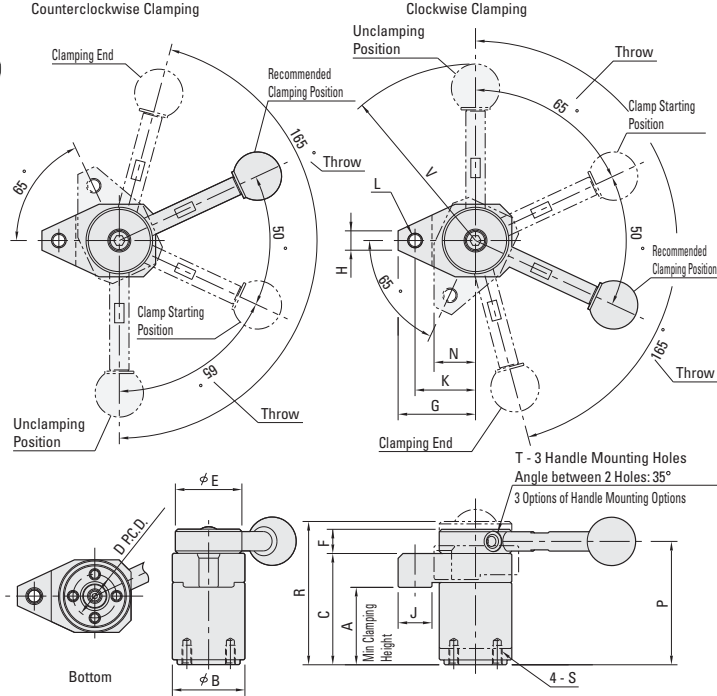


SWING CLAMPS - STANDARD



How To Use

Tip Installation

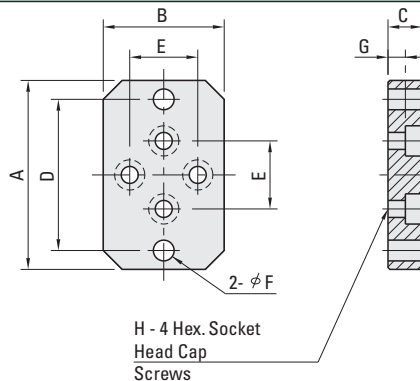
When installing a tip on the clamp arm, lock the clamp arm using a wrench to prevent the clamp from receiving any torque.

These swing clamps swing into position, then clamp straight down onto the work piece for direct downward pressure. When releasing the clamp, the clamp swings out 65 degrees for easy removal and placement of the work piece. Excellent for repetitive clamping operations. The tapped end of the clamp arm allows for custom clamping tip and greater clamping range. Can be ordered in either clockwise or counter clockwise clamping movement. Four screws and two locating holes allow for secure fastening and precision locating. Mounting bases are also available to provide top side mounting and height adjustment. The 150 series provides 170 lbs of clamping force, the 200 series provides 260 lbs of clamping force. Part numbers with R have clockwise clamping direction, part numbers with L have counter clockwise clamping direction. The body and shaft are made from SAE-4140 alloy steel. The clamp arm and adaptor head are made from SAE-1045 alloy steel. Parts are heat treated with black oxide finish. Handle is black plastic. See pages 20 and 21 for machinable clamp arm and other handle options.

With Handle Part #	w/o Handle Part #	A mm	B mm	C mm	P.C.D.* D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	N mm	P mm	R mm	S mm	T mm	V mm	Clamping Range
QLSW150R	QLSW150NR	32	30	46	18	30	10	32	8	14	25	M6X1	17.0	51.0	57.5	M4X0.7	M5X0.8	73	1.5
QLSW150L	QLSW150NL	32	30	46	18	30	10	32	8	14	25	M6X1	17.0	51.0	57.5	M4X0.7	M5X0.8	73	1.5
QLSW200R	QLSW200NR	45	40	63	25	38	13	40	12	16	32	M8X1.25	22.5	69.5	78.1	M6X1	M6X1	107	2.1
QLSW200L	QLSW200NL	45	40	63	25	38	13	40	12	16	32	M8X1.25	22.5	69.5	78.1	M6X1	M6X1	107	2.1

*Pitch Circle Diameter

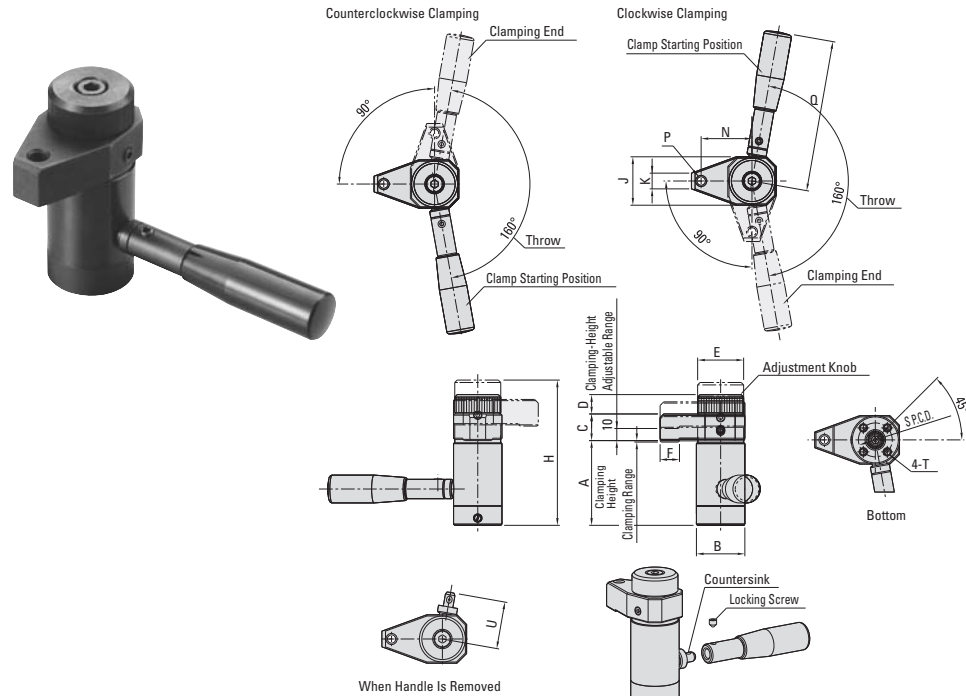
SWING CLAMP MOUNTING PLATES - STANDARD



For use with the standard swing clamps shown above. These plates attach to the swing clamps and allow for easy fastening and top side mounting. Made from SAE-1045 alloy steel with black oxide finish.

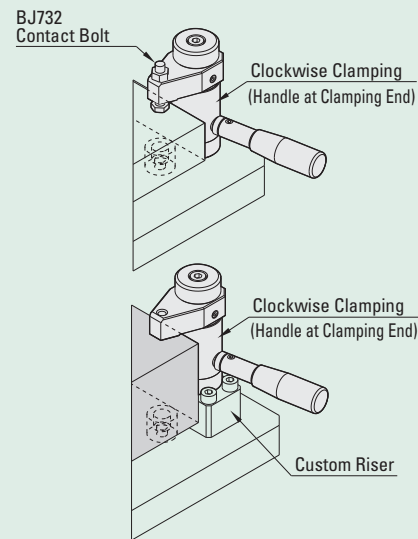
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	Use With Clamp Series
QLSW150-P	50	32	9	40	18	5.5	4.5	M4	QLSW150
QLSW200-P	75	42	12	55	25	9.0	5.5	M6	QLSW200

SWING CLAMPS - HEAVY DUTY



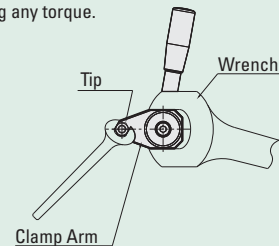
These Heavy Duty Swing Clamps swing into position then clamp straight down onto the work piece for direct downward pressure. The arm swings completely out of the way to allow for easy loading and unloading of the work piece. Ideal for repetitive clamping operations. The tapped end of the clamp arm allows for a clamping tip to be added. Mounts from the bottom with four mounting holes. Mounting bases are available that allow top side mounting. To operate: load the work piece, turn the adjustment knob to rotate and lower the clamp arm over the work piece. Rotate the handle to apply full clamping force to the work piece. The 400 series provide 786 lbs of clamping force, the 500 series provides 1,348 lbs of clamping force. Part numbers ending with R have a clockwise clamping direction, part numbers ending in L have a counter clockwise clamping direction. The body, cam and handle are made from SAE-4140 alloy steel. The clamp arm is made from SAE-1045 alloy steel. Parts are heat treated with black oxide finish. The handle is made from black plastic.

How To Use



Tip Installation

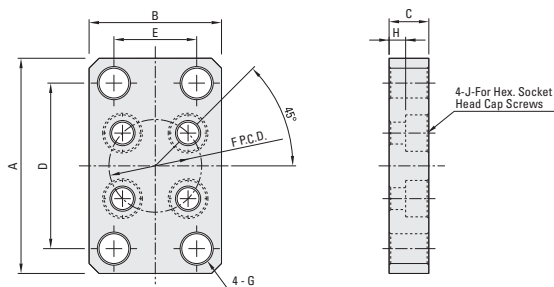
When installing a tip on the clamp arm, lock the clamp arm using a wrench to prevent the clamp from receiving any torque.



Part #	Clamping Range mm	Clamping Height mm	B mm	C mm	D mm	E mm	F mm	H mm	J mm	K mm	N mm	P mm	Q mm	U mm	P.C.D.* S mm	T mm
QLSWH400R	1.2	70-80	40	22	16	38	16	120	40	13	42	M8X1.25	125	39	28	M6X1X12D
QLSWH400L	1.2	70-80	40	22	16	38	16	120	40	13	42	M8X1.25	125	39	28	M6X1X12D
QLSWH500R	1.6	80-90	50	25	20	48	24	137	50	18	48	M12X1.75	160	47	35	M8X1.25X16D
QLSWH500L	1.6	80-90	50	25	20	48	24	137	50	18	48	M12X1.75	160	47	35	M8X1.25X16D

Note: Maximum load on the handle cannot exceed 134 lbs. *Pitch Circle Diameter

SWING CLAMP MOUNTING PLATES - HEAVY DUTY

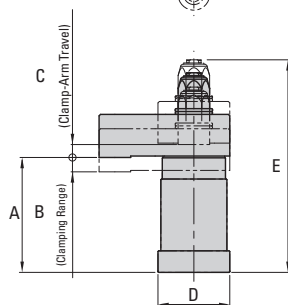
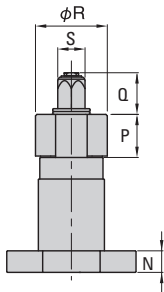
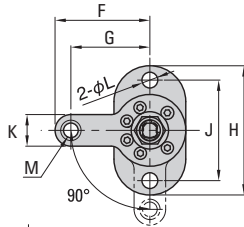


For use with the Heavy Duty Swing Clamps shown above. The plates attach to the swing clamps and allow for easy fastening and top side mounting. Can also be used to adjust the height of the swing clamp. Made from SAE-1045 alloy steel with black oxide finish.

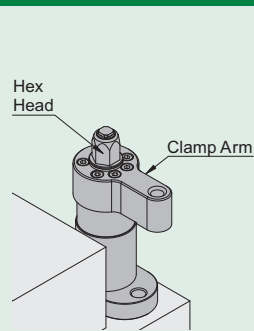
Part #	A mm	B mm	C mm	D mm	E mm	P.C.D.* F mm	G mm	H mm	J mm	Use with Clamp Series
QLSWH400-P	65	40	12	50	25	28	9	5	M6	QLSWH400
QLSWH500-P	85	50	16	65	30	35	11	7	M8	QLSWH500

*Pitch Circle Diameter

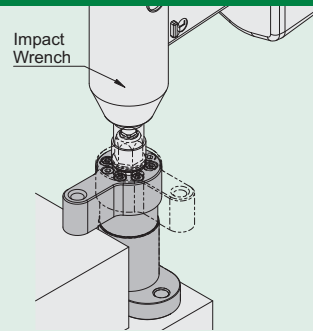
SWING CLAMPS - QUICK ACTING



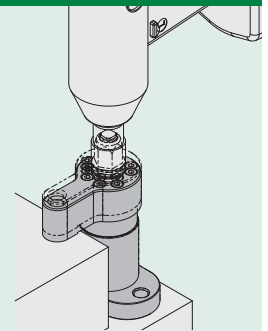
How To Use



Unclamped Position
The clamp arm is out of the way to load or unload a work piece.



Ready to Clamp
When the hex head is turned by an impact wrench, the clamp arm swings quickly to the clamping position.



Clamped Position
The clamp arm moves downward for clamping. Using an impact wrench completes the clamping quickly.

Part #	Clamping Force lbs.	Max Torque Ft/lbs.
PTSW1-12	1,350	20
PTSW1-16	2,250	40

These swing clamps swing into position, then clamp straight down onto the work piece for direct downward pressure. When releasing the clamp, the arm swings out 90 degrees for easy removal and placement of the work piece. These clamps are designed to be used with an adjustable torque impact wrench for quick clamping and accurate clamping pressure. They are ideal for repetitive production clamping operations. The tapped end of the clamp arm allows for installing a clamping tip. The body and shaft are made from SAE-4140 alloy steel. The clamp arm is made from SAE-1045 alloy steel. Parts are heat treated with black oxide finish. These clamps have a clockwise clamping direction.

Swing Clamp with Arm

Part #	Clamping Range		Clamp Arm Travel	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
	A mm	B mm	C mm														
PTSW1-12R	80	10	11	50	150	66	55	90	70	22	11	M12x1.75	15	30	29	50	19
PTSW1-16R	95	10	14	60	179	79	65	100	80	28	13	M16x2	20	35	35	60	24

Swing Clamp without Arm

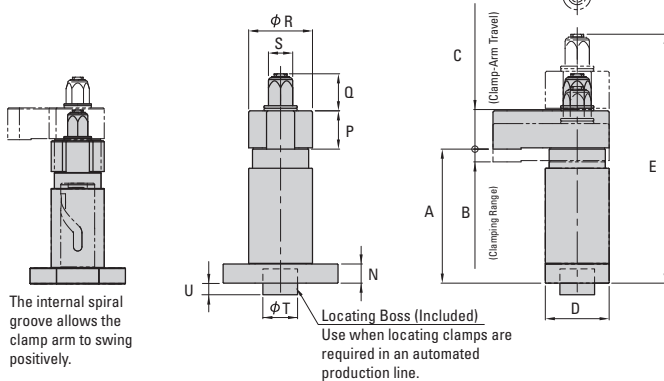
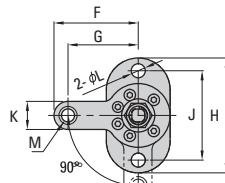
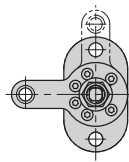
Part #	Clamping Range		Clamp Arm Travel	D	E	H	J	L	N	P	Q	R	S
	A mm	B mm	C mm										
PTSW1-12NR	80	10	11	50	150	90	70	11	15	30	29	50	19
PTSW1-16NR	95	10	14	60	179	100	80	13	20	35	35	60	24

SWING CLAMPS - SPIRAL ACTING



Counterclockwise Clamping

Clockwise Clamping



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

Locating Boss (Included)
Use when locating clamps are required in an automated production line.

How To Use

Unclamped Position
The clamp arm is out of the way to load or unload a work piece.

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

Clamped Position
The clamp arm moves downward for clamping. Using a nut runner completes the clamping quickly.

Part #	Clamping Force lbs.	Max Torque Ft/lbs.
PTSW2-12	1,350	20
PTSW2-16	2,250	40

These swing clamps swing into position, then clamp straight down onto the work piece for direct downward pressure. When releasing the clamp, the arm swings out 90 degrees for easy removal and placement of the work piece. The internal spiral groove forces positive clamp arm rotation both in the clamping and unclamping motions. These clamps are designed to be used in robotized production lines where robots use nut runners. The tapped end of the clamp arm allows for installing a clamping tip. The body and shaft are made from SAE-4140 alloy steel. The clamp arm is made from SAE-1045 alloy steel. Parts are heat treated with black oxide finish. Parts ending in R have a clockwise clamping direction, part numbers ending in L have a counter-clockwise clamping direction.

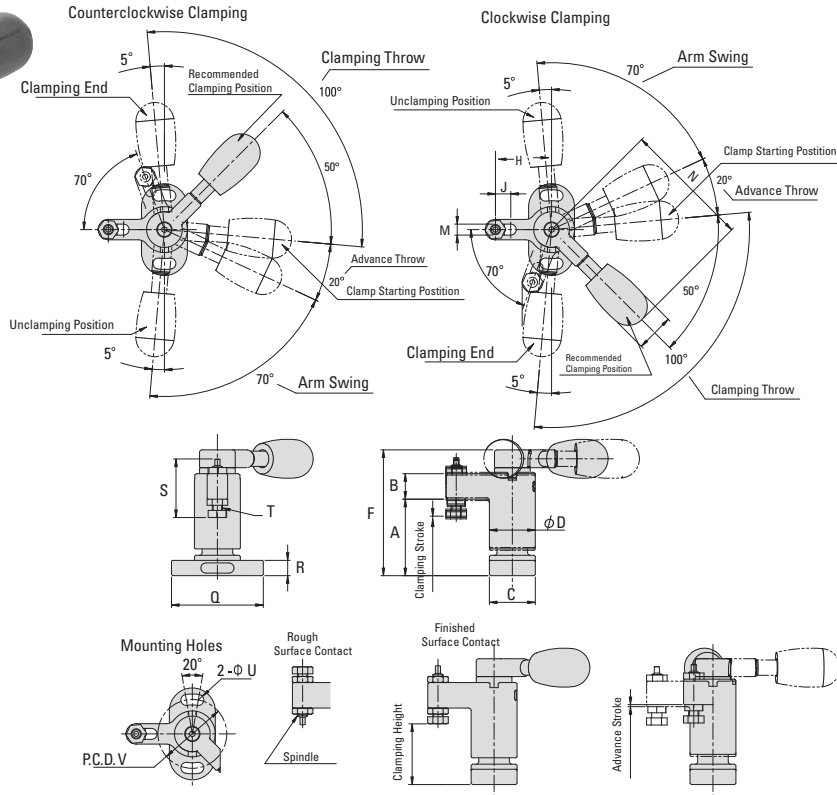
Swing Clamp with Arm

Part #	A mm	Clamping Range B mm	Clamp Arm Travel C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm	Q mm	R mm	S mm	+0/-0.2	
																		T mm	U mm
PTSW2-12R	105	10	31	50	195	66	55	90	70	22	11	M12x1.75	15	30	29	50	19	26	10
PTSW2-12L	105	10	31	50	195	66	55	90	70	22	11	M12x1.75	15	30	29	50	19	26	10
PTSW2-16R	120	10	36	60	226	79	65	100	80	28	13	M16x2	20	35	35	60	24	30	12
PTSW2-16L	120	10	36	60	226	79	65	100	80	28	13	M16x2	20	35	35	60	24	30	12

Swing Clamp without Arm

Part #	A mm	Clamping Range B mm	Clamp Arm Travel C mm	D mm	E mm	H mm	J mm	L mm	N mm	P mm	Q mm	R mm	S mm	+0/-0.2	
														T mm	U mm
PTSW2-12NR	105	10	31	50	195	90	70	11	15	30	29	50	19	26	10
PTSW2-12NL	105	10	31	50	195	90	70	11	15	30	29	50	19	26	10
PTSW2-16NR	120	10	36	60	226	100	80	13	20	35	35	60	24	30	12
PTSW2-16NL	120	10	36	60	226	100	80	13	20	35	35	60	24	30	12

SWING CLAMPS - MINIATURE



How To Use

Load the work piece with the clamp arm out of the way.

Turn the handle to set the arm over the work piece and clamp to final position.

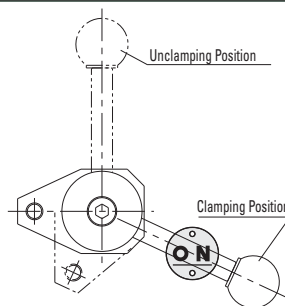
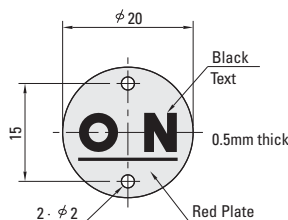
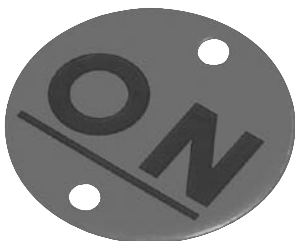
These miniature swing clamps swing into position and clamp straight down onto the work piece for direct downward pressure. The arm swings completely out of the way to allow for easy loading and unloading of the work piece. Ideal for repetitive clamping operations. Comes with a contact bolt that can be reversed for finished or rough surfaces. Mounts from the top with two mounting holes. The 100 series provide 247 lbs of clamping force, the 150 series provides 404 lbs of clamping force. Part numbers ending with R have a clockwise clamping direction, part numbers ending in L have a counter clockwise clamping direction. Maximum load to operate the handle is 22 lbs. for the 100 series and 33 lbs. for the 150 series. The body, handle and spindle are made from SAE-1045 alloy steel. The clamp arm and cam shaft is made from SAE-4140 alloy steel. Parts are heat treated with black oxide finish. Handle is black plastic.

Part #	Clamping Height		Clamping Stroke	Advance Stroke
	Finished Surface	Rough Surface		
QLSWC100R	22.3 - 25.3	21.9 - 24.9	1.0	0.8
QLSWC100L	22.3 - 25.3	21.9 - 24.9	1.0	0.8
QLSWC150R	30.6 - 34.0	31.5 - 34.9	1.4	1.1
QLSWC150L	30.6 - 34.0	31.5 - 34.9	1.4	1.1

Part #	A	B	C	D	F	H	J	M	N	Q	R	S	T	U	V	P.C.D.*
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
QLSWC100R	30	10	18	18	49	22	6	4.3	50	36	6	22.8	M4X0.7	4.3	27	
QLSWC100L	30	10	18	18	49	22	6	4.3	50	36	6	22.8	M4X0.7	4.3	27	
QLSWC150R	40	14	23	23	66	30	8	5.3	63	45	8	28.5	M5X0.8	5.3	34	
QLSWC150L	40	14	23	23	66	30	8	5.3	63	45	8	28.5	M5X0.8	5.3	34	

*Pitch Circle Diameter

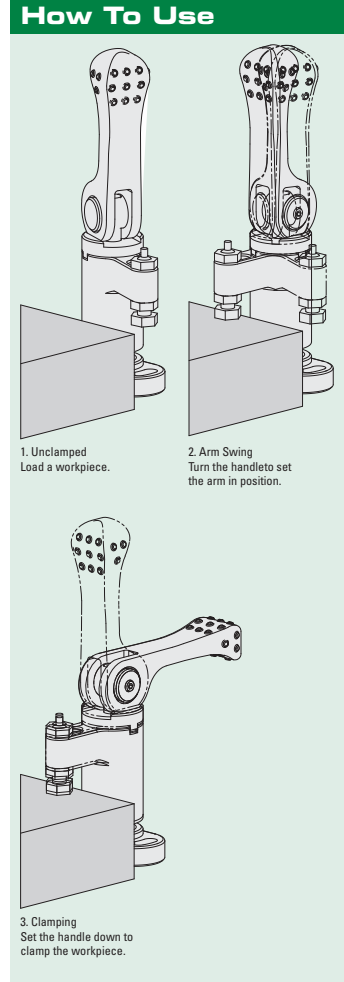
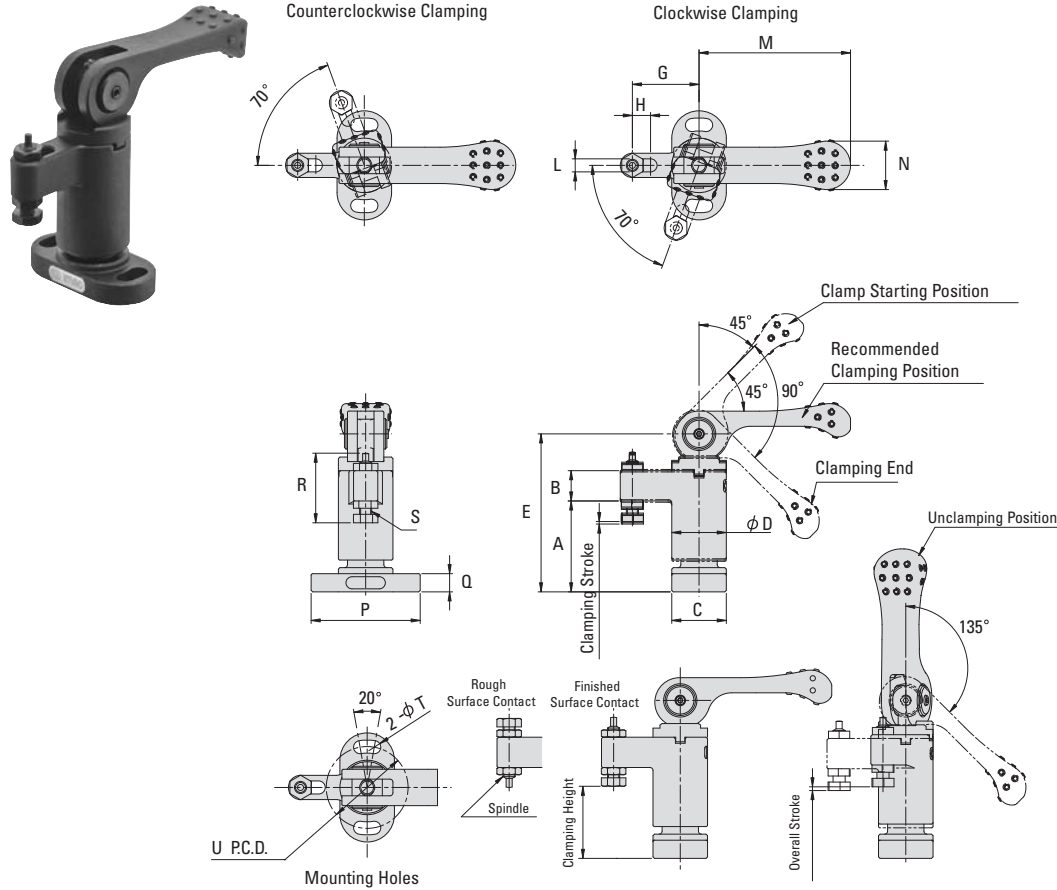
MARKER PLATES



These aluminum marker plates are used to mark the handle position in the clamping mode. Pressure sensitive adhesive on the backside. 2mm holes allow for riveting. Color is red.

PART #
QLST-ON

SWING CLAMPS W/ CAM HANDLE - MINIATURE



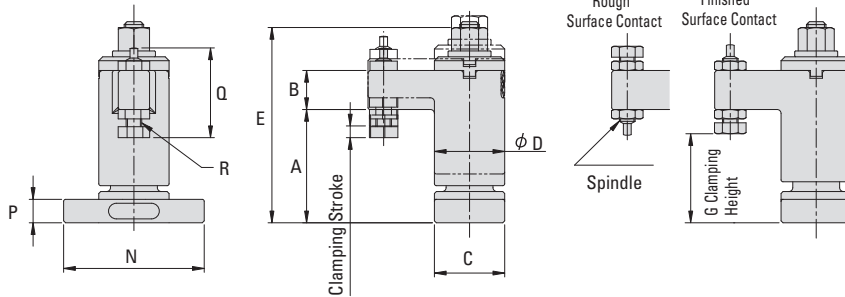
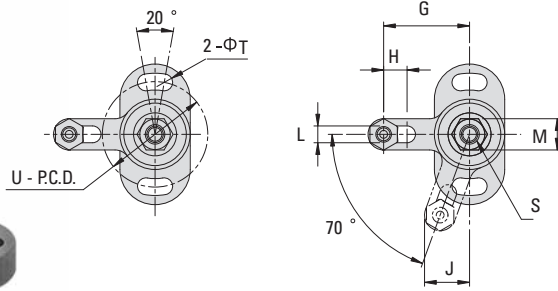
These miniature cam action clamps swing into position and clamp straight down onto the work piece for direct downward pressure. The arm swings completely out of the way to allow for easy loading and unloading of the work piece. Ideal for repetitive clamping operations. Comes with a contact bolt that can be reversed for finished or rough surfaces. Mounts from the top with two mounting holes. The 100 series provide 179 lbs of clamping force, the 150 series provides 337 lbs of clamping force. Part numbers ending with R have a clockwise clamping direction, part numbers ending in L have a counter clockwise clamping direction. Maximum load to operate the handle is 22 lbs. for the 100 series and 33 lbs. for the 150 series. The body, washer and spindle are made from SAE-1045 alloy steel. The clamp arm, shaft and handle are made from SAE-4140 alloy steel. Parts are heat treated with black oxide finish.

Part #	Clamping Height		Clamping Stroke	Overall Stroke
	Finished Surface	Rough Surface		
QLSWC100VR	22.4 - 25.2	22.0 - 24.8	0.8	1.2
QLSWC100VL	22.4 - 25.2	22.0 - 24.8	0.8	1.2
QLSWC150VR	30.8 - 33.8	31.7 - 34.7	1.0	1.5
QLSWC150VL	30.8 - 33.8	31.7 - 34.7	1.0	1.5

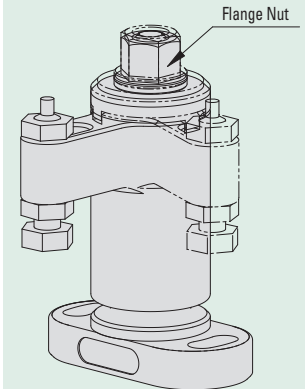
Part #	A	B	C	D	E	G	H	L	M	N	P	Q	R	S	T	U
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
QLSWC100VR	30	10	18	18	52	22	6	4.3	50	15	36	6	22.8	M4X0.7	4.3	27
QLSWC100VL	30	10	18	18	52	22	6	4.3	50	15	36	6	22.8	M4X0.7	4.3	27
QLSWC150VR	40	14	23	23	68	30	8	5.3	63	20	45	8	28.5	M5X0.8	5.3	34
QLSWC150VL	40	14	23	23	68	30	8	5.3	63	20	45	8	28.5	M5X0.8	5.3	34

*Pitch Circle Diameter

SWING CLAMPS W/ TORQUE CONTROL - MINIATURE



How To Use



Turning the flange nut allows the arm to swing into position for clamping.

Warning

To prevent damage, do not use power tools (impact wrench) to turn the flange nut.

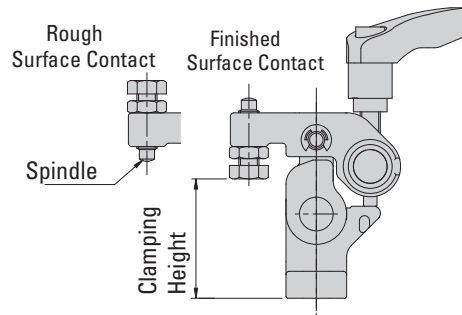
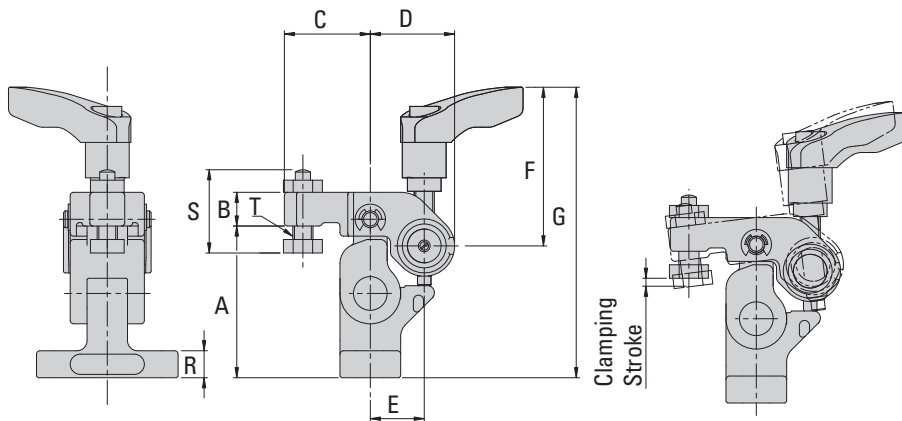
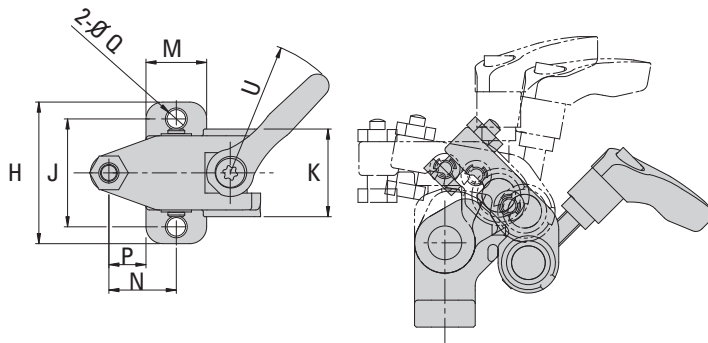
These miniature clamps swing into position and clamp straight down onto the work piece for direct downward pressure. The arm swings completely out of the way to allow for easy loading and unloading of the work piece. The flange nut is used to activate the swing arm and allows the user to apply precise pressure by using a torque wrench or a removable handle to avoid interference. Ideal for applications where precise clamping force is required to avoid part distortion. Comes with a contact bolt that can be reversed for finished or rough surfaces. Mounts from the top with two mounting holes. The QLSWC-05 provides up to 517 lbs of clamping force, the QLSWC-06 provides up to 809 lbs of clamping force. The clamp arm swings out of the way in a counter clockwise direction. The body, washer, flange nut and spindle are made from SAE-1045 alloy steel. The clamping arm is made from SAE-4140 alloy steel. Parts are heat treated with black oxide finish.

Part #	Clamping Height		Clamping Stroke	Allowable Screw Torque (in/lbs.)
	Finished Surface	Rough Surface		
QLSWC-05	22.8 - 27.8	22.4 - 27.4	3.0	53
QLSWC-06	31.3 - 37.3	32.2 - 38.2	4.0	92

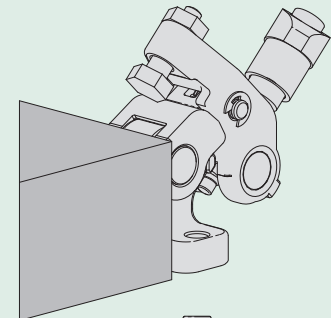
Part #	A	B	C	D	E	G	H	J	L	M	N	P	Q	R	S	T	P.C.D.* U
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
QLSWC-0618	29	10	18	18	56.5	22	6	11.5	4.3	10	36	6	22.8	M4X0.7	M6X1	4.3	27
QLSWC-0823	39	14	23	23	73.5	30	8	15.3	5.3	13	45	8	28.5	M5X0.8	M8X1.25	5.3	34

*Pitch Circle Diameter

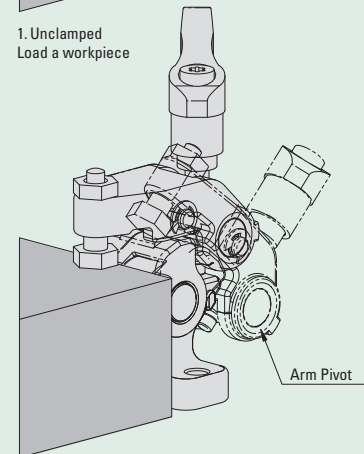
ROCKER CLAMPS W/ ADJUSTABLE HANDLE - MINIATURE



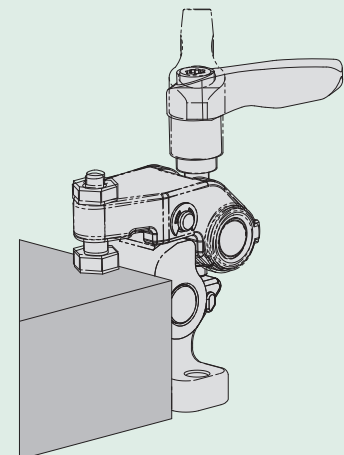
How To Use



1. Unclamped
Load a workpiece



2. Clamping Setup
Set the arm in clamping position holding it at the arm pivot.



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

For unclamping, reverse the above steps.

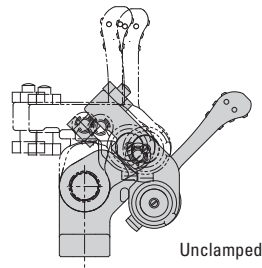
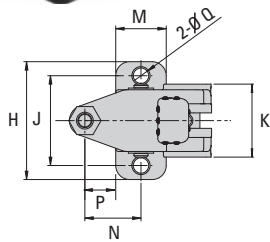
These miniature rocker clamps pivot completely away from the work piece for easy loading and unloading. The clamp moves forward and downward into position and clamps straight down onto the work piece for direct downward pressure. The adjustable handle is then tightened to apply clamping pressure and allows for longer clamping stroke and greater clamping force. These clamps are ideal for repetitive accurate clamping operations. They come with a contact bolt that can be reversed for finished or rough work piece surfaces. Mounts from the top with two mounting holes. The body and spindle are made from SAE-1045 alloy steel. The arm and joint are made from SAE-4135 alloy steel. Parts are heat treated with black oxide finish. The adjustable handle is made from cast zinc.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	M mm	N mm	P mm	Q mm	R mm	S mm	T mm	U mm
QLRE-06	45	10	25.5	25	16	47	86	42	32	26	18	20	11	5.5	8	24.0	M6X1	40
QLRE-08	55	12	32.0	31	20	63	109	52	40	32	22	25	14	6.6	10	30.5	M8X1.25	65

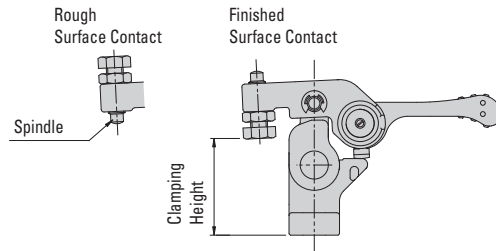
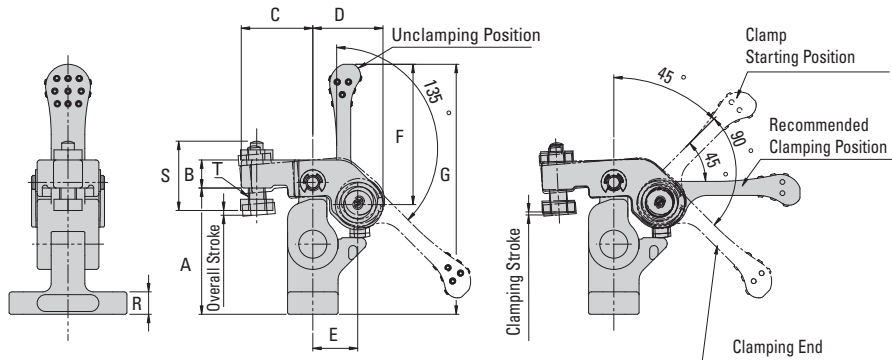
Clamping Information

Part #	CLAMPING HEIGHT Finished Surface mm	CLAMPING HEIGHT Rough Surface mm	Stroke mm	Clamping Clamping Force lbs.	Handle Load lbs.
QLRE-06	29.5 - 40.0	32.5 - 43.0	2.5	539	38
QLRE-08	33.5 - 48.0	38.5 - 53.0	3.5	944	47

ROCKER CLAMPS W/ CAM HANDLE - MINIATURE



Unclamped



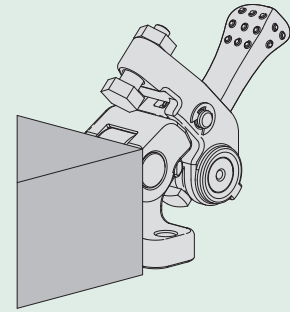
These miniature rocker clamps pivot completely away from the work piece for easy loading and unloading. The clamp moves forward and downward into position and clamps straight down onto the work piece for direct downward pressure. The cam handle is then pushed down for final workholding pressure. These clamps are ideal for repetitive accurate clamping operations. They come with a contact bolt that can be reversed for finished or rough work piece surfaces. Mounts from the top with two mounting holes. The body and spindle are made from SAE-1045 alloy steel. The arm and joint are made from SAE-4135 alloy steel. The handle is made from SAE-4140 alloy steel. Parts are heat treated with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	M mm	N mm	P mm	Q mm	R mm	S mm	T
QLRE100	45	10	25.5	25	16	50	89	42	32	26	18	20	11	5.5	8	24.0	M6X1
QLRE150	55	12	32.0	31	20	63	109	52	40	32	22	25	14	6.6	10	30.5	M8X1.25

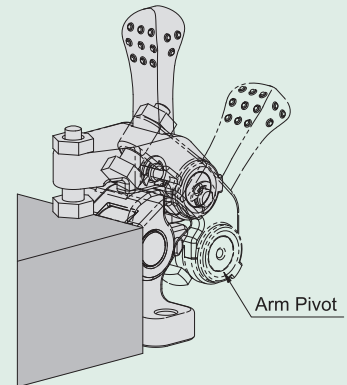
Clamping Information

Part #	CLAMPING Finished Surface mm	HEIGHT Rough Surface mm	Clamping Stroke mm	Overall Stroke mm	Clamping Force lbs.	Handle Load lbs.
QLRE100	31.5 - 40.5	34.5 - 43.5	1.0	1.5	150	22
QLRE150	36.4 - 48.6	41.4 - 53.6	1.2	1.8	247	33

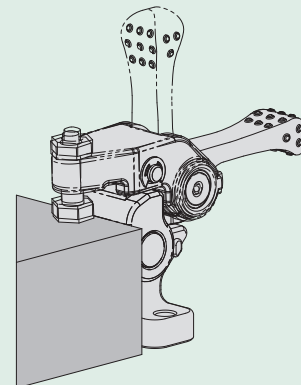
How To Use



1. Unclamped
Load a workpiece



2. Clamping Setup
Set the arm in clamping position holding it at the arm pivot.



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

For unclamping, reverse the above steps.

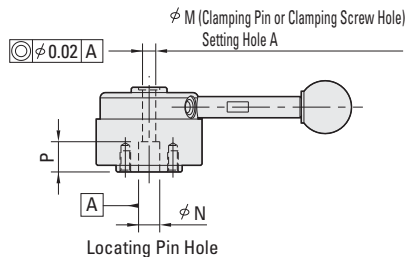
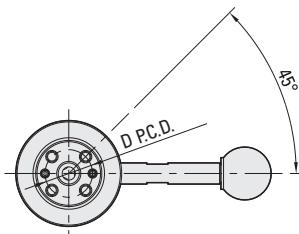
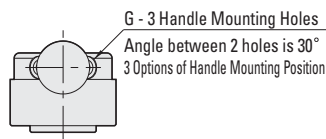
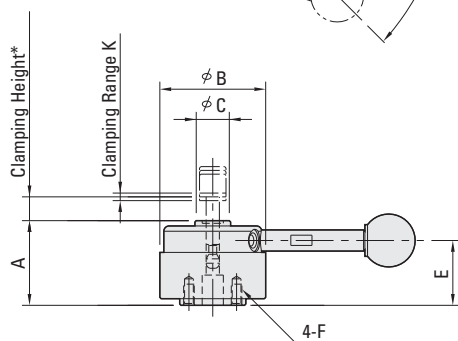
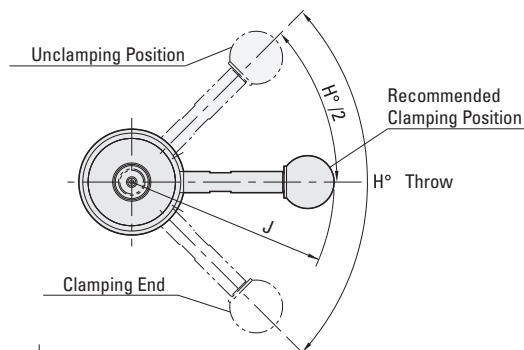
PULL CLAMPS - STANDARD



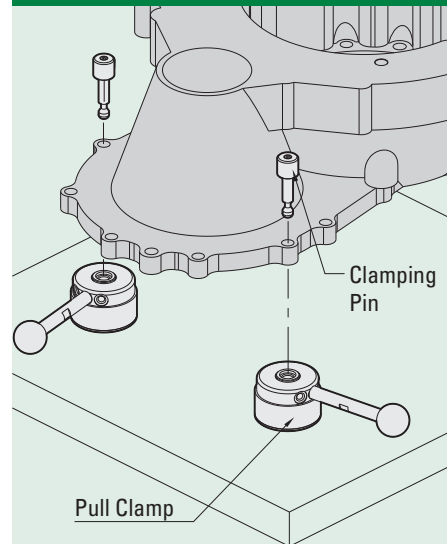
with handle



without handle

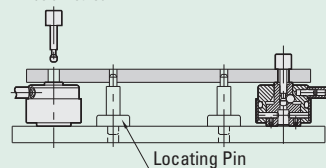


How To Use



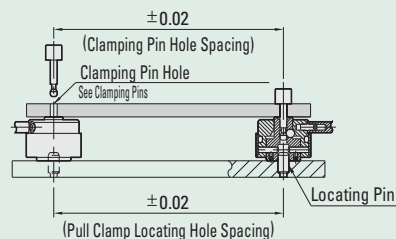
How To Locate Workpiece

1. Basic Method



2. Method for clamping and locating a workpiece.

Hole spacing accuracy shown below generates a locating accuracy of +/- .08.



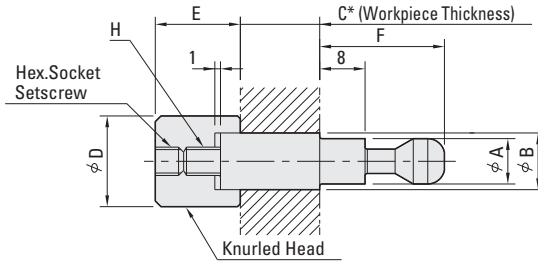
These unique clamps provide very quick and secure fastening for repetitive machining operations. They consist of a clamp base along with a customized pin based on the thickness of the part you are clamping. By turning the handle 1/4 turn, the base clamp pulls the pin downward and secures it in position. Four screws and two locating holes allow for secure fastening and precision locating. See information on next page to order clamping pins or clamping screws. Mounting bases are also available to provide top side mounting and height adjustment. Recommended work piece tolerance is +/- .3mm for the 150 and +/- .5mm for the 200. Maximum allowable load that can be applied on top of the clamps are 1,573 pound force for the 150 series and 2,697 pound force for the 200 series. The body and cam are made from SAE-4140 alloy steel, heat treated with black oxide finish. The handle shaft is made from SAE-1045 alloy steel with black oxide finish. The ball knob is plastic. See pages 20 and 21 for other handle options.

With Handle Part #	w/o Handle Part #	+/- .01		C mm	P.C.D.**		E mm	F mm	G mm	H	J mm	K mm	(F7)	(G6)	P mm	Clamping Force lbs.
		A mm	B mm		D mm	N mm							M mm			
QLPD150R	QLPD150NR	32	40	13.5	18	24.5	M4X0.7 (8MM Depth)	M5X0.8	90°	76.5	1.5	5	8	10	200	
QLPD200R	QLPD200NR	40	50	18	25	30.7	M6X1.0 (9MM Depth)	M6X1.0	110°	111.5	2	8	12	13	550	

* Grip length of clamping pin (work piece thickness) ** Pitch Circle Diameter

See page 377 for F7 and G6 tolerance specifications.

CLAMPING PINS - STANDARD

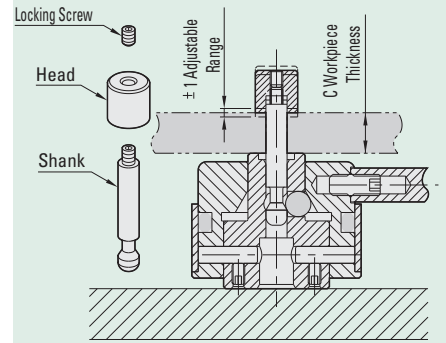


For use with the standard pull clamps shown on the previous page. The pins are designed to be modified by the user to fit the actual work piece thickness. The shank is made from SAE-4135 alloy steel, precision ground and the shank end is heat treated. The head is made from SAE-1045 alloy steel, heat treated with black oxide finish.

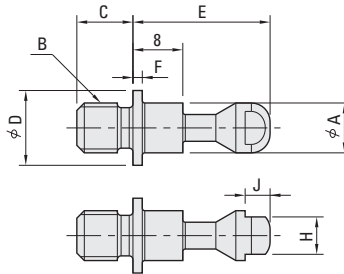
Part #	f7 A mm	f7 B mm	C mm	D mm	E mm	F mm	H mm	Use With Clamp Series
QLPD150-5X5	5	5	50	10	10	17	M3X0.5	QLPD150
QLPD150-5X6	5	6	50	10	10	17	M3X0.5	QLPD150
QLPD200-8X8	8	8	80	16	15	22	M5X0.8	QLPD200
QLPD200-8X10	8	10	80	16	15	22	M5X0.8	QLPD200

* Minimum 3mm for the 150, 4mm for the 200. See page 377 for f7 tolerance specifications.

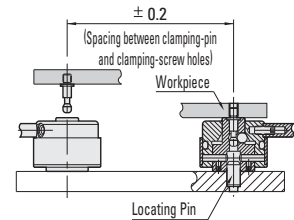
How To Use



CLAMPING SCREWS - STANDARD



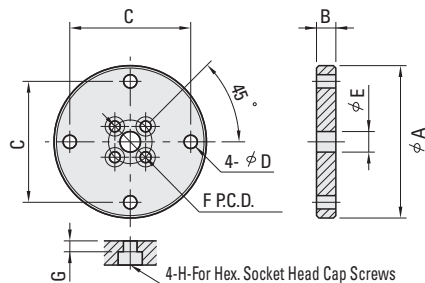
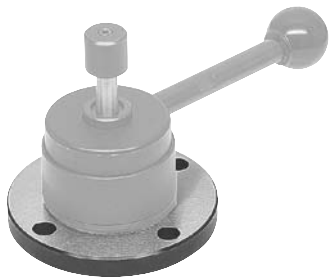
Recommended Spacing Tolerance In Use of Clamping Screws



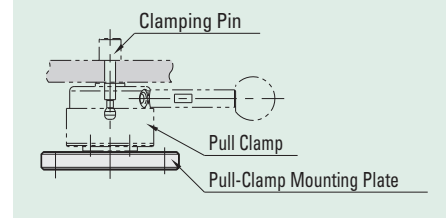
For use with the standard pull clamps shown on the previous page. These clamping screws attached directly to the bottom of the work piece or fixture completely eliminating any protrusion on the surface. Precision ground. Made from SAE-4135 alloy steel, heat treated with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	H mm	J mm	Use With Clamp Series
QLPD150-M5	5	M5X0.8	6	8	17	1.2	4	2.5	QLPD150
QLPD150-M6	5	M6X1	7	8	17	1.2	4	2.5	QLPD150
QLPD200-M8	8	M8X1.25	9	12	22	1.5	6	4.0	QLPD200
QLPD200-M10	8	M10X1.5	11	12	22	1.5	6	4.0	QLPD200

PULL CLAMP MOUNTING PLATES - STANDARD



How To Use

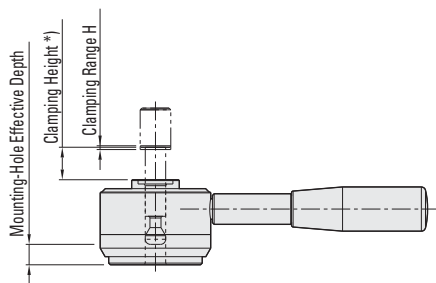
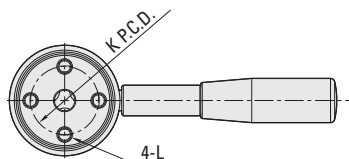
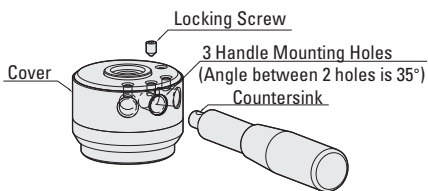
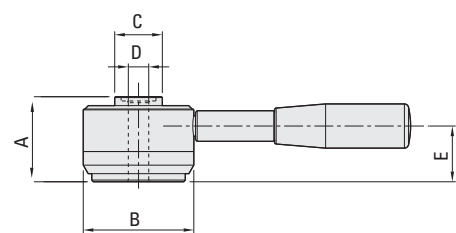
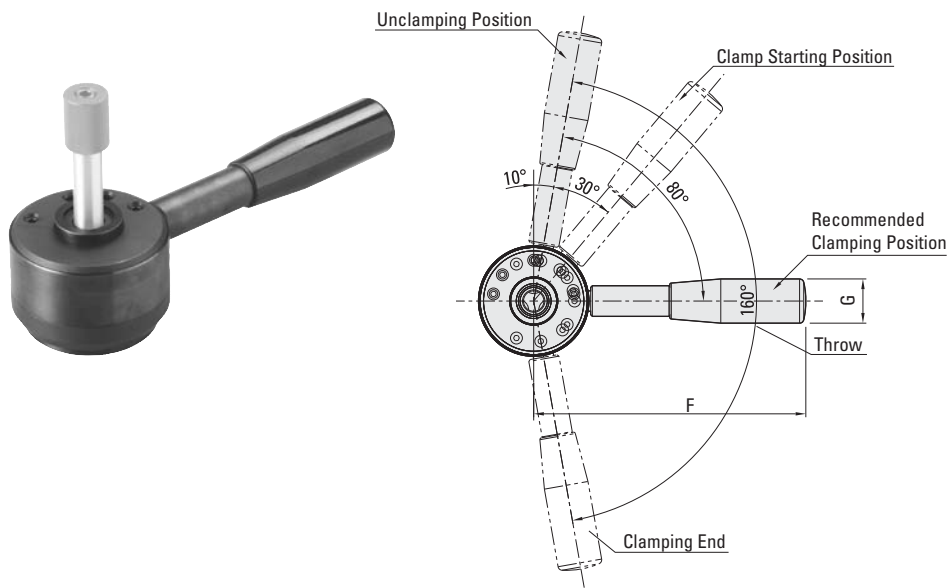


For use with the standard pull clamps shown on the previous page. These plates attach to the pull clamps and allow for easy fastening and top side mounting. Made from SAE-1045 alloy steel, precision ground with black oxide finish.

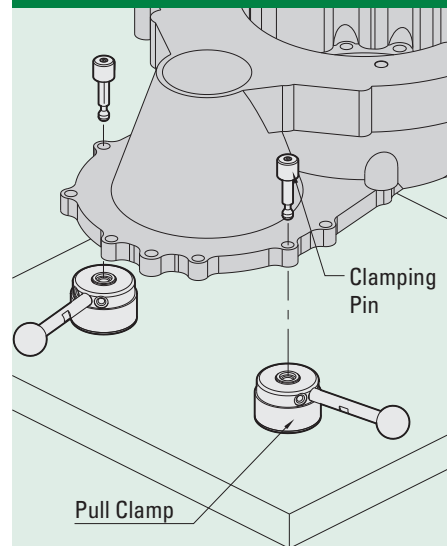
Part #	A mm	+/- .01 B mm	C mm	D mm	E mm	P.C.D.* F mm	G mm	H mm	Use With Clamp Series
QLPD150-P	63	8	50	5.5	8.5	18	3.5	M4	QLPD150
QLPD200-P	80	10	65	9.0	12.5	25	3.5	M6	QLPD200

*Pitch Circle Diameter

PULL CLAMPS - HEAVY DUTY

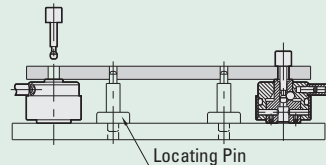


How To Use



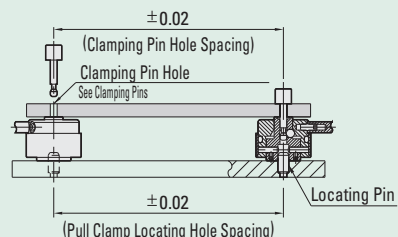
How To Locate Workpiece

1. Basic Method



2. Method for clamping and locating a workpiece.

Hole spacing accuracy shown below generates a locating accuracy of +/- .08.



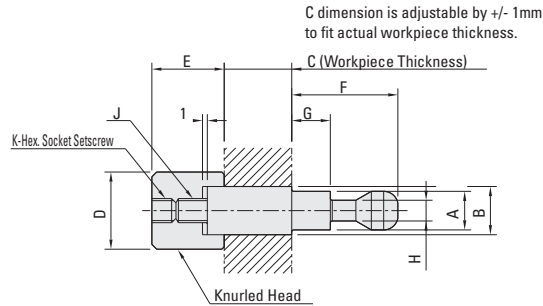
These clamps are similar to the pull clamps shown on page 11, however, they are designed for heavier work pieces and machining loads. They consist of a clamp used with a user-modified pin or standard clamping screw. By rotating the handle, the clamp pulls the pin or screw downward and secures it in position. Four screws and a locating pin hole allows for secure fastening and precise locating of the clamp. See information on next page to order clamping pins or clamping screws. Mounting bases are also available to provide top side mounting. Three holes for mounting handle. Recommended work piece thickness tolerance is +/- .5mm for the 400 series and +/- .8mm for the 500 series. The maximum handle load is 134 lbs. Maximum allowable load that can be applied on top of the clamps are 6,744 pound force for the 400 series and 10,566 pound force for the 500 series. The body and clamp ring are made from SAE-4140 alloy steel. The handle shaft is made from SAE-1045 alloy steel. Parts are heat treated with black oxide finish. Handle is black plastic.

Part #	+/- .01		C mm	(F7)	E mm	F mm	G mm	H mm	J mm	P.C.D.*	L mm	Clamping Force lbs.
	A mm	B mm		D mm						K mm		
QLPDH400R	50	65	28	12	36	160	26	2	10	40	M8X1.25 (14mm Depth)	1,348
QLPDH500R	63	80	34	16	45	180	28	2.5	12	50	M10x1.5 (18mm Depth)	1,798

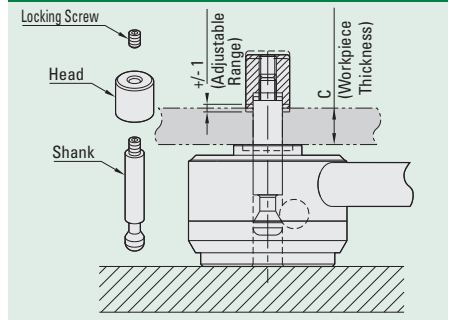
*Pitch Circle Diameter

See page 377 for F7 tolerance specifications.

CLAMPING PINS - HEAVY DUTY



How To Use

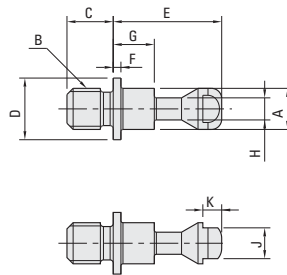


For use with the heavy duty pull clamps shown on previous page. The pins are designed to be modified by the user to fit the actual work piece thickness. The shank is made from SAE-4135 alloy steel, precision ground and the shank end is heat treated. The head is made from SAE-1045, heat treated with black oxide finish.

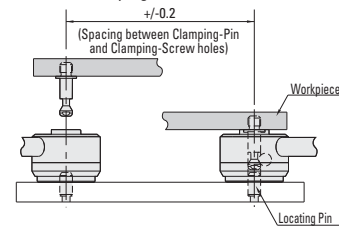
Part #	(f7) A mm	(f7) B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	Use with Clamp
QLPDH400-12x12	12	12	100	18	23	38	21.5	6.5	M8X1.25	M8X1.25-8L	QLPDH400R
QLPDH400-12x16	12	16	100	24	23	38	21.5	6.5	M8X1.25	M8X1.25-8L	QLPDH400R
QLPDH500-16x16	16	16	120	24	29	48	28	9.5	M10X1.5	M10X1.5-10L	QLPDH500R
QLPDH500-16x20	16	20	120	30	29	48	28	9.5	M10X1.5	M10X1.5-10L	QLPDH500R

See page 377 for f7 tolerance specifications.

CLAMPING SCREWS - HEAVY DUTY



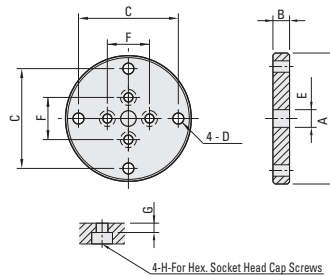
Recommended Spacing Tolerance in Use of Clamping Screws



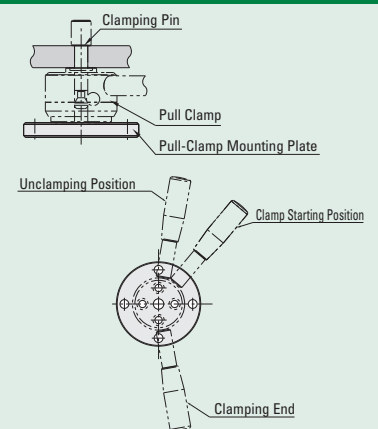
For use with the heavy duty pull clamps shown on previous page. These clamping screws attach directly to the bottom of the work piece or fixture completely eliminating any protrusion on the surface. The shank is made from SAE-4135 alloy steel, heat treated with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	Use with Clamp
QLPDH400-M12	12	M12x1.75	13	20	38	2	21.5	6.5	10	4	QLPDH400R
QLPDH400-M16	12	M16x2	17	20	38	2	21.5	6.5	10	4	QLPDH400R
QLPDH500-M16	16	M16x2	17	25	48	2.5	28	9.5	13	5	QLPDH500R
QLPDH500-M20	16	M20x2.5	21	25	48	2.5	28	9.5	13	5	QLPDH500R

PULL CLAMP MOUNTING PLATES - HEAVY DUTY



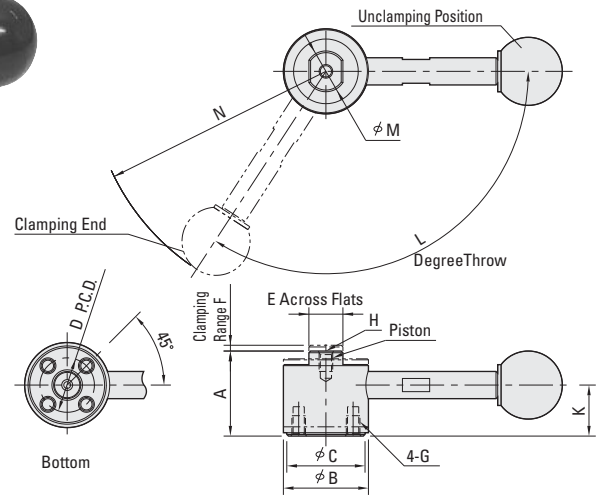
How To Use



For use with the heavy duty pull clamps shown on previous page. These plates attach to the heavy duty pull clamps and allow for easy fastening and top side mounting. Precision ground. Made from SAE-1045 alloy steel with black oxide finish.

Part #	A mm	+/- .01 B mm	C mm	D mm	E mm	F mm	G mm	H mm	Use with Clamp
QLPDH400-P	105	13	85	11	13	40	4	M8	QLPDH400R
QLPDH500-P	130	17	105	13	17	50	6	M10	QLPDH500R

PUSH CLAMPS



How To Use

Downthrust Clamping

Downward Clamping

Sideways Clamping

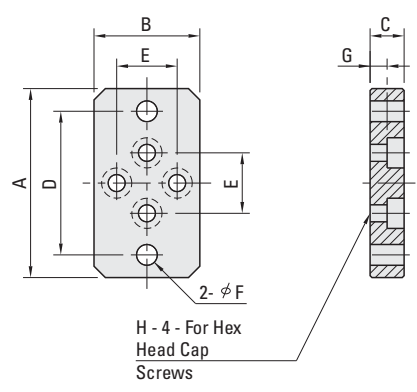
When installing a tip on the piston, lock the shaft using a wrench to prevent the clamp from receiving any torque.

By rotating the handle, the center piston rises to exert pressure against a clamp or work piece. Releasing the handle lowers the piston allowing the user to release the pressure and remove the work piece. The tapped hole in the piston allows the user to customize the tip to fit the application or allow for additional height. Can be used in the horizontal or vertical position. Four screws and two locating holes allow for secure fastening and precision locating. Mounting bases are also available to provide top side mounting and height adjustment. The 150 series provides up to 670 lbs of clamping force and the 200 series provides up to 890 lbs of clamping force. The cam is made from SAE-4140 alloy steel. The piston made from SAE-1045 alloy steel. Parts are heat treated with black oxide finish. The handle knob is made from black plastic.

With Handle Part #	w/o Handle Part #	A mm	B mm	C mm	P.C.D.* D mm	E mm	F mm	G mm	H mm	K mm	L mm	M mm	N mm	Clamping Force lbs.
QLPU150R	QLPU150NR	25	25	23	16	10	1.7	M4X0.7	M4X0.7	15.0	123	12	69.5	650
QLPU200R	QLPU200NR	32	32	30	20	13	2.5	M6X1	M6X1	19.5	135	15	103.0	900

*Pitch Circle Diameter

PUSH CLAMP MOUNTING PLATES



How To Use

Unclamped Position

Clamping End

45°

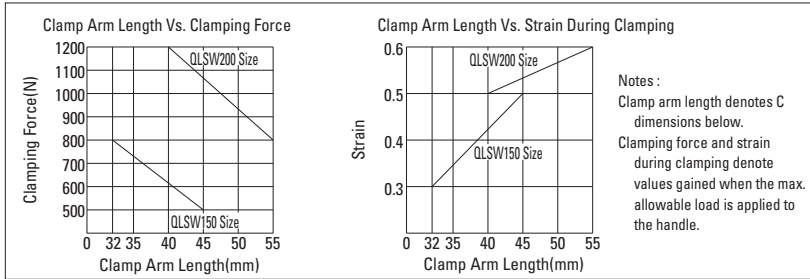
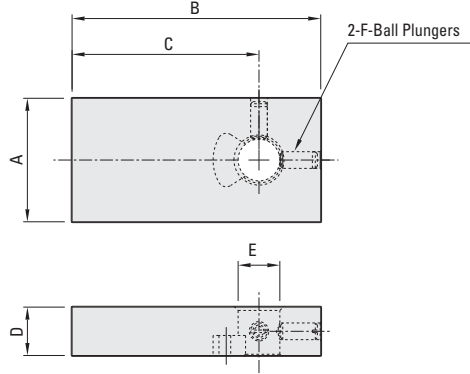
Push Clamp Mounting Plate

Push Clamp

For use with the push clamps shown above. These plates attach to the push clamps and allow for easy fastening and top side mounting. Precision ground. Made from SAE-1045 alloy steel with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	Use With Clamp Series
QLPU150-P	50	28	9	38	16	5.5	4.5	M4	QLPU150R
QLPU200-P	65	35	12	48	20	9	5.5	M6	QLPU200R

MACHINABLE CLAMP ARMS - STANDARD



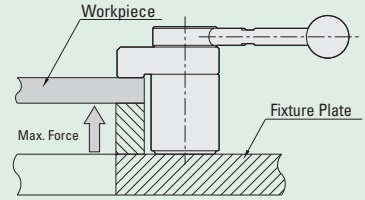
These machinable clamp arms are used with the standard swing clamps on the page 6. They allow the user to machine a custom arm to meet custom clamping specifications. Made from SAE-1045 alloy steel with black oxide finish.

Part #	A mm	B mm	C mm	D mm	(F8) E mm	F mm	Use with Swing Clamp Series
QLSW150-SH	30	60	45	12	10	M4	QLSW150
QLSW200-SH	40	75	55	16	16	M5	QLSW200

Note: The maximum allowable weight of a clamping tip that mounts on the end of the clamp arm must not weigh over .22 lbs. See page 377 for F8 tolerance specifications.

Technical Information

Allowable Loads in Machining of Workpiece Bottom

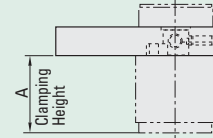


Series	Allowable Force To Workpiece Bottom(Per Clamp)
QLSW150	Max. 472 lbs.
QLSW200	Max. 606 lbs.

How To Use

Use for clamp arm customization Machine to your clamping requirements

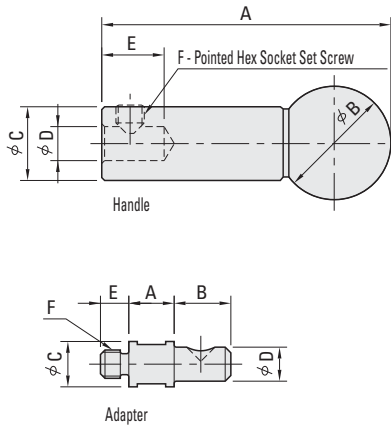
(Clamping Height in Use of Machinable Clamp Arms)



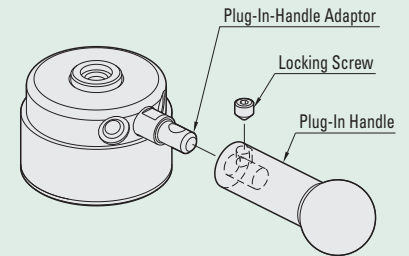
Part Number	A
QLSW150-SH	34**
QLSW200-SH	47***

** Actual clamping height : 33.4 to 34.6 (clamping range : 1.2)
 *** Actual clamping height : 46.1 to 47.9 (clamping range : 1.8)

PLUG IN - TWO PIECE HANDLES



How To Use



Secure the Plug In Handle to the Adaptor with the locking screw if necessary

These handles can be used with any of the standard clamps listed on pages 6, 15, 19 and 33. Simply screw the adapter into the clamp. The two piece design allows the handle to be quickly attached and detached for machine operations. Set screw can be used for more secure attachment. The adapter is intended to stay attached to the clamp. The handle and adapter must be purchased separately. Note: The QLSL150-RL and QLSL150-RA can be used with any of the 150 series clamps, the QLSL200-RL and QLSL200-RA can be used with any 200 series clamps. The handle is made from SAE-1045 alloy steel and the adaptor is made from SAE-4135 alloy steel. Parts have black oxide finish. Ball knob is plastic.

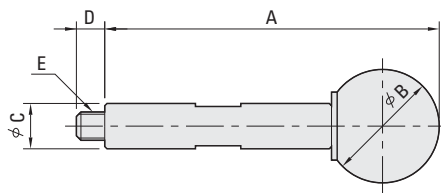
Handles Only

Part #	A mm	B mm	C mm	D mm	E mm	F mm
QLSL150-RL	51	20	13	6	11	M5X0.8X5
QLSL200-RL	79	25	15	8	13	M6X1X6

Adapters Only

Part #	A mm	B mm	C mm	D mm	E mm	F mm
QLSL150-RA	8	10	8	6	5	M5X0.8
QLSL200-RA	10	12	10	8	6	M6X1

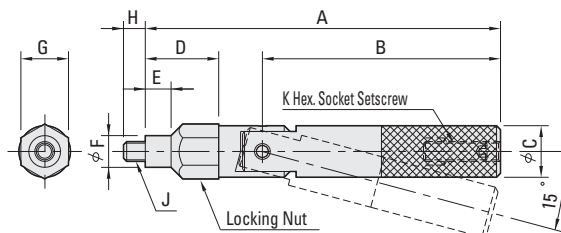
ONE PIECE HANDLE



These handles can be used with any of the standard clamps listed on pages 6, 15, 19 and 33. Simply screw them into the clamp. Note: The QLSL150 can be used with any of the 150 series clamps, the QLSL200 can be used with any 200 series clamps. They are made from SAE-1045 alloy steel with black oxide finish. Ball knob is plastic.

Part #	A mm	B mm	C mm	D mm	E mm
QLSL150	59	20	8	5	M5X0.8
QLSL200	89	25	10	6	M6X1

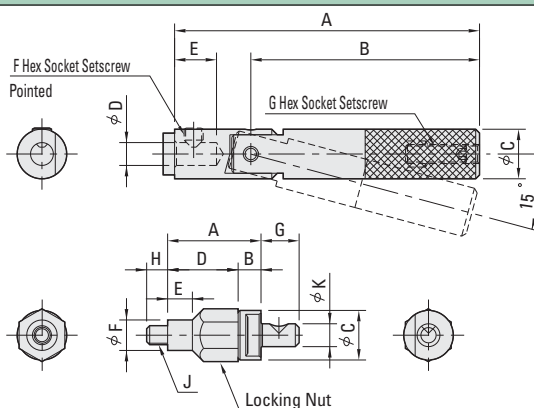
SCREW IN - ADJUSTABLE TORQUE HANDLES



These handles can be used with any of the standard clamps listed on pages 6, 15, 19 and 33. Simply screw them into the clamp. These adjustable torque handles "release" when the desired clamping force is reached to prevent the operator from over clamping the work piece. The torque can be easily adjusted by turning the set screw inside the handle. Note: The QLTL120 can be used with any of the 150 series clamps, the QLTL160 and can be used with any 200 series clamps. The handle is made from SAE-1045 alloy steel, heat treated with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm
QLTL120	89.5	60	13	18.5	6.5	8	12	5.5	M5X0.8	M5X0.8X16
QLTL160	119.0	84	15	23.0	8.0	10	14	6.5	M6X1	M6X1X20

PLUG IN - TWO PIECE ADJUSTABLE HANDLES



These adjustable torque handles can be used with any of the standard clamps listed on pages 6, 15, 19 and 33. Simply screw the adapter into the clamp. The two piece design allows the handle to be quickly attached and detached for machine operations. Set screw can be used for more secure attachment. The adapter is intended to stay attached to the clamp. The handle and adapter must be purchased separately. Note: The QLTL120-RL and QLTL120-RA can be used with any of the 150 series clamps, the QLTL160-RL and QLTL160-RA can be used with any 200 series clamps. The handle is made from SAE-1045 alloy steel and the adaptor is made from SAE-4135 alloy steel. Parts are heat treated with black oxide finish.

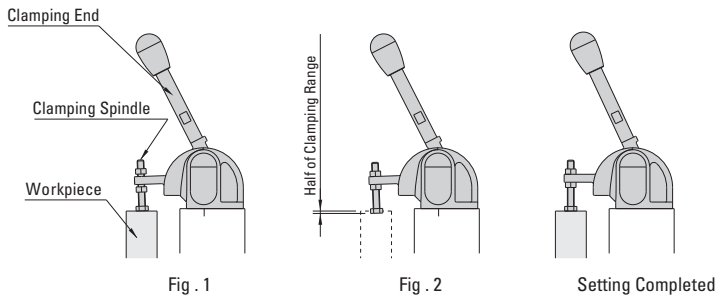
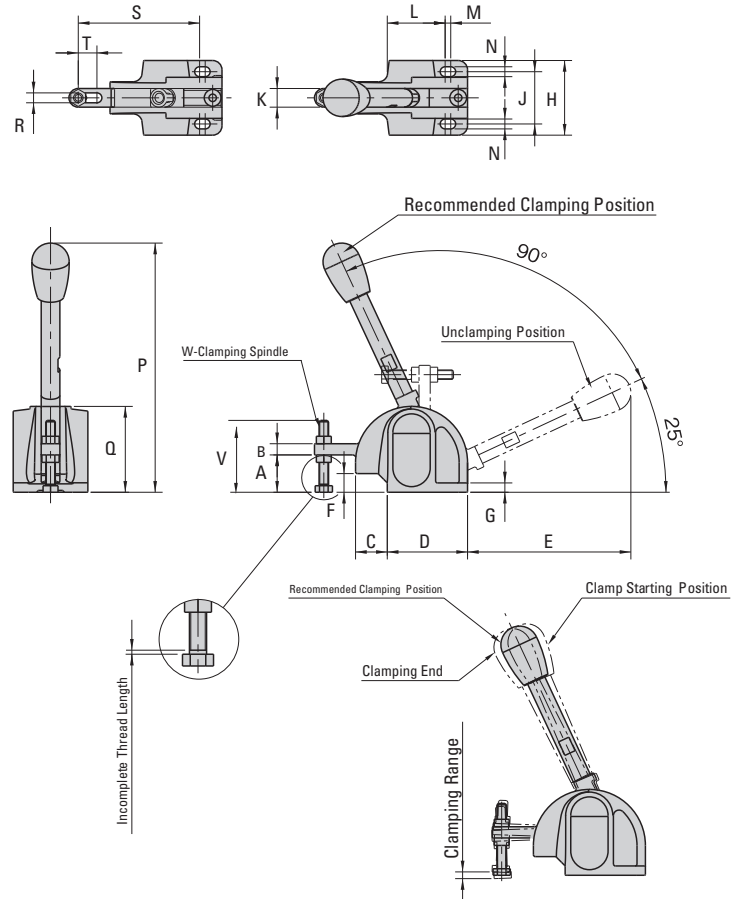
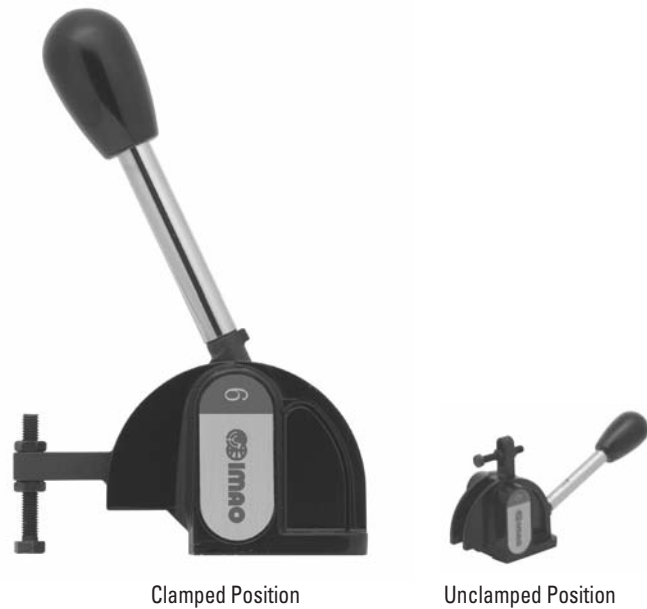
Handles Only

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm
QLTL120-RL	80	60	13	6	11	M5X0.8X5	M5X0.8
QLTL160-RL	107	84	15	8	13	M6X1X6	M6X1

Adapters Only

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm
QLTL120-RA	24.5	6	13	18.5	6.5	8	12	5.5	M5X0.8	6
QLTL160-RA	30.0	7	15	23.0	8	10	14	6.5	M6X1	8

HOLD DOWN SNAP CLAMPS - STANDARD



To set the handle for recommended clamping position, move the handle to the clamping position and then set the spindle to contact the work piece. (Fig. 1)
Adjust the spindle by about half of the clamping range and then tighten the nuts on the spindle for locking. (Fig. 2)

These snap clamps use a unique snap-on system to provide uniform and positive clamping in one smooth operation. As the handle is moved forward, the internal mechanism works to build tension. At a specified point, the tension is released and transformed into clamping force. This allows uniform clamping force with every cycle. The one piece body offers excellent durability and will not become weak or unstable after repeated use like traditional toggle clamps. Supplied with steel spindle. Urethane tip styles are available. The body and clamping arm are made from alloy steel with black finish. The handle is chrome plated steel with plastic knob. Extension arms, mounting brackets and angle handle adaptors are available on the following pages. The stated clamping forces and handle operating loads can vary by +/-20%. When the reaction force exceeds the stated clamping force, the clamp will release.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	Max P mm	Q mm	R mm	S mm	T mm	V mm
QLSND28-02	20	6	17	43	88	10	5	40	28	10	31	3	5.3	140	46	5.3	65	10	38.5
QLSND28-05	20	6	17	43	88	10	5	40	28	10	31	3	5.3	140	46	5.3	65	10	38.5
QLSND30-03	20	8	22.5	48.5	98	12	6	42	30	10	32.5	6	6.4	158	53	5.3	75	12	38.5
QLSND30-06	20	8	22.5	48.5	98	12	6	42	30	10	32.5	6	6.4	158	53	5.3	75	12	38.5

Part #	Clamping Range mm	Spindle W mm	Handle Operating Load lbs	Clamping Force lbs
QLSND28-02	3	M5 - 35L	1.35	4
QLSND28-05	3	M5 - 35L	2.70	11
QLSND30-03	3	M5 - 35L	1.35	6
QLSND30-06	3	M5 - 35L	2.70	13

PUSH SNAP CLAMPS



Clamped Position

Unclamped Position

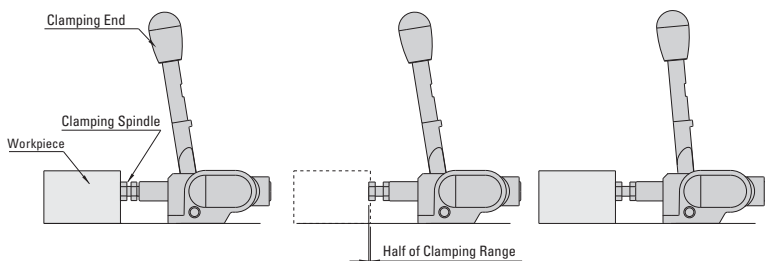
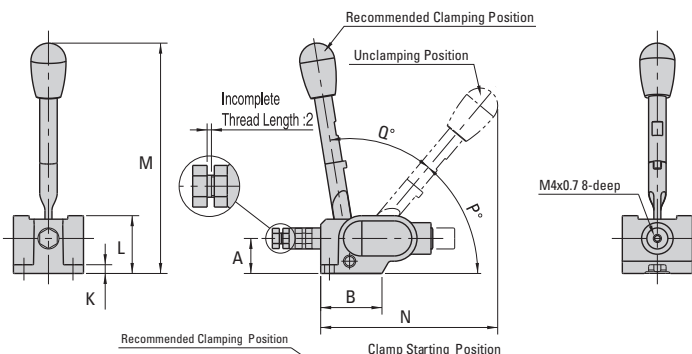
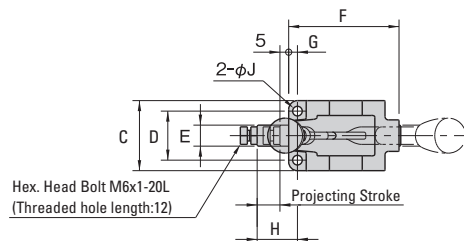


Fig. 1

Fig. 2

Setting Completed

To set the handle for recommended clamping position, move the handle to the clamping position and then set the spindle to contact the work piece. (Fig. 1)

Adjust the spindle by about half of the clamping range and then tighten the nuts on the spindle for locking. (Fig. 2)

These snap clamps use a unique snap-on system to provide uniform and positive clamping in one smooth operation. As the handle is moved forward, the internal mechanism works to build tension. At a specified point, the tension is released and transformed into clamping force. This allows uniform clamping force with every cycle. They offer excellent durability and will not become weak or unstable after repeated use like traditional toggle clamps. Supplied with steel spindle. Urethane tip styles are available. The body and clamping arm are made from alloy steel with black finish. The handle is chrome plated steel with plastic knob. Cover plates to keep debris out of the clamps are available. The stated clamping forces and handle operating loads can vary by +/-20%. When the reaction force exceeds the stated clamping force, the clamp will release.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	Max M mm	N mm	Degree P mm	Degree Q mm
QLSNS28-05	20	35	40	28	12	63	5	22	5.5	5	33	133	101	50	50
QLSNS28-12	20	35	40	28	12	63	5	22	5.5	5	33	133	101	50	50
QLSNS30-07	25	42	42	30	12	80	6	33	6.5	6	38	157	131	45	60
QLSNS30-14	25	42	42	30	12	80	6	33	6.5	6	38	157	131	45	60

Part #	Projecting Stroke mm	Clamping Range mm	Handle Operating Load lbs	Clamping Force lbs
QLSNS28-05	12	1.5	2.00	11
QLSNS28-12	12	1.5	4.50	27
QLSNS30-07	22	1.5	1.35	15
QLSNS30-14	22	1.5	4.00	31

HOLD DOWN SNAP CLAMPS - MINIATURE



Clamped Position

Unclamped Position

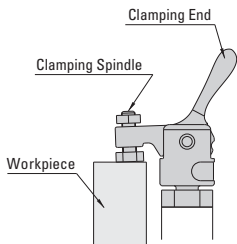
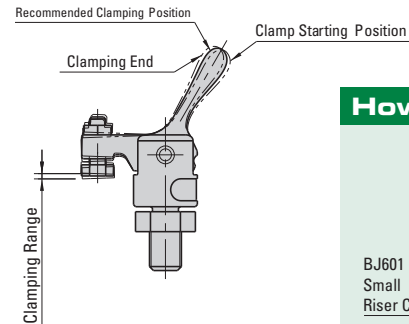
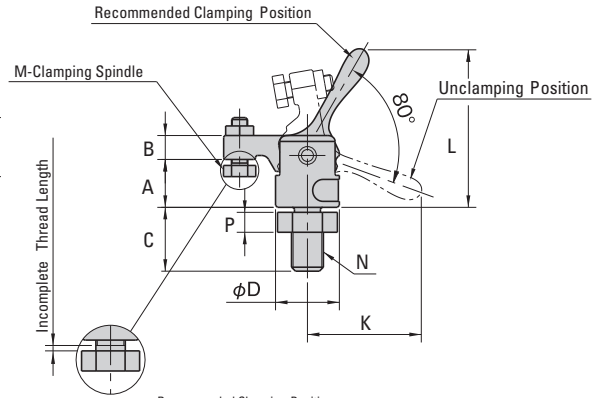
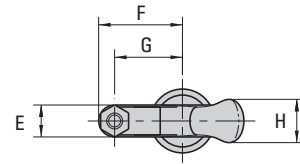


Fig. 1

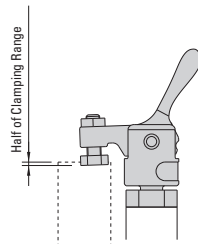
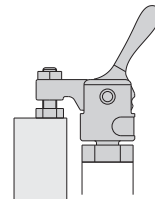


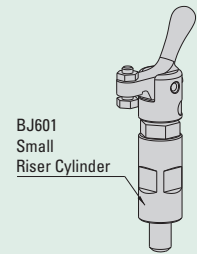
Fig. 2



Setting Completed

To set the handle for recommended clamping position, move the handle to the clamping position and then set the spindle to contact the work piece. (Fig. 1)
Adjust the spindle by about half of the clamping range and then tighten the nuts on the spindle for locking. (Fig. 2)

How To Use

B.J601
Small
Riser Cylinder

Use a B.J601 Small Riser Cylinder to raise these clamps.

These snap clamps use a unique snap-on system to provide uniform and positive clamping in one smooth operation. As the handle is moved upward, the internal mechanism works to build tension. At a specified point, the tension is released and transformed into clamping force. This allows uniform clamping force with every cycle. The one piece body offers excellent durability and will not become weak or unstable after repeated use like traditional toggle clamps. They are ideal for small part clamping and where space is limited. They are designed for fingertip handle operation. Supplied with steel spindle. Urethane tip style spindles are available. The body is made from SAE-1045 alloy steel with black oxide finish. The clamping arm and handle are made from SAE-4140 alloy steel with black finish. The stated clamping forces and handle operating loads can vary by +/-20%. When the reaction force exceeds the stated clamping force, the clamp will release.

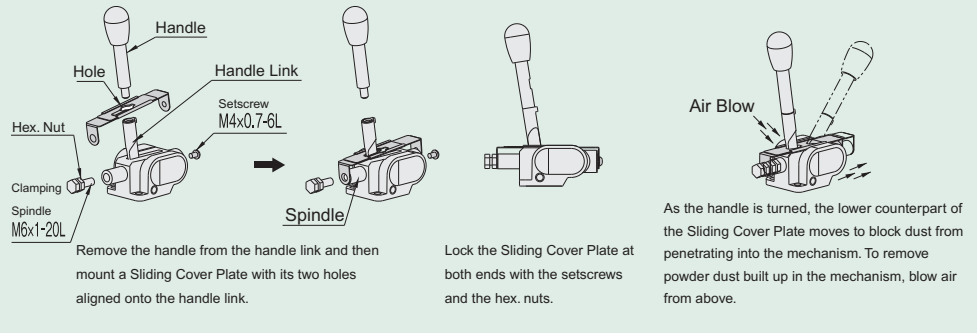
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm
QLSNDM08-01	12	6	16	16	8	21	17	11	15	28.5	39.5	M4 X 35L	M8x1.25	5
QLSNDM12-01	17	8	24	22	10	27	22	13	18.5	38	53.5	M5 X 15L	M12x1.75	7
QLSNDM12-03	17	8	24	22	10	27	22	13	18.5	38	53.5	M5 X 15L	M12x1.75	7

Part #	Clamping Range mm	Handle Operating Load lbs	Clamping Force lbs
QLSNDM08-01	1	1.1	2
QLSNDM12-01	1.5	2.9	2
QLSNDM12-03	1.5	2.9	6

SLIDING COVER PLATES



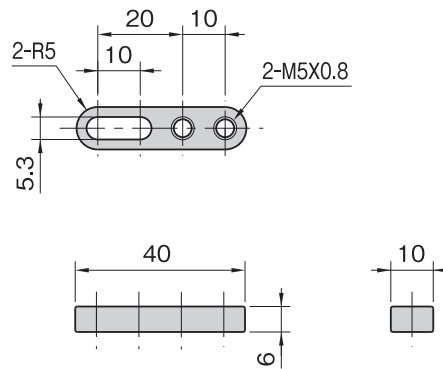
How To Use



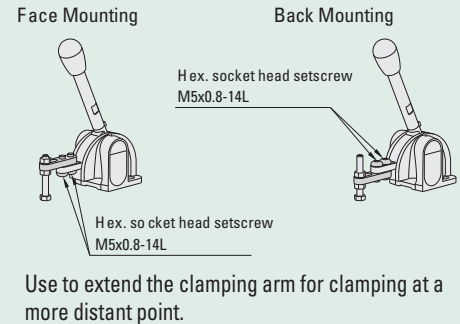
These sliding plate covers work with the push snap clamps shown on page 23. They are designed to keep chips and debris from the clamp mechanism. Made from steel with black oxide finish. Comes with a head socket set screw.

Part #	Use With Clamps
QLSNS28-SL	QLSNS28-05 & QLSNS28-12
QLSNS30-SL	QLSNS30-07 & QLSNS30-14

SNAP CLAMP EXTENSION ARM



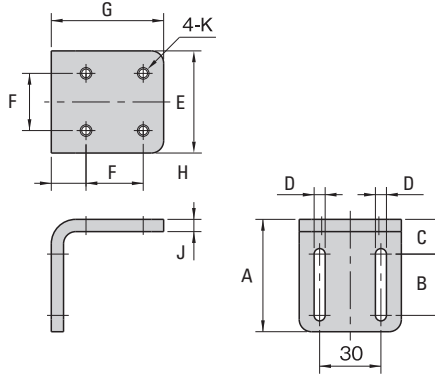
How To Use



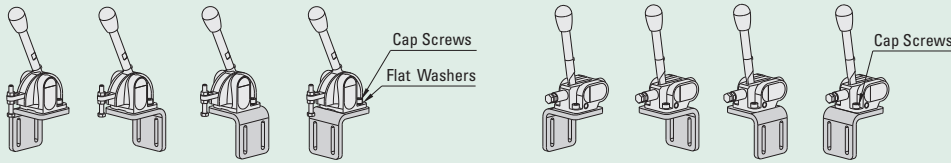
This clamping extension arm is used with the standard hold down snap clamp shown on page 22. The arm extends the clamping point further from the clamp. The extension arm includes two set screws to attach the arm to the clamp. The arm can be mounted to the top or bottom of the Snap Clamp depending on the application. Made from SAE-1045 alloy steel with black oxide finish. Note: Using these clamp extension arms will reduce holding force by 25% - 30% of the stated clamping force.

Part #	Description
QLSND-EX20	Extension Arm For Standard Snap Clamps

MOUNTING BRACKETS - SNAP CLAMPS



How To Use



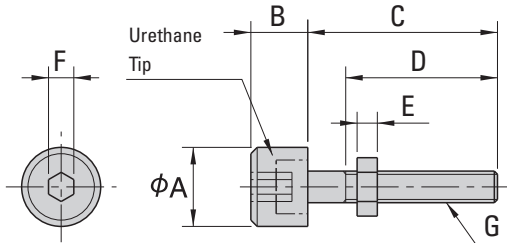
Examples of Mounting Standard Hold-Down Snap Clamps

Examples of Mounting Push-Pull Snap Clamps

These mounting brackets are designed to be used with either the standard style or push style snap clamps shown on pages 22 and 23. They allow greater mounting flexibility in a wide range of applications. These brackets also work well when mounting the clamps to aluminum profiles. Made from alloy steel with black oxide finish.

Part#	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	Use With Clamps
QLSN28-B	55	30	17	5.4	50	28	55	17	6	M5x0.8	QLSND28 & QLSNS28
QLSN30-B	70	35	25	6.4	55	30	70	27.5	6	M6x1	QLSND30 & QLSNS30

CLAMPING SPINDLES

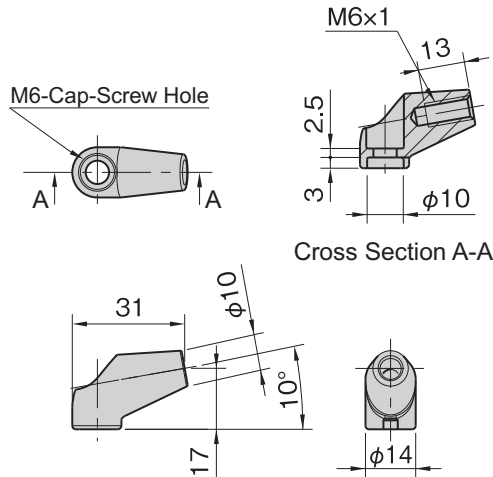


These clamping spindles are designed to be used with the snap clamps shown on page 22. The tip is made from black urethane - 90 durometer. The bolt and hex nut are made from steel.

Part#	A mm	B mm	C mm	D mm	E mm	F mm	G mm	Use With Snap Clamp Style
UB4X15	10	7	15	14	2.4	3	M4x0.7	Hold Down - Mini
UB5X15	12.5	9	15	13.5	3.2	4	M5x0.8	Hold Down - Mini
UB5X30	12.5	9	30	24	3.2	4	M5x0.8	Hold Down - Standard
UB6X20	15	10	20	18	3.6	5	M6x1	Push

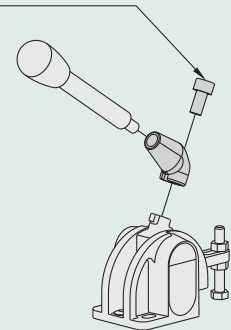


SNAP CLAMP HANDLE ADAPTOR



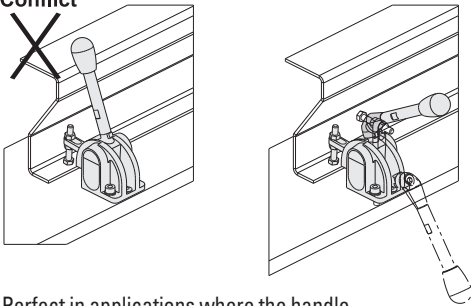
How To Use

Hex. Socket Head Cap Screw
M6x1-12L

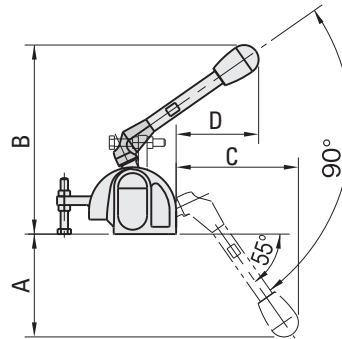


Remove the handle and then install the adaptor between the body and the handle.

Conflict



Perfect in applications where the handle can not be turned to the clamping position.



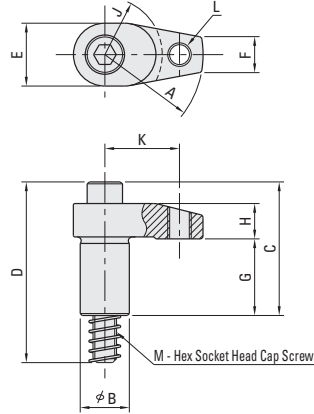
Dimensions of Snap Clamps with Adaptor Mounted

Series	A	B	C	D
QLSND28	71	130	84	57
QLSND30	79	145	92	61

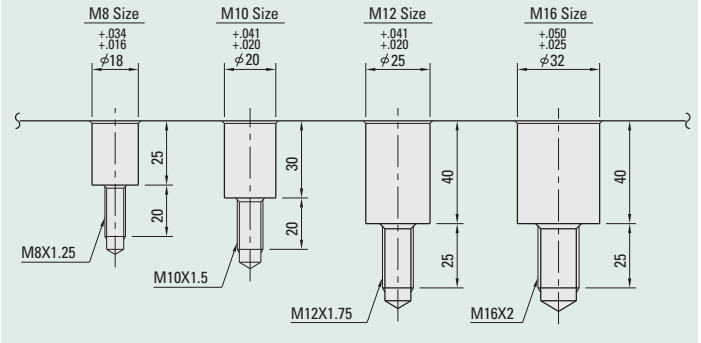
These angular adaptors are designed for use with the standard hold down snap clamps shown on page 22. The adaptors allow the user to change the angle of the handle in situations where the standard handle mounting cannot be used because of interference from the work piece or other obstacles. Easily installs by removing the standard handle, installing the adaptor and then installing the handle into the adaptor. Hex socket cap screw is included. The adaptor is made from SAE-1045 alloy steel with black oxide finish.

Part #	Description
QLSND-AN10	Angular Adaptor For Standard Snap Clamps

HOOK CLAMPS - RECESSED MOUNT



How To Install

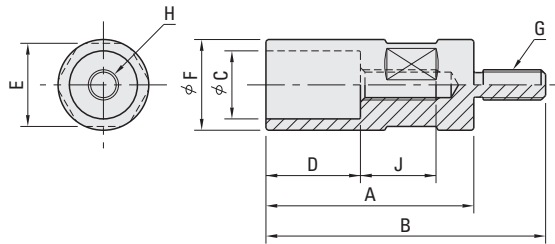


The clamps hold work pieces securely and can be swiveled out of the way for part insertion and removal. The spring lifts the clamp arm up as the clamp is released. They can be used with hook clamp holders shown below or installed in blocks using the above references. Made from SAE-4135 alloy steel, heat treated. Precision ground with black oxide finish.

Part #	A mm	(h7) B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	Clamping Force Lbs	Screw Torque Ft Lbs
BJ130-08020	20	18	37	58	22	10	23	12	15	-	-	M8X1.25 X 50	3,372	28
BJ130-08025	25	18	37	58	22	10	23	12	15	-	-	M8X1.25 X 50	2,697	24
BJ130-08030	30	18	37	58	22	10	23	12	20	-	-	M8X1.25 X 50	2,248	22
BJ130-10030	30	20	54	75	24	12	30	15	20	-	-	M10X1.5 X 65	2,922	28
BJ130-10040	40	20	54	75	24	12	30	15	25	-	-	M10X1.5 X 65	2,248	23
BJ130-12040	40	25	66	92	32	18	39	16	25	-	-	M12X1.75 X 80	4,046	44
BJ130-12050	50	25	68	92	32	18	39	18	25	-	-	M12X1.75 X 80	3,147	36
BJ130-12060	60	25	68	92	32	18	39	18	25	-	-	M12X1.75 X 80	2,697	33
BJ130-12140	40	25	66	92	32	18	39	16	25	31	M12X1.75	M12X1.75 X 80	4,046	44
BJ130-12150	50	25	68	92	32	18	39	18	25	38	M12X1.75	M12X1.75 X 80	3,147	36
BJ130-12160	60	25	68	92	32	18	39	18	25	46	M12X1.75	M12X1.75 X 80	2,697	33
BJ130-16040	40	32	75	101	36	22	39	21	25	-	-	M16X2 X 85	8,542	125
BJ130-16050	50	32	75	101	36	22	39	21	25	-	-	M16X2 X 85	6,968	110
BJ130-16060	60	32	75	101	36	22	39	21	25	-	-	M16X2 X 85	5,849	95
BJ130-16150	50	32	75	101	36	22	39	21	25	38	M12X1.75	M16X2 X 85	6,968	110
BJ130-16160	60	32	75	101	36	22	39	21	25	46	M12X1.75	M16X2 X 85	5,849	95

See page 377 for h7 tolerance specifications.

HOOK CLAMP HOLDERS

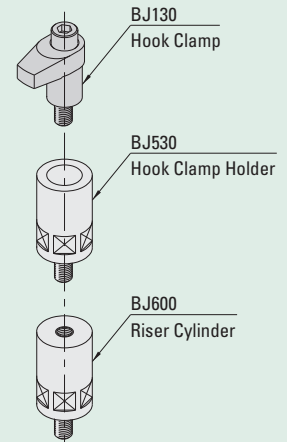


For use with hook clamps shown above. Can also be used with riser cylinders on next page for additional height. Made from SAE-1045 alloy steel with black oxide finish.

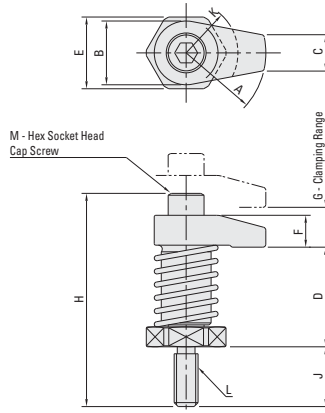
Part #	A mm	B mm	(F7) C mm	D mm	E mm	F mm	G mm	H mm	J mm
BJ530-08055	55	74	18	25	22	24	M8X1.25	M8X1.25	20
BJ530-10063	63	93	20	30	30	32	M12X1.75	M10X1.5	21
BJ530-10080	80	110	20	30	30	32	M12X1.75	M10X1.5	23
BJ530-12080	80	110	25	40	36	40	M12X1.75	M12X1.75	25
BJ530-12100	100	130	25	40	36	40	M12X1.75	M12X1.75	25
BJ530-16080	80	110	32	40	46	50	M16X2	M16X2	25
BJ530-16100	100	130	32	40	46	50	M16X2	M16X2	25

See page 377 for F7 tolerance specifications.

How To Use



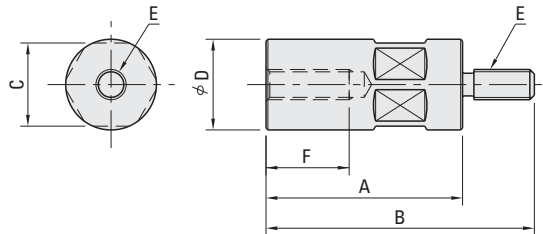
HOOK CLAMPS - TOP MOUNT



The clamps hold work pieces securely and can be swiveled out of the way for part insertion and removal. The spring lifts the clamp arm up as the clamp is released. Made from SAE-4135 alloy steel, heat treated. Precision ground with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	Clamping Force Lbs	Screw Torque Ft Lbs
BJ131-08020	20	22	10	35	22	12	10	68	19	15	M8X1.25	M8X1.25 X 30	1,775	14
BJ131-08025	25	22	10	35	22	12	10	68	19	15	M8X1.25	M8X1.25 X 30	1,641	14
BJ131-08030	30	22	10	35	22	12	10	68	19	20	M8X1.25	M8X1.25 X 30	1,506	14
BJ131-08120	20	22	10	45	22	12	10	78	19	15	M8X1.25	M8X1.25 X 30	1,775	14
BJ131-08125	25	22	10	45	22	12	10	78	19	15	M8X1.25	M8X1.25 X 30	1,641	14
BJ131-08130	30	22	10	45	22	12	10	78	19	20	M8X1.25	M8X1.25 X 30	1,506	14
BJ131-12040	40	32	18	50	36	16	15	107	30	25	M12X1.75	M12X1.75 X 45	3,034	33
BJ131-12050	50	32	18	50	36	18	15	109	30	25	M12X1.75	M12X1.75 X 45	2,832	33
BJ131-12060	60	32	18	50	36	18	15	109	30	25	M12X1.75	M12X1.75 X 45	2,630	33
BJ131-12140	40	32	18	65	36	16	15	122	30	25	M12X1.75	M12X1.75 X 45	3,034	33
BJ131-12150	50	32	18	65	36	18	15	124	30	25	M12X1.75	M12X1.75 X 45	2,832	33
BJ131-12160	60	32	18	65	36	18	15	124	30	25	M12X1.75	M12X1.75 X 45	2,630	33
BJ131-16040	40	36	22	50	36	21	15	116	30	25	M16X2	M16X2 X 55	3,012	44
BJ131-16050	50	36	22	50	36	21	15	116	30	25	M16X2	M16X2 X 55	2,787	44
BJ131-16060	60	36	22	50	36	21	15	116	30	25	M16X2	M16X2 X 55	2,697	44
BJ131-16140	40	36	22	65	36	21	15	131	30	25	M16X2	M16X2 X 55	3,012	44
BJ131-16150	50	36	22	65	36	21	15	131	30	25	M16X2	M16X2 X 55	2,787	44
BJ131-16160	60	36	22	65	36	21	15	131	30	25	M16X2	M16X2 X 55	2,697	44

RISER CYLINDERS

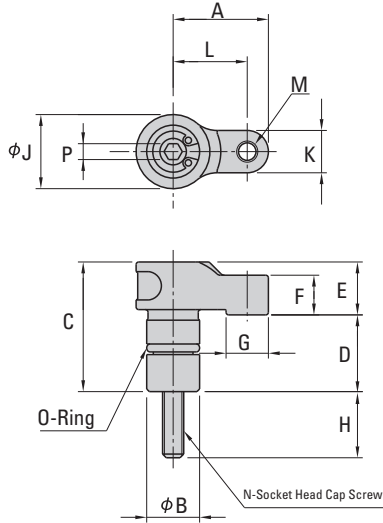


Can be used with hook clamp holders shown on previous page for additional height. Made from SAE-1045 alloy steel with black oxide finish.

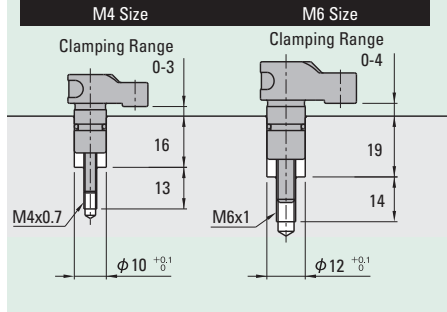
Part #	A mm	B mm	C mm	D mm	E mm	F mm
BJ600-08032	32	51	22	24	M8X1.25	20
BJ600-08040	40	59	22	24	M8X1.25	20
BJ600-08050	50	69	22	24	M8X1.25	20
BJ600-08065	65	84	22	24	M8X1.25	20
BJ600-08080	80	99	22	24	M8X1.25	20
BJ600-08100	100	119	22	24	M8X1.25	20
BJ600-12050	50	80	36	40	M12X1.75	35
BJ600-12065	65	95	36	40	M12X1.75	35

Part #	A mm	B mm	C mm	D mm	E mm	F mm
BJ600-12080	80	110	36	40	M12X1.75	35
BJ600-12100	100	130	36	40	M12X1.75	35
BJ600-12125	125	155	36	40	M12X1.75	35
BJ600-16050	50	80	46	50	M16X2	35
BJ600-16065	65	95	46	50	M16X2	35
BJ600-16080	80	110	46	50	M16X2	35
BJ600-16100	100	130	46	50	M16X2	35
BJ600-16125	125	155	46	50	M16X2	35

HOOK CLAMPS - COMPACT STYLE



How To Use

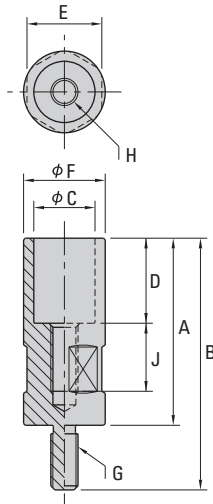


Part #	Clamping Force lbs.	Max Torque Ft/lbs.
BJ132-04018	450	2
BJ132-06022	787	5

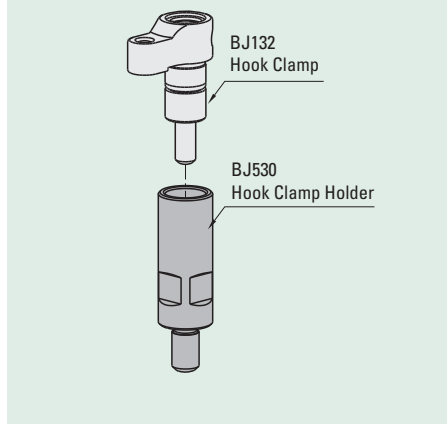
These hook clamps combine high clamping forces and compact design. They are ideal for applications where space is limited. Hook clamps are commonly used to hold down fixture and work pieces on a wide variety of machines. The clamp is actuated in both directions with the hex screw on top of the clamp to prevent galling of the work piece. The clamp arm can be swiveled out of the way for easy part insertion and removal. The arm is tapped for mounting a contact bolt. They can be mounted with the hook clamp holders shown below or installed in a custom block. Made from SAE-4140 alloy steel, heat treated with black oxide finish.

Part #	-0.02/-0.10													
	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm
BJ132-04018	18	10	24.5	14.5	10	7.5	8	12.5	14	8	14	M4x0.7	M4x0.7 - 30L	3
BJ132-06022	22	12	30.5	17.5	13	9.5	10	13.5	16	10	17	M5x0.8	M6x1 - 35L	5

CYLINDRICAL HOOK CLAMP HOLDERS FOR COMPACT STYLE



How To Use

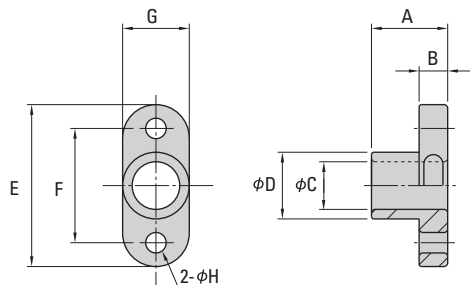


These cylindrical holders are designed for use with the compact hook clamps shown above. They provide additional clamping height as well as easy installation and operation of the hook clamps. Made from SAE-1045 alloy steel, heat treated with black oxide finish.

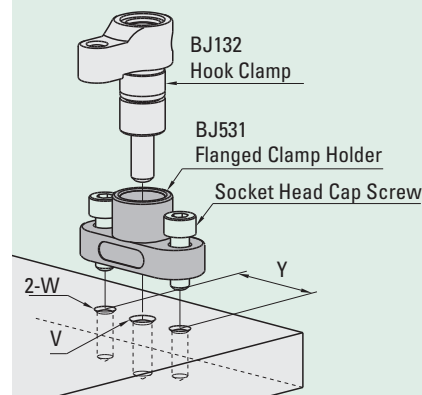
Part #	A mm	B mm	(F7) C mm	D mm	E mm	F mm	G mm	H mm	J mm
	BJ530-04035	35	46	10	16	12	14	M6x1	M4x0.7
BJ530-06040	40	54	12	19	13	16	M8x1.25	M6x1	14

See page 377 for F7 tolerance specifications.

FLANGED HOOK CLAMP HOLDERS FOR COMPACT STYLE



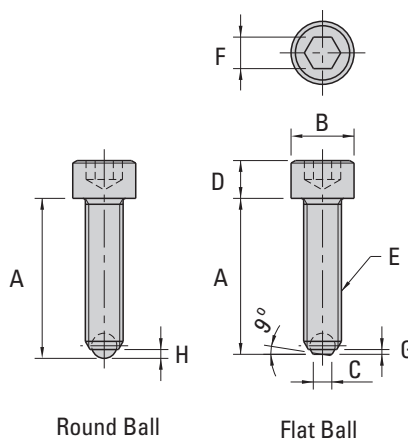
How To Use



These cylindrical holders are designed for use with the compact hook clamps shown on the previous page. They provide a low profile as well as easy installation and operation of the hook clamps. Made from SAE-1045 alloy steel, heat treated with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	V mm	W mm	Y mm
BJ531-04016	16	6	10	14	34	24	14	4.3	M4x0.7 - 30D	M4x0.7	24
BJ531-06019	19	8	12	16	40	28	16	5.3	M16x1 - 14D	M5x0.8	28

SOCKET HEAD BALL SCREWS



These socket head ball screws have either a round or flat ball end. The ball rotates in the screw socket as force is applied allowing contact to be maintained on moving or contoured surfaces as force is applied. The flat ball swivels nine degrees. The screw is made from SAE-4135 alloy steel with black oxide finish. The ball is made from SAE-52100 alloy steel and hardened to Rc 56-60. The screws are used on the clamps and work supports shown on page 32, 33 and 49.

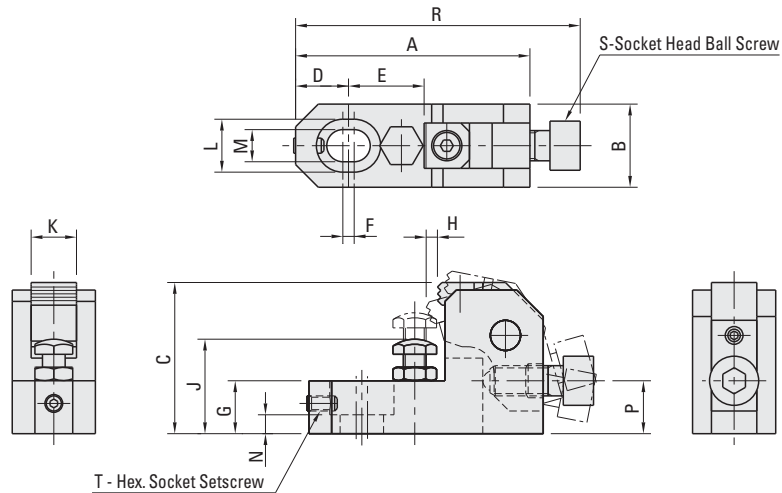
Round Ball Style

Part#	A mm	B mm	C mm	D mm	E mm	F mm	Ball Dia. mm	Fits Clamp #
BCR-8X20	21.3	13	8	M8x1.25	6	1.9	5.5	CP100-08040
BCR-8X35	36.3	13	8	M8x1.25	6	1.9	5.5	CP101-08040 & CP102-08040
BCR-10X25	26.7	16	10	M10x1.5	8	2.4	7	CP100-10050
BCR-10X40	41.7	16	10	M10x1.5	8	2.4	7	CP101-10050 & CP102-10050
BCR-12X30	32	18	12	M12x1.75	10	2.85	8.7	CP100-12060
BCR-12X50	52	18	12	M12x1.75	10	2.85	8.7	CP101-12060 & CP102-12060
BCR-16X40	43	24	16	M16x2	14	4	12	CP100-16080
BCR-16X60	63	24	16	M16x2	14	4	12	CP101-16080

Flat Ball Style

Part#	A mm	B mm	C mm	D mm	E mm	F mm	G mm	Ball Dia. mm	Fits Clamp #
BCF-6X16	16	10	3.3	6	M6x1	5	0.5	4	BJ350-06001 & BJ351-06001
BCF-8X20	20	13	4.6	8	M8x1.25	6	0.6	5.5	BJ350-08001 & BJ351-08001
BCF-10X25	25	16	6	10	M10x1.5	8	0.7	7	BJ350-10001 & BJ351-10001
BCF-12X30	30	18	7.4	12	M12x1.75	10	0.85	8.7	BJ350-12001 & BJ351-12001

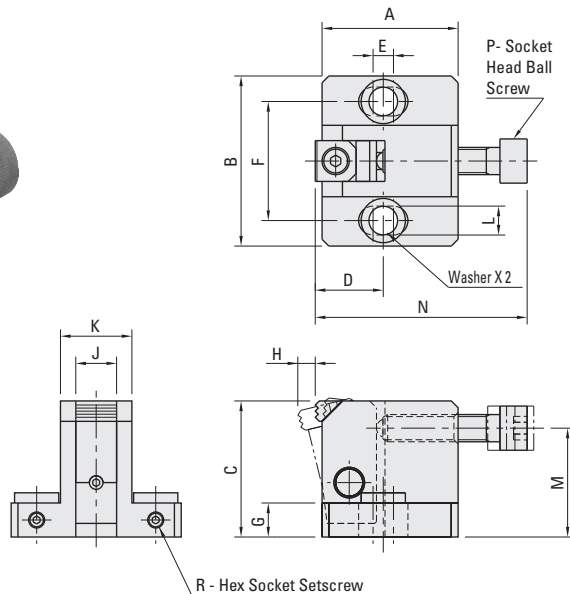
SIDE CLAMPS - CENTER MOUNT



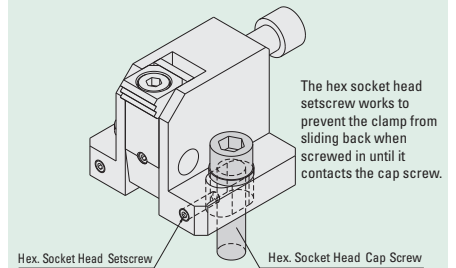
These side clamps utilize smaller clamping space which allows for greater machine clearance. Mounting screw and work support are under the work piece minimizing clamping space. Tightening the ball screw forces the clamp forward and downward against the work piece supports and stops. The hex socket set screw works to prevent the clamp from sliding back when clamping. The body is made from SAE-1045 alloy steel, heat treated. The arm is made from SAE-1045 alloy steel. The replaceable serrated jaw provides positive holding and is made from M-2 high speed steel, hardened to Rc 60/62. Parts have a black oxide finish.

Part#	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm	R mm	S mm	T mm	Clamping Force lbs.	Screw Torque Ft. lbs.
CP100-08040	62	22	40	14	20	3	14	3.0	25-32	12	14	8.5	5	14.0	75.5	M8X1.25	M4X0.7	1348	11
CP100-10050	78	25	50	18	25	4	18	3.7	32-40	16	17.5	11.0	7	17.5	95.0	M10X1.5	M5X0.8	2248	22
CP100-12060	93	32	60	21	30	5	21	4.5	40-48	20	20	13.0	8	21.0	113.0	M12X1.75	M6X1	3821	47
CP100-16080	124	38	80	28	40	6	27	6.0	48-63	25	26	17.0	10	28.0	151.0	M16X2	M8X1.25	5620	95

SIDE CLAMPS - SINGLE JAW



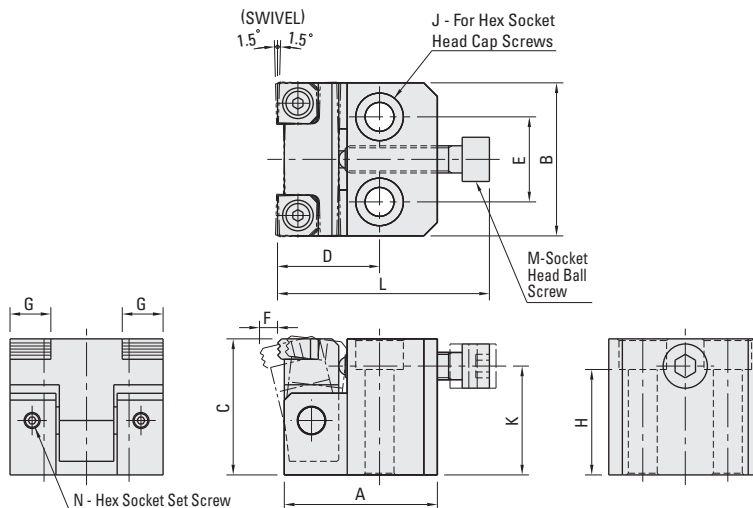
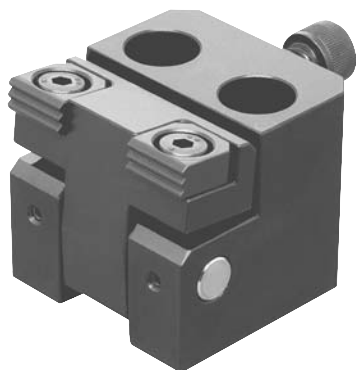
How To Use and Install



These side clamps utilize smaller clamping space which allows clamping larger work pieces. Tightening the ball screw forces the clamp forward and downward against the work piece supports and stops. The hex socket set screw works to prevent the clamp from sliding back when clamping. Two flat washers included. The body is made from SAE-1045 alloy steel. The arm is made from SAE-1045 alloy steel, heat treated. The replaceable serrated jaw provides positive holding and is made from M-2 high speed steel, hardened to Rc 60/62. Parts have a black oxide finish.

Part#	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm	R mm	Clamping Force lbs.	Screw Torque Ft. lbs.
CP101-08040	40	50	40	20	6	35	10	5.3	12	21	8.5	32	62.5	M8X1.25	M4X0.7	2742	18
CP101-10050	50	65	50	25	8	45	12	7.1	16	27	11.0	40	74.0	M10X1.5	M4X0.7	4046	36
CP101-12060	60	70	60	30	10	50	15	8.0	20	31	13.0	48	91.0	M12X1.75	M5X0.8	5620	66
CP101-16080	80	90	80	40	15	65	20	10.2	25	39	17.0	64	115.0	M16X2	M6X1	10340	147

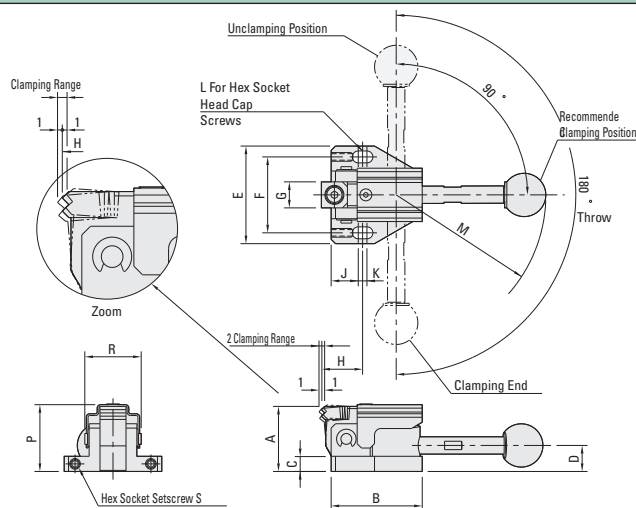
SIDE CLAMPS - WIDE JAW



The jaws move forward and downward as the ball screw is tightened. The jaws swivel 1.5 degrees from center to allow for clamping on uneven surfaces. Tightening the ball screw forces the clamp forward and downward against the workpiece supports and stops. The body is made from SAE-1045 alloy steel. The arm is made from SAE-1045 alloy steel, heat treated. The replaceable jaws are serrated for positive holding and are made from M-2 high speed steel, hardened to Rc 60/62. Parts have black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	Clamping Force lbs.	Screw Torque Ft. lbs.
CP102-08040	45	45	40	30	25	5.3	12	31	M8	32	62.5	M8X1.25	M4X0.7	2470	18
CP102-10050	55	55	50	40	30	7.1	16	39	M10	40	74.0	M10X1.5	M4X0.7	4046	36
CP102-12060	65	65	60	45	35	8.0	20	47	M12	48	91.0	M12X1.75	M5X0.8	5620	66

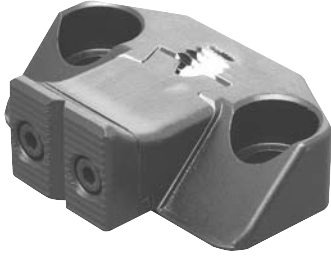
SIDE CLAMPS



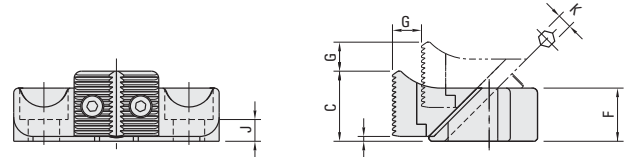
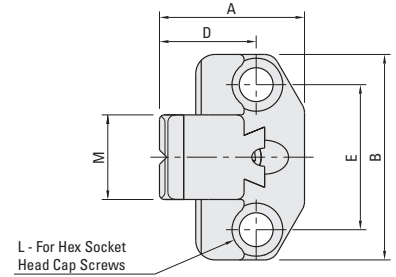
These side clamps have a moving jaw which moves forward and slightly downward for secure workholding. Moving the handle 45 degrees pushes the clamping jaw forward 2mm. When releasing the clamp, the jaws move back for easy insertion and removal of the work piece. The 150 series provides up to 670 lbs of clamping force and the 200 series provides up to 890 lbs of clamping force. User can attach custom jaws to fit special application. These clamps work very well for repetitive clamping operations. The base is made from SAE-1045 alloy steel, heat treated. The replaceable serrated jaw provides positive holding and is made from M-2 high speed steel, hardened to Rc 60/62. Parts have a black oxide finish. The ball knob is black plastic.

With Handle Part #	w/o Handle Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	P mm	R mm	S mm	Clamping Force lbs.
QLSC150R	QLSC150NR	30	42	7	12	45	35	12	19	12.5	4	M5	69	31	36	M4X0.7	650
QLSC200R	QLSC200NR	40	62	10	16	65	50	16	28	18.5	5	M8	104	31	38	M4X0.7	900

COMPACT SIDE CLAMPS



These side clamps have a low profile to keep the clamp out of the way from machining operations. Clamp moves downward and forward as it is engaged, forcing the work piece against the supports and stops. Clamping surface is serrated for greater gripping strength. Install by drilling and tapping a cap screw hole and locking pin hole. Flat washer included. The body and jaws are made from SAE-4140 alloy steel, heat treated with black oxide finish.

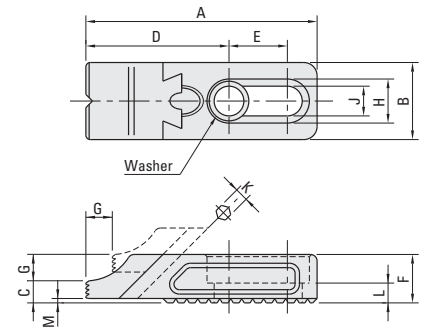


Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	Clamping Force lbs.	Screw Torque Ft. lbs.
CP105-08016	39.5	65	19.5	25	45	16	7	1.5	7	4	M8	25	890	5.9
CP105-12022	60.0	85	29.0	40	60	22	12	2.0	9	6	M12	35	2020	19.0
CP105-16030	77.0	100	38.0	50	70	30	14	2.0	13	8	M16	40	3800	44.0

ADJUSTABLE SIDE CLAMPS - LOW PROFILE



These adjustable side clamps have a low profile to keep clamp out of the way from machining operation. The clamp moves downward and forward as it is engaged, forcing the work piece against the supports and stops. Clamping surface is serrated for greater gripping strength. The body and jaw are made from SAE-4140 alloy steel, heat treated with black oxide finish.

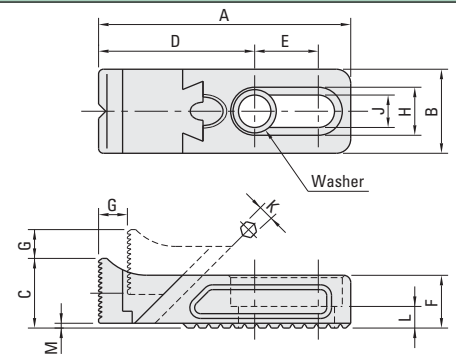


Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	Clamping Force lbs.	Screw Torque Ft. lbs.
BJ101-08016	72.0	25	7.5	45.5	16.5	16	7	14	8.5	4	7	1.5	800	4.7
BJ101-12022	105.0	35	10.0	65.0	26.5	22	12	20	13.0	6	9	2.0	1663	14.0
BJ101-16030	137.0	40	14.0	89.5	30.0	30	14	26	17.0	8	13	2.0	2630	23.0

ADJUSTABLE SIDE CLAMPS

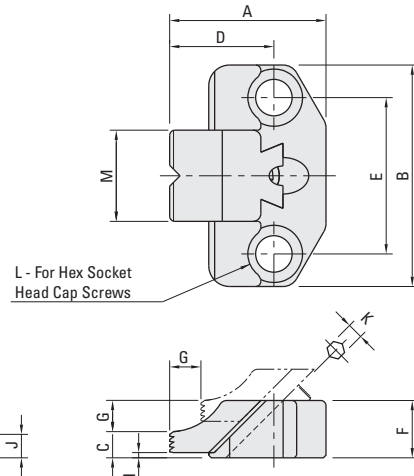


The tall jaws offer larger clamping surface. The clamping surface is serrated for greater clamping strength. The jaws move downward and forward as it is engaged, forcing the work piece against the supports and stops. Allows for quick removal and insertion of parts. The body and jaws are made from SAE-4140 alloy steel, heat treated with black oxide finish.



Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	Clamping Force lbs.	Screw Torque Ft. lbs.
BJ102-08016	72	25	19.5	45.5	16.5	16	7	14	8.5	4	7	1.5	800	4.7
BJ102-12022	105	35	29.0	65.0	26.5	22	12	20	13.0	6	9	2.0	1663	14.0
BJ102-16030	137	40	38.0	89.5	30.0	30	14	26	17.0	8	13	2.0	2630	23.0

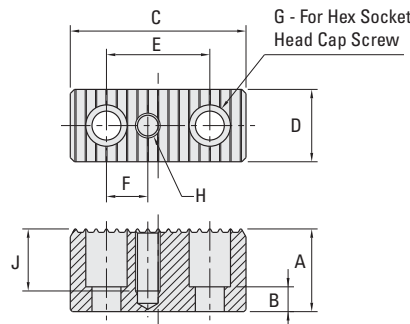
COMPACT SIDE CLAMPS - LOW PROFILE



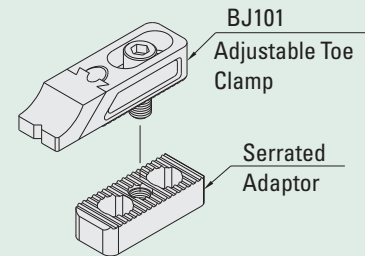
These adjustable side clamps have a low profile to keep clamp out of the way from machining operation. The serrated clamp jaws move downward and forward as it is engaged, forcing the work piece against the supports and stops. Allows for quick removal and insertion of parts. The body and jaw are made from SAE-4140 alloy steel, heat treated with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	Clamping Force lbs.	Screw Torque Ft. lbs.
CP104-08016	39.5	65	7.5	25	45	16	7	1.5	7	4	M8	25	890	5.9
CP104-12022	60.0	85	10.0	40	60	22	12	2.0	9	6	M12	35	2020	19.0
CP104-16030	77.0	100	14.0	50	70	30	14	2.0	13	8	M16	40	3800	44.0

SERRATED ADAPTORS



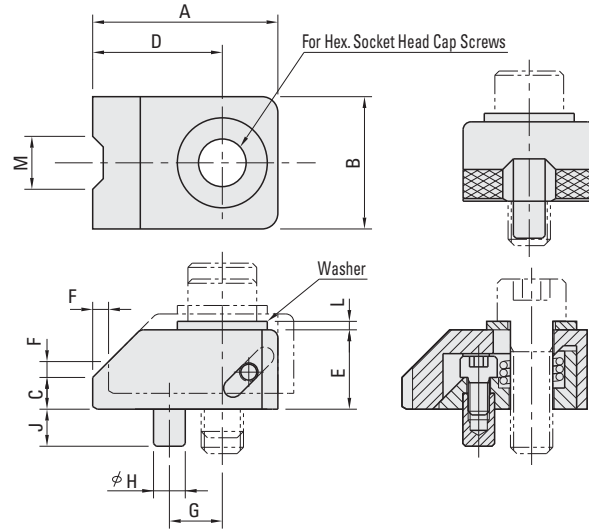
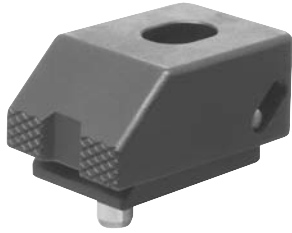
How To Use



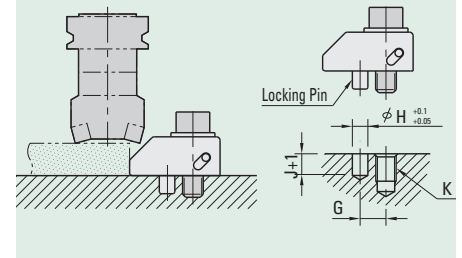
These serrated adaptors are used with the adjustable toe clamps (Series BJ101) and adjustable side clamps. (Series BJ102) They are serrated on the top to match the serrations on the bottom of the clamps. These serrated adaptors are ideal for raising the height and firmly positioning these clamps. They have a tapped hole to mount the clamps. The adaptors mount with socket head caps screws. Made from SAE-1045 alloy steel with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm
BJ500-08516	16	7	50	25	25	12.5	M8	M8X1.25	Through
BJ500-08520	20	9	50	25	25	12.5	M8	M8X1.25	Through
BJ500-08525	25	13	50	25	25	12.5	M8	M8X1.25	20
BJ500-08532	32	20	50	25	25	12.5	M8	M8X1.25	20
BJ500-08540	40	28	50	25	25	12.5	M8	M8X1.25	20
BJ500-08550	50	38	50	25	25	12.5	M8	M8X1.25	20
BJ500-12020	20	5	85	35	50	20	M12	M12X1.75	Through
BJ500-12025	25	10	85	35	50	20	M12	M12X1.75	Through
BJ500-12032	32	12	85	35	50	20	M12	M12X1.75	Through
BJ500-12040	40	12	85	35	50	20	M12	M12X1.75	30
BJ500-12050	50	12	85	35	50	20	M12	M12X1.75	35
BJ500-16025	25	6	90	40	50	25	M16	M16X2	Through
BJ500-16032	32	13	90	40	50	25	M16	M16X2	Through
BJ500-16040	40	15	90	40	50	25	M16	M16X2	30
BJ500-16050	50	15	90	40	50	25	M16	M16X2	35
BJ500-16063	63	15	90	40	50	25	M16	M16X2	35

TOE CLAMPS - REAR MOUNT



How To Use and Install

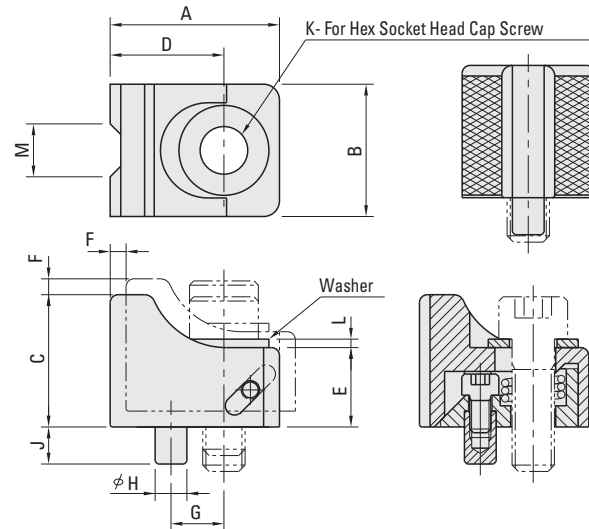
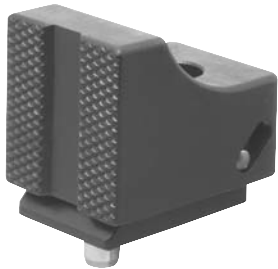


These toe clamps offer high holding power and low profile. Clamp moves downward and forward as it is engaged, forcing the work piece against the supports and stops. The low profile clamping surface is serrated for greater gripping strength. Install by drilling and tapping a cap screw hole and locking pin hole. Flat washer included. Made from SAE-1045 alloy steel, heat treated with black oxide finish.

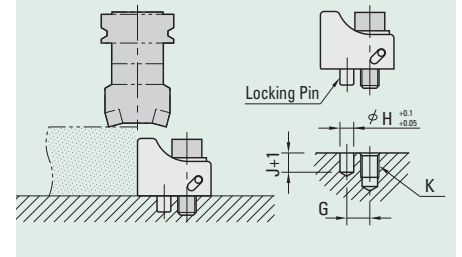
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	(h7) H mm	J mm	K mm	L mm	M mm	Clamping Force lbs.	Screw Torque Ft. lbs.
CP106-08015	35	25	6	24.5	15	3	10	6	7	M8	1.6	10	1570	18
CP106-10019	43	30	8	29.0	19	4	12	6	7	M10	2.0	11	1910	36
CP106-12023	54	35	9	37.0	23	5	16	8	10	M12	2.3	12	4490	66
CP106-16025	65	40	10	45.0	25	6	20	10	10	M16	3.2	14	8990	147

See page 377 for h7 tolerance specifications.

SIDE CLAMPS - REAR MOUNT



How To Use and Install

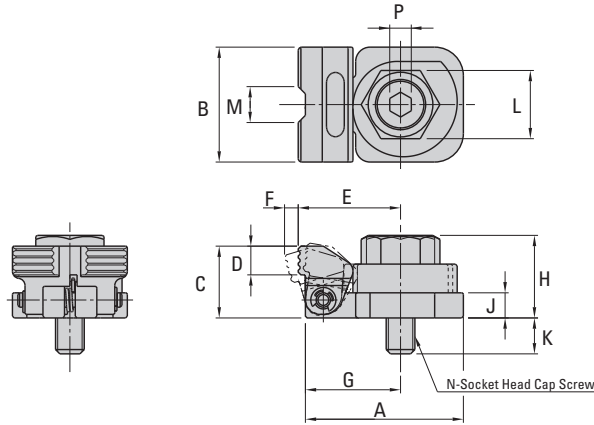


Clamp moves downward and forward as it is engaged, forcing the work piece against the supports and stops. The large clamping surface is serrated for greater gripping strength. Install by drilling and tapping a cap screw hole and locking pin hole. Flat washer included. Made from SAE-1045 alloy steel, heat treated with black oxide finish.

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	(h7) H mm	J mm	K mm	L mm	M mm	Clamping Force lbs.	Screw Torque Ft. lbs.
CP107-08015	32	25	25	21.5	15	3	10	6	7	M8	1.6	10	1570	18
CP107-10019	40	30	32	26.0	19	4	12	6	7	M10	2.0	11	1910	36
CP107-12023	50	35	38	33.0	23	5	16	8	10	M12	2.3	12	4490	66
CP107-16025	60	40	45	40.0	25	6	20	10	10	M16	3.2	14	8990	147

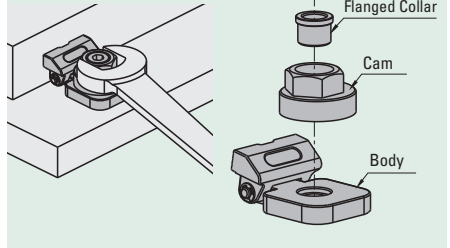
See page 377 for h7 tolerance specifications.

SPIRAL CAM EDGE CLAMPS



How To Use

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

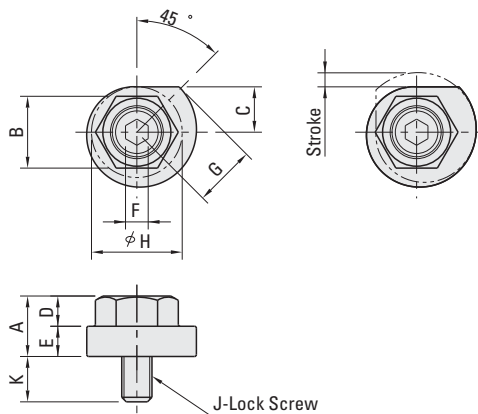


These cam edge clamps offer a low profile design, high holding forces and easy to use operations. The low profile and small size allow for faster set up and more parts per load. Turning the cam nut on the top of the clamp forces the serrated jaw forward and downward against the work piece. Easily installs with a socket head cap screw. The body and jaw are made from SAE-4140 alloy steel, heat treated with black oxide finish. The cam is made from SAE-4135 alloy steel with black oxide finish.

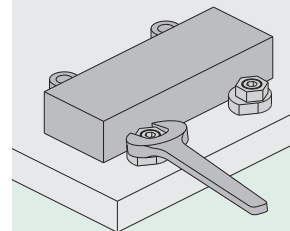
Part #	Clamping Force lbs.	Max Torque Ft./lbs.
BJ162-08001	788	33
BJ162-10001	1,238	41
BJ162-12001	1,575	52

Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm
BJ162-08001	44	32	20	8	28.5	4	26.5	23	7	15	19	10	M8x1.25 - 30L	6
BJ162-10001	54	40	25	10	35	5	33	29	9	16	24	12	M10x1.5 - 35L	8
BJ162-12001	62	46	30	12	39.5	5.5	37.5	35	11	17	27	14	M12x1.75 - 40L	10

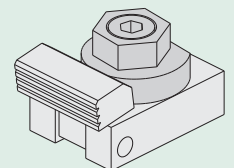
SPIRAL CAM CLAMPS



How To Use



Provides Positive Clamping

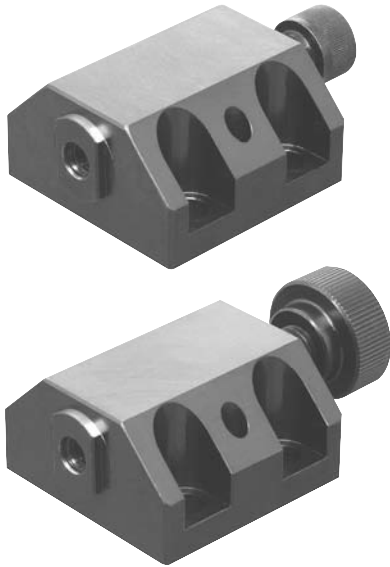


Can also be used as clamping mechanism for custom clamps.

Compact design for low profile positive clamping. These clamps permit faster loading and unloading of work piece. To install, lock the flange collar into the cam using the locking screw and then tighten up the cam with a wrench. The cam and locking screw are made from SAE-4135 alloy steel. The flanged collar is made from SAE-1095 alloy steel. Parts are heat treated with black oxide finish.

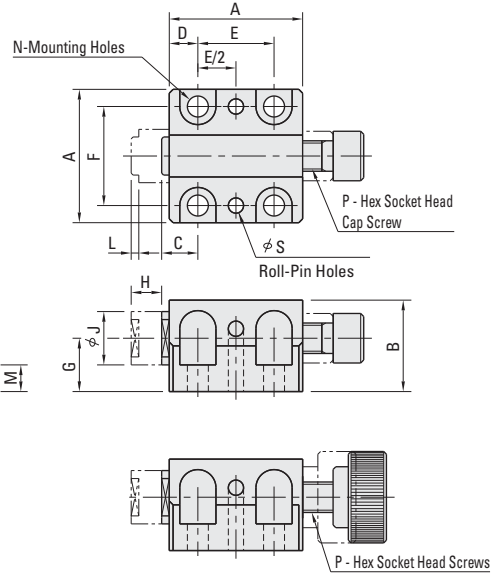
Part #	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	Stroke mm	Clamping Force lbs.	Screw Torque Ft. lbs.
BJ161-08001	16	19	12	8	8	6	16.38	24	M8X1.25	12	4	1168	36
BJ161-10001	20	24	15	10	10	8	20.47	30	M10X1.50	15	5	1798	55
BJ161-12001	24	27	17	12	12	10	23.20	34	M12X1.75	18	6	2090	66

BLOCK PUSH CLAMPS



CP110
(Cap Screw Style)

CP111
(Knurled-Head Screw style)



Designed to be used with the V-pads shown below for clamping round pieces. Custom pads can be made to fit your application. Available with cap screw or knurled knob to activate the clamp. The cap screw style allows for greater clamping forces to be applied. The body, piston and knob are made from SAE-1045 alloy steel. The piston is heat treated. Black oxide finish.

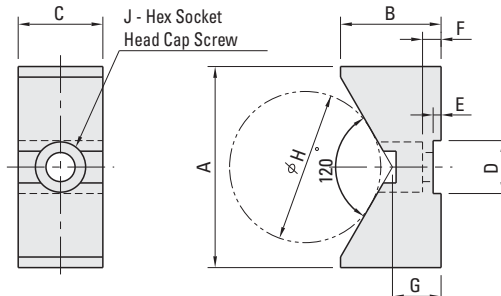
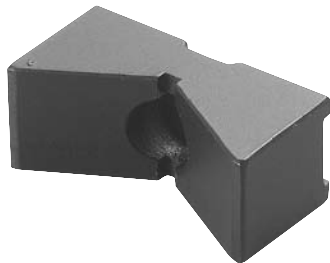
Cap Screw Style

Part #	(-0.1 / -0.3)															Clamping Force lbs.	Screw Torque Ft. lbs.	
	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm	R mm			S mm
CP110-08024	35	24	9.5	7.5	20	26	14	8	14	10	2.0	7	M5	M8X1.25	M5X0.8X8	4	1393	7.3
CP110-10029	45	29	12.0	10.0	25	35	16	10	18	12	2.0	8	M6	M10X1.5	M6X1X10	4	2472	16.2
CP110-12031	55	31	15.0	12.5	30	40	18	12	20	14	2.5	8	M8	M12X1.75	M8X1.25X12	6	4496	35.4
CP110-16037	70	37	18.0	15.0	40	50	20	16	25	19	3.0	8	M10	M16X2	M10X1.5X15	8	8317	81.2

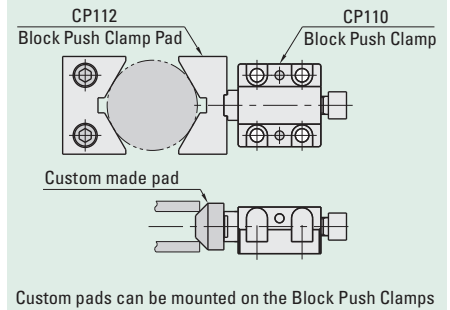
Knurled Knob Style

Part #	(-0.1 / -0.3)															Clamping Force lbs.	Screw Torque Ft. lbs.	
	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm	R mm			S mm
CP111-08024	35	24	9.5	7.5	20	26	14	8	14	10	2.0	7	M5	M8X1.25	M5X0.8X8	4	134	0.73
CP111-10029	45	29	12.0	10.0	25	35	16	10	18	12	2.0	8	M6	M10X1.5	M6X1X10	4	112	0.73
CP111-12031	55	31	15.0	12.5	30	40	18	12	20	14	2.5	8	M8	M12X1.75	M8X1.25X12	6	134	1.10
CP111-16037	70	37	18.0	15.0	40	50	20	16	25	19	3.0	8	M10	M16X2	M10X1.5X15	8	134	1.10

BLOCK PUSH CLAMP V-PADS



How To Use and Install



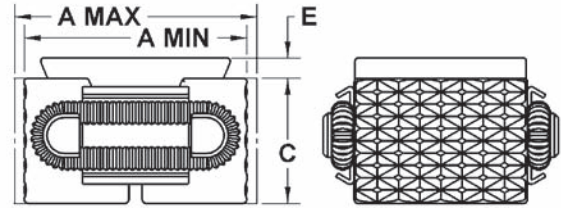
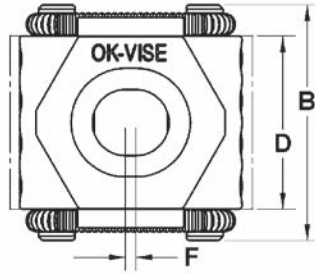
Designed for use with the Block Push Clamps shown above for holding round work pieces. Can be used with either the cap screw or knurled handle styles. Made from SAE-1045 alloy steel, heat treated with black oxide finish.

Part #	A mm	B mm	C mm	+1 D mm	E mm	F mm	G mm	Min H mm	Max H mm	J mm	Use with Clamp
	CP112-08001	38	19	16	10	1.5	3.5	9.2	15	60	
CP112-10001	50	24	19	12	1.5	4.5	11.0	20	80	M6	CP110-10029 OR CP111-10029
CP112-12001	65	32	22	14	2.0	5.5	15.0	25	100	M8	CP110-12031 OR CP111-12031
CP112-16001	75	38	25	19	2.5	7.5	18.7	30	120	M10	CP110-16037 OR CP111-16037

WEDGE CLAMPS

OK-Vise clamps provide a fast and flexible workholding solution. These universal fixturing clamps can be used to hold a variety of materials including steel, brass, aluminum, plastic, etc. These low profile clamps expand evenly on both vertical and horizontal planes as they are tightened down. They thrust the work piece against a stop and prevent movement on the fastening base. They are designed to fit between the work pieces so parts can be ganged together for machining. They provide high clamping pressure while taking up little space on the fastening base. The clamps are fastened with one bolt making them ideal for quick set up and part changing. Jaws and wedge are manufactured from tool steel except for the stainless steel style. The bottom mounting surfaces on all versions are fully ground. A metal retaining spring retracts the jaws when pressure is released except on the economy versions where a Viton o-ring is used. Mounting screws are not included. Replacement components are available.

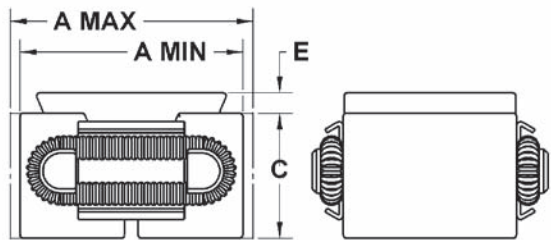
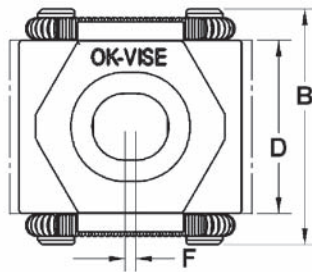
Single Wedge - Serrated Jaws



Part #	Min A	Optimum A	Max A	B	C	D	E	F	Socket Head Screw	Max Jaw Force Lbs.	Max Tightening Torque Ft/Lbs	Jaw Hardness HRC
OKBK2-VT-O*	1.06	1.14	1.22	1.14	.59	.83	.10	.04	5/16 OR M8	3,370	18	48-52
OKBK2-VT	1.06	1.14	1.22	1.14	.59	.83	.10	.04	5/16 OR M8	5,620	32	48-52
OKDK2-VT	1.65	1.77	1.93	1.61	.87	1.18	.16	.08	M12	14,612	107	48-52
OKDK2-VTI	1.65	1.77	1.93	1.61	.87	1.18	.16	.08	1/2	14,612	107	48-52
OKFK2-VT	2.24	2.40	2.56	2.20	1.14	1.65	.20	.12	5/8 OR M16	24,728	226	48-52

*The economy styles are supplied with Viton O-Rings instead of metal retaining springs and the internal wear surfaces are not ground.

Single Wedge - Smooth Jaws



The ends of the jaws are smooth for no marring on softer materials.

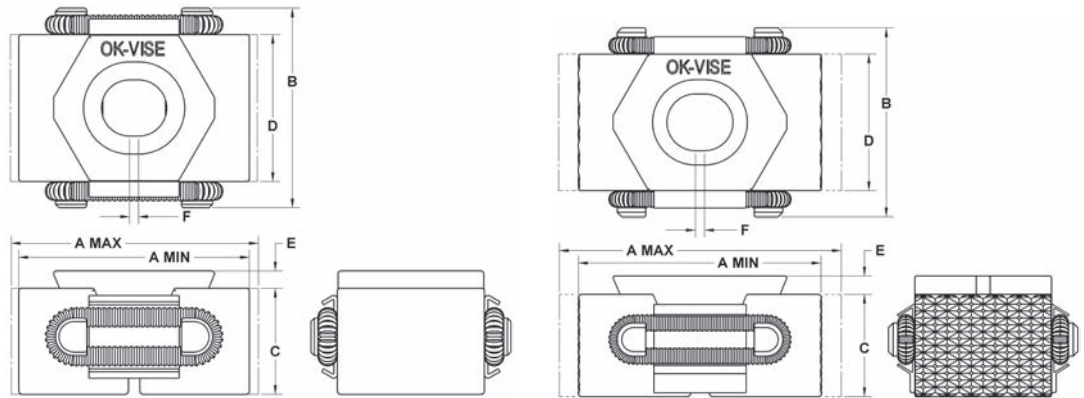
Part #	Min A	Optimum A	Max A	B	C	D	E	F	Socket Head Screw	Max Jaw Force Lbs.	Max Tightening Torque Ft/Lbs	Jaw Hardness HRC
OKAK2-VT-SO*	.79	.91	.98	.87	.43	.59	.17	—	3/16 OR M5	2,248	7	48-52
OKBK2-VT-SO*	1.06	1.14	1.22	1.14	.59	.83	.10	.04	5/16 OR M8	3,370	18	48-52
OKBK2-VT-S	1.06	1.14	1.22	1.14	.59	.83	.10	.04	5/16 OR M8	5,620	32	48-52
OKBK2-VT-SS**	1.06	1.14	1.22	1.14	.59	.83	.10	.04	5/16 OR M8	5,620	32	48-52
OKDK2-VT-S	1.65	1.77	1.93	1.61	.87	1.18	.16	.08	M12	14,612	107	48-52
OKDK2-VTI-S	1.65	1.77	1.93	1.61	.87	1.18	.16	.08	1/2	14,612	107	48-52
OKFK2-VT-S	2.24	2.40	2.52	2.20	1.14	1.65	.20	.12	5/8 OR M16	24,728	266	48-52

*The economy styles are supplied with Viton O-Rings instead of metal retaining springs and the internal wear surfaces are not ground.

** The jaws, wedge and all components are made from stainless steel.

WEDGE CLAMPS (continued)

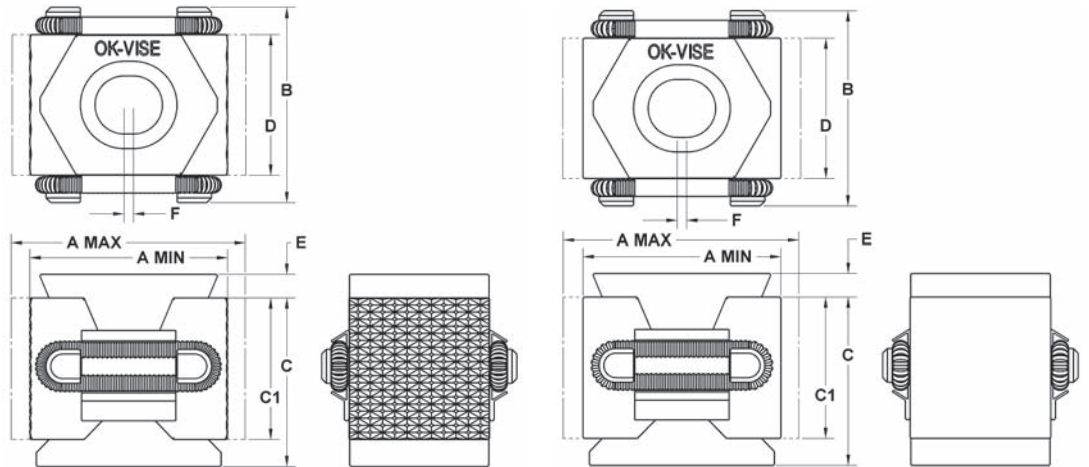
Single Wedge - Machinable Jaws



The jaws of the clamps are left soft and are oversized for custom machining to adapt the jaws to your application.

Part #	Min A	Optimum A	Max A	B	C	D	E	F	Socket Head Screw	Max Jaw Force Lbs.	Max Tightening Torque Ft/Lbs	Jaw Hardness HRC	Jaw Type
OKBK2-VT+3	1.30	1.38	1.46	1.14	.59	.83	.10	.04	5/16 OR M8	4,964	32	30-34	Smooth
OKDK2-VT+5	2.05	2.17	2.32	1.61	.87	1.18	.16	.08	M12	12,364	107	30-34	Serrated
OKDK2-VT+5	2.05	2.17	2.32	1.61	.87	1.18	.16	.08	1/2	12,364	107	30-34	Serrated
OKFK2-VT+5	2.64	2.76	2.95	2.20	1.14	1.65	.20	.12	5/8 OR M16	22,480	266	30-34	Serrated

Double Wedge - Serrated and Smooth Jaws

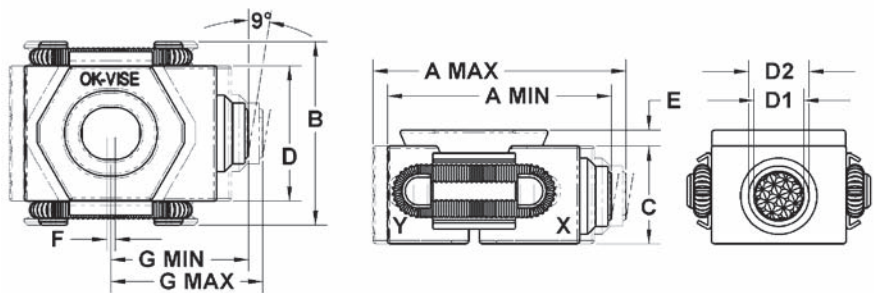


These double wedge clamps generate a double wedge action for additional jaw force pressing the work piece toward the fixture base.

Part #	Min A	Optimum A	Max A	B	C	C1	D	E	F	Socket Head Screw	Max Jaw Force Lbs.	Max Tightening Torque Ft/Lbs	Jaw Hardness HRC	Jaw Type
OKDK2-WT	1.65	1.81	1.93	1.61	1.42	1.18	1.18	.20	.08	M12	20,232	107	48-52	Serrated
OKDK2-WT-S	1.65	1.81	1.93	1.61	1.42	1.18	1.18	.20	.08	M12	20,232	107	48-52	Smooth
OKDK2-WTI	1.65	1.81	1.93	1.61	1.42	1.18	1.18	.20	.08	1/2	20,232	107	48-52	Serrated
OKDK2-WTI-S	1.65	1.81	1.93	1.61	1.42	1.18	1.18	.20	.08	1/2	20,232	107	48-52	Smooth
OKFK2-WT	2.28	2.40	2.60	2.20	1.97	1.65	1.65	.20	.12	5/8 OR M16	33,720	266	48-52	Serrated
OKFK2-WT-S	2.28	2.40	2.60	2.20	1.97	1.65	1.65	.20	.12	5/8 OR M16	33,720	266	48-52	Smooth

WEDGE CLAMPS (continued)

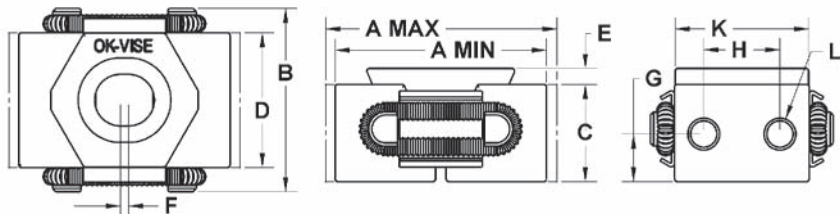
Single Wedge - Self-Adjusting Jaws



One end of the clamp features a swivel pad that moves 9 degrees to compensate for uneven clamping surfaces.

Part #	Min A	Optimum A	Max A	B	C	D1	D2	E	F	Min G	Optimum G	Max G	Socket Head Screw	Max Jaw Force Lbs.	Max Tightening Torque Ft/Lbs	Jaw Hardness HRC X	Jaw Hardness HRC Y
OKBK2-VT-B	1.30	1.38	1.46	1.14	.59	.28	.33	.10	.04	.77	.80	.86	5/16 OR M8	4,964	32	30-34	48-52
OKDK2-VTI-B	2.05	2.17	2.32	1.61	.87	.42	.47	.16	.08	1.21	1.29	1.37	1/2	12,364	107	30-34	48-52
OKDK2-VT-B	2.05	2.17	2.32	1.61	.87	.42	.47	.16	.08	1.21	1.29	1.37	M12	12,364	107	30-34	48-52

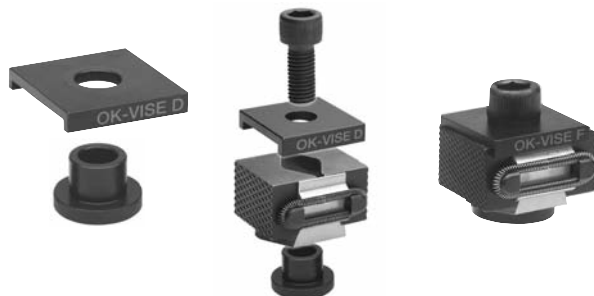
Single Wedge - Threaded Jaws



The jaws have a female thread on the end of the jaw to allow for quick and easy special attachments to the jaw. It is designed for short run jobs when the shape of the work pieces changes and does not justify making custom or dedicated fixtures.

Part #	Min A	Optimum A	Max A	B	C	D	E	F	G	H	K	L	Socket Head Screw	Max Jax Force Lbs.	Max Tightening Torque Ft/Lbs	Jaw Hardness HRC
OKBK2-VT-T	1.30	1.38	1.46	1.14	.59	.83	.10	.04	.30	.47	—	4 x M5	5/16 OR M8	4,964	32	30-34
OKDK2-VT-T	1.81	1.93	2.09	1.61	.87	1.18	.16	.08	.43	.71	1.10	4 x M5	M12	12,364	107	30-34
OKDK2-VTI-T	1.81	1.93	2.09	1.61	.87	1.18	.16	.08	.43	.71	1.10	4 x M5	1/2	12,364	107	30-34
OKFK2-VT-T	2.40	2.56	2.76	2.20	1.14	1.65	.20	.12	.57	1.02	1.57	4 x M5	5/8 OR M16	22,480	266	30-34

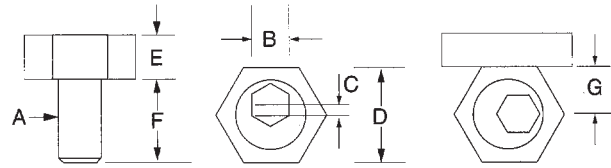
Pull Down Kits



These pull down kits include a plate and bushing and are used with single acting OK Vise clamps. (The clamps are used in the upside-down position) The plate and bushing allow the OK Vise clamps to produce downward force as well as lateral force when the bolt is tightened. The downward action forces the work piece against the fixture base as well as the work piece stops. The fastening bolt and OK Vise clamp are not included with the pull down kit. (The part numbers below only include the plate and bushing)

Part #	Use With OK Vise Clamps Number
OKPDK-BK	OKBK2-VT-0, OKBK2-VT-S0, OKBK2-VT-S, OKBK2-VT+3, OKBK-VT-T, OKBK-VT-B,
OKPDK-DK	OKDK2-VT, OKDK2-VT-S, OKDK2-VT+5, OKDK2-VT-T, OKDK2-VT-B, OKDK2-VTI, OKDK2-VTI-S, OKDK2VTI+5, OKDK2-VTI-T, OKDK2-VTI-B
OKPDK-FK	OKFK2-VT, OKFK2-VT-S, OKFK2-VT+5, OKFK2-VT-T

FIXTURE CLAMPS



These fixture clamps are made up of a hardened steel socket cap screw with an offset head and a brass hex washer. By tightening down on the screw, the washer is forced towards the work piece to provide fast strong clamping. The low profile and small size allow for faster set up and more parts per load. Please note: clockwise location is recommended. The work piece stop should be on the right of the clamp.

INCH

Part #	A	B	Total Travel		C	D	E	F	G	Torque (in/lbs)	Max Holding Force Lbs.
MB-10202	8-32	5/64	.030	.312	.110	.350	.150	18	205		
MB-10207	10-32	3/32	.040	.500	.160	.340	.250	30	350		
MB-10204	1/4-20	1/8	.040	.625	.190	.470	.308	74	800		
MB-10205	5/16-24	3/16	.040	.812	.190	.460	.400	100	800		
MB-10201	5/16-18	3/16	.040	.812	.190	.460	.400	100	800		
MB-10206	3/8-16	3/16	.050	.812	.250	.710	.400	249	2,000		
MB-10208	1/2-13	5/16	.100	1.000	.375	.900	.500	780	4,000		
MB-10210	5/8-11	3/8	.100	1.187	.500	1.125	.590	1200	6,000		

Inch - Stainless

MB-10203	1/4-20	1/8	.040	.625	.190	.470	.308	74	800
MB-10213	5/16-18	3/16	.040	.812	.190	.460	.400	100	800

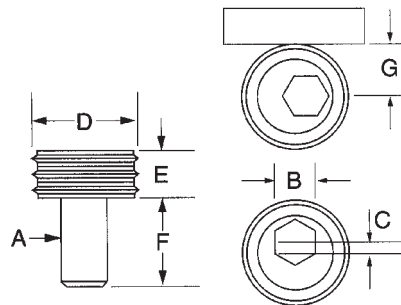
METRIC

Part #	A mm	B mm	Total Travel		C mm	D mm	E mm	F mm	G mm	Torque (nm)	Max Holding Force (N)
MB-50204	M4	3	.76	7.93	2.80	9.60	3.80	2.0	910		
MB-50206	M6	4	1.01	15.86	4.75	11.20	7.80	8.5	3,558		
MB-50208	M8	5	1.01	20.61	4.75	15.00	10.15	11.3	3,358		
MB-50210	M10	7	1.52	20.61	6.35	19.00	10.15	28.0	8,895		
MB-50212	M12	8	2.03	25.38	9.52	22.80	12.70	88.0	17,790		
MB-50216	M16	12	2.54	30.13	12.70	28.50	15.00	125.0	26,680		

Metric - Stainless

MB-50205	M6	4	1.01	15.86	4.75	11.20	7.80	8.5	3,558
MB-50207	M8	5	1.01	20.60	6.35	15.00	10.30	11.3	3,558

KNIFE EDGE CLAMPS

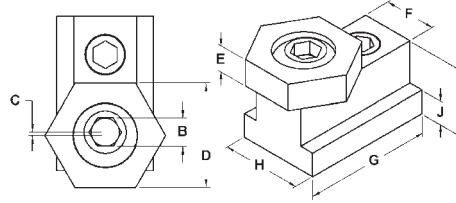
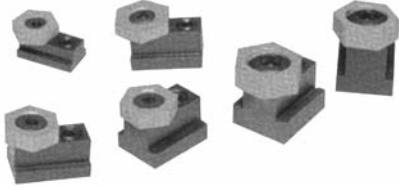


These clamps are similar to the clamps above, however, the edges are grooved for clamping rough cut stock, castings and other material that requires a hardened clamping element.

Part #	A	B	Total Travel		C	D	E	F	G	Torque (in/lbs)	Max Holding Force Lbs.
MB-22584	3/8-16	3/16	.050	.812	.250	.710	.400	199	2,000		
MB-22588B	1/2-13	5/16	.080	1.000	.375	.900	.500	624	4,000		
MB-22592	5/8-11	3/8	.100	1.187	.500	1.125	.590	960	6,000		



T-SLOT CLAMPS

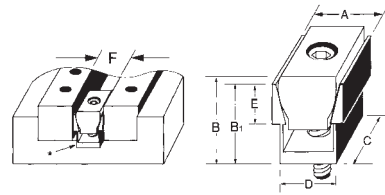
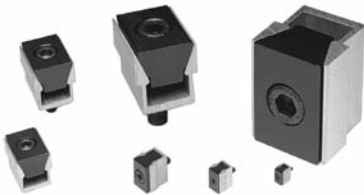


These T-Slot clamps combine the cam action fixture clamps with a T-nut. They lock into a machine T-slot for low profile clamping and makes set up quick and easy.

INCH														
Part #	Cam Screw	T-Slot Size	B	Total Travel		D	E	F	G	H	I	J	Torque (in/lbs)	Max Holding Force Lbs.
MB-10420	1/4-20	3/8	1/8	.040	.625	.190	.365	.89	.500	.375	.155	74	800	
MB-10421	5/16-18	7/16	3/16	.040	.812	.190	.425	1.10	.625	.625	.225	100	800	
MB-10422	3/8-16	1/2	3/16	.050	.812	.250	.490	1.20	.750	.625	.235	250	2,000	
MB-10423	3/8-16	9/16	3/16	.050	.812	.250	.550	1.20	.875	.750	.300	250	2,000	
MB-10424	1/2-13	5/8	5/16	.100	1.000	.375	.620	1.27	1.000	.875	.360	540	3,000	
MB-10426	1/2-13	11/16	5/16	.100	1.000	.375	.675	1.37	1.000	1.000	.420	540	3,000	

METRIC														
Part #	Cam Screw mm	T-Slot Size mm	B mm	Total Travel mm		D mm	E mm	F mm	G mm	H mm	I mm	J mm	Torque (Nm)	Max Holding Force (N)
MB-50422	M6X1.0	8	5	1.01	15.86	4.75	8	23.2	12.7	9.5	8	8.5	3,558	
MB-50424	M6X1.0	10	5	1.01	15.86	4.75	10	23.2	14.2	14.2	10	8.5	3,558	
MB-50426	M8X1.25	12	5	1.01	20.62	4.75	12	27.9	15.9	15.9	12	11.3	5,355	
MB-50428	M10X1.50	14	7	1.52	20.62	6.35	14	30.5	22.4	22.2	14	28.0	8,900	
MB-50430	M12X1.75	16	8	2.03	25.40	9.53	16	30.9	25.4	22.2	16	61.0	13,340	
MB-50432	M12X1.75	18	8	2.03	25.40	9.53	18	34.7	28.6	28.6	18	61.0	13,340	
MB-50434	M16X2	20	12	2.54	30.15	12.70	20	39.2	31.8	31.8	20	135.0	26,700	
MB-50436	M16X2	22	12	2.54	30.15	12.70	22	44.3	34.9	41.3	22	135.0	26,700	

UNIFORCE CLAMPS



These compact and economical clamps enable you to fixture more parts on the machine table. The steel wedge spreads the clamping force uniformly on both sides of the 7075-T6 aluminum channel. These clamps allow you to hold two parts with equilateral clamping action. They work on both flat and round stock.

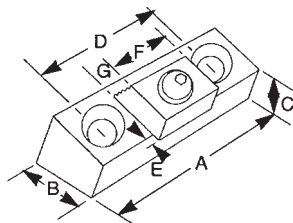
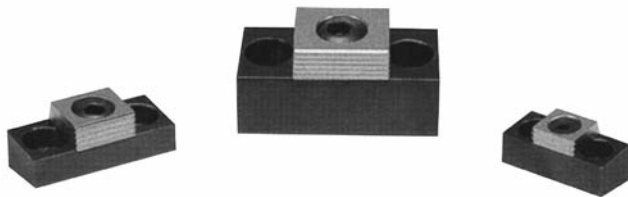
INCH											
Part #	A	B	B1	C	D*	E	F**	Thread	Spread	Torque (in/lbs)	Max Holding Force Lbs.
MB-60250	.240	.27	.250	.320	.210	.140	.250	2-56	.260	6	200
MB-60375	.360	.38	.375	.470	.310	.185	.375	4-40	.390	13	310
MB-60500	.485	.58	.500	.625	.410	.220	.500	8-32	.530	30	500
MB-60750	.735	.77	.750	.940	.635	.375	.750	1/4-20	.785	130	1,500
MB-61000	.980	1.02	1.000	1.250	.820	.500	1.000	5/16-18	1.050	125	2,000
MB-61500	1.470	1.52	1.500	1.875	1.215	.750	1.500	1/2-13	1.560	340	3,500
MB-62000	1.960	2.03	2.000	2.500	1.625	1.000	2.000	5/8-11	2.080	660	6,000

METRIC											
Part #	A mm	B mm	B1 mm	C mm	D* mm	E mm	F** mm	Thread mm	Spread mm	Torque (Nm)	Max Holding Force (N)
MB-80250	6.1	6.9	6.40	8.1	5.3	3.6	6.4	M2	6.7	.70	880
MB-80375	9.1	9.7	9.50	11.9	7.9	4.7	9.5	M2.5	10.0	1.50	1,350
MB-80500	12.3	14.5	12.70	15.9	10.4	5.6	12.7	M4	13.2	3.40	2,225
MB-80750	18.6	19.0	19.05	23.8	16.1	9.5	19.0	M6	20.3	14.30	6,675
MB-81000	24.8	25.9	25.40	31.7	20.8	12.7	25.4	M8	26.9	14.50	8,900
MB-81500	37.3	38.6	38.10	47.6	30.9	19.0	38.1	M12	39.9	38.40	15,575
MB-82000	49.7	51.5	50.80	63.5	41.2	25.4	50.8	M16	53.0	74.60	26,700

* A milled slot wider than D will insure clamp remains in line with the work piece. Clamp sides should not come in contact with slot walls during expansion.

** F is the distance needed between work pieces for clamp clearance. Drill and tap mounting hole on the center of the F dimension.

COMPACT TOE CLAMPS

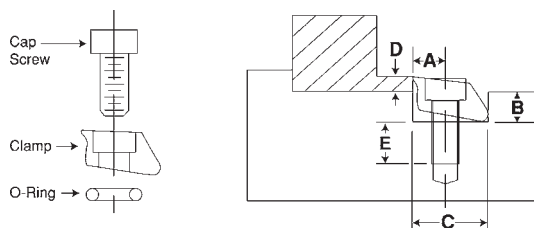


These cam action clamps provide positive down force while using very little space on a fixture. The work piece can be clamped in series by using the back surface of a clamp to locate the next work piece. The hardened steel clamping element has both a smooth surface for machined work and a serrated clamping surface for rougher work. The height of the clamp can be adjusted by milling the slot deeper in the fixture plate. Mounting screw included.

Part #	A	B	C	D	E*	F	G	Total Movement Distance	Mounting Screw	Torque (in/lbs)	Max Holding Force Lbs.
MB-24106	1.70	.75	.50	1.00	.090	.75	.25	.050	5/16-18	250	2,000
MB-24108	2.12	1.00	.45	1.32	.110	1.00	.38	.100	3/8-16	780	4,000
MB-24110	2.95	1.50	.99	2.00	.130	1.50	.50	.100	1/2-13	1,200	6,000

* E is the distance needed between the front of the clamp base and the work piece.

PIT BULL LOW PROFILE CLAMPS



These clamps offer positive down force and a low gripping profile. They use a standard cap screw held in place with an o-ring. The knife edge style bites into the material more aggressively than the blunt edge clamp which is less likely to mar the material. The brass style is designed for softer materials.

INCH

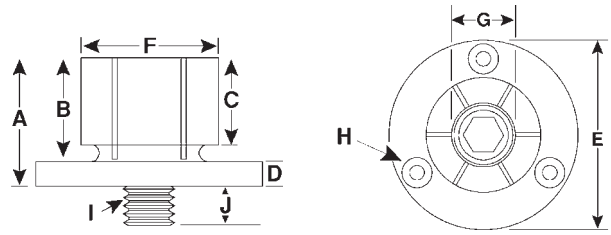
Part #	Edge Type	A	B	C	D*	E	Clamp Width	Screw Size	Torque (in/lbs)	Max Holding Force (lbs.)	Total Throw
MB-26000	Steel - Knife	.150	.140	.375	.075	.26	.375	4-40	16	650	.0075
MB-26010	Steel - Blunt	.150	.140	.375	.075	.26	.375	4-40	16	650	.0075
MB-26015	Brass - Blunt	.150	.140	.375	.075	.22	.375	4-40	5	200	.0075
MB-26020	Steel - Knife	.200	.187	.500	.100	.39	.500	8-32	44	1,500	.0160
MB-26030	Steel - Blunt	.200	.187	.500	.100	.39	.500	8-32	44	1,500	.0160
MB-26040	Brass - Blunt	.200	.187	.500	.100	.34	.500	8-32	24	400	.0160
MB-26050	Steel - Knife	.300	.280	0.750	.150	.57	.750	1/4-20	174	3,600	.0240
MB-26060	Steel - Blunt	.300	.280	0.750	.150	.57	.750	1/4-20	174	3,600	.0240
MB-26065	Brass - Blunt	.300	.280	0.750	.150	.44	.750	1/4-20	49	950	.0240
MB-26070	Steel - Knife	.400	.450	1.000	.250	.71	1.000	3/8-16	360	6,000	.0500
MB-26075	Steel - Blunt	.400	.450	1.000	.250	.71	1.000	3/8-16	360	6,000	.0500
MB-26080	Steel - Knife	.600	.640	1.500	.375	.77	1.500	1/2-13	1,300	12,000	.0750
MB-26085	Steel - Blunt	.600	.640	1.500	.375	.77	1.500	1/2-13	1,300	12,000	.0750

METRIC

Part #	Edge Type	A mm	B mm	C mm	D* mm	E mm	Clamp Width mm	Screw Size mm	Torque (Nm)	Max Holding Force (N)	Total Throw mm
MB-56000	Steel - Knife	3.81	3.55	9.52	1.90	8	9.52	M2.5	1.80	2,800	.190
MB-56010	Steel - Blunt	3.81	3.55	9.52	1.90	8	9.52	M2.5	1.80	2,800	.190
MB-56015	Brass - Blunt	3.81	3.55	9.52	1.90	8	9.52	M2.5	.56	875	.190
MB-56020	Steel - Knife	5.08	4.75	12.70	2.54	12	12.70	M4	5.60	6,600	.406
MB-56030	Steel - Blunt	5.08	4.75	12.70	2.54	12	12.70	M4	5.60	6,600	.406
MB-56040	Brass - Blunt	5.08	4.75	12.70	2.54	12	12.70	M4	2.80	1,750	.406
MB-56050	Steel - Knife	7.62	7.11	19.05	3.81	16	19.05	M6	22.50	16,000	.610
MB-56060	Steel - Blunt	7.62	7.11	19.05	3.81	16	19.05	M6	22.50	16,000	.610
MB-56065	Brass - Blunt	7.62	7.11	19.05	3.81	16	19.05	M6	5.60	4,200	.610
MB-56070	Steel - Knife	10.16	6.53	25.40	6.35	25	25.40	M10	40.60	26,000	1.270
MB-56075	Steel - Blunt	10.16	6.53	25.40	6.35	25	25.40	M10	40.60	26,000	1.270
MB-56080	Steel - Knife	15.24	9.52	38.10	9.52	30	38.10	M12	200.00	37,500	1.900
MB-56085	Steel - Blunt	15.24	9.52	38.10	9.52	30	38.10	M12	200.00	37,500	1.900

* D - Clamp Height

ID EXPANSION CLAMPS



The ID expansion clamps are an ideal way to hold multiple parts on an inside diameter for multiple machining on a vertical or horizontal machining center. Can hold internal diameters from under 3/16" to over 4". User can machine the mild steel clamp to match the bore of the part ensuring proper fit. The clamps can be quickly tightened with a hex key or can be mated to hydraulic pull cylinders for automation. The clamp screw is heat treated. Three mounting screws included.

INCH

Part #	A	B	C	D	E*	F	G**	H***	I	J	Torque (in/lbs)	Holding Force (lbs)
MB-31000	.42	.30	.24	.12	.787	.29	.16	2-56 on .540 BHC	2-56	.16	6	250
MB-31050	.86	.63	.59	.23	1.170	.49	.28	6-32 on .825 BHC	8-32	.30	43	950
MB-31100	.98	.75	.59	.23	1.240	.56	.48	6-32 on .910 BHC	1/4-20	.50	160	1,900
MB-31150	.98	.75	.59	.23	1.476	.79	.53	6-32 on 1.140 BHC	5/16-18	.56	331	2,500
MB-31200	1.13	.88	.69	.25	1.968	1.06	.71	8-32 on 1.550 BHC	3/8-16	.71	592	4,500
MB-31250	1.25	1.00	.81	.25	2.205	1.39	.90	8-32 on 1.790 BHC	1/2-13	.71	1,440	5,900
MB-31300	1.56	1.25	1.06	.31	2.736	1.65	1.15	10-32 on 2.200 BHC	5/8-11	.79	2,688	10,000
MB-31350	1.56	1.25	1.06	.31	2.972	2.03	1.15	10-32 on 2.515 BHC	5/8-11	.79	2,688	10,000
MB-31400	1.79	1.48	1.27	.31	4.232	3.06	1.15	1/4-20 on 3.646 BHC	5/8-11	.79	2,688	10,000
MB-31450	1.79	1.48	1.27	.31	5.232	4.06	1.15	1/4-20 on 4.648 BHC	5/8-11	.79	2,688	10,000

METRIC

Part #	A mm	B mm	C mm	D mm	E* mm	F mm	G** mm	H*** mm	I mm	J mm	Torque (Nm)	Holding Force (N)
MB-38000	10.7	7.6	6.1	3.0	20.00	7.40	4.1	M2 on 13.7 BHC	M2	4.10	.70	1,113
MB-38050	21.8	16.0	15.0	5.9	29.72	12.40	7.1	M3 on 20.95 BHC	M4	7.20	5.00	4,228
MB-38100	24.9	19.0	15.0	5.9	31.50	14.20	12.2	M3 on 23.1 BHC	M6	11.20	17.00	8,455
MB-38150	24.9	19.0	15.0	5.9	37.50	20.00	13.5	M3 on 29.0 BHC	M8	13.20	34.00	11,125
MB-38200	28.6	22.2	17.5	6.4	50.00	27.00	18.0	M4 on 39.4 BHC	M10	16.30	60.00	20,025
MB-38250	31.8	25.4	20.6	6.4	56.00	35.30	23.0	M4 on 45.5 BHC	M12	20.30	150.00	26,225
MB-38300	39.6	31.8	27.0	7.9	69.50	42.00	29.3	M5 on 55.9 BHC	M16	21.40	280.00	44,500
MB-38350	39.6	31.8	27.0	7.9	75.50	51.50	29.3	M5 on 63.9 BHC	M16	21.40	280.00	44,500
MB-38400	45.5	37.6	32.3	7.9	107.50	77.70	29.3	M6 on 92.6 BHC	M16	19.30	280.00	44,500
MB-38450	45.5	37.6	32.3	7.9	132.90	103.12	29.3	M6 on 118.06 BHC	M16	19.30	280.00	44,500

* E +.000/-0.002", +.000/-0.050mm

** G – The minimum diameter the F dimension can be machined or turned down to

*** H – 3 mounting screws included