass.
Screw galvanized steel grade 5.8.



K0786

Five lobe grips ergonomic
Material & Version:
Fibreglass reinforced plastic.
Bush or screw, steel grade 5.8 or stainless steel 1.4305.



K0280

Clamping grips high form
Material & Version:
Grip black hard thermoplastic.
Tapped bush brass.
Screw galvanized steel grade 5.8.



K0779

Clamping grips ergonomic
Material & Version:
Fibreglass reinforced plastic.
Bush or screw, steel grade 5.8 or
stainless steel 1.4305.



K0281

Knurled screws
Material & Version:
Grip black hard thermoplastic.
Tapped bush brass.
Screw galvanized steel grade 5.8.



K0255

Five lobe grips
Material & Version:
Thermoplastic, black grey.
Bush and screw steel 5.8 or
stainless steel 1.4305,



K0255

Five lobe grips antibacterial
Material & Version:
Thermoplastic, slate grey.
Bush or threaded pin
stainless steel 1.4305, Bright.



K0260

Knurled knobs
Material & Version:
Thermoplastic, black grey.
Bush or screw steel 5.8,
Blue chromated.



K0261

Knurled knobs
Material & Version:
Thermoplastic, black grey.
Bush and screw
stainless steel 1.4305, Bright.



K0250

Mushroom knobs internal thread
Material & Version:
Steel, stainless steel and aluminium,
Galvanized, Electropolished,
Natural tone anodized.



K0251

Mushroom knobs internal thread
Material & Version:
Thermoplastic, black grey.
Bush steel 5.8, Blue chromated or
stainless steel 1.4305, Bright.



K0251

Mushroom knobs external thread
Material & Version:
Thermoplastic, black grey.
Screw steel 5.8, Blue chromated or
stainless steel 1.4305, Bright.



K0251

Mushroom knobs biopolymer
Internal thread
Material & Version:
Biopolymer, beech.
Bush steel 5.8,



K0251

Mushroom knobs biopolymer
external thread
Material & Version:
Biopolymer, beech.
Threaded pin steel 5.8,
Galvanized and blue chromated.



K0251

Mushroom knobs antibacterial
internal thread
Material & Version:
Thermoplastic, slate grey.
Bush stainless steel 1.4305, Bright.



K0251

Mushroom knobs antibacterial
external thread,
Material & Version:
Thermoplastic, slate grey.
Threaded pin stainless steel 1.4305, Bright.



K0251

Mushroom knobs antistatic
internal thread
Material & Version:
Thermoplastic, graphite black.
Bush steel 5.8, Blue chromated.



K0251

Mushroom knobs antistatic
external thread
Material & Version:
Thermoplastic, graphite black.
Bush steel 5.8, Blue chromated.



K0273

Wing grips
internal thread
Material & Version:
Stainless steel 1.4308,
Blasted or ground and polished.



K0274

Wing grips
Material & Version:
Grip black grey thermoplastic.
Bush and screw steel 5.8,
Blue chromated or stainless steel 1.4305.



K0274

Wing grips antibacterial
metal parts stainless steel
Material & Version:
Thermoplastic, slate grey.
Bush or pin stainless steel 1.4305.



Grips, Knobs

K0274

Wing grips antistatic

Material & Version:

Thermoplastic, graphite black.

Bush or screw steel 5.8, Blue chromated.



K0274

Wing grips

tapped through

Material & Version:

Grip black, Grey.

Bush steel 5.8 or stainless steel 1.4305,

Blue chromated or bright.



K0783

Wing grips

Material & Version:

Grip polyamide, reinforced.

Bush brass or steel.

Screw steel, Galvanized.



K0608

Wing grips one-sided

Material & Version:

Thermoplastic, Black grey.

Bush steel 5.8 or stainless steel 1.4305,

Blue chromated or Bright.



K0274

Wing grips „Miniwing“

Material & Version:

Grip black grey thermoplastic.

Bush brass or stainless steel 1.4305.

Screw steel 5.8 or stainless steel 1.4305,

Blue chromated or bright.



K0274

Wing grips „Miniwing“ antibacterial

Material & Version:

Thermoplastic, slate grey.

Bush or threaded pin

stainless steel 1.4305.



K0274

Wing grips „Miniwing“ antistatic

Material & Version:

Thermoplastic, graphite black.

Bush brass or threaded pin steel 5.8,

Blue chromated.



K0658

Wing grips „Miniwing“

tapped through

Material & Version:

Grip thermoplastic, Black grey.

Bush steel 5.8 or stainless steel 1.4305,

Blue chromated or bright.



K0180

T-grips

Material & Version:

Fibreglass reinforced thermoplastic.

Tapped bush brass.

Screw steel, Galvanized.



K0181

T-grips

Material & Version:

Duroplast PF 31, black.

Bush and stud galvanized steel.



K0157

Knobs flat

Material & Version:

Steel, Black oxidised.



K0650

Ball knobs, DIN 319

Material & Version:

Stainless steel 1.4305

or aluminium, Polished.



K0158

Ball knobs, DIN 319

Material & Version:

Black thermoplastic.

Bush steel, Galvanized.



K0159

Ball knobs smooth, DIN 319

Material & Version:

Black Duroplast PF 31,

High-gloss polished.

Bush galvanized steel.



K0179

Handles

Material & Version:

Knobs Duroplast PF 31, High gloss polished.

Rod steel 1.0718 or stainless steel 1.4305,

Black oxidised or bright.



K0253

Spherical knobs

Material & Version :

Thermoplastic, black grey.

Bush and screw steel 5.8 or

stainless steel 1.4305,



K0253

Spherical knobs biopolymer

Material & Version:

Biopolymer, beech.

Bush or threaded pin steel 5.8,

Galvanized & blue chromated.



K0254

Spherical knobs

revolving

Material & Version:

Thermoplastic, black grey.

Axis steel 5.8 or stainless steel 1.4305,

Blue chromated or bright.



Position Indicators



K0725

Handwheels 2-spoke
Material & Version:
Handwheel reinforced polyamide,
Oil and grease resistant.
Centre plugs polyamide.
Tapped bush steel, Black oxidised.



K0725

Handwheels 2-spoke with revolving grip
Material & Version:
Handwheel reinforced polyamide,
Oil and grease resistant.
Tapped bush steel, Black oxidised.
Tapped insert for cylinder grip brass.



K0725

Handwheels 2-spoke with folding grip
Material & Version:
Handwheel reinforced polyamide,
Oil and grease resistant.
Black oxidised.



K0671

Handwheels, DIN 950
Material & Version:
Handwheel grey cast iron.
Wheel rim turned and polished.
Grip steel.



K0160

Handwheels, DIN 950
Material & Version:
Handwheel aluminium.
Fixed grip aluminium, axle part steel,
Black oxidised.



K0161

Handwheels disc type
Material & Version:
Disc handwheel aluminium.
Cylinder grip black Duroplast
PF 31-DIN 7708.
Hub galvanized steel.



K0162

Handwheels 2-spoke flat rim
Material & Version:
Handwheels aluminium.
Cylinder grip black Duroplast
PF 31-DIN 7708. Hub galvanized steel.



K0163

Handwheels disc, DIN 950
Material & Version:
Handwheel aluminium.
Wheel rim turned and polished



K0164

Handwheels disc with revolving grip
Material & Version:
Duroplast PF 31, black.
Hubnickel plated steel or
Bright stainless steel 1.4305.



K0165

Handwheels disc without grip
Material & Version:
Black Duroplast PF 31.
Hub nickel-plated steel or
bright stainless steel 1.4305.



K0256

Handwheels
Material & Version:
Black grey thermoplastic.
Steel parts black oxidised.



K0257

Handwheels with revolving grip
Material & Version:
Black grey thermoplastic.
Steel parts black oxidised.



K0258

Handwheels with fold-down grip
Material & Version:
Black grey thermoplastic.
Steel parts black oxidised.



K0259

Handwheels with safety grip
Material & Version:
Black grey thermoplastic.
Steel parts black oxidised.



K0184

Handwheels
Material & Version:
Handwheel Duroplast PF 31,
High gloss polished.
Bush steel, black oxidised.



K0262

Positioning wheels
Material & Version:
Thermoplastic, black grey.
Bush steel 5.8, Chromed steel.



Handwheels, Crank Handles,

Position Indicators

K0275

Deltawheels

Material & Version:

Fibreglass reinforced thermoplastic.



K0726

Ball grips revolving

Material & Version:

Ball Duroplast PF 31, Glossy black.

Bush and screw steel

or stainless steel 1.4305,

Steel blue chromed or bright stainless steel.



K0684

Crank handles offset, DIN 468

Material & Version:

Crank arm malleable or ductile iron,

Blasted.



K0685

Crank handles straight, DIN 469

Material & Version:

Crank arm malleable or ductile iron,

Blasted.



K0727

Crank handles

Material & Version:

Aluminium arm, Plastic coated.

Grip thermoplastic, Black.



K0997

Crank handles with fold-away grip

Material & Version:

Crank AlSi9Cu3 (3.2163),

Plastic powder coated.

Cylinder grip thermoplastic (PA6), Black.

Steel part, Black oxidised.



K0996

Crank handles with revolving grip

Material & Version:

Crank AlSi9Cu3 (3.2163),

Plastic powder coated.

Revolving grip thermoplastic (PA6), Black

Steel 1.0718, Black oxidised.



K0998

Crank handles with safety grip

Material & Version:

Crank AlSi9Cu3 (3.2163),

Plastic powder coated.

Cylinder grip thermoplastic (PA6), Black.

Steel part, Black oxidised.



K0999

Crank handles with revolving grip

Material & Version:

Crank stainless steel 1.4308.

Revolving grip stainless steel 1.4305.



K0266

Crank handles with fold-down grip

Material & Version:

Black grey thermoplastic.

Steel parts black oxidised.



K0659

Crank handles with revolving grip

Material & Version:

Black grey thermoplastic.

Steel parts black oxidised.



K0268

Crank handles with safety grip

Material & Version:

Arm and grip black grey thermoplastic.

Steel parts black oxidised.



K0728

Crank handles balanced

Material & Version:

Steel, Galvanized.



K0740

Cylindrical grips revolving

with hexagon socket

Material & Version:

Grip thermoplastic.

Steel parts galvanized.



K0774

Cylindrical grips revolving

Material & Version:

Grip thermoplastic.

Steel parts galvanized.



K0775

Cylindrical grips fold-down

Material & Version:

Grip thermoplastic.

Steel parts black oxidised.



K1000

Cylindrical grips revolving

Material & Version:

Axis stainless steel 1.4305.

Revolving grip stainless steel 1.4305.

Snap ring stainless-steel 1.4310.



K0263

Cylindrical grips revolving

Material & Version:

Black grey thermoplastic.

Steel parts black oxidised.



K0264

Cylindrical grips fold-down
Material & Version:
Black grey thermoplastic.
Steel parts black oxidised.



K0265

Cylindrical grips safety automatic return
Material & Version:
Black grey thermoplastic.
Steel parts black oxidised.



K0166

Machine handles fixed, DIN 39 Form E
Material & Version:
Grip and screw steel,
Galvanized & blue chromed.



K0167

Machine handles fixed, DIN 39 Form E
Material & Version:
Grip aluminium, Polished.
Screw steel, Black.



K0168

Machine handles revolving, DIN 98 Form E
Material & Version:
Grip and screw steel,
Galvanized & blue chromed.



K0169

Machine handles revolving, DIN 98 Form E
Material & Version:
Grip aluminium, Polished.
Screw steel, Galvanized & Blue chromed.



K0170

Taper grips revolving
Material & Version:
Black Duroplast PF 31, High polished.
Axle and threaded bush galvanized steel
or bright stainless steel.



K0651

Taper grips revolving oval
Material & Version:
Duroplast PF 31, black.
Axle steel, nickel-plated or bright
stainless steel 1.4305.



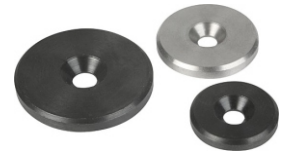
K0172

Taper grips
Material & Version:
Duroplast PF 31, black.
Bush and stud galvanized steel.



K0173

Handwheel washers
Material & Version:
Steel 1.0718, Black oxidised.
Stainless steel 1.4305, Bright.



K0408

Position indicators
Material & Version:
Housing polyamide 6,
Impact- resistant.
Hollow shaft steel, Black oxidised.



K0409

Position indicators
Material & Version:
Housing polyamide 6,
Impact- resistant.
Hollow shaft steel, Black oxidised.



K0410

Position indicators
Material & Version:
Housing polyamide 6,
Impact- resistant.
Hollow shaft steel, Black oxidised.



K0411

Position indicators freely programmable
Material & Version:
Housing plastic.
Hollow shaft steel, Black oxidised.
Screen LCD display.



K0771

Position indicators freely programmable
Material & Version:
Housing plastic.
Hollow shaft steel, Black oxidised.
Screen LCD display.



K0412

Reducing bushings
Material & Version:
Steel, Black oxidised.



K0413

Intermediate plates
Material & Version:
Plastic



K0414

Mounting brackets
Material & Version:
Housing aluminium, Anodized
Clamping lever plastic, Black grey.



Pull Handles, Tubular Handles, Recessed Handles



K0187

Pull handles
Material & Version:
Duroplast PF 31,
High gloss polished black .
Bushing brass or galvanized steel.



K0188

Pull handles
Material & Version:
Duroplast PF 31, High gloss polished black.
Bushing brass or galvanized steel



K1074

Pull handles
Material & Version :
Duroplast FS 3, Black.
Threaded insert steel.



K0189

Pull handles
Material & Version:
Thermoplastic, Black.
Bushing brass.



K1092

Pull handles
Material & Version :
Fibreglass reinforced thermoplastic.
Tapped bush brass.



K0190

Pull handles
Material & Version:
Material:
Thermoplast PA (polyamide),
glass-bead reinforced
or PP (polypropylene), fibreglass reinforced.



K0190

Pull handles antibacterial
Material & Version:
Thermoplastic PA
(polyamide) reinforced.



K0190

Pull handles antistatic
Material & Version :
Thermoplastic PA
(polyamide) reinforced,
Graphite black.



K0191

Pull handles
Material & Version :
Glass bead reinforced thermoplastic,
Matt black or orange.



K0200

Pull handles
Material & Version :
Glass-bead reinforced thermoplastic,
Matt black with fine texture.



K0237

Pull handles
open-ended screw on
Material & Version :
Glass-bead reinforced thermoplastic,
Matt black with fine texture



K0241

Pull handles
fold-down
Material & Version :
Frame and grip glass-bead
reinforced thermoplastic.



K0244

Pull handles
angled
Material & Version :
Glass-bead reinforced
thermoplastic PA,Black.



K1087

Pull handles
Material & Version :
Fibreglass reinforced thermoplastic.
Tapped bush brass.



K0171

Pull handles
with soft inner face
Material & Version :
Hard components glass-bead
reinforced thermoplastic, Matt black.
Soft components SEBS, Basalt grey.



K0197

Pull handles
oblique
Material & Version :
Grip glass-bead reinforced thermoplastic.
Bushing brass.



Pull Handles, Tubular Handles, Recessed Handles

K0192

Pull handles

Material & Version:

Glass-bead reinforced thermoplastic,
Matt black.



K0193

Pull handles

Material & Version:

Glass-bead reinforced thermoplastic,
Matt black.



K0194

Pull handles

Material & Version:

Black grey thermoplastic.



K0196

Pull handles

Material & Version:

Black grey thermoplastic.

Bushing brass.



K0242

Recessed handles

Material & Version:

Glass-bead reinforced thermoplastic,
Semi-matt, black or light grey.



K1077

Recessed handles

Material & Version:

Thermoplastic (ABS), Black.



K1078

Recessed handles

Material & Version:

Thermoplastic (ABS), Black.



K1079

Recessed handles

Material & Version:

Thermoplastic (ABS), Black.



K0195

Pull handles

Material & Version:

Profile aluminium EN AW-6060,
High quality anodized version
or glass-bead blasted or semi-gloss.



K0199

Pull handles

Material & Version :

EN AW-6060, Matt-finished and
anodized or powder-coated.



K0201

Pull handles round

Material & Version :

Round aluminium,
Surface matt-finished and natural
colour or black Anodized.



K0202

Pull handles oval

Material & Version :

Oval aluminium,
Surface matt-finished and natural
colour anodized or black anodized.



K0203

Pull handles round

Material & Version :

Round steel, matt-polish chrome plated.

Grip plastic coated.



K0204

Pull handles oval

Material & Version :

Oval aluminium EN AW-6060,
Black powder-coated or natural
colour anodized.



K0204

Pull handles oval

with thru hole

Material & Version :

Oval aluminium EN AW-6060,
Black powder-coated or ruby red



K0204

Pull handles oval detachable

Material & Version :

Pull handle oval aluminium EN AW-6060,
Black powder coated.



K0205

Pull handles

Material & Version :

Profile aluminium EN AW-6060,
Matt-finished, black or natural
colour anodized.



K0213

Pull handles

Material & Version :

Profile aluminium EN AW-6060,
Matt-finished, black anodized or
natural colour Anodized.



Pull Handles, Tubular Handles,

Recessed Handles

K1091

Pull handles

Material & Version:

Aluminium, Matt-finished, black anodized or natural colour anodized.



K1075

Pull handles

Material & Version:

Aluminium, Matt-finished, black anodized or natural colour anodized.



K0219

Pull handles angled

Material & Version:

Aluminium, Matt-finished, black anodized or natural colour anodized.



K0229

Pull handles angled

Material & Version:

Round aluminium EN AW-6060, Ground, glass blasted and matt-gloss black anodized.



K0216

Pull handles

Material & Version:

Grip aluminium.
Legs glass-bead-reinforced polyamide.



K0217

Pull handles

Material & Version:

Grip aluminium.
Legs high-strength plastic



K0228

Pull handles

Material & Version:

Legs and grip aluminium EN AW-6060, Black anodized or natural colour anodized.



K0795

Tubular handles compact

Material & Version:

Aluminium EN AW-6060, Natural colour anodized.



K1018

Tubular handles adjustable

Material & Version:

Handle tube EN AW-6060.
Mounting bracket EN AW-6063.



K0210

Tubular handles

Material & Version :

Legs black glass-bead reinforced thermoplastic, Grip tube aluminium.



K0211

Tubular handles

Material & Version :

Grip aluminium EN AW-6060.
Legs polyamide glass-bead reinforced



K0212

Tubular handles oblique

Material & Version :

Grip tube aluminium EN AW-6060, matt-polished anodized.
Legs polyamide, glass-bead reinforced.



K0221

Tubular handles

Material & Version :

Legs black glass-bead reinforced thermoplastic. Grip aluminium EN AW-6060.



K0222

Tubular handles

Material & Version :

Legs black glass-bead reinforced thermoplastic. Grip aluminium EN AW-6060 or stainless steel 1.4301.



K0223

Tubular handles

Material & Version :

Grip aluminium EN AW-6060.
Legs glass-bead reinforced polyamide.



K0224

Tubular handles

Material & Version :

Legs and tube cap glass-bead reinforced polyamide.
Grip aluminium EN AW-6060.



K0231

Tubular handles „Bighand“

Material & Version :

Legs thermoplastic.
Oval grip aluminium, coated or anodized.



K0131

Tubular handles

Material & Version :

Legs and grip aluminium profile EN AW-6060.
Connecting pins stainless steel.



Recessed Handles

K0132

Tubular handles angled
Material & Version:
Legs EN AW-6060 extruded.
Grip inserts glass-bead reinforced thermoplastic. Grip EN AW-6060.



K0235

Tubular handles angled
Material & Version:
Grip aluminium EN AW-6060 or stainless steel 1.4301.
Legs polyamide glass-bead reinforced.



K0236

Tubular handles
Material & Version:
Grip aluminium EN AW-6060.
Legs polyamide glass-bead reinforced, Aluminium colour or black.



K0220

Tubular handles angled
Material & Version:
Leg glass-bead reinforced thermoplastic, Black. Grip aluminium tube, Anodized aluminium..



K0209

Tubular handles
Material & Version:
Aluminium, Natural colour anodized.
Leg black powder-coated.



K0232

Ledge handles
Material & Version:
Profile aluminium EN AW-6060,
Matt-finished and natural colour or black anodized.



K0130

Ledge handles
Material & Version:
Profile aluminium EN AW-6060,
Matt-gloss anodized.
End caps black thermoplastic.



K0234

Ledge handles
Material & Version:
Profile aluminium EN AW-6060,
Matt-gloss anodized.



K0238

Recessed handles
Material & Version:
Grip aluminium profile.
End caps polyamide.



K0239

Recessed handles
fold-down
Material & Version :
Tray and grip aluminium profile.
End caps polyamide.



K0240

Recessed handles fold-down
Material & Version :
Die-cast aluminium, Tray and handle
black or light grey powder-coated.



K0198

Pull handles stainless steel
Material & Version :
Investment cast stainless steel 1.4308,
Abrasive cleaned and matt gloss
electropolished. Fasteners made of 1.4301



K0206

Pull handles stainless steel
Material & Version :
Handle stainless steel 1.4305,
Electropolished. Fasteners 1.4301



K0208

Pull handles stainless steel
Material & Version :
Handle stainless steel 1.4305,
Semi-gloss tumbled.
Fastening material 1.4301.



K1086

Pull handles stainless steel
Material & Version :
Stainless steel 1.4301,
Semi-gloss tumbled.



K0215

Pull handles stainless steel
Material & Version :
Handle stainless steel 1.4305,
Ground and satin brushed finish.
Fasteners made of 1.4301



K0218

Pull handles fold-down
Material & Version :
Steel or stainless steel 1.4305,
Fine ground and high-gloss chromed or
Form B grip with smooth plastic sleeve
& Form C semi-gloss score-free tumbled.



K0225

Tubular handles
Material & Version :
Grip stainless steel 1.4301.
Legs die-cast aluminium.
End caps glass-bead reinforced plastic.



Quarter-Turn Locks, Compression Latches



K0518

Quarter-turn locks
small version
Material & Version :
Housing and actuator die-cast zinc,
Chrome plated. Wing handle,
Powder coated. Tongue steel, Galvanized.



K0520

Quarter-turn locks
with cylinder, small version
Material & Version :
Housing and actuator die-cast zinc,
Chrome plated. Tongue steel, Galvanized.



K0522

Quarter-turn locks
Material & Version :
Housing & actuator die-cast zinc,
Chrome plated. Housing & actuator PA6
GFR 30 plastic, Black.
Tongue steel, Galvanized.



K0524

Quarter-turn security locks
Material & Version :
Housing, actuator, nut and
key die-cast zinc,
Chrome plated or Black powder coated.
Tongue steel, Galvanized.



K0525

Quarter-turn locks
with wing grip
Material & Version :
Housing and nut die-cast zinc,
Chrome plated. Grip plastic PA6 GF 30,
Black. Tongue steel, Galvanized.



K0526

Quarter-turn locks
with T-grip
Material & Version :
Housing and nut die-cast zinc,
Chrome plated. T-grip plastic PA6 GF 30,
Black. Tongue steel, Galvanized.



K0527

Compression latches
with stepped cam
Material & Version :
Housing, actuator, nut and cam
die-cast zinc, Chrome plated.



K0528

Compression latches
with variable compression
Material & Version :
Compression latch steel, Galvanized
& blue chromed.
DIN 6336 star grip Duroplast, Black.



K0529

Compression latches
Material & Version :
Housing and actuator die-cast zinc,
Chrome plated.
Tongue steel, Galvanized.



K0531

Compression latches
with adjustable tongue gap
Material & Version :
Housing and actuator die-cast zinc,
Chrome plated. Wing handle,
Powder coated. Tongue steel, Galvanized.



K0533

Dust caps
Material & Version :
Thermoplastic plastic (PU), Black.



K0534

Opening grips
Material & Version :
Thermoplastic plastic (PU), Black.



K0535

Keys
for latches and locks
Material & Version :
Die-cast zinc, Chromium plated.



K0271

Stop latches
Material & Version :
Housing die-cast zinc, plastic-coated.
Pin steel 1.0718, Blue chromed.
Countersunk screw steel grade 8.8.





K0434

Hinges
plastic, lift-off, left
Material & Version :
Fibreglass reinforced thermoplastic, Black.
Hinge pin stainless steel, Bright.



K0434

Hinges
plastic, lift-off, right
Material & Version :
Fibreglass reinforced thermoplastic, Black.
Hinge pin stainless steel, Bright.



K0435

Hinges
plastic
Material & Version :
Fibreglass reinforced thermoplastic, Black.
Hinge pin stainless steel, Bright.



K0436

Hinges
plastic, with locking lever
Material & Version :
Hinge and lever fibreglass reinforced thermoplastic, Black.
Hinge pin steel, Galvanized.



K0437

Hinges
plastic, with elongated holes
Material & Version :
Fibreglass reinforced thermoplastic, Black.
Hinge pin stainless steel, Bright.



K0438

Hinges
plastic, lift-off, with guide tabs
Material & Version :
Fibreglass reinforced thermoplastic, Black.
Hinge pin stainless steel, Bright.



K0439

Hinges
plastic, detent
Material & Version :
Hinge and caps fibreglass reinforced PA thermoplastic.
Hinge pin stainless steel, Bright.



K0440

Hinges
plastic, with adjustable friction
Material & Version :
Hinge and caps fibreglass reinforced PA thermoplastic.
Hinge pin stainless steel, Bright.



K1004

Hinges plastic
with fastening holes
Material & Version :
Fibreglass reinforced thermoplastic, Black.
Hinge pin steel, Galvanized.



K1005

Hinges plastic
with bushing
Material & Version :
Fibreglass reinforced thermoplastic.
Hinge pin steel, Galvanized.
Bushes brass.



K1006

Hinges plastic
with fastening screws
Material & Version :
Fibreglass reinforced thermoplastic, Black.
Hinge pin steel, Galvanized.



K1007

Hinges plastic
with bushes and fastening screws
Material & Version :
Fibreglass reinforced thermoplastic, Black.
Hinge pin steel, Galvanized.
Bushes brass.



K0441

Hinges
die-cast zinc with elongated holes
Material & Version :
Die-cast zinc, Black powder coated.
Hinge pin stainless steel, Bright.



K0442

Hinges
die-cast zinc, with locking lever
Material & Version :
Hinge die-cast zinc, Black powder coated.
Hinge pin steel, Galvanized.
Lever fibreglass reinforced thermoplastic.



K0579

Hinges
aluminium, lift-off, left
Material & Version :
Die-cast aluminium, Nickel plated.
Hinge pin stainless steel, Bright.



K0579

Hinges
aluminium, lift-off, right
Material & Version :
Die-cast aluminium, Nickel plated.
Hinge pin stainless steel, Bright.



Swivel Feet, Levelling Feet



K0421

Swivel feet threaded spindles
Material & Version :
Steel or stainless steel 1.4301.
Steel blue chromed or stainless steel bright



K0422

Swivel feet ball joints with internal thread
Material & Version :
Steel or stainless steel 1.4301.
Steel blue chromed or stainless steel bright



K0415

Swivel feet plates
Material & Version :
Plates, Thermoplastic glass bead reinforced.
Anti-slip plate, Thermoplastic elastomer



K0416

Swivel feet plates
Material & Version :
Plate die-cast zinc, Black powder coated or Stainless steel 1.4305, Bright.
Anti-slip plate thermoplastic elastomer.



K0654

Swivel feet plates extended
Material & Version :
Plates, Thermoplastic fibreglass reinforced.
Anti-slip plate, Thermoplastic elastomer.



K0417

Swivel feet plates extended
Material & Version :
Plate die-cast zinc, Black powder coated.
Anti-slip plate thermoplastic elastomer.



K0418

Swivel feet plates
Material & Version :
Plates stainless steel 1.4301, Bright.
Core thermoplastic PA.
Rubber support TPE, Hardness 70 shore A.



K0419

Swivel feet plates with vibration absorption
Material & Version :
Plate die-cast zinc, Black powder coated or Stainless steel 1.4305, Bright.
Damper plate PUR elastomere (Sylomer V12), Anti-slip.



K0670

Machine feet with vibration absorption
Material & Version :
Plate steel, Blue chromed.
Damper plate PUR elastomer (Sylomer V12), Anti-slip.



K0427

Levelling feet threaded spindles
Material & Version :
Steel, Blue chromed or Stainless steel 1.4305, Bright.



K0423

Levelling feet plates
Material & Version :
Plates, Thermoplastic fibreglass reinforced.
Anti-slip plate, Thermoplastic elastomer.



K0424

Levelling feet plates, heavy-duty version
Material & Version :
Plates, Thermoplastic fibreglass reinforced.
Anti-slip plate, Thermoplastic elastomer.



K0425

Levelling feet plates
Material & Version :
Plate die-cast zinc, Black powder coated or Stainless steel 1.4305, Bright.
Anti-slip plate thermoplastic elastomer.



K0426

Levelling feet plates extended
Material & Version :
Plate die-cast zinc, Black powder coated.
Anti-slip plate thermoplastic elastomer.



K0429

Levelling feet ECO-Line threaded spindles
Material & Version :
Steel or stainless steel 1.4305, Blue-chromed steel or Bright stainless steel.



K0428

Levelling feet plates ECO-Line
Material & Version :
Plate thermoplastic, Black.
Plate die-cast zinc, Blue galvanized.
Plate stainless steel 1.4305, Bright.
Anti-slip plate thermoplastic elastomer.



K0669

Levelling feet threaded spindles

Material & Version :

Steel or stainless steel 1.4301,

Steel galvanized or stainless steel bright



K0672

Levelling feet plates

Material & Version :

Plate steel or stainless steel 1.4301,

Steel chrome-plated or

stainless steel polished,

glass-bead blasted.



K0673

Levelling feet plates with rubber base

Material & Version :

Plate steel, Chromed or

stainless steel 1.4301, Polished.

Rubber base NBR, 70 Shore A.



K0739

Levelling feet

Material & Version :

Foot plate and threaded spindle

steel or stainless steel.

Rubber support (NBR) 80 Shore.



K0741

Levelling feet for sterile areas

Material & Version :

Stainless steel foot plate 1.4301, Polished.

Stainless steel threaded spindle 1.4301, Bright.

Rubber base and rubber seal (EPDM).



K0742

Swivel feet

Material & Version :

Foot plate, Painted yellow,

Threaded spindle steel, Galvanized.

Anti-slip plate (NBR) 70 Shore.



K0674

Levelling feet round

Material & Version :

Plate polyamide, Black.

Screw steel, Galvanized.



K0675

Levelling feet round with hex. collar

Material & Version :

Plate polyamide, Black.

Screw steel, Galvanized.



K0676

Levelling feet with hex. base

Material & Version :

Plate polyethylene, Black.

Steel screw, Galvanized.



K0677

Levelling feet with knurled base

Material & Version :

Plate polyamide, Black.

Screw steel, Galvanized.



K0678

Levelling feet

Material & Version :

Foot plate and threaded spindle in steel,

Galvanized.



K0679

Levelling feet caps

Material & Version :

Polyethylene, Black.



K0687

Machine feet

Material & Version :

Metal parts, steel grade 5.6, Galvanized.

Elastomer, natural rubber,

medium hardness, 60 Shore.



K0304

Swivel feet

Material & Version :

Ball element case-hardened steel.

Thrust pad mild steel ETG 100,

Black oxidised.



K0395

Swivel feet

Material & Version :

Thrust plate in carbon steel

or stainless steel or POM. Ball element in

free-cutting steel or case hardened.

Anti-slip-plate thermoplastic elastomer.



K0420

Swivel feet with vibration absorption

Material & Version :

Thrust plate in carbon steel

or stainless steel. Ball element in

free-cutting steel or case hardened.

Damper plate PUR elastomere (Sylomer V12).



K0391

Grub screws with ball thrust point

Material & Version :

Grade 5.8, Black oxidised.



K0393

Thrust pads

Material & Version :

Steel, Black oxidised.

PA 6 plastic, Black.



Tube Connectors, Profile Connectors



K0472

Tube clamps cross
Material & Version:
Thermoplastic, Black.
Screws and nuts steel, Galvanized.



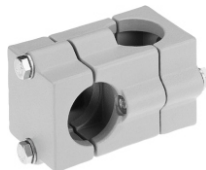
K0472

Tube clamps cross
Material & Version:
Cast aluminium, Vibratory ground.
Screws and nuts steel, Galvanized



K0472

Tube clamps cross
Material & Version:
Cast aluminium, Vibratory ground.
Screws and nuts steel, Galvanized.



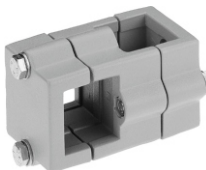
K0473

Tube clamps cross
Material & Version:
Thermoplastic, Black.
Screws and nuts steel, Galvanized.



K0473

Tube clamps cross
Material & Version:
Cast aluminium, Vibratory ground.
Screws and nuts steel, Galvanized.



K0474

Tube clamps cross
Material & Version:
Thermoplastic, Black.
Screws and nuts steel, Galvanized.



K0474

Tube clamps cross
Material & Version:
Cast aluminium, Vibratory ground.
Screws and nuts steel, Galvanized.



K0475

Tube clamps T-angle
Material & Version:
Thermoplastic, Black.
Screws and nuts steel, Galvanized.



K0475

Tube clamps T-angle
Material & Version:
Cast aluminium, Vibratory ground.
Screws and nuts steel, Galvanized.



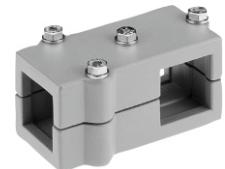
K0476

Tube clamps T-angle
Material & Version:
Thermoplastic, Black.
Screws and nuts steel, Galvanized.



K0476

Tube clamps T-angle
Material & Version:
Cast aluminium, Vibratory ground.
Screws and nuts steel, Galvanized.



K0476

Tube clamps right-angle
Material & Version:
Cast aluminium, Vibratory ground.
Screws and nuts steel, Galvanized.



K0477

Tube clamps base
plastic
Material & Version:
Thermoplastic, Black.
Screws and nuts steel, Galvanized.



K0477

Tube clamps base
aluminium
Material & Version:
Cast aluminium, Vibratory ground.
Screws and nuts steel, Galvanized.



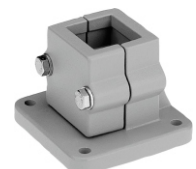
K0478

Tube clamps base
plastic
Material & Version:
Thermoplastic, Black.
Screws and nuts steel, Galvanized.



K0478

Tube clamps base
aluminium
Material & Version:
Cast aluminium, Vibratory ground.
Screws and nuts steel, Galvanized.



K0479

Tube clamps flange
plastic
Material & Version:
Thermoplastic, Black.
Screws and nuts steel, Galvanized.



K0479

Tube clamps flange
aluminium
Material & Version:
Cast aluminium, Vibratory ground.
Screws and nuts steel, Galvanized



K0479

Tube clamps flange
aluminium
Material & Version:
Cast aluminium, Vibratory ground.
Screws and nuts steel, Galvanized



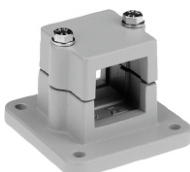
K0480

Tube clamps flange
plastic
Material & Version:
Thermoplastic, Black.
Screws and nuts steel, Galvanized.



K0480

Tube clamps flange
aluminium
Material & Version:
Cast aluminium, Vibratory ground.
Screws and nuts steel, Galvanized



K0481

Tube clamps straight
plastic
Material & Version:
Thermoplastic, Black.
Screws and nuts steel, Galvanized.



K0483

Tube clamps straight
plastic
Material & Version:
Thermoplastic, Black.
Screws and nuts steel, Galvanized.



K0484

Tube clamps swivel half
sunken teeth plastic
Material & Version:
Thermoplastic, Black.
Screws and nuts steel, Galvanized.



K0485

Tube clamps swivel half
raised teeth, plastic
Material & Version:
Thermoplastic, Black.
Screws and nuts steel, Galvanized.



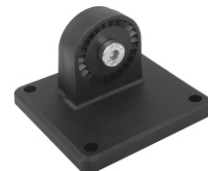
K0486

Tube clamps swivel half
sunken teeth, plastic
Material & Version:
Thermoplastic, Black.
Screws and nuts steel, Galvanized.



K0487

Tube clamps swivel base
sunken teeth, plastic
Material & Version:
Thermoplastic, Black.
Screws and nuts steel, Galvanized.



K0488

Tube clamps swivel
plastic
Material & Version:
Thermoplastic, Black.
Screws and nuts steel, Galvanized.



K0488

Tube clamps swivel
aluminium
Material & Version:
Cast aluminium, Vibratory ground.
Screws and nuts steel, Galvanized



K0489

Tube clamps swivel
plastic
Material & Version:
Thermoplastic, Black.
Screws and nuts steel, Galvanized.



K0489

Tube clamps swivel
aluminium
Material & Version:
Cast aluminium, Vibratory ground.
Screws and nuts steel, Galvanized



K0490

Tube clamps swivel base
plastic
Material & Version:
Thermoplastic, Black.
Screws and nuts steel, Galvanized.



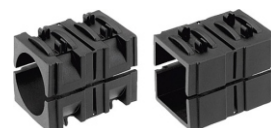
K0490

Tube clamps swivel base
aluminium
Material & Version:
Cast aluminium, Vibratory ground.
Screws and nuts steel, Galvanized



K0491

Reducer sleeves
square
Material & Version:
Thermoplastic, Black.



Tube Connectors, Profile Connectors

K0492

Reducer sleeves
round
Material & Version:
Thermoplastic, Black.



K0493

Round and square tubes
Material & Version:
Steel 1.0037, Galvanized.
Aluminium EN AW-6060, Anodized.



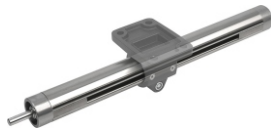
K0494

Tube end plugs
Material & Version:
Thermoplastic, Black.



K0495

Linear actuators, DIN EN 10305
Material & Version:
Precision tube, stainless steel
1.4301.
For type E 18, galvanized steel.
Trapezoid thread spindle steel, RH thread, rolled



K0496

Linear actuatorconnector clamps
Cross
Material & Version:
Cast aluminium, Black powder coated
Screws and nuts steel, Galvanized



K0497

Linear actuatorconnector clamps
Cross
Material & Version:
Cast aluminium, Black powder coated
Screws and nuts steel, Galvanized



K0498

Linear actuatorconnector clamps
Flange
Material & Version:
Cast aluminium, Black powder coated
Screws and nuts steel, Galvanized



K0499

Linear actuatorconnector clamps
Base
Material & Version:
Cast aluminium, Black powder coated
Screws and nuts steel, Galvanized



K0615

Square tube connectors
Straight
Material & Version:
Polyamide PA, black.
Core galvanized steel.



K0616

Square tube connectors
two-way
Material & Version:
Polyamide PA, black.
Core galvanized steel.



K0617

Square tube connectors
three-way, flat
Material & Version:
Polyamide PA, black.
Core galvanized steel.



K0618

Square tube connectors
four-way, flat
Material & Version:
Polyamide PA, black.
Core galvanized steel.



K0619

Square tube connectors
three-way
Material & Version:
Polyamide PA, black.
Core galvanized steel.



K0620

Square tube connectors
four-way
Material & Version:
Polyamide PA, black.
Core galvanized steel.



K0621

Square tube connectors
five-way
Material & Version:
Polyamide PA, black.
Core galvanized steel.



K0622

Square tube connectors
six-way
Material & Version:
Polyamide PA, black.
Core galvanized steel.



K0623

Square tube connectors
three-way with tapped hole
Material & Version:
Polyamide PA, black.
Core galvanized steel.



K0624

Square tube connectors
Four-way with tapped hole
Material & Version:
Polyamide PA, black.
Core galvanized steel.



K0625

Square tube connectors
two-way swivel
Material & Version:
Polyamide PA, Black.
Screws and nuts, Galvanized steel.



K0626

Square tube connectors
three-way swivel
Material & Version:
Polyamide PA, Black.
Screws and nuts, Galvanized steel.



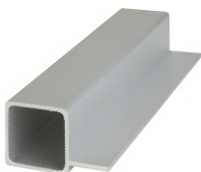
K0627

Square tubes
Material & Version:
Aluminium profile, Silver anodized.



K0628

Square tubes
finned
Material & Version:
Aluminium profile, Silver anodized.



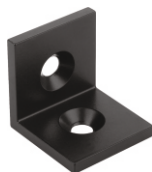
K1042

Straps
Material & Version:
Steel, Black powder-coated.



K1043

Angles
Material & Version:
Steel, Black powder-coated.



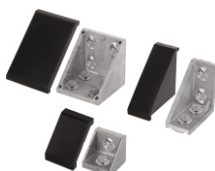
K1045

Angle sets, Type I
Material & Version:
Angle die-cast zinc.
Screws and slot nuts steel, Galvanized.
End cap polyamide, Fibreglass reinforced.



K1046

Angle sets, Type B
Material & Version:
Angle die-cast aluminium, Bright.
Screws and slot nuts steel, Galvanized.
End cap polyamide, Fibreglass reinforced.



K1047

Angle elements T1, Type I
Material & Version:
Aluminium, Anodized.



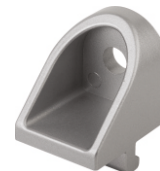
K1048

Angle elements T2, Type I
Material & Version:
Aluminium, Anodized.



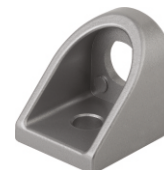
K1049

Clamping angles, Type I
Material & Version:
Clamping angle die-cast zinc,
Painted aluminium tone.



K1050

Joint angle, Type I
Material & Version:
Joint angle die-cast zinc,
Painted aluminium tone.
Pivot bush steel, Galvanized.



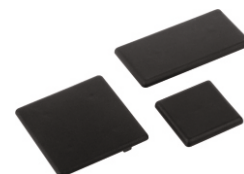
K1051

Joints, Type B and Type I
Material & Version:
Joint die-cast zinc, Painted aluminium tone.
Fasteners die-cast zinc, Galvanized.
Tapped bush and countersunk screws steel, Galvanized.



K1053

End caps, Type B and Type I
Material & Version:
Polyamide fibreglass reinforced, Black



K1054

Cover and adapter profiles
Type B and Type I
Material & Version:
Type I polypropylene.
Type B polypropylene + TPE.



K1055

Cover profile, Type I
Material & Version:
PVC, Black



K1056

Slide rail, Type I
Material & Version:
Polyethylene-HD, Black.



K1057

Foot plates, Type B and Type I
Material & Version:
Die-cast zinc, Bright or
black powder-coated.



Spring Plungers, Indexing Plungers, Ball Lock Pins



K0309

Spring plungers
with slot and ball
Material & Version :
Sleeve steel grade 5.8, Black oxidised.
Ball steel, Hardened.
Spring in spring steel class D.



K0310

Spring plungers
with slot and ball
Material & Version :
Sleeve 1.4305, Bright.
Ball 1.4034, Hardened.
Spring 1.4310.



K0311

Spring plungers
with slot and ball
Material & Version :
Sleeve, plastic.
Ball POM, White.
Spring 1.4310.



K0312

Spring plungers
with slot and ball
Material & Version :
Sleeve plastic.
Ball stainless steel 1.4034, Hardened.
Spring 1.4310.



K0609

Spring plungers
with slot and ball,
Material & Version :
Sleeve 1.4305, Bright.
Ceramic ball Si3N4.
Spring 1.4310.



K0313

Spring plungers
with slot and thrust pin
Material & Version :
Sleeve steel grade 5.8, Black oxidised.
Thrust pin steel, Hardened.
Spring steel grade D.



K0314

Spring plungers
with slot and thrust pin
Material & Version :
Sleeve 1.4305, Bright.
Thrust pin 1.4034, Hardened.
Spring 1.4310.



K0656

Spring plungers with end position feedback
Material & Version :
Sleeve, Black oxidised.
Thrust pin, Hardened.
Spring steel grade D.
Inductive proximity switch.



K0315

Spring plungers
with hexagon socket and ball
Material & Version :
Sleeve steel grade 5.8, Black oxidised.
Ball steel, Hardened.
Spring in spring steel class D.



K0316

Spring plungers
with hexagon socket and ball
Material & Version :
Sleeve 1.4305, Bright.
Thrust pin 1.4034, Hardened.
Spring 1.4310.



K0610

Spring plungers
with hexagon socket and ball
Material & Version :
Sleeve 1.4305, Bright.
Ceramic ball Si3N4.
Spring 1.4310.



K0657

Spring plungers with hexagon
socket and thrust pin, long version
Material & Version :
Sleeve steel grade 5.8, Black oxidised.
Thrust pin steel, Hardened.
Spring steel grade D.



K0317

Spring plungers
with hexagon socket and thrust pin
Material & Version :
Sleeve steel grade 5.8, Black oxidised.
Thrust pin steel, Hardened.
Spring steel grade D.



K0318

Spring plungers
with hexagon socket and thrust pin
Material & Version :
Sleeve steel grade 5.8.
Thrust pin POM.
Spring steel grade D.



K0319

Spring plungers
with hexagon socket and thrust pin
Material & Version :
Sleeve 1.4305, Bright.
Thrust pin 1.4034, Hardened.
Spring 1.4310.



K0320

Spring plungers
with hexagon socket and thrust pin
Material & Version :
Stainless steel sleeve 1.4305, Bright.
Thrust pin POM.
Stainless steel spring 1.4310.



Spring Plungers, Indexing Plungers, Ball Lock Pins

K0321

Spring plungers with slot and ball
LONG-LOK thread lock nylon
Material & Version :
Sleeve steel grade 5.8, Black oxidised.
Ball steel, Hardened.
Spring in spring steel class D.



K0322

Spring plungers with slot and ball
LONG-LOK thread lock nylon
Material & Version :
Sleeve 1.4305, Bright.
Ball 1.4034, Hardened.
Spring 1.4310.



K0323

Spring plungers with slot and thrust pin
LONG-LOK thread lock nylon
Material & Version :
Sleeve steel grade 5.8, Black oxidised.
Ball steel, Hardened.
Spring in spring steel class D.



K0324

Spring plungers with slot and thrust pin
LONG-LOK thread lock nylon
Material & Version :
Sleeve 1.4305, Bright.
Ball 1.4034, Hardened.
Spring 1.4310.



K0325

Spring plungers with hexagon socket and
LONG-LOK thread lock nylon
Material & Version :
Sleeve steel grade 5.8, Black oxidised.
Ball steel, Hardened.
Spring in spring steel class D.



K0326

Spring plungers with hexagon
socket and ball
LONG-LOK thread lock nylon
Material & Version :
Sleeve 1.4305, Bright.
Ball 1.4034, Hardened. Spring 1.4310.



K0327

Hexagon socket and thrust pin
LONG-LOK thread lock nylon
Material & Version :
Sleeve steel grade 5.8, Black oxidised.
Ball steel, Hardened.
Spring in spring steel class D.



K0328

Hexagon socket and thrust pin
LONG-LOK thread lock nylon
Material & Version :
Sleeve steel grade 5.8.
Thrust pin POM.
Spring steel grade D.



K0329

Hexagon socket and thrust pin
LONG-LOK thread lock nylon
Material & Version :
Sleeve 1.4305, Bright.
Ball 1.4034, Hardened.
Spring 1.4310.



K0330

Hexagon socket and thrust pin,
LONG-LOK thread lock nylon
Material & Version :
Stainless steel sleeve 1.4305, Bright.
Thrust pin POM.
Stainless steel spring 1.4310.



K0331

Spring plungers with head
Material & Version :
Free cutting steel, Black oxidised.
Thrust pin hardened.



K0332

Locators
Material & Version :
Free-cutting steel, Bright, hardened.



K0333

Spring plungers smooth version
Material & Version :
Sleeve and spring stainless steel.
Ball stainless steel or POM.
Ball hardened, bright.



K0333

Spring plungers
smooth version, extended
Material & Version :
Sleeve and spring stainless steel.
Ball stainless steel or POM.
Ball hardened, bright.



K0334

Spring plungers
smooth version, plastic
Material & Version :
Sleeve thermoplastic, Black.
Spring stainless steel.
Ball in stainless steel, Hardened or in POM.



K0582

Spring plungers with detent ring
Material & Version :
Sleeve stainless steel, Bright.
Spring stainless steel.
Ball stainless steel, Hardened.
O-ring NBR, Black.



K0335

Spring plungers smooth version
without collar
Material & Version :
Sleeve and spring stainless steel.
Ball stainless steel, Hardened or POM.



K0336

Spring plungers with head
Material & Version :
Free cutting steel or stainless steel,
Steel black oxidised or Stainless steel bright.
Ball steel or stainless steel, hardened.



Ball Lock Pins

K0337

Spring plungers smooth version
double-sided
Material & Version :
Sleeve brass.
Ball and spring stainless steel.
Balls hardened, bright.



K0583

Double ball catch
Material & Version :
Housing and latch chrome plated brass.
Balls and springs stainless steel.



K0368

Lateral spring plungers
Material & Version :
Sleeve aluminium.
Spring steel.
Thrust pin steel, Hardened or POM.



K0369

Eccentric bushes and assembly tool
Material & Version :
Steel, Black oxidised.



K0370

Lateral spring plungers without thrust pin
Material & Version :
Sleeve aluminium, Galvanized.
Receiving washer steel, Hardened & Burnished.
Spring steel.



K0371

Lateral spring plungers
with threaded sleeve
Material & Version :
Thrust pin steel, Hardened & Galvanized.
Sleeve steel, Blue galvanized.



K0372

Lateral spring plungers
with threaded sleeve
without thrust pin
Material & Version :
Sleeve steel, Blue galvanized.



K0373

Spring plungers push-pull
Material & Version :
Sleeve steel, Blue galvanized.
Spring pins steel, Black oxidised.



K0977

Spring plungers push-pull
with rotation lock
Material & Version :
Sleeve steel, Galvanized, blue chromed.
Pin steel, Case-hardened, black-oxidised.



K0374

Lateral spring plungers
Material & Version :
Body mild steel, Black oxidised.
Ball steel or stainless steel
hardened or POM.
Spring stainless steel or plastic.



K0338

Indexing plungers
Material & Version :
Indexing pin Steel or 1.4034 SS or 1.4305 SS.
Indexing pin Hardened or not hardened.
Sleeve steel or 1.4305 SS.
Mushroom knob thermoplastic.



K0630

Indexing plungers, extended indexing pin
Material & Version :
Indexing pin Steel or 1.4034 SS or 1.4305 SS.
Indexing pin Hardened or not hardened.
Sleeve steel or 1.4305 SS.
Mushroom knob thermoplastic.



K0631

Indexing plungers short version
Material & Version :
Indexing pin Steel or 1.4305 SS.
Indexing pin Hardened or not hardened.
Sleeve stainless steel 1.4305.
Mushroom knob thermoplastic.



K0632

Indexing plungers stainless steel
Material & Version :
Indexing pin 1.4034 SS or 1.4305 SS.
Indexing pin Hardened or not hardened.
Threaded sleeve 1.4305.
Mushroom knob 1.4305, electrolytic-polish.



K0735

Indexing plungers for thin-walled parts
Material & Version :
Indexing pin steel or 1.4305.
Indexing pin Hardened or not hardened.
Sleeve steel Or 1.4305 SS.
Mushroom knob black grey thermoplastic.



K0339

Indexing plungers
Material & Version :
Indexing pin Steel or 1.4034 SS or 1.4305 SS.
Indexing pin Hardened or not hardened.
Sleeve steel or 1.4305 SS.
Mushroom knob thermoplastic.



K0747

Indexing plungers
Material & Version :
Indexing pin steel or 1.4305 SS.
Indexing pin Hardened or not hardened.
Sleeve steel 1.0718 or 1.4305 SS.
Mushroom knob black grey thermoplastic.



K0748

Indexing plungers short version
Material & Version :
Indexing pin steel or 1.4305 SS.
Indexing pin Hardened or not hardened.
Sleeve steel 1.0718 or 1.4305 SS.
Mushroom knob black grey thermoplastic.



Spring Plungers, Indexing Plungers, Ball Lock Pins

K0340

Indexing plungers
Material & Version :
Steel grade 5.8, Blue chromed.



K0341

Indexing plungers
Material & Version :
Indexing pin steel or 1.4034 SS
or 1.4305 SS.
Indexing pin hardened or not hardened.
Sleeve steel or 1.4305 SS.



K0342

Indexing plungers
Material & Version :
Indexing pin steel or 1.4034 SS
or 1.4305 SS.
Sleeve steel or 1.4305 SS.
Key ring 1.4310, bright.



K0343

Indexing plungers without collar
Material & Version :
Indexing pin Steel or 1.4034 SS
or 1.4305 SS. Sleeve steel or 1.4305 SS.
Mushroom knob thermoplastic.



K0633

Indexing plungers w/o collar
with extended indexing pin
Material & Version :
Indexing pin Steel or 1.4034 SS or 1.4305 SS.
Sleeve steel or 1.4305 SS.
Mushroom knob thermoplastic.



K0634

Indexing plungers without collar
Material & Version :
Indexing pin 1.4034 SS or 1.4305 SS.
Indexing pin Hardened or not hardened.
Threaded sleeve 1.4305.
Mushroom knob 1.4305, electrolytic-polish.



K0344

Indexing plungers without collar
Material & Version :
Indexing Pin Steel or 1.4034 SS
or 1.4305 SS.
Sleeve steel or 1.4305 SS.
Mushroom knob thermoplastic.



K0345

Indexing plungers without collar
Material & Version :
Indexing pin Steel or 1.4034 SS or 1.4305 SS.
Indexing pin Hardened or not hardened.
Sleeve steel or 1.4305 SS.



K0635

Indexing plungers without collar
Material & Version :
Indexing pin steel or 1.4034 SS or 1.4305
Indexing pin hardened or not hardened.
Sleeve steel or 1.4305 SS.
Key ring 1.4310, bright.



K0346

Indexing plungers without collar
Material & Version :
Indexing pin steel or 1.4305 SS.
Indexing pin hardened or not hardened.
Sleeve 1.0403 weldable or 1.4301 weldable.
Mushroom knob black grey thermoplastic.



K0347

Indexing plungers without collar
Material & Version :
Indexing pin steel or 1.4034 SS
or 1.4305 SS.
Sleeve 1.0403 weldable or 1.4301 weldable.
Mushroom knob black grey thermoplastic.



K0636

Indexing plungers without collar
Material & Version :
Indexing pin steel or 1.4034 SS or 1.4305 SS.
Indexing pin hardened or not hardened.
Sleeve 1.0403 weldable or 1.4301 weldable.
Key ring 1.4310, bright.



K0665

Spacer rings
Material & Version :
Stainless steel
Bright.



K0736

Indexing plungers – Premium with tapered pin
Material & Version :
Indexing pin steel or 1.4034 SS.
Indexing pin Hardened.
Sleeve steel or 1.4305 SS.
Mushroom knob black grey thermoplastic.



K0736

Bushes tapered
Material & Version :
Steel or stainless steel 1.4034.
Black oxidised or bright.
Hardened & ground.



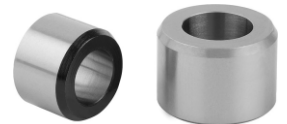
K0736

Indexing plungers – Premium with cylindrical pin
Material & Version :
Indexing pin steel or 1.4034 SS.
Indexing pin Hardened.
Sleeve steel or 1.4305 SS.
Mushroom knob black grey thermoplastic.



K0736

Bushes cylindrical
Material & Version :
Steel or stainless steel 1.4034.
Black oxidised or bright.
Hardened & ground.



K0359

Indexing plungers - Precision
with tapered pin
Material & Version :
Steel, Hardened & ground.
Grip ball thermoplastic.



Spring Plungers, Indexing Plungers,

Ball Lock Pins

K0360

Bushes tapered
Material & Version :
Steel, Hardened and ground.



K0361

Indexing plungers - Precision
with cylindrical pin
Material & Version :
Steel, Hardened & ground.
Grip ball thermoplastic.



K0362

Bushes cylindrical
Material & Version :
Steel, Hardened & ground.



K0245

Indexing and clamp grips
Material & Version :
Thermoplastic grip, Black grey.
Indexing pin and screw steel 5.8,
Black oxidised.
Indexing pin hardened and ground.



K0348

Cam-action indexing plungers
Material & Version :
Steel grade 5.8, Black oxidised.
Pin hardened and ground.



K0637

Cam-action indexing plungers
Material & Version :
Stainless steel 1.4305, Bright.
Indexing pin ground, not hardened.



K0638

Mounting brackets
Material & Version :
Aluminium 3.2163, Black anodized



K0638

Mounting brackets
Material & Version :
Steel, Black oxidised.



K0639

Cam-action indexing plungers
Material & Version :
Handle 1.0503, Black oxidised.
Pin steel grade 5.8, Hardened.
Sleeve 1.0403 weldable.



K0640

Cam-action indexing plungers
Material & Version :
Handle stainless steel 1.4308.
Indexing pin stainless steel 1.4305.
Sleeve weldable stainless steel 1.4301.



K0349

Barrel slide bolts
Material & Version :
Housing die-cast zinc, Painted silver.
Bolt stainless steel, Bright.



K0363

Ball lock pins
self-locking
Material & Version :
Grip and push button thermoplastic.
Metal parts stainless steel, Bright.



K0364

Ball lock pins
self-locking
Material & Version :
Metal parts stainless steel, Bright.



K0790

Ball lock pins
self-locking
Material & Version :
Grip and push button stainless steel 1.4305.
Pin stainless steel 1.4305.
Balls stainless steel 1.4125.



K0791

Ball lock pins with mushroom knob self-locking
Material & Version :
Mushroom knob and push
button stainless steel 1.4305.
Pin stainless steel 1.4305.
Balls stainless steel 1.4125.



K0641

Ball lock pins with mushroom knob, self-locking,
Material & Version :
Pin stainless steel 1.4542.
Mushroom knob and push button
stainless steel 1.4305.
Balls stainless steel 1.4125.



K0746

Ball lock pins
with grip ring, self-locking,
Material & Version :
Pin stainless steel 1.4542.
Head & push button stainless steel 1.4305.
Balls stainless steel 1.4125.



K0365

Locking pins
Material & Version :
Grip thermoplastic, Black.
Steel parts stainless steel, Bright.



Spring Plungers, Indexing Plungers, Ball Lock Pins

K0365

Locking pins with key ring
Material & Version :
Steel pin, Galvanized.
Key ring stainless steel, Bright.



K0776

Locking pins with folding latch
Material & Version :
Steel galvanized.



K0772

Locking pins with axial lock
Material & Version :
Steel galvanized.



K0366

Ball lock pins with T-grip, self-locking
Material & Version :
Pin stainless steel 1.4542.
Grip die-cast aluminium EN-AC 46000.
Push button aluminium EN-AW 2024 T4.
Balls stainless steel 1.4125.



K0642

Ball lock pins with L-grip, self-locking
Material & Version :
Pin stainless steel 1.4542.
Grip die-cast aluminium EN-AC 46000.
Push button aluminium EN-AW 2024 T4.
Balls stainless steel 1.4125.



K0367

Safety spiral cables
Material & Version :
Spiral cable PUR, Black.
Eye galvanized copper.
Key ring steel, Chrome plated.



K0367

Retaining cables with loop
Material & Version :
Cable stainless steel, Plastic coated.
Clamp and crimp terminal aluminium.



K0367

Key rings
Material & Version :
Stainless steel 1.4310,
Bright.



K0724

Bushing for ball lock pins
Material & Version :
Stainless steel 1.4305,
Steel parts bright.



K0724

Bushing for ball lock pins
with LONG-LOK thread lock nylon
Material & Version :
Stainless steel 1.4305, Bright.



Support Elements, Locating Elements, Stop Elements



K0282

Self-aligning pads
Material & Version :
Body carbon steel,
Tempered & polished.
Ball, ball bearing steel 1.2067,
Hardened.



K0302

Self-aligning pads, swivel angle 12°
Material & Version :
Body carbon steel, Tempered.
Ball ball-bearing steel 1.3505,
Hardened (50 - 55 HRC).



K0283

Self-aligning pads,
swivel angle 14° and 20°
Material & Version :
Body steel, Black oxidised.
Ball rust and acid resistant steel.



K0284

Self-aligning pads with o-ring
Material & Version :
Body carbon steel tempered,
Ball tool steel or POM or diamond
impregnated ss or ss with
polyurethane face.



K0285

Self-aligning pads with o-ring and
exchangeable inserts
Material & Version :
Body carbon steel.
Inserts tool steel or POM or diamond
impregnated ss or ss with polyurethane face



K0286

Self-aligning pads, self-righting
Material & Version :
Carbon steel hardened, black oxidised.



K0287

Self-aligning pads, adjustable
Material & Version :
Steel Housing tempered and
manganese phosphate.
Stainless steel Housing tempered
and electropolished.



K0288

Self-aligning pads adjustable, with o-ring
Material & Version :
Body carbon steel tempered, Black oxidised.
Ball tool steel or POM or
diamond impregnated ss or
ss with polyurethane face.



K0289

Self-aligning pads adjustable, with o-ring &
exchangeable inserts
Material & Version :
Body carbon steel. Inserts tool steel or
POM or diamond impregnated
ss or ss with polyurethane face



K0290

Self-aligning pads adjustable,
with o-ring and hexagon socket
Material & Version :
Body carbon steel tempered,
Ball tool steel or POM or diamond
impregnated ss or ss with polyurethane face.



K0291

Self-aligning pads adjustable, with o-ring,
exchangeable inserts & hexagon socket
Material & Version :
Body carbon steel. Inserts tool steel or
POM or diamond impregnated
ss or ss with polyurethane face



K0380

Ball-end thrust screws with head
Material & Version :
Screw carbon steel, grade 10.9, Black.
Ball ball-bearing steel, hardened, Bright.



K0381

Ball-end thrust screws with head
Material & Version :
Stainless steel, Bright.



K0382

Ball-end thrust screws without head
with fine thread
Material & Version :
Screw carbon steel, grade 10.9, Black.
Ball ball-bearing steel, hardened, Bright.



K0383

Ball-end thrust screws without head
with full ball
Material & Version :
Screw carbon steel, grade 10.9, Black.
Ball ball-bearing steel, hardened,
Bright or POM.



K0384

Ball-end thrust screws without head
stainless steel with full ball
Material & Version :
Screw stainless steel.
Ball stainless steel, POM or ceramic Si3N4.



Support Elements, Locating Elements, Stop Elements

K0383

Ball-end thrust screws without head with flattened ball
Material & Version :
Screw carbon steel, grade 10.9, Black.
Ball ball-bearing steel, hardened, Bright or POM.



K0384

Ball-end thrust screws without head stainless steel with flattened ball
Material & Version :
Screw and ball stainless steel, Bright.



K0383

Ball-end thrust screws without head with flattened ball and rotation lock
Material & Version :
Screw carbon steel, grade 10.9, Black.
Ball ball-bearing steel, hardened, Bright.



K0666

Ball-end thrust screws without head with full ball, LONG-LOK thread lock nylon
Material & Version :
Screw carbon steel, grade 10.9, Black.
Ball ball-bearing steel, hardened, Bright or POM.



K0666

Ball-end thrust screws without head with flattened ball LONG-LOK thread lock nylon
Material & Version :
Screw carbon steel, grade 10.9, Black.
Ball ball-bearing steel, hardened, Bright.



K0403

Thrust screws with radiused half-dog point
Material & Version :
Screw steel grade 10.9, Black oxidised.
Pin tool steel, Hardened, Black oxidised.



K0272

Thrust screws with point
Material & Version :
Screw steel grade 10.9, Black oxidised.
Pin tool steel, Hardened, Black oxidised.



K0385

Grippers and inserts round
Material & Version :
Inserts tool steel or POM or diamond impregnated ss or ss with polyurethane face



K0385

Grippers and inserts round, with counterbore
Material & Version :
Inserts tool steel or POM or diamond impregnated SS.



K0386

Gripper screws hexagonal
Material & Version :
Hex head screw, grade 10.9, Black oxidised.
Serrations carbide, hardness 72-74 HRC.



K0387

Gripper pads square
Material & Version :
Hardened tool steel or carbide, Black oxidised.



K0388

Gripper studs
Material & Version :
Hardened tool steel or carbide, Black oxidised.



K0389

Thrust screws
Material & Version :
Screw grade 10.9, Black oxidised.
Pin brass or POM.



K0667

Thrust screws
Material & Version :
Screw stainless steel, Bright.
Pin brass or POM.



K0668

Thrust screws
LONG-LOK thread lock nylon.
Material & Version :
Screw grade 10.9, Black oxidised.
Pin brass or POM.



K0350

Locating pins with ball-end Form A
Material & Version :
Tool steel or stainless steel 1.4305.
Steel hardened and ground.
Stainless steel ground and kolsterised.



K0350

Locating pins with flattened ball end Form C
Material & Version :
Tool steel or stainless steel 1.4305.
Steel hardened and ground.
Stainless steel ground and kolsterised.



K0351

Locating pins with ball-end Form B
Material & Version :
Tool steel or stainless steel 1.4305.
Steel hardened and ground.
Stainless steel ground and kolsterised.



Stop Elements

K0351

Locating pins
with flattened ball-end Form D
Material & Version :
Tool steel or stainless steel 1.4305.
Steel hardened and ground.
Stainless steel ground and kolsterised.



K0352

Positioning pins cylindricalground
Material & Version :
Tool steel, Hardened and ground.



K0353

Positioning pins cylindrical
not ground
Material & Version :
Tool steel, Hardened.



K0354

Positioning pins free-milled
ground
Material & Version :
Tool steel, Hardened and ground.



K0355

Positioning pins free-milled
not ground
Material & Version :
Tool steel, Hardened.



K0356

Locating pins expanding
Material & Version :
Carbon steel, Tempered
and black oxidised.



K0292

Rest pads
Material & Version :
Tool steel, Hardened and ground.
No centre bore on top face.



K0293

Locating pins and rest pads
DIN 6321
Material & Version :
Tool steel, Hardened and ground.



K0298

Positioning feet
Material & Version :
Steel, Case-hardened and
black oxidised.



K0299

Positioning feet
Material & Version :
Body carbon steel, Tempered
and black oxidised.
Contact faces case-hardened.



K0300

Fixture feet
with external thread
Material & Version :
Carbon steel 1.1181, Black oxidised.



K0301

Fixture feet
with internal thread
Material & Version :
Body carbon steel, Tempered
and black oxidised.
Contact faces case-hardened.



K0294

Rest pads
Material & Version :
Body carbon steel, Tempered
and black oxidised.



K0295

Rest pads
with positioning pin
Material & Version :
Body carbon steel, Tempered
and black oxidised.
Contact faces case-hardened.



K0296

Feet
with threaded pin, DIN 6320
Material & Version :
Carbon steel 1.1172, Black oxidised.



K0303

Locating feet
Material & Version :
Steel 1.0301, Case-hardened
and black oxidised.



K0297

Support bolts
Material & Version :
Tempered steel, Black oxidised.



K0305

Rest pads
Material & Version :
Steel 1.0301, Case-hardened,
black oxidised and ground.



Support Elements, Locating Elements, Stop Elements

K0306

Rest pads adjustable
with locknut
Material & Version :
Carbon steel 1.1181, Surface hardened,
black oxidised.



K0307

Rest pads
Material & Version :
Carbon steel or bras, Tempered and
black oxidised.



K0308

Jack screws
Material & Version :
Carbon steel, Black oxidised.



K0581

Stop adjustable,
with end position feedback
Material & Version :
Screw and plunger stainless steel 1.4301.
Guide bush stainless steel 1.4112, Bright.
Sensor housing stainless steel.



K0729

Spherical washers
DIN 6319, edition 10/01
Material & Version :
Mild steel or stainless steel.
Steel case hardened.
Stainless steel bright, not hardened.



K0691

Spherical levelling washers
Material & Version :
Steel 1.7225, Blue-chromed.
Stainless steel 1.4305, Bright.



K0692

Levelling setshigh version
Material & Version :
Steel 1.7225, Zinc plated, Blue chromed.
Stainless steel 1.4305, Bright.



K0693

Levelling setswith locknut
Material & Version :
Steel 1.7225, Zinc plated, Blue chromed.
Stainless steel 1.4305, Bright.



K0694

Levelling setslow version
Material & Version :
Steel 1.7225, Zinc plated, Blue chromed.
Stainless steel 1.4305, Bright.



K0695

Levelling setsspherical washer
Material & Version :
Steel 1.7225, Zinc plated, Blue chromed.
Stainless steel 1.4305, Bright.



K0097

Levelling setswith locknut
Material & Version :
Steel 1.7225, Zinc plated, Blue chromed.
Stainless steel 1.4305, Bright.



K0115

Levelling sets
spherical washer with locknut
Material & Version :
Steel 1.7225, Zinc plated, Blue chromed.
Stainless steel 1.4305, Bright.



K0057

Levelling setsspherical washer
Material & Version :
Steel 1.7225, Zinc plated, Blue chromed.
Stainless steel 1.4305, Bright.



K0119

Levelling sets
spherical washer with locknut
Material & Version :
Steel 1.7225, Zinc plated, Blue chromed.
Stainless steel 1.4305, Bright.





K0697

Studs, DIN 6379
Material & Version:
Carbon steel.
Thread rolled.
M6-M12 tempered to 10.9, black.
M14-M36 tempered to 8.8, black.



K0698

T-slot bolts, DIN 787
Material & Version:
Carbon steel.
Forged and milled, rolled thread.
M6-M12 tempered to 10.9, black.
M14-M36 tempered to 8.8, black.



K0699

T-slot bolts, DIN 787
Material & Version:
Carbon steel.
Forged and milled, rolled thread,
tempered to 12.9, black.



K0700

Hexagon nuts thin, DIN 439
Material & Version:
Steel or stainless steel (A 2).
Steel grade 04, galvanized or black oxidised.
Stainless steel A2, bright.



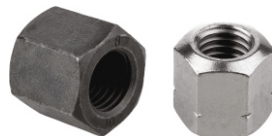
K0701

Hexagon nuts with collar, DIN 6331
Material & Version:
Carbon steel or stainless steel (A2).
Steel grade 10, black.
Stainless steel A 2-70, bright.



K0702

Hexagon nuts height 1.5xD,
DIN 6330 enhanced
Material & Version:
Carbon steel or stainless steel (A2).
Tempered to 10, black.
Stainless steel A 2-70, bright.



K0794

Hexagon nuts
with spherical seat
Material & Version:
Carbon steel.
Tempered to 900 N/mm², black oxidised.



K0584

Clamping force intensifiers
Material & Version:
Bearing housing steel.
Black oxidised.



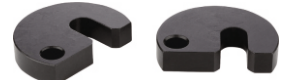
K0730

C-washers, DIN 6372
Material & Version:
Carbon steel.
Tempered and black oxidised.



K0703

C-washers captive, DIN 6371
Material & Version:
Carbon steel 1.0760.
Nitrided and black oxidised.



K0704

Shoulder screws with slotted flat head
DIN 923
Material & Version:
Steel, Black oxidised, grade 5.8.



K0705

Shoulder screws, DIN ISO 7379
Material & Version:
Steel.
Grade 12.9, black oxidised.
Shaft OD ground.



K0706

Shoulder screws
with hexagon head, DIN 609
Material & Version:
Steel Grade 8.8, black oxidised.
Shaft OD ground.



K0707

Grub screws with flat point
Hexagon socket, DIN 913
Material & Version:
Steel or stainless steel (A 2).
Steel class 45 H, Black.
Stainless steel A 2-70, Bright.



K0708

Screws with countersunk head
Hexagon socket, DIN 7991
Material & Version:
Steel or stainless steel (A 2).
Steel grade 8.8, Black.
Stainless steel A 2-70, Bright.



K0696

Parallel keys, DIN 6885 A
Material & Version:
Steel 1.1192, Bright.



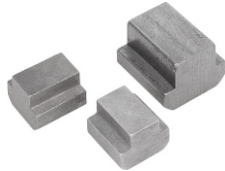
K0377

Nuts for T-slots, DIN 508
Material & Version:
Carbon steel grade 10, Black
EN AW-7075, Bright or
Stainless steel 1.4305, Bright.



K0378

Nuts for T-slotsblanks
Material & Version:
Carbon steel or
Stainless steel 1.4305.



K0379

Nuts for T-slotsrhombic form
Material & Version:
Carbon steel, Tempered to 8
and black oxidised.



K0396

Eye bolts, DIN 444, Form B
Material & Version:
Steel, Grade 8.8, Black oxidised or
Stainless steel, Bright.



K0398

Threaded inserts
Material & Version:
Threaded insert in steel or
stainless steel.



K0399

Threaded inserts reinforced
Material & Version:
Threaded insert in steel or
stainless steel.



K0400

Threaded inserts solid body
Material & Version:
Threaded insert in steel,
Passivated.



K0401

Threaded inserts
with internal thread, self-locking
Material & Version:
Threaded insert in stainless steel,
Passivated.



K0402

Threaded inserts reinforced
internal thread, self-locking
Material & Version:
Threaded insert in stainless steel,
Passivated.



K0653

Repair kit
Material & Version:
Threaded insert in steel,
Passivated.



K0979

Threaded inserts self-tapping
with cutting bores
Material & Version:
Steel or stainless steel 1.4305
Steel, Case-hardened, Yellow passivated
Stainless steel, Bright.



K0978

Threaded inserts self-tapping
with cutting slot
Material & Version:
Steel or stainless steel 1.4305
Steel, Case-hardened, Yellow passivated
Stainless steel, Bright.



K0404

Studs
with screw-in stop for gluing in
Material & Version:
Steel or stainless steel 1.4305.
Steel, Blue-chromed.
Stainless steel, Bright.



K0405

Stud sets
with screw-in stop for gluing in
Material & Version:
Steel or stainless steel 1.4305.
Steel, Blue-chromed.
Stainless steel, Bright.



K1021

Drill bushes cylindrical, DIN 179
Material & Version:
Special steel, Hardened and ground.
Hardness 740 ±80 HV 10.



K1022

Drill bushes flanged, DIN 172
Material & Version:
Special steel, Hardened and ground.
Hardness 740 ±80 HV 10.



K0406

Shaft collars set screw, DIN 705
Material & Version:
Steel, Bright.



K0406

Shaft collars set screw, DIN 705
Material & Version:
Stainless steel 1.4305, Bright.



Machine and Fixture Components

K0407

Shaft collars with wing grip, DIN 705
Material & Version:
Shaft collar steel, Bright.
Wing grip thermoplastic, Black grey.
Threaded pin steel grade 5.8,
Blue chromed.



K0611

Shaft collars one-piece
Material & Version:
Steel 1.0718.
Stainless steel 1.4305, Bright.



K0612

Shaft collars two-piece
Material & Version:
Steel 1.0718.
Stainless steel 1.4305, Bright.



K0986

Shaft collarstapped
Material & Version:
Steel 1.0718.
Stainless steel 1.4305, Bright.



K0397

Cleviswith external thread
Material & Version:
Carbon steel 1.1191,
Tempered and black oxidised.



K0390

Grub screws
with thrust point DIN 6332
Material & Version:
Steel or stainless steel
Thrust point, Steel case-hardened, Black.
Stainless steel, Bright.



K0392

Thrust pads, DIN 6311
Material & Version:
Steel, Case-hardened, Black oxidised.
Stainless steel, Bright



K0394

Thrust spindles
Material & Version:
Star grip thermoplastic, Black.
Grub screw steel grade 5, Black oxidised.
Thrust pad plastic PA 6.



K0376

Clamp hubs
Material & Version:
Carbon steel 1.1206,
Black oxidised.



K0133

Clamping joints
Material & Version:
Handle fibreglass reinforced thermoplastic,
Steel parts grade 5.8. Remaining components:
High-strength aluminium,
Nickel silver anodized.



K0134

Clamping jointsindividually adjustable
Material & Version:
Wing grip black grey thermoplastic.
Screw steel 5.8.
Remaining components:
High-strength aluminium, Nickel silver anodized.



K0135

Multiple connectors
Material & Version:
Wing grip black grey thermoplastic.
Screw steel 5.8.
Remaining components:
High-strength aluminium, Nickel silver anodized.



K0136

Clamping joints
Material & Version:
Sleeve and pin steel, High-gloss chromed.
Clamp block high-strength aluminium.
Wing grip black grey thermoplastic.



K0053

Swing screws
Material & Version:
Star grip thermoplastic, Black.
Eye bolt steel grade 8.8, Black oxidised.
Hinge pins carbon steel 1.1181, Tempered.



K0054

Hookswith a quick-acting star grip
Material & Version:
Hook steel 1.0718, Galvanized.
Quick-acting star grips thermoplastic,
Black.



K0182

Wing screws with lock wing nut
Material & Version:
Wing screw thermoplastic, Black grey.
Screw steel 5.8, Blue chromed.
Counter grip thermoplastic, Black grey.



K0629

Dial gauge collets
Material & Version:
Carbon steel, Black oxidised.
Collet tempered.



K0755

Tommy bars
with fixed or sliding T-bar,
DIN 6305 or DIN 6307
Material & Version:
Steel, Black oxidised.



K0756

T-thrust screws
with fixed or sliding T-bar,
DIN 6304 or DIN 6306
Material & Version:
Steel, Black oxidised.
Thrust pin hardened.



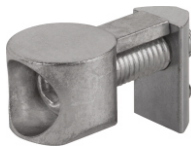
K1031

Connecting sets standard
Type I
Material & Version:
Steel, galvanized.



K1032

Connecting sets universal
Type I
Material & Version:
Connector die-cast zinc.
Screw and slot nuts steel, Galvanized.



K1033

Connecting sets central
Type I
Material & Version:
Steel, Galvanized.



K1034

Connecting sets central
Type B
Material & Version:
Steel, Galvanized.



K1035

Connecting sets central
Type B
Material & Version:
Steel, Galvanized.



K1036

Connecting sets automatic
Type I
Material & Version:
Steel, Galvanized.



K1037

Connecting sets automatic
Type B
Material & Version:
Steel, Galvanized.



K1038

Pin connector sets - Type B
Material & Version:
Pins, screws and T-nuts steel,
Galvanized.
Locating pin & end caps polyamide, fibreglass
Reinforced, Black.



K1039

Cube connector sets
Type B
Material & Version:
Cube die-cast aluminium, Bright.
Screws with self-tapping thread.
End caps polyamide, Black.



K1040

Central screw
Type B
Material & Version:
Steel, Galvanized.



K1028

T-nuts
Material & Version:
Steel, Galvanized.



K1029

Hammer-head screws
Material & Version:
Steel, Galvanized.



K1030

Flange nuts
Material & Version:
Steel, Galvanized.



K1041

Butt connector sets automatic
Type I
Material & Version:
Steel, Galvanized.



K1023

Slot nuts
twist-in Type I
Material & Version:
Steel, Galvanized.



K1024

Slot nuts
twist-in, keyed Type I
Material & Version:
Steel, Galvanized.



K1044

Fastening sets
for straps and angles
Material & Version:
Steel, Galvanized.



Buffer Elements



K0566

Rubber-metal buffers, type A
Material & Version :
Metal parts steel grade 5.6 or SS,
Galvanized or bright.
Elastomer natural rubber,
Medium hardness, 55 Shore A.

K0567

Rubber-metal buffers
type AT tapered
Material & Version :
Metal parts steel grade 5.6, Galvanized.
Elastomer natural rubber,
Medium hardness, 57 Shore A.

K0568

Rubber-metal buffers, type B
Material & Version :
Metal parts steel grade 5.6 or SS,
Galvanized or bright.
Elastomer natural rubber,
Medium hardness, 55 Shore A.

K0569

Rubber-metal buffers, type C
Material & Version :
Metal parts steel grade 5.6 or SS,
Galvanized or bright.
Elastomer natural rubber,
Medium hardness, 55 Shore A.

K0570

Rubber-metal buffers
type CT tapered
Material & Version :
Metal parts, steel, grade 5.6, Galvanized.
Elastomer natural rubber,
Medium hardness, 57 Shore A.

K0571

Rubber-metal buffers, type D
Material & Version :
Metal parts steel grade 5.6 or SS,
Galvanized or bright.
Elastomer natural rubber,
Medium hardness, 55 Shore A.

K0572

Rubber-metal buffers
type DS suction base
Material & Version :
Metal parts, steel, grade 5.6, Galvanized.
Elastomer natural rubber,
Medium hardness, 57 Shore A.

K0573

Rubber-metal buffers, type E
Material & Version :
Metal part steel grade 5.6, Galvanized.
Elastomer natural rubber,
Medium hardness, 55 Shore A.

K0574

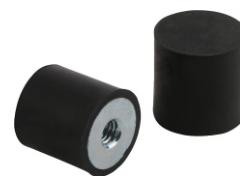
Rubber impact buffers
parabolic
Material & Version :
Metal part steel grade 5.6, Galvanized.
Elastomer natural rubber,
Medium hardness, 55 Shore A.

K0575

Rubber impact buffers
conical
Material & Version :
Metal part steel grade 5.6, Galvanized.
Elastomer natural rubber,
Medium hardness, 55 Shore A.

K0576

Rubber impact buffers
spherical
Material & Version :
Metal part steel grade 5.6, Galvanized.
Elastomer natural rubber,
Medium hardness, 55 Shore A.





K0443

Oil level gauges
Material & Version :
Housing thermoplastic polyamide.
Reflector aluminium.
Screw and hex nut steel, Galvanized.



K0444

Oil level gauges
Material & Version :
Housing steel.
Reflector aluminium.
Viewing glass thermoplastic polyamide.
Screw and hex nut steel, Galvanized.



K0445

Oil level sight glasses
Material & Version :
Housing in thermoplastic polyamide.
Plastic reflector.



K0446

Oil level sight glasses press-in
Material & Version :
Housing in thermoplastic polyamide.
Plastic reflector.



K0447

Oil level sight glasses domed
Material & Version :
Housing in thermoplastic polyamide.
Flat seal, asbestos-free.



K0448

Oil level sight glasses
Material & Version :
Housing in aluminium.
Reflector in aluminium or white plastic.
Polyamide viewing lens.



K0246

Oil level sight glasses
Material & Version :
Housing, reflector in aluminium.
Natural, clear glass viewing lens.
temperature-resistant to 150 °C.



K0449

Plugs to screw-in
Material & Version :
Elastomer, soft polyurethane red.



K0450

Plugs to screw-in
Material & Version :
Thermoplastic polyamide 66 Black.
Flat seal asbestos-free.



K0451

Plugs to press-in
Material & Version :
Housing & cap thermoplastic polyamide 66.
Air filter polyurethane (PU foam).
O-ring rubber (NBR).



K0452

Plugs magnetic
Material & Version :
Thermoplastic polyamide 66, Black.
Ferrite permanent magnet.
Flat seal asbestos-free.



K0453

Plugs magnetic
Material & Version :
Aluminium, Bright.
Ferrite permanent magnet.
Flat seal asbestos-free.



K0454

Plugs fill and drain hexagon cap
Material & Version :
Thermoplastic polyamide 66 Black.
Flat seal asbestos-free.



K0455

Plugs fill
knurled cap
Material & Version :
Thermoplastic polyamide 66, Black.
O-ring in rubber (NBR).



K0456

Caps for filler necks
Material & Version :
Housing, thermoplastic polyamide 66.
Air filter, polyurethane (PU foam).
Rubber flat seal (NBR).
Filter mesh 50 µm.



K0457

Vent screws
Material & Version :
Housing, cap in thermoplastic polyamide 66.
O-ring in rubber (NBR).
Filter mesh 60 µm.



Level Indicators, Screw Plugs

K0458

Vent screws with splash guard
Material & Version :
Housing, thermoplastic polyamide 66.
Air filter in polyurethane (PU foam).
Rubber flat seal (NBR).
Filter mesh 50 µm.



K0471

Filler necks
Material & Version :
Filler housing chrome steel.
Air filter polyurethane (PU foam).
Chain nickel-plated brass.
Filler sieve galvanized steel.



K0459

Vent screws with check valve
Material & Version :
Housing, thermoplastic polyamide 66.
Spring stainless steel.
Lift disc and flat seal rubber (NBR).



K0460

Vent screws brass
Material & Version :
Housing and cap brass.
Air filter galvanized steel wire mesh.
Air filter mesh 50 - 60 µm.
Flat seal asbestos-free.



K0461

Vent screws brass with check valve
Material & Version :
Housing and cap brass.
Spring stainless steel.
Lift disc aluminium.
Flat seal asbestos-free.



K0462

Plugs to press-in with dipstick
Material & Version :
Housing, thermoplastic polyamide 66.
Air filter polyurethane (PU foam).
Dipstick zinc, Phosphated.
Filter mesh 50 µm.



K0465

Vent screws with dipstick
Material & Version :
Housing, thermoplastic polyamide 66.
Air filter polyurethane (PU foam).
Dipstick zinc, Phosphated.
Filter mesh 50 µm.



K0467

Vent screws with check valve and dipstick
Material & Version :
Housing, thermoplastic polyamide.
Spring stainless steel.
Dipstick zinc, Phosphated.
Lift disc and seal rubber (NBR).



K0468

Dipsticks
Material & Version :
Thermoplastic polyamide handle.
Zinc dipstick, Phosphated.
O-ring in rubber (NBR).



K0470

Filler necks
Material & Version :
Housing thermoplastic polyamide 66.
Air filter polyurethane (PU foam).
Fastening screw nickel-plated steel.
Chain nickel-plated brass.





K0767

Ring bolts, DIN 580
Material & Version :
Drop forged Hardened steel 1.0401 or
Cast stainless steel 1.4301.



K0768

Ring nuts, DIN 582
Material & Version :
Drop forged Hardened steel 1.0401 or
Cast stainless steel 1.4301.



K0769

Ring bolts rotatable
Material & Version :
Ring in steel 1.6541, forged and
high tensile tempered screw in steel,
Grade 10.9. 100% electromagnetic crack
tested per EN 1677-1.



K0770

Ring bolts
swivel and 360° rotatable
Material & Version :
Steel, Red plastic-coated.
Quality class 8, ball bearing.



K0773

Weld-on D-ring
Material & Version :
Eye, steel type 1.6541, forged,
High tensile tempered,
red plastic coated.
Welding block, steel type S355JR.



K1059

D-Shackle
Material & Version :
Steel, D form.



K1058

Bow shackle
Material & Version :
Steel, Bow form.



K0585

Lifting bolts with retaining ring
Material & Version :
Bolts, ring nut and safety ring :
Dia. 12, 16 and 20 = 16MnCrS5 1.7139
Dia. 25 and 32 = 42CrMoS4 1.7227
Black oxidised.



K0760

Ball transfer units with steel housing
Material & Version :
Galvanized steel or stainless steel.



K0761

Ball transfer units
Material & Version :
Galvanized steel housing.
Polyamid PA 66 ball.



K0762

Ball transfer units undersprung
Material & Version :
Steel galvanized.



K0763

Ball transfer units
with solid steel housing
Material & Version :
Steel galvanized.



K0764

Ball transfer units
with fastening holes,
without housing
Material & Version :
Steel galvanized.



K0765

Ball transfer units
with spring clips
Material & Version :
Steel galvanized.



K0766

Tolerance rings
Material & Version :
Spring band steel



Company Profile

From conceptualization to execution, from drawing to production, there's just one single largest force that drives us. Our customer. He was with us when we first ventured into the uncharted area of toggle clamp manufacturing in India. Four decades later, he still looks up to us with the same trust he began with. Because even as the times changed along with the application areas our products kept pace. Only improving in terms of quality.

Introducing newer and innovative products, continuously improving upon the existing ones and catering to our customers with prompt after sales service; we've grown. We've grown from a small set-up to an established brand name. Today Steel-Smith is the largest manufacturer and exporter of a wide range of toggle clamps and other industrial accessories. In doing so, we owe a lot to our customer; our source of inspiration and unrelenting support.

Cad Database

Steel Smith has placed its entire line of standard clamping products in a CAD library, which customers can use to save valuable drafting time and increase fixture productivity.

All drawings are done in accurate two dimensional orthographic projections or 3D models and are supplied on CDs or by e-mail.

Drawings are available in all of the popular software formats at no charge to the user.

Exports

After capturing majority of the Indian market share, Steel-Smith is now making its presence felt in the global scenario. Constant endeavour in quality enhancements and application areas has led Steel Smith to be a globally competitive toggle clamp manufacturer.

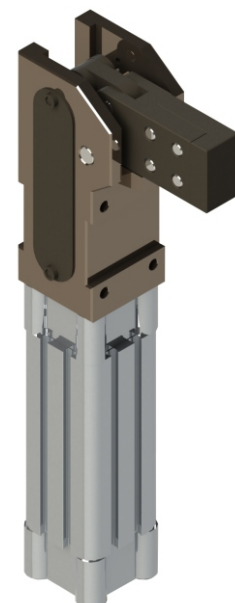
We are proud that we have put India on the world map as far as broad-spectrum toggle clamp manufacturing is concerned. Steel-Smith has exported over one million clamps worldwide.

The latest launch of the international range of clamps has broaden the horizon for the company. Our goal is to see Steel-Smith becoming the first choice for Toggle Clamp application, globally in the next new millennium.

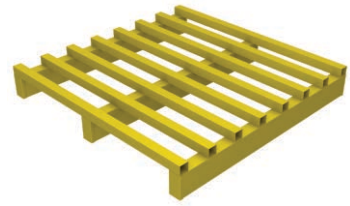
Dealers Network

Steel Smith is now near a city closest to you. With over 20 distributors & stockiest, our Toggle Clamps are just a phone call away from you.

All our distributing centres have application engineers who will assist you in selecting the right clamp for the right application. Please write to us to get our dealers' list.



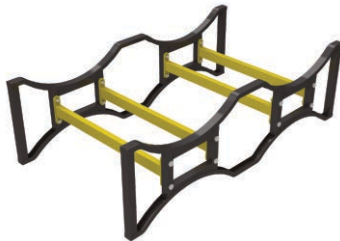
Steel Pallets



Cage Bins



Drum Pallets



Corrugated Steel Boxes



Snout End Bins





Comprehensive Catalog

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Operating Parts Standard Elements



Machining Clamps Fixture Clamps



Toggle Clamps, Latches,
Pneumatic Clamps, Swing Clamps